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# TREATABILITY STUDY REPORT
# FINAL

Benning Road Facility
3400 Benning Road, NE
Washington, DC 20019



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3400 Benning Road, N.E.
Washington, DC 20019

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August 2021

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# List of Acronyms

| | |
|---|---|
| AC | activated carbon |
| ac | Acres |
| AECOM | AECOM Technology Services, Inc. |
| ARSP | Anacostia River Sediment Study |
| ASOS | Automated Surface Observation System |
| BAZ | Bioactive Zone |
| BERA | Baseline Ecological Risk Assessment |
| BHHRA | Baseline Human Health Risk Assessment |
| BMP | Best Management Practice |
| Bss | below sediment surface |
| cfs | cubic feet per second |
| cm | centimeters |
| cm/d | centimeters per day |
| cm/yr | centimeters per year |
| CMP | Corrugated Metal Pipe |
| COPC | Constituents of Potential Concern |
| CTE | Central Tendency Exposure |
| DI | Ductile Iron |
| District | District of Columbia |
| DOEE | District Department of Energy and Environment |
| DPW | D.C. Department of Public Works |
| DRO | Deisel-Range Organics |
| EMNR | Enhanced Monitored Natural Recovery |
| FAA | Federal Aviation Administration |
| ft | feet |
| FS | Feasibility Study |
| GAC | granulated activated carbon |
| GPS | Global Positioning System |
| HI | Hazard Index |
| In | inches |
| in/hr | inches per hour |
| KDCA | Ronald Reagan Washington National Airport |
| LOI | Loss on Igintion |
| M | meters |
| µg/kg | micrograms per kilogram |
| MLLW | mean lower-low water |
| MSL | Mean Sea Level |
| MTL | mean tide level |
| MNR | Monitored Natural Recovery |
| MSGP | Multi-Sector General Permit for Stormwater Discharges from Industrial Activities |
| NAVD88 | North American Vertical Datum of 1988 |
| ng/l | Nanograms per Liter |
| NOAA | National Oceanic and Atmospheric Administration |
| NPDES | National Pollutant Discharge Elimination System |

# List of Acronyms (continued)

| | |
|---|---|
| NPS | National Park Service |
| NRCS | Natural Resources Conservation Services |
| NTU | Nephelometric Turbidity Units |
| NWP | Nationwide Permits |
| ORO | Extended-Range Organics |
| Pa | Pascal (Newtons/Square Meter) |
| pg/l | picograms per liter |
| ppb | parts per billion |
| PAC | powdered activated carbon |
| PAH | Polycyclic Aromatic Hydrocarbons |
| PCB | Polychlorinated Biphenyl |
| PCDD | Polychlorinated Dibenzodioxin |
| Pepco | Potomac Electric Power Company and Pepco Energy Services, Inc. |
| RCP | Reinforced Concrete Pipe |
| RI | Remedial Investigation |
| RI/FS | Remedial Investigation/Feasbility Study |
| RME | Reasonable Maximum Exposure |
| ROD | Record of Decision |
| SPME | Solid Phase Microextraction |
| SWMM | Stormwater Management Model |
| SWPPP | Stormwater Pollution Prevention Plan |
| TR-55 | Technical Release 55 |
| TOC | Total Organic Carbon |
| TS | Treatability Study |
| TSS | Total Suspended Solids |
| TSWP | Treatability Study Work Plan |
| TPH | Total Petroleum Hydrocarbons |
| UMBC | University of Maryland Baltimore County |
| USACE | U.S. Army Corps of Engineers |
| USDA | United States Department of Agriculture |
| USEPA | U.S. Environmental Protection Agency |
| Yr | year |

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# 1 Introduction

The Potomac Electric Power Company (Pepco) is performing a Remedial Investigation/Feasibility Study (RI/FS) at Pepco's Benning Road facility (the Site), located at 3400 Benning Road NE, Washington, DC, and a segment of the Anacostia River (the River) adjacent to the Site, under the oversight of the District Department of Energy and Environment (DOEE). The location of the Site is depicted in **Figure 1-1**.

The Study Area for the RI/FS consists of a "Landside Investigation Area" focused on the Site itself, and a "Waterside Investigation Area" focused on the shoreline and sediments in the segment of the Anacostia River in close proximity to the Site. The areas encompassed by the investigation are shown on **Figure 1-2**. The purpose of the Benning Road facility RI/FS is to: (a) characterize environmental conditions within the Study Area, (b) investigate whether and to what extent past or current conditions at the Site have caused or contributed to contamination of River sediments, (c) assess current and potential risk to human health and the environment posed by conditions within the Study Area, and (d) develop and evaluate potential remedial actions, as may be warranted. The Final Remedial Investigation Report (Final RI Report) for the Benning Road Site was submitted to DOEE on February 28, 2020 and was approved by DOEE on March 02, 2020. The Final RI Report addresses the first three objectives outlined above, and the forthcoming FS Report will address the development and evaluation of potential remedial actions.

As part of the FS process, Pepco identified the need for a Treatability Study (TS) involving both field data collection and bench-scale studies to support the evaluation of potential remedial alternatives to address sediments in the Waterside Investigation Area. No such need was identified for the Landside Investigation Area to date (however, additional pre-design sampling will be performed to determine PCE plume sourcing and migration in the Landside Investigation Area and a final determination regarding the need for a landside treatability study will be made based on the results of this sampling).

The Waterside Investigation Area treatability studies will focus on the following key FS data needs:

- Analysis of the effectiveness of sequestration agents (the use of amendments to reduce bioavailability of contaminants by sorption) and other active and inert capping materials;
- Hydrologic/hydraulic data collection and outfall assessment to understand how these data may affect design and performance of remedial alternatives, including restoration;
- Geotechnical evaluations to determine the feasibility of capping systems and ex-situ sediment dewatering; and
- Sedimentation studies to evaluate the effect of ongoing upstream sources on the performance of remedial alternatives.

In November 2018, a Draft TS Work Plan (TSWP) for the Waterside Investigation Area was submitted to DOEE. The Draft TSWP was updated to reflect DOEE's review comments and provided to DOEE in December 2019 as a Draft Final document. In January 2020, DOEE provided comments on the Draft Final TSWP. The Final TSWP was updated to reflect this second round of DOEE comments and submitted to DOEE on March 13, 2020. DOEE approved the Final TSWP on March 18, 2020.

The TSWP outlined the scope of work for TS in the Waterside Investigation Area, with focus on the approximately 4.2-acre cove of the River which is located just north of the Site beyond the National

Park Service (NPS) Kenilworth Maintenance Yard property (the Cove). The Cove receives storm water conveyed from the Site via Pepco's outfall 013 and multiple additional non-Pepco outfalls, and is depicted in **Figure 1-1** and **Figure 1-2**.

## 1.1 Site Setting

The 77-acre Site is entirely fenced and access is controlled at all times. The former Benning Road Power Plant was located in the western portion of the Site until it was permanently shut down in 2012. Demolition and removal of the power plant building and related infrastructure was completed in 2015. Most of the Site is currently occupied by the Benning Service Center, which supports activities related to construction, operation and maintenance of Pepco's electric power transmission and distribution system serving the Washington, DC area. Three substations serving Pepco's transmission and distribution system are also located on this Site. The Site is separated from the Anacostia River by a thin strip of land a portion which is part of Anacostia Park and a portion of which serves as the National Park Service Kenilworth Maintenance Yard (as shown on Figure 1-2). The River is an urban tidal estuarine river corridor with multiple historical and current sources of contamination, both up- and down-stream of the Site.

## 1.2 Remedy Framework

The remedy framework proposed by Pepco for addressing areas of elevated sediment concentrations of constituents of potential concern (COPC) within the Waterside Investigation Area is intended to fit within the adaptive management strategy for the Anacostia River Sediment Project (ARSP) described in the Interim Record of Decision (ROD) released on September 30, 2020. The Interim ROD calls for eliminating exposure to eleven sediment "hot spots" within the DC portion of the ARSP Study Area through early actions. Sediment within the Waterside Investigation Area is being managed under a separate regulatory agreement and is, therefore, not included among these eleven Early Action Areas. The Interim ROD adopts an adaptive management approach to: (1) help reduce the uncertainties; (2) provide information on the performance of the interim remedial action; and (3) inform DOEE's subsequent remedial decision-making, which may involve additional remedial actions in the ARSP study area, or modifications to the selected interim remedy. Although source control is not part of the selected interim remedy, DOEE, in cooperation with the corresponding agencies from Prince George's County, Montgomery County, and the State of Maryland are engaged in efforts to control contaminant sources external to the ARSP study area in the upstream Anacostia River watershed. DOEE views such efforts as critical to achieving the overall cleanup of the study area water bodies (DOEE, 2020). This treatability study focuses on potential remedial alternatives to address elevated contaminant concentrations in the Cove, although the technologies evaluated may also be applicable to possible remedial actions elsewhere in the Waterside Investigation Area. The remedial actions supported by this TS are considered an early action and that, consistent with the adaptive management strategy for the ARSP, may need to be augmented by future actions by Pepco.

A substantial portion of the RI focused on field sampling and data analysis to define the nature and extent of COPCs in groundwater, soils, and Anacostia River sediment and surface water. Extensive RI data were collected during two phases of investigation, extending from 2013 to 2018, to document the presence and general distribution of COPCs. A number of different organic and inorganic constituents were detected in these environmental media, and potential risks associated with exposure to these constituents were evaluated in a Site-specific Baseline Human Health Risk Assessment (BHHRA) and a Site-specific Baseline Ecological Risk Assessment (BERA). Potential risks to various human and environmental receptors were evaluated using conservative risk analysis tools and an extensive Site-specific data set in accordance with U.S. Environmental Protection Agency (USEPA) and DOEE guidance. The human health risk assessment also evaluated fish consumption pathways, relying on fish tissue data collected by DOEE and others from the broader Anacostia River.

Within the Landside Investigation Area, the BERA and BHHRA determined that exposure to environmental media at the Site posed no unacceptable ecological risk and only limited potential risks to human health from potential future exposure to contaminated soil within the Site, given appropriate institutional controls (e.g., restricted access to subsurface soils and to uncharacterized portions of the site, such as switchyards). Although remedial action is potentially warranted within portions of the Landside Investigation Area, no treatability studies were deemed necessary at this time for the evaluation of remedial alternatives to address these Landside conditions.

Within the Waterside Investigation Area, potential risks to human health posed by exposure to water and surface sediments are all within EPA's acceptable risk ranges, and ecological risks posed by conditions in the Waterside Investigation Area are relatively low and not substantively different from risks at reference areas considered in the RI. The RI found that concentrations of polychlorinated biphenyls (PCBs) and other COPCs were elevated in surficial sediment in the Cove compared to background, and the BERA findings indicate a low to indeterminate potential for risks to benthic receptors exposed to surficial sediments in this area. The BERA determined that the bioactive zone (BAZ) in the Waterside Investigation Area ranges from 0 to 6 inches (typically 4 inches or less) and in the Cove, ranges from 0.16 to 4.76 inches in depth.

None of the potential cumulative receptor carcinogenic risks evaluated in the RI exceed the upper end of USEPA's target risk range of $10^{-6}$ to $10^{-4}$ for consumption of Upper Anacostia River fish for the reasonable maximum exposure (RME) scenario (for the purpose of the RI, the Upper Anacostia was operationally defined as the River reach that is upstream of the CSX bridge.). Noncarcinogenic hazards exceed USEPA's target hazard index (HI) of 1 for consumption of Upper Anacostia River fish. Fish consumption hazards estimated using data collected by DOEE throughout the Anacostia and Potomac Rivers likewise exceed the noncancer target HI of 1; these findings suggest multiple sources of PCBs and other urban contaminants, including upstream of the extent of the tidal influence of the Waterside Investigation Area. The RI further concluded that considerable uncertainties remain relative to the relationship between COPCs in sediment within the Waterside Investigation Area and Anacostia River fish tissue residues.

The FS will evaluate remedial alternatives to control exposure to soil at the Site and to address sediment conditions in the Waterside Investigation Area. In particular, eliminating exposures to contaminated sediment within the Cove is expected to reduce the overall surface weighted average of PCBs within the Waterside Investigation Area to a level consistent with existing currently measured local background conditions. Background threshold values (BTVs) of 182 parts per billion (ppb) for PCB Aroclors and 423 ppb for PCB Congeners were established in the Final RI (AECOM, 2020). The pre-remedial Surface Weighted Average Concentration (SWAC) of PCBs in the Waterside Investigation Area is estimated to be 334 ppb (measured as PCB Aroclors). A preliminary analysis indicated that active remediation of the surface sediment in the 4.2-acre Cove through capping or removal would reduce the SWAC in the overall Waterside Investigation Area to 195 ppb (measured as Aroclors), in line with the upstream currently-measured background conditions. Given the source control measures that will be undertaken for the ARSP, upstream background concentrations are expected to decline in future years, which could result in a new baseline for comparison.

## 1.3 Remedial Options to be considered in the Feasibility Study

In accordance with USEPA guidance and regulations, the FS for the Waterside Investigation Area will include an initial screening of a range of potential remedial options followed by a detailed evaluation of the most promising options. Technologies to be considered in the FS and the data needed to evaluate these technologies in the FS are summarized in **Table 1-1.**

**Table 1-1: Remedial Options to be Considered in the Feasibility Study**

| Remedial Approach | Description | Site Conditions Favoring | Data Need(s) |
|---|---|---|---|
| **Monitored Natural Recovery (MNR)** | Uses un-enhanced naturally-occurring processes to transform, immobilize, isolate, or otherwise remove COPCs | Where natural recovery processes are expected to continue at rates similar to existing conditions;<br>Where human exposure is limited or can be limited by institutional controls;<br>Where COPC exposures to biota are already approaching remedial cleanup levels;<br>Where the sediment bed is stable and likely to remain stable after remedial actions are completed. | Sediment stability: deposition rate, erosion potential, water depth/bathymetry, in-water and shoreline infrastructure, sediment hardness and slope conditions, and groundwater/surface water interactions<br><br>Sediment characteristics: Physical properties (grain size, density, consolidation), benthic community, and bioturbation<br><br>COPC characteristics: Horizontal and vertical distribution, COPC type and concentration in sediment and in surface water/outfalls, exposure pathways, mobility mechanisms, bioavailability and bioaccumulation potential, transformation, and degradation<br><br>Hydrodynamic assessment: groundwater/surface water interactions; tidal water fluctuation; surface water flowrates and velocities; outfall discharge |
| **Enhanced Monitored Natural Recovery (EMNR)** | Relies on one or more technologies (i.e., thin layer capping; reactive amendments) to enhance ongoing natural recovery processes while minimizing the effects on the aquatic environment | Same as MNR except can be applied where ongoing natural processes are slow as the technology will hasten recovery | *Same as MNR with the following additions*:<br><br>Constituent sequestration assessment: effectiveness of various types of amendment, dose rate of effective amendments (as function of sediment grain size and TOC) |
| **Capping** | Placement of granular material over sediments to reduce direct exposure; cap materials can be amended to attenuate contaminant flux | Where hydrodynamic conditions are not likely to compromise the cap<br><br>Where long-term risk reduction outweighs habitat disruption<br><br>Where sediment has sufficient strength to support the cap materials | *Same as MNR and EMNR with the following additions*:<br><br>Bathymetric characteristics: complete delineation of bathymetry for area/volume computations<br><br>Sediment bearing capacity: measure in situ sediment physical characteristics to assess strength<br><br>COPC isolation assessment: theoretical and empirical data used in modeling assessment to predict COPC mobility |

**Table 1-1: Remedial Options to be Considered in the Feasibility Study**
**(continued)**

| Remedial Approach | Description | Site Conditions Favoring | Data Need(s) |
|---|---|---|---|
| **Dredging/ Excavation** | Removal of sediment to either the depth of constituent impact or a shallower depth that meets the remedial goal | Where contaminant mass and risk of erosion make cap placement impractical<br><br>Where required to accommodate for placement of cap materials<br><br>Where long-term risk reduction outweighs habitat disruption | *Same as MNR, EMNR and Cap with the following additions*:<br><br>Sediment dewatering characteristics for mechanical and/or hydraulic dredging: grain size distribution with hydrometer; solids content and moisture content; TOC; various gravity, mechanical and centrifugal dewatering assessments; filtrate water quality assessment; amendment dewatering study |
| **Restoration** | Restoration of habitat disrupted by dredging and/or placement of cap | Where remedial activities disrupt habitat<br><br>Where existing habitat is compromised due to contamination which remedial activities ameliorate<br><br>Where integrating remediation and restoration activities provides value relative to regulatory framework | *Same as MNR, EMNR and Permeable Cap with the following additions*:<br><br>Plant community assessment: observation of plant species on and adjacent to restoration site; observation of substrate characterization with depth<br><br>Invertebrate community assessment will rely on benthic invertebrate data collected during the RI, supplemented by data to be collected as part of this TSWP |

Sources of information:
U.S. EPA, 2005.
ITRC, 2014.

## 1.4 Cap Amendment Selection

Pepco selected three activated carbon (AC) amendment types to be evaluated in the TS laboratory batch experiments. While the success of AC materials, such as granular activated carbon (GAC) and powdered activated carbon (PAC), is well documented for in-situ treatment of hydrophobic organic compounds such as PCBs, the delivery of bulk AC in submerged aquatic environments can be challenging. Therefore, various AC dry broadcast delivery products, such as SediMite™ and permeable AquaGate+® products, were selected for inclusion in this assessment. A description of these products and their applications is provided below. All three products chosen for testing are readily available in bulk quantities needed for full-scale treatment.

**Bulk Activated Carbon (GAC/PAC)**: Bulk AC, including PAC and GAC, can be applied directly to in-situ sediments for sequestration of hydrophobic organic compounds, such as PCBs, or these materials can be mixed with sand to form a permeable thin layer cap system. There are substantial delivery challenges associated with use of PAC as a stand-alone remedy in a system such at the Anacostia River; therefore, this TS focuses on use of bulk GAC, which can be applied directly to sediment as a stand-alone technology or mixed with capping materials to enhance performance of the cap. When used as a stand-alone technology, GAC relies on bioturbation and other natural processes to distribute AC throughout the BAZ. GAC procured from Calgon Corporation (F-300 with 20 to 50 mesh size) was selected for the bench-scale studies. This coal based activated carbon was recently specified for a large-scale GAC application project for the remediation of Spirit Lake Estuary Site in Duluth Minnesota.



Granular AC F-300 mixed with sand prior to SEDflume study (photo provided by Integral).

**SediMite™**: SediMite is a patented pelletized material containing high doses of AC (50% by dry weight) that is designed to deliver AC to in-situ sediments. SediMite pellets can use varying sizes of AC. In the current study, AC sourced from virgin coal with a size range of 80 to 325 mesh was used. Once deployed, SediMite pellets sink forming a thin, permeable layer on the sediment surface. SediMite pellets break down over a period of time (which can be engineered to range from one week to several months, depending on the site characteristics and project requirements) releasing AC into the aquatic environment. Over time, the AC becomes incorporated into the sediment BAZ via natural process such as bioturbation, further stabilizing the material into the surface of the sediment. SediMite can be deployed either as a stand-alone response action, or can be mixed with sand or other inert materials as part of a capping system. When used as a stand-alone technology, SediMite relies on bioturbation and other natural processes to distribute AC throughout the BAZ.



SediMite Pellets (Source: http:/www.sedimite.com)

**AquaBlok® Delivery Products:** AquaBlok® delivery products include AquaGate®+PAC (powdered activated carbon with <325 mesh size), a patented AC delivery product that is manufactured by AquaBlok, Ltd. AquaGate+PAC is a composite-aggregate material comprised of a dense aggregate core surrounded by a mixture of clay or clay-sized particles, polymers for binding, and PAC (5%, 10%, or custom concentration by dry weight). AquaGate+PAC sinks, to form a thin layer of AC-rich material on the sediment surface. AquaGate+PAC can be deployed either as a stand-alone response action, or can be mixed with sand or other inert materials as part of a capping system. When used as a stand-alone technology, AquaGate+PAC relies on bioturbation and other natural processes to distribute AC throughout the BAZ. AquaGate+PAC made with 10% PAC by weight sourced from lignite-based activated carbon was selected for use in the bench-scale studies.



AquaGate+PAC
(Source: http:/www.aquablok.com)

# 2 Sample Collection and Field Testing

## 2.1 Overview

Field activities to support the TS were initiated on May 18, 2020, and were conducted in accordance with the approved TSWP and US EPA's Guidance for Conducting Treatability Studies under CERCLA (EPA, 1992). The scope of work included the following: hydrologic/hydraulic assessment, sedimentation assessment, seepage measurements, Cove ecological survey, sediment stability assessment, sediment dewatering study, and sequestration study. The specific field tasks and locations including coordinates are presented in **Table 2-1** and field-testing locations are provided on **Figures 2-1 to 2-9**. A photolog documenting field activities is provided in **Appendix A**.

Several permits from regulatory and other government agencies were obtained prior to initiating TS field activities. These took the form of either new permits or modifications to the permits previously obtained for the RI/FS work, and included a Special Use Permit obtained from National Park Service to conduct sediment testing, a Nationwide Permit from USACE to conduct data collection and field sampling, a Water Quality Certification from DOEE for river sediment sampling, and a Scientific Research Permit from DOEE to capture, handle, and collect aquatic specimens for scientific purposes. These permits are summarized in **Table 2-2**. Pepco mobilized to the site on May 18, 2020, following receipt of all permits with the exception of the Scientific Research Permit, which was approved on June 3, 2020. There were several delays in securing permits, mobilizing field sampling teams, and setting up laboratory tests due to restrictions associated with COVID-19, which resulted in the delay of the Treatability Study field work schedule.

## 2.2 Hydrologic/Hydraulic Data Collection, Sedimentation Assessment

Hydrologic and hydraulic data were collected as part of this TS to support the evaluation of multiple components of various remedial scenarios. For the MNR and EMNR remedial scenarios, hydrologic data are needed to assess the physical stability of in situ sediment. The physical data required for assessment of MNR and EMNR will also be used to confirm capping system material stability. Updated bathymetric data are needed to support MNR, EMNR, capping system, and dredging remedial scenario evaluations, as well as restoration planning.

Hydrologic/hydraulic parameters included in this study include, (a) flood levels and seasonal flow conditions (e.g., velocities and shear stress during major flood events), (b) tidal fluctuation/inundation levels in relation to surface elevations, (c) quality, volume, and velocities of flows into the Cove from existing discharge outfalls under proposed scenarios, and (d) effects on riverine hydrodynamics from surface contour and hydrology changes in the Cove. This information is needed to assess the suitability and sustainability of the remediated Site to support wetland plant species given the tidal fluctuation/inundation and various hydrologic inputs to the system. In addition to collecting accurate bathymetry and flow data, there is a need to better understand groundwater hydrology flux into the overlying sediment within the Cove. This information will help inform the need for amendments as well as the selection of granular backfill materials.

Sedimentation assessment involved installing several sediment traps to measure quality and quantity of sediment deposition to help with the evaluation of MNR/EMNR and potential for recontamination of any capping-type remedies in the Cove.

### 2.2.1 Topographic and Bathymetric Survey

Bathymetric and side scan sonar data for the Waterside Investigation Area were previously collected in 2013 via hydrographic survey. These data are referenced to the Mean Lower-Low Water (MLLW) datum and the North American Vertical Datum of 1988 (NAVD 88), and provide good coverage in the river channel and into the western part of the Cove. Due to limitations in the technologies used in this hydrographic survey, and the shallow water depths in the Cove, the investigation area did not span the extent of the entire Cove.

Mercado Consultants, Inc. (Mercado) of Ashton, MD, a qualified DC-licensed surveyor, and Gahagan & Bryant Associates, Inc. (GBA) of Virginia Beach, VA were retained to survey the Cove area and collect additional bathymetric data from the Waterside Investigation Area; these areas are identified on **Figure 1-2**.

The Cove survey was conducted by Mercado between May 18, 2020 and May 29, 2020. Given the limited water depth in the Cove, the survey was conducted at low tide using upland topographical survey techniques. The limit of the survey extended approximately 50 feet beyond the Cove boundary towards landside to cover the entire Cove and the landside areas surrounding the Cove. A small landside area to the southwest of the Cove and adjacent to Anacostia River was also surveyed. On June 9, 2020, GBA completed a bathymetric survey of the Waterside Investigation Area. The bathymetric survey was conducted from a boat fitted with ODOM CV100 (200 kHz) echo sounder to measure the water depth under the boat.

### 2.2.2 Tidal and Current Monitoring

#### 2.2.2.1 Surface Water Stations

Three surface water stations, each equipped with a pressure transducer datalogger, were installed in the Waterside Investigation Area during June and July 2020 to support the hydrodynamic analysis and design of the remediation. The stations are located downstream of the Cove near the Benning Road Bridge (TRANS-01), upstream of the Cove (TRANS-02), and in the Cove (TRANS-03), as depicted in **Figure 2-2**.

The transducer stands were constructed on June 17, 2020. The TRANS-01 stand was installed on one of the protective wood pilings under Benning Road Bridge. The TRANS-02 and TRANS-03 stands were each installed on a T-post which was directly inserted into the sediment. The stands consist of 2-inch PVC pipe with a lower section of slotted screen, a polyethylene box, and a 4-foot staff gauge. The PVC pipe was capped at the bottom and mounted vertically to the wood piling (TRANS-01) or T-post (TRANS-02 and TRANS-03) via metal clamps and screws. A lid and a lock were added to the top of the PVC pipe. A polyethylene box to hold remote monitoring system equipment was mounted at each location, either near the top of the PVC pipe or on the T-post, and was secured by a lock. Additionally, staff gauges were installed at each location. (See **Appendix A**, Photos 9 and 11 to 15.)

On July 9 and 14, 2020, Mercado surveyed the transducer top of casing elevations to the North American Vertical Datum of 1988 (NAVD 88). On July 17, 2020, the staff gauge heights were calibrated by Mercado and set to MLLW.

On July 15, 2020, the remote monitoring system (vanEssen Diver-Link telemetry unit and a vanEssen Diver datalogger) was installed at each surface water station. The Diver-Link unit was placed inside the polyethylene box. The Diver datalogger was connected to the Diver-Link unit via a data transmission cable and lowered into river water inside the PVC pipe. The Diver dataloggers at TRANS-01 and TRANS-02 were adjusted to a depth in the water so that it remained above the sediment and fully submerged in

the water at all times. However TRANS-03, installed in the Cove, was set at a location that goes dry at low tide. All remote monitoring systems were configured per manufacturer instructions and set up to record data on water level (pressure), water temperature, and conductivity every five minutes. The recorded data is remotely transferred daily to Diver-Hub, a cloud-based web portal system for real-time data monitoring. Installation details are provided in **Table 2-3** below.

**Table 2-3: Surface Water Station Summary**

| Location ID | Date Installed (Datalogger) | Top of Casing Elevation (ft)* | Location Relative to the Cove | Northing** | Easting** |
|---|---|---|---|---|---|
| TRANS-01 | 7/15/2020 | 7.072 | Downstream | 448217.393 | 1323232.324 |
| TRANS-02 | 7/15/2020 | 5.992 | Upstream | 450557.709 | 1323825.263 |
| TRANS-03 | 7/15/2020 | 4.864 | Cove | 449684.952 | 1324177.091 |

*Vertical Datum: NAVD 88
**Coordinate System: US State Plane 1983/ NAD 83/Maryland 1900/ US survey Feet

To capture the seasonal water level variation, monitoring will continue over a 12-month period. On August 27, 2020, October 1, 2020 and December 29, 2020, all three stations were visited for routine maintenance. At each station, the Diver datalogger was retrieved from the casing, cleaned of accumulated mud/debris on the surface, and reinstalled. Following cleaning, the datalogger was reinstalled to the same elevation, which is marked on the transducer cable. Time was recorded for when the datalogger was retrieved and reinstalled. It is anticipated that routine maintenance events will be needed approximately once a month to once every other month.

### 2.2.5.2 Acoustic Doppler Current Profiler (ADCP)

The ADCP data collected as detailed below will be used in future hydrodynamic analyses in support of the remedy design for the Cove area. The future analyses may include sediment scour calculations and estimation of sediment CAP thickness and armor size to minimize scour.

***ADCP Setup, Deployment and Recovery Specifics***

ADCP field measurements included the setup and deployment of two ADCP units to monitor river flow for a period of one month along the north transect and for approximately 20 days along the south transect (**Figure 2-2**). Two acoustic doppler current profiler (ADCP) units (ADCP-01 and ADCP-02) were deployed in the river near the Cove area on July 29, 2020, as depicted in **Figure 2-2**. The ADCPs were used to measure water current velocities over a depth range using the Doppler effect of sound waves scattered back from particles within the water column. Each ADCP unit was mounted to a customized metal frame (with dimensions of about 1 ft × 1 ft × 4 ft) and transported to deployment location via boat. The metal frame was slowly lowered to the river bottom via a single fixed pulley on the boat crane. The ADCP unit was adjusted to be positioned parallel to the anticipated overall current direction at the deployment location. ADCP-1 was positioned parallel to the River and ADCP-2 was positioned at an angle towards the Cove. The ADCP units were left in place to collect current data for approximately four weeks.

On August 27, 2020, to better understand the river currents in proximity to the Cove, the two ADCP units were retrieved from river bottom and deployed at two new locations (ADCP-03 and ADCP-04), as depicted in **Figure 2-2**. ADCP-3 was positioned at an angle towards the Cove and ADCP-4 was positioned parallel to the River. The two units were left in place until ADCP-03 was retrieved from river bottom on September 17,

2020 and ADCP-04 on October 1, 2020. The ADCP units were removed from the metal frames and sent to data processing facility for data retrieval.

The ADCP location coordinates, and deployment and recovery dates, are presented in **Table 2-4**. ADCP deployment and recovery pictures are provided in **Appendix A** (photos 16-19).

**Table 2-4: ADCP Location Coordinates, Deployment, and Recovery Dates**

| Location ID | Install | | Water Depth Install (ft) | Recovery | | Northing* | Easting* |
|---|---|---|---|---|---|---|---|
| | Date | Time | | Date | Time | | |
| ADCP-1 (River) | 7/29/2020 | 0934 AM | ~7.0 ft | 8/27/2020 | 0850 AM | 450025.7 | 1323676 |
| ADCP-2 (CHANN) | 7/29/2020 | 1019 AM | ~4.5 ft | 8/27/2020 | 1030 AM | 449982.1 | 1323728 |
| ADCP-3 (CHANN) (formerly ADCP-2) | 8/27/2020 | 1100 AM | ~2.5 ft | 9/17/2020 | 1405 PM | 449692.1 | 1323579 |
| ADCP-4 (River) (formerly ADCP-1) | 8/27/2020 | 0945 AM | ~7.0 ft | 10/1/2020 | 0905 AM | 449759.4 | 1323477 |

*Coordinate System: US State Plane 1983/ NAD 83/Maryland 1900/ US survey Feet

***ADCP Channel Measurements***

The ADCP near the Cove named "CHANN" station was initially deployed on July 29, 2020 (site 2). The station was recovered and redeployed to a second location on August 27, 2020 (site 3). The CHANN ADCP was relocated because the first deployment location was several feet deeper than the planned location and not as far into the "channel" of the cove as expected, due to site inaccessibility from the vessel. The CHANN ADCP did not experience any debris fouling issues.

The original deployment site was anticipated to be positioned at river depth of 3 to 6 feet, based on preliminary planning. However, due to access difficulties the actual installation depth was deeper. Further complicating the first deployment was the steep slope of the bathymetry at the deployment site (from offshore to inshore near the cove area). This resulted in a moderately tilted instrument frame, slightly reducing the effective range of the ADCP.

Due to the deeper deployment site and the steep bathymetry causing frame tilt, there are periods during mid-to-high portions of the tidal cycle that the ADCP signal did not reach the water surface, and the velocity profile did not capture the complete water column. The second deployment location was in shallower water in line with the expected range of water depths for the deployment. Otherwise, all data were free of debris impact or other acoustic interference issues except for data collected during a very brief period (September 8, 2020 from 10:30 to 12:30) that were removed from the processed dataset due to signal interference within the water column (possible fish, leafy debris, etc.). On September 11, 2020 at 12:50, the ADCP battery began failing and all data from this point and after were removed from the processed dataset. ADCP instruments collect current and directional data in the water column in 0.1 meter slices. Data for each slice is saved to a bin sequentially numbered beginning with Bin 1 at 0.5 m above the mudline. Additional station information, such as average water depth, number of valid bins, ADCP bin size, ADCP record interval and ADCP bin heights above seabed (m) are presented in **Table 2-5**.

***ADCP River Measurements***

The ADCP at the "RIVER" station was initially deployed on July 29, 2020 (site 1). The ADCP was recovered and redeployed to a second location on August 27, 2020 (site 4). The second location was in similar river depth and approximately 100 m downriver of the first deployment location. The RIVER ADCP experienced extensive debris fouling and entanglement during extended periods of this deployment, as summarized below:

ADCP data in bins 1 and 2 were removed from the post-processed dataset due to acoustic signal interference and fouling in the immediate vicinity of the transducer head for the following periods:

- 8/4/2020 08:50 to 8/27/2020 08:50
- 9/3/2020 18:30 to 9/10/2020 14:00

It is noted that both interferences occurred immediately after the onset of high flow events, indicating that debris was likely brought downriver and entangled with the instrument frame, but not necessarily affecting the entire acoustic profile.

It should be noted that these two time periods were also characterized by very low signal-to-noise ratios in one of the transducer beams, indicating at least some partial signal blockage. Due to the acoustic signal blockage, the remaining bins of data (bins 3 and above) during the above time periods should be used with caution, depending on the data use goals. The data appear of good quality, but the signal strength in one beam was near the noise floor.

On September 10, 2020 at 14:00, the ADCP and frame were completely covered by debris, eliminating transmission of the acoustic signal; all data beyond this time were removed from the processed dataset. The ADCP battery died shortly thereafter on September 12, 2020. Additional station information, such as, average water depth, number of valid bins, ADCP bin size, ADCP record interval and ADCP bin heights above riverbed (m) are presented in **Table 2-5**.

### 2.2.3 Outfall Monitoring

The objectives of the outfall evaluation conducted for the Cove were to: (a) evaluate hydrology at the end-of-pipe at each outfall, (b) assess the potential for recontamination as a result of discharge from each outfall, and (c) assess the sedimentation contribution from each outfall. To support these objectives, data collection activities as described herein were performed between July and October of 2020 except as noted otherwise.

As described in the March 2020 TSWP, four outfalls were known to discharge into the Cove; one additional outfall was identified during the TS field work in summer 2020. These five outfalls are summarized in **Table 2-6** and are shown in **Figure 2-3** (see also **Appendix A**, Photos 1-4). One of these outfalls is from the Pepco Benning facility (Outfall 013 under the facility's NPDES permit). Three of the outfalls drain stormwater from the waste transfer station located just east of the Cove. These discharges are authorized under the U.S. Environmental Protection Agency's NPDES Multi-Sector General Permit for Stormwater Discharges from Industrial Activities ("MSGP"). The stormwater drainage system at the facility was confirmed by recent evaluations conducted by the D.C. Department of Public Works ("DPW") (including CCTV inspection). These outfalls are referred to by DPW as outfall "POD-002," and "POD-003". POD-002 discharges stormwater collected in drop inlets draining the area to the south of the waste transfer building. POD-003 was recently determined by DPW to be connected to drop inlets in the drive area at the southwest corner of the waste transfer station site (and may drain other areas as well). The sources of the other two outfalls are unknown, but based on their orientation, they may drain areas of the National Park Service Kenilworth Maintenance Yard located adjacent to the south shore of the Cove. Information recently obtained from DPW confirmed that there is a sixth outfall that discharges into the Cove. Referred to by DPW as POD-001, this

outfall is connected by an underground pipe to a bioretention pond located in the northwest corner of the waste transfer station site that collects roof drainage from the waste transfer station building and water collected in the drainage swale along the northern property boundary. The discharge from this outfall also is authorized under the MSGP. This outfall and the associated drainage pipe are depicted on **Figure 2-3**. See also photo 4B in **Appendix A**. Previously believed to be a culvert that conveyed surface flow under the Anacostia Riverwalk Trail, this outfall was not sampled during the Treatability Study field investigation. However, the results of periodic sampling of this outfall (as well as DPW POD-002) by DPW pursuant to the MSGP are provided at **Appendix C**.

**Table 2-6: Summary of Outfalls Discharging to Cove**

| Outfall | Pipe Size | Invert Elevation* | Source |
|---|---|---|---|
| 1 | 21" RCP | 2.47' | DPW Transfer Station (POD-002) |
| 2 | 54" CMP External, 36" DI Internal | -1.42' | Pepco (Facility Outfall 013) |
| 3 | 12" RCP | 2.60' | DPW Transfer Station (POD-003) |
| 4 | 15" CMP | 2.67' | Unknown |
| 5 | 12" RCP | 5.51' ** | Unknown |
| 6 | 12" RCP | not measured | DPW Transfer Station (POD-001) |

*Elevations shown use the NAVD88 datum as identified in 2020 site survey.

**Site survey captured top of pipe elevation. Estimated invert shown here based on 12" diameter and assumed 3" pipe wall thickness.

In addition to the six discharge outfalls described above, there are four culverts that convey surface stormwater flow under the Anacostia Riverwalk Trail (two located just east of the Cove and two located just south of the Cove). Discharges from these culverts flow over the ground surface into the Cove. The culverts and associated discharge points are identified on **Figure 2-3** (see also **Appendix A**, Photo 5).

On April 2, 2021, a site visit was conducted to assess a silt pond located on the south portion of the KPS property near the Cove. Although no discharge from the pond was observed during the site visit, a riprap spillway was observed on the southwest side of the pond, which discharges to the north shore of the Cove. According to NPS, silt ponds were constructed on the north, east and south sides of the KPS to collect surface water runoff and allow for sedimentation prior to discharge to the adjacent surface water features during overflow events (NPS, 2008). The location of the south silt pond and riprap spillway are identified on **Figure 2-3** and photos are included in **Appendix A**.

To further assess potential contributions to the Cove from surrounding sites, the following additional sampling is planned: (i) stormwater discharge from DPW POD-001, (ii) soil and sediments on each side of the four culverts under the Riverwalk Trail, and within the spillway of the silt pond at the KPS site, and (iii) water and sediments from the silt pond. If feasible, stormwater samples may be collected from discharges from the culverts and spillway. Samples will be analyzed for PCB congeners as well as dioxins and furans. An addendum to this report will be prepared to document the results of this additional sampling.

#### 2.2.3.1 Flow Data Collection

To support the end-of-pipe hydrologic analysis, flow data were collected at Outfalls 1, 3, and 4, using live flow transducers (vanEssen TD-Divers) installed at the end of the pipe and connected to data logger units (Nexsens X2 Data Loggers). These sensors monitored discharge rate and water level in each outfall every 15 minutes. Data collection commenced from these transducers on July 31, 2020.

At Outfall 5, the installation of a live flow transducer was inhibited by debris and the deteriorating state of the outfall conduit. Consequently, flow data were collected using a "bucket test" which estimated flow by timing

how long it took for the discharge to fill a 5-gallon bucket. These measurements were conducted three separate times during wet weather.

As shown in **Table 2-6**, Outfall 2 is a 36-inch pipe concrete-encased within a 54-inch exterior pipe. The 54-inch exterior pipe extends about two feet beyond the end of the inner 36-inch conveyance pipe, complicating the installation of any monitoring device. In addition, the invert of Outfall 2 made it difficult to customize an insert for a flow meter and a sediment trap. The invert of the discharge pipe is below the water level in the Cove and subject to tidal influences impeding the use of "bucket tests". As a result, no flow measurements were taken for this outfall as part of the TS field work. As discussed below, flow and drainage area data for this outfall were obtained from prior site evaluations

#### 2.2.3.2 Outfall Stormwater Sampling

Stormwater grab samples were collected from five of the six outfalls discharging to the Cove during three storm events: July 22 (Outfalls 1, 2, 3, and 5), August 13 (Outfall 4) and October 29 (all five outfalls). At each outfall location, a decontaminated dipper was used to collect effluent from each pipe before it mixed with water in the Cove. Samples were then transferred to sample bottles and packed on ice for transport to Eurofins TestAmerica. Samples were analyzed for Total Suspended Solids (TSS) (method 2540-D), Total PCBs (method E1668C), Total Metals (method SW6020A), Total Polycyclic Aromatic Hydrocarbons (PAHs) (method SW8270D LL), and Total Petroleum Hydrocarbons – Diesel-Range Organics/Extended-Range Organics (TPH-DRO/ORO) (method SW8015D DRO).

#### 2.2.3.3 Sediment Trap Installation

During the installation of flow transducers at Outfalls 1, 3, and 4, traps were placed at the ends of each outfall to collect sediment entrained in the discharge. The accumulated contents of each trap were collected on October 15 and sent to Eurofins TestAmerica for analysis. Sediment samples were analyzed for Total PCBs (method E1668C), Total Organic Carbon (method LKTOC), Total Metals (method SW6020A), DRO/ORO (method SW8015C DRO), Total PAHs (method SW8270D LL), and Total Polychlorinated Dibenzodioxins (PCDDs) (method SW8290A).

### 2.2.4 Sedimentation Study

The purpose of the sedimentation study was to collect information to further evaluate sedimentation characteristics of the Cove to support the assessment of depositional rates and verify the stability of amendments placed for purposes of EMNR as well as for capping system design.

As reported in the RI, radio-isotope dating of a sediment core collected in the Cove was completed to assess sediment stability and understand sediment deposition rates. Data from this core indicate a deposition rate of approximately 1 centimeter/year (cm/yr) in the Cove. As part of the Treatability Study sediment traps and mats were used to develop further understanding of the current rate and extent of the observed sediment deposition in the Cove.

Standard sediment traps were initially proposed to be placed inside the Cove to assess sediment accumulation over a set time period. However, upon investigation it was determined that insufficient water depths were present in the Cove to effectively submerge the standard sediment traps. Therefore, the proposed standard sediment traps were relocated to areas in the river to ensure that the minimum water depth requirements were met (water level at least 1 to 2 feet above the sediment traps at low tide). In the Cove, sediment mats were used in lieu of sediment traps. These mats can be used in shallow inter-tidal zones and are a modified approach that utilizes nylon carpet squares to capture sediment deposition.

### 2.2.4.1 Standard Sediment Traps

Three standard sediment traps (SEDTRAP-01, SEDTRAP-02, and SEDTRAP-03) were installed on June 16, 2020 at locations depicted in **Figure 2-4**. The sediment trap design was similar to that used for the New Bedford Harbor Superfund Site. Each trap consisted of a 1-gallon jug fitted with an entrance funnel and placed inside a 5-gallon bucket weighted by stones. Each sediment trap was placed on the river bottom and marked with a buoy tied to the bucket via rope.

The sediment traps were to be left in place for a period of a few weeks to three months to assess sediment accumulation. However, each of the sediment traps was displaced and required resetting during that period. On July 13, 2020, SEDTRAP-01 was found at a location downstream of where it was installed. On July 14, 2020, SEDTRAP-02 was found at location upstream of where it was installed. These two sediment traps may have been moved by intensive floods/flows or large floating trees/logs in the river. On July 14, 2020, both SEDTRAP-01 and SEDTRAP-02 were cleaned and reset at their original installed locations. On August 27, 2020, SEDTRAP-03 was found tangled with a large floating log and had been moved downstream. SEDTRAP-03 was cleaned and reset at the original installed location on August 27, 2020.

On September 17, 2020, each of the standard sediment traps was retrieved from the river bottom. Depth of accumulated sediment was measured, and sediment samples were collected for laboratory analysis. The samples were labeled with sample location, date and time, and packed on ice in a cooler submitted to Eurofins TestAmerica for analysis of total organic carbon, PCB Congeners, grain size and bulk density.

### 2.2.4.2 Sediment Mats

Nylon carpet square mats were installed at three locations (SEDMAT-01, SEDMAT-02, and SEDMAT-03) in the Cove, as depicted in **Figure 2-4**. SEDMAT-01 and SEDMAT-02 were installed on June 17, 2020, and SEDMAT-03 was installed on June 22, 2020. At each location, four 2×2-foot mats were placed on top of the sediment during low tide, with all four mats spaced evenly to form a circle of approximate eight feet diameter. Each mat was secured to the sediment via thin iron wire at four corners with no overlap with other mats. These mats have a surface roughness that limits loss of sediment from flooding events and are readily installed on irregular inter-tidal surface. The mats were left in place for approximately four months. Precaution was taken at all times to avoid disturbing the accumulated sediment on the mats during deployment.

On October 15, 2020, sediment thickness was measured and samples were collected at all three locations. Sampling was conducted during low tide while the sediment mats were fully exposed. Sediment thickness was measured on only one of the four mats at each location to avoid disturbing the other three mats. Using a metric ruler, nine separate measurements were collected to provide an average sediment thickness at each location. Following measurement collection, sediment samples were collected from the mat and submitted for laboratory analysis. The samples were labeled with sample location, date and time, and packed on ice in a cooler submitted to Eurofins TestAmerica for analysis of total organic carbon, PCB Congeners, and grain size.

In order to further evaluate sediment accumulation, one undisturbed sediment mat at each location was used to determine total sediment mass. Taking great care to avoid sediment loss, the entire accumulation of sediment on a single mat was deposited into laboratory provided pre-tared gallon sized jugs using a dedicated HPDE scoop. The filled jugs were labeled with sample location, date and time and submitted to Eurofins TestAmerica at ambient temperature to calculate total wet sediment weight and analyze percentage of solids.

In order to account for the sediment remaining in the nap on the surface of the cleared mats, the cleared mats were submitted to the laboratory to measure the remaining sediment. Prior to packing the mats for shipment to the lab, a spray bottled filled with distilled water was used to remove sediment adhered to the underside of the mat only. For each location, the sediment mat and scoop used to collect the sediment were placed in an oversized plastic bag labeled with sample location, date and time, and were submitted to Eurofins TestAmerica for analysis of rinsed sediment dry weight.

## 2.3 Seepage Measurements

Seepage velocity is a key parameter for cap design. The rate of seepage through the overlying sediment varies over time and with location based on the tidal fluctuations and groundwater discharge dynamics. Therefore, the objectives of seepage study are to:

1. Measure groundwater seepage velocity at three locations in the Cove; and
2. Measure change in groundwater seepage velocity after amendment of sediments with sorbent materials being tested as part of the treatability study (granular activated carbon [GAC], AquaGate®+PAC, and SediMite™)

The first objective of the study was achieved by installing seepage meters in the Cove. A laboratory study was performed to address the second objective.

### 2.3.1 Field Measurements

In order to measure groundwater seepage velocity into the overlying sediment, three seepage meters constructed by UMBC were deployed at three locations (SEEP-01, SEEP-02, and SEEP-03) in the Cove area, as depicted in **Figure 2-5**. The seepage meters for this study were based on the design described in USGS (2008) which is an adaptation of the original design by Lee and Cherry (1978). As illustrated in **Figure 2-6**, the meters were constructed out of 55-gallon plastic drums that were cut in half. The drums were fitted with a vent tube and a tube with a stopcock that was connected to a 4L seepage collection bag. A total of four seepage meters were fabricated (three for deployment in the field and a fourth one as backup).

The seepage meters were installed in the field by UMBC with assistance from AECOM field crew. Based on the available bathymetry data presented in the TSWP, all three sampling locations were expected to be under less than two feet of water at low tide. Therefore, installation was performed at low tide for easiest access to the sediment surface. The open side of the half drum was inserted into the sediment bed leaving about 6” above the sediment surface. The seepage meters were installed at the three proposed locations in the Cove as indicated in the TSWP. The meters were allowed to equilibrate for more than a week in the field before performing measurements.

To perform the seepage measurement, the 4L plastic bag was first filled with 1L of water and then attached to the collection tube. The stopcock in the collection tube was opened to allow the flow of water between the collection bag and the drum. After 0.5-1 hour of operation, the stopcock was closed and the collection bag removed. The change in volume of water in the bag was used to calculate the seepage volume. A net gain in the volume of water indicates flux into the River and a net loss in volume indicates flux into the subsurface sediments. The change in volume during the period the bag was attached is the volumetric rate of flow through the portion of the sediment bed covered by the drum (volume/time). The volumetric rate can then be divided by the area covered by the drum to express seepage as a flux velocity (distance/time).

Two sets of measurements were performed:

1. Multiple measurements during a rising tide cycle on October 18, 2020
2. Multiple measurements during a falling tide cycle on October 28, 2020

In addition to the seepage measurements, shallow sediment samples were collected at the three seepage meter locations on September 17, 2020 to assess the physical characteristics of the sediment, including grain size and bulk density to support the seepage meter data evaluation. Using a shallow push corer, sediment samples were collected from the top 1-foot of sediment at the seepage meter locations shown on **Figure 2-5**. The samples were packed in a cooler with ice and submitted to Eurofins TestAmerica for grain size analysis.

### 2.3.2 Collection of Cores for Laboratory Study

A laboratory study was designed to investigate the change in groundwater seepage velocity of sediments after amendment with sorbent materials being tested as part of the treatability study (GAC, Aquagate+PAC, and SediMite). This study was conducted using the sediment cores collected in the Cove. A total of eight undisturbed sediment cores were collected from the Cove to perform laboratory measurement of the change in seepage with sediment amendments. The eight cores were manually collected in the vicinity of the Seepage Meter 2 at low tide using pre-marked 2-inch PVC tubes, advanced to a depth of 1-foot. Laboratory seepage study is further described in **Section 3.3.2**.

## 2.4 Cove Ecological Survey

To evaluate possible restoration actions as part of the remedial alternatives to be considered in the FS, an assessment of current ecological conditions within the Cove was completed. This assessment included the collection of benthic community data in the Cove, review of existing benthic community data collected as part of the RI, and an ecological survey to obtain a detailed inventory of the plant community in areas where submergent/floating-leaved plant communities exist within the Cove.

### 2.4.1 Vegetation Survey

A vegetation survey was conducted by an AECOM wetland scientist on May 18, 2020 to characterize the baseline conditions of the vegetation community present in the Cove. There is currently a discrete area in the north-central portion of the Cove that appears to be slightly shallower and supports a submerged/floating-leaved plant community. A detailed inventory of the plant community within this portion of the Cove, in relation to survey information and surface water flow conditions, can assist in evaluating potential tidal marsh restoration alternatives that consider plant species, surface elevations, and substrate conditions.

In addition to the wetland vegetation identified in the Cove, a cursory review of multiple surrounding freshwater tidal marshes was also completed. The evaluation of surrounding tidal emergent marsh communities also provides biological analogs that inform design efforts for tidal marsh restoration.

### 2.4.2 Macroinvertebrate Community Survey

A focused infaunal macroinvertebrate survey was conducted to supplement the existing benthic infauna data, which were collected as part of the Benning RI. R.J. Diaz and Daughters (Diaz) of Ware Neck, VA and Normandeau Associates, Inc. (Normandeau) of Stowe, PA were retained to support the supplemental macroinvertebrate community survey within the Waterside Investigation Area. The survey was conducted using artificial substrates (Hester-Dendy samplers) to characterize the composition and diversity of the

community currently present in the Cove. The sampling methods are similar to those used in the ARSP RI. Locations that are permanently inundated were identified for deploying the Hester-Dendy samplers to ensure that the samplers remain submerged during low tide. On June 16, 2020, three Hester-Dendy samplers (HD-01, HD-03, and HD-04) were deployed in the vicinity of the Cove area and one sampler (HD-02) was deployed downstream of the Cove in the Waterside Investigation Area, as depicted in **Figure 2-7**. The Hester-Dendy samplers were secured to a cinder block with a rope. The cinder block was then lowered to the river bottom and tied to a T-post inserted into sediment about 2 feet away from the cinder block. The Hester-Dendy samplers were left in place to attract aquatic macroinvertebrate populations. During the deployment period, the Hester-Dendy samplers were checked regularly to ensure that they were submerged under water at all times.

On July 14, 2020, HD-02 and HD-03 were observed to be exposed during low tide. On July 16, 2020, these two samplers were retrieved, cleaned of deposited materials on the sampler plates, and re-deployed (using the same methods described previously) at new locations with deeper water columns approximately 10 ft away from the previous locations.

After a six-week deployment period, HD-01 and HD-04 were retrieved on July 29, 2020, and HD-02 and HD-03 were retrieved on August 27, 2020. Upon removal, each Hester-Dendy sampler was placed in a bag and preserved with 70% alcohol solution. The samplers were packed in a cooler on ice and shipped to Normandeau's taxonomic laboratory to perform taxonomic identification of invertebrates that colonized the Hester-Dendy samplers during the 6-week deployment period.

## 2.5 SEDflume Core Collection

Physical stability is critical to the overall effectiveness and long-term performance of remedies involving MNR, EMNR, and capping systems, as well as for habitat restoration. Physical stability of sediments is governed by a complex set of factors including, but not limited to, the underlying properties of the sediment, site hydrological conditions, amendment/cap material selection and design, depth of water, bathymetry, biological activity, and the presence of engineered site features such as armor stone and surface water channels. SEDflume is a laboratory testing apparatus that evaluates erosion as a function of applied shear stresses by measuring the response of the sediment bed (or amended bed) to erosive force. A SEDflume study was conducted to evaluate physical sediment stability both in the Cove and in the main channel of the Anacostia River in the vicinity of the site. Cove sediment stability was evaluated with and without carbon amendments.

A total of twenty cores (see **Table 2-7** below) were collected from 7 locations (SED5CSF, SED6C/R6-04SF, SED7BSF, SED8CSF, SED7DSF, SED7ESF, and SED9.5BSF) within the Waterside Investigation Area, as depicted in **Figure 2-8**. Five cores each were collected from two locations (SED7DSF and SED7ESF) within the Cove. These Cove cores were used to: (a) evaluate un-amended conditions; (b) evaluate amended conditions as a thin layer application (SediMite and AquaGate+PAC), (c) evaluate a sand/cap condition. Sediment properties of each core including grain size, bulk density, water content, and loss of ignition were also measured as part of the evaluation. Two cores each were collected from the remaining five locations (SED5CSF, SED6C/R6-04SF, SED7BSF, SED8CSF, and SED9.5BSF) within the Waterside Investigation Area. These cores were tested without amendments to assess erodibility under existing conditions. The locations of the cores were determined on the basis of sediment type and flow regime to ensure the results of the study are representative of the range of conditions in the Cove and the river, including the federal navigation channel immediately adjacent to the Cove.

**Table 2-7: Sediment Core Collection and Experimental Design for SEDflume Study**

| Sampling Location | Total Number of Cores per Sampling Location | Amendment Types | Concentration or Thickness | Number of Cores |
|---|---|---|---|---|
| SED7DTS | 5 | None (site sediment only) | NA | 1 |
| | | SediMite™ | 3% | 1 |
| | | AquaGate®+PAC | 5% | 1 |
| | | Sand/ Cap Media | 6 inches | 1 |
| | | Reserve | TBD | 1 |
| SED7ETS | 5 | None (site sediment only) | NA | 1 |
| | | SediMite™ | 3% | 1 |
| | | AquaGate®+PAC | 5% | 1 |
| | | Sand/Cap Media | 6 inches | 1 |
| | | Reserve | TBD | 1 |
| Riverine Locations (SED5CSF, SED6C/R6-04SF, SED7BSF, SED8CSF, and SED9.5BSF) | 2 | None (site sediment only) | NA | 5 |
| | | Reserve | TBD | 5 |
| | | | **Total Number of Cores** | **20** |

The cores were collected by Integral Consulting Inc. (Integral) between June 1, 2020 and June 4, 2020 via push coring technique using specialized box cores (measuring 10 cm X 15 cm) that can be fully integrated into the SEDflume system in the laboratory. Coring locations were targeted in the field using global positioning system (GPS). All cores were collected manually from a boat, properly sealed and secured, and shipped in specialized containers which minimize disruption during shipping and handling.

During coring activities, turbidity monitoring was performed from a support boat to ensure no significant sediment was disturbed due to coring operations. The turbidity monitoring boat moved between an upstream location and a downstream location with each approximately 50 feet away from the coring location. GPS coordinates were collected for the upstream and downstream locations. Turbidity readings were recorded at both upstream and downstream locations before coring started, every 15 minutes during coring, and after coring ended. Three turbidity readings were recorded at each location at one foot below water surface, one foot above river bottom, and the midpoint in the water column, respectively. If the water column was less than 3 feet deep, only one reading was recorded at the midpoint. Turbidity was monitored using a U.S. Environmental PRO DSS YSI Multiparameter Meter, which was calibrated daily for turbidity prior to use and checked for calibration at the end of each day. Following completion of coring activities, the cores were shipped by Integral to its fixed sediment laboratory in Santa Cruz, California.

## 2.6 Sample Collection for Dewatering Testing

Should the remedial action call for removal of sediment in the Cove, mechanical dredging/excavation using temporary sheet piling or other system to isolate the River from the Cove may be used; however, it may be appropriate also to consider hydraulic removal as an alternative. Both methods will entrain water as the sediment is removed, hydraulic removal considerably more than mechanical removal. The excess water will

need to be removed in order to transport the sediment to a disposal facility. For mechanically dredged sediment, water removal will likely be accomplished by gravity draining followed by amendment. During this dewatering study, sediment samples were managed using a range of drying amendments following gravity draining. To evaluate dewatering of hydraulically dredged sediment, dewatering was conducted using gravity geotextile tubes following dilution of sediment to represent a hydraulic dredge slurry. These two sediment dewatering approaches are referred to as “mechanically dredged sediment solidification” and “geotextile tube gravity dewatering test”. This study targeted sediment collected from the upper 2 feet of the sediment column in the Cove.

Sediment samples were collected from two locations in the Cove (SED7C and SED7.5E) on June 5, 2020 to support the dewatering testing activities. These locations, shown on **Figure 2-9**, were selected based prior grain size analysis of Cove sediments and site inspection with the objective of capturing the full range of sediment properties (i.e., particle size distribution, percent solids) that are anticipated on the site. Samples were collected during low tide while the sediment surface was exposed. Using a clean shovel, samples were collected from the top 0 to 18 inches of sediment and placed in 5-gallon HDPE buckets. Two buckets of sediment collected from each location (four total) were shipped to KEMRON Environmental Services (KEMRON) for initial characterization testing and reagent drying evaluations. Two buckets of sediment collected from each location (four total) were also shipped to Infrastructure Alternatives, Inc. (IAI) to perform jar testing and geotextile tube gravity dewatering. Additionally, six 5-gallon carboys of surface water were also collected from the Cove and shipped to IAI on June 5, 2020 to support the geotextile dewatering study.

## 2.7 Sample Collection for Sequestration Testing

The results of the RI indicate that concentrations of several COPCs in sediment in the Waterside Investigation Area, particularly in the Cove, pose a potential risk to benthic receptors, and that concentrations of COPCs such as PCBs are higher in the Cove than elsewhere in the Waterside Investigation Area. Therefore, EMNR technologies that reduce the bioavailability of PCBs and other COPCs through sequestration will be considered in the FS.

Contaminant sequestration assessment data using site-specific sediment and a range of activated carbon (AC) products will be used in the evaluation and design of EMNR and active caps. The TSWP included bench-scale laboratory testing to: (a) determine the effectiveness of a variety of demonstrated AC amendments to sequester and to reduce the bioavailability of PCBs in sediment obtained from the Waterside Investigation Area, and (b) identify effective dose(s) of a subset of amendments. Various AC dry broadcast delivery products, such as SediMite and permeable AquaGate+PAC products were included in the assessment.

To support the evaluation of EMNR, UMBC was contracted to conduct a contaminant sequestration assessment using site-specific sediment and a range of AC products. On June 5, 2020, a composite surface sediment sample was collected from the BAZ (0 to 10 cm) at two locations in the Cove to determine the effectiveness of selected sequestration agents in bench scale studies. The two locations, SED7E and SED7.5E (**Figure 2-5**), represent the highest PCB surficial bulk sediment concentration (1,900 micrograms per kilogram [µg/kg] at SED7.5E) and dissolved phase PCB pore water concentration (10,000 picograms per liter [pg/L] at SED7E) within the Waterside Investigation Area. The sediment sample was packed in a cooler with ice and transferred to Dr. Upal Ghosh of UMBC following sample collection.

In addition, eight intact sediment cores were collected by UMBC on October 28, 2020 from the top foot within the Cove for laboratory studies to evaluate sediment hydraulic conductivity before and after application of AC amendment products. The cores were collected near Seepage Meter 2 (Seep-02), shown on **Figure 2-5**. The 2” diameter cores each measured one foot in length.

## 2.8 Deviation from TSWP

This section describes the deviations from the approved TS Work Plan during the implementation of field activities. Deviations are noted in **Table 2-8** below. The deviations were primarily the result of additional scope of work performed beyond the approved work plan.

**Table 2-8: Deviations from TSWP**

| TSWP Scope | Deviations from Scope | Rationale |
|---|---|---|
| Four standard sediment traps were proposed to be installed within the Cove, as depicted in Figure 2-2 in the TSWP. | Three standard sediment traps were installed in the River outside the Cove and three sediment mats were installed within the Cove. | Due to the limited water depths in the Cove, the four locations proposed in the TSWP could not satisfy the condition for submerging the sediment traps at low tide. Therefore, sediment mats consisting of nylon carpet squares were installed as an alternative to the standard sediment traps. Three sediment mats were installed in the Cove. In addition, three standard traps were installed outside the Cove. |
| Three surface water stations were proposed to be installed to support the hydrodynamic analysis and design of the remediation. | In addition to the three surface water stations, installed as proposed in the TSWP, Acoustic Doppler Current Profilers (ADCPs) were deployed in four locations the Waterside Investigation Area to the west of the Cove. | ADCPs were deployed in the Anacostia River in order to measure water current velocities over a depth range in the river near the Cove. The deployment of ADCPs will provide additional current data to support hydrodynamic analysis. |
| The TSWP proposed to collect stormwater samples during a storm event from the three non-Pepco outfalls and from Outfall 013. | Two rounds of stormwater samples were collected from four non-Pepco outfalls (including two of the newly discovered outfalls) and Outfall 013 during storm events. | Additional outfalls were discovered in the Cove. |
| SEDflume location at R6-03SF could not be sampled. | Cores could not be collected at R6-03SF. Instead, core samples were collected at SED9.5BSF. | Refusals were encountered when coring at R6-03SF. After five attempts, this location was deemed as not feasible for taking a core sample. The two proposed core samples were collected from a new location at SED9.5BSF instead. |
| The TSWP proposed field measurement of groundwater seepage velocity at three locations in the Cove. | The treatability study also investigated the change in groundwater seepage velocity after amendment of sediments with sorbent materials (GAC, AquaGate®+PAC, and SediMite™) | For amendments containing bentonite clays (AquaGate and SediMite), there is potential for the bentonite component to significantly reduce the hydraulic conductivity of the surface sediments. |

## 2.9 Residuals Management

Residuals and wastes derived from the field activities included the following:

- Disposable material during sampling activities, such as personal protective equipment, used sediment mats, plastic sheeting, plastic scoops, etc.
- Excess sediment leftover from sampling activities

- Decontamination water

All residuals and wastes were containerized in 5-gallon buckets and sent to Pepco's Benning Road Facility for proper disposal. Through October 31, 2020, three 5-gallon buckets were sent to the Benning Road Facility for disposal.

# 3 Results and Discussion

## 3.1 Overview

All planned treatability studies have been completed. This section presents the results of the treatability studies. The long-term tidal data collection is planned for one full year and was intended to continue beyond the treatability study phase to provide information necessary for remedy design. To date approximately six months of tidal data has been collected and will be discussed in this report. In addition, data collected under several of the studies described in this document will be further interpreted and analyzed as necessary to inform remedy evaluation during the Feasibility Study and Remedial Design phases of the project.

## 3.2 Hydrologic/Hydraulic, Sedimentation Assessment

### 3.2.1 Topographic and Bathymetric Survey

The topographic and bathymetric survey data were collected in May and June 2020 to verify the current grades in the Cove relative to tidal stages. The survey results are presented in **Figure 3-1**. Bathymetry appears to be similar to the 2013 bathymetry with the shallowest areas occurring immediately south of the Benning Road bridge and much of the navigational channel within the Waterside Investigation Area at the authorized depth of 8 ft. (or greater), except for a small portion of the channel in front of the Cove, where the depth is 6 ft. The perimeter of the Cove is at or above MLLW with the side slopes going up steeply to an elevation of 10 to 12 ft. The results of the topographic and bathymetric surveys will be used in evaluating target elevations for various remedy components.

### 3.2.2 Surface Water Flow Monitoring

Three surface water monitoring stations were installed in July 2020 to record water level (stage), temperature, and conductivity at locations distributed within the Study Area. These monitoring stations will remain in place until the summer of 2021 (for a total duration of approximately 12 months) to capture longer-term trends in tides and water levels over multiple seasons. This data will be incorporated into future analyses to improve understanding of the Cove's flow patterns under a variety of normal and extreme flow conditions. Velocity patterns will be paired with critical shear data from the SEDflume analysis (**Section 3.3**) to identify stability criteria for various remedy components.

The three surface water monitoring stations were equipped with a staff gauge and a recording pressure transducer (Van Essen CTD-diver) to monitor and record water surface elevation at each location. Each station was equipped with a Van Essen Diver-Link telemetry unit to record atmospheric pressure, and allow for daily data uploads and remote access from each station. As shown in **Figure 2-4,** two stations were installed in the Anacostia River: one approximately 1700 feet downstream of the Cove (Trans-01) and the other approximately 800 feet upstream of the Cove (Trans-02). A third was installed within the Cove (Trans-03).

To date, approximately 34 weeks of data has been collected from the three surface water monitoring stations (July 15, 2020 to March 31, 2021), with a 3-week gap in data collection. Transducers ran out of available memory on December 29, 2020 and were not serviced until January 21, 2021, at which point data collection resumed. **Figure 3-2** displays a sample week of observed data from the three transducers, including several days of normal tidal activity (August 1 to August 4, 2020) as well as a low tide storm surge

event (August 4 and August 5, 2020) caused by the impacts of Hurricane Isaias. It should be noted that Station Trans-03, located within the Cove, typically runs dry during low tide.

As can be seen in **Figure 3-2**, water levels at the three sites have slightly different baseline levels, likely based on the placement of each station and differences in hydraulic head at each site. To quantify these differences in hydraulic head, observed mean high tide (MHT) and mean low tide (MLT) were quantified for each site based on the 34 weeks of data collected. These levels are shown below in **Table 3-1**. MLT was not calculated at Station Trans-03 as the station typically runs dry during low tide.

**Table 3-1: Observed MHT and MLT at Each Station, as of March 31, 2021**

| Station | Location | Observed MHT, ft* | Observed MLT, ft* |
|---|---|---|---|
| Trans-01 | 1700 ft Downstream of Cove | 2.24 | -1.03 |
| Trans-02 | 800 ft Upstream of Cove | 2.14 | -0.88 |
| Trans-03 | Within Cove | 2.71 | Not Determined |

*Elevations are shown in the North American Vertical Datum of 1988 (NAVD88)

### 3.2.3 Acoustic Doppler Current Profiler

The ADCP data collected as detailed below will be used in the future hydrodynamic model for the Cove area as needed. This data will also be useful for sediment scour calculations and to estimate sediment CAP thickness and armor size to minimize scour.

Current speed and direction distributions for the locations oriented toward the Cove (CHANN ADCP 2 and ADCP 3) are presented in **Figure 3-3**. Current speed and direction distributions for the locations oriented along the main channel (River ADCP 1 and ADCP 4) are presented in **Figure 3-4**. The measured near-bottom currents that have most influence in the transport of bottom sediments are presented below:

**Table 3-2: Near-bottom Currents Summary**

| Location | Tide | Average (cm/s) | Maximum (cm/s) | Approximate Cardinal Direction | Direction of Average (°N) | Direction of Maximum (°N) |
|---|---|---|---|---|---|---|
| ADCP-1 | Flood | 15.2 | 38.8 | Northeast | 65 | 58 |
| | Ebb | 13.9 | 110.3 | Southwest | 246 | 246 |
| ADCP 2 | Flood | 14.1 | 35.1 | Northeast | 63 | 59 |
| | Ebb | 17.0 | 109.5 | Southwest | 228 | 229 |
| ADCP 3 | Flood | 13.2 | 33.2 | Northeast | 55 | 50 |
| | Ebb | 16.0 | 113.3 | Southwest | 227 | 229 |
| ADCP-4 | Flood | 16.3 | 45.5 | Northeast | 56 | 47 |
| | Ebb | 17.2 | 85.4 | Southwest | 235 | 236 |

The larger currents flowing towards SW during two occasions were further investigated correlating with wind and tidal fluctuations. CHANN ADCPs shows two dominant current speed peaks, first peak on 8/4/2020 (8:30 to 23:50 hrs EDT) and the second peak on 9/10/2020 (14:30 to 23:50 hrs EDT) (**Figure 3-5**). These two peaks with larger currents flowing towards SW show correlation with strong wind towards south and southwest and a rain event in the area on these days.

### 3.2.4 Outfall Evaluation

#### 3.2.4.1 Chemical Analysis of Discharge

Two full sets of wet-weather stormwater discharge samples were collected from five of the six outfalls in the Cove. Water samples were collected during three storm events: July 22, 2020 (Outfalls 1, 2, 3, and 5), August 13, 2020 (Outfall 4) and October 29, 2020 (five outfalls). The stormwater samples collected from each outfall were sent to Eurofins TestAmerica for analysis of metals (EPA 6020A and 7470A), TSS (EPA 2540D), PCB Congeners (EPA 1668C), PAHs (EPA 8270D), and DRO/ORO (EPA 8015D). Lab packages and results from these analyses are provided in **Appendix B** and presented in **Table 3-3**.

During the installation of flow transducers at Outfalls 1, 3, and 4, sediment traps were placed at the ends of each outfall to collect sediment entrained in the discharge. The accumulated contents of each trap were collected on October 15, 2020 and sent to Eurofins TestAmerica for analysis of the same parameters as those tested in the stormwater samples. The analytical results are presented in **Table 3-4** and lab packages are provided in **Appendix B**.

#### 3.2.4.2 End-Of-Pipe Hydrology

The hydrology of each discharge point was evaluated to estimate the drainage area served by each outfall. The findings of this analysis may be used to estimate flow rates and velocities discharging from each conduit under various design storms to inform the design of the remedial action proposed for the Cove.

***Outfall 1***

Outfall 1 (DPW POD-002) drains into the Cove through a relatively large (21") reinforced concrete pipe (RCP). As noted above, this outfall drains the south side of the waste transfer station building, an area that is almost entirely covered with impervious surfaces. The DPW facility's Stormwater Pollution Prevention Plan (SWPPP) dated April 2021 provided information on the size of the drainage areas served by each of the Facility's outfalls. Based on the Site Map provided in the SWPPP, Outfall 1 (DPW POD-002) drains a catchment of approximately 4.05 acres. Over the course of observation for Outfall 1, spanning from July 30, 2020 to September 7, 2020, no dry weather flow was observed. The peak flow rate observed at Outfall 1 over the period of data collection was 55 cubic feet per second (cfs), observed during the August 4, 2020 storm event.

***Outfall 2***

Outfall 2 serves the Pepco Benning Facility under NPDES Permit DC000094 (listed as Outfall 013 under the permit). The conduit draining into the Cove is a large 36-inch ductile iron (DI) pipe, concrete-encased in a 54-inch corrugated metal pipe (CMP) sheath.

As noted above in **Section 2.2.3.2**, no flow measurements could be taken from Outfall 2 as part of the Treatability Study field work. However, the Benning Road stormwater system was subject to an extensive hydraulic and hydrologic modeling effort between February 2017 and January 2019, which included detailed modeling of the site using the USEPA Stormwater Management Model (SWMM) and installation of several stormwater best management practices (BMPs). Based on these analyses, Outfall 2 was found to serve a drainage area of 57.98 acres with a composite curve number of 92.4. The detailed SWMM model of Outfall 2 built between 2017-2019 can be leveraged during the remedial design of the Cove to design energy dissipation and flow management structures for the outfall (AECOM, 2019).

***Outfalls 3 & 4***

Outfall 3 (DPW POD-003) drains the roadway in the southwest corner of the DPW waste transfer site (and possibly other areas) into the Cove through a 12-inch RCP. As noted above, this outfall was recently

determined to be connected to drop inlets in the drive area at the southwest corner of the waste transfer station site (and may drain other areas as well). Based on the Site Map provided in the DPW facility's SWPPP, Outfall 3 drains a catchment of approximately 0.4 acres.

Outfall 4 drains stormwater from unknown areas into the Cove through a 15-inch CMP.

As shown in **Figure 3-6**, Outfalls 3 and 4 discharge stormwater under wet weather conditions; these outfalls flows during rain events at rates and times proportionate to those observed at Outfall 1. However, as observed during the storm events on August 4, 17, and 18, 2020, Outfall 3 appears to operate as a low-flow drainage conduit, and Outfall 4 appears to discharge significant flow only as an apparent "relief" to Outfall 3. When Outfall 4 is discharging, flow through Outfall 3 stops suddenly, indicating the possible presence of a pump system driving one or both outfalls. The peak observed flow rate at Outfalls 3 and 4 during the period of observation were 11.15 and 13.87 cfs, respectively.

In addition, Outfalls 3 and 4 appear to serve as dry weather flow discharge conduits, possibly discharging groundwater or other effluent to the Cove. During two extended periods of dry weather, from September 12 to 24, 2020 and October 18 to 21, 2020, discharge from Outfall 3 was observed to occur on a regular basis. Small bursts of flow were observed to occur consistently every 12-13 hours, possibly indicating the timed operation of a pump system or lift station. These discharges had an average peak flow rate of 5.2 cfs, with a maximum peak of 11.1 cfs. Further demonstrating a link between Outfalls 3 and 4, minor discharge from Outfall 4 was observed whenever dry weather flow through Outfall 3 exceeded 10 cfs. The September period of observed dry weather behavior is shown in **Figure 3-7**.

Further investigation is planned to better understand the sources of drainage to Outfalls 3 and 4 (under both wet and dry conditions) and their configuration and operation. Any additional information obtained will be documented in an addendum to this report.

***Outfall 5***

Outfall 5 drains into the Cove via a 12-inch RCP conduit embedded into an eroded portion of the Cove bank. As discussed in **Section 2.2.3,** a flow gage was not installed at the outfall due to poor conditions. Instead, three bucket tests were conducted during storm events on July 22, August 13, and October 29, producing flow rate observations of 0.006 cfs, 0.02 cfs, and 0.18 cfs, respectively. The drainage area of this outfall cannot be estimated using the Rational Method without discharge data taken across the full storm as there is no way of determining peak discharge rate. It can be surmised, however, that the drainage area served by Outfall 5 is likely to be small in comparison to other outfalls draining into the Cove.

***Outfall 6***

Recently discovered to be part of the DPW Transfer Station stormwater system, Outfall 6 (DPW POD-1) discharges to the cove via a 12" RCP conduit. As noted above, this outfall was recently determined to drain a bioretention pond located in the northwest corner of the waste transfer station site that collects roof drainage from the waste transfer station building. Based on the Site Map provided in the DPW Facility's SWPPP, Outfall 6 drains a catchment of approximately 2.73 acres.

### 3.2.4.3 Outfall Sediment Contribution

To calculate the magnitude of sediment contributed to the Cove by each outfall, annualized TSS loading was estimated based on the end-of-pipe hydrology analysis and the wet weather samples collected during the July 22, 2020, August 13, 2020, and October 29, 2020 storm events. Outfall 5 was not analyzed due to lack of data on its contributing watershed. However, due to the relatively small flows (when compared to the

other outfalls draining to the cove) and the low TSS levels detected in its discharge, the magnitude of sediment contribution from Outfall 5 is qualitatively assessed to be relatively low. Outfall 6 was not analyzed as no stormwater samples were collected from this discharge as part of this study.

To estimate sediment loading, an annualized approach based on drainage basin size and annual rainfall was taken. Between 2010 and 2019, the average annual rainfall total observed in Washington, DC was 42.51 inches. The total amount of rainfall converted to runoff in a given year was estimated using the Curve Number (CN) method as described in the United States Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) Technical Release 55 publication (TR-55). The CN for the drainage basin served by the Pepco Benning Facility Outfall 2 was estimated to be 92.4. Following the TR-55 curve number runoff procedure, a one-inch storm produces 0.42 inches of runoff for a CN of 92.4. Similarly, a CN of 98 was estimated for DPW facility POD-001 and POD-003 based on aerial imagery provided in the facility's SWPPP. For a CN of 98, a one-inch storm produces 0.79 inches of runoff. . The results of this analysis are shown below in **Table 3-5**.

**Table 3-5: Annual TSS Loading to Cove by Outfall**

| Outfall | Source | Average Annual Rainfall (in) | Drainage Area (acres) | Runoff Rate, % | Runoff (in) | Q (gal) | Sampled TSS (mg/L) by Sample Date | | Average Sampled TSS, mg/L | TSS Loading (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 7/22, 8/13 | 10/29 | | |
| 1 | DPW POD-002 | 42.51 | 4.05 | 79.09 | 33.62 | 3,697,079 | 32 | 83 | 57.5 | 0.89 |
| 2 | Pepco 013 | 42.51 | 57.98 | 42.10 | 17.90 | 28,174,80 | 29 | 54 | 41.5 | 4.88 |
| 3 | DPW POD-003 | 42.51 | 0.40 | 79.09 | 33.62 | 365,144 | 98 | 640 | 369 | 0.56 |
| 4 | Unknown | 42.51 | 0.40 | 79.09 | 33.62 | 365,144 | 17 | 12 | 14.5 | 0.02 |
| 5 | Unknown | | | | | | 17 | 180 | 98.5 | |

As it is difficult to combine Outfalls 3 and 4 to reflect the findings of the previous section, they are analyzed here as two outfalls serving the same size drainage basin. However, it is important to note that only stormwater flows from Outfalls 3 and 4 were sampled. Frequent dry weather flows were identified from these outfalls that likely come from a different source. These dry weather discharges therefore likely contribute additional TSS loading to the Cove. Additional study is planned to further evaluate the magnitude of sediment contribution from Outfalls 3 and 4, and the results will be documented in an addendum to this report.

### 3.2.4.4 Potential for Recontamination from Outfall Discharge

To assess the potential for PCB recontamination of the Cove, annualized PCB loading contributed to the Cove by each outfall was calculated using the same approach described in **Section 3.2.4.3** to estimate annualized TSS loading. The results of this analysis, as applied to the stormwater discharge sampling, are shown below in **Table 3-6**. It should be noted that the stormwater samples were not filtered prior to analysis for PCBs, so the data presented in **Table 3-6** represent a combination of dissolved PCBs and PCBs sorbed to TSS in the stormwater discharge.

**Table 3-6: Annual Aqueous-Phase PCB Loading to Cove by Outfall**

| Outfall | Source | Average Annual Rainfall (in) | Drainage Area (acres) | Runoff Rate, % | Runoff (in) | Q (gal) | Sampled Total PCBs (ng/L) by Sample Date | | Average Sampled PCBs (ng/L) | PCB Loading (g/yr) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 7/22, 8/13 | 10/29 | | |
| 1 | DPW POD-002 | 42.51 | 4.05 | 79.09 | 33.62 | 3,697,079 | 60 | 47 | 50 | 0.69 |
| 2 | Pepco 013 | 42.51 | 57.98 | 42.10 | 17.90 | 28,174,808 | 19 | 48 | 33.5 | 3.54 |
| 3 | DPW POD-003 | 42.51 | 0.40 | 79.09 | 33.62 | 365,144 | 16 | 97 | 56.5 | 0.08 |
| 4 | Unknown | 42.51 | 0.40 | 79.09 | 33.62 | 365,144 | 5.1 | 4.7 | 4.9 | 0.01 |
| 5 | Unknown | | | | | | 3.1 | 35 | 19.05 | |

As discussed in **Section 2.2.3**, sediment traps were installed at Outfalls 1, 3, and 4 to capture sediment discharged by the outfalls. Sediment from these traps was tested for the same constituents as the

stormwater samples. Analytical results are included in **Appendix B** of this report and presented in **Table 3-4**. The results of this analysis are summarized below in **Table 3-7.**

**Table 3-7: Annual Sorbed-Phase PCB Loading to Cove by Outfall**

| Outfall | Source | TSS Loading (tons/yr) | Sediment Total PCBs (sorbed) (ng/g) | Sorbed PCB Loading (g/yr) |
|---|---|---|---|---|
| 1 | DPW POD-002 | 0.89 | 57 | 0.05 |
| 3 | DPW POD-003 | 0.56 | 22 | 0.01 |
| 4 | unknown | 0.02 | 150 | 0.003 |

It should be noted that the calculations presented in **Tables 3-6 and 3-7** are preliminary and are based on limited sample sets (two and one, respectively), and limited information regarding drainage areas. Measured concentrations for these events may or may not be representative of average annual effluent quality. Additional sampling data are needed to estimate long-term loading. Furthermore, NPDES sampling results provided by DPW indicate elevated TSS concentrations collected from Outfall 1 (DPW POD-002) on October 18, 2017 (1,200 mg/L) and September 7, 2018 (5,000 mg/L), and from Outfall 3 (DPW POD-003) on December 4, 2020 (2,600 mg/L), significantly exceeding the Benchmark Monitoring Concentration (BMC) of 100 mg/L associated with the MSGP. In addition, chemical oxygen demand, Ammonia as N, and several metals including aluminum, copper, iron, lead, and zinc also exceeded their respective BMCs by several orders of magnitude. Copies of available DPW stormwater monitoring reports are included as **Appendix C** along with tables summarizing analytical data for DPW POD-001 and DPW POD-002. As noted above, additional sampling is planned for discharges to the Cove. The results of this supplemental sampling and data evaluation will be documented in an addendum to this report.

### 3.2.5 Cove Sedimentation

#### 3.2.5.1 In-Laboratory Testing

On September 17, 2020, the three standard sediment traps installed at the river bottom were retrieved for sediment sampling. Accumulated sediment was collected and submitted to Eurofins TestAmerica for analysis of TOC (Lloyd_Kahn_Mod – Total Organic Carbon), PCB Congeners (EPA 1668C), grain size (ASTM D422) and bulk density (ASTM D5057). The analytical results are presented in **Table 3-4** and lab packages are provided in **Appendix B**.

On October 15, 2020, sediment samples were collected at all three sediment mat locations for laboratory analysis and to quantify sediment accumulation. The sediment samples collected for chemical analysis were submitted to Eurofins TestAmerica for analysis of total organic carbon (Lloyd_Kahn_Mod – Total Organic Carbon), PCB Congeners (EPA 1668C), and grain size (ASTM D422). Samples collected for quantification of sediment accumulation, as described in **Section 2.2.4**, were submitted to Eurofins TestAmerica to calculate total wet sediment weight and percentage of solids (SM 2540G). Additionally, to quantify sediment remaining in the nap of mats, the sediment mats were submitted to Eurofins TestAmerica to calculate the rinsed sediment dry weight (SM 2540G). The sediment mass results are summarized in **Table 3-8** below. Lab packages and results are provided in **Appendix B**.

**Table 3-8: Sediment Trap and Mat Results**
**Depth and Mass of Sediment Collected**

| Location ID | Original Date Installed | Date Reinstalled | Removal Date | Total Days Deployed | Sediment Thickness (mm) | Estimated Rate of Sedimentation (cm/yr) | Sediment Mass (kg, wet weight) | Sediment Mass (kg, dry weight) |
|---|---|---|---|---|---|---|---|---|
| **SEDTrap-01** | 6/16/20 | 7/14/20 | 9/17/20 | 65 | 101.6* | 57 | NA | NA |
| **SEDTrap-02** | 6/16/20 | 7/14/20 | 9/17/20 | 65 | 152.4* | 86 | NA | NA |
| **SEDTrap-03** | 6/16/20 | 8/27/20 | 9/17/20 | 21 | 50.8* | 88 | NA | NA |
| **SEDMAT-01** | 6/17/20 | -- | 10/15/20 | 120 | 2.56** | 0.78 | 2.38 | 1.05 |
| **SEDMAT-02** | 6/17/20 | -- | 10/15/20 | 120 | 42.44** | 13 | 13.9 | 3.76 |
| **SEDMAT-03** | 6/22/20 | -- | 10/15/20 | 115 | 22.67** | 7.2 | 9.49 | 3.17 |

* Approximate thickness in one sediment jar ** Average thickness of nine measurements per mat

The results from the in-river sediment traps suggest a depositional environment. While **Table 3-8** lists estimated rates of sedimentation of 57 to 88 cm/yr for these sediment traps, this should not be considered a measure of the actual sedimentation rates because they do not account for resuspension, bed transport, and equilibrium dynamics.

Within the Cove, the sedimentation dynamics and trapping capacity are difficult to quantify. However, the observed sedimentation patterns for the sediment traps located within the Cove indicate that the Cove continues to act as a sediment sink in places, particularly for particles suspended in flows entering the Cove via the outfalls. SEDMAT-1 is located near Outfalls 1 and 2 and as such will likely be directly subjected to any runoff related dynamics, which likely promote the suspension of sediments. SEDMAT-2 is located in the vicinity of the surface runoff discharge from Kenilworth Park South Landfill and in a more vegetated and quiescent area of the Cove and would therefore tend to see the highest measured sedimentation rates. SEDMAT-3 is fairly close, or within, part of the Cove's tidal conveyance network utilized during the transition between tides. This area would be subject to resuspension from the tide. Looking at the sedimentation rates in **Table 3-8**, the general relative differences between the three (3) sedimentation mats aligns with the dynamic characteristics of the different areas within the Cove where the mats were placed. However, because the processes affecting actual long term sedimentation occur over an extended period during different conditions (ex. spring rains, summer vegetation growth, etc.) the values presented in **Table 3-8** should be viewed as providing insight into whether that area of the Cove is depositional and how it would likely compare, in a relative sense, to the other areas. For example, storm runoff likely carries sediment over SEDMAT-1 where it then enters depositional areas located around SEDMAT-2 and SEDMAT-3 – depending on the tidal conditions at the time of the runoff.

Accurate sedimentation rate calculations require multi-year investigations where seasonal influences can be captured. This means that while both the sedimentation traps and mats help provide understanding into the depositional characteristics of the area, the radio-isotope core taken at SED7E is likely a more reliable basis for estimating actual long-term sedimentation rates. SED7E has a calculated sedimentation rate of 1.2 cm/yr based on the Cs-137 maximum in the high resolution core.

The analytical results presented in **Table 3-4** indicate total PCB concentrations ranging from 120 to 290 ppb in samples collected from the standard sediment traps installed in the River and from 730 to 1,500 ppb in samples collected from the sediment mats in the Cove. The grain size analysis indicates that the composition of sediments in the sediment traps and on the mats is fairly consistent and consists mostly of silt and clay particles (~63 to 80%). The variance in sediment volumes accumulated on the mats and the

PCB concentrations observed suggest localized reworking of existing sediments within the Cove potentially due to extreme flows experienced during major storms.

## 3.3 Seepage Measurements

### 3.3.1 Field Measurements

Groundwater seepage velocity is a critical parameter that determines the ultimate flux of pollutants from deeper sediments into the overlying water where negative water quality impacts may result. The exchange between groundwater and surface water can vary greatly among sites and can be both positive (from groundwater to surface) or negative (from surface water to groundwater). In addition, the seepage can also be a function of tidal stage for sites influenced by tidal cycling leading to a phenomenon often called tidal pumping where the flux is positive at low tide and switches to a negative value at high tide.

To perform the seepage measurement, a 4L plastic bag was first filled with 1L of water and then attached to the collection tube. The stopcock in the collection tube was opened to allow the flow of water between the collection bag and the drum. After 0.5-1 hr of operation, the stopcock was closed and the collection bag removed. The volume of water remaining in the bag was used to calculate the seepage volume. Two sets of measurements were performed:

- Multiple measurements during a rising tide cycle on October 18, 2020
- Multiple measurements during a falling tide cycle on October 28, 2020

The discharge velocity was calculated by dividing the discharge flow rate by the cross-sectional area of the seepage meter drum. Calculated discharge velocities are provided in **Table 3-9**. Field procedures and results are presented in **Appendix D**.

**Table 3-9: Seepage Velocity Calculations**

| **18-Oct** | **Rising Tide** | | | | |
|---|---|---|---|---|---|
| Seepage Meter 1 | | min | Vol | rate (ml/min) | notes |
| 9:13 AM | 10:02 AM | 49 | 0 | 0.00 | |
| 10:02 AM | 10:55 AM | 53 | -100 | -1.89 | |
| | | | | | |
| 12:29 PM | 1:02 PM | 33 | 160 | 4.85 | |
| 1:04 PM | 2:05 PM | 61 | -160 | -2.62 | |
| 2:07 PM | 2:55 PM | 48 | 0 | 0.00 | |
| | | 244 | -100 | -0.41 | |
| | | | | | |
| Seepage Meter 2 | | | | | |
| 10:49 AM | 11:58 AM | 69 | 0 | 0.00 | |
| 12:02 PM | 12:38 PM | 36 | | | vented air |
| 12:42 PM | 2:00 PM | 78 | 20 | 0.26 | |
| 2:02 PM | 2:50 PM | 48 | -20 | -0.42 | |
| | | 231 | 0 | 0.00 | |
| | | | | | |
| Seepage Meter 3 | | | | | |
| 10:55 AM | 12:13 PM | 78 | -275 | -3.53 | |
| 12:15 PM | 1:12 PM | 57 | 0 | 0.00 | |
| 1:14 PM | 2:13 PM | 59 | -40 | -0.68 | |
| 2:15 PM | 3:04 PM | 49 | 60 | 1.22 | |
| | | 243 | -255 | -1.05 | |
| | | | | | |
| **Average of 3 (ml/min)** | | | | **-0.49** | |
| | | | | | |
| Area of drum = | 2721.481 | sqcm | | | |
| | | | | | |
| **Darcy velocity** | **cm/min)** | | | **-0.00017873** | |
| | **cm/d** | | | **-0.26** | |

| **28-Oct** | **Falling Tide** | | | |
|---|---|---|---|---|
| Seepage Meter 1 | | min | Vol | rate |
| 8:04 AM | 8:34 AM | 30 | 300 | 10.00 |
| 8:42 AM | 9:46 AM | 64 | 100 | 1.56 |
| 9:48 AM | 10:35 AM | 47 | 200 | 4.26 |
| 10:38 AM | 11:30 AM | 52 | 128 | 2.46 |
| | | 193 | 728 | 3.77 |
| | | | | |
| | | | | |
| | | | | |
| Seepage Meter 2 | | | | |
| 8:07 AM | 8:40 AM | 33 | 0 | 0.00 |
| 8:44 AM | 9:50 AM | 54 | 220 | 4.07 |
| 9:53 AM | 10:45 AM | 52 | 80 | 1.54 |
| 10:48 AM | 11:07 AM | 19 | 280 | 14.74 |
| | | 158 | 580 | 3.67 |
| | | | | |
| Seepage Meter 3 | | | | |
| 8:12 AM | 8:47 AM | 35 | 400 | 11.43 |
| 8:50 AM | 9:57 AM | 67 | 140 | 2.09 |
| 9:58 AM | 10:50 AM | 52 | | 0.00 |
| 10:51 | 11:39 AM | 48 | 0 | 0.00 |
| | | 202 | 540 | 2.67 |
| | | | | |
| **Average of 3 (ml/min)** | | | | **3.37** |
| | | | | |
| Area of drum = | 2721.5 | sqcm | | |
| | | | | |
| **Darcy velocity** | **cm/min** | | | **0.001239** |
| | **cm/d** | | | **1.78** |

As shown in **Table 3-9**, the average seepage velocity was -0.26 centimeters/day (cm/d) during a rising tide and 1.78 cm/d during a falling tide. These seepage velocity measurements will be used in conjunction with previously collected pore water data to calculate PCB flux.

### 3.3.2 Laboratory Study

The RI determined that groundwater discharge is not a significant pathway for the discharge of contaminants to the River. However, groundwater flow into the river could drive contaminant flux from deeper contaminated sediments into overlying shallower sediments and surface water. To better understand changes in groundwater discharge to the Cove from different remedial options, UMBC was contracted to conduct an in-laboratory study to evaluate hydraulic conductivity of shallow Cove sediments before and after application of the amendments discussed above (granular AC, SediMite and AquaGate+PAC). Thin layer placement of granular material like sand may not have a major impact on hydraulic conductivity and discharge unless additional compaction takes place due to the weight of the placed material; however, amendments containing bentonite clays (AquaGate+PAC and SediMite) have the potential for the bentonite component to significantly reduce the hydraulic conductivity of surface sediments mixed with amendments. Bentonite is a swelling clay and is often used in applications where a reduction in hydraulic conductivity is desired. This can be beneficial from a remedy perspective if the groundwater is redirected away from the treated sediment layer, reducing the overall flux of groundwater through the contaminated zone in sediments.

Eight intact sediment cores were collected on October 28, 2020 from the top foot of sediment in the Cove to perform laboratory measurements of the change in seepage with sediment amendments applied. The simulated discharge flow setup was constructed in the laboratory using the 1-foot length, 2” diameter cores collected from the Cove. An adjustable height constant head tank was used to create a discharge velocity through each of the intact cores matching the discharge velocity measured in the field. The laboratory setup is illustrated in **Figure 3-8** and procedures are described in **Appendix D**. Three trials were conducted on the untreated cores to determine seepage rates prior to the addition of amendments. Following the initial trials, the amendments (granular AC [GAC], SediMite [SM] and AquaGate+PAC [AG]) were each added to two cores and allowed 14 hours to stabilize prior to testing seepage rates. A second set of measurements was collected from the amended cores two days following amendment application. The discharge was measured by collecting water flow from the top of each core over a fixed period of time. The results are provided in **Table 3-10** below.

The laboratory seepage measurements indicate that the amendments will likely reduce hydraulic conductivity through the native sediments in the Cove. The study showed seepage rate reductions ranging from 25 – 78% compared to untreated sediments. Reductions were observed for all three amendment products; however, it is possible that after a longer period of hydration and swelling of the bentonite clay, further reductions in seepage may be observed for the bentonite clay-containing amendments.

**Table 3-10: Laboratory Seepage Measurement Before and After Amendment Application**

| REPLICATE 1 | Before Amendment | | | 14 hr After Amendment | | | |
|---|---|---|---|---|---|---|---|
| | flow (ml/min) | StdErr | | | flow (ml/min) | StdErr | % reduction |
| 1A | 80.0 | 0.0 | | 1A (GAC) | 36.2 | 0.4 | 55% |
| 3A | 168.3 | 3.1 | | 3A (AG) | 97.7 | 1.0 | 42% |
| 4A | 310.0 | 8.2 | | 4A (SM) | 158.3 | 1.0 | 49% |
| | | | | | | | |
| | | | | 2 days After Amendment | | | |
| | | | | | flow (ml/min) | StdErr | % reduction |
| | | | | 1A (GAC) | 54 | 0 | 33% |
| | | | | 3A (AG) | 88 | 0 | 48% |
| | | | | 4A (SM) | 142 | 0.71 | 54% |
| | | | | | | | |
| REPLICATE 2 | Before Amendment | | | 14 hr After Amendment | | | |
| | flow (ml/min) | StdErr | | | flow (ml/min) | StdErr | % reduction |
| 2B | 5.5 | 0.015 | | 2B (GAC) | 1.5 | 0.015 | 73% |
| 3B | 10.5 | 0.015 | | 3B (AG) | 4.8 | 0.041 | 54% |
| 4B | 22.3 | 0.041 | | 4B (SM) | 16.7 | 0.093 | 25% |
| | | | | | | | |
| | | | | 2 days After Amendment | | | |
| | | | | | flow (ml/min) | StdErr | % reduction |
| | | | | 2B (GAC) | 1.2 | 0 | 78% |
| | | | | 3B (AG) | 3.2 | 0.014 | 69% |
| | | | | 4B (SM) | 13.0 | 0.040 | 42% |

## 3.4 Cove Ecological Survey

A summary of the Cove vegetation survey and the macroinvertebrate community survey is presented in the following sections.

### 3.4.1 Cove Vegetation Survey

A detailed vegetation survey within the Cove was completed on May 18, 2020, to characterize the baseline conditions of the vegetation community present in the Cove. Distinct areas were delineated based on the dominant plant species within each area. Four areas dominated by different plant species (i.e., vegetation areas) were delineated within the Cove and their boundaries are identified on **Figure 3-9**.

Aerial cover was estimated for each plant species identified within each vegetation area. For the purposes of this survey, dominant plant species are defined as plant species that account for at least 20 percent of the total aerial cover within a vegetation area. The scientific name, common name, and approximate percent aerial cover of each species within the four vegetation areas surveyed is identified on the *Cove Vegetation Summary Table* inset on **Figure 3-9**. The four vegetation areas surveyed within the Cove, from the lowest to highest elevations, are described below.

Vegetation Area 1 (VA 1) is freshwater tidal marsh consisting of a nearly monotypic stand of *Nuphar advena* (yellow pond-lily). VA 1 occupies the lowest elevation within the Cove that is vegetated (-1.5 to 2 ft). Areas within the Cove that are at lower elevations than this *Nuphar advena* stand generally consist of unvegetated tidal mudflats.

Vegetation Area 2 (VA 2) is a freshwater tidal marsh that is dominated by *Iris pseudacorus* (pale-yellow iris) and *Peltandra virginica* (green arrow-arum). Other associated species present within VA 2 include *Persicaria maculosa* (spotted lady's-thumb), *Pontederia cordata* (pickerelweed), and *Hibiscus moscheutos* (crimson-eyed rose-mallow). VA 2 is mostly located at a slightly higher elevation than VA 1 (0 to 2 ft).

Vegetation Area 3 (VA 3) is a freshwater tidal marsh that is dominated by *Persicaria maculosa*, with other associated species including *Commelina virginica* (Virginia dayflower), and *Iris pseudacorus*. VA 3 is mostly located at a slightly higher elevation than VA 2 (0 to 2.5 ft).

Vegetation Area 4 (VA 4) is a freshwater tidal marsh that is dominated by *Persicaria maculosa* and *Iris pseudacorus*. Other associated species present within VA 4 include *Persicaria maculosa*, *Pontederia cordata*, and *Hibiscus moscheutos*. VA 4 is located at a similar elevation to VA 3 (0 to 3 ft).

In addition to the wetland vegetation identified in the Cove, a cursory review of multiple surrounding freshwater tidal marshes was also completed on May 18, 2020. These included the Kenilworth Marsh located approximately 1 mile upstream of the Cove, which is fed by the Anacostia River, and two freshwater tidal marshes located within 0.5 mile downstream of the Cove, along the east bank of the Anacostia River. The dominant and associated species identified in Vegetation Areas 1-4 were also observed in these nearby freshwater tidal marshes both upstream and downstream, including nearly monotypic stands of *Nuphar advena*. Dominant species identified in the nearby upstream and downstream freshwater tidal marshes that were not observed in the Cove include *Typha angustifolia* (narrow-leaf cattail) and *Phragmites australis* (common reed).

### 3.4.2 Macroinvertebrate Community Survey

A macroinvertebrate community survey was conducted at four locations in the Waterside Investigation Area in June through August 2020. This survey was conducted using Hester-Dendy samplers and the results are based on the numbers and identification of macroinvertebrates that colonized the samplers during their six-week deployment in the river. The macroinvertebrate community survey results are presented in **Appendix E**.

A total of 1,030 individuals representing 36 taxa were collected at the four Hester-Dendy sampling locations in July-August 2020. The highest numbers of taxa were identified at location HD04 (20 taxa), which is located in the Cove, and the lowest numbers of taxa were identified at locations, HD01 and HD02 (7 taxa were identified at each location), which are outside of the Cove. The results of this study found the macroinvertebrate taxa to be typical of tidal freshwater systems within Chesapeake Bay, which are well adapted to high levels of turbidity and soft unstable substrates, and dominated by oligochaetes and chironomid insect larvae.

The results of this survey are comparable to the results of macroinvertebrate community surveys conducted in 2016 and 2017 to support the ARSP Baseline Ecological Risk Assessment (BERA) and the Benning Road site BERA, respectively. This survey was conducted using the same methodology used for the macroinvertebrate community survey conducted for the ARSP as described in the ARSP RI Report (Tetra Tech, 2019). The ARSP BERA sampling locations in 2016 do not overlap with the four 2020 sampling locations in the Waterside Investigation Area but are located upstream and downstream of the area. However, the major taxa and community composition collected in 2016 for the ARSP BERA are similar to the taxa collected during this study in 2020. In addition, the macroinvertebrate community survey conducted in 2017 for the Benning Road BERA based on sediment grab samples collected within and outside of the Cove found similar numbers of taxa and community composition to this 2020 study.

## 3.5 Sediment Stability Assessment

Integral was subcontracted by AECOM to conduct a SEDflume study to evaluate the physical sediment stability within the Waterside Investigation Area. As described in **Section 2.5**, sediment cores were collected from both the Cove (SED7DSF and SED7ESF) and in the main channel of the Anacostia River in the vicinity of the site (SED5CSF, SED6C/R6-04SF, SED7BSF, SED8CSF and SED9.5BSF); sample locations are presented in **Figure 2-8**. Two cores were collected from each of the five main channel locations for evaluation of unamended sediment and five cores were collected from each of the 2 Cove locations for evaluation of unamended sediment, sediment with carbon amendments (SediMite and AquaGate+PAC) and sediment with sand/cap media applied.

### 3.5.1 Core Management Prior to SEDflume Testing

Upon receipt of the box cores at the laboratory, two cores from each of the seven locations were inspected and designated as A and B. Core A was archived and core B was tested in an unamended condition. The remaining three cores collected from each of the two Cove locations were designated as cores C, D and E and were amended with SediMite, AquaGate+PAC and sand cap plus GAC, respectively, as described in detail in **Appendix F**. The amount of each respective amendment used was calculated to achieve the target carbon content percentages cited in **Table 2-7**. AECOM calculated the amount of each material to be added based on the carbon content of each amendment and advised the lab of the thickness of material that corresponded to the carbon target. Integral administered that material first by performing a trial placement of material into an empty core barrel to ensure the proper amount of material was used. This was done because some of the amendments change physical condition when hydrated and it was clear that measuring the delivered thickness after hydration would be difficult. The material applied to each empty core barrel was then administered to the assigned cores through standing water. Sufficient time was given to allow the standing water to become visually clear. At that point, for cores C and D, a fine probe was used to "mix" the amendment into the underlying sediment material to simulate the contact the amendment may achieve with the sediment through bioturbation. The cores were then allowed to "settle" for 28 days. Core E – the one treated with carbon amended sand – was allowed to rest for 28 days but no mixing with the probe was conducted.

### 3.5.2 SEDflume Apparatus and Test Procedure Summary

A photograph of the SEDflume apparatus is shown as Figure 2 in **Appendix F**. It is a straight flume with an open area through which a rectangular cross-sectional core containing sediment can be inserted. The core measures 10X15 cm in cross section and is placed on the hydraulic jack shown in the figure. The jack is raised vertically until the core section is inserted into the flume and flush with the flume duct bottom. The flume is then filled with site water; a ball valve regulates the water that enters the flume (thereby controlling the flowrate over the sediment). The rate of flow through the duct is incrementally increased over time. Each rate results in a shear stress over the sediment core with the potential to cause erosion; each shear stress is applied for a minimum of 20 seconds and a maximum of 10 minutes; no more than 2 cm of sediment was allowed to erode during each cycle. The sediment core is continually raised using the hydraulic jack so that the top of the core was maintained flush with the flume floor. A total of five shear stresses are applied to generate a plot of erosion as a function of shear stress. The selected shear stresses applied consider the range of potential flows in the vicinity of the River and Cove from which the sediment cores were extracted.

### 3.5.3 SEDflume Test Conditions

As noted above, the flow sent into the flume corresponds to a shear stress which has the potential to erode sediment from the core. How much sediment is eroded is a function of the bulk density of the sediment and

the applied shear stress. For each core, the erosion (in cm/s) is measured as a function of applied shear stress and recorded against the corresponding core depth interval. Shear stresses applied started at 0.1 Pascal (Pa) and then doubled successively until five intervals were tested. The stresses included 0.1, 0.2, 0.4, 0.8, 1.6, 3.2 and 6.4 Pa. The information is recorded in a set of curves which, when compared to the core profile, can show visual evidence that correlates to marked changes in erodibility. The comparison of erodibility with depth within each core reveals how erodible the core is. Additionally, prior to beginning each rate cycle, a small sample of sediment is removed from the surface to obtain grain size data so it is possible to correlate the erosion rate to grain size and then assess how the erodibility of the core changes with depth.

### 3.5.4 SEDflume Testing Results

**Appendix F** presents a comprehensive summary of all test results including:

- Plots of erosion rate as a function of applied shear test for five (5) intervals;
- Photos of core cross sections compared to erosion rates measured as a function of shear;
- Bar graphs of the erosion rate ratio within each core by interval depth; and
- Measured grain size as a function of depth.

Additionally, photographs were taken within each core where there was evidence of benthic activity, unique sediment observations and other phenomena.

Cores from the River are compared to one another as well as unamended cores from the Cove; amended cores in the Cove are compared to unamended cores from the Cove. During remedial design, the information obtained from SEDflume analysis will be used together with data obtained from the monitoring station transducers and subsequent modeling to determine if each core location is net erosional, net depositional or transitional, and further, if the application of carbon-amended cover is stable in each environment as well as the comparable stability of each cover. These analyses will be done at a future date as part of the remedy design. Observations that can be made at this time from summary of test results are as follows:

- While Riverine cores vary to some degree from location to location, the erodibility relative to applied shear stress are similar both at the surface and with depth suggesting that along the Anacostia River in the vicinity of the Cove, there is no substantial difference in sediment stability.
- All Riverine cores show evidence of increased shear resistance with depth likely due to consolidation of underlying sediment; however, no cores show evidence of a transition from depositional sediment to pre-anthropogenic material; one core contained non-biodegradable human waste (plastic bandaid) at depth confirming the area from which the core was collected is recent anthropogenic deposition.
- While there were differences in the erodibility of the various amended cores, there was no substantive difference between the two Cove core locations.
- Amendments added to the Cove sediment generally decreased the erodibility of the material; this was particularly evident in the carbon-amended sand cores where the addition of 6” of sand consolidated the core material and increased density and erosion resistance.
- In both the AquaGate+PAC and SediMite amended applications, both Cove core locations showed evidence of biological activity (bioturbation) and transport of carbon into underlying sediment.

- AquaGate+PAC, which has a range of particle sizes that extend from sand- to gravel-size, created a more erosion resistant cover relative to SediMite. The bentonite component of this material created a cementitious gel which bound the particles and when the erosional forces were increased, the layer was observed to lift from the surface. The flowrate that created this force is expected to be significantly higher than those encountered in the River or Cove hydraulic system.
- The amended sand layer appeared to create a more erosion resistant condition at the intersection of the carbon sand and the sediment. Close observation noted that at the interface of the amended sand and sediment there was evidence of a secreted material that may be related to benthic mortality. Benthic activity appeared to cease after placement of the amended sand potentially due to the creation of an anoxic environment and/or the consolidation and densification of the underlying sediment. The net impact is a very erosion-resistant condition at the interface due to the combination of these factors. The interface depth was orders of magnitude less erodible than native sediment.

Integral Consulting provided a series of graphs that compared the unamended Cove cores to amended cores identifying critical shear stress to depth. This figure is reproduced in **Figure 3-10**. Other physical characteristics were also compared; plots are included in **Appendix F**. These plots illustrate some of the observations made above.

## 3.6 Sediment Dewatering Tests

### 3.6.1 Sediment Solidification/Stabilization Tests

Bench scale laboratory investigation was conducted under subcontract to KEMRON Environmental Services, Inc. located in Atlanta, Georgia. The two representative and independent sediment samples collected within the upper 1 to 2 feet from the Cove were sent to the laboratory for testing. After receiving the buckets of sediment from the field, each bucket/sample was logged, recording the consistency, color, and odor of each sample. Each sample was photographed in an as-received condition then homogenized in the shipping bucket until visually uniform. A subsample was collected for preliminary physical analyses consisting of the following: solids content/water content; total organic content, density and grain size distribution (including hydrometer). Additionally, aliquots of the samples were submitted to Eurofins TestAmerica for analysis of PCB Aroclors (EPA 8082) and PCB Congeners (EPA 1668C). Photographs and as-received material characterization parameters are provided in **Appendix G** (Table 1). In summary, both Cove samples were similar in grain size and according to ASTM D2487 classified as a silty sand (ML). The unit weight, however, varied as did the moisture content. These differences gave rise to differing dewatering behavior as the higher moisture content, lower unit weight (sample SED7.5E) failed the free moisture test (EPA Method 9095) while the slightly lower moisture, higher unit weight sample (SED7C) passed the free moisture test. A summary of this initial material characterization is provided in **Table 3-11** below. The PCB analytical results are presented in **Table 3-12** and the lab reports are included in **Appendix B**.

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**Table 3-11: Untreated Material Characterization**

| Testing Parameter | Test Method | Unit | Untreated Material | |
|---|---|---|---|---|
| | | | SED7C-DEW | SED7.5E-DEW (0-18') |
| Particle Size Distribution | ASTM D422 | | | |
| Gravel | | % | 0.1 | 0.7 |
| Sand | | % | 18.5 | 16.0 |
| Silt | | % | 66.3 | 68.4 |
| Clay | | % | 15.1 | 14.9 |
| Sample Description (1) | ASTM D2487 | | Brown silt with sand | Grayish Brown silt with sand |
| Sample Classification (2) | ASTM D2487 | | ML | ML |
| Moisture Content | ASTM D2216 | | | |
| Average ASTM Moisture Content | | % | 78.79 | 114.58 |
| Average Percent Solids | | % | 55.93 | 46.62 |
| Unit Weight | ASTM D7263 | | | |
| Average Bulk Unit Weight | | pcf | 93.3 | 84.5 |
| Paint Filter | EPA Method 9095 | | PASS | FAIL |

Notes:
(1)Sample color determined by the Munsell Soil Color Charts.
(2) Sample classification based on the Unified Classification System.
%= Percent
pcf = Pounds per cubic foot

To reduce moisture content, a 2-step reagent study was performed. The first step included evaluating a range of amendments to observe the impact each had on the sediment matrix. This first round assessment was applied to SED 7.5E because it failed the paint filter test. During the first round, several amendments were applied including Type I Portland Cement (PC), lime kiln dust (LKD), Calciment™ and ZapZorb ™. For each amendment, a range of reagent addition rates were applied which varied based on the amendment. **Table 3-13** provides a summary of the experimental mixes originally derived.

**Table 3-13: Round 1 Experimental Mixtures Observations**

| KEMRON Sample No. | Untreated Material | Reagent Type | Reagent Addition % by Wet Soil Wt. | Pocket Penetrometer (TSF) | Pocket Penetrometer (TSF) | VOC Monitoring (ppm) |
|---|---|---|---|---|---|---|
| | | | | 24 hour | 4 Day | 24 hour |
| EXP-001 | SED7.5E-DEW (0-18') | Type I Portland Cement | 2 | 0 | 0 | 3.1 |
| EXP-002 | SED7.5E-DEW (0-18') | Type I Portland Cement | 4 | 0 | 0 | 7.2 |
| EXP-003 | SED7.5E-DEW (0-18') | Type I Portland Cement | 8 | 0 | 0 | 5.4 |
| EXP-004 | SED7.5E-DEW (0-18') | Lime Kiln Dust | 5 | 0 | 0 | 5.8 |
| EXP-005 | SED7.5E-DEW (0-18') | Lime Kiln Dust | 7.5 | 0 | 0 | 3.8 |
| EXP-006 | SED7.5E-DEW (0-18') | Lime Kiln Dust | 15 | 0 | 0 | 4.4 |
| EXP-007 | SED7.5E-DEW (0-18') | ZapZorb | 0.5 | 0 | 0 | 3.2 |
| EXP-008 | SED7.5E-DEW (0-18') | ZapZorb | 1.5 | 0 | 0 | 3.0 |
| EXP-009 | SED7.5E-DEW (0-18') | ZapZorb | 3 | 0 | 0 | 2.8 |
| EXP-010 | SED7.5E-DEW (0-18') | Calciment | 2 | 0 | 0 | 1.7 |
| EXP-011 | SED7.5E-DEW (0-18') | LKD/Type I Portland Cement | 0.25 | 0 | 0 | 1.5 |

Each mix was observed and photographed immediately after mixing and the headspace for each mix was monitored for VOCs. A photographic log of all of these mixtures is included in **Appendix G**. Headspace monitoring was conducted by inserting the amended sediment immediately after it was blended into a sealed plastic bag and then measuring off gassing. Both strength (using a pocket penetrometer) and VOCs

were monitored after 24 hours; and strength alone was measured after 4 days. Those results showed that low concentrations of VOCs were emitted for each amendment and that none of the experimental mixtures developed any measurable strength over the 4-day cure period.

Despite the unmeasurable strength gain observed during the initial round of amendment testing, amendment testing displayed substantively different visible moisture/solids conditions as the result of amendment addition. In particular, the ZapSorb™ was observed to produce a dry soil-like appearance compared to other admixtures even at very low doses (doses in the initial mix development ranged from 0.5-3% wet weight of sediment). Based on these results, several additional test blends were made combining ZapZorb™ at low dosages with low dosages of Portland Cement for strength as a blended reagent mixture. The results are shown on **Table 3-14**. These data showed that blending of ZapZorb™ and PC did not produce increased strength. This second round also looked at higher addition rates of Calciment™ to determine if the initial round trial was too low. Testing confirmed that Calciment™ at higher dosages did not increase strength.

**Table 3-14: Round 2 Experimental Mixtures Observations**

| KEMRON Sample No. | Untreated Material | Reagent Type | Reagent Addition % by Wet Soil Wt. | Pocket Penetrometer (TSF) | Pocket Penetrometer (TSF) |
|---|---|---|---|---|---|
| | | | | 24 hour | 4 Day |
| EXP-001 | SED7.5E-DEW (0-18') | Type I Portland Cement | 2 | 0 | 0 |
| EXP-002 | SED7.5E-DEW (0-18') | Type I Portland Cement | 4 | 0 | 0 |
| EXP-003 | SED7.5E-DEW (0-18') | Type I Portland Cement | 8 | 0 | 0 |
| EXP-004 | SED7.5E-DEW (0-18') | Lime Kiln Dust | 5 | 0 | 0 |
| EXP-005 | SED7.5E-DEW (0-18') | Lime Kiln Dust | 7.5 | 0 | 0 |
| EXP-006 | SED7.5E-DEW (0-18') | Lime Kiln Dust | 15 | 0 | 0 |
| EXP-007 | SED7.5E-DEW (0-18') | ZapZorb | 0.5 | 0 | 0 |
| EXP-008 | SED7.5E-DEW (0-18') | ZapZorb | 1.5 | 0 | 0 |
| EXP-009 | SED7.5E-DEW (0-18') | ZapZorb | 3 | 0 | 0 |
| EXP-010 | SED7.5E-DEW (0-18') | Calciment | 2 | 0 | 0 |
| EXP-011 | SED7.5E-DEW (0-18') | LKD/Type I Portland Cement | 0.25 | 0 | 0 |
| EXP-012 | SED7.5E-DEW (0-18') | LKD/Type I Portland Cement | 5 / 2 | 0 | 0 |
| EXP-013 | SED7.5E-DEW (0-18') | LKD/Type I Portland Cement | 10 / 4 | 0 | 0 |
| EXP-014 | SED7.5E-DEW (0-18') | ZapZorb/Type I Portland Cement | 0.5 / 3 | 0 | 0 |
| EXP-015 | SED7.5E-DEW (0-18') | ZapZorb/Type I Portland Cement | 1 / 3 | 0 | 0 |
| EXP-016 | SED7.5E-DEW (0-18') | ZapZorb/Type I Portland Cement | 0.5 / 5 | 0 | 0 |
| EXP-017 | SED7.5E-DEW (0-18') | Calciment | 5 | 0 | 0 |
| EXP-018 | SED7.5E-DEW (0-18') | Calciment | 7.5 | 0 | 0 |
| EXP-019 | SED7.5E-DEW (0-18') | Calciment | 10 | 0 | 0 |

This information was used to conduct a third round of evaluation which evaluated the effectiveness of a 2-step amendment addition of ZapZorb™ and PC added (in that order) to assess if phased reaction might be advantageous to strength gain. This round also assessed PC addition at rates higher than 8% by weight (demonstrated in the initial round to show poor strength gain) raising the PC addition to 15%. Results demonstrated strength gain with PC at 15% but the 2-step amendment addition process showed no substantial benefit.

On the basis of this information, a final set of amendment admixtures was generated. **Table 3-15** below summarizes the final set of amendments used along with the strength gain results observed. All blends passed EPA Method 9095 but only those that contained PC gained strength. An addition rate of 10% PC by weight proved to yield early strength gain believed to be sufficient should sediment disposal require it. Sediment from both locations – SED7.5E and SED7C – were evaluated at these amendment ratios. After curing 7 days, samples were submitted to Eurofins TestAmerica for leachability testing, waste characteristics and analysis of PCB Aroclors. Compared to the pre-solidification sample results, PCB

concentrations decreased by 20 to 30%. The analytical results are presented in **Table 3-12** and the lab reports are included in **Appendix B**.

**Table 3-15: Final Round of Reagent Drying Evaluations**
**Mixture Designs, VOC Monitoring, Pocket Penetrometer and Paint Filter Testing**

| KEMRON Sample Number | Untreated Material Type | Reagent Type | Reagent Addition % by Wet Soil wt. | VOC Monitoring (ppm) | | Pocket Penetrometer (tsf) | | | | Cure Day | Paint Filter Testing |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | At Mixing | 1 hour | 1 Day | 3 Day | 5 Day | 7 Day | | Pass/Fail |
| 0746-001 | SED7C-DEW | Zapzorb | 0.5 | 0.0 | 0.2 | 0.00 | 0.00 | 0.00 | 0.00 | 7 | Pass |
| 0746-002 | SED7C-DEW | Zapzorb/Type I Portland Cement | 0.5/10.0 | 0.7 | 0.7 | 1.00 | 2.50 | 3.50 | 4.00 | 7 | Pass |
| 0746-003 | SED7C-DEW | Type I Portland Cement | 10.0 | 0.2 | 2.0 | 0.50 | 2.00 | 3.00 | 3.50 | 7 | Pass |
| 0746-004 | SED7C-DEW | Type I Portland Cement | 15.0 | 1.4 | 1.6 | 2.00 | >4.5 | >4.5 | >4.5 | 7 | Pass |
| 0746-005 | SED7.5E-DEW | Zapzorb | 0.5 | 0.4 | 0.2 | 0.00 | 0.00 | 0.00 | 0.00 | 7 | Pass |
| 0746-006 | SED7.5E-DEW | Zapzorb/Type I Portland Cement | 0.5/10.0 | 0.0 | 0.5 | 1.50 | 1.50 | 1.75 | 2.75 | 7 | Pass |
| 0746-007 | SED7.5E-DEW | Type I Portland Cement | 10.0 | 0.0 | 0.6 | 1.00 | 2.00 | 2.50 | 2.75 | 7 | Pass |
| 0746-008 | SED7.5E-DEW | Type I Portland Cement | 15.0 | 0.0 | 0.7 | 2.50 | >4.5 | >4.5 | >4.5 | 7 | Pass |

Notes:
% = Percent
Wt= Weight
TSF = Tons per square foot
s.u. = standard units
$lb/ft^3$ = pounds per cubic foot
$lb/in^2$ = pounds per square inch
cm/sec = centimeter per second

### 3.6.2 Geotextile Tube Gravity Dewatering

Bench scale laboratory evaluations were conducted by Infrastructure Alternatives, Inc. located in Rockford, Michigan. AECOM shipped 5 gallons of sediment from each field location as well as 10 gallons of surface water from the site which was used to prepare a dredge slurry to the proportion that hydraulic dredging operations commonly generate during operations. Upon sample receipt, sediment and surface water were photographed. Standing water over the sediment in each bucket was removed from the surface prior to homogenizing and characterizing the material for solids content and density. Documentation of the condition of the as-received material is included in **Appendix H**. **Table 3-16** below summarizes the as-received sediment characterization.

**Table 3-16: Solids Content and Density of Sediment**

| Sample Location | Solids Content (%) | Density (lbs/gal) |
|---|---|---|
| SED 7C-GTX | 40.0 | 11.2 |
| SED 7.5E-GTX | 37.9 | 10.8 |

Using this information, dredge slurries were prepared by mixing sediment with the site surface water. The target dredge mix was 10% solids by volume. Each of these slurries was jar tested to evaluate a range of chemical conditioning programs. Conditioners varying in ionic charge, structure and molecular weight were prepared to a concentration of 0.5% product by volume and added to 100 mL slurry and observations were recorded such as floc appearance, water release and water clarity. From this preliminary assessment, the best performing conditioning agents were identified and scaled up to a 500 mL volume and poured through geotextile tube fabric; the solids captured on the fabric was evaluated at 1 and 15 minutes following pour and then again at 24 hours. AquaHawk 7840 was identified as the best performing conditioner and the dosage rate of 2.70 lbs (polymer)/dry ton sediment was found to be sufficient. **Table 3-19** below summarizes the performance of this conditioning agent. All conditioning agents and observations are included in **Appendix H** (Attachment B).

**Table 3-17: Jar Testing Performance Results**

| Sample Location | Slurry Solids (%) | 1 Minute Solids (%) | 15 Minute Solids (%) | 24 Hour Solids (%) |
|---|---|---|---|---|
| SED 7C-GTX | 9.61 | 34.0 | 35.9 | 41.6 |
| SED 7.5E-GTX | 9.45 | 27.4 | 27.3 | 34.7 |

This information was used to establish bench scale geotextile tube pillow testing parameters. It was assessed that a slightly higher solids slurry could be generated during field scale operations, so a target 15% slurry was selected for the pillow testing apparatus. Pillow tests use a fabricated geotextile pillow that simulates a geotextile tube in the field. The samples used in the laboratory are fabricated by geotextile material manufacturers and are fitted with a filling spout. Using site sediment from each location and site water approximately 50 L sample volume at approximately 15% solids content was prepared to conduct each test. A solution of the conditioning agent was applied to the sample volume at the dosage rate of 2.70 lbs (polymer)/dry ton sediment as determined during the jar test. The volume was “mixed” by 3 exchanges from one vessel to another to simulate the field scale operation which usually involves injecting polymer solution to the dredge slurry surge line and allowing the turbulence of the flow to disburse the agent. The conditioned sample slurry was then poured into the geotextile pillow and the filtrate was allowed to bleed from the fabric. The filtrate was captured at time intervals 0-1 minute, 1-10 minutes, 10-60 minutes and 1-24 hours. In full-scale operations, the filtrate will be collected in aggregate and cycled through a treatment system; however, the characteristics of the filtrate vary substantially from the release of the filtrate during the first several minutes (referred to as “first blush”) to longer term sustained flows. The treatment system must consider these fluctuations to adequately treat the filtrate coming off a geotextile tube field.

One pillow test simulating field scale geotextile tube gravity dewatering was conducted for each sediment location. The filter cake solids performance for each sample was run for 7 days; results are shown in **Table 3-18**.

**Table 3-18: Pillow Test Filter Cake Solids**

| Sample Location | 24 Hour Solids (%) | 48 Hour Solids (%) | 96 Hour Solids (%) | 7 Day Solids (%) | 7-Day Method 9095 |
|---|---|---|---|---|---|
| SED 7C-GTX | 47.0 | 47.2 | 48.8 | 50.1 | Pass |
| SED 7.5-GTX | 39.5 | 48.3 | 38.5 | 41.7 | Pass |

The filtrate collected during successive time intervals was measured for volume and turbidity. Detailed data collected during the tests are provided in **Appendix H** (Attachment C). In summary, the 50 L sample produced approximately 33-34 L of filtrate with 35-45% of that volume being released in the first minute. The peak turbidity of that "first blush" was 78 Nephelometric Turbidity Units (NTU) for SED 7C-GTX and 40 NTU for SED 7.5E-GTX; sustained turbidity (i.e., between 1 and 24 hours) was 27 and 24 NTU, respectively.

These results demonstrate that geotextile tube gravity dewatering will deliver a suitable dewatered material for transport for disposal. The filtrate generated will require management to reduce turbidity and/or offsite disposal to a licensed facility.

### 3.7 PCB Sequestration Study

The overall objective of the sequestration study is to evaluate the effectiveness of three carbon/treatment amendments in reducing the bioavailability of PCBs in sediment collected from an impacted area within the Cove. PCB bioavailability in sediments is being tested using two metrics: 1) freely dissolved concentration of PCBs in sediment porewater measured using passive sampling, and 2) bioaccumulation of PCBs in the freshwater oligochaete (*Lumbriculus variegatus*) based on laboratory bioaccumulation studies. The specific study objectives are to:

- Evaluate the effect of dose of sorbent amendments on the reduction of porewater PCB concentration in Cove sediments;
- Compare across three AC amendment techniques described in **Table 3-19**;
- Compare reduction in freely dissolved PCB concentration against reduction of bioaccumulation in benthic organisms; and
- Evaluate any negative impacts of treatment dose on organism growth and survival in the bioaccumulation studies.

**Table 3-19: Experimental Design for Laboratory Treatability Study**

| Amendment | AC in Treated Sediment | AC in Amendment Product | Dose of Amendment | # of Replicates |
|---|---|---|---|---|
| Clean control sediment | 0 | NA | 0 | 3 |
| Untreated Cove sediment | 0 | NA | 0 | 3 |
| Treatment 1: Granular Activated Carbon | 1, 3, and 5% | 100% | 1, 3, and 5% | 3 per dose |
| Treatment 2: SediMite with AC | 1, 3, and 5% | 50% | 2, 6, and 10% | 3 per dose |
| Treatment 3: AquaBlok with AC | 1, 3, and 5% | 10% | 10, 30, and 50% | 3 per dose |
| **Total samples** | | | | **33** |

### 3.7.1 Amendment Selection and Procurement

The following three amendments listed in the TSWP were procured by AECOM and provided to UMBC. All three products chosen for testing are available in bulk quantities needed for full-scale treatment.

- Granular Activated Carbon procured from Calgon Corporation (F-300). This coal based activated carbon was recently specified for a large-scale GAC application project for the remediation of Spirit Lake Estuary Site in Duluth Minnesota.
- SediMite™ made with 50% by weight of a fine activated carbon (virgin coal) was procured from the manufacturer for use in the experiments.
- AquaGate® made with 10% by weight of a powdered activated carbon (lignite-based) was procured from the manufacturer for use in the experiments.

### 3.7.2 Amendment Mixing into Sediments

Each sediment sample was first homogenized prior to collection of triplicate subsamples for the analysis of PCBs and TOC. Three liter subsamples of the homogenized sediment were placed in clean containers for mixing with the carbon amendments. Each container with 3L of sediments was treated with an amendment at a dose specified in **Table 3-19**. Amendments were mixed well with the sediment, and then allowed to equilibrate for a period of one month prior to porewater and bioaccumulation testing. The mixing conditions tested provide an indication of long-term performance of the amendment after natural mixing through bioturbation and other natural processes in the field.

### 3.7.3 PCB Measurement in Sediment Porewater and Worms

The bioaccumulation and porewater measurements were performed simultaneously in identical exposure chambers, which are described below. Laboratory bioaccumulation assays were conducted using the freshwater oligochaete *Lumbriculus variegatus* commonly used to perform bioaccumulation assays for freshwater sediments. The laboratory bioaccumulation studies followed methods described in Beckingham and Ghosh (2010) which is based on standard test guidelines (USEPA 2000). The bioaccumulation test is designed to evaluate the effectiveness of the selected carbon amendment in reducing biological uptake of PCBs at the base of the benthic food web. Bioaccumulation assessment was conducted in triplicate for each

of the control and treated sediments described in **Table 3-19** resulting in a total of 33 exposure chambers. Clean, laboratory cultured freshwater oligochaetes (*Lumbriculus variegatus*) were obtained from Aquatic Research Organisms, Hampton, New Hampshire. Organisms were exposed to the sediments in 1L glass beakers (1000 g wet sediment and 1.1 g wet weight of organisms per beaker (0.15 g dry); 3 replicates per treatment) for 28 days and maintained at 23 ± 1 °C in a water bath with a 16 hour light:8 hour dark photoperiod. The bioaccumulation setup in the laboratory is shown in the photolog (**Appendix A**). A 0.5 g polyethylene passive sampler was also inserted into each of the exposure chambers to measure the concentration of freely dissolved PCBs in the porewater. At the termination of the experiment, organisms were successfully removed from the sediments and allowed to depurate ingested sediment for 6 hours in a clean beaker containing water. The porewater passive samplers were also recovered from each beaker and stored for analysis. Analytical methods and results are provided in In-situ Remediation Treatability Studies Report, which is included as **Appendix D**

### 3.7.3.1 Sediment Porewater Concentrations

Total PCBs and the PCB homolog groups were analyzed in the sediment porewater collected from each of the exposure chambers. The measured freely dissolved PCB concentration in porewater of the untreated sediment was 3.3 nanograms per liter (ng/L). As shown in **Figure 3-11**, the results of the porewater concentrations from amended sediments show that granular size AC is minimally effective in reducing porewater concentration of PCBs even at a dose of 5% by weight of sediment. However, both SediMite and AquaGate+PAC are effective in reducing porewater PCB concentrations at all dosing levels with the powdered AC used in AquaGate+PAC (minimum 90% of AC is <325 mesh) being the most effective for a given dose. This observation is consistent with previous published results that demonstrated that effectiveness of AC is a strong function of particle size. Although reductions were observed for lower chlorinated homologs, particle size effect was the most the greatest PCB apparent for the more hydrophobic compounds (i.e. hexa and higher homolog groups) as shown in **Table 3-20**.

Both 3% and 5% amendment of AC in the 80-325 mesh (SediMite) and all three doses of powdered form (AquaGate+PAC) are able to reduce the PCB porewater concentration below the USEPA ambient water quality criteria value of 0.64 ng/L for $10^{-5}$ incremental cancer risk for human health via fish consumption.

**Figure 3-11: PCB Concentration in Sediment Porewater from Exposure Chambers**

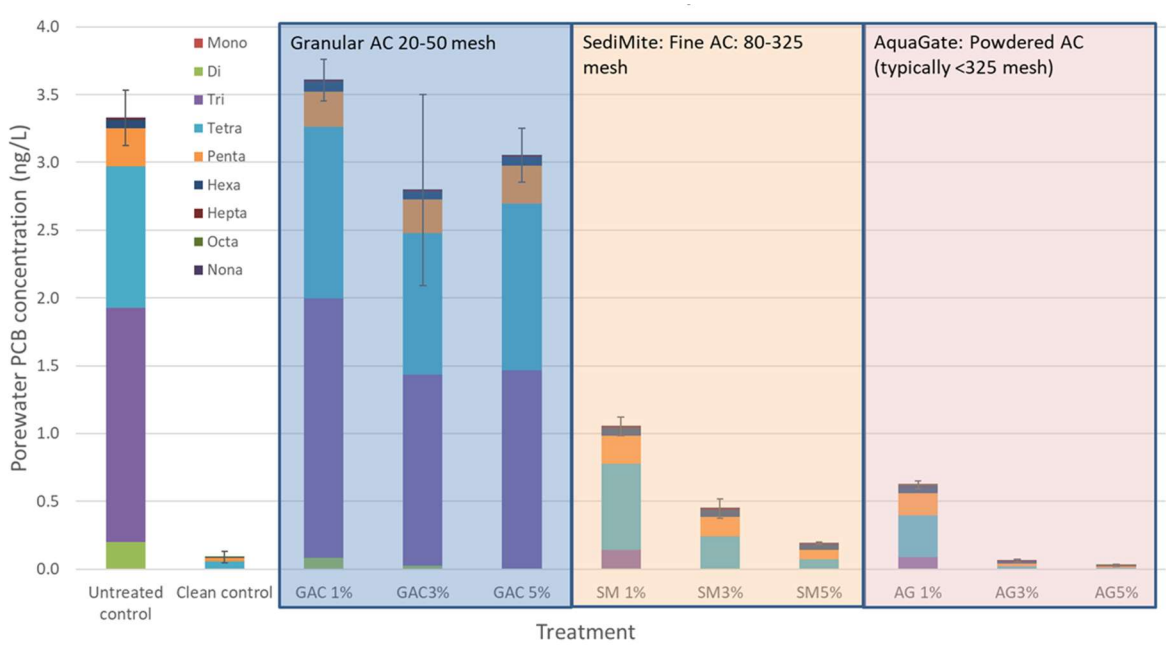


**Table 3-20: Reduction of PCB Homolog Concentration in Sediment Porewater Compared to Untreated Control**

| % Reductions | GAC 1% | GAC3% | GAC 5% | SM 1% | SM3% | SM5% | AG 1% | AG3% | AG5% |
|---|---|---|---|---|---|---|---|---|---|
| Mono | | | | | | | | | |
| Di | 59 | 88 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Tri | -11 | 18 | 15 | 92 | 100 | 100 | 95 | 100 | 100 |
| Tetra | -21 | 0 | -18 | 39 | 77 | 93 | 70 | 99 | 99 |
| Penta | 7 | 12 | 1 | 28 | 49 | 75 | 42 | 91 | 97 |
| Hexa | -13 | 6 | -4 | 3 | 14 | 37 | 22 | 77 | 85 |
| Hepta | -1 | 16 | 7 | 10 | 19 | 28 | 19 | 68 | 84 |
| Octa | 3 | 8 | 1 | 1 | 20 | 8 | -8 | 56 | 54 |
| | | | | | | | | | |
| **TOTAL** | **-8** | **16** | **8** | **68** | **87** | **94** | **81** | **98** | **99** |

### 3.7.3.2 PCB Bioaccumulation in Worms

Total PCBs and the PCB homolog groups were analyzed in the worm tissue collected from the worms that were exposed to untreated and treated sediments for 28 days in the culture chambers. PCB concentration in worms exposed to control sediments was minimal compared to the uptake in the worms exposed to untreated sediment from the Cove. Treatment of the sediment with granular size AC showed little change in the biouptake of total PCBs in worms, regardless of dosing level. However, both SediMite and AquaGate+PAC effectively reduced tissue PCB concentrations at 3% and 5% dosing levels with the powdered AC used in AquaGate+PAC being the most effective as shown in **Figure 3-12**. The results of PCB bioaccumulation in treated sediments are consistent with the observation of greater reduction for the lower chlorinated homologs, especially for the finer AC particle size. While, the reduction of PCB uptake for the di, tri, and tetra chlorobiphenyls was 100% for both SediMite and AquaGate+PAC amendments of the fine and powdered AC amendments respectively, the powdered AC was more effective for the higher more hydrophobic homologs in the short-term study. This is a reflection of the slow mass transfer of the strongly hydrophobic compounds that require longer time or finer grained AC for the movement of the molecules from the sediment to the AC particles. The reduction results are presented in **Table 3-21** below.

Overall, the bioaccumulation study demonstrates that application of a powdered AC to the study sediments was effective in reducing both porewater PCB concentration and PCB biouptake in worms by more than 90% at a dose of 3% or higher. In the present study, the different sized AC were added via different methods of application: as GAC directly, as finer sized AC in the form of SediMite or powered AC in the form of AquaGate+PAC pellets. It is expected that the powdered AC applied via any of these methods of delivery is likely to provide strong reductions in PCB bioavailability in sediments.

**Figure 3-12: PCB Bioaccumulation in Worm Tissue**

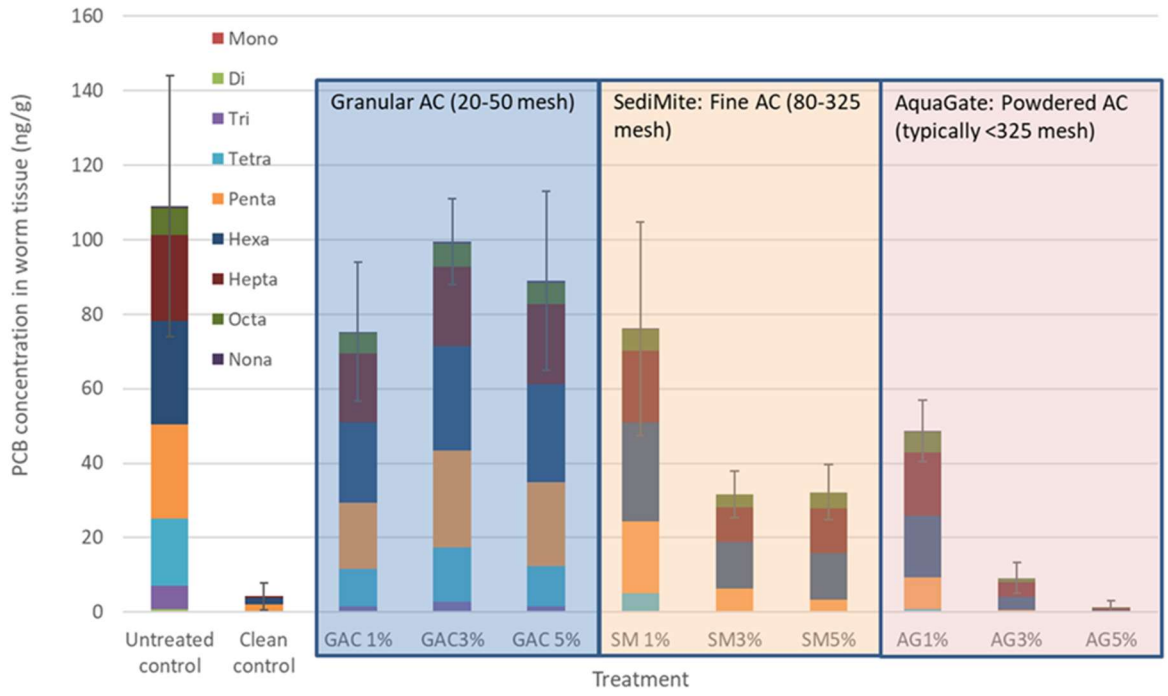



**Table 3-21: Reduction of PCB Bioaccumulation in Worm Tissue Compared to Untreated Control**

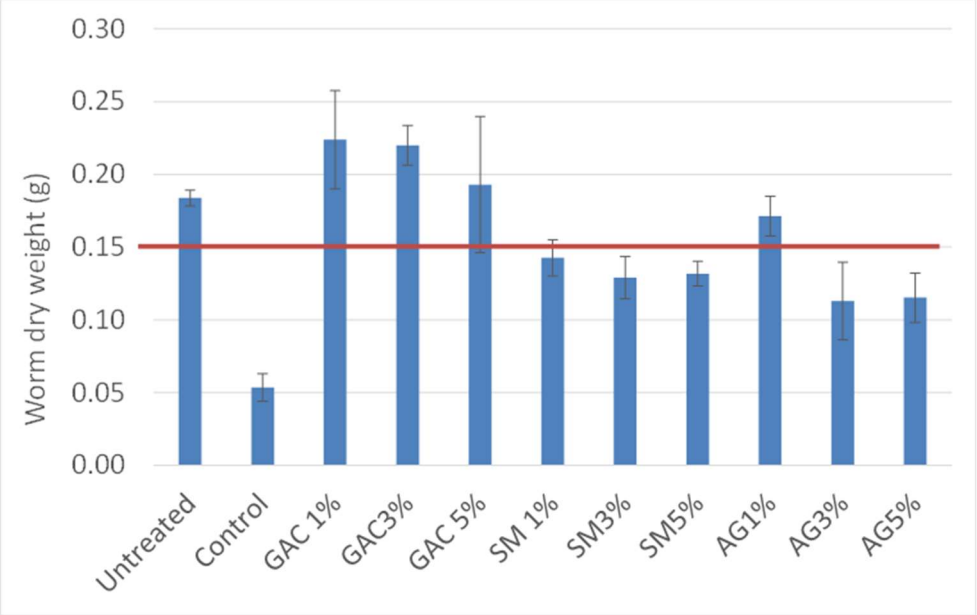
| % Reductions | GAC 1% | GAC3% | GAC 5% | SM 1% | SM3% | SM5% | AG1% | AG3% | AG5% |
|---|---|---|---|---|---|---|---|---|---|
| Mono | | | | | | | | | |
| Di | 100 | 100 | 100 | 84 | 100 | 100 | 100 | 100 | 100 |
| Tri | 76 | 56 | 75 | 95 | 100 | 100 | 100 | 100 | 100 |
| Tetra | 44 | 19 | 40 | 75 | 100 | 100 | 96 | 100 | 100 |
| Penta | 30 | -3 | 11 | 23 | 75 | 87 | 66 | 98 | 100 |
| Hexa | 22 | -1 | 7 | 5 | 56 | 55 | 40 | 87 | 98 |
| Hepta | 20 | 7 | 6 | 16 | 60 | 47 | 26 | 82 | 98 |
| Octa | 25 | 17 | 20 | 24 | 52 | 42 | 23 | 85 | 99 |
| Nona | 16 | 8 | 18 | 52 | 100 | 100 | 67 | 100 | 100 |
| | | | | | | | | | |
| **TOTAL** | **31** | **9** | **18** | **30** | **71** | **70** | **55** | **92** | **99** |

### 3.7.3.3 Worm Survival and Recovery from Bioaccumulation Study

Worm survival and recovery was monitored to evaluate the effect of treatment dose and any negative impacts on organism during the bioaccumulation studies. Following the bioaccumulation study, worm tissue recovery was assessed to evaluate dry tissue mass in the untreated sediment compared to the amended sediments. As discussed in **Appendix D** and shown in **Figure 3-13** below, worm recovery was good in all three granular AC treatments and comparable to or higher than the untreated control sediments. Worm recoveries were 86-95% for the three SediMite treatments and 75-114% for the three AquaGate treatments. There appears to be a small impact on worm recovery with decreasing particle size of AC amendment.

Among the treatments, AquaGate 3% and 5% gave the lowest recoveries, while the 1% granular AC treatment gave the highest recovery.

**Figure 3-13: Worm Dry Weight Recoveries Following Bioaccumulation Study**




*0.15 grams of worm dry mass added to each beaker (red line)

# 4 Conclusions

Pepco has completed the TS described herein as part of the FS process to support the evaluation of potential remedial alternatives to address sediments in the Waterside Investigation Area. Activities were conducted in accordance with the Final Treatability Study Workplan approved by DOEE on March 18, 2020, which focuses on the approximately 4.2-acre Cove located just north of the Site beyond the National Park Service Kenilworth Maintenance Yard property. The TS activities included: (1) Hydrologic/Hydraulic, Sedimentation Assessment; (2) Seepage Measurements; (3) Cove Ecological Survey; (4) Sediment Stability Assessment; (5) Sediment Dewatering Tests; and PCB Sequestration Study. Key conclusions from these activities are presented below:

Hydrologic/Hydraulic, Sedimentation Assessment

- Bathymetry collected during 2020 is similar to the 2013 bathymetry with the shallowest areas of the navigational channel occurring immediately south of the Benning Road bridge and much of the navigational channel in the Waterside Investigation Area is at the authorized depth of 8 ft. (or greater), except for a small portion of the channel in front of the Cove, where the depth is 6 ft.
- The perimeter of the Cove is at or above MLLW. Much of the Cove runs dry during low tide.
- Based on approximately eight months of tidal data collected at upstream and downstream stations along the River, the observed MHT and MLT are 2.14 to 2.71 ft, and -0.88 to -1.03 referenced to NAVD88.
- ADCP measurements indicate average near-bottom current ranges for flood tide and ebb tide to be 13.2 to 16.3 cm/s and 13.9 to 17.2 cm/s, respectively. Flood and ebb currents noted are approximately in northeast and southwest directions.
- ADCP measurements indicate maximum near-bottom current ranges for flood and ebb tide to be 33.2 to 45.5 cm/s, and 85.4 to 113.3 cm/s, respectively. Flood and ebb currents noted are approximately in northeast and southwest directions.
- Ebb currents appear to be generally stronger. Peak ebb current appears to correlate with strong wind towards south and southwest and a rain event.
- A total of six outfalls were identified as discharging into the Cove. One of these outfalls is Pepco's Outfall 013. Three other outfalls drain the D.C. transfer station property. The remaining two outfalls are of unknown origin. One of the three outfalls associated with the waste transfer station property (DPW POD-001) was not identified until after the field sampling was completed. Additional sampling is planned to assess potential impacts to the Cove from this outfall. In addition, further investigation is planned to confirm the sources of both wet and dry weather flow to Outfall 3 (DPW POD-003) and Outfall 4 (unknown origin) as well as the apparent interconnection of the drain pipes leading to these two outfalls.
- Field survey also identified four other culverts associated with the Anacostia Trail and one surface water discharge point from the Kenilworth Park South Landfill to the north shore of the Cove. Additional sampling is planned to further assess potential impacts to the Cove of flows from these discharge points.

- Flow data could not be collected on Outfall 5 due to accessibility and poor condition of the outfall. Based on limited manual measurements collected, it appears that the drainage area served by Outfall 5 is likely to be small in comparison to other outfalls draining into the Cove.
- Approximate sediment loads to the Cove based on total suspended solids for Outfalls 1 through 4 are 0.89, 4.88, 0.56, and 0.02 tons/year, respectively.
- Approximate PCB loads to Cove based on aqueous PCB concentrations for Outfalls 1 through 4 are 0.69, 3.54, 0.08 and 0.01 g/year, respectively. It should be noted that these calculations are preliminary and are based on only two sets of samples. Measured concentrations for these events may or may not be representative of average annual effluent quality. These loading estimates will be updated based on the results of additional sampling that is planned for the various discharge points in the Cove.
- The sediment trap results show that the Cove and the Waterside Investigation Area locations investigated are in general depositional. Accurate sedimentation rate calculations require multi-year investigations where seasonal influences can be captured. This means that while both the sediment traps and mats help provide understanding into the depositional characteristics of the area, the radio-isotope core taken at SED7E is likely a more reliable basis for estimating actual long-term sedimentation rates.
- PCB concentrations ranging from 120 to 290 ppb were detected in samples collected from the standard sediment traps installed in the River and from 730 to 1,500 ppb in samples collected from the sediment mats in the Cove. The grain size analysis indicates that the composition of sediments in the sediment traps and on the mats is fairly consistent and consists mostly of silt and clay particles (~63 to 80%).

Seepage Measurements

- In-situ seepage measurements were collected at three locations in the Cove. The average seepage velocity was -0.26 cm/d during a rising tide and 1.78 cm/d during a falling tide. These seepage velocity measurements will be used in conjunction with previously collected pore water data to calculate PCB flux.
- A laboratory seepage study was also conducted to investigate the hydraulic conductivity of shallow Cove sediments before and after application of the activated carbon amendment materials. The laboratory seepage measurements indicate that the amendments will likely reduce hydraulic conductivity through the native sediments in the Cove. The study showed seepage rate reductions ranging from 25 – 78% compared to untreated sediments. Similar reductions were observed for all three amendment products; however, it is possible that after a longer period of hydration and swelling of the bentonite clay, further reductions in seepage may be observed for the bentonite-clay containing amendments.

Cove Ecological Survey

- A vegetation survey of the Cove and multiple surrounding freshwater marshes in the area was conducted. Types of vegetation observed in the Cove were also observed in nearby freshwater tidal marshes both upstream and downstream, including nearly monotypic stands of *Nuphar advena*. Dominant species identified in the nearby upstream and downstream freshwater tidal marshes that were not observed in the Cove include *Typha angustifolia* (narrow-leaf cattail) and *Phragmites australis* (common reed).
- A macroinvertebrate survey was conducted in the Cove and adjacent wetland using Hester-Dendy samplers. The results of this study found the macroinvertebrate taxa to be typical of tidal freshwater

systems within Chesapeake Bay, which are well adapted to high levels of turbidity and soft unstable substrates and are dominated by oligochaetes and chironomid insect larvae.

- The results of the macroinvertebrate survey are comparable to the results of macroinvertebrate community surveys conducted in 2016 and 2017 to support the ARSP Baseline Ecological Risk Assessment (BERA) and the Benning Road site BERA, respectively.

Sediment Stability Assessment

- While Riverine cores vary to some degree from location to location, the erodibility relative to applied shear stress are similar both at the surface and with depth suggesting that along the Anacostia River in the vicinity of the Cove, there is no substantial difference in sediment stability.
- All Riverine cores show evidence of increased shear resistance with depth likely due to consolidation of underlying sediment; however, no cores show evidence of a transition from depositional sediment to pre-anthropogenic material; one core contained non-biodegradable human waste (plastic bandaid) at depth confirming the area from which the core was collected is recent deposition.
- While there were differences in the erodibility of the various amended cores, there was no substantive difference between the two Cove core locations.
- Amendments added to the Cove sediment generally decreased the erodibility of the material; this was particularly evident in the carbon-amended sand cores where the addition of 6” of sand consolidated the core material and increased density and erosion resistance.
- In both the AquaGate+PAC and SediMite amended applications, both Cove core locations showed evidence of biological activity (bioturbation) and transport of carbon into underlying sediment.
- AquaGate+PAC, which has a range of particle sizes that extend from sand- to gravel-size, created a more erosion resistant cover relative to SediMite. The bentonite component of this material created a cementitious gel which bound the particles and when the erosional forces were increased, the layer was observed to lift from the surface. The flow that created this force is expected to be significantly higher than those encountered in the River or Cove hydraulic system.
- The amended sand layer appeared to create a very erosion resistant condition at the intersection of the carbon sand and the sediment. Close observation noted that at the interface of the amended sand and sediment there was evidence of a secreted material that may be related to benthic mortality. Benthic activity appeared to cease after placement of the amended sand potentially due to the creation of an anoxic environment and/or the consolidation and densification of the underlying sediment. The net impact is a very erosion-resistant condition at the interface due to the combination of these factors. The interface depth was orders of magnitude less erodible than native sediment.

Sediment Dewatering Tests

- Two types of dewatering tests were conducted on Cove sediments. Sediment solidification/ stabilization tests were conducted on higher solids content material (representative of mechanically dredged sediment) collected from within the upper 1 to 2 feet from the Cove. Geotextile tube tests were conducted on slurry prepared in the lab with a 10% to 15% solids content (representative of hydraulically dredged sediment).
- Solidification/stabilization tests were conducted in two steps. Several amendments including Type I Portland Cement (PC), lime kiln dust (LKD), Calciment™ and ZapZorb™ were first added in different mix ratios to the sediment samples. No measurable strength gain was observed during the

initial round of amendment testing in four days for any amendment. ZapSorb™ was observed to produce a dry soil-like appearance compared to other admixtures even at very low doses (0.5-3%).

- In the second step, sequential amendment addition of ZapZorb™ and PC (in that order) was tried to assess if phased reaction might be advantageous to strength gain. PC at 10% along with ZapZorb™ resulted in early strength gain believed to be sufficient should sediment disposal require it.
- For the geotextile tube test, a jar test was first conducted as a screening step using conditioners varying in ionic charge, structure and molecular weight. AquaHawk 7840 was identified as the best performing conditioner at a dosage rate of 2.70 lbs (polymer)/dry ton.
- The best performing conditioner was then added to a geotextile pillow simulating field scale geotextile tube gravity dewatering. The pillow test produced 42 to 50% filter cake solids in seven days passing paint filter test.
- A 50 L slurry sample produced approximately 33-34 L of filtrate with 35-45% of that volume being released in the first minute. The peak turbidity of that "first blush" was 40 to 78 NTU. Sustained turbidity (i.e., between 1 and 24 hours) was 24 to 27 NTU.
- The tests demonstrated that the geotextile tube gravity dewatering will deliver dewatered material suitable for transport and disposal. The filtrate generated will require management to reduce turbidity and chemical concentrations to meet disposal/discharge requirements.

PCB Sequestration Study

- Sediments amended with three different activated carbon products (Calgon Carbon F-300 GAC with 20-50 mesh size, SediMite™ made with 50% by weight of a fine activated carbon with 80-325 mesh size, and AquaGate® made with 10% by weight of a powdered activated carbon with <325mesh size) were studied at three different dosages (1, 3 and 5%) to observe reductions in pore water PCB concentration and tissue concentrations.
- Porewater concentrations from amended sediments show that granular size AC is minimally effective in reducing porewater concentration of PCBs even at a dose of 5% by weight of sediment. Both SediMite and AquaGate are effective in reducing porewater PCB concentrations at all dosing levels with the powdered AC used in AquaGate being the most effective for a given dose.
- Both 3% and 5% amendment of AC in the 80-325 mesh (SediMite) and all three doses of powdered form (AquaGate) are able to reduce the PCB porewater concentration below the USEPA ambient water quality criteria value of 0.64 ng/L for $10^{-5}$ incremental cancer risk for human health via fish consumption.
- The results also demonstrated that effectiveness of AC is a strong function of its particle size. This observation is consistent with published results from other studies.
- The greatest PCB reductions were observed for lower chlorinated homologs, particle size effect was the most apparent for the more hydrophobic compounds (i.e. hexa and higher homolog groups).
- Treatment of the sediment with granular size AC showed little change in the biouptake of total PCBs in worms, regardless of dosing level. However, both SediMite and AquaGate+PAC effectively reduced tissue PCB concentrations at 3% and 5% dosing levels with the powdered AC used in AquaGate+PAC being the most effective.
- The results of PCB bioaccumulation in treated sediments are consistent with the observation of greater reduction for the lower chlorinated homologs, especially for the finer AC particle size.

- Overall, the bioaccumulation study demonstrates that application of a powdered AC to the study sediments was effective in reducing both porewater PCB concentration and PCB biouptake in worms by more than 90% at a dose of 3% or higher.
- Worm recovery was good in all three GAC treatments and comparable to or higher than the untreated control sediments. Worm recoveries were 86-95% for the three SediMite treatments and 75-114% for the three AquaGate treatments. There appears to be a small impact on worm recovery with decreasing particle size of AC amended. Among the treatments, AquaGate 3% and 5% gave the lowest recoveries, while the 1% GAC treatment gave the highest recovery.

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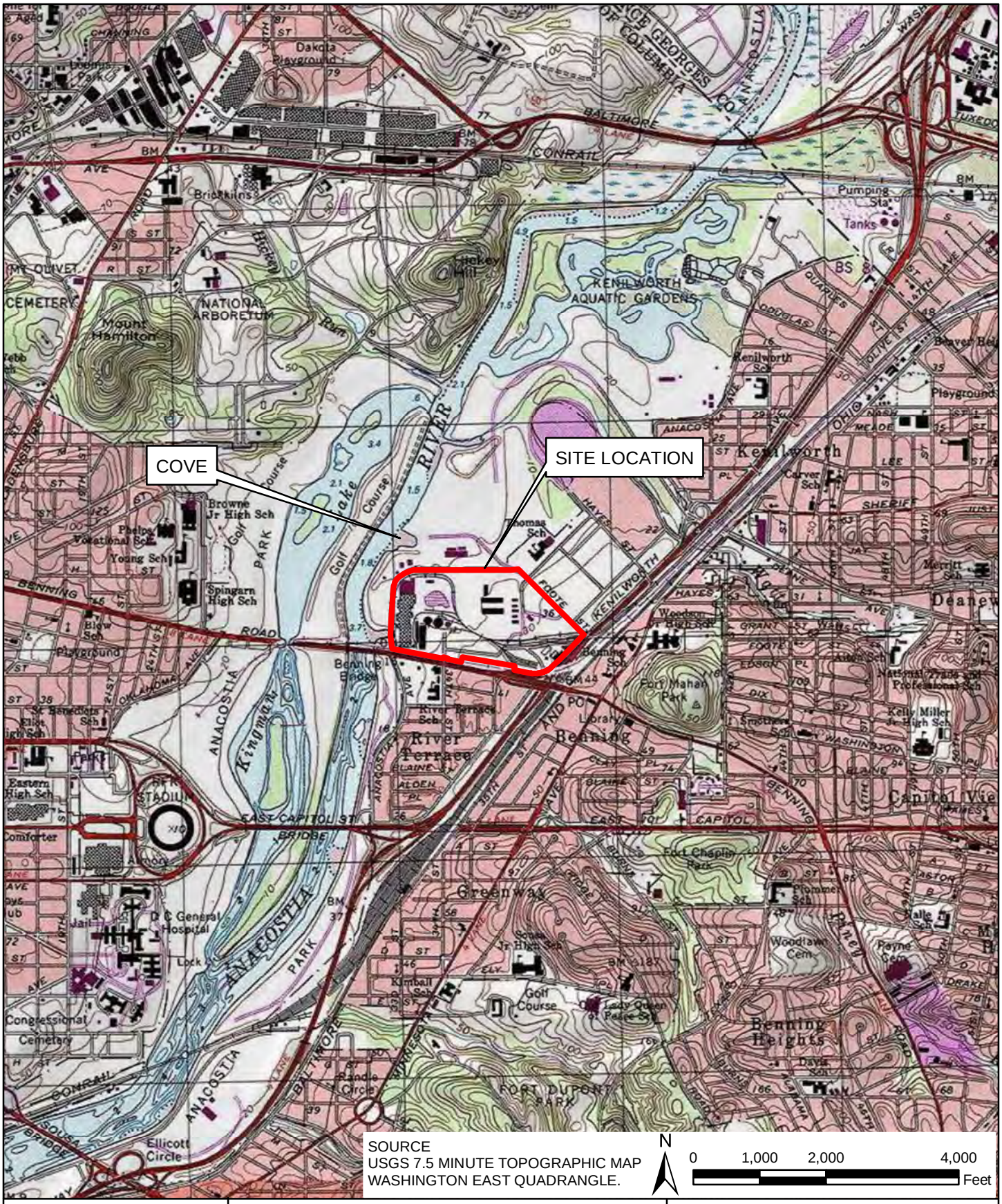
# Figures




AECOM

BENNING ROAD FACILITY RI/FS PROJECT
3400 BENNING RD., NE
WASHINGTON, DC 20019

SITE LOCATION MAP

FIGURE 1-1




LEGEND

- Outfall Locations
- National Park Service Kenilworth Maintenance Yard
- D.C. Department of Public Works Solid Waste Transfer Station
- Waterside Investigation Area
- Benning Road Facility Property Boundary
- Cove

AECOM

0 400 Feet

N E S W

| | | | | |
|---|---|---|---|---|
| BENNING ROAD FACILITY RI/FS PROJECT<br>3400 BENNING RD., NE<br>WASHINGTON, DC 20019 | | | SITE PLAN AND<br>INVESTIGATION AREAS | |
| Date: 11/6/2020 | Drawn By: JB | Checked By: SAP | | FIGURE 1-2 |

SEDTRAP-03
SED9.5BSF
TRANS-02
SEDTRAP-02
SED8CSF
ADCP-01
ADCP-02
HD-03
SED7BSF
SED7C
SEDMAT-02
SEEP-01
SED7DSF
SED7.5E
ADCP-04
SEDMAT-03
SED7ESF/SED7E
ADCP-03
SEEP-02
SEEP-03
HD-04
TRANS-03
HD-01
SEDMAT-01
SED6C/R6-04SF
SEDTRAP-01
SED5CSF
HD-02
TRANS-01

LEGEND

- Sedflume
- Transducer & Staff Gauge
- Standard Sediment Trap
- Sediment Mat
- Hester-Dandy Sampler
- Acoustic Doppler Current Profiler
- Seepage Meter
- Constituent Sequestration/ Isolation Assessment
- Sediment Dewatering
- Waterside Investigation Area
- Benning Road Facility Property Boundary

AECOM

0 300 Feet

N W E S

BENNING ROAD FACILITY RI/FS PROJECT
3400 BENNING RD., NE
WASHINGTON, DC 20019

TREATABILITY STUDY
SAMPLING/INVESTIGATION LOCATIONS

| Date: 11/3/2020 | Drawn By: JB | Checked By: SED | | FIGURE 2-1 |
|---|---|---|---|---|

TRANS-02

ADCP-01

ADCP-02

ADCP-04

ADCP-03

TRANS-03

TRANS-01

LEGEND

- Transducer & Staff Gauge
- Acoustic Doppler Current Profiler
- Waterside Investigation Area
- Benning Road Facility Property Boundary

AECOM

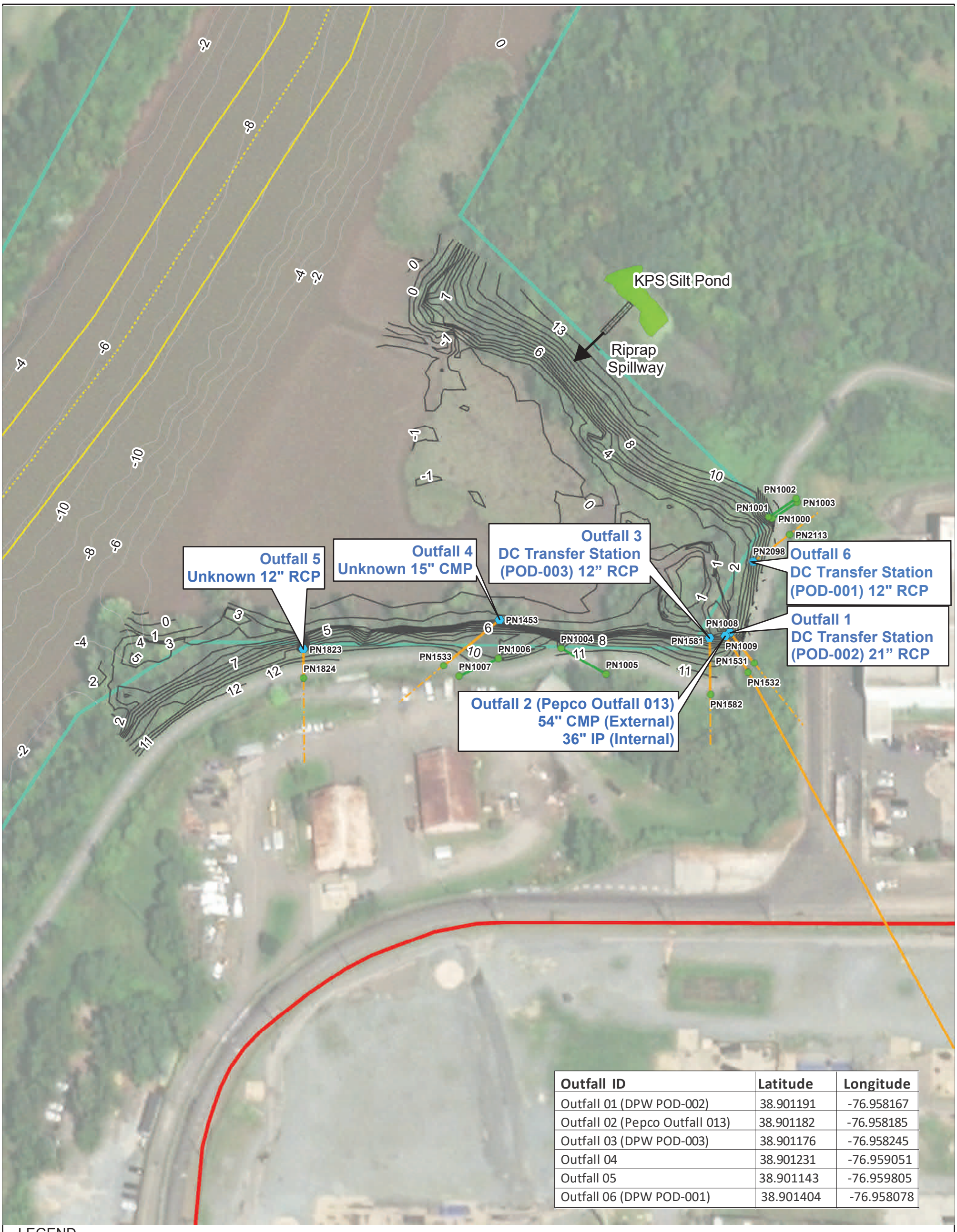
0 300 Feet

N W E S

BENNING ROAD FACILITY RI/FS PROJECT
3400 BENNING RD., NE
WASHINGTON, DC 20019

TRANSDUCER STATIONS
AND ADCP LOCATIONS

| Date: 11/3/2020 | Drawn By: JB | Checked By: SED | | FIGURE 2-2 |
|---|---|---|---|---|




| Outfall ID | Latitude | Longitude |
|---|---|---|
| Outfall 01 (DPW POD-002) | 38.901191 | -76.958167 |
| Outfall 02 (Pepco Outfall 013) | 38.901182 | -76.958185 |
| Outfall 03 (DPW POD-003) | 38.901176 | -76.958245 |
| Outfall 04 | 38.901231 | -76.959051 |
| Outfall 05 | 38.901143 | -76.959805 |
| Outfall 06 (DPW POD-001) | 38.901404 | -76.958078 |

LEGEND

- Surveyed Outfalls
- Outfall Locations
- Culvert Pipe
- Outfall Pipe
- Unknown Outfall Pipe
- Benning Road Facility Property Boundary
- Waterside Investigation Area

**Type**

- KPS Silt pond
- Riprap Spillway

- Navigational Channel (Approx)
- 2.0' Contour (Bathymetry – June 2020)
- 1.0' Contour (Cove Survey – May 2020)

0 100 200 Feet

N

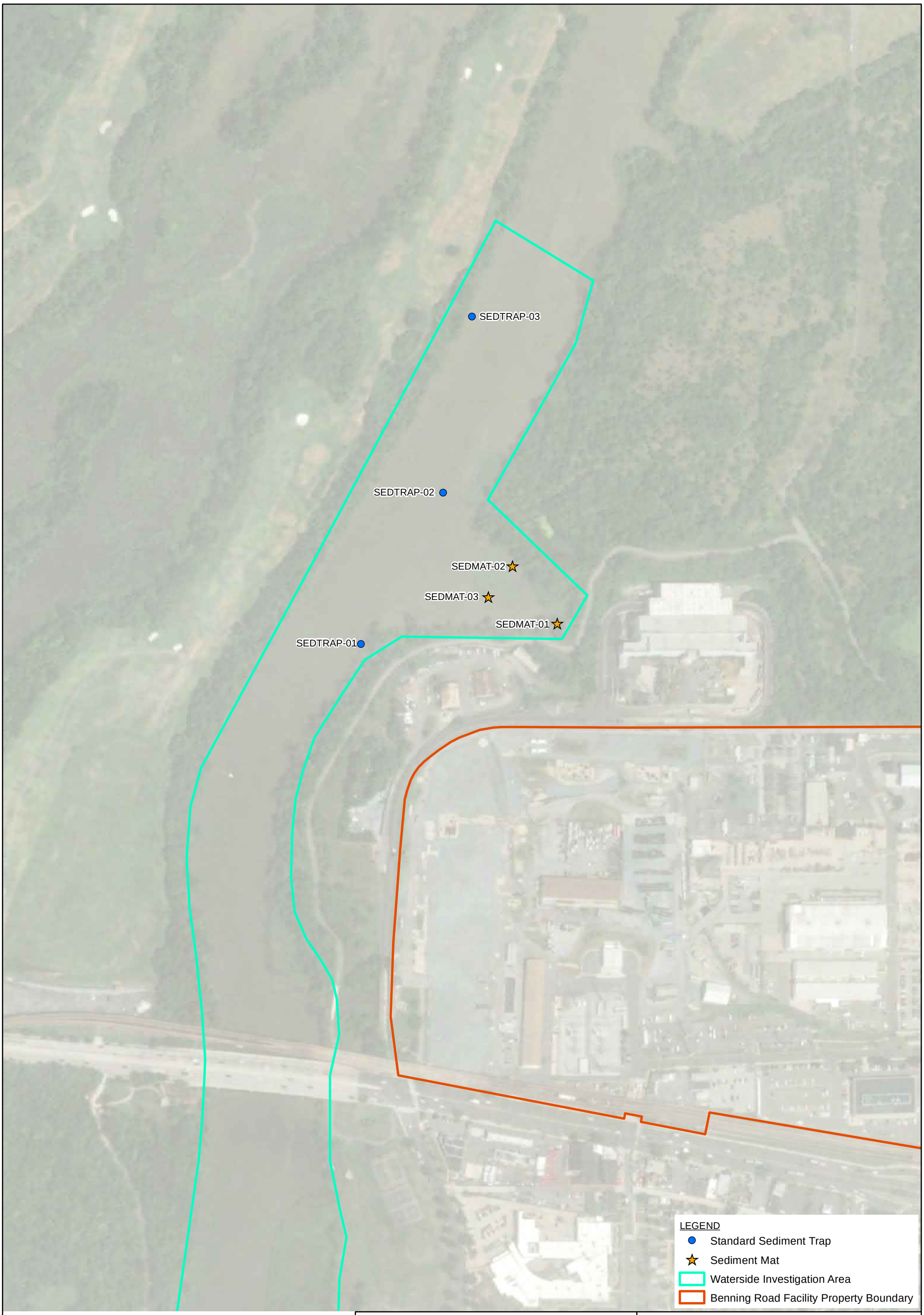
AECOM

BENNING ROAD FACILITY RI/FS PROJECT
3400 BENNING RD., NE
WASHINGTON, DC 20019

COVE OUTFALL LOCATIONS

| Date: 5/14/2021 | Drawn By: DCB | Checked By: RD | | FIGURE 2-3 |
|---|---|---|---|---|

Document Path: S:\Projects\IMS\DUE_DLGNCE\ANACOSTIA\Bathymetry_2020\OutfallLocations.mxd




AECOM

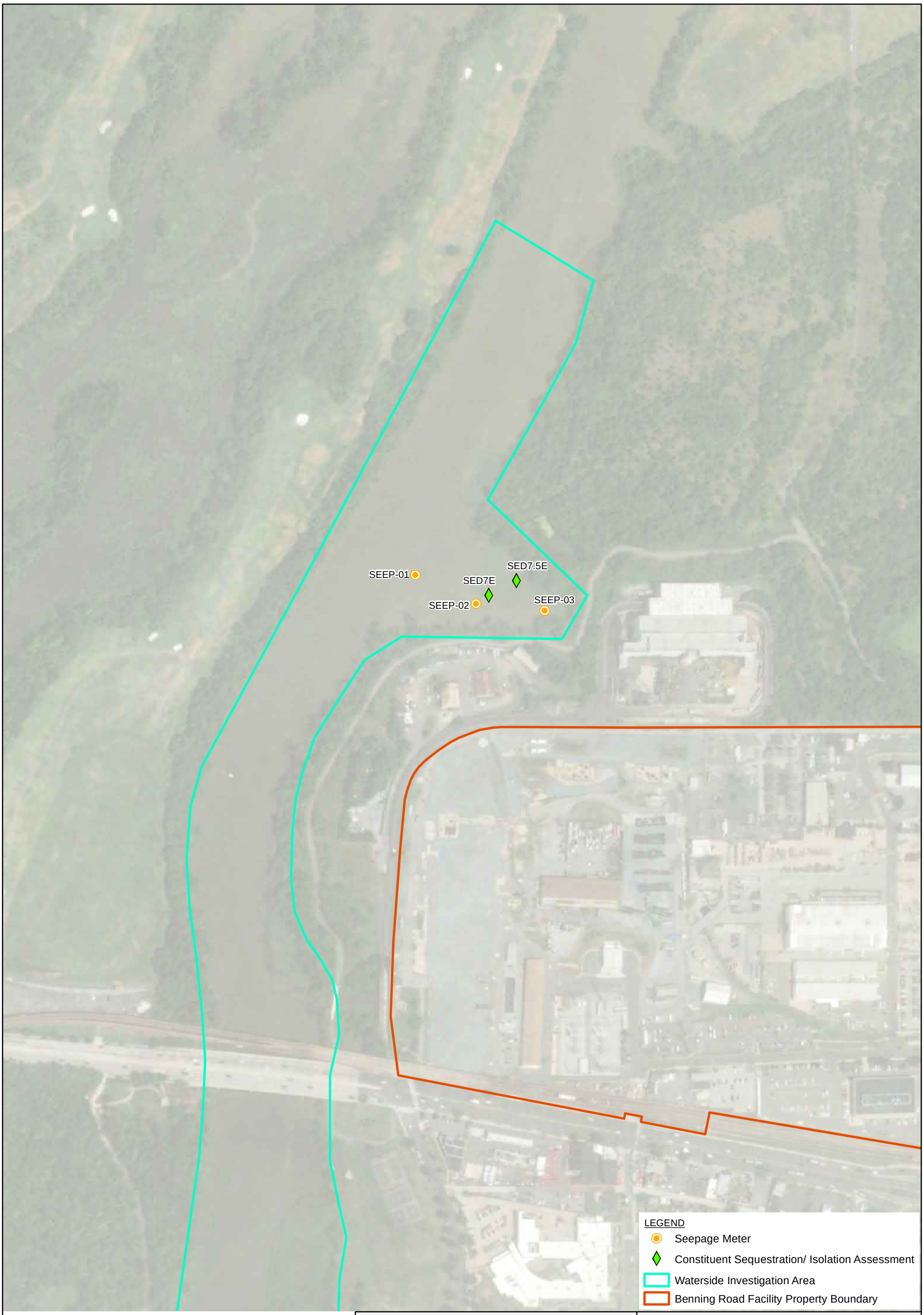
0 300 Feet

N W E S

BENNING ROAD FACILITY RI/FS PROJECT
3400 BENNING RD., NE
WASHINGTON, DC 20019

SEDIMENT TRAP AND
SEDIMENT MAT LOCATIONS

| Date: 11/3/2020 | Drawn By: JB | Checked By: SED | | FIGURE 2-4 |
|---|---|---|---|---|




AECOM

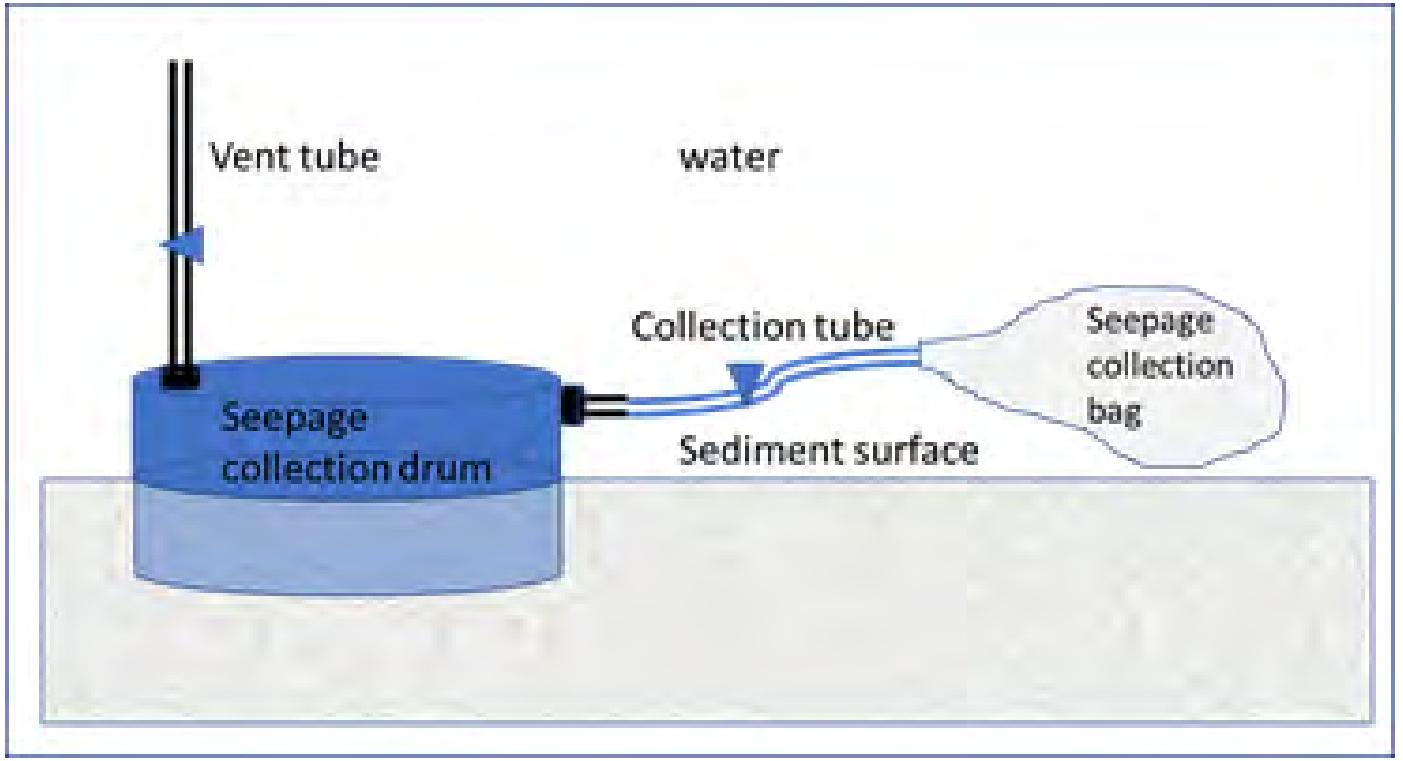
0 300 Feet

N W E S

BENNING ROAD FACILITY RI/FS PROJECT
3400 BENNING RD., NE
WASHINGTON, DC 20019

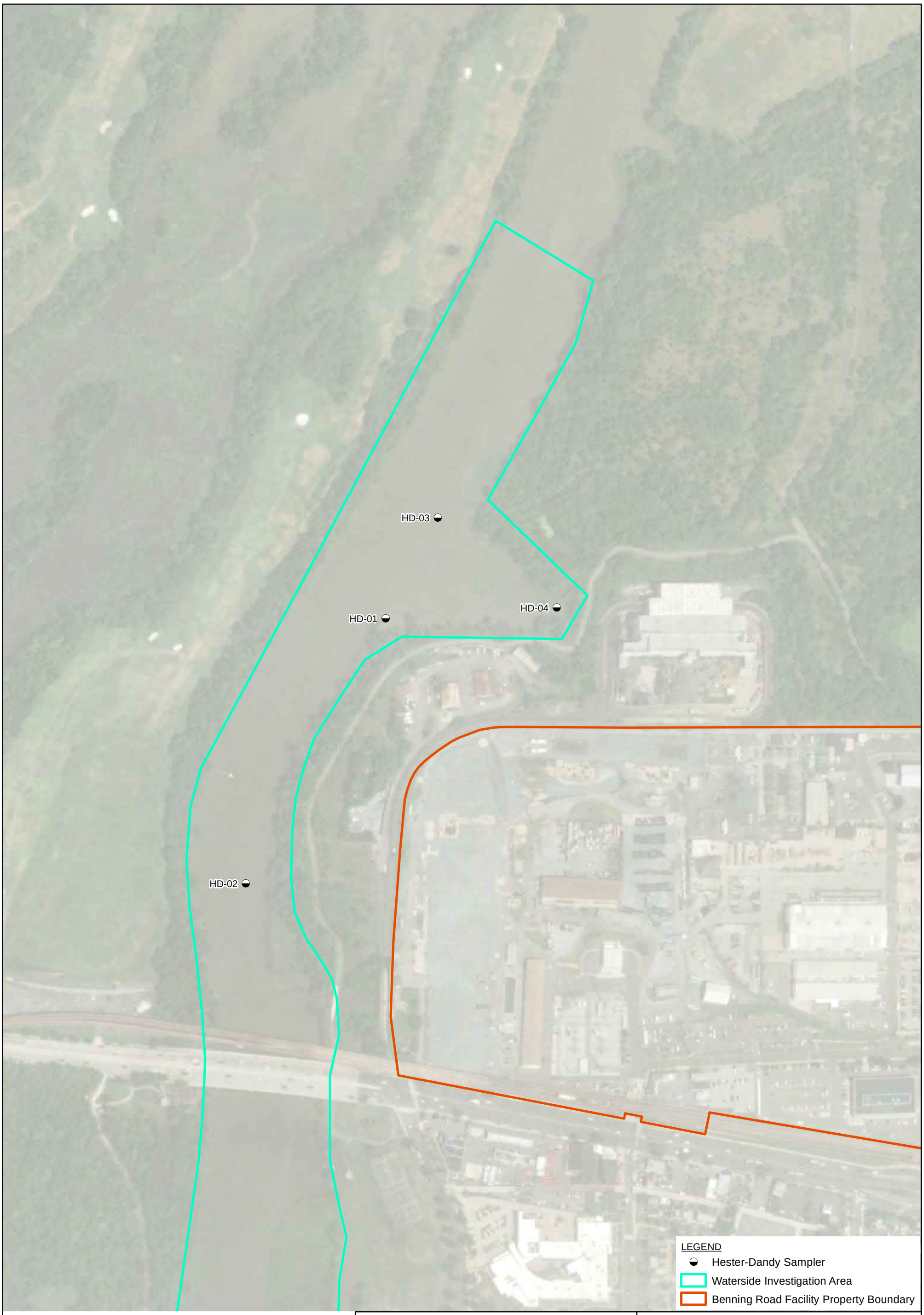
CONSTITUENT SEQUESTRATION
ASSESSMENT AND SEEPAGE EVALUATION

| Date: 11/3/2020 | Drawn By: JB | Checked By: SED | | FIGURE 2-5 |
|---|---|---|---|---|




Schematic of seepage meter tabricated at UMBC using a 55 gallon drum following method described in USGS (2008).

| | | |
|---|---|---|
| **Seepage Meter Schematic** | Benning Road Facility RI/FS Project<br>3400 Benning Road, NE<br>Washington, DC 20019 | AECOM |
| **FIGURE 2-6** | | |




AECOM

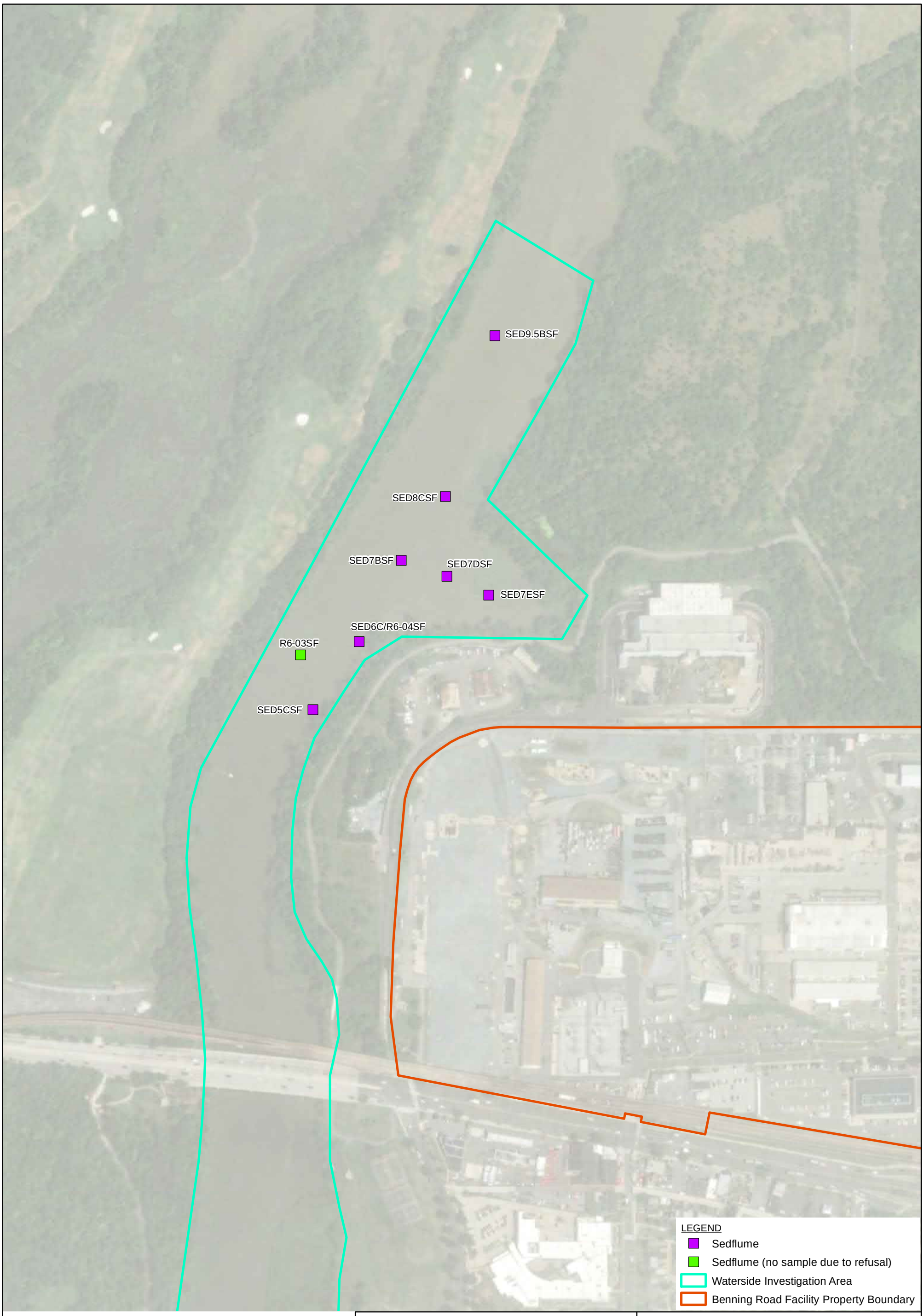
0 300 Feet

N W E S

BENNING ROAD FACILITY RI/FS PROJECT
3400 BENNING RD., NE
WASHINGTON, DC 20019

BENTHIC MACROINVERTEBRATE SURVEY

| Date: 11/3/2020 | Drawn By: JB | Checked By: SED | | FIGURE 2-7 |
|---|---|---|---|---|




AECOM

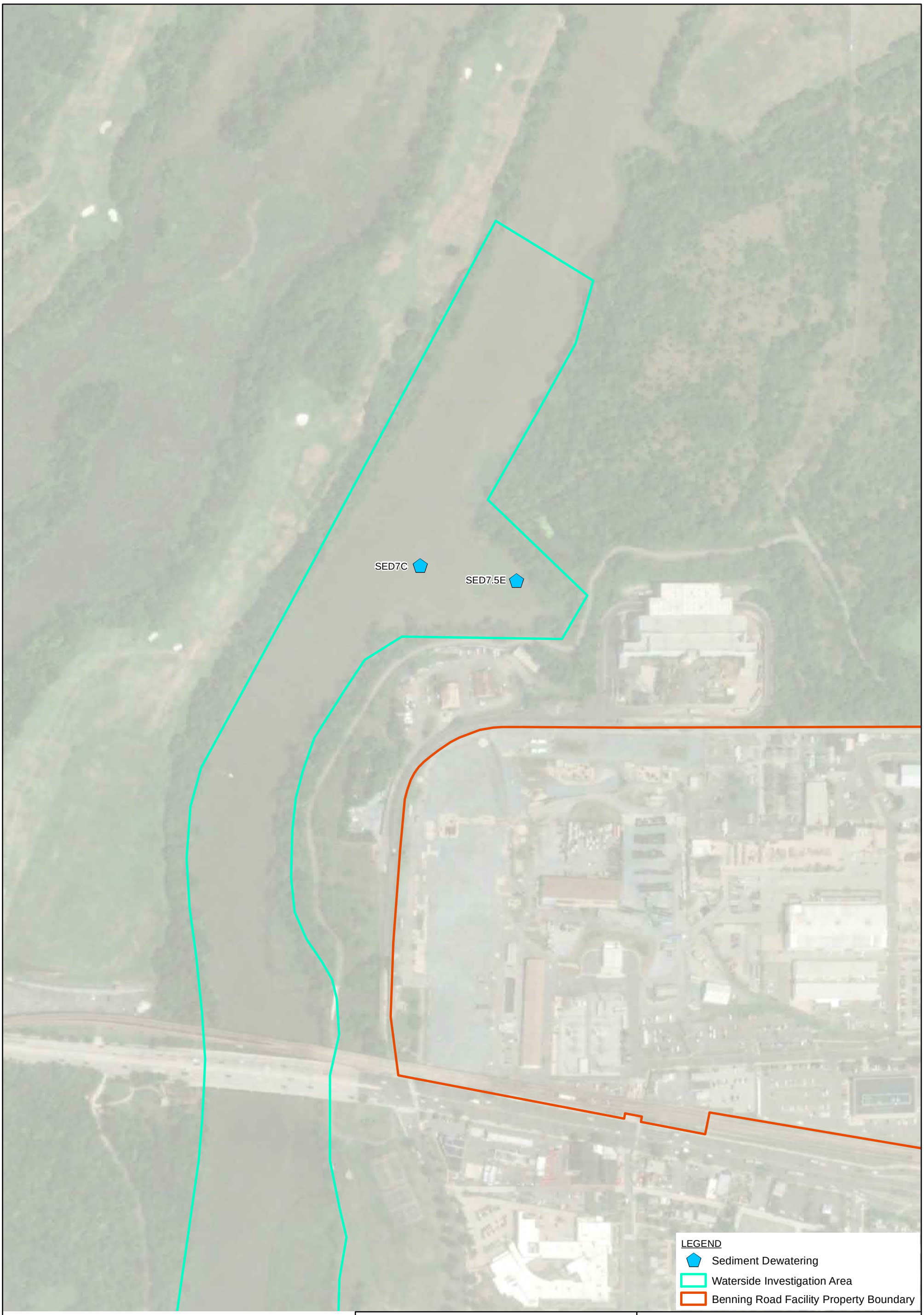
0 300 Feet

N W E S

BENNING ROAD FACILITY RI/FS PROJECT
3400 BENNING RD., NE
WASHINGTON, DC 20019

SEDFLUME CORE LOCATIONS

| Date: 11/24/2020 | Drawn By: JB | Checked By: SED | | FIGURE 2.8 |
|---|---|---|---|---|




AECOM

0 300 Feet

N W E S

BENNING ROAD FACILITY RI/FS PROJECT
3400 BENNING RD., NE
WASHINGTON, DC 20019

SEDIMENT DEWATERING STUDY

| Date: 11/3/2020 | Drawn By: JB | Checked By: SED | | FIGURE 2-9 |
|---|---|---|---|---|

**Bathymetry (FT, Mean Lower Low Water)**

| < -2.0 | -2.0 - -4.0 | -4.0 - -6.0 | -6.0- -8.0 | -8.0 - -10.0 | -10.0 - -12.0 | -12.0 - -14.0 | -14.0 - -16.0 | -16.0 - -18.0 | > -18.0 |
|---|---|---|---|---|---|---|---|---|---|

**Cove Survey (FT, Mean Lower Low Water)**

| <-4.0 | -4.0 - -2.0 | -2.0 - 0.0 | 0.0 - 2.0 | 2.0 - 4.0 | 4.0 - 6.0 | 6.0 - 8.0 | 8.0 - 10.0 | 10.0 - 12.0 | 12.0 - 14.0 | 14.0 - 16.0 |
|---|---|---|---|---|---|---|---|---|---|---|

LEGEND

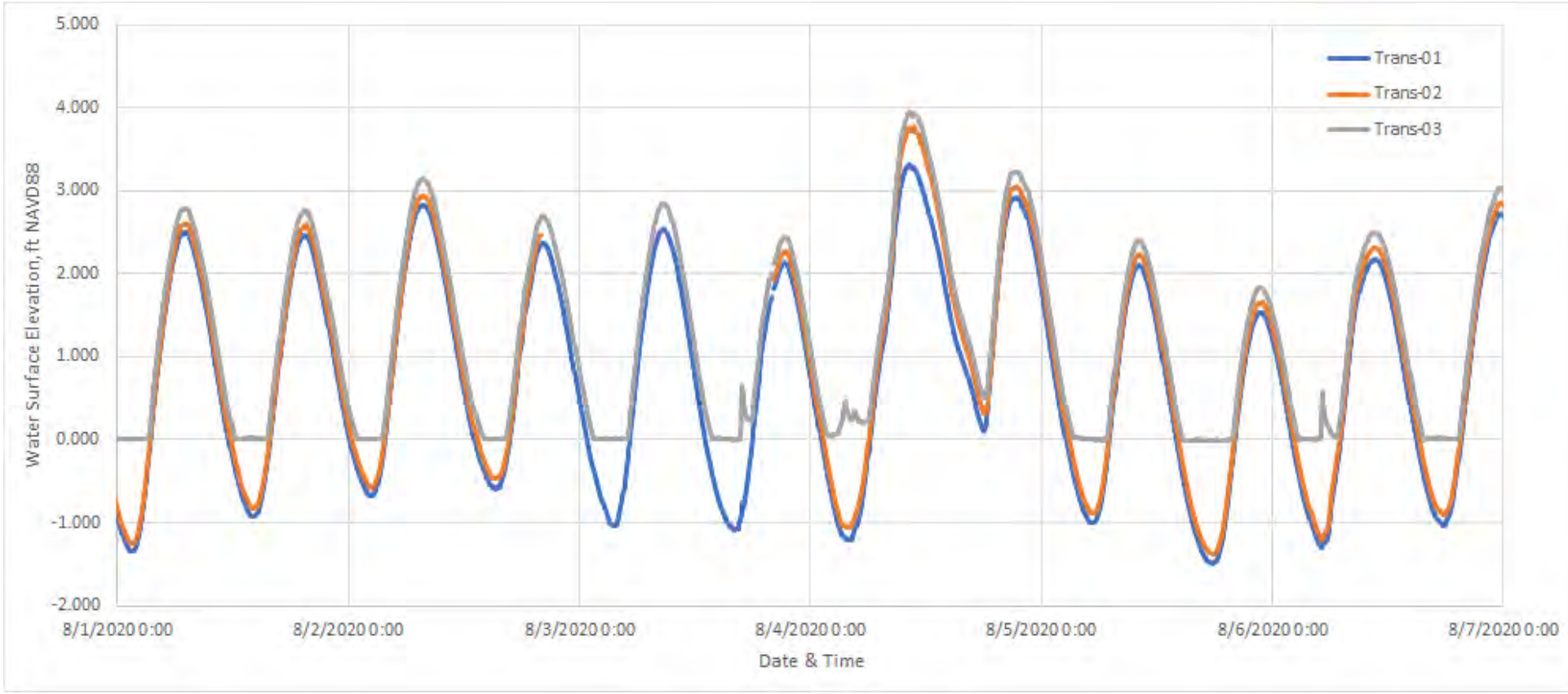
- Navigational Channel (Approx)
- 2.0' Contour
- Benning Road Facility Property Boundary
- Waterside Investigation Area

0 200 400 Feet

N

AECOM

| | | | | |
|---|---|---|---|---|
| BENNING ROAD FACILITY RI/FS PROJECT<br>3400 BENNING RD., NE<br>WASHINGTON, DC 20019 | | | WATERSIDE INVESTIGATION AREA<br>BATHYMETRIC SURVEY (JUNE 2020)<br>AND COVE TOPOGRAPHIC SURVEY (MAY 2020) | |
| Date: 10/28/2020 | Drawn By: DCB | Checked By: RD | | FIGURE 3-1 |



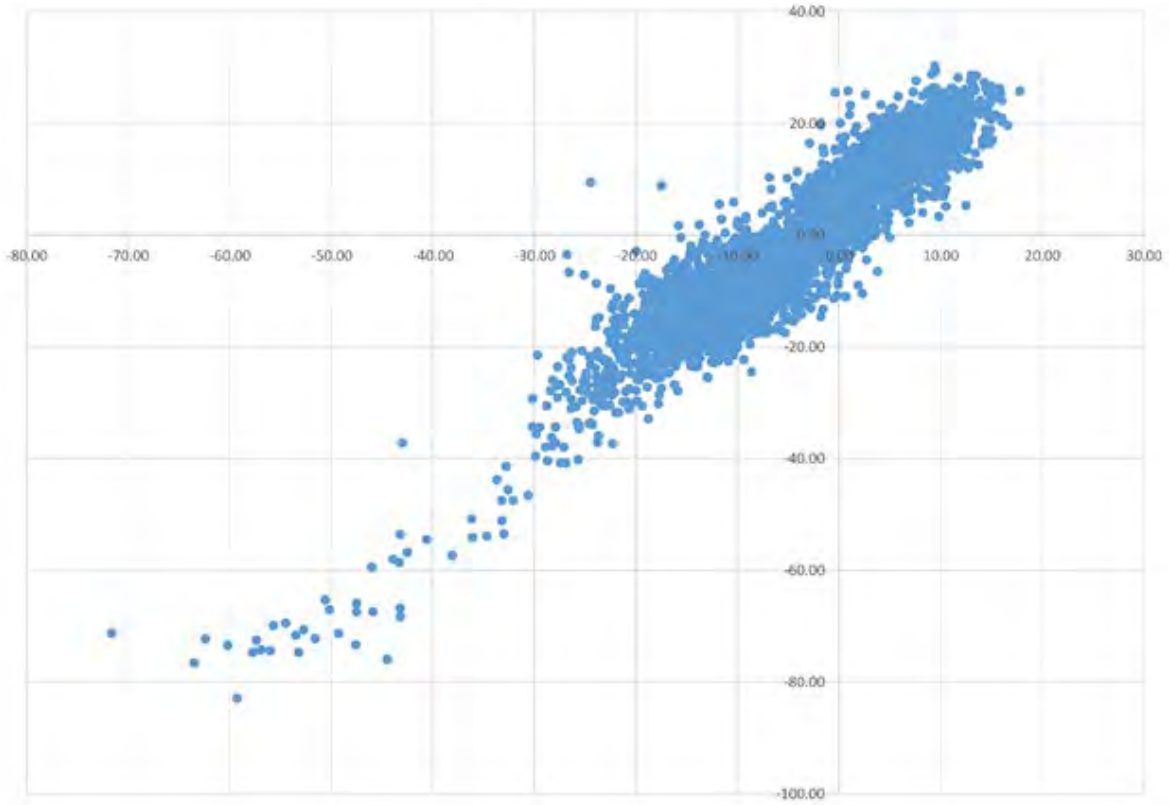

**Observed Water Level Data: August 1 to August 7, 2020**

**FIGURE 3-2**

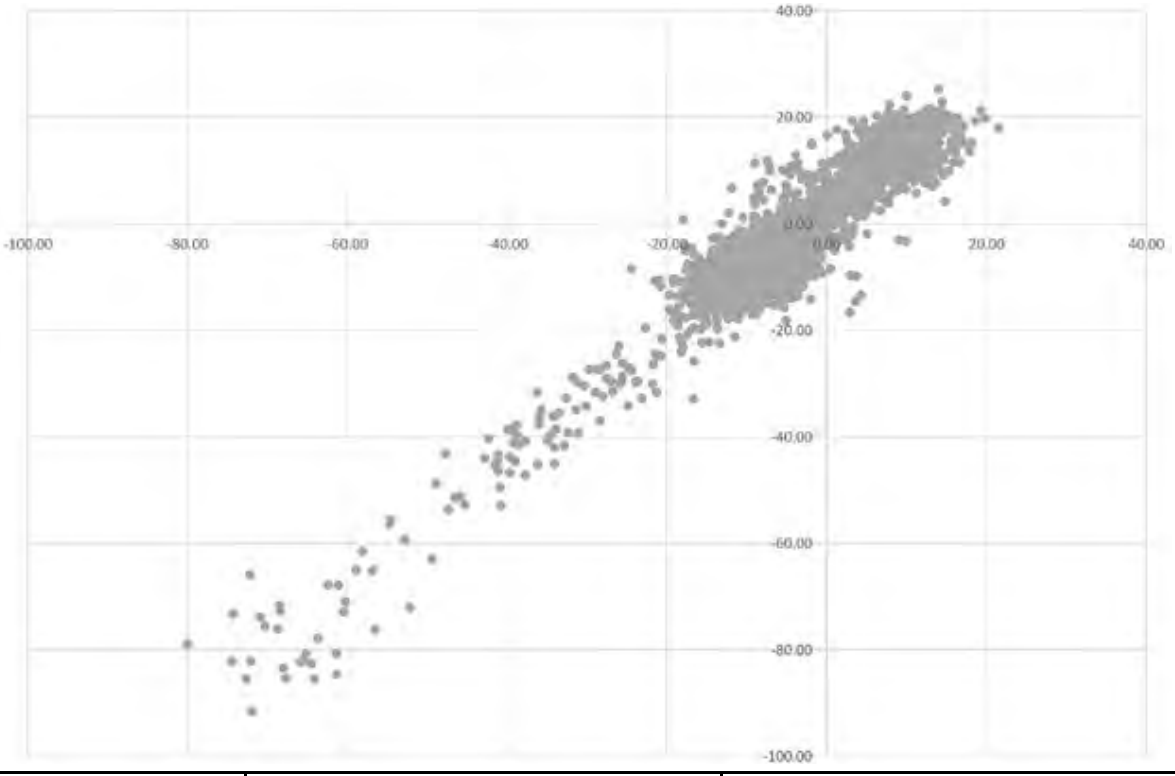
Benning Road Facility RI/FS Project
3400 Benning Road, NE
Washington, DC 20019

AECOM

CHANN ADCP 2 Bin 1 (7/29/2020 to 8/27/2020)

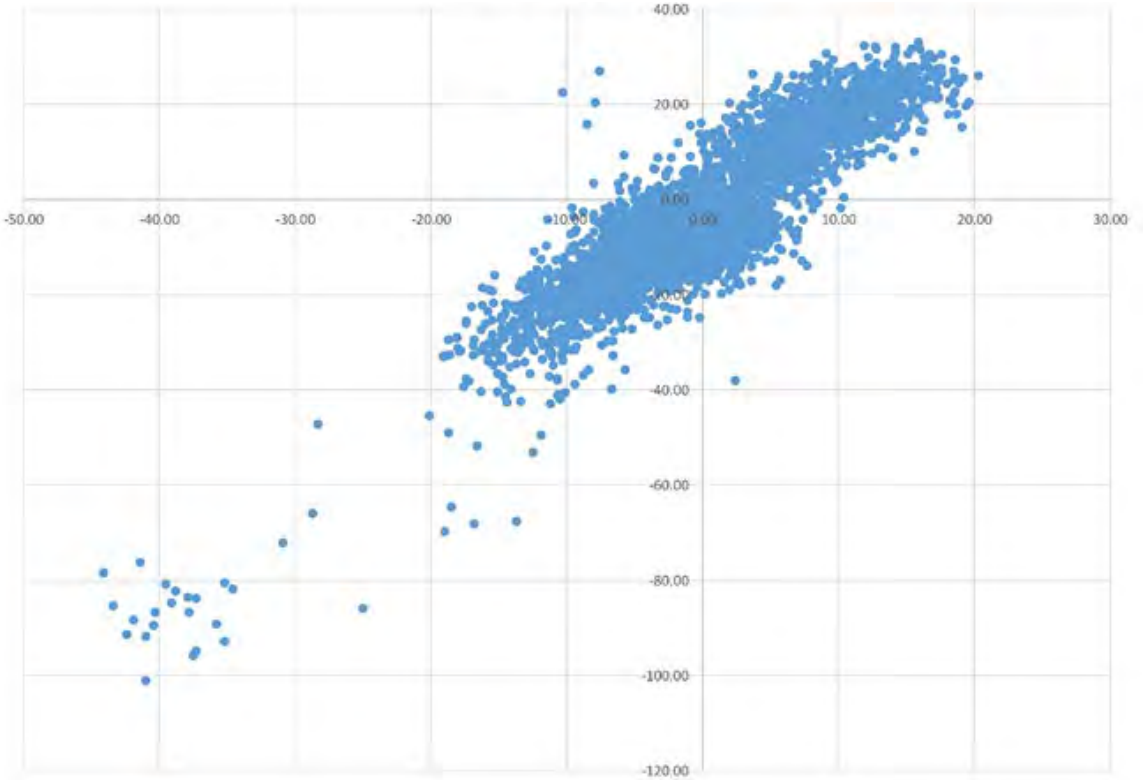



CHANN ADCP 3 Bin 1 (8/27/2020 to 9/11/2020)

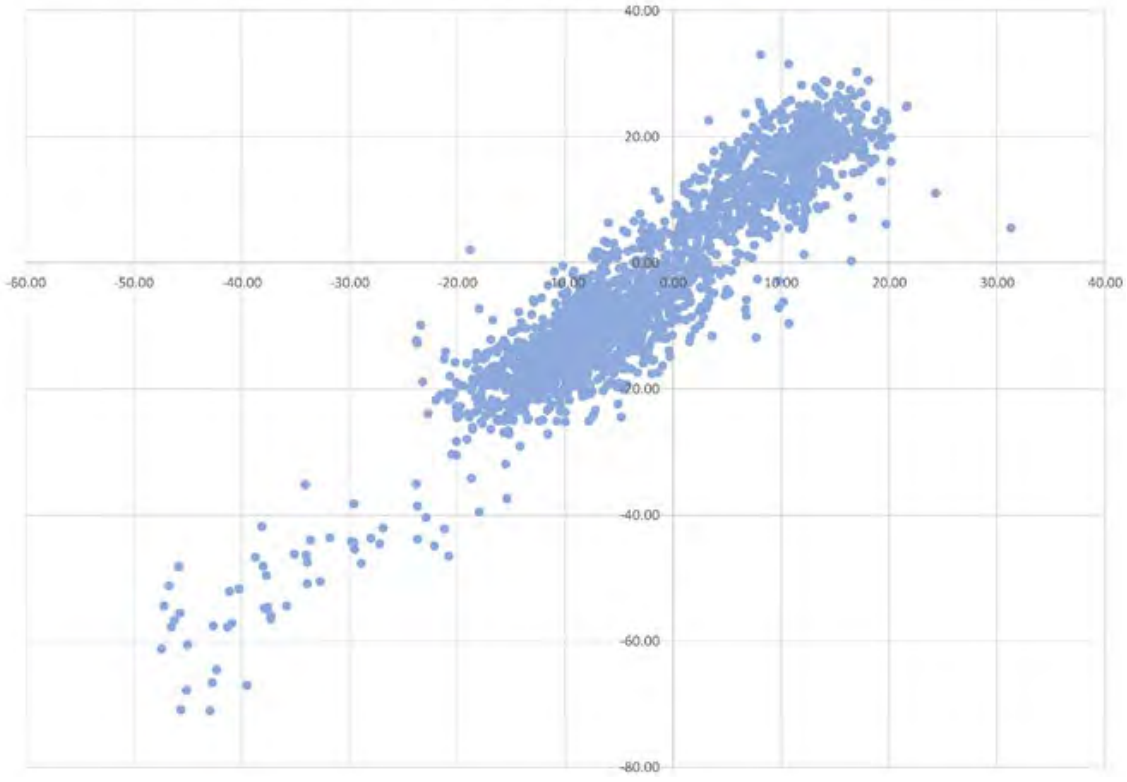



| | | |
|---|---|---|
| AECOM | Benning Road Facility RI/FS Project<br>3400 Benning Rd., NE<br>Washington, DC 20019 | **CHANN ADCP Current Speed and Direction Distributions**<br>**Figure 3-3** |

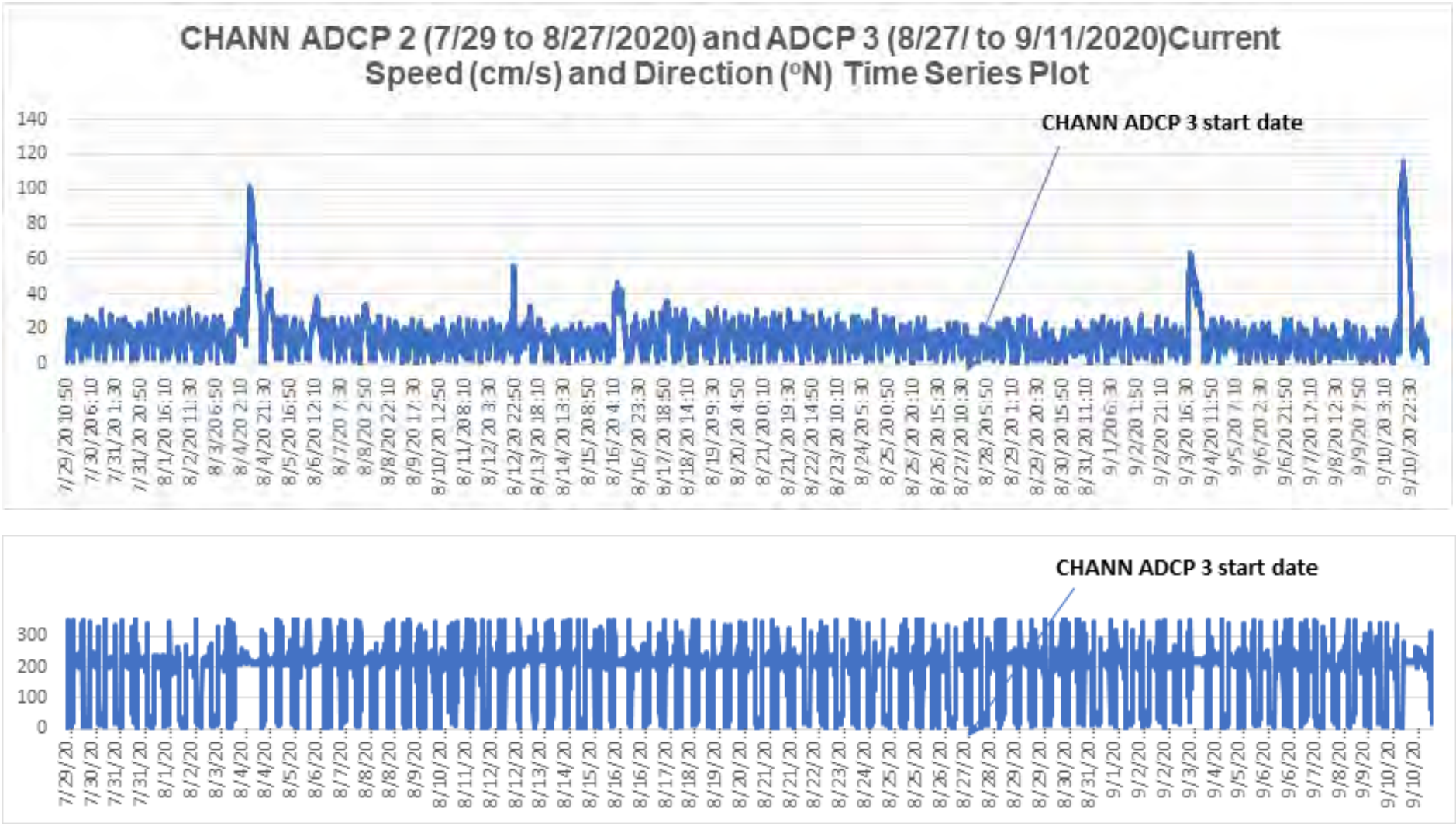
River ADCP 1 Bin 3 (7/29/2020 to 8/27/2020)



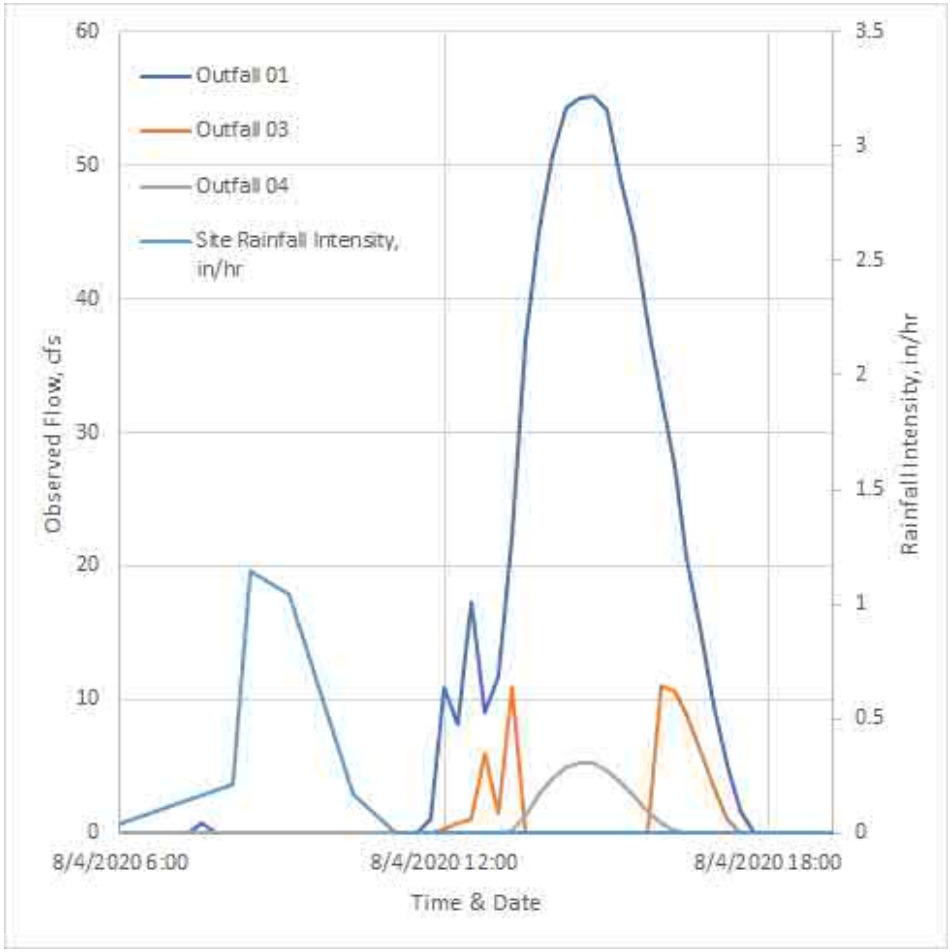

River ADCP 4 Bin 3 (8/27/2020 to 9/10/2020)

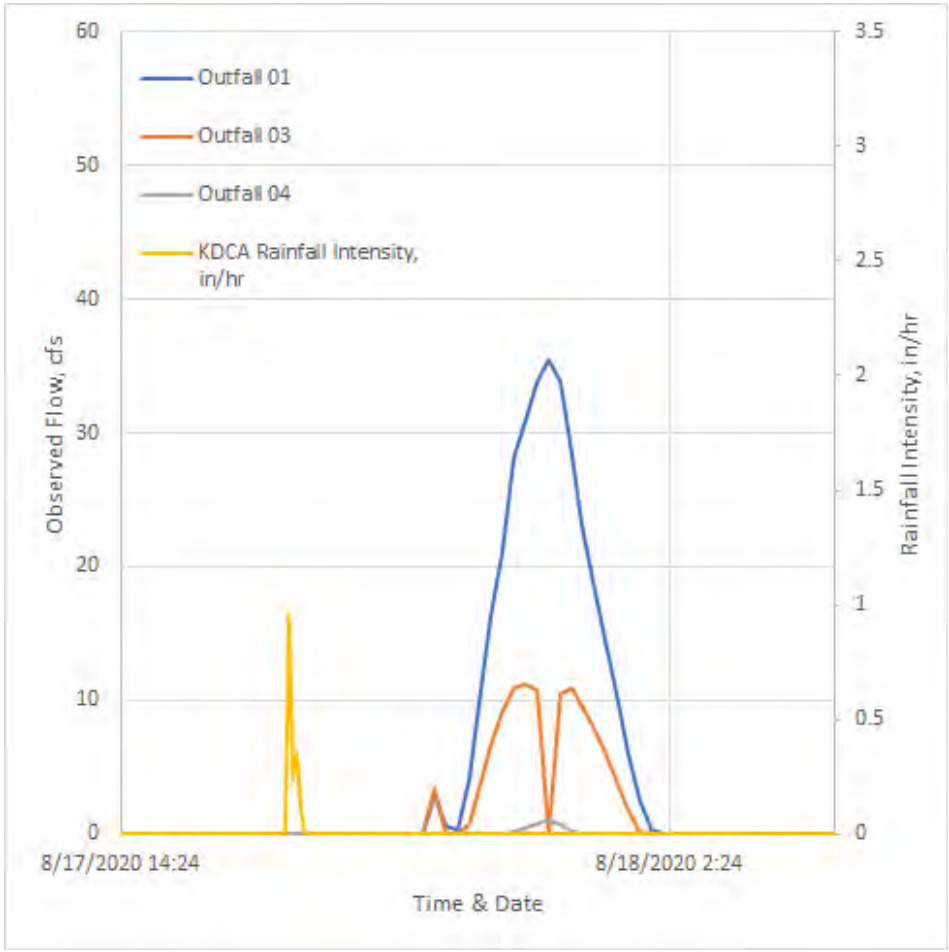



| | | |
|---|---|---|
| AECOM | Benning Road Facility RI/FS Project<br>3400 Benning Rd., NE<br>Washington, DC 20019 | **River ADCP Current Speed and Direction Distributions**<br>**Figure 3-4** |




| | | |
|---|---|---|
| **CHANN ADCP 2 and ADCP 3 Current Speed and Direction** | Benning Road Facility RI/FS Project<br>3400 Benning Road, NE<br>Washington, DC 20019 | AECOM |
| **FIGURE 3-5** | | |



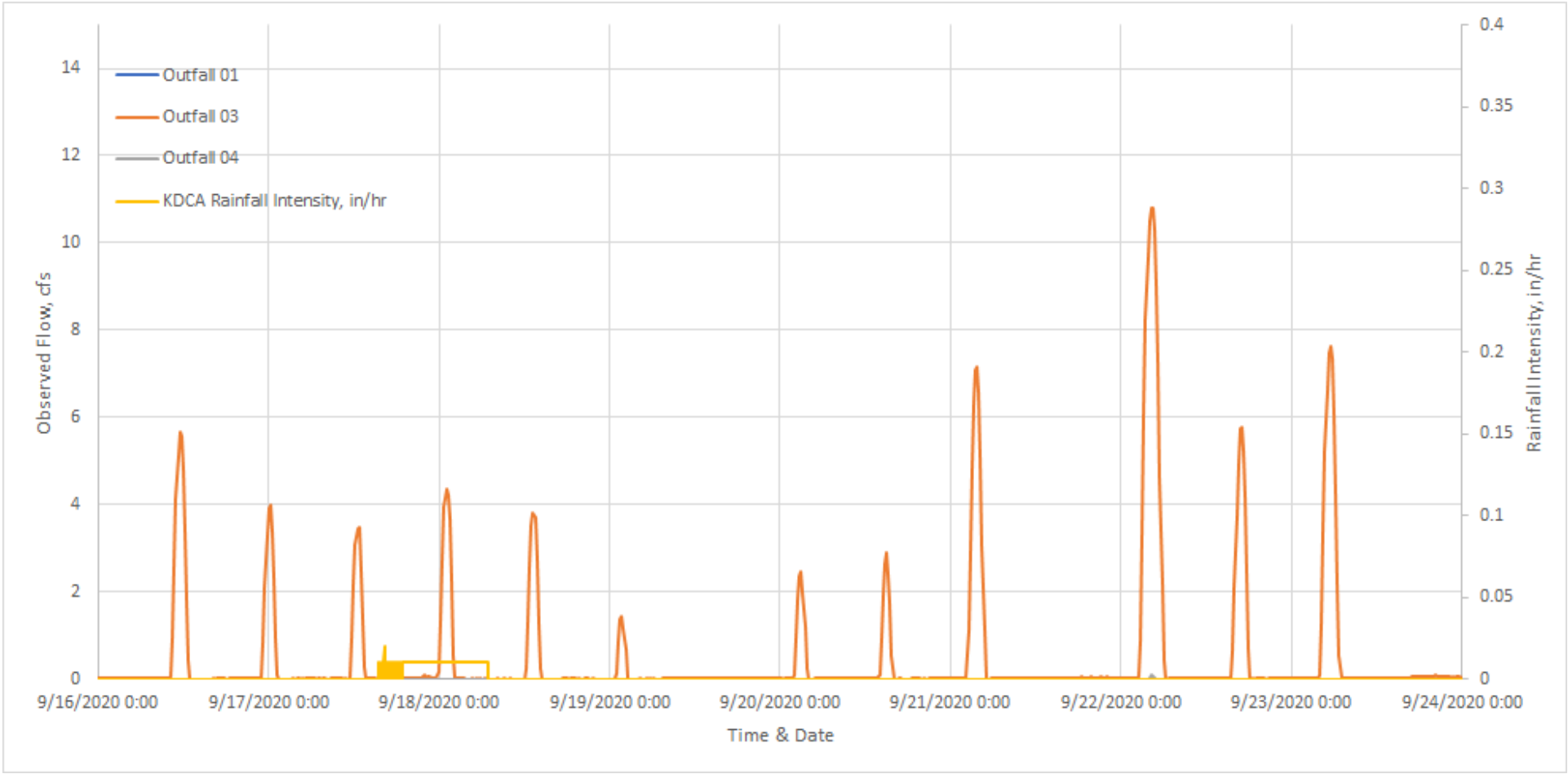




**Observed Wet Weather Discharge at Outfalls 3 & 4**

**FIGURE 3-6**

Benning Road Facility RI/FS Project
3400 Benning Road, NE
Washington, DC 20019

AECOM

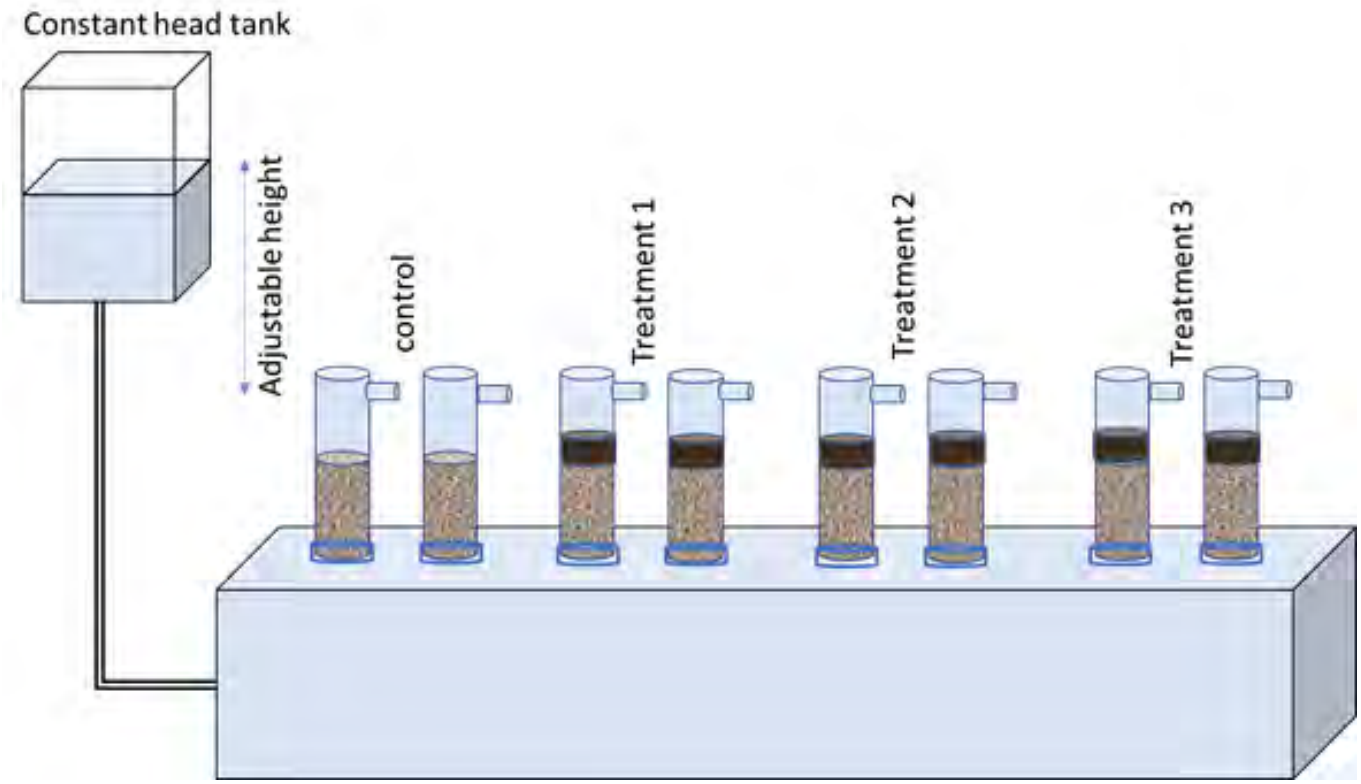



**Observed Dry Weather Discharge at Outfalls 3 & 4**

**FIGURE 3-7**

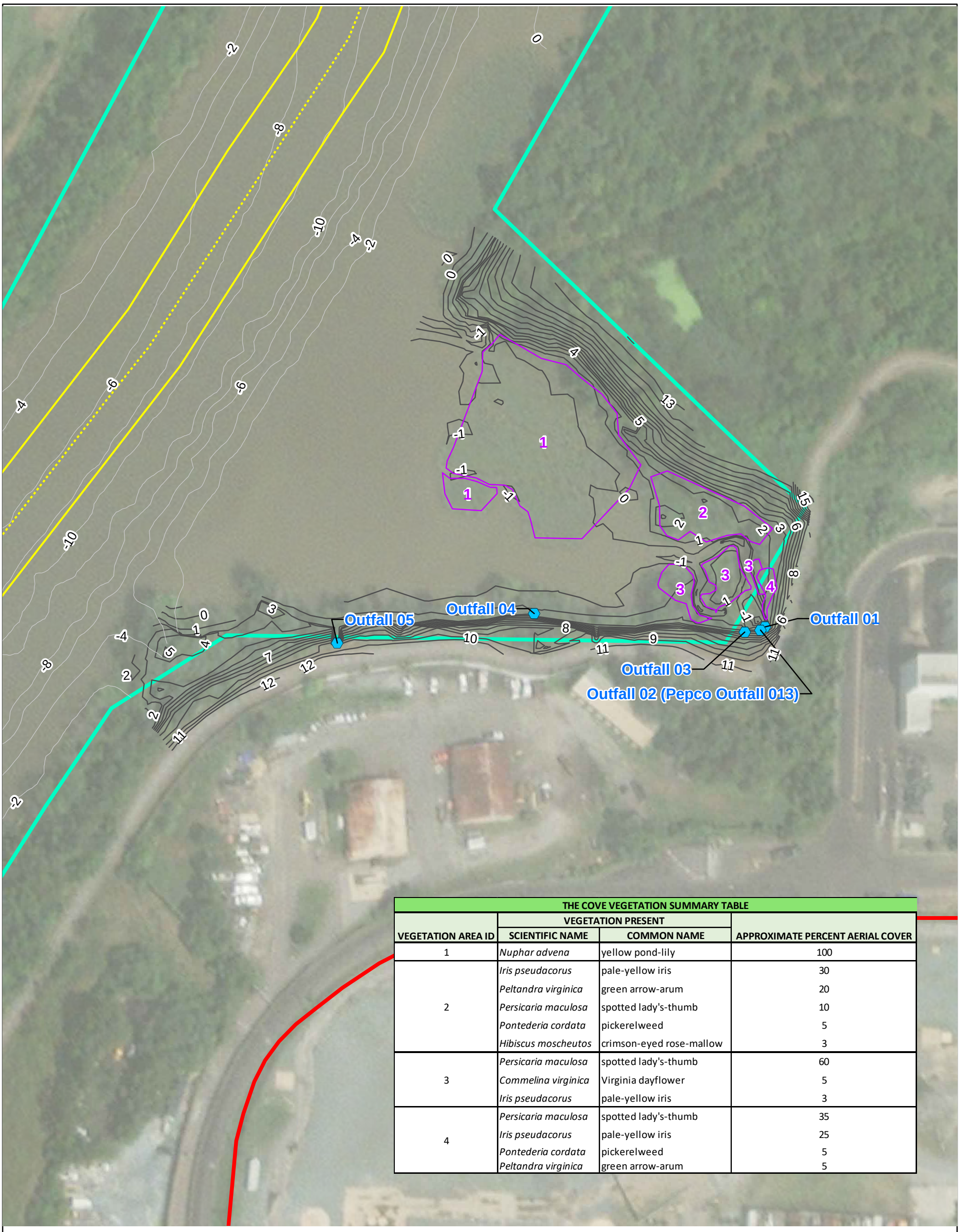
Benning Road Facility RI/FS Project
3400 Benning Road, NE
Washington, DC 20019

AECOM




Laboratory experimental setup to measure change in discharge velocity after placement of amendments.

| | | |
|---|---|---|
| **Sediment Hydraulic Conductivity Test** | Benning Road Facility RI/FS Project<br>3400 Benning Road, NE<br>Washington, DC 20019 | AECOM |
| **FIGURE 3-8** | | |




**THE COVE VEGETATION SUMMARY TABLE**

| VEGETATION AREA ID | VEGETATION PRESENT | | APPROXIMATE PERCENT AERIAL COVER |
|---|---|---|---|
| | SCIENTIFIC NAME | COMMON NAME | |
| 1 | *Nuphar advena* | yellow pond-lily | 100 |
| 2 | *Iris pseudacorus* | pale-yellow iris | 30 |
| | *Peltandra virginica* | green arrow-arum | 20 |
| | *Persicaria maculosa* | spotted lady's-thumb | 10 |
| | *Pontederia cordata* | pickerelweed | 5 |
| | *Hibiscus moscheutos* | crimson-eyed rose-mallow | 3 |
| 3 | *Persicaria maculosa* | spotted lady's-thumb | 60 |
| | *Commelina virginica* | Virginia dayflower | 5 |
| | *Iris pseudacorus* | pale-yellow iris | 3 |
| 4 | *Persicaria maculosa* | spotted lady's-thumb | 35 |
| | *Iris pseudacorus* | pale-yellow iris | 25 |
| | *Pontederia cordata* | pickerelweed | 5 |
| | *Peltandra virginica* | green arrow-arum | 5 |

LEGEND

- Outfall Locations
- Navigational Channel (Approx)
- 2.0’ Contour (Bathymetry – June 2020)
- 1.0’ Contour (Cove Survey – May 2020)
- Benning Road Facility Property Boundary
- Waterside Investigation Area
- 1 Vegetation Areas

0 200 400 Feet

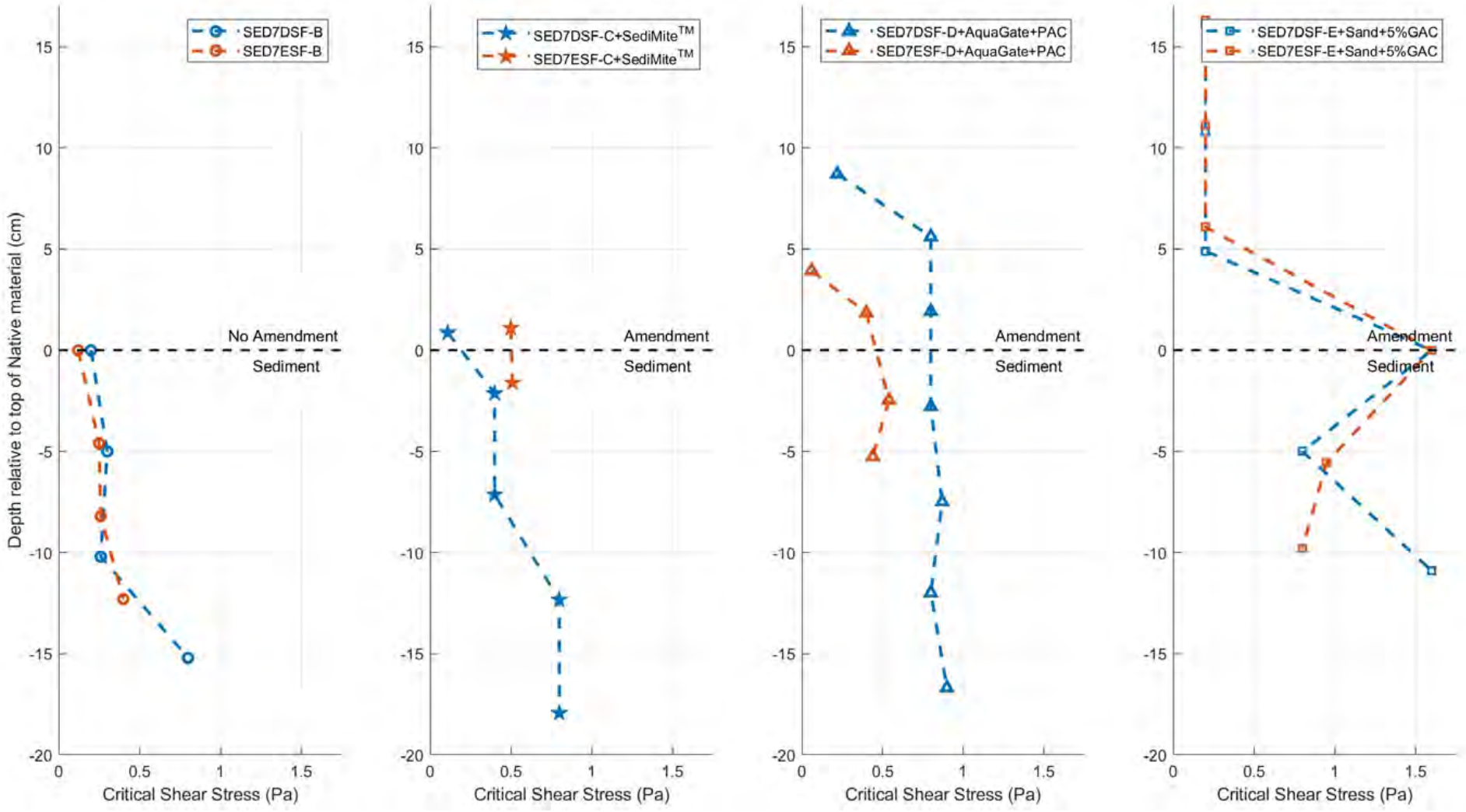
N

AECOM

BENNING ROAD FACILITY RI/FS PROJECT
3400 BENNING RD., NE
WASHINGTON, DC 20019

VEGETATION SURVEY

Date: 11/4/2020 | Drawn By: DCB | Checked By: RD | FIGURE 3-9




**Critical Shear Stress in Unamended and Amended Sediment**

**FIGURE 3-10**

Benning Road Facility RI/FS Project
3400 Benning Road, NE
Washington, DC 20019

AECOM

# Tables

**Table 2-1**
**TS Field Testing Locations**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| TS Activity | Location ID | Coordinates | |
|---|---|---|---|
| | | Northing | Easting |
| Macroinvertebrate Community Survey | HD-01 | 449652.467 | 1323597.122 |
| | HD-02 | 448752.357 | 1323121.862 |
| | HD-03 | 449995.067 | 1323773.862 |
| | HD-04 | 449689.557 | 1324177.982 |
| Sedimentation Study | SEDTrap-01 | 449564.549 | 1323513.652 |
| | SEDTrap-02 | 450078.689 | 1323792.293 |
| | SEDTrap-03 | 450676.22 | 1323891.093 |
| | SEDMAT-01 | 449635.48 | 1324180.062 |
| | SEDMAT-02 | 449830.851 | 1324027.501 |
| | SEDMAT-03 | 449725.82 | 1323945.33 |
| Tidal Monitoring | TRANS-01 | 448217.393 | 1323232.324 |
| | TRANS-02 | 450557.709 | 1323825.263 |
| | TRANS-03 | 449684.952 | 1324177.091 |
| Current Monitoring | ADCP-01 | 449689.557 | 1324177.982 |
| | ADCP-02 | 449995.067 | 1323773.862 |
| | ADCP-03 | 449692.103 | 1323578.663 |
| | ADCP-04 | 449759.378 | 1323476.882 |
| Seepage Meter Study | SEEP-01 | 449800.86 | 1323697.84 |
| | SEEP-02 | 449702.99 | 1323903.87 |
| | SEEP-03 | 449679.32 | 1324137.06 |
| Outfall Evaluation | Outfall 01 | 449600.043 | 1324238.397 |
| | Outfall 02 (Pepco Outfall 013) | 449596.581 | 1324233.273 |
| | Outfall 03 | 449594.384 | 1324216.175 |
| | Outfall 04 | 449614.499 | 1323986.758 |
| | Outfall 05 | 449582.346 | 1323772.208 |
| Dewatering Testing | SED7C | 449832.311 | 1323713.523 |
| | SED7.5E | 449781.777 | 1324040.935 |
| Sequestration Testing | SED7E | 449731.91 | 1323946.35 |
| | SED7.5E | 449781.777 | 1324040.935 |
| Sedflume Core Collection | SED5CSF | 449342.73 | 1323349.47 |
| | SED6C/R6-04SF | 449573.51 | 1323506.4 |
| | SED7BSF | 449849.21 | 1323649.18 |
| | SED7DSF | 449795.33 | 1323805.11 |
| | SED7ESF | 449731.91 | 1323946.35 |
| | SED9.5BSF | 450613.01 | 1323968.01 |
| | SED8CSF | 450066.21 | 1323799.86 |

**Table 2-2**
**Permits Obtained for TS Field Activities**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| Permit Name | Issuing Agency | Permit Number | Purpose | Date Applied | Date Received |
|---|---|---|---|---|---|
| Special Use Permit | NPS | NCA 9500-20-001 | River sediment sampling | 3/9/2020 | 5/7/2020 |
| Department of Army Nationwide Permit | USACE | NAB-2012-02589-20200324 | Conduct data collection and field sampling | 3/9/2020 | 3/24/2020 |
| DOEE waiver | DOEE | -- | Waive the turbidity curtain and adjust the trubidity monitoring distances | 4/9/2020 | 4/13/2020 |
| Water Quality Certification | DOEE | DC-020-001 | River sediment sampling | 3/9/2020 | 3/25/2020 |
| Concurrence on time-of-year requirement | USACE | -- | Conduct field activities between March 1 and June 30 | 4/21/2020 | 4/22/2020 |
| Scientific Research Permit | DOEE | -- | Capture, handle, and collect fish and aquatic specimens for sientific purposes | 4/3/2020 | 6/3/2020 |
| Local Notice to Mariners | DHS | -- | Conduct investigation activities in Anacostia River | 5/15/2020 | 5/18/2020 |

Notes:
USACE - US Army Corps of Engineers
DDOE - District Department of the Environment
NPS - National Parks Service

**Table 2-5**
**ADCP Station Information and Sampling Details**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | |
|---|---|
| Station: | Anacostia River: CHANN 2 and 3 |
| --- | |
| Position #1: | 38 54.1349 N, 076 57.5977 W |
| For time series spanning: | 29-Jul-2020 10:50:00 to 27-Aug-2020 10:20:00 |
| Position #2: | 38 54.0873 N, 076 57.6293 W |
| For time series spanning: | 27-Aug-2020 10:30:00 to 11-Sep-2020 12:40:00 |
| Avg Water Depth @ Location #1: | 2.92 m |
| Avg Water Depth @ Location #2: | 1.27 m |
| --- | |
| Number of Valid Bins: | 21 |
| ADCP Bin Size: | 0.1 m |
| ADCP Record Interval: | 10 minutes |
| --- | |

ADCP Bin Heights Above Seabed (m):

| Bin01_HAB | Bin02_HAB | Bin03_HAB | Bin04_HAB | Bin05_HAB | Bin06_HAB | Bin07_HAB | Bin08_HAB | Bin09_HAB | Bin10_HAB | Bin11_HAB | Bin12_HAB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 |
| Bin13_HAB | Bin14_HAB | Bin15_HAB | Bin16_HAB | Bin17_HAB | Bin18_HAB | Bin19_HAB | Bin20_HAB | Bin21_HAB | | | |
| 1.7 | 1.8 | 1.9 | 2 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | | | |

---

Time Series Variables:

| | |
|---|---|
| Timestamp: | Date/Time of observation (EDT) |
| Water_Depth: | Distance from Surface to Seabed (m) |
| BinDep_XX: | Distance from Surface to Center of Bin XX (m) |
| Spd_XX: | Current Speed in Bin XX (cm/s) |
| Dir_XX: | Current Direction in Bin XX (degrees True) |
| East_XX: | East Component of Current Velocity in Bin XX (cm/s) |
| North_XX: | North Component of Current Velocity in Bin XX (cm/s) |
| Vert_XX: | Vertical Component of Current Velocity in Bin XX (cm/s) |

---

**Table 2-5**
**ADCP Station Information and Sampling Details**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | |
|---|---|
| Station: | Anacostia River: RIVER 1 and 4 |
| Position #1: | 38 54.1421 N, 076 57.6087 W |
| For time series spanning: | 29-Jul-2020 09:40:00 to 27-Aug-2020 08:50:00 |
| Position #2: | 38 54.0983 N, 076 57.6507 W |
| For time series spanning: | 27-Aug-2020 09:00:00 to 10-Sep-2020 14:00:00 |
| Avg Water Depth @ Location #1: | 3.01 m |
| Avg Water Depth @ Location #2: | 2.60 m |
| Number of Valid Bins: | 29 |
| ADCP Bin Size: | 0.1 m |
| ADCP Record Interval: | 10 minutes |

ADCP Bin Heights Above Seabed (m):

| Bin01_HAB | Bin02_HAB | Bin03_HAB | Bin04_HAB | Bin05_HAB | Bin06_HAB | Bin07_HAB | Bin08_HAB | Bin09_HAB | Bin10_HAB | Bin11_HAB | Bin12_HAB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 |
| Bin13_HAB | Bin14_HAB | Bin15_HAB | Bin16_HAB | Bin17_HAB | Bin18_HAB | Bin19_HAB | Bin20_HAB | Bin21_HAB | Bin22_HAB | Bin23_HAB | Bin24_HAB |
| 1.7 | 1.8 | 1.9 | 2 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 | 2.7 | 2.8 |
| Bin25_HAB | Bin26_HAB | | | | | | | | | | |
| 2.9 | 3 | | | | | | | | | | |

Time Series Variables:

| | |
|---|---|
| Timestamp: | Date/Time of observation (EDT) |
| Water_Depth: | Distance from Surface to Seabed (m) |
| BinDep_XX: | Distance from Surface to Center of Bin XX (m) |
| Spd_XX: | Current Speed in Bin XX (cm/s) |
| Dir_XX: | Current Direction in Bin XX (degrees True) |
| East_XX: | East Component of Current Velocity in Bin XX (cm/s) |
| North_XX: | North Component of Current Velocity in Bin XX (cm/s) |
| Vert_XX: | Vertical Component of Current Velocity in Bin XX (cm/s) |

**Table 3-3**
**Treatability Study Stormwater Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | Outfall 01 | | | Outfall 02 | | Outfall 03 | | Outfall 04 | | Outfall 05 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | OFW0100N | OFW0100R | OFW0100N-102920 | OFW0200N | OFW0200N-102920 | OFW0300N | OFW0300N-102920 | OFW0400N | OFW0400N-102920 | OFW0500N | OFW0500N-102920 |
| | | Sample Date | 7/22/2020 | 7/22/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 | 8/13/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 |
| | | Sample Type | N | FD | N | N | N | N | N | N | N | N | N |
| Method | Chemical Name | Units | | | | | | | | | | | |
| 2540-D | Total Suspended Solids | mg/l | 33 | 31 | 83 | 29 | 54 | 98 | 640 | 17 | 12 | 17 | 180 |
| E1668C | Decachlorobiphenyl (PCB-209) | ng/l | 0.023 JN | 0.024 JN | 0.053 J | 0.17 | 0.13 | 0.074 J | 0.15 J | 0.014 J | 0.010 JN | 0.010 J+ | 0.024 JN |
| E1668C | Dichlorobiphenyl | ng/l | 0.46 | 0.52 | 1.6 | 0.58 | 1.2 | 2.1 | 14 | 0.16 | 0.1 | 0.27 | 1.9 |
| E1668C | Heptachlorobiphenyl | ng/l | 11 | 15 | 8.3 | 3.8 | 9.2 | 2.3 | 8 | 1 | 1.1 | 0.45 | 4.1 |
| E1668C | Hexachlorobiphenyl | ng/l | 20 | 25 | 14 | 6 | 15 | 4.3 | 20 | 1.8 | 1.7 | 0.99 | 12 |
| E1668C | Monochlorobiphenyl | ng/l | 0.16 | 0.17 | 0.75 | 0.028 J | 0.057 | 0.029 J | 0.33 J | 0.015 J | 0.0091 J | 0.0084 J | 0.045 |
| E1668C | Nonachlorobiphenyl | ng/l | 0.57 | 0.71 | 0.27 J | 1.2 | 0.9 | 0.17 J | 0.43 | 0.032 J | 0.029 J | 0.024 J | 0.14 |
| E1668C | Octachlorobiphenyl | ng/l | 5 | 6.3 | 2.9 | 1.9 | 2.6 | 0.71 | 2.2 | 0.25 | 0.23 | 0.11 J | 0.96 |
| E1668C | PCB, Total Congeners | ng/l | 53 | 67 | 47 | 19 | 48 | 16 | 97 | 5.1 | 4.7 | 3.1 | 35 |
| E1668C | PCB-1 | ng/l | 0.088 JN | 0.1 | 0.62 | 0.014 JN | 0.035 J | 0.016 J | 0.19 J | 0.0063 J+ | 0.0037 JN | 0.0033 J+ | 0.023 J |
| E1668C | PCB-10 | ng/l | < 0.0028 U | < 0.0026 U | < 0.028 U | < 0.0020 U | 0.012 JN | < 0.0099 UJ | < 0.029 U | < 0.0033 U | < 0.0022 U | < 0.0027 U | < 0.0023 U |
| E1668C | PCB-100 | ng/l | 0.0090 J | 0.0063 JN | 0.0087 J | 0.0048 JN | 0.047 J | < 0.0018 U | 0.026 J | 0.0034 JN | 0.0022 J | 0.0016 JN | 0.0086 J |
| E1668C | PCB-101 | ng/l | 1.6 | 1.7 | 1.8 | 0.47 | 1.5 | 0.47 J | 2.6 | 0.15 | 0.16 | 0.12 J | 0.96 |
| E1668C | PCB-102 | ng/l | 0.022 J | 0.026 JN | 0.020 J | 0.010 J | 0.043 J | < 0.0017 U | 0.061 J | 0.0056 JN | 0.0029 J | < 0.00090 U | 0.028 J |
| E1668C | PCB-103 | ng/l | 0.0043 J | < 0.00069 U | < 0.0032 U | < 0.00075 U | 0.020 J | < 0.0018 U | 0.015 J | < 0.00094 U | < 0.00062 U | < 0.00093 U | 0.0044 JN |
| E1668C | PCB-104 | ng/l | < 0.00036 U | < 0.00053 U | < 0.0025 U | < 0.00057 U | 0.0017 J | < 0.0014 U | < 0.0032 U | < 0.00072 U | < 0.00047 U | < 0.00071 U | < 0.00031 U |
| E1668C | PCB-105 | ng/l | 1.2 | 1.5 | 1.2 | 0.27 | 0.46 | 0.29 | 1.7 | 0.064 | 0.059 | 0.054 J | 0.48 |
| E1668C | PCB-106 | ng/l | < 0.0083 U | < 0.010 U | < 0.019 U | < 0.0030 U | < 0.0023 U | < 0.033 U | < 0.035 U | < 0.0020 U | < 0.0013 U | < 0.0029 U | < 0.0058 U |
| E1668C | PCB-107 | ng/l | 0.19 JN | 0.27 | 0.17 J | 0.043 J | 0.11 | < 0.035 U | 0.23 JN | 0.011 J | 0.010 JN | 0.0069 JN | 0.079 JN |
| E1668C | PCB-108 | ng/l | 0.10 JN | 0.14 J | 0.075 JN | 0.026 J | 0.052 J | < 0.034 U | 0.11 JN | 0.0067 JN | 0.0063 JN | 0.0062 JN | 0.050 J |
| E1668C | PCB-109 | ng/l | 1.1 | 1.2 | 1.1 J | 0.38 J | 0.94 | 0.32 J | 1.6 J | 0.11 J | 0.098 J | 0.081 JN | 0.61 |
| E1668C | PCB-11 | ng/l | 0.34 | 0.38 | 1.1 | 0.45 | 0.57 | 2.0 J | 11 | 0.098 | 0.050 JN | 0.25 | 1.4 |
| E1668C | PCB-110 | ng/l | 2 | 1.9 | 2.5 | 0.64 | 1.8 | 0.5 | 3 | 0.31 | 0.27 | 0.19 | 1.3 |
| E1668C | PCB-111 | ng/l | 0.0039 J | < 0.00049 U | < 0.0023 U | < 0.00053 U | < 0.00024 U | < 0.0013 U | < 0.0029 U | < 0.00066 U | < 0.00043 U | < 0.00065 U | < 0.00029 U |
| E1668C | PCB-112 | ng/l | 0.0020 JN | 0.0068 JN | 0.017 J | < 0.00055 U | 0.0055 JN | 0.11 JN | 0.011 J | 0.0012 J | 0.00097 JN | < 0.00069 U | 0.0017 JN |
| E1668C | PCB-113 | ng/l | 1.6 | 1.7 | 1.8 | 0.47 | 1.5 | 0.47 J | 2.6 | 0.15 | 0.16 | 0.12 J | 0.96 |
| E1668C | PCB-114 | ng/l | 0.039 JN | 0.071 J | 0.051 JN | 0.011 JN | 0.017 JN | < 0.028 U | 0.052 JN | < 0.0019 U | 0.0017 JN | < 0.0027 U | 0.018 J |
| E1668C | PCB-115 | ng/l | 2 | 1.9 | 2.5 | 0.64 | 1.8 | 0.5 | 3 | 0.31 | 0.27 | 0.19 | 1.3 |
| E1668C | PCB-116 | ng/l | 0.27 | 0.26 | 0.25 J | 0.088 J | 0.25 | 0.051 JN | 0.35 J | 0.037 J | 0.026 J | 0.023 J | 0.15 |
| E1668C | PCB-117 | ng/l | 0.27 | 0.26 | 0.25 J | 0.088 J | 0.25 | 0.051 JN | 0.35 J | 0.037 J | 0.026 J | 0.023 J | 0.15 |
| E1668C | PCB-118 | ng/l | 2.5 | 3.2 | 2.5 | 0.58 | 1.2 | 0.63 | 3.4 | 0.14 | 0.14 | 0.13 | 1.1 |
| E1668C | PCB-119 | ng/l | 1.1 | 1.2 | 1.1 J | 0.38 J | 0.94 | 0.32 J | 1.6 J | 0.11 J | 0.098 J | 0.081 JN | 0.61 |
| E1668C | PCB-12 | ng/l | 0.0088 JN | 0.015 J | < 0.025 U | 0.011 J | 0.031 J | < 0.0090 UJ | 0.19 JN | 0.0071 JN | < 0.0020 U | < 0.0025 U | 0.031 JN |
| E1668C | PCB-120 | ng/l | 0.0047 JN | < 0.00050 U | 0.012 JN | < 0.00053 U | 0.0054 JN | < 0.0013 U | 0.018 JN | < 0.00068 U | < 0.00044 U | < 0.00067 U | 0.0021 JN |
| E1668C | PCB-121 | ng/l | < 0.00035 U | < 0.00051 U | < 0.0024 U | < 0.00055 U | 0.0012 JN | < 0.0013 U | < 0.0031 U | < 0.00070 U | < 0.00045 U | < 0.00068 U | < 0.00030 U |
| E1668C | PCB-122 | ng/l | 0.038 JN | 0.050 JN | 0.029 JN | 0.0095 JN | 0.014 JN | < 0.038 U | < 0.041 U | < 0.0023 U | 0.0027 J | < 0.0034 U | 0.017 J |
| E1668C | PCB-123 | ng/l | 0.035 J | 0.027 JN | 0.022 JN | 0.012 J | 0.016 JN | < 0.029 U | 0.042 JN | 0.0032 JN | 0.0017 JN | < 0.0028 U | 0.010 JN |
| E1668C | PCB-124 | ng/l | 0.10 JN | 0.14 J | 0.075 J | 0.026 J | 0.052 J | < 0.034 U | 0.11 J | 0.0067 JN | 0.0063 J | 0.0062 J+ | 0.050 J |
| E1668C | PCB-125 | ng/l | 1.1 | 1.2 | 1.1 J | 0.38 J | 0.94 | 0.32 J | 1.6 J | 0.11 J | 0.098 J | 0.081 JN | 0.61 |
| E1668C | PCB-126 | ng/l | 0.078 | 0.076 J | 0.048 JN | 0.0091 JN | 0.0091 J | < 0.042 UJ | < 0.038 U | 0.0027 JN | < 0.0015 U | < 0.0033 U | 0.022 JN |
| E1668C | PCB-127 | ng/l | < 0.0083 U | < 0.010 U | < 0.019 U | < 0.0030 U | < 0.0023 U | < 0.033 U | < 0.035 U | < 0.0020 U | < 0.0013 U | < 0.0029 U | < 0.0058 U |
| E1668C | PCB-128 | ng/l | 0.76 | 1 | 0.61 J | 0.19 | 0.36 | 0.14 J | 0.60 J | 0.065 JN | 0.049 J | 0.033 J | 0.37 |
| E1668C | PCB-129 | ng/l | 4.6 | 6.2 | 3.7 | 1.4 | 3.1 | 1.2 | 5.2 | 0.41 | 0.41 | 0.26 J | 2.8 |
| E1668C | PCB-13 | ng/l | 0.0088 JN | 0.015 J | < 0.025 U | 0.011 J | 0.031 J | < 0.0090 UJ | 0.19 J | 0.0071 JN | < 0.0020 U | < 0.0025 U | 0.031 J |
| E1668C | PCB-130 | ng/l | 0.28 | 0.38 | 0.17 JN | 0.071 JN | 0.17 | < 0.072 U | 0.25 JN | 0.024 JN | 0.023 J | 0.014 JN | 0.16 |
| E1668C | PCB-131 | ng/l | 0.049 JN | 0.071 J | < 0.051 U | < 0.0095 U | 0.027 J | < 0.075 U | < 0.091 U | < 0.0042 U | 0.0046 JN | < 0.0086 U | 0.028 J |
| E1668C | PCB-132 | ng/l | 1.4 | 1.8 | 0.91 | 0.43 | 0.99 | 0.33 | 1.6 | 0.14 | 0.11 | 0.081 | 0.94 |
| E1668C | PCB-133 | ng/l | 0.053 J | 0.056 J | < 0.046 U | < 0.0086 U | 0.034 JN | < 0.068 U | < 0.083 U | < 0.0038 U | 0.0037 J | < 0.0078 U | 0.028 J |

**Table 3-3**
**Treatability Study Stormwater Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | Outfall 01 | | | Outfall 02 | | Outfall 03 | | Outfall 04 | | Outfall 05 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | OFW0100N | OFW0100R | OFW0100N-102920 | OFW0200N | OFW0200N-102920 | OFW0300N | OFW0300N-102920 | OFW0400N | OFW0400N-102920 | OFW0500N | OFW0500N-102920 |
| | | Sample Date | 7/22/2020 | 7/22/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 | 8/13/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 |
| | | Sample Type | N | FD | N | N | N | N | N | N | N | N | N |
| Method | Chemical Name | Units | | | | | | | | | | | |
| E1668C | PCB-134 | ng/l | 0.25 | 0.29 | 0.12 J | 0.056 J | 0.16 | < 0.071 U | 0.19 J | 0.020 JN | 0.014 J | < 0.0082 U | 0.14 |
| E1668C | PCB-135 | ng/l | 0.71 | 0.76 | 0.62 J | 0.33 | 1.1 | 0.21 JN | 0.96 | 0.15 | 0.13 | 0.046 JN | 0.58 |
| E1668C | PCB-136 | ng/l | 0.23 | 0.28 | 0.19 J | 0.1 | 0.36 | 0.085 J | 0.41 | 0.043 | 0.04 | 0.016 J | 0.24 |
| E1668C | PCB-137 | ng/l | 0.23 JN | 0.3 | 0.14 JN | 0.043 J | 0.09 | < 0.061 U | 0.19 J | 0.015 JN | 0.0096 JN | 0.013 J | 0.11 JN |
| E1668C | PCB-138 | ng/l | 4.6 | 6.2 | 3.7 | 1.4 | 3.1 | 1.2 | 5.2 | 0.41 | 0.41 | 0.26 J | 2.8 |
| E1668C | PCB-139 | ng/l | 0.066 JN | 0.069 JN | 0.047 J | 0.015 JN | 0.032 J | < 0.060 U | < 0.074 U | 0.0099 J | 0.0040 JN | < 0.0070 U | 0.037 J |
| E1668C | PCB-14 | ng/l | < 0.0022 U | < 0.0020 U | < 0.021 U | < 0.0015 U | < 0.0021 U | < 0.0076 UJ | < 0.022 U | < 0.0025 U | < 0.0017 U | < 0.0021 U | < 0.0018 U |
| E1668C | PCB-140 | ng/l | 0.066 JN | 0.069 JN | 0.047 J | 0.015 JN | 0.032 J | < 0.060 U | < 0.074 U | 0.0099 J | 0.0040 J | < 0.0070 U | 0.037 J |
| E1668C | PCB-141 | ng/l | 0.97 | 1.3 | 0.59 | 0.32 | 0.7 | 0.19 JN | 0.82 | 0.084 | 0.087 | 0.053 J | 0.48 |
| E1668C | PCB-142 | ng/l | < 0.036 U | < 0.053 U | < 0.046 U | < 0.0085 U | < 0.0057 U | < 0.068 U | < 0.082 U | < 0.0038 U | < 0.0029 U | < 0.0078 U | < 0.014 U |
| E1668C | PCB-143 | ng/l | 0.25 | 0.29 | 0.12 J | 0.056 J | 0.16 | < 0.071 U | 0.19 J | 0.020 JN | 0.014 J | < 0.0082 U | 0.14 |
| E1668C | PCB-144 | ng/l | 0.09 | 0.087 | 0.061 JN | 0.042 J | 0.13 | 0.038 J | 0.11 J | 0.019 JN | 0.013 J | 0.0071 J | 0.063 |
| E1668C | PCB-145 | ng/l | < 0.00046 U | < 0.0012 U | < 0.0023 U | < 0.0010 U | 0.0019 J | < 0.00094 U | < 0.0032 U | < 0.00080 U | < 0.00057 U | < 0.00054 U | 0.0027 J |
| E1668C | PCB-146 | ng/l | 0.55 | 0.69 | 0.35 JN | 0.19 | 0.49 | < 0.060 U | 0.59 | 0.056 | 0.048 JN | 0.033 J | 0.36 |
| E1668C | PCB-147 | ng/l | 3.9 | 4.8 | 2.2 | 1.2 | 3.2 | 0.84 | 4 | 0.33 | 0.35 | 0.18 | 2.5 |
| E1668C | PCB-148 | ng/l | 0.0022 JN | < 0.0017 U | < 0.0033 U | < 0.0014 U | 0.0035 J | < 0.0013 U | < 0.0046 U | < 0.0011 U | < 0.00080 U | < 0.00076 U | < 0.00075 U |
| E1668C | PCB-149 | ng/l | 3.9 | 4.8 | 2.2 | 1.2 | 3.2 | 0.84 | 4 | 0.33 | 0.35 | 0.18 | 2.5 |
| E1668C | PCB-15 | ng/l | 0.040 J | 0.047 J | 0.13 J | 0.058 J | 0.18 | 0.031 JN | 0.65 | 0.022 J | 0.015 J+ | 0.013 JN | 0.13 |
| E1668C | PCB-150 | ng/l | < 0.00044 U | 0.0023 JN | < 0.0022 U | < 0.00098 U | 0.0059 J | < 0.00090 U | < 0.0031 U | < 0.00076 U | < 0.00054 U | < 0.00051 U | < 0.00051 U |
| E1668C | PCB-151 | ng/l | 0.71 | 0.76 | 0.62 J | 0.33 | 1.1 | 0.21 JN | 0.96 | 0.15 | 0.13 | 0.046 JN | 0.58 |
| E1668C | PCB-152 | ng/l | < 0.00047 U | 0.0035 J | < 0.0024 U | < 0.0011 U | 0.0024 J | < 0.00097 U | < 0.0033 U | < 0.00082 U | < 0.00059 U | < 0.00055 U | 0.0012 JN |
| E1668C | PCB-153 | ng/l | 3.8 | 4.9 | 2.6 | 1.2 | 2.7 | 0.98 | 3.6 | 0.26 | 0.3 | 0.18 | 2 |
| E1668C | PCB-154 | ng/l | 0.015 J | 0.010 JN | 0.024 J | 0.0077 JN | 0.028 J | 0.0064 JN | 0.021 J | 0.0027 JN | 0.0017 JN | < 0.00061 U | 0.0078 JN |
| E1668C | PCB-155 | ng/l | < 0.00044 U | < 0.0012 U | < 0.0022 U | < 0.00098 U | < 0.00035 U | < 0.00090 U | < 0.0031 U | < 0.00076 U | < 0.00055 U | < 0.00052 U | < 0.00051 U |
| E1668C | PCB-156 | ng/l | 0.57 | 0.73 | 0.45 J | 0.13 J | 0.22 | 0.098 JN | 0.50 J | 0.043 J | 0.035 J | 0.021 J+ | 0.23 |
| E1668C | PCB-157 | ng/l | 0.57 | 0.73 | 0.45 J | 0.13 J | 0.22 | 0.098 JN | 0.50 J | 0.043 J | 0.035 J | 0.021 J+ | 0.23 |
| E1668C | PCB-158 | ng/l | 0.51 | 0.64 | 0.37 J | 0.14 | 0.28 | 0.12 J | 0.45 | 0.048 | 0.035 JN | 0.023 J | 0.27 |
| E1668C | PCB-159 | ng/l | 0.054 J | 0.065 JN | < 0.031 U | 0.013 J | 0.029 J | < 0.045 U | < 0.055 U | 0.0043 J | 0.0036 JN | < 0.0052 U | < 0.0091 U |
| E1668C | PCB-16 | ng/l | 0.040 J | 0.042 J | 0.12 J | 0.018 JN | 0.15 | 0.014 JN | 0.69 | 0.0087 J | 0.0060 JN | 0.0057 J | 0.18 |
| E1668C | PCB-160 | ng/l | 4.6 | 6.2 | 3.7 | 1.4 | 3.1 | 1.2 | 5.2 | 0.41 | 0.41 | 0.26 J | 2.8 |
| E1668C | PCB-161 | ng/l | < 0.024 U | < 0.035 U | < 0.030 U | < 0.0057 U | < 0.0038 U | 0.094 JN | < 0.055 U | < 0.0025 U | < 0.0019 U | < 0.0052 U | < 0.0090 U |
| E1668C | PCB-162 | ng/l | 0.041 JN | 0.065 J | < 0.030 U | < 0.0056 U | 0.0084 J | < 0.044 U | < 0.054 U | < 0.0025 U | < 0.0019 U | < 0.0051 U | 0.0096 JN |
| E1668C | PCB-163 | ng/l | 4.6 | 6.2 | 3.7 | 1.4 | 3.1 | 1.2 | 5.2 | 0.41 | 0.41 | 0.26 J | 2.8 |
| E1668C | PCB-164 | ng/l | 0.28 | 0.41 | 0.21 J | 0.095 | 0.22 | < 0.048 U | 0.28 J | 0.027 JN | 0.027 J | 0.017 J | 0.17 |
| E1668C | PCB-165 | ng/l | < 0.027 U | < 0.040 U | < 0.035 U | < 0.0065 U | < 0.0043 U | < 0.051 U | < 0.062 U | < 0.0029 U | < 0.0022 U | < 0.0059 U | < 0.010 U |
| E1668C | PCB-166 | ng/l | 0.76 | 1 | 0.61 J | 0.19 | 0.36 | 0.14 J | 0.60 J | 0.065 JN | 0.049 J | 0.033 J | 0.37 |
| E1668C | PCB-167 | ng/l | 0.17 | 0.23 | 0.14 JN | 0.052 J | 0.1 | < 0.036 U | 0.15 JN | 0.017 J | 0.012 J | 0.0082 JN | 0.074 |
| E1668C | PCB-168 | ng/l | 3.8 | 4.9 | 2.6 | 1.2 | 2.7 | 0.98 | 3.6 | 0.26 | 0.3 | 0.18 | 2 |
| E1668C | PCB-169 | ng/l | 0.051 JN | 0.10 JN | < 0.022 U | < 0.0050 U | 0.0075 JN | < 0.039 U | < 0.042 U | < 0.0021 U | < 0.0015 U | < 0.0046 U | < 0.0080 U |
| E1668C | PCB-17 | ng/l | 0.028 JN | 0.034 J | 0.12 JN | 0.021 JN | 0.18 | 0.019 JN | 0.67 | 0.0082 JN | 0.0075 JN | 0.0064 J | 0.17 |
| E1668C | PCB-170 | ng/l | 1.3 | 1.7 | 0.92 | 0.48 | 1.1 | 0.22 JN | 1.1 | 0.13 | 0.14 | 0.059 J | 0.58 |
| E1668C | PCB-171 | ng/l | 0.27 | 0.37 | 0.24 J | 0.11 J | 0.31 | 0.084 J | 0.25 J | 0.043 J | 0.036 J | 0.015 JN | 0.14 |
| E1668C | PCB-172 | ng/l | 0.19 | 0.26 | 0.16 J | 0.077 J | 0.19 | 0.052 J | 0.14 J | 0.026 J | 0.020 J | 0.010 JN | 0.081 |
| E1668C | PCB-173 | ng/l | 0.27 | 0.37 | 0.24 J | 0.11 J | 0.31 | 0.084 J | 0.25 J | 0.043 J | 0.036 J | 0.015 J+ | 0.14 |
| E1668C | PCB-174 | ng/l | 1.6 | 2.1 | 1 | 0.49 | 1.2 | 0.27 | 0.96 JN | 0.13 | 0.14 | 0.059 J | 0.53 |
| E1668C | PCB-175 | ng/l | 0.036 JN | 0.073 J | 0.027 JN | 0.021 J | 0.042 | < 0.0055 U | 0.032 JN | 0.0071 J | 0.0047 J | 0.0034 JN | 0.017 JN |
| E1668C | PCB-176 | ng/l | 0.17 | 0.22 | 0.076 J | 0.059 J | 0.14 | 0.024 JN | 0.099 J | 0.015 J | 0.014 J | 0.0055 JN | 0.058 |
| E1668C | PCB-177 | ng/l | 0.68 | 0.9 | 0.47 | 0.25 | 0.63 | 0.12 JN | 0.49 | 0.08 | 0.072 | 0.032 J | 0.27 |

**Table 3-3**
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| | | Location ID | Outfall 01 | | | Outfall 02 | | Outfall 03 | | Outfall 04 | | Outfall 05 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | OFW0100N | OFW0100R | OFW0100N-102920 | OFW0200N | OFW0200N-102920 | OFW0300N | OFW0300N-102920 | OFW0400N | OFW0400N-102920 | OFW0500N | OFW0500N-102920 |
| | | Sample Date | 7/22/2020 | 7/22/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 | 8/13/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 |
| | | Sample Type | N | FD | N | N | N | N | N | N | N | N | N |
| Method | Chemical Name | Units | | | | | | | | | | | |
| E1668C | PCB-178 | ng/l | 0.32 | 0.41 | 0.21 J | 0.11 | 0.23 | 0.068 JN | 0.20 J | 0.028 J | 0.023 J | 0.011 J | 0.088 |
| E1668C | PCB-179 | ng/l | 0.76 | 1 | 0.33 JN | 0.21 | 0.54 | 0.18 J | 0.41 | 0.054 | 0.053 | 0.030 J | 0.24 |
| E1668C | PCB-18 | ng/l | 0.073 J | 0.081 J | 0.31 J | 0.036 JN | 0.38 | 0.034 JN | 1.5 | 0.016 JN | 0.017 J | 0.014 J | 0.4 |
| E1668C | PCB-180 | ng/l | 3 | 4.1 | 2.6 | 0.93 | 2.4 | 0.60 JN | 2.3 | 0.25 | 0.3 | 0.12 J | 1.1 |
| E1668C | PCB-181 | ng/l | < 0.00091 U | < 0.0061 U | < 0.0079 U | < 0.0027 U | 0.0069 J | < 0.0054 U | < 0.0097 U | < 0.00095 U | < 0.0014 U | < 0.0029 U | < 0.0011 U |
| E1668C | PCB-182 | ng/l | < 0.00087 U | < 0.0059 U | < 0.0076 U | 0.0066 JN | 0.0076 JN | < 0.0052 U | < 0.0094 U | < 0.00092 U | < 0.0013 U | < 0.0028 U | < 0.0011 U |
| E1668C | PCB-183 | ng/l | 1 | 1.3 | 0.63 J | 0.33 | 0.75 | 0.24 J | 0.67 J | 0.086 | 0.09 | 0.040 J | 0.35 |
| E1668C | PCB-184 | ng/l | < 0.00074 U | < 0.0050 U | < 0.0065 U | < 0.0022 U | < 0.00081 U | < 0.0045 U | < 0.0080 U | < 0.00078 U | < 0.0011 U | < 0.0024 U | < 0.00093 U |
| E1668C | PCB-185 | ng/l | 1 | 1.3 | 0.63 J | 0.33 | 0.75 | 0.24 J | 0.67 J | 0.086 | 0.09 | 0.040 J | 0.35 |
| E1668C | PCB-186 | ng/l | < 0.00072 U | < 0.0049 U | < 0.0063 U | < 0.0022 U | < 0.00078 U | < 0.0043 U | < 0.0078 U | < 0.00076 U | < 0.0011 U | < 0.0023 U | < 0.00090 U |
| E1668C | PCB-187 | ng/l | 1.9 | 2.6 | 1.4 | 0.59 | 1.4 | 0.4 | 1.1 | 0.15 | 0.16 | 0.060 JN | 0.56 |
| E1668C | PCB-188 | ng/l | < 0.00055 U | < 0.0039 U | < 0.0056 U | < 0.0017 U | 0.0039 J | < 0.0035 U | < 0.0065 U | < 0.00066 U | < 0.00097 U | < 0.0018 U | < 0.00074 U |
| E1668C | PCB-189 | ng/l | 0.032 JN | 0.08 | 0.025 J | 0.016 J+ | 0.033 J | < 0.052 U | 0.044 J | 0.0054 J | < 0.0018 U | < 0.0049 U | 0.016 J |
| E1668C | PCB-19 | ng/l | 0.0070 J | 0.0068 JN | 0.037 J | 0.0078 J | 0.053 | < 0.0014 U | 0.12 J | < 0.0015 U | 0.0018 JN | < 0.0011 U | 0.036 J |
| E1668C | PCB-190 | ng/l | 0.2 | 0.25 | 0.16 J | 0.067 J | 0.18 | 0.049 JN | 0.19 J | 0.027 J | 0.020 JN | 0.0086 JN | 0.079 |
| E1668C | PCB-191 | ng/l | 0.039 JN | 0.049 JN | 0.043 J | 0.013 JN | 0.038 | < 0.0041 U | 0.028 J | 0.0051 JN | 0.0060 J | < 0.0022 U | 0.017 J |
| E1668C | PCB-192 | ng/l | < 0.00076 U | < 0.0051 U | < 0.0067 U | < 0.0023 U | < 0.00083 U | < 0.0046 U | < 0.0082 U | < 0.00080 U | < 0.0012 U | < 0.0024 U | < 0.00095 U |
| E1668C | PCB-193 | ng/l | 3 | 4.1 | 2.6 | 0.93 | 2.4 | 0.60 JN | 2.3 | 0.25 | 0.3 | 0.12 J | 1.1 |
| E1668C | PCB-194 | ng/l | 1.2 | 1.4 | 0.6 | 0.38 | 0.62 | 0.14 JN | 0.56 | 0.064 | 0.053 | 0.025 JN | 0.26 |
| E1668C | PCB-195 | ng/l | 0.41 | 0.17 | 0.23 J | 0.16 | 0.23 | < 0.065 UJ | 0.15 JN | 0.037 J | 0.026 J | < 0.011 U | 0.082 JN |
| E1668C | PCB-196 | ng/l | 0.58 | 0.79 | 0.36 J | 0.18 | 0.29 | 0.077 JN | 0.25 JN | 0.030 J | 0.029 J | 0.023 J | 0.12 |
| E1668C | PCB-197 | ng/l | 0.036 JN | 0.076 J | 0.030 J | 0.016 JN | 0.018 J | < 0.0080 UJ | < 0.0079 U | < 0.00080 U | < 0.0012 U | < 0.0045 U | 0.0062 JN |
| E1668C | PCB-198 | ng/l | 1.4 | 1.9 | 0.9 | 0.55 | 0.71 | 0.25 JN | 0.63 J | 0.067 J | 0.061 J | 0.039 JN | 0.26 |
| E1668C | PCB-199 | ng/l | 1.4 | 1.9 | 0.9 | 0.55 | 0.71 | 0.25 JN | 0.63 J | 0.067 J | 0.061 J | 0.039 JN | 0.26 |
| E1668C | PCB-2 | ng/l | 0.015 J | 0.014 J | 0.035 JN | 0.0051 J+ | 0.0064 J+ | < 0.0015 U | 0.028 JN | 0.0035 JN | < 0.0021 U | 0.0024 JN | 0.0068 JN |
| E1668C | PCB-20 | ng/l | 0.17 | 0.18 | 0.60 J | 0.18 | 0.72 | 0.14 J | 2.4 | 0.051 J | 0.041 J | 0.033 J | 0.63 |
| E1668C | PCB-200 | ng/l | 0.14 | 0.2 | 0.076 J | 0.040 J | 0.068 | 0.029 JN | 0.068 J | 0.0069 J | 0.0057 JN | < 0.0040 U | 0.018 JN |
| E1668C | PCB-201 | ng/l | 0.16 | 0.24 | 0.086 JN | 0.064 J | 0.079 | < 0.0073 UJ | 0.064 J | 0.0060 JN | 0.0075 J | < 0.0041 U | 0.020 JN |
| E1668C | PCB-202 | ng/l | 0.28 | 0.37 | 0.11 JN | 0.12 | 0.14 | 0.040 JN | 0.12 J | 0.0084 JN | 0.0078 JN | < 0.0046 U | 0.047 |
| E1668C | PCB-203 | ng/l | 0.79 | 1.1 | 0.46 | 0.33 | 0.46 | 0.17 J | 0.34 JN | 0.035 J | 0.036 J | 0.019 JN | 0.14 |
| E1668C | PCB-204 | ng/l | < 0.0014 U | < 0.0071 U | < 0.0094 U | < 0.0040 U | < 0.00097 U | < 0.0080 UJ | < 0.0079 U | < 0.00080 U | < 0.0012 U | < 0.0045 U | < 0.0019 U |
| E1668C | PCB-205 | ng/l | 0.052 J | 0.061 J | < 0.023 U | 0.025 J+ | 0.026 J | < 0.050 UJ | < 0.029 U | < 0.0020 U | < 0.0037 U | < 0.0088 U | 0.011 J |
| E1668C | PCB-206 | ng/l | 0.44 | 0.54 | 0.21 JN | 0.85 | 0.67 | 0.17 JN | 0.37 J | 0.032 J | 0.020 J | 0.024 JN | 0.11 |
| E1668C | PCB-207 | ng/l | 0.050 J | 0.059 J | < 0.025 U | 0.073 J | 0.052 | < 0.042 U | < 0.024 U | < 0.0041 U | 0.0047 J | < 0.0058 U | 0.011 J |
| E1668C | PCB-208 | ng/l | 0.083 | 0.11 | 0.056 J | 0.24 | 0.18 | < 0.062 U | 0.060 JN | < 0.0041 U | 0.0043 JN | < 0.0062 U | 0.023 JN |
| E1668C | PCB-21 | ng/l | 0.091 J | 0.11 J | 0.33 J | 0.049 J | 0.28 | 0.071 J | 1.5 | 0.022 J | 0.014 J+ | 0.015 JN | 0.36 |
| E1668C | PCB-22 | ng/l | 0.069 J | 0.076 J | 0.21 J | 0.059 J | 0.22 | 0.053 J | 0.83 | 0.022 J | 0.012 J | 0.012 J | 0.23 |
| E1668C | PCB-23 | ng/l | < 0.0018 U | < 0.0020 U | < 0.0071 U | < 0.0013 U | < 0.0011 U | < 0.0051 U | < 0.0097 U | < 0.0013 U | < 0.00073 U | < 0.0013 U | < 0.0014 U |
| E1668C | PCB-24 | ng/l | 0.0019 J | 0.0015 JN | 0.0083 JN | 0.0011 J | 0.0065 JN | < 0.00095 U | 0.023 JN | < 0.0011 U | 0.00088 J | < 0.00075 U | 0.0060 JN |
| E1668C | PCB-25 | ng/l | 0.011 J | 0.011 J | 0.035 J | 0.010 J | 0.073 | 0.0091 JN | 0.13 J | 0.0038 JN | 0.0017 JN | 0.0021 JN | 0.041 |
| E1668C | PCB-26 | ng/l | 0.024 J | 0.027 J | 0.077 J | 0.018 J | 0.14 | 0.021 J | 0.38 J | 0.0077 J | 0.0045 JN | 0.0042 JN | 0.1 |
| E1668C | PCB-27 | ng/l | 0.0058 J | 0.0055 JN | 0.021 JN | 0.0033 JN | 0.036 J | < 0.00082 U | 0.098 J | < 0.00092 U | 0.0012 JN | < 0.00065 U | 0.026 J |
| E1668C | PCB-28 | ng/l | 0.17 | 0.18 | 0.60 J | 0.18 | 0.72 | 0.14 J | 2.4 | 0.051 J | 0.041 J | 0.033 J | 0.63 |
| E1668C | PCB-29 | ng/l | 0.024 J | 0.027 J | 0.077 J | 0.018 J | 0.14 | 0.021 J | 0.38 J | 0.0077 J | 0.0045 J+ | 0.0042 JN | 0.1 |
| E1668C | PCB-3 | ng/l | 0.052 J | 0.053 J | 0.096 JN | 0.0087 JN | 0.016 J | 0.013 J | 0.11 J | 0.0048 JN | 0.0033 J+ | 0.0027 J+ | 0.015 J |
| E1668C | PCB-30 | ng/l | 0.073 J | 0.081 J | 0.31 J | 0.036 JN | 0.38 | 0.034 JN | 1.5 | 0.016 JN | 0.017 J | 0.014 J | 0.4 |
| E1668C | PCB-31 | ng/l | 0.13 | 0.15 | 0.5 | 0.1 | 0.51 | 0.11 JN | 2.1 | 0.037 J | 0.026 JN | 0.028 J | 0.56 |
| E1668C | PCB-32 | ng/l | 0.028 J | 0.028 J | 0.10 J | 0.025 J | 0.18 | 0.012 JN | 0.47 | 0.011 J | 0.0077 J+ | 0.0046 JN | 0.12 |

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**3400 Benning Road, NE**
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| | | Location ID | Outfall 01 | | | Outfall 02 | | Outfall 03 | | Outfall 04 | | Outfall 05 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | OFW0100N | OFW0100R | OFW0100N-102920 | OFW0200N | OFW0200N-102920 | OFW0300N | OFW0300N-102920 | OFW0400N | OFW0400N-102920 | OFW0500N | OFW0500N-102920 |
| | | Sample Date | 7/22/2020 | 7/22/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 | 8/13/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 |
| | | Sample Type | N | FD | N | N | N | N | N | N | N | N | N |
| Method | Chemical Name | Units | | | | | | | | | | | |
| E1668C | PCB-33 | ng/l | 0.091 J | 0.11 J | 0.33 J | 0.049 J | 0.28 | 0.071 J | 1.5 | 0.022 J | 0.014 J+ | 0.015 JN | 0.36 |
| E1668C | PCB-34 | ng/l | < 0.0019 U | < 0.0021 U | < 0.0073 U | < 0.0013 U | 0.0017 JN | < 0.0053 U | < 0.010 U | < 0.0013 U | < 0.00076 U | < 0.0014 U | < 0.0015 U |
| E1668C | PCB-35 | ng/l | 0.012 J | 0.011 JN | 0.022 J | 0.028 J | 0.030 J | 0.015 JN | 0.098 J | < 0.0013 U | < 0.00074 U | 0.0020 JN | 0.023 J |
| E1668C | PCB-36 | ng/l | < 0.0017 U | < 0.0019 U | < 0.0069 U | < 0.0013 U | 0.0036 J | < 0.0049 U | < 0.0095 U | < 0.0012 U | < 0.00071 U | < 0.0013 U | 0.0030 J |
| E1668C | PCB-37 | ng/l | 0.084 | 0.092 | 0.20 JN | 0.089 | 0.27 | 0.046 JN | 0.72 | 0.031 J | 0.018 J | 0.016 J | 0.19 |
| E1668C | PCB-38 | ng/l | < 0.0019 U | < 0.0021 U | < 0.0074 U | < 0.0014 U | < 0.0011 U | < 0.0053 U | < 0.010 U | < 0.0013 U | < 0.00076 U | < 0.0014 U | < 0.0015 U |
| E1668C | PCB-39 | ng/l | < 0.0017 U | < 0.0019 U | < 0.0066 U | < 0.0012 U | 0.0021 J | < 0.0048 U | < 0.0091 U | < 0.0012 U | < 0.00068 U | < 0.0012 U | 0.0015 JN |
| E1668C | PCB-4 | ng/l | 0.020 JN | 0.018 J | 0.12 J | 0.024 JN | 0.17 | < 0.012 U | 0.44 JN | 0.011 J | 0.013 JN | < 0.0035 U | 0.091 |
| E1668C | PCB-40 | ng/l | 0.13 J | 0.20 J | 0.29 JN | 0.077 J | 0.4 | 0.18 J | 1.7 | 0.028 JN | 0.014 J | 0.019 JN | 0.46 |
| E1668C | PCB-41 | ng/l | 0.13 J | 0.20 J | 0.29 J | 0.077 J | 0.4 | 0.18 J | 1.7 | 0.028 JN | 0.014 J | 0.019 JN | 0.46 |
| E1668C | PCB-42 | ng/l | 0.055 J | 0.076 J | 0.11 JN | 0.031 J | 0.18 | < 0.040 U | 0.72 | 0.015 J | 0.0073 J | 0.0063 JN | 0.2 |
| E1668C | PCB-43 | ng/l | < 0.0079 U | < 0.011 U | < 0.017 U | < 0.0035 U | 0.026 J | < 0.037 U | 0.077 J | < 0.0026 U | < 0.0011 U | < 0.0047 U | 0.027 J |
| E1668C | PCB-44 | ng/l | 0.27 J+ | 0.4 | 0.59 J | 0.13 J+ | 0.82 | 0.27 JN | 2.8 | 0.044 J+ | 0.031 J | < 0.041 U | 0.84 |
| E1668C | PCB-45 | ng/l | 0.032 J+ | 0.043 J | 0.071 JN | 0.024 J+ | 0.18 | < 0.042 U | 0.53 J | < 0.0029 U | 0.0049 J | < 0.0064 U | 0.16 |
| E1668C | PCB-46 | ng/l | 0.012 J | 0.018 J | < 0.023 U | 0.0083 J | 0.049 | < 0.051 U | 0.18 J | < 0.0035 U | < 0.0016 U | < 0.0063 U | 0.051 |
| E1668C | PCB-47 | ng/l | 0.27 J+ | 0.4 | 0.59 J | 0.13 J+ | 0.82 | 0.27 J+ | 2.8 | 0.044 J+ | 0.031 J | < 0.041 U | 0.84 |
| E1668C | PCB-48 | ng/l | 0.038 JN | 0.057 J | 0.11 J | 0.016 J | 0.096 | 0.068 J | 0.69 | 0.0073 JN | 0.0041 J | 0.0070 J | 0.17 |
| E1668C | PCB-49 | ng/l | 0.13 J | 0.19 | 0.31 J | 0.069 J | 0.52 | 0.16 J | 1.5 | 0.023 J | 0.018 J | 0.014 JN | 0.46 |
| E1668C | PCB-5 | ng/l | < 0.0029 U | 0.0028 JN | < 0.028 U | < 0.0020 U | 0.0036 JN | < 0.010 UJ | < 0.030 U | < 0.0033 U | < 0.0022 U | < 0.0028 U | 0.0057 JN |
| E1668C | PCB-50 | ng/l | 0.018 JN | 0.030 J | 0.055 J | 0.014 J | 0.16 | < 0.039 U | 0.33 J | 0.0064 J | 0.0040 J | < 0.0048 U | 0.1 |
| E1668C | PCB-51 | ng/l | 0.032 J+ | 0.043 J | 0.071 J | 0.024 J+ | 0.18 | < 0.042 U | 0.53 J | < 0.0029 U | 0.0049 J | < 0.0064 U | 0.16 |
| E1668C | PCB-52 | ng/l | 0.41 | 0.62 | 0.75 | 0.16 | 1 | 0.54 | 3.9 | 0.059 | 0.053 | 0.048 J | 1.3 |
| E1668C | PCB-53 | ng/l | 0.018 JN | 0.030 J | 0.055 J | 0.014 J | 0.16 | < 0.039 U | 0.33 J | 0.0064 J | 0.0040 J | < 0.0048 U | 0.1 |
| E1668C | PCB-54 | ng/l | < 0.00020 U | < 0.00026 U | < 0.0016 U | 0.0018 J | 0.0059 J | < 0.00083 U | < 0.0014 U | < 0.00086 U | < 0.00019 U | < 0.00040 U | 0.0010 JN |
| E1668C | PCB-55 | ng/l | 0.011 J | 0.013 JN | 0.018 JN | 0.0047 JN | 0.014 J | < 0.029 U | 0.042 JN | 0.0039 JN | < 0.00089 U | < 0.0036 U | 0.013 J |
| E1668C | PCB-56 | ng/l | 0.17 | 0.23 | 0.25 J | 0.078 J | 0.27 | 0.13 J | 1 | 0.032 J | 0.017 J | 0.018 J | 0.24 |
| E1668C | PCB-57 | ng/l | < 0.0062 U | < 0.0083 U | < 0.013 U | < 0.0028 U | 0.0057 JN | < 0.029 U | < 0.026 U | < 0.0021 U | < 0.00090 U | < 0.0037 U | < 0.0039 U |
| E1668C | PCB-58 | ng/l | < 0.0063 U | < 0.0084 U | < 0.014 U | < 0.0028 U | < 0.0021 U | < 0.030 U | < 0.026 U | < 0.0021 U | < 0.00092 U | < 0.0037 U | < 0.0039 U |
| E1668C | PCB-59 | ng/l | 0.017 J | 0.026 J | 0.052 J | 0.011 J | 0.064 J | < 0.028 U | 0.23 J | 0.0045 JN | 0.0031 J | < 0.0035 U | 0.074 J |
| E1668C | PCB-6 | ng/l | 0.0098 JN | 0.010 JN | < 0.025 U | 0.0063 JN | 0.049 | < 0.0089 UJ | 0.22 J | 0.0033 JN | 0.0040 JN | < 0.0024 U | 0.044 JN |
| E1668C | PCB-60 | ng/l | 0.088 | 0.13 | 0.14 J | 0.040 J | 0.13 | 0.061 JN | 0.41 | 0.020 J | 0.0091 J | 0.011 J | 0.12 |
| E1668C | PCB-61 | ng/l | 0.88 | 1.4 | 1.1 J | 0.28 J | 0.97 | 0.68 J | 4.1 | 0.093 J | 0.074 J | 0.072 J | 1.1 |
| E1668C | PCB-62 | ng/l | 0.017 J | 0.026 J | 0.052 J | 0.011 J | 0.064 J | < 0.028 U | 0.23 J | 0.0045 JN | 0.0031 J | < 0.0035 U | 0.074 J |
| E1668C | PCB-63 | ng/l | 0.0074 JN | 0.013 JN | 0.020 J | 0.0036 JN | 0.021 J | < 0.027 U | 0.066 JN | < 0.0019 U | < 0.00083 U | < 0.0034 U | 0.013 JN |
| E1668C | PCB-64 | ng/l | 0.11 | 0.17 | 0.24 J | 0.061 J | 0.26 | 0.14 J | 1.3 | 0.034 J | 0.021 J | 0.013 JN | 0.37 |
| E1668C | PCB-65 | ng/l | 0.27 J+ | 0.4 | 0.59 J | 0.13 J+ | 0.82 | 0.27 J+ | 2.8 | 0.044 J+ | 0.031 J | < 0.041 U | 0.84 |
| E1668C | PCB-66 | ng/l | 0.32 | 0.47 | 0.45 | 0.16 | 0.58 | 0.25 | 2 | 0.058 | 0.035 J | 0.032 J | 0.48 |
| E1668C | PCB-67 | ng/l | 0.0088 JN | 0.012 J | 0.012 JN | 0.0046 JN | 0.014 JN | < 0.026 U | 0.052 JN | < 0.0018 U | < 0.00078 U | < 0.0032 U | 0.013 JN |
| E1668C | PCB-68 | ng/l | < 0.0055 U | < 0.0073 U | < 0.012 U | < 0.0025 U | 0.0080 J | < 0.026 U | < 0.023 U | < 0.0018 U | < 0.00080 U | < 0.0032 U | 0.0041 JN |
| E1668C | PCB-69 | ng/l | 0.13 J | 0.19 | 0.31 J | 0.069 J | 0.52 | 0.16 J | 1.5 | 0.023 J | 0.018 J | 0.014 JN | 0.46 |
| E1668C | PCB-7 | ng/l | < 0.0026 U | < 0.0024 U | < 0.025 U | < 0.0018 U | 0.0077 JN | < 0.0091 UJ | 0.035 JN | < 0.0030 U | < 0.0020 U | < 0.0025 U | 0.0062 JN |
| E1668C | PCB-70 | ng/l | 0.88 | 1.4 | 1.1 J | 0.28 J | 0.97 | 0.68 J | 4.1 | 0.093 J | 0.074 J | 0.072 J | 1.1 |
| E1668C | PCB-71 | ng/l | 0.13 J | 0.20 J | 0.29 J | 0.077 J | 0.4 | 0.18 J | 1.7 | 0.028 JN | 0.014 J | 0.019 JN | 0.46 |
| E1668C | PCB-72 | ng/l | < 0.0061 U | < 0.0081 U | < 0.013 U | < 0.0027 U | 0.010 J | < 0.029 U | < 0.026 U | < 0.0020 U | < 0.00089 U | < 0.0036 U | 0.0041 J |
| E1668C | PCB-73 | ng/l | < 0.0079 U | < 0.011 U | < 0.017 U | < 0.0035 U | 0.026 J | < 0.037 U | 0.077 J | < 0.0026 U | < 0.0011 U | < 0.0047 U | 0.027 J |
| E1668C | PCB-74 | ng/l | 0.88 | 1.4 | 1.1 J | 0.28 J | 0.97 | 0.68 J | 4.1 | 0.093 J | 0.074 J | 0.072 J | 1.1 |
| E1668C | PCB-75 | ng/l | 0.017 J | 0.026 J | 0.052 J | 0.011 J | 0.064 J | < 0.028 U | 0.23 J | 0.0045 JN | 0.0031 J | < 0.0035 U | 0.074 J |
| E1668C | PCB-76 | ng/l | 0.88 | 1.4 | 1.1 J | 0.28 J | 0.97 | 0.68 J | 4.1 | 0.093 J | 0.074 J | 0.072 J | 1.1 |

**Table 3-3**
**Treatability Study Stormwater Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | Outfall 01 | | | Outfall 02 | | Outfall 03 | | Outfall 04 | | Outfall 05 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | OFW0100N | OFW0100R | OFW0100N-102920 | OFW0200N | OFW0200N-102920 | OFW0300N | OFW0300N-102920 | OFW0400N | OFW0400N-102920 | OFW0500N | OFW0500N-102920 |
| | | Sample Date | 7/22/2020 | 7/22/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 | 8/13/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 |
| | | Sample Type | N | FD | N | N | N | N | N | N | N | N | N |
| Method | Chemical Name | Units | | | | | | | | | | | |
| E1668C | PCB-77 | ng/l | 0.13 | 0.17 | 0.13 JN | 0.048 J | 0.087 | 0.061 J | 0.24 J | 0.014 J | 0.0081 J+ | 0.011 JN | 0.094 |
| E1668C | PCB-78 | ng/l | < 0.0063 U | < 0.0084 U | < 0.014 U | < 0.0028 U | < 0.0021 U | < 0.030 U | < 0.026 U | < 0.0021 U | < 0.00092 U | < 0.0037 U | < 0.0039 U |
| E1668C | PCB-79 | ng/l | 0.017 JN | 0.020 J | 0.017 JN | 0.0035 JN | 0.0086 J | < 0.026 U | < 0.023 U | < 0.0018 U | < 0.00079 U | < 0.0032 U | 0.0092 J |
| E1668C | PCB-8 | ng/l | 0.044 J | 0.048 J | 0.22 J | 0.033 J | 0.19 | 0.021 JN | 1.2 | 0.020 JN | 0.021 JN | 0.0092 JN | 0.21 |
| E1668C | PCB-80 | ng/l | < 0.0053 U | < 0.0071 U | < 0.012 U | < 0.0024 U | < 0.0018 U | < 0.025 U | < 0.022 U | < 0.0018 U | < 0.00078 U | < 0.0032 U | < 0.0033 U |
| E1668C | PCB-81 | ng/l | < 0.0056 U | < 0.0074 U | < 0.012 U | < 0.0025 U | 0.0033 JN | < 0.025 U | < 0.021 U | < 0.0019 U | < 0.00084 U | < 0.0033 U | < 0.0033 U |
| E1668C | PCB-82 | ng/l | 0.23 | 0.22 | 0.23 J | 0.068 J | 0.16 | 0.046 JN | 0.32 J | 0.027 JN | 0.018 J | 0.018 JN | 0.11 |
| E1668C | PCB-83 | ng/l | 0.77 | 0.77 | 0.82 | 0.24 | 0.78 | 0.021 JN | 1.2 | 0.086 | 0.066 JN | 0.052 JN | 0.47 |
| E1668C | PCB-84 | ng/l | 0.33 | 0.38 | 0.31 J | 0.095 JN | 0.37 | 0.11 J | 0.73 | 0.051 | 0.035 J | 0.025 JN | 0.27 |
| E1668C | PCB-85 | ng/l | 0.27 | 0.26 | 0.25 J | 0.088 J | 0.25 | 0.051 JN | 0.35 J | 0.037 J | 0.026 J | 0.023 J | 0.15 |
| E1668C | PCB-86 | ng/l | 1.1 | 1.2 | 1.1 JN | 0.38 J | 0.94 | 0.32 J | 1.6 JN | 0.11 J | 0.098 J | 0.081 JN | 0.61 |
| E1668C | PCB-87 | ng/l | 1.1 | 1.2 | 1.1 J | 0.38 J | 0.94 | 0.32 J | 1.6 J | 0.11 J | 0.098 J | 0.081 JN | 0.61 |
| E1668C | PCB-88 | ng/l | 0.11 JN | 0.15 J | 0.17 J | 0.052 J | 0.26 | 0.064 J | 0.31 J | 0.023 J | 0.017 J | 0.011 JN | 0.14 |
| E1668C | PCB-89 | ng/l | 0.0092 JN | 0.013 J | < 0.0037 U | 0.0047 JN | 0.010 JN | < 0.0020 U | 0.022 JN | < 0.0011 U | < 0.00070 U | < 0.0011 U | 0.0067 JN |
| E1668C | PCB-9 | ng/l | < 0.0026 U | 0.0035 JN | < 0.026 U | < 0.0018 U | 0.011 JN | < 0.0093 UJ | 0.081 JN | < 0.0031 U | < 0.0021 U | < 0.0025 U | 0.014 JN |
| E1668C | PCB-90 | ng/l | 1.6 | 1.7 | 1.8 | 0.47 | 1.5 | 0.47 J | 2.6 | 0.15 | 0.16 | 0.12 J | 0.96 |
| E1668C | PCB-91 | ng/l | 0.11 JN | 0.15 J | 0.17 J | 0.052 J | 0.26 | 0.064 J | 0.31 J | 0.023 J | 0.017 J | 0.011 JN | 0.14 |
| E1668C | PCB-92 | ng/l | 0.23 | 0.27 | 0.22 J | 0.075 J | 0.31 | 0.077 J | 0.38 JN | 0.031 J | 0.025 J | 0.018 J | 0.17 |
| E1668C | PCB-93 | ng/l | 0.0090 J | 0.0063 JN | 0.0087 JN | 0.0048 JN | 0.047 J | < 0.0018 U | 0.026 JN | 0.0034 JN | 0.0022 JN | 0.0016 JN | 0.0086 J |
| E1668C | PCB-94 | ng/l | 0.0025 JN | < 0.00078 U | < 0.0037 U | 0.0018 JN | 0.017 J | < 0.0020 U | 0.0093 JN | < 0.0011 U | < 0.00070 U | < 0.0011 U | 0.0033 JN |
| E1668C | PCB-95 | ng/l | 0.89 | 1.1 | 0.87 JN | 0.32 | 1.3 | 0.36 JN | 2.5 | 0.14 | 0.15 | 0.081 | 1 |
| E1668C | PCB-96 | ng/l | 0.0034 J | 0.0037 JN | < 0.0028 U | 0.0029 J | 0.014 J | < 0.0015 U | 0.019 JN | < 0.00081 U | < 0.00053 U | < 0.00080 U | 0.0060 JN |
| E1668C | PCB-97 | ng/l | 1.1 | 1.2 | 1.1 J | 0.38 J | 0.94 | 0.32 J | 1.6 J | 0.11 J | 0.098 J | 0.081 JN | 0.61 |
| E1668C | PCB-98 | ng/l | 0.022 J | 0.026 JN | 0.020 JN | 0.010 J | 0.043 JN | < 0.0017 U | 0.061 JN | 0.0056 JN | 0.0029 JN | < 0.00090 U | 0.028 J |
| E1668C | PCB-99 | ng/l | 0.77 | 0.77 | 0.82 | 0.24 | 0.78 | 0.021 JN | 1.2 | 0.086 | 0.066 J | 0.052 JN | 0.47 |
| E1668C | Pentachlorobiphenyl | ng/l | 12 | 13 | 12 | 3.4 | 9.7 | 3 | 19 | 1.2 | 1.1 | 0.82 | 7 |
| E1668C | Tetrachlorobiphenyl | ng/l | 2.9 | 4.3 | 4.7 | 1.2 | 5.9 | 2.5 | 22 | 0.44 | 0.3 | 0.30 J | 6.3 |
| E1668C | Trichlorobiphenyl | ng/l | 0.77 | 0.86 | 2.7 | 0.65 | 3.2 | 0.54 | 12 | 0.22 | 0.16 | 0.14 J | 3.1 |
| SW6020A | Aluminum | ug/l | 570 | 710 | 1100 | 530 | 920 | 650 | 6200 | 380 | 380 | 260 | 2200 |
| SW6020A | Antimony | ug/l | 1.2 J | 1.1 J | 0.88 J | 1.9 J | 1.3 J | 2.2 | 5.4 | 0.51 J | 0.48 J | 1.3 J | 2 |
| SW6020A | Arsenic | ug/l | 0.99 J | 1.1 | 0.56 J | 1.1 | 1.4 | 2.1 | 2.6 | 2.1 | 2.9 | 1.4 | 2.4 |
| SW6020A | Barium | ug/l | 19 | 20 | 22 | 15 | 14 | 28 | 150 | 12 | 10 | 21 | 56 |
| SW6020A | Beryllium | ug/l | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U | 0.27 J | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| SW6020A | Cadmium | ug/l | 0.27 J | 0.23 J | < 1.0 U | 0.30 J | < 1.0 U | 0.25 J | 1 | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| SW6020A | Calcium | ug/l | 11000 | 11000 | 7000 | 8700 | 5500 | 28000 | 28000 | 14000 | 9300 | 18000 | 18000 |
| SW6020A | Chromium | ug/l | 3.6 | 3.5 | 3.2 | 3 | 3.9 | 5.1 | 17 | 2.1 | 1.8 J | 9.7 | 5.8 |
| SW6020A | Cobalt | ug/l | 0.89 | 0.98 | 0.7 | 0.89 | 0.97 | 2.5 | 4.4 | 0.52 | 0.58 | 0.68 | 1.4 |
| SW6020A | Copper | ug/l | 17 | 17 | 12 | 24 | 14 | 47 | 86 | 8.2 | 4.5 | 20 | 19 |
| SW6020A | Iron | ug/l | 1500 | 1700 | 2300 | 1200 | 2300 | 2200 | 13000 | 720 | 870 | 650 | 4200 |
| SW6020A | Lead | ug/l | 9.7 | 11 | 18 | 20 | 21 | 48 | 100 | 3.4 | 3.6 | 5.5 | 14 |
| SW6020A | Magnesium | ug/l | 1100 | 1200 | 1300 | 1600 | 2100 | 2600 | 4900 | 3300 | 2300 | 1800 | 3600 |
| SW6020A | Manganese | ug/l | 36 | 37 | 37 | 52 | 58 | 100 | 190 | 21 | 16 | 30 | 68 |
| SW6020A | Nickel | ug/l | 3 | 3.1 | 2.4 | 4.5 | 8.7 | 8.8 | 13 | 6.8 | 5.4 | 4.1 | 7.2 |
| SW6020A | Potassium | ug/l | 3200 | 3300 | 1200 | 2600 | 1100 | 14000 | 3100 | 2000 | 3100 | 5500 | 1700 |
| SW6020A | Selenium | ug/l | < 5.0 U | < 5.0 U | < 5.0 U | < 5.0 U | < 5.0 U | < 5.0 U | < 5.0 U | < 5.0 U | < 5.0 U | < 5.0 U | < 5.0 U |
| SW6020A | Silver | ug/l | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U | 0.20 J | 1 | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |
| SW6020A | Sodium | ug/l | 5000 | 4900 | 1500 | 5400 | 2000 | 18000 | 3500 | 7900 | 4700 | 12000 | 2400 |
| SW6020A | Thallium | ug/l | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U | < 1.0 U |

**Table 3-3**
**Treatability Study Stormwater Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | Outfall 01 | | | Outfall 02 | | Outfall 03 | | Outfall 04 | | Outfall 05 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | OFW0100N | OFW0100R | OFW0100N-102920 | OFW0200N | OFW0200N-102920 | OFW0300N | OFW0300N-102920 | OFW0400N | OFW0400N-102920 | OFW0500N | OFW0500N-102920 |
| | | Sample Date | 7/22/2020 | 7/22/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 | 8/13/2020 | 10/29/2020 | 7/22/2020 | 10/29/2020 |
| | | Sample Type | N | FD | N | N | N | N | N | N | N | N | N |
| Method | Chemical Name | Units | | | | | | | | | | | |
| SW6020A | Vanadium | ug/l | 4 | 4.3 | 3.8 | 8 | 18 | 9.1 | 16 | 29 | 26 | 10 | 12 |
| SW6020A | Zinc | ug/l | 110 | 130 | 110 | 150 | 100 | 300 | 650 | 36 | 39 | 74 | 100 |
| SW7470A | Mercury | ug/l | < 0.20 U | < 0.20 U | < 0.20 U | < 0.20 U | < 0.20 U | < 0.20 U | < 0.20 U | < 0.20 U | < 0.20 U | < 0.20 U | < 0.20 U |
| SW8015D DRO | Diesel Range Organics (C10-C28) | ug/l | 1900 J+ | 1800 J+ | 2800 J+ | 840 J+ | 360 J+ | 8200 J+ | 12000 J+ | 330 J+ | < 460 U | 2000 J+ | 1200 J+ |
| SW8015D DRO | ORO (C24-C40) | ug/l | 2800 J+ | 2700 J+ | 3900 J+ | 1000 J+ | 450 J+ | 7200 J+ | 11000 J+ | 560 J+ | 250 J | 2800 J+ | 2000 J+ |
| SW8270D LL | Acenaphthene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.19 U | < 0.15 U | < 0.18 U | < 0.15 U | < 0.18 U |
| SW8270D LL | Acenaphthylene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.18 U | < 0.16 U | 0.096 J | < 0.15 U | < 0.18 U | < 0.15 U | < 0.18 U |
| SW8270D LL | Anthracene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.19 U | < 0.15 U | < 0.18 U | < 0.15 U | < 0.18 U |
| SW8270D LL | Benzo(a)anthracene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.18 U | < 0.16 U | 0.12 J | < 0.15 U | < 0.18 U | 0.085 J | < 0.18 U |
| SW8270D LL | Benzo(a)pyrene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.19 U | < 0.15 U | < 0.18 U | 0.069 J | < 0.18 U |
| SW8270D LL | Benzo(b)fluoranthene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | 0.12 J | < 0.16 U | 0.16 J | < 0.15 U | < 0.18 U | 0.13 J | < 0.18 U |
| SW8270D LL | Benzo(g,h,i)perylene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.18 U | 0.075 J | 0.12 J | < 0.15 U | < 0.18 U | 0.17 | < 0.18 U |
| SW8270D LL | Benzo(k)fluoranthene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.19 U | < 0.15 U | < 0.18 U | 0.15 | < 0.18 U |
| SW8270D LL | Chrysene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | 0.094 J | < 0.16 U | 0.17 J | < 0.15 U | < 0.18 U | 0.14 J | < 0.18 U |
| SW8270D LL | Dibenzo(a,h)anthracene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.19 U | < 0.15 U | < 0.18 U | 0.17 | < 0.18 U |
| SW8270D LL | Fluoranthene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | 0.088 J | 0.17 J | 0.077 J | 0.31 | < 0.15 U | < 0.18 U | < 0.15 U | < 0.18 U |
| SW8270D LL | Fluorene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.19 U | < 0.15 U | < 0.18 U | < 0.15 U | < 0.18 U |
| SW8270D LL | Indeno(1,2,3-cd)pyrene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.19 U | < 0.15 U | < 0.18 U | 0.16 | < 0.18 U |
| SW8270D LL | Naphthalene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | < 0.18 U | < 0.16 U | 0.059 J | < 0.15 U | < 0.18 U | < 0.15 U | < 0.18 U |
| SW8270D LL | Phenanthrene | ug/l | 0.061 J | 0.058 J | 0.066 J | 0.071 J | 0.11 J | 0.088 J | 0.19 | 0.058 J+ | < 0.18 U | 0.074 J | < 0.18 U |
| SW8270D LL | Pyrene | ug/l | < 0.15 U | < 0.16 U | < 0.18 U | < 0.16 U | 0.14 J | 0.15 J | 0.31 | < 0.15 U | < 0.18 U | < 0.15 U | 0.053 J |

Notes:
ng/L = nanogram per liter
ug/l = micrograms per liter
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
J+ = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte and may be biased high.
JN = The analyte was tentatively identified (Estimated Maximum Possible Concentration); the associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte was  not detected above the indicated reporting detection limit.
Sample Type Codes:
N = Normal sample
FD = Filed Duplicate sample

**Table 3-4**
**Treatability Study Sediment Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | OUTFALL 01 | OUTFALL 03 | OUTFALL 04 | SEEP-01 | SEEP-02 | SEEP-03 | SEDMAT-01 | SEDMAT-02 | SEDMAT-03 | SEDTRAP-01 | SEDTRAP-02 | SEDTRAP-03 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 0FS0100N | 0FS0300N | 0FS0400N | SEE0101N | SEE0201N | SEE0301N | SMS0100N | SMS0200N | SMS0300N | STS0100N | STS0200N | STS0300N |
| | | Sample Interval | | | | 0-12" | 0-12" | 0-12" | | | | | | |
| | | Sample Date | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 |
| Method | Chemical Name | Units | | | | | | | | | | | | |
| D422 | Hydrometer Reading 1 - Percent Finer | % passed | | | | 71.7 | 78.3 | 33.2 | 21.1 | 41.4 | 39.4 | | | |
| D422 | Hydrometer Reading 2 - Percent Finer | % passed | | | | 61.3 | 71.8 | 30.1 | 17.9 | 33.2 | 29.9 | | | |
| D422 | Hydrometer Reading 3 - Percent Finer | % passed | | | | 52.1 | 61.4 | 24.3 | 14.7 | 25 | 25.1 | | | |
| D422 | Hydrometer Reading 4 - Percent Finer | % passed | | | | 45.2 | 52.3 | 21.1 | 13.1 | 20 | 20.4 | | | |
| D422 | Hydrometer Reading 5 - Percent Finer | % passed | | | | 38.3 | 41.9 | 18 | 9.9 | 15.1 | 15.6 | | | |
| D422 | Hydrometer Reading 6 - Percent Finer | % passed | | | | 29 | 31.5 | 13.5 | 6.7 | 10.1 | 10.9 | | | |
| D422 | Hydrometer Reading 7 - Percent Finer | % passed | | | | 21 | 19.7 | 9.7 | 3.5 | 8.5 | 7.3 | | | |
| D422 | Sieve Size #10 - Percent Finer | % passed | | | | 100 | 98.5 | 74.9 | 82.6 | 97.6 | 97.8 | | | |
| D422 | Sieve Size #100 - Percent Finer | % passed | | | | 94.1 | 86.7 | 42.1 | 66.6 | 84.3 | 79.5 | | | |
| D422 | Sieve Size #20 - Percent Finer | % passed | | | | 99.5 | 96.7 | 69.4 | 78.9 | 95 | 95.6 | | | |
| D422 | Sieve Size #200 - Percent Finer | % passed | | | | 91 | 82.4 | 36.4 | 62.2 | 79.5 | 66.9 | | | |
| D422 | Sieve Size #4 - Percent Finer | % passed | | | | 100 | 100 | 80.5 | 87.6 | 100 | 100 | | | |
| D422 | Sieve Size #40 - Percent Finer | % passed | | | | 97.7 | 93.9 | 58.2 | 74.7 | 91.8 | 91.5 | | | |
| D422 | Sieve Size #60 - Percent Finer | % passed | | | | 96 | 90.8 | 48.5 | 70.7 | 88.5 | 87.1 | | | |
| D422 | Sieve Size #80 - Percent Finer | % passed | | | | 95.2 | 88.4 | 44.6 | 68.5 | 86.5 | 83.4 | | | |
| D422 | Sieve Size 0.375 inch - Percent Finer | % passed | | | | 100 | 100 | 100 | 95.4 | 100 | 100 | | | |
| D422 | Sieve Size 0.75 inch - Percent Finer | % passed | | | | 100 | 100 | 100 | 100 | 100 | 100 | | | |
| D422 | Sieve Size 1 inch - Percent Finer | % passed | | | | 100 | 100 | 100 | 100 | 100 | 100 | | | |
| D422 | Sieve Size 1.5 inch - Percent Finer | % passed | | | | 100 | 100 | 100 | 100 | 100 | 100 | | | |
| D422 | Sieve Size 2 inch - Percent Finer | % passed | | | | 100 | 100 | 100 | 100 | 100 | 100 | | | |
| D422 | Sieve Size 3 inch - Percent Finer | % passed | | | | 100 | 100 | 100 | 100 | 100 | 100 | | | |
| D4464 | Gravel (greater than 2 mm) | percent | | | | | | | < 0.01 U | < 0.01 U | < 0.01 U | < 0.01 U | < 0.01 U | < 0.01 U |
| D4464 | Very Coarse Sand (1 to 2 mm) | percent | | | | | | | < 0.01 U | < 0.01 U | < 0.01 U | < 0.01 U | < 0.01 U | < 0.01 U |
| D4464 | Coarse Sand (0.5mm to 1 mm) | percent | | | | | | | < 0.01 U | < 0.01 U | < 0.01 U | < 0.01 U | < 0.01 U | < 0.01 U |
| D4464 | Medium Sand (0.25 to 0.5 mm) | percent | | | | | | | 3.03 | 3.05 | 0.02 | < 0.01 U | 2.22 | 1.86 |
| D4464 | Fine Sand (0.125 to 0.25mm) | percent | | | | | | | 15.96 | 10.65 | 9.34 | 7.3 | 12.41 | 17.67 |
| D4464 | Very Fine Sand (0.0625 to 0.125 mm) | percent | | | | | | | 17.54 | 13.59 | 13.35 | 12.5 | 15.98 | 17.39 |
| D4464 | Silt (0.00391 to 0.0625 mm) | percent | | | | | | | 57.76 | 67.45 | 70.76 | 70.72 | 61.97 | 56.12 |
| D4464 | Total Silt and Clay (0 to 0.0626 mm) | percent | | | | | | | 63.48 | 72.72 | 77.29 | 80.2 | 69.39 | 63.08 |
| D4464 | Clay (less than 0.00391 mm) | percent | | | | | | | 5.72 | 5.27 | 6.53 | 9.48 | 7.42 | 6.96 |
| D5057 | BULK DENSITY OF SOILS | g/cc | | | | 1.7 | 1.5 | 2.1 | | | | 1.4 | 1.4 | 1.4 |
| E1668C | Decachlorobiphenyl (PCB -209) | ng/g | 0.034 J | 0.082 | 0.25 | | | | 1.1 | 0.76 | 0.94 | 0.56 | 0.57 | 0.37 |
| E1668C | Dichloro iphenyl | ng/g | 1.1 | 0.93 | 1.4 | | | | 13 | 21 | 30 | 5.1 | 4.1 | 3.9 |
| E1668C | Heptachlorobiphenyl | ng/g | 11 | 4 | 40 | | | | 150 | 160 | 280 | 42 | 21 | 12 |
| E1668C | Hexachlorobiphenyl | ng/g | 16 | 7.9 | 57 | | | | 210 | 220 | 400 | 75 | 51 | 24 |
| E1668C | Monochlorobiphenyl | ng/g | 0.19 | 0.0098 J | 0.09 | | | | 0.63 | 0.89 | 1.5 | 0.24 | 0.17 | 0.26 |
| E1668C | Nonachlorobiphenyl | ng/g | 0.35 | 0.21 | 0.87 | | | | 5.9 | 5.1 | 7.2 | 1.9 | 1.5 | 0.92 |
| E1668C | Octachlorobiphenyl | ng/g | 3.4 | 0.86 | 9.2 | | | | 36 | 40 | 67 | 11 | 5.6 | 3.5 |
| E1668C | PCB , Total Congeners (Provided by Lab ) | ng/g | 57 | 22 | 150 | | | | 730 | 930 | 1500 | 290 | 190 | 120 |
| E1668C | PCB -1 | ng/g | 0.12 | 0.0055 J | 0.047 J | | | | 0.34 | 0.43 | 0.77 | 0.13 | 0.091 | 0.17 |
| E1668C | PCB -10 | ng/g | < 0.0077 U | < 0.011 U | < 0.010 U | | | | 0.071 J | 0.099 J | 0.16 | 0.055 | 0.041 | 0.042 |
| E1668C | PCB -100 | ng/g | 0.012 J | < 0.0018 U | 0.029 J | | | | 0.5 | 0.39 | 1.2 | 0.22 | 0.12 | 0.13 |
| E1668C | PCB -101 | ng/g | 2.1 | 0.84 | 3.8 | | | | 26 | 29 | 50 | 10 | 8.1 | 4 |
| E1668C | PCB -102 | ng/g | 0.035 J | 0.015 J | 0.10 J | | | | 0.58 | 0.8 | 1.5 | 0.37 | 0.27 | 0.18 |
| E1668C | PCB -103 | ng/g | < 0.0019 U | < 0.0018 U | 0.015 J | | | | 0.19 | 0.24 | 0.84 | 0.12 | 0.06 | 0.042 |
| E1668C | PCB -104 | ng/g | < 0.0014 U | < 0.0014 U | < 0.00096 U | | | | < 0.0026 U | < 0.0031 U | 0.026 J | < 0.00062 U | < 0.00061 U | 0.0030 J |
| E1668C | PCB -105 | ng/g | 1.2 | 0.3 | 1.3 | | | | 8 | 9.7 | 13 | 3.5 | 3.9 | 1.5 |
| E1668C | PCB -106 | ng/g | < 0.0071 U | < 0.0076 U | < 0.0079 U | | | | < 0.025 U | < 0.028 U | < 0.023 U | < 0.0086 U | < 0.0068 U | < 0.0046 U |
| E1668C | PCB -107 | ng/g | 0.17 | 0.055 J | 0.23 | | | | 1.6 | 2.1 | 3.2 | 0.72 | 0.63 | 0.24 |
| E1668C | PCB -108 | ng/g | 0.10 J | 0.025 J | 0.15 | | | | 0.81 | 0.98 | 1.4 | 0.37 | 0.36 | 0.13 |

**Table 3-4**
**Treatability Study Sediment Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | OUTFALL 01 | OUTFALL 03 | OUTFALL 04 | SEEP-01 | SEEP-02 | SEEP-03 | SEDMAT-01 | SEDMAT-02 | SEDMAT-03 | SEDTRAP-01 | SEDTRAP-02 | SEDTRAP-03 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 0FS0100N | 0FS0300N | 0FS0400N | SEE0101N | SEE0201N | SEE0301N | SMS0100N | SMS0200N | SMS0300N | STS0100N | STS0200N | STS0300N |
| | | Sample Interval | | | | 0-12" | 0-12" | 0-12" | | | | | | |
| | | Sample Date | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 |
| Method | Chemical Name | Units | | | | | | | | | | | | |
| E1668C | PCB -109 | ng/g | 1.7 | 0.53 | 2.3 | | | | 15 | 17 | 26 | 6.3 | 5.6 | 2.6 |
| E1668C | PCB -11 | ng/g | 0.78 | 0.82 | 0.24 | | | | 2.2 | 0.58 | 2.4 | 0.34 | 0.39 | 0.19 |
| E1668C | PCB -110 | ng/g | 3.2 | 1.3 | 7.8 | | | | 31 | 33 | 52 | 11 | 10 | 4.8 |
| E1668C | PCB -111 | ng/g | < 0.0013 U | < 0.0013 U | < 0.00089 U | | | | < 0.0024 U | < 0.0029 U | < 0.0019 U | < 0.00058 U | < 0.00056 U | < 0.00030 U |
| E1668C | PCB -112 | ng/g | 0.0091 J | < 0.0013 U | 0.0094 J | | | | 0.12 J | 0.083 J | 0.24 | 0.04 | 0.027 | 0.016 J |
| E1668C | PCB -113 | ng/g | 2.1 | 0.84 | 3.8 | | | | 26 | 29 | 50 | 10 | 8.1 | 4 |
| E1668C | PCB -114 | ng/g | 0.053 J | 0.0086 J | 0.058 J | | | | 0.32 | 0.53 | 0.67 | 0.2 | 0.2 | 0.08 |
| E1668C | PCB -115 | ng/g | 3.2 | 1.3 | 7.8 | | | | 31 | 33 | 52 | 11 | 10 | 4.8 |
| E1668C | PCB -116 | ng/g | 0.45 | 0.15 J | 0.67 | | | | 4.4 | 4.8 | 7 | 1.8 | 1.7 | 0.84 |
| E1668C | PCB -117 | ng/g | 0.45 | 0.15 J | 0.67 | | | | 4.4 | 4.8 | 7 | 1.8 | 1.7 | 0.84 |
| E1668C | PCB -118 | ng/g | 2.4 | 0.79 | 3 | | | | 19 | 23 | 36 | 8.4 | 8.4 | 3.3 |
| E1668C | PCB -119 | ng/g | 1.7 | 0.53 | 2.3 | | | | 15 | 17 | 26 | 6.3 | 5.6 | 2.6 |
| E1668C | PCB -12 | ng/g | < 0.0070 U | < 0.0097 U | 0.056 J | | | | 0.47 | 0.86 | 1.1 | 0.19 | 0.13 | 0.11 |
| E1668C | PCB -120 | ng/g | < 0.0014 U | 0.0069 J | 0.010 J | | | | 0.085 J | 0.12 J | < 0.0019 U | 0.032 | 0.022 J | 0.0086 J |
| E1668C | PCB -121 | ng/g | < 0.0014 U | < 0.0013 U | < 0.00093 U | | | | < 0.0025 U | < 0.0030 U | < 0.0020 U | < 0.00060 U | < 0.00059 U | < 0.00032 U |
| E1668C | PCB -122 | ng/g | 0.035 J | 0.010 J | 0.038 J | | | | 0.37 | 0.41 | 0.57 | 0.16 | 0.15 | 0.072 |
| E1668C | PCB -123 | ng/g | 0.052 J | 0.013 J | 0.042 J | | | | 0.35 | 0.39 | 0.65 | 0.16 | 0.2 | 0.088 |
| E1668C | PCB -124 | ng/g | 0.10 J | 0.025 J | 0.15 | | | | 0.81 | 0.98 | 1.4 | 0.37 | 0.36 | 0.13 |
| E1668C | PCB -125 | ng/g | 1.7 | 0.53 | 2.3 | | | | 15 | 17 | 26 | 6.3 | 5.6 | 2.6 |
| E1668C | PCB -126 | ng/g | 0.022 J | < 0.0085 U | 0.021 J | | | | 0.11 J | 0.21 | 0.36 | 0.034 | 0.024 | 0.011 J |
| E1668C | PCB -127 | ng/g | < 0.0071 U | < 0.0076 U | < 0.0079 U | | | | < 0.025 U | < 0.028 U | < 0.023 U | < 0.0086 U | 0.0086 J | < 0.0046 U |
| E1668C | PCB -128 | ng/g | 0.61 | 0.3 | 1.6 | | | | 5.4 | 5.4 | 8.8 | 2.1 | 1.8 | 0.77 |
| E1668C | PCB -129 | ng/g | 3.9 | 1.9 | 12 | | | | 46 | 48 | 81 | 16 | 12 | 5.6 |
| E1668C | PCB -13 | ng/g | < 0.0070 U | < 0.0097 U | 0.056 J | | | | 0.47 | 0.86 | 1.1 | 0.19 | 0.13 | 0.11 |
| E1668C | PCB -130 | ng/g | 0.23 | 0.11 | 0.71 | | | | 2.6 | 2.6 | 4.5 | 0.92 | 0.71 | 0.3 |
| E1668C | PCB -131 | ng/g | 0.041 J | < 0.016 U | 0.12 | | | | 0.33 | 0.41 | 0.75 | 0.18 | 0.16 | 0.061 |
| E1668C | PCB -132 | ng/g | 1.2 | 0.51 | 4.2 | | | | 13 | 14 | 27 | 5.2 | 3.9 | 1.7 |
| E1668C | PCB -133 | ng/g | 0.026 J | 0.023 J | 0.13 | | | | 0.56 | 0.65 | 1.3 | 0.26 | 0.14 | 0.069 |
| E1668C | PCB -134 | ng/g | 0.17 | 0.063 J | 0.67 | | | | 2.2 | 2.1 | 4 | 0.87 | 0.65 | 0.28 |
| E1668C | PCB -135 | ng/g | 1 | 0.56 | 5.8 | | | | 18 | 19 | 34 | 5.3 | 3.1 | 1.7 |
| E1668C | PCB -136 | ng/g | 0.29 | 0.16 | 1.8 | | | | 5.4 | 5.6 | 11 | 1.8 | 1.1 | 0.58 |
| E1668C | PCB -137 | ng/g | 0.19 | 0.055 J | 0.4 | | | | 1.4 | 1.3 | 2.1 | 0.56 | 0.57 | 0.21 |
| E1668C | PCB -138 | ng/g | 3.9 | 1.9 | 12 | | | | 46 | 48 | 81 | 16 | 12 | 5.6 |
| E1668C | PCB -139 | ng/g | 0.057 J | 0.022 J | 0.14 | | | | 0.45 | 0.4 | 0.92 | 0.23 | 0.2 | 0.076 |
| E1668C | PCB -14 | ng/g | < 0.0059 U | < 0.0082 U | < 0.0077 U | | | | < 0.017 U | < 0.019 U | < 0.0067 U | < 0.0022 U | < 0.0022 U | < 0.0021 U |
| E1668C | PCB -140 | ng/g | 0.057 J | 0.022 J | 0.14 | | | | 0.45 | 0.4 | 0.92 | 0.23 | 0.2 | 0.076 |
| E1668C | PCB -141 | ng/g | 0.75 | 0.25 | 2.4 | | | | 10 | 11 | 20 | 3.5 | 2.2 | 1.1 |
| E1668C | PCB -142 | ng/g | < 0.016 U | < 0.015 U | < 0.016 U | | | | < 0.057 U | < 0.057 U | < 0.062 U | < 0.018 U | < 0.012 U | < 0.0066 U |
| E1668C | PCB -143 | ng/g | 0.17 | 0.063 J | 0.67 | | | | 2.2 | 2.1 | 4 | 0.87 | 0.65 | 0.28 |
| E1668C | PCB -144 | ng/g | 0.12 | 0.056 J | 0.67 | | | | 1.9 | 2.1 | 3.8 | 0.63 | 0.37 | 0.2 |
| E1668C | PCB -145 | ng/g | < 0.0013 U | < 0.0017 U | 0.0079 J | | | | < 0.0031 U | < 0.0034 U | < 0.0027 U | 0.0053 J | 0.0053 J | 0.0026 J |
| E1668C | PCB -146 | ng/g | 0.45 | 0.3 | 1.7 | | | | 7 | 7.6 | 14 | 2.6 | 1.5 | 0.72 |
| E1668C | PCB -147 | ng/g | 2.8 | 1.5 | 13 | | | | 42 | 45 | 86 | 16 | 9.6 | 4.7 |
| E1668C | PCB -148 | ng/g | < 0.0019 U | < 0.0024 U | < 0.0019 U | | | | 0.043 J | 0.042 J | 0.12 | 0.029 | 0.0096 J | 0.0067 J |
| E1668C | PCB -149 | ng/g | 2.8 | 1.5 | 13 | | | | 42 | 45 | 86 | 16 | 9.6 | 4.7 |
| E1668C | PCB -15 | ng/g | 0.14 | 0.067 J | 0.58 | | | | 4.7 | 7.2 | 9.3 | 1.4 | 1 | 0.84 |
| E1668C | PCB -150 | ng/g | < 0.0013 U | < 0.0016 U | 0.0086 J | | | | 0.042 J | 0.059 J | 0.15 | 0.026 | 0.012 J | 0.0071 J |
| E1668C | PCB -151 | ng/g | 1 | 0.56 | 5.8 | | | | 18 | 19 | 34 | 5.3 | 3.1 | 1.7 |
| E1668C | PCB -152 | ng/g | < 0.0014 U | < 0.0018 U | < 0.0014 U | | | | < 0.0032 U | < 0.0035 U | 0.067 J | 0.012 J | 0.0069 J | 0.0054 J |
| E1668C | PCB -153 | ng/g | 2.8 | 1.6 | 8.4 | | | | 39 | 43 | 77 | 14 | 8.9 | 4.4 |

**Table 3-4**
**Treatability Study Sediment Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | OUTFALL 01 | OUTFALL 03 | OUTFALL 04 | SEEP-01 | SEEP-02 | SEEP-03 | SEDMAT-01 | SEDMAT-02 | SEDMAT-03 | SEDTRAP-01 | SEDTRAP-02 | SEDTRAP-03 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 0FS0100N | 0FS0300N | 0FS0400N | SEE0101N | SEE0201N | SEE0301N | SMS0100N | SMS0200N | SMS0300N | STS0100N | STS0200N | STS0300N |
| | | Sample Interval | | | | 0-12" | 0-12" | 0-12" | | | | | | |
| | | Sample Date | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 |
| Method | Chemical Name | Units | | | | | | | | | | | | |
| E1668C | PCB -154 | ng/g | 0.021 J | 0.021 J | 0.056 J | | | | 0.37 | 0.41 | 0.94 | 0.19 | 0.095 | 0.05 |
| E1668C | PCB -155 | ng/g | < 0.0013 U | < 0.0017 U | < 0.0013 U | | | | < 0.0030 U | < 0.0033 U | 0.0098 J | < 0.00055 U | < 0.00062 U | < 0.00028 U |
| E1668C | PCB - 156 | ng/g | 0.46 | 0.14 | 0.84 | | | | 3.8 | 4.1 | 6.3 | 1.5 | 1.3 | 0.52 |
| E1668C | PCB - 157 | ng/g | 0.46 | 0.14 | 0.84 | | | | 3.8 | 4.1 | 6.3 | 1.5 | 1.3 | 0.52 |
| E1668C | PCB - 158 | ng/g | 0.42 | 0.17 | 1.1 | | | | 4 | 4.3 | 7.2 | 1.6 | 1.2 | 0.53 |
| E1668C | PCB - 159 | ng/g | 0.025 J | < 0.0098 U | 0.14 | | | | 0.49 | 0.59 | 1 | 0.16 | 0.076 | 0.045 |
| E1668C | PCB - 16 | ng/g | 0.12 | 0.021 J | 0.076 | | | | 2.1 | 4.4 | 6.2 | 1.2 | 0.82 | 1 |
| E1668C | PCB - 160 | ng/g | 3.9 | 1.9 | 12 | | | | 46 | 48 | 81 | 16 | 12 | 5.6 |
| E1668C | PCB - 161 | ng/g | < 0.011 U | < 0.0097 U | < 0.011 U | | | | < 0.038 U | < 0.038 U | < 0.041 U | 0.016 J | < 0.0079 U | 0.0051 J |
| E1668C | PCB -162 | ng/g | 0.012 J | < 0.0096 U | 0.029 J | | | | 0.14 J | 0.12 J | 0.25 | 0.044 | 0.025 | 0.010 J |
| E1668C | PCB -163 | ng/g | 3.9 | 1.9 | 12 | | | | 46 | 48 | 81 | 16 | 12 | 5.6 |
| E1668C | PCB -164 | ng/g | 0.26 | 0.12 | 0.99 | | | | 3.1 | 3.4 | 6 | 1.1 | 0.81 | 0.38 |
| E1668C | PCB -165 | ng/g | < 0.012 U | < 0.011 U | < 0.012 U | | | | < 0.043 U | < 0.043 U | < 0.047 U | < 0.013 U | < 0.0090 U | < 0.0050 U |
| E1668C | PCB -166 | ng/g | 0.61 | 0.3 | 1.6 | | | | 5.4 | 5.4 | 8.8 | 2.1 | 1.8 | 0.77 |
| E1668C | PCB -167 | ng/g | 0.14 | 0.063 J | 0.37 | | | | 1.6 | 1.7 | 2.7 | 0.52 | 0.4 | 0.18 |
| E1668C | PCB -168 | ng/g | 2.8 | 1.6 | 8.4 | | | | 39 | 43 | 77 | 14 | 8.9 | 4.4 |
| E1668C | PCB -169 | ng/g | < 0.0083 U | < 0.0074 U | < 0.0081 U | | | | < 0.029 U | < 0.029 U | < 0.032 U | 0.061 | 0.026 | 0.017 J |
| E1668C | PCB -17 | ng/g | 0.12 | 0.021 J | 0.073 | | | | 2.4 | 5.8 | 8.8 | 1.8 | 1.3 | 1.5 |
| E1668C | PCB -170 | ng/g | 1.3 | 0.5 | 4.5 | | | | 18 | 19 | 32 | 5.1 | 2.6 | 1.5 |
| E1668C | PCB -171 | ng/g | 0.32 | 0.12 J | 1.3 | | | | 5.4 | 5.5 | 9.5 | 1.4 | 0.74 | 0.38 |
| E1668C | PCB -172 | ng/g | 0.18 | 0.075 | 0.82 | | | | 3.3 | 3.6 | 6 | 0.85 | 0.42 | 0.25 |
| E1668C | PCB -173 | ng/g | 0.32 | 0.12 J | 1.3 | | | | 5.4 | 5.5 | 9.5 | 1.4 | 0.74 | 0.38 |
| E1668C | PCB -174 | ng/g | 1.4 | 0.44 | 5.3 | | | | 20 | 21 | 36 | 5.3 | 2.6 | 1.6 |
| E1668C | PCB -175 | ng/g | 0.040 J | 0.016 J | 0.18 | | | | 0.72 | 0.69 | 1.4 | 0.2 | 0.095 | 0.055 |
| E1668C | PCB -176 | ng/g | 0.13 | 0.044 J | 0.57 | | | | 2.2 | 2.3 | 4.3 | 0.64 | 0.3 | 0.17 |
| E1668C | PCB -177 | ng/g | 0.65 | 0.25 | 2.8 | | | | 11 | 11 | 19 | 2.9 | 1.4 | 0.88 |
| E1668C | PCB -178 | ng/g | 0.29 | 0.11 | 1 | | | | 4 | 4.1 | 7.4 | 1.1 | 0.54 | 0.32 |
| E1668C | PCB -179 | ng/g | 0.56 | 0.19 | 2.2 | | | | 8.4 | 8.8 | 16 | 2.5 | 1.1 | 0.67 |
| E1668C | PCB -18 | ng/g | 0.28 | 0.058 J | 0.17 | | | | 5.3 | 11 | 15 | 3.1 | 2.2 | 2.5 |
| E1668C | PCB -180 | ng/g | 2.9 | 1.1 | 11 | | | | 41 | 44 | 72 | 11 | 5.2 | 3.3 |
| E1668C | PCB -181 | ng/g | 0.011 J | < 0.0054 U | < 0.0030 U | | | | 0.072 J | 0.077 J | < 0.0069 U | 0.032 | 0.028 | < 0.00059 U |
| E1668C | PCB -182 | ng/g | < 0.0036 U | 0.0052 J | < 0.0029 U | | | | 0.091 J | 0.10 J | 0.19 | 0.043 | 0.010 J | 0.011 J |
| E1668C | PCB -183 | ng/g | 0.9 | 0.32 | 3.4 | | | | 13 | 13 | 24 | 3.6 | 1.7 | 1 |
| E1668C | PCB -184 | ng/g | < 0.0031 U | < 0.0044 U | < 0.0025 U | | | | < 0.0056 U | < 0.0083 U | < 0.0057 U | < 0.0011 U | < 0.0012 U | < 0.00048 U |
| E1668C | PCB -185 | ng/g | 0.9 | 0.32 | 3.4 | | | | 13 | 13 | 24 | 3.6 | 1.7 | 1 |
| E1668C | PCB -186 | ng/g | < 0.0030 U | < 0.0043 U | < 0.0024 U | | | | < 0.0054 U | < 0.0081 U | < 0.0055 U | < 0.0011 U | < 0.0012 U | < 0.00047 U |
| E1668C | PCB -187 | ng/g | 1.6 | 0.69 | 6.1 | | | | 23 | 24 | 42 | 6.5 | 3.2 | 1.9 |
| E1668C | PCB -188 | ng/g | < 0.0025 U | < 0.0038 U | < 0.0022 U | | | | < 0.0048 U | < 0.0070 U | 0.045 J | < 0.00087 U | < 0.0010 U | < 0.00041 U |
| E1668C | PCB -189 | ng/g | 0.019 J | < 0.0069 U | 0.13 | | | | 0.56 | 0.64 | 1 | 0.17 | 0.09 | 0.053 |
| E1668C | PCB -19 | ng/g | 0.031 J | < 0.0025 U | 0.017 J | | | | 0.77 | 0.99 | 1.9 | 0.64 | 0.48 | 0.52 |
| E1668C | PCB -190 | ng/g | 0.21 | 0.084 | 0.81 | | | | 3.2 | 3.5 | 5.6 | 0.89 | 0.51 | 0.29 |
| E1668C | PCB -191 | ng/g | 0.032 J | 0.018 J | 0.17 | | | | 0.65 | 0.74 | 1.3 | 0.21 | 0.11 | 0.063 |
| E1668C | PCB -192 | ng/g | < 0.0032 U | < 0.0045 U | < 0.0026 U | | | | < 0.0057 U | < 0.0086 U | < 0.0058 U | < 0.0011 U | < 0.0013 U | < 0.00050 U |
| E1668C | PCB -193 | ng/g | 2.9 | 1.1 | 11 | | | | 41 | 44 | 72 | 11 | 5.2 | 3.3 |
| E1668C | PCB -194 | ng/g | 0.81 | 0.19 | 2.2 | | | | 8.8 | 9.6 | 16 | 2.9 | 1.4 | 0.83 |
| E1668C | PCB -195 | ng/g | 0.31 | 0.08 | 0.91 | | | | 3.5 | 3.8 | 6.8 | 1.1 | 0.54 | 0.33 |
| E1668C | PCB -196 | ng/g | 0.4 | 0.099 | 1.1 | | | | 4.3 | 4.6 | 8 | 1.2 | 0.57 | 0.35 |
| E1668C | PCB -197 | ng/g | 0.0088 J | 0.0088 J | 0.046 J | | | | 0.25 | 0.26 | 0.49 | 0.096 | 0.042 | 0.024 |
| E1668C | PCB -198 | ng/g | 0.93 | 0.26 | 2.5 | | | | 9.9 | 11 | 18 | 2.9 | 1.5 | 0.95 |
| E1668C | PCB -199 | ng/g | 0.93 | 0.26 | 2.5 | | | | 9.9 | 11 | 18 | 2.9 | 1.5 | 0.95 |

**Table 3-4**
**Treatability Study Sediment Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | OUTFALL 01 | OUTFALL 03 | OUTFALL 04 | SEEP-01 | SEEP-02 | SEEP-03 | SEDMAT-01 | SEDMAT-02 | SEDMAT-03 | SEDTRAP-01 | SEDTRAP-02 | SEDTRAP-03 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 0FS0100N | 0FS0300N | 0FS0400N | SEE0101N | SEE0201N | SEE0301N | SMS0100N | SMS0200N | SMS0300N | STS0100N | STS0200N | STS0300N |
| | | Sample Interval | | | | 0-12" | 0-12" | 0-12" | | | | | | |
| | | Sample Date | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 |
| Method | Chemical Name | Units | | | | | | | | | | | | |
| E1668C | PCB -2 | ng/g | 0.014 J | < 0.00092 U | < 0.0011 U | | | | 0.045 J | 0.14 J | 0.19 | 0.033 | 0.023 | 0.024 |
| E1668C | PCB -20 | ng/g | 0.54 | 0.17 | 1.1 | | | | 15 | 32 | 37 | 7.5 | 4.2 | 3.8 |
| E1668C | PCB -200 | ng/g | 0.09 | 0.019 J | 0.27 | | | | 1 | 1.1 | 1.9 | 0.32 | 0.14 | 0.094 |
| E1668C | PCB -201 | ng/g | 0.094 | 0.025 J | 0.23 | | | | 0.97 | 1.1 | 1.9 | 0.32 | 0.15 | 0.092 |
| E1668C | PCB -202 | ng/g | 0.17 | 0.051 J | 0.4 | | | | 1.6 | 1.8 | 3 | 0.57 | 0.3 | 0.19 |
| E1668C | PCB -203 | ng/g | 0.54 | 0.13 | 1.4 | | | | 5.5 | 6.1 | 9.8 | 1.8 | 0.93 | 0.58 |
| E1668C | PCB -204 | ng/g | < 0.0034 U | < 0.0038 U | < 0.0042 U | | | | < 0.0069 U | < 0.0089 U | < 0.0067 U | < 0.0016 U | < 0.0011 U | < 0.00041 U |
| E1668C | PCB -205 | ng/g | 0.025 J | < 0.0097 U | 0.11 | | | | 0.4 | 0.48 | 0.82 | 0.15 | 0.071 | 0.044 |
| E1668C | PCB -206 | ng/g | 0.27 | 0.16 | 0.67 | | | | 4.4 | 3.8 | 5.3 | 1.4 | 1.1 | 0.66 |
| E1668C | PCB -207 | ng/g | 0.025 J | < 0.010 U | 0.063 J | | | | 0.4 | 0.37 | 0.59 | 0.14 | 0.1 | 0.06 |
| E1668C | PCB -208 | ng/g | 0.050 J | 0.045 J | 0.14 | | | | 1.1 | 0.9 | 1.3 | 0.37 | 0.32 | 0.2 |
| E1668C | PCB -21 | ng/g | 0.27 | 0.081 J | 0.43 | | | | 5.3 | 14 | 15 | 2.5 | 1.7 | 1.6 |
| E1668C | PCB -22 | ng/g | 0.21 | 0.056 J | 0.34 | | | | 4.5 | 10 | 12 | 2.3 | 1.3 | 1.2 |
| E1668C | PCB -23 | ng/g | < 0.0033 U | < 0.0033 U | < 0.0038 U | | | | < 0.016 U | < 0.020 U | 0.031 J | 0.0052 J | 0.0044 J | 0.0033 J |
| E1668C | PCB -24 | ng/g | 0.0050 J | < 0.0017 U | 0.0044 J | | | | 0.095 J | 0.18 | 0.32 | 0.077 | 0.052 | 0.059 |
| E1668C | PCB -25 | ng/g | 0.034 J | 0.0099 J | 0.063 J | | | | 1.1 | 2.4 | 4.9 | 0.75 | 0.43 | 0.39 |
| E1668C | PCB -26 | ng/g | 0.078 J | 0.022 J | 0.12 J | | | | 2 | 4.5 | 9.4 | 1.3 | 0.75 | 0.68 |
| E1668C | PCB -27 | ng/g | 0.017 J | < 0.0015 U | 0.015 J | | | | 0.63 | 1.1 | 1.6 | 0.47 | 0.35 | 0.36 |
| E1668C | PCB -28 | ng/g | 0.54 | 0.17 | 1.1 | | | | 15 | 32 | 37 | 7.5 | 4.2 | 3.8 |
| E1668C | PCB -29 | ng/g | 0.078 J | 0.022 J | 0.12 J | | | | 2 | 4.5 | 9.4 | 1.3 | 0.75 | 0.68 |
| E1668C | PCB -3 | ng/g | 0.051 J | 0.0043 J | 0.043 J | | | | 0.24 | 0.32 | 0.5 | 0.08 | 0.054 | 0.069 |
| E1668C | PCB -30 | ng/g | 0.28 | 0.058 J | 0.17 | | | | 5.3 | 11 | 15 | 3.1 | 2.2 | 2.5 |
| E1668C | PCB -31 | ng/g | 0.42 | 0.12 J | 0.75 | | | | 9.7 | 23 | 27 | 5.2 | 3.2 | 3 |
| E1668C | PCB -32 | ng/g | 0.12 | 0.020 J | 0.093 | | | | 2.7 | 4.6 | 6.6 | 1.8 | 1.1 | 1.1 |
| E1668C | PCB -33 | ng/g | 0.27 | 0.081 J | 0.43 | | | | 5.3 | 14 | 15 | 2.5 | 1.7 | 1.6 |
| E1668C | PCB -34 | ng/g | < 0.0034 U | < 0.0034 U | < 0.0040 U | | | | < 0.017 U | 0.10 J | 0.16 | 0.037 | 0.019 J | 0.017 J |
| E1668C | PCB -35 | ng/g | 0.017 J | 0.0064 J | 0.022 J | | | | 0.3 | 0.46 | 0.7 | 0.11 | 0.064 | 0.053 |
| E1668C | PCB -36 | ng/g | < 0.0032 U | < 0.0032 U | < 0.0037 U | | | | < 0.016 U | < 0.020 U | < 0.017 U | < 0.0051 U | < 0.0040 U | 0.0038 J |
| E1668C | PCB -37 | ng/g | 0.33 | 0.069 J | 0.65 | | | | 6.3 | 13 | 14 | 2.2 | 1.1 | 0.86 |
| E1668C | PCB -38 | ng/g | < 0.0034 U | < 0.0035 U | < 0.0040 U | | | | < 0.017 U | < 0.021 U | < 0.018 U | < 0.0055 U | < 0.0043 U | < 0.0028 U |
| E1668C | PCB -39 | ng/g | 0.0044 J | < 0.0031 U | < 0.0036 U | | | | < 0.015 U | 0.060 J | < 0.016 U | 0.033 | 0.019 J | 0.016 J |
| E1668C | PCB -4 | ng/g | 0.073 J | < 0.013 U | 0.067 J | | | | 1.2 | 2.2 | 3.6 | 1 | 0.87 | 0.96 |
| E1668C | PCB -40 | ng/g | 0.52 | 0.11 J | 0.32 | | | | 6.2 | 12 | 17 | 3.9 | 2.3 | 2.1 |
| E1668C | PCB -41 | ng/g | 0.52 | 0.11 J | 0.32 | | | | 6.2 | 12 | 17 | 3.9 | 2.3 | 2.1 |
| E1668C | PCB -42 | ng/g | 0.22 | 0.044 J | 0.13 | | | | 2.9 | 5.4 | 9.1 | 1.9 | 1.1 | 0.94 |
| E1668C | PCB -43 | ng/g | 0.028 J | < 0.0068 U | < 0.014 U | | | | 0.32 | 0.64 | 0.89 | 0.26 | 0.18 | 0.14 |
| E1668C | PCB -44 | ng/g | 0.77 | 0.25 | 0.66 | | | | 11 | 19 | 35 | 7.4 | 4.5 | 3.8 |
| E1668C | PCB -45 | ng/g | 0.14 | 0.025 J | 0.10 J | | | | 2.4 | 3.4 | 6.3 | 1.6 | 0.89 | 0.93 |
| E1668C | PCB -46 | ng/g | 0.044 J | < 0.0093 U | 0.024 J | | | | 0.69 | 1 | 1.9 | 0.46 | 0.27 | 0.27 |
| E1668C | PCB -47 | ng/g | 0.77 | 0.25 | 0.66 | | | | 11 | 19 | 35 | 7.4 | 4.5 | 3.8 |
| E1668C | PCB -48 | ng/g | 0.15 | 0.019 J | 0.062 J | | | | 1.7 | 4.2 | 4.9 | 1.3 | 0.77 | 0.67 |
| E1668C | PCB -49 | ng/g | 0.42 | 0.12 J | 0.36 | | | | 7.1 | 12 | 27 | 4.7 | 2.9 | 2.3 |
| E1668C | PCB -5 | ng/g | < 0.0078 U | < 0.011 U | < 0.010 U | | | | 0.065 J | 0.13 J | 0.18 | 0.024 J | 0.023 | 0.027 |
| E1668C | PCB -50 | ng/g | 0.10 J | 0.019 J | 0.076 J | | | | 1.8 | 2.4 | 5 | 1.3 | 0.8 | 0.73 |
| E1668C | PCB -51 | ng/g | 0.14 | 0.025 J | 0.10 J | | | | 2.4 | 3.4 | 6.3 | 1.6 | 0.89 | 0.93 |
| E1668C | PCB -52 | ng/g | 0.91 | 0.33 | 1.2 | | | | 14 | 21 | 48 | 9 | 6 | 4.3 |
| E1668C | PCB -53 | ng/g | 0.10 J | 0.019 J | 0.076 J | | | | 1.8 | 2.4 | 5 | 1.3 | 0.8 | 0.73 |
| E1668C | PCB -54 | ng/g | < 0.0011 U | < 0.00085 U | < 0.00058 U | | | | 0.058 J | 0.058 J | 0.2 | 0.055 | 0.027 | 0.034 |
| E1668C | PCB -55 | ng/g | 0.027 J | < 0.0053 U | 0.029 J | | | | 0.31 | 0.7 | 0.76 | 0.14 | 0.099 | 0.048 |
| E1668C | PCB -56 | ng/g | 0.48 | 0.069 J | 0.47 | | | | 5.1 | 10 | 12 | 2.7 | 1.5 | 1.1 |

**Table 3-4**
**Treatability Study Sediment Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | OUTFALL 01 | OUTFALL 03 | OUTFALL 04 | SEEP-01 | SEEP-02 | SEEP-03 | SEDMAT-01 | SEDMAT-02 | SEDMAT-03 | SEDTRAP-01 | SEDTRAP-02 | SEDTRAP-03 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 0FS0100N | 0FS0300N | 0FS0400N | SEE0101N | SEE0201N | SEE0301N | SMS0100N | SMS0200N | SMS0300N | STS0100N | STS0200N | STS0300N |
| | | Sample Interval | | | | 0-12" | 0-12" | 0-12" | | | | | | |
| | | Sample Date | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 |
| Method | Chemical Name | Units | | | | | | | | | | | | |
| E1668C | PCB -57 | ng/g | < 0.0064 U | < 0.0054 U | < 0.011 U | | | | < 0.025 U | 0.12 J | 0.36 | 0.055 | 0.025 | 0.019 J |
| E1668C | PCB -58 | ng/g | < 0.0065 U | < 0.0055 U | < 0.011 U | | | | 0.033 J | 0.061 J | 0.22 | 0.028 | 0.016 J | 0.010 J |
| E1668C | PCB -59 | ng/g | 0.078 J | 0.017 J | 0.076 J | | | | 1.1 | 2 | 2.9 | 0.68 | 0.4 | 0.34 |
| E1668C | PCB -6 | ng/g | 0.026 J | < 0.0096 U | 0.063 J | | | | 0.8 | 1.6 | 2.7 | 0.39 | 0.27 | 0.29 |
| E1668C | PCB -60 | ng/g | 0.28 | 0.043 J | 0.25 | | | | 2.5 | 5 | 5.5 | 1.4 | 0.78 | 0.57 |
| E1668C | PCB -61 | ng/g | 1.6 | 0.35 | 1.8 | | | | 17 | 35 | 47 | 10 | 6.3 | 4.2 |
| E1668C | PCB -62 | ng/g | 0.078 J | 0.017 J | 0.076 J | | | | 1.1 | 2 | 2.9 | 0.68 | 0.4 | 0.34 |
| E1668C | PCB -63 | ng/g | 0.025 J | < 0.0049 U | 0.017 J | | | | 0.37 | 0.78 | 1.1 | 0.26 | 0.16 | 0.11 |
| E1668C | PCB -64 | ng/g | 0.36 | 0.1 | 0.41 | | | | 4.7 | 8.6 | 12 | 3 | 1.8 | 1.5 |
| E1668C | PCB -65 | ng/g | 0.77 | 0.25 | 0.66 | | | | 11 | 19 | 35 | 7.4 | 4.5 | 3.8 |
| E1668C | PCB -66 | ng/g | 0.84 | 0.17 | 1 | | | | 11 | 22 | 28 | 6.4 | 3.7 | 2.6 |
| E1668C | PCB -67 | ng/g | 0.025 J | < 0.0047 U | 0.020 J | | | | 0.34 | 0.81 | 1.1 | 0.2 | 0.1 | 0.077 |
| E1668C | PCB -68 | ng/g | < 0.0057 U | < 0.0048 U | < 0.0095 U | | | | 0.082 J | 0.072 J | 0.35 | 0.056 | 0.024 | 0.020 J |
| E1668C | PCB -69 | ng/g | 0.42 | 0.12 J | 0.36 | | | | 7.1 | 12 | 27 | 4.7 | 2.9 | 2.3 |
| E1668C | PCB -7 | ng/g | < 0.0071 U | < 0.0098 U | 0.015 J | | | | 0.14 J | 0.26 | 0.4 | 0.072 | 0.051 | 0.065 |
| E1668C | PCB -70 | ng/g | 1.6 | 0.35 | 1.8 | | | | 17 | 35 | 47 | 10 | 6.3 | 4.2 |
| E1668C | PCB -71 | ng/g | 0.52 | 0.11 J | 0.32 | | | | 6.2 | 12 | 17 | 3.9 | 2.3 | 2.1 |
| E1668C | PCB -72 | ng/g | < 0.0063 U | < 0.0053 U | < 0.011 U | | | | 0.12 J | 0.17 J | 0.92 | 0.084 | 0.044 | 0.033 |
| E1668C | PCB -73 | ng/g | 0.028 J | < 0.0068 U | < 0.014 U | | | | 0.32 | 0.64 | 0.89 | 0.26 | 0.18 | 0.14 |
| E1668C | PCB -74 | ng/g | 1.6 | 0.35 | 1.8 | | | | 17 | 35 | 47 | 10 | 6.3 | 4.2 |
| E1668C | PCB -75 | ng/g | 0.078 J | 0.017 J | 0.076 J | | | | 1.1 | 2 | 2.9 | 0.68 | 0.4 | 0.34 |
| E1668C | PCB -76 | ng/g | 1.6 | 0.35 | 1.8 | | | | 17 | 35 | 47 | 10 | 6.3 | 4.2 |
| E1668C | PCB -77 | ng/g | 0.2 | 0.058 J | 0.23 | | | | 2 | 3 | 3.7 | 0.69 | 0.39 | 0.28 |
| E1668C | PCB -78 | ng/g | < 0.0065 U | < 0.0055 U | < 0.011 U | | | | < 0.026 U | < 0.029 U | < 0.030 U | < 0.0081 U | < 0.0049 U | < 0.0036 U |
| E1668C | PCB -79 | ng/g | 0.017 J | < 0.0047 U | 0.014 J | | | | 0.13 J | 0.16 J | 0.27 | 0.065 | 0.047 | 0.022 |
| E1668C | PCB -8 | ng/g | 0.13 | 0.038 J | 0.37 | | | | 3.5 | 7.4 | 9.9 | 1.5 | 1.2 | 1.3 |
| E1668C | PCB -80 | ng/g | < 0.0055 U | < 0.0046 U | < 0.0093 U | | | | < 0.022 U | < 0.025 U | < 0.025 U | < 0.0069 U | < 0.0042 U | < 0.0030 U |
| E1668C | PCB -81 | ng/g | 0.0071 J | < 0.0049 U | < 0.010 U | | | | 0.048 J | 0.073 J | 0.13 | 0.026 | 0.015 J | 0.0090 J |
| E1668C | PCB -82 | ng/g | 0.32 | 0.09 | 0.46 | | | | 2.9 | 3.7 | 4.6 | 1.2 | 1.1 | 0.55 |
| E1668C | PCB -83 | ng/g | 1.1 | 0.53 | 1.7 | | | | 13 | 15 | 24 | 5.6 | 4.8 | 2.3 |
| E1668C | PCB -84 | ng/g | 0.57 | 0.17 | 1.1 | | | | 5.3 | 6.2 | 14 | 2.4 | 2 | 1 |
| E1668C | PCB -85 | ng/g | 0.45 | 0.15 J | 0.67 | | | | 4.4 | 4.8 | 7 | 1.8 | 1.7 | 0.84 |
| E1668C | PCB -86 | ng/g | 1.7 | 0.53 | 2.3 | | | | 15 | 17 | 26 | 6.3 | 5.6 | 2.6 |
| E1668C | PCB -87 | ng/g | 1.7 | 0.53 | 2.3 | | | | 15 | 17 | 26 | 6.3 | 5.6 | 2.6 |
| E1668C | PCB -88 | ng/g | 0.22 | 0.091 J | 0.77 | | | | 3.6 | 3.8 | 8.2 | 1.5 | 1.2 | 0.71 |
| E1668C | PCB -89 | ng/g | 0.017 J | < 0.0020 U | 0.024 J | | | | 0.18 | 0.31 | 0.46 | 0.12 | 0.094 | 0.051 |
| E1668C | PCB -9 | ng/g | < 0.0072 U | < 0.010 U | < 0.0094 U | | | | 0.18 | 0.41 | 0.57 | 0.097 | 0.076 | 0.076 |
| E1668C | PCB -90 | ng/g | 2.1 | 0.84 | 3.8 | | | | 26 | 29 | 50 | 10 | 8.1 | 4 |
| E1668C | PCB -91 | ng/g | 0.22 | 0.091 J | 0.77 | | | | 3.6 | 3.8 | 8.2 | 1.5 | 1.2 | 0.71 |
| E1668C | PCB -92 | ng/g | 0.34 | 0.11 | 0.76 | | | | 4.7 | 5 | 10 | 1.9 | 1.4 | 0.69 |
| E1668C | PCB -93 | ng/g | 0.012 J | < 0.0018 U | 0.029 J | | | | 0.5 | 0.39 | 1.2 | 0.22 | 0.12 | 0.13 |
| E1668C | PCB -94 | ng/g | < 0.0021 U | < 0.0020 U | 0.016 J | | | | 0.18 | 0.15 J | 0.46 | 0.093 | 0.05 | 0.046 |
| E1668C | PCB -95 | ng/g | 1.5 | 0.72 | 5.3 | | | | 21 | 22 | 53 | 8.6 | 6.4 | 3.5 |
| E1668C | PCB -96 | ng/g | 0.010 J | < 0.0015 U | 0.027 J | | | | 0.17 | 0.2 | 0.51 | 0.1 | 0.062 | 0.055 |
| E1668C | PCB -97 | ng/g | 1.7 | 0.53 | 2.3 | | | | 15 | 17 | 26 | 6.3 | 5.6 | 2.6 |
| E1668C | PCB -98 | ng/g | 0.035 J | 0.015 J | 0.10 J | | | | 0.58 | 0.8 | 1.5 | 0.37 | 0.27 | 0.18 |
| E1668C | PCB -99 | ng/g | 1.1 | 0.53 | 1.7 | | | | 13 | 15 | 24 | 5.6 | 4.8 | 2.3 |
| E1668C | Pentachlorobiphenyl | ng/g | 16 | 5.8 | 30 | | | | 160 | 180 | 310 | 65 | 57 | 27 |
| E1668C | Tetrachlorobiphenyl | ng/g | 7.2 | 1.7 | 7.2 | | | | 93 | 170 | 270 | 58 | 35 | 27 |
| E1668C | Trichlorobiphenyl | ng/g | 2.6 | 0.65 | 3.9 | | | | 58 | 130 | 160 | 31 | 19 | 19 |

**Table 3-4**
**Treatability Study Sediment Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | OUTFALL 01 | OUTFALL 03 | OUTFALL 04 | SEEP-01 | SEEP-02 | SEEP-03 | SEDMAT-01 | SEDMAT-02 | SEDMAT-03 | SEDTRAP-01 | SEDTRAP-02 | SEDTRAP-03 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 0FS0100N | 0FS0300N | 0FS0400N | SEE0101N | SEE0201N | SEE0301N | SMS0100N | SMS0200N | SMS0300N | STS0100N | STS0200N | STS0300N |
| | | Sample Interval | | | | 0-12" | 0-12" | 0-12" | | | | | | |
| | | Sample Date | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 |
| Method | Chemical Name | Units | | | | | | | | | | | | |
| LKTOC | Total Organic Carbon | mg/kg | | | | | | | 85000 | 82000 | 75000 | 37000 | 38000 | 31000 |
| SW6020A | Aluminum | mg/kg | 1400 | 1300 | 3900 | | | | | | | | | |
| SW6020A | Antimony | mg/kg | 0.21 | 0.63 | 0.44 | | | | | | | | | |
| SW6020A | Arsenic | mg/kg | 0.55 | 1.2 | 7.6 | | | | | | | | | |
| SW6020A | Barium | mg/kg | 17 | 13 | 41 | | | | | | | | | |
| SW6020A | Beryllium | mg/kg | 0.050 J | 0.069 J | 0.46 | | | | | | | | | |
| SW6020A | Cadmium | mg/kg | 0.31 | 0.13 | 0.6 | | | | | | | | | |
| SW6020A | Calcium | mg/kg | 10000 | 18000 | 4600 | | | | | | | | | |
| SW6020A | Chromium | mg/kg | 4.9 | 5 | 21 | | | | | | | | | |
| SW6020A | Cobalt | mg/kg | 1.8 | 1.9 | 7.8 | | | | | | | | | |
| SW6020A | Copper | mg/kg | 14 | 35 | 55 | | | | | | | | | |
| SW6020A | Iron | mg/kg | 6300 | 8400 | 30000 | | | | | | | | | |
| SW6020A | Lead | mg/kg | 15 | 28 | 35 | | | | | | | | | |
| SW6020A | Magnesium | mg/kg | 3700 | 8700 | 3100 | | | | | | | | | |
| SW6020A | Manganese | mg/kg | 72 | 110 | 300 | | | | | | | | | |
| SW6020A | Nickel | mg/kg | 4.2 | 12 | 29 | | | | | | | | | |
| SW6020A | Potassium | mg/kg | 140 | 160 | 520 | | | | | | | | | |
| SW6020A | Selenium | mg/kg | < 0.32 U | 0.088 J | 0.33 J | | | | | | | | | |
| SW6020A | Silver | mg/kg | 0.085 | 0.046 J | 0.24 | | | | | | | | | |
| SW6020A | Sodium | mg/kg | 170 | 190 | 77 | | | | | | | | | |
| SW6020A | Thallium | mg/kg | < 0.065 U | 0.063 J | 0.13 | | | | | | | | | |
| SW6020A | Vanadium | mg/kg | 11 | 24 | 75 | | | | | | | | | |
| SW6020A | Zinc | mg/kg | 98 | 47 | 1200 | | | | | | | | | |
| SW7471 | Mercury | mg/kg | 0.016 | 0.036 | 0.084 | | | | | | | | | |
| SW8015C DRO | Diesel Range Organics (C10-C20) | mg/kg | 160 J | 810 | 35 J | | | | | | | | | |
| SW8015C DRO | Oil Range Organics (C20-C36) | mg/kg | 1600 | 4400 | 540 | | | | | | | | | |
| SW8270D LL | Acenaphthene | ug/kg | < 180 U | < 120 U | < 190 U | | | | | | | | | |
| SW8270D LL | Acenaphthylene | ug/kg | < 180 U | < 120 U | 44 J | | | | | | | | | |
| SW8270D LL | Anthracene | ug/kg | < 180 U | < 120 U | < 190 U | | | | | | | | | |
| SW8270D LL | Benzo(a)anthracene | ug/kg | 93 J | 63 J | 99 J | | | | | | | | | |
| SW8270D LL | Benzo(a)pyrene | ug/kg | < 180 U | < 120 U | 84 J | | | | | | | | | |
| SW8270D LL | Benzo( )fluoranthene | ug/kg | 130 J | 77 J | 120 J | | | | | | | | | |
| SW8270D LL | Benzo(g,h,i)perylene | ug/kg | < 180 U | < 120 U | 150 J | | | | | | | | | |
| SW8270D LL | Benzo(k)fluoranthene | ug/kg | 55 J | 70 J | < 190 U | | | | | | | | | |
| SW8270D LL | Chrysene | ug/kg | 150 J | 95 J | 110 J | | | | | | | | | |
| SW8270D LL | Dibenzo(a,h)anthracene | ug/kg | < 180 U | < 120 U | < 190 U | | | | | | | | | |
| SW8270D LL | Fluoranthene | ug/kg | 200 | 98 J | 120 J | | | | | | | | | |
| SW8270D LL | Fluorene | ug/kg | < 180 U | < 120 U | < 190 U | | | | | | | | | |
| SW8270D LL | Indeno(1,2,3-cd)pyrene | ug/kg | < 180 U | < 120 U | 98 J | | | | | | | | | |
| SW8270D LL | Naphthalene | ug/kg | < 180 U | < 120 U | < 190 U | | | | | | | | | |
| SW8270D LL | Phenanthrene | ug/kg | 57 J | 44 J | 50 J | | | | | | | | | |
| SW8270D LL | Pyrene | ug/kg | 240 | 100 J | 100 J | | | | | | | | | |
| SW8290A | 1,2,3,4,6,7,8-Heptachlorodibenzofuran | pg/g | 9.2 | 9.7 | 29 | | | | | | | | | |
| SW8290A | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | pg/g | 53 | 22 | 190 | | | | | | | | | |
| SW8290A | 1,2,3,4,7,8,9-Heptachlorodibenzofuran | pg/g | 1.2 J | 0.84 J | 3.6 | | | | | | | | | |
| SW8290A | 1,2,3,4,7,8-Hexachlorodibenzofuran | pg/g | 2.7 J | 1.9 J | 11 | | | | | | | | | |
| SW8290A | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | pg/g | 1.5 J | 1.4 J | 8.6 | | | | | | | | | |
| SW8290A | 1,2,3,6,7,8-Hexachlorodibenzofuran | pg/g | 1.6 J | 1.1 J | 6.9 | | | | | | | | | |
| SW8290A | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | pg/g | 3.1 J | 1.9 J | 14 | | | | | | | | | |
| SW8290A | 1,2,3,7,8,9-Hexachlorodibenzofuran | pg/g | 0.23 J | < 0.14 U | 0.59 J | | | | | | | | | |

**Table 3-4**
**Treatability Study Sediment Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | OUTFALL 01 | OUTFALL 03 | OUTFALL 04 | SEEP-01 | SEEP-02 | SEEP-03 | SEDMAT-01 | SEDMAT-02 | SEDMAT-03 | SEDTRAP-01 | SEDTRAP-02 | SEDTRAP-03 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | 0FS0100N | 0FS0300N | 0FS0400N | SEE0101N | SEE0201N | SEE0301N | SMS0100N | SMS0200N | SMS0300N | STS0100N | STS0200N | STS0300N |
| | | Sample Interval | | | | 0-12" | 0-12" | 0-12" | | | | | | |
| | | Sample Date | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 | 10/15/2020 | 10/15/2020 | 10/15/2020 | 9/17/2020 | 9/17/2020 | 9/17/2020 |
| Method | Chemical Name | Units | | | | | | | | | | | | |
| SW8290A | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | pg/g | 3.6 | 2.6 J | 22 | | | | | | | | | |
| SW8290A | 1,2,3,7,8-PeCDF | pg/g | 0.87 J | 0.52 J | 3.4 | | | | | | | | | |
| SW8290A | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | pg/g | 1.3 J | 1.1 J | 6.9 | | | | | | | | | |
| SW8290A | 2,3,4,6,7,8-Hexachlorodibenzofuran | pg/g | 1.7 J | 0.99 J | 6.8 | | | | | | | | | |
| SW8290A | 2,3,4,7,8-Pentachlorodibenzofuran | pg/g | 1.4 J | 0.88 J | 5.6 | | | | | | | | | |
| SW8290A | 2,3,7,8-Tetrachlorodibenzofuran | pg/g | 0.8 | 0.44 J | 2.4 | | | | | | | | | |
| SW8290A | 2,3,7,8-Tetrachlorodibenzo-p-dioxin | pg/g | 0.25 J | 0.14 J | 1.3 | | | | | | | | | |
| SW8290A | Octachlorochlorodibenzofuran | pg/g | 18 | 7.1 | 46 | | | | | | | | | |
| SW8290A | Octachlorochlorodibenzo-p-dioxin | pg/g | 460 | 180 | 3700 | | | | | | | | | |
| SW8290A | Total HpCDD | pg/g | 270 | 48 | 430 | | | | | | | | | |
| SW8290A | Total HpCDF | pg/g | 23 | 15 | 65 | | | | | | | | | |
| SW8290A | Total HxCDD | pg/g | 34 | 20 | 170 | | | | | | | | | |
| SW8290A | Total HxCDF | pg/g | 18 | 11 | 89 | | | | | | | | | |
| SW8290A | Total PeCDD | pg/g | 68 | 10 | 190 | | | | | | | | | |
| SW8290A | Total PeCDF | pg/g | 17 | 12 | 110 | | | | | | | | | |
| SW8290A | Total TCDD | pg/g | 7.8 | 4.2 | 35 | | | | | | | | | |
| SW8290A | Total TCDF | pg/g | 17 | 13 | 110 | | | | | | | | | |

Notes:
ng/g = nanogram per gram
pg/g = picogram per gram
ug/kg = micrograms per kilogram
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the indicated reporting  detection limit.

**Table 3-1**
**Pre- and Post-Solidification Sample Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

Changed from 3-14 to 3-12

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Location ID | SED7C | | SED7.5E | |
| | | Sample ID | SED7C-DEW (0-18") | 0746-009 | SED7.5E-DEW (0-18") | 0746-010 |
| | | Description | Pre-Solidification | Post-Solidification | Pre-Solidification | Post-Solidification |
| | | Sample Date | 6/26/2020 | 10/13/2020 | 6/26/2020 | 10/13/2020 |
| | | Sample Type | N | N | N | N |
| Method | Chemical Name | Units | | | | |
| E1668C | Decachlorobiphenyl (PCB-209) | ng/g | 0.74 | | 1.4 | |
| E1668C | Dichlorobiphenyl | ng/g | 13 | | 74 | |
| E1668C | Heptachlorobiphenyl | ng/g | 210 | | 1100 | |
| E1668C | Hexachlorobiphenyl | ng/g | 270 | | 1400 | |
| E1668C | Monochlorobiphenyl | ng/g | 0.71 | | 4 | |
| E1668C | Nonachlorobiphenyl | ng/g | 5.3 | | 20 | |
| E1668C | Octachlorobiphenyl | ng/g | 50 | | 250 | |
| E1668C | PCB-1 | ng/g | 0.33 | | 2.2 | |
| E1668C | PCB-10 | ng/g | 0.12 | | 0.42 | |
| E1668C | PCB-100 | ng/g | 0.51 | | 1.5 | |
| E1668C | PCB-101 | ng/g | 32 | | 160 | |
| E1668C | PCB-102 | ng/g | 0.91 | | 3.1 | |
| E1668C | PCB-103 | ng/g | 0.55 | | 1.3 | |
| E1668C | PCB-104 | ng/g | 0.015 | | < 0.012 | |
| E1668C | PCB-105 | ng/g | 6.8 | | 40 | |
| E1668C | PCB-106 | ng/g | < 0.016 | | 0.13 | |
| E1668C | PCB-107 | ng/g | 2 | | 9.3 | |
| E1668C | PCB-108 | ng/g | 0.86 | | 4.5 | |
| E1668C | PCB-109 | ng/g | 16 | | 79 | |
| E1668C | PCB-11 | ng/g | 0.38 | | 0.56 | |
| E1668C | PCB-110 | ng/g | 29 | | 140 | |
| E1668C | PCB-111 | ng/g | < 0.0011 | | < 0.011 | |
| E1668C | PCB-112 | ng/g | 0.09 | | 0.34 | |
| E1668C | PCB-113 | ng/g | 32 | | 160 | |
| E1668C | PCB-114 | ng/g | 0.47 | | 2.6 | |
| E1668C | PCB-115 | ng/g | 29 | | 140 | |
| E1668C | PCB-116 | ng/g | 4.3 | | 19 | |
| E1668C | PCB-117 | ng/g | 4.3 | | 19 | |
| E1668C | PCB-118 | ng/g | 22 | | 110 | |
| E1668C | PCB-119 | ng/g | 16 | | 79 | |
| E1668C | PCB-12 | ng/g | 0.5 | | 2.5 | |

**Table 3-1**
**Pre- and Post-Solidification Sample Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | SED7C | | SED7.5E | |
|---|---|---|---|---|---|---|
| | | Sample ID | SED7C-DEW (0-18") | 0746-009 | SED7.5E-DEW (0-18") | 0746-010 |
| | | Description | Pre-Solidification | Post-Solidification | Pre-Solidification | Post-Solidification |
| | | Sample Date | 6/26/2020 | 10/13/2020 | 6/26/2020 | 10/13/2020 |
| | | Sample Type | N | N | N | N |
| Method | Chemical Name | Units | | | | |
| E1668C | PCB-120 | ng/g | 0.18 | | 0.65 | |
| E1668C | PCB-121 | ng/g | < 0.0012 | | < 0.012 | |
| E1668C | PCB-122 | ng/g | 0.34 | | 1.9 | |
| E1668C | PCB-123 | ng/g | 0.38 | | 2 | |
| E1668C | PCB-124 | ng/g | 0.86 | | 4.5 | |
| E1668C | PCB-125 | ng/g | 16 | | 79 | |
| E1668C | PCB-126 | ng/g | 0.15 | | 0.73 | |
| E1668C | PCB-127 | ng/g | 0.04 | | 0.22 | |
| E1668C | PCB-128 | ng/g | 5.5 | | 29 | |
| E1668C | PCB-129 | ng/g | 53 | | 280 | |
| E1668C | PCB-13 | ng/g | 0.5 | | 2.5 | |
| E1668C | PCB-130 | ng/g | 3 | | 14 | |
| E1668C | PCB-131 | ng/g | 0.45 | | 2.5 | |
| E1668C | PCB-132 | ng/g | 17 | | 91 | |
| E1668C | PCB-133 | ng/g | 0.86 | | 4 | |
| E1668C | PCB-134 | ng/g | 2.7 | | 14 | |
| E1668C | PCB-135 | ng/g | 24 | | 130 | |
| E1668C | PCB-136 | ng/g | 7.5 | | 41 | |
| E1668C | PCB-137 | ng/g | 1.1 | | 5.3 | |
| E1668C | PCB-138 | ng/g | 53 | | 280 | |
| E1668C | PCB-139 | ng/g | 0.58 | | 2.4 | |
| E1668C | PCB-14 | ng/g | < 0.0061 | | < 0.040 | |
| E1668C | PCB-140 | ng/g | 0.58 | | 2.4 | |
| E1668C | PCB-141 | ng/g | 13 | | 75 | |
| E1668C | PCB-142 | ng/g | < 0.060 | | < 0.31 | |
| E1668C | PCB-143 | ng/g | 2.7 | | 14 | |
| E1668C | PCB-144 | ng/g | 2.6 | | 16 | |
| E1668C | PCB-145 | ng/g | 0.02 | | < 0.017 | |
| E1668C | PCB-146 | ng/g | 10 | | 50 | |
| E1668C | PCB-147 | ng/g | 59 | | 310 | |
| E1668C | PCB-148 | ng/g | 0.12 | | 0.26 | |

**Table 3-1**
**Pre- and Post-Solidification Sample Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | SED7C | | SED7.5E | |
|---|---|---|---|---|---|---|
| | | Sample ID | SED7C-DEW (0-18") | 0746-009 | SED7.5E-DEW (0-18") | 0746-010 |
| | | Description | Pre-Solidification | Post-Solidification | Pre-Solidification | Post-Solidification |
| | | Sample Date | 6/26/2020 | 10/13/2020 | 6/26/2020 | 10/13/2020 |
| | | Sample Type | N | N | N | N |
| Method | Chemical Name | Units | | | | |
| E1668C | PCB-149 | ng/g | 59 | | 310 | |
| E1668C | PCB-15 | ng/g | 3.7 | | 25 | |
| E1668C | PCB-150 | ng/g | 0.1 | | 0.44 | |
| E1668C | PCB-151 | ng/g | 24 | | 130 | |
| E1668C | PCB-152 | ng/g | 0.019 | | < 0.018 | |
| E1668C | PCB-153 | ng/g | 54 | | 290 | |
| E1668C | PCB-154 | ng/g | 0.73 | | 3.4 | |
| E1668C | PCB-155 | ng/g | < 0.00098 | | < 0.017 | |
| E1668C | PCB-156 | ng/g | 3.9 | | 22 | |
| E1668C | PCB-157 | ng/g | 3.9 | | 22 | |
| E1668C | PCB-158 | ng/g | 4.4 | | 25 | |
| E1668C | PCB-159 | ng/g | 0.91 | | 5.2 | |
| E1668C | PCB-16 | ng/g | 6.8 | | 24 | |
| E1668C | PCB-160 | ng/g | 53 | | 280 | |
| E1668C | PCB-161 | ng/g | < 0.040 | | < 0.20 | |
| E1668C | PCB-162 | ng/g | 0.11 | | 0.87 | |
| E1668C | PCB-163 | ng/g | 53 | | 280 | |
| E1668C | PCB-164 | ng/g | 4 | | 21 | |
| E1668C | PCB-165 | ng/g | < 0.045 | | < 0.23 | |
| E1668C | PCB-166 | ng/g | 5.5 | | 29 | |
| E1668C | PCB-167 | ng/g | 1.6 | | 9.4 | |
| E1668C | PCB-168 | ng/g | 54 | | 290 | |
| E1668C | PCB-169 | ng/g | < 0.032 | | < 0.16 | |
| E1668C | PCB-17 | ng/g | 8.9 | | 27 | |
| E1668C | PCB-170 | ng/g | 23 | | 130 | |
| E1668C | PCB-171 | ng/g | 6.9 | | 38 | |
| E1668C | PCB-172 | ng/g | 4 | | 24 | |
| E1668C | PCB-173 | ng/g | 6.9 | | 38 | |
| E1668C | PCB-174 | ng/g | 27 | | 150 | |
| E1668C | PCB-175 | ng/g | 1 | | 5.9 | |
| E1668C | PCB-176 | ng/g | 3.3 | | 17 | |

**Table 3-1**
**Pre- and Post-Solidification Sample Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | SED7C | | SED7.5E | |
|---|---|---|---|---|---|---|
| | | Sample ID | SED7C-DEW (0-18") | 0746-009 | SED7.5E-DEW (0-18") | 0746-010 |
| | | Description | Pre-Solidification | Post-Solidification | Pre-Solidification | Post-Solidification |
| | | Sample Date | 6/26/2020 | 10/13/2020 | 6/26/2020 | 10/13/2020 |
| | | Sample Type | N | N | N | N |
| Method | Chemical Name | Units | | | | |
| E1668C | PCB-177 | ng/g | 14 | | 78 | |
| E1668C | PCB-178 | ng/g | 5.5 | | 28 | |
| E1668C | PCB-179 | ng/g | 12 | | 64 | |
| E1668C | PCB-18 | ng/g | 18 | | 57 | |
| E1668C | PCB-180 | ng/g | 53 | | 290 | |
| E1668C | PCB-181 | ng/g | < 0.0017 | | < 0.033 | |
| E1668C | PCB-182 | ng/g | 0.16 | | 0.81 | |
| E1668C | PCB-183 | ng/g | 18 | | 96 | |
| E1668C | PCB-184 | ng/g | < 0.0014 | | < 0.027 | |
| E1668C | PCB-185 | ng/g | 18 | | 96 | |
| E1668C | PCB-186 | ng/g | < 0.0014 | | < 0.026 | |
| E1668C | PCB-187 | ng/g | 32 | | 170 | |
| E1668C | PCB-188 | ng/g | < 0.0012 | | < 0.023 | |
| E1668C | PCB-189 | ng/g | 0.71 | | 4 | |
| E1668C | PCB-19 | ng/g | 1.6 | | 4.7 | |
| E1668C | PCB-190 | ng/g | 3.9 | | 22 | |
| E1668C | PCB-191 | ng/g | 0.9 | | 5.4 | |
| E1668C | PCB-192 | ng/g | < 0.0015 | | < 0.028 | |
| E1668C | PCB-193 | ng/g | 53 | | 290 | |
| E1668C | PCB-194 | ng/g | 13 | | 65 | |
| E1668C | PCB-195 | ng/g | 5.2 | | 27 | |
| E1668C | PCB-196 | ng/g | 5.8 | | 29 | |
| E1668C | PCB-197 | ng/g | 0.43 | | 2 | |
| E1668C | PCB-198 | ng/g | 13 | | 64 | |
| E1668C | PCB-199 | ng/g | 13 | | 64 | |
| E1668C | PCB-2 | ng/g | 0.096 | | 0.33 | |
| E1668C | PCB-20 | ng/g | 21 | | 110 | |
| E1668C | PCB-200 | ng/g | 1.3 | | 7.1 | |
| E1668C | PCB-201 | ng/g | 1.5 | | 6.9 | |
| E1668C | PCB-202 | ng/g | 2.2 | | 10 | |
| E1668C | PCB-203 | ng/g | 7.1 | | 36 | |

**Table 3-1**
**Pre- and Post-Solidification Sample Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | SED7C | | SED7.5E | |
|---|---|---|---|---|---|---|
| | | Sample ID | SED7C-DEW (0-18") | 0746-009 | SED7.5E-DEW (0-18") | 0746-010 |
| | | Description | Pre-Solidification | Post-Solidification | Pre-Solidification | Post-Solidification |
| | | Sample Date | 6/26/2020 | 10/13/2020 | 6/26/2020 | 10/13/2020 |
| | | Sample Type | N | N | N | N |
| Method | Chemical Name | Units | | | | |
| E1668C | PCB-204 | ng/g | < 0.0013 | | < 0.025 | |
| E1668C | PCB-205 | ng/g | 0.61 | | 3.2 | |
| E1668C | PCB-206 | ng/g | 3.9 | | 15 | |
| E1668C | PCB-207 | ng/g | 0.46 | | 1.8 | |
| E1668C | PCB-208 | ng/g | 0.93 | | 3.2 | |
| E1668C | PCB-21 | ng/g | 7.9 | | 58 | |
| E1668C | PCB-22 | ng/g | 5.8 | | 40 | |
| E1668C | PCB-23 | ng/g | < 0.018 | | < 0.096 | |
| E1668C | PCB-24 | ng/g | 0.26 | | 1.1 | |
| E1668C | PCB-25 | ng/g | 1.9 | | 8.1 | |
| E1668C | PCB-26 | ng/g | 4 | | 17 | |
| E1668C | PCB-27 | ng/g | 1.6 | | 4.5 | |
| E1668C | PCB-28 | ng/g | 21 | | 110 | |
| E1668C | PCB-29 | ng/g | 4 | | 17 | |
| E1668C | PCB-3 | ng/g | 0.28 | | 1.5 | |
| E1668C | PCB-30 | ng/g | 18 | | 57 | |
| E1668C | PCB-31 | ng/g | 16 | | 90 | |
| E1668C | PCB-32 | ng/g | 6.8 | | 21 | |
| E1668C | PCB-33 | ng/g | 7.9 | | 58 | |
| E1668C | PCB-34 | ng/g | 0.14 | | 0.4 | |
| E1668C | PCB-35 | ng/g | 0.27 | | 2 | |
| E1668C | PCB-36 | ng/g | < 0.018 | | < 0.093 | |
| E1668C | PCB-37 | ng/g | 6.4 | | 44 | |
| E1668C | PCB-38 | ng/g | < 0.019 | | < 0.10 | |
| E1668C | PCB-39 | ng/g | 0.12 | | 0.47 | |
| E1668C | PCB-4 | ng/g | 1.9 | | 7.7 | |
| E1668C | PCB-40 | ng/g | 12 | | 47 | |
| E1668C | PCB-41 | ng/g | 12 | | 47 | |
| E1668C | PCB-42 | ng/g | 5.6 | | 20 | |
| E1668C | PCB-43 | ng/g | 0.83 | | 2.6 | |
| E1668C | PCB-44 | ng/g | 21 | | 76 | |

**Table 3-1**
**Pre- and Post-Solidification Sample Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | SED7C | | SED7.5E | |
|---|---|---|---|---|---|---|
| | | Sample ID | SED7C-DEW (0-18") | 0746-009 | SED7.5E-DEW (0-18") | 0746-010 |
| | | Description | Pre-Solidification | Post-Solidification | Pre-Solidification | Post-Solidification |
| | | Sample Date | 6/26/2020 | 10/13/2020 | 6/26/2020 | 10/13/2020 |
| | | Sample Type | N | N | N | N |
| Method | Chemical Name | Units | | | | |
| E1668C | PCB-45 | ng/g | 4.4 | | 14 | |
| E1668C | PCB-46 | ng/g | 1.4 | | 4.7 | |
| E1668C | PCB-47 | ng/g | 21 | | 76 | |
| E1668C | PCB-48 | ng/g | 4.4 | | 17 | |
| E1668C | PCB-49 | ng/g | 14 | | 45 | |
| E1668C | PCB-5 | ng/g | 0.088 | | 0.53 | |
| E1668C | PCB-50 | ng/g | 3.5 | | 9.2 | |
| E1668C | PCB-51 | ng/g | 4.4 | | 14 | |
| E1668C | PCB-52 | ng/g | 26 | | 95 | |
| E1668C | PCB-53 | ng/g | 3.5 | | 9.2 | |
| E1668C | PCB-54 | ng/g | 0.13 | | 0.14 | |
| E1668C | PCB-55 | ng/g | 0.31 | | 2.2 | |
| E1668C | PCB-56 | ng/g | 9.3 | | 42 | |
| E1668C | PCB-57 | ng/g | 0.13 | | 0.39 | |
| E1668C | PCB-58 | ng/g | 0.072 | | 0.19 | |
| E1668C | PCB-59 | ng/g | 1.9 | | 7.3 | |
| E1668C | PCB-6 | ng/g | 1.5 | | 6 | |
| E1668C | PCB-60 | ng/g | 2.7 | | 20 | |
| E1668C | PCB-61 | ng/g | 33 | | 150 | |
| E1668C | PCB-62 | ng/g | 1.9 | | 7.3 | |
| E1668C | PCB-63 | ng/g | 0.77 | | 2.9 | |
| E1668C | PCB-64 | ng/g | 8.8 | | 33 | |
| E1668C | PCB-65 | ng/g | 21 | | 76 | |
| E1668C | PCB-66 | ng/g | 20 | | 82 | |
| E1668C | PCB-67 | ng/g | 0.57 | | 3 | |
| E1668C | PCB-68 | ng/g | 0.15 | | 0.31 | |
| E1668C | PCB-69 | ng/g | 14 | | 45 | |
| E1668C | PCB-7 | ng/g | 0.2 | | 0.95 | |
| E1668C | PCB-70 | ng/g | 33 | | 150 | |
| E1668C | PCB-71 | ng/g | 12 | | 47 | |
| E1668C | PCB-72 | ng/g | 0.29 | | 0.82 | |

**Table 3-1**
**Pre- and Post-Solidification Sample Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | SED7C | | SED7.5E | |
|---|---|---|---|---|---|---|
| | | Sample ID | SED7C-DEW (0-18") | 0746-009 | SED7.5E-DEW (0-18") | 0746-010 |
| | | Description | Pre-Solidification | Post-Solidification | Pre-Solidification | Post-Solidification |
| | | Sample Date | 6/26/2020 | 10/13/2020 | 6/26/2020 | 10/13/2020 |
| | | Sample Type | N | N | N | N |
| Method | Chemical Name | Units | | | | |
| E1668C | PCB-73 | ng/g | 0.83 | | 2.6 | |
| E1668C | PCB-74 | ng/g | 33 | | 150 | |
| E1668C | PCB-75 | ng/g | 1.9 | | 7.3 | |
| E1668C | PCB-76 | ng/g | 33 | | 150 | |
| E1668C | PCB-77 | ng/g | 2 | | 11 | |
| E1668C | PCB-78 | ng/g | < 0.033 | | < 0.19 | |
| E1668C | PCB-79 | ng/g | 0.23 | | 1.1 | |
| E1668C | PCB-8 | ng/g | 4.6 | | 29 | |
| E1668C | PCB-80 | ng/g | < 0.028 | | < 0.16 | |
| E1668C | PCB-81 | ng/g | 0.047 | | 0.46 | |
| E1668C | PCB-82 | ng/g | 3.1 | | 14 | |
| E1668C | PCB-83 | ng/g | 16 | | 65 | |
| E1668C | PCB-84 | ng/g | 6.4 | | 28 | |
| E1668C | PCB-85 | ng/g | 4.3 | | 19 | |
| E1668C | PCB-86 | ng/g | 16 | | 79 | |
| E1668C | PCB-87 | ng/g | 16 | | 79 | |
| E1668C | PCB-88 | ng/g | 3.9 | | 15 | |
| E1668C | PCB-89 | ng/g | 0.38 | | 1.4 | |
| E1668C | PCB-9 | ng/g | 0.29 | | 1.6 | |
| E1668C | PCB-90 | ng/g | 32 | | 160 | |
| E1668C | PCB-91 | ng/g | 3.9 | | 15 | |
| E1668C | PCB-92 | ng/g | 6.1 | | 25 | |
| E1668C | PCB-93 | ng/g | 0.51 | | 1.5 | |
| E1668C | PCB-94 | ng/g | 0.2 | | 0.39 | |
| E1668C | PCB-95 | ng/g | 25 | | 120 | |
| E1668C | PCB-96 | ng/g | 0.25 | | 0.71 | |
| E1668C | PCB-97 | ng/g | 16 | | 79 | |
| E1668C | PCB-98 | ng/g | 0.91 | | 3.1 | |
| E1668C | PCB-99 | ng/g | 16 | | 65 | |
| E1668C | Pentachlorobiphenyl | ng/g | 180 | | 850 | |
| E1668C | Tetrachlorobiphenyl | ng/g | 170 | | 690 | |

**Table 3-1**
**Pre- and Post-Solidification Sample Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | SED7C | | SED7.5E | |
|---|---|---|---|---|---|---|
| | | Sample ID | SED7C-DEW (0-18") | 0746-009 | SED7.5E-DEW (0-18") | 0746-010 |
| | | Description | Pre-Solidification | Post-Solidification | Pre-Solidification | Post-Solidification |
| | | Sample Date | 6/26/2020 | 10/13/2020 | 6/26/2020 | 10/13/2020 |
| | | Sample Type | N | N | N | N |
| Method | Chemical Name | Units | | | | |
| E1668C | Trichlorobiphenyl | ng/g | 110 | | 510 | |
| E1668C | PCB, Total Congeners | ng/g | 1000 | | 5000 | |
| SW8082A L | Aroclor-1016 | ug/kg | < 7.4 | < 6.9 | < 9.8 | < 8.1 |
| SW8082A L | Aroclor-1221 | ug/kg | < 7.4 | < 6.9 | < 9.8 | < 8.1 |
| SW8082A L | Aroclor-1232 | ug/kg | < 7.4 | < 6.9 | < 9.8 | < 8.1 |
| SW8082A L | Aroclor-1242 | ug/kg | < 7.4 | < 6.9 | < 9.8 | < 8.1 |
| SW8082A L | Aroclor-1248 | ug/kg | 210 | 160 | 630 | 440 |
| SW8082A L | Aroclor-1254 | ug/kg | < 7.4 | < 6.9 | < 9.8 | < 8.1 |
| SW8082A L | Aroclor-1260 | ug/kg | 360 | 280 | 1500 | 1200 |
| SW8082A L | Aroclor-1262 | ug/kg | < 7.4 | < 6.9 | < 9.8 | < 8.1 |
| SW8082A L | Aroclor-1268 | ug/kg | < 7.4 | < 6.9 | < 9.8 | < 8.1 |
| PCB-Aroclo | PCB, Total Aroclors | ug/kg | 570 | 440 | 2100 | 1600 |
| SW1020 | Ignitability | deg F | | < 0 | | < 0 |
| SW9014 | Cyanide | mg/kg | | 0.62 | | 0.47 |
| SW9034 | Sulfide | mg/kg | | 59 | | 41 |
| SW6010 | Arsenic | mg/l | | < 0.50 | | 0.057 |
| SW6010 | Barium | mg/l | | 0.3 | | 0.37 |
| SW6010 | Cadmium | mg/l | | < 0.50 | | < 0.50 |
| SW6010 | Chromium | mg/l | | 0.019 | | < 0.50 |
| SW6010 | Lead | mg/l | | < 0.50 | | < 0.50 |
| SW6010 | Selenium | mg/l | | 0.036 | | < 0.50 |
| SW6010 | Silver | mg/l | | < 0.50 | | < 0.50 |
| SW7470A | Mercury | mg/l | | < 0.00020 | | < 0.00020 |
| SW8081B | Chlordane (Technical) | mg/l | | < 0.0050 | | < 0.0050 |
| SW8081B | Endrin | mg/l | | < 0.00050 | | < 0.00050 |
| SW8081B | gamma-BHC (Lindane) | mg/l | | < 0.00050 | | < 0.00050 |
| SW8081B | Heptachlor | mg/l | | < 0.00050 | | < 0.00050 |
| SW8081B | Heptachlor Epoxide | mg/l | | < 0.00050 | | < 0.00050 |
| SW8081B | Methoxychlor | mg/l | | < 0.00050 | | < 0.00050 |
| SW8081B | Toxaphene | mg/l | | < 0.040 | | < 0.040 |
| SW8151A | 2,4,5-TP (Silvex) | mg/l | | < 0.010 | | < 0.010 |

**Table 3-1**
**Pre- and Post-Solidification Sample Results**
**Benning Road Facility TS Project**
**3400 Benning Road, NE**
**Washington, DC 20019**

| | | Location ID | SED7C | | SED7.5E | |
|---|---|---|---|---|---|---|
| | | Sample ID | SED7C-DEW (0-18") | 0746-009 | SED7.5E-DEW (0-18") | 0746-010 |
| | | Description | Pre-Solidification | Post-Solidification | Pre-Solidification | Post-Solidification |
| | | Sample Date | 6/26/2020 | 10/13/2020 | 6/26/2020 | 10/13/2020 |
| | | Sample Type | N | N | N | N |
| Method | Chemical Name | Units | | | | |
| SW8151A | 2,4-D | mg/l | | < 0.040 | | < 0.040 |
| SW8260C | 1,1-Dichloroethene | mg/l | | < 0.20 | | < 0.20 |
| SW8260C | 1,2-Dichloroethane | mg/l | | < 0.20 | | < 0.20 |
| SW8260C | 2-Butanone | mg/l | | < 0.20 | | < 0.20 |
| SW8260C | Benzene | mg/l | | < 0.20 | | < 0.20 |
| SW8260C | Carbon Tetrachloride | mg/l | | < 0.20 | | < 0.20 |
| SW8260C | Chlorobenzene | mg/l | | < 0.20 | | < 0.20 |
| SW8260C | Chloroform | mg/l | | < 0.20 | | < 0.20 |
| SW8260C | Tetrachloroethylene | mg/l | | < 0.20 | | < 0.20 |
| SW8260C | Trichloroethene | mg/l | | < 0.20 | | < 0.20 |
| SW8260C | Vinyl Chloride | mg/l | | < 0.20 | | < 0.20 |
| SW8270D | 1,4-Dichlorobenzene | mg/l | | < 0.050 | | < 0.050 |
| SW8270D | 2,4,5-Trichlorophenol | mg/l | | < 0.050 | | < 0.050 |
| SW8270D | 2,4,6-Trichlorophenol | mg/l | | < 0.050 | | < 0.050 |
| SW8270D | 2,4-Dinitrotoluene | mg/l | | < 0.050 | | < 0.050 |
| SW8270D | 2-Methylphenol | mg/l | | < 0.050 | | < 0.050 |
| SW8270D | 4-Methylphenol | mg/l | | < 0.050 | | < 0.050 |
| SW8270D | Hexachlorobenzene | mg/l | | < 0.050 | | < 0.050 |
| SW8270D | Hexachlorobutadiene | mg/l | | < 0.050 | | < 0.050 |
| SW8270D | Hexachloroethane | mg/l | | < 0.050 | | < 0.050 |
| SW8270D | Nitrobenzene | mg/l | | < 0.050 | | < 0.050 |
| SW8270D | Pentachlorophenol | mg/l | | < 0.25 | | < 0.25 |
| SW8270D | Pyridine | mg/l | | < 0.10 | | < 0.10 |

Notes:
ng/g = nanogram per gram
mg/kg = milograms per kilogram
ug/kg = micrograms per kilogram
deg F = Degrees Fahrenheit
mg/L = milligrams per liter
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the indicated reporting detection limit.

# Appendices

# Appendix A

# Photographic Log

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# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

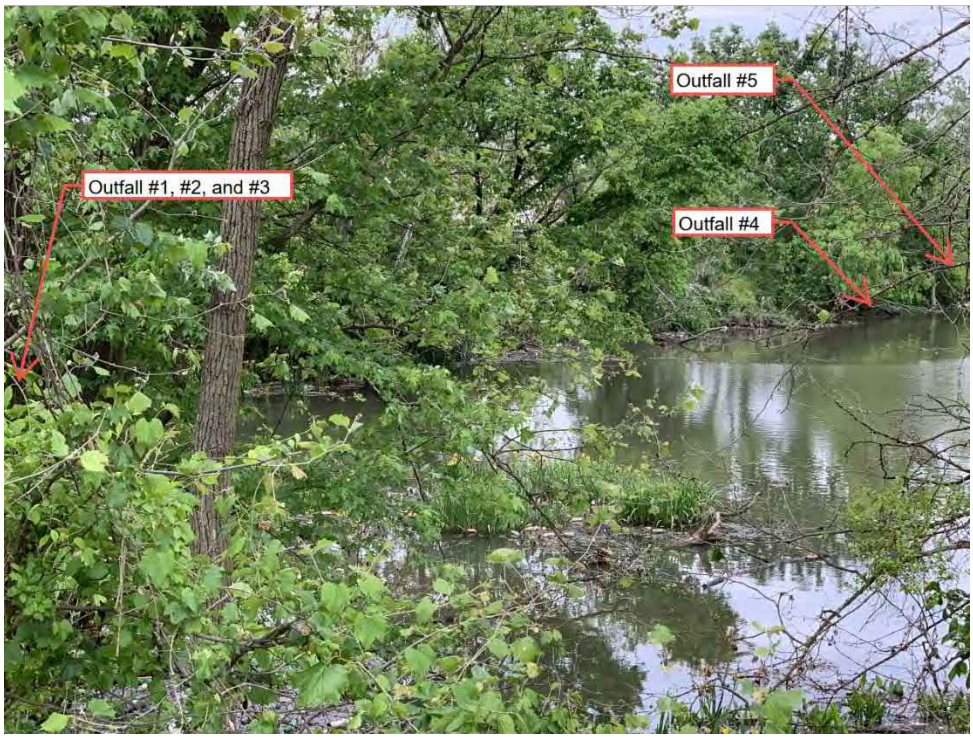
| **Photo No.** **1** | **Date:** 05/21/2020 |
|---|---|

**Description:**

Five outfalls by the south/southeast bank of the Cove.

Outfalls #1 and #3 are associated with the DC Transfer Station. Outfall #2 is a Pepco outfall. The others are unknown of origin.

Outfall #4 and #5 were found during land survey. (picture taken facing southwest)




| **Photo No.** **2** | **Date:** 05/20/2020 |
|---|---|

**Description:**

Outfall #1: DC Transfer Station outfall (DPW Outfall 002), 21" concrete pipe.

Outfall #2: Pepco outfall (Pepco Outfall 013); 54" corrugated metal pipe (external) and 36" iron pipe (internal).

Outfall #3: DC Transfer Station outfall (DPW Outfall 003), 12" concrete pipe.

(picture taken facing south)



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# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No. 3** | **Date:** 05/19/2020 |
|---|---|

**Description:**

Outfall #4: unknown 15" corrugated metal pipe. This pipe was found during land survey on 05/19/2020.

(picture taken facing southwest)



| **Photo No. 4A and 4B** | **Date:** 4A: 5/21/20 4B: 5/6/21 |
|---|---|

**Description:**

<u>Photo 4A (left)</u>
Outfall #5: unknown 21" concrete pipe.
This pipe was found during land survey on 05/21/2020.

(picture taken facing south)

<u>Photo 4B (right)</u>
D.C. Transfer Station outfall (Outfall 001), 12" concrete pipe.

(picture taken facing northeast)






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# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No. 5** | **Date:** 04/08/2020 |
|---|---|

**Description:**

Two concrete culverts for conveying stormwater runoff under Anacostia Riverwalk Trail.

(picture taken facing northeast)



| **Photo No. 6** | **Date:** 04/02/2021 |
|---|---|

**Description:**

Kenilworth Park South Silt Pond located adjacent to the Cove.

(picture taken facing southeast)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No.** 7 | **Date:** 04/02/2021 |
|---|---|

**Description:**

Riprap spillway for discharge from Kenilworth Park South Silt Pond.

(picture taken facing northwest)



| **Photo No.** 8 | **Date:** 04/02/2021 |
|---|---|

**Description:**

Riprap spillway for discharge from Kenilworth Park South Silt Pond, extending towards the Cove.

(picture taken facing west)

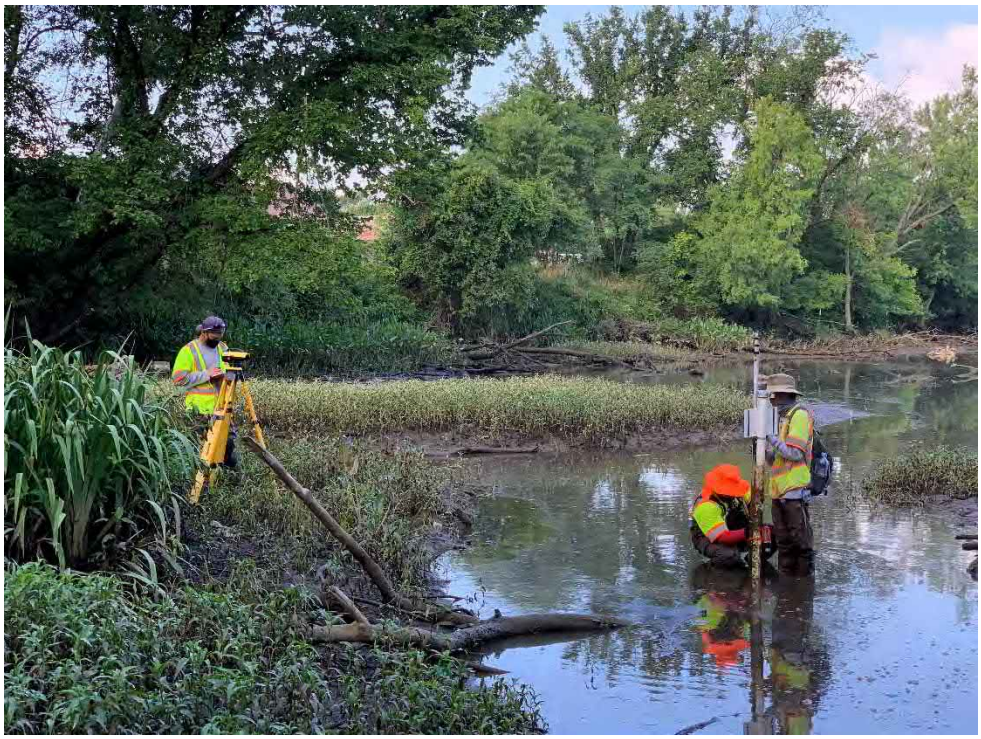


# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No.** **9** | **Date:** 07/09/2020 |
|---|---|

**Description:**

Adjusting staff gauge to set “0” reading at MLLW (Location: SG-03) while surveying the top of casing for a transducer.



| **Photo No.** **10** | **Date:** 06/05/2020 |
|---|---|

**Description:**

Conducting hydrographic survey to collect bathymetric data for the Waterside Investigation Area. Given the limited water depth in the area, the Cove was surveyed at low tide using upland topographical survey techniques, while the rest of the investigation area was surveyed via hydrographic survey in a boat.



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# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 11 | Date: 06/17/2020 |
|---|---|

**Description:**

A PVC conduit for transducer and a staff gauge secured to a metal post which was inserted to the river bottom. The lower part of the conduit has multiple screens/seams to maintain the same water level inside and outside the conduit. (ID/Location: TRANS-03 and SG-03 near Pepco outfall in the Cove)




| Photo No. 12 | Date: 07/14/2020 |
|---|---|

**Description:**

A poly box/case was installed at each of the casing for transducers to house the equipment (Location/ID: TRANS-02).



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No. 13** | **Date:** 07/14/2020 |
|---|---|

**Description:**

The poly box/case, as well as the casing for transducer, was locked for security reasons (Location/ID: TRANS-01).



| **Photo No. 14** | **Date:** 07/14/2020 |
|---|---|

**Description:**

The transducer and associated components were programed and set up in the casing and the poly box/case (Location/ID: TRANS-01).



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No. 15** | **Date:** 07/15/2020 |
|---|---|

**Description:**

The transducer and associated components were programed and set up in the casing and the poly box/case (Location/ID: TRANS-02).



| **Photo No. 16** | **Date:** 07/30/2020 |
|---|---|

**Description:**

Preparing an acoustic doppler current profiler (ADCP) for deployment in the river. The ADCP was secured by an anchor and marked with a buoy in the river. (ID: ADCP-01)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 17 | Date: 07/29/2020 |
|---|---|

**Description:**

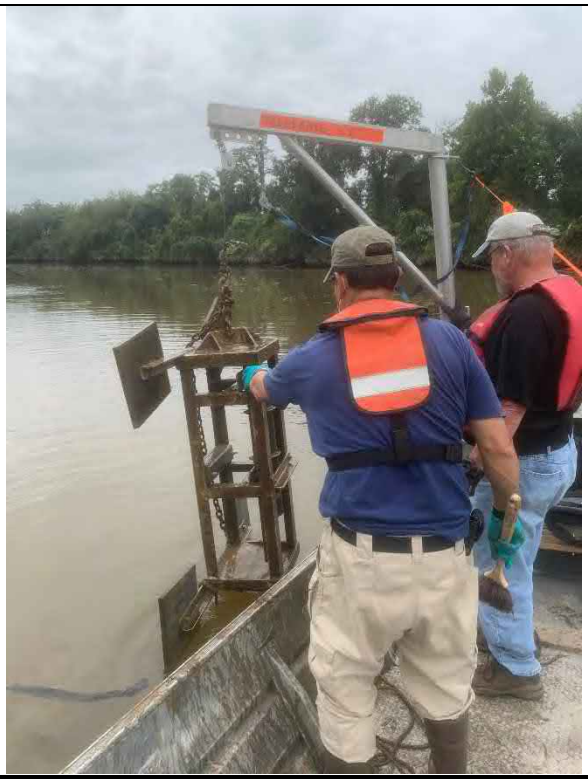
Lowering an ADCP to the river bottom via ropes. The sensor direction was adjusted to be paralleled to the river current. Two ADCP in total were deployed in the river to measure water current velocities over a depth range.



| Photo No. 18 | Date: 09/17/2020 |
|---|---|

**Description:**

An Acoustic Doppler Current Profiler (ADCP) was retrieved from the river bottom via crane in a boat after deployment period.
(ID/Location: ADCP-03)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 19 | Date: 10/01/2020 |
|---|---|

**Description:**

An Acoustic Doppler Current Profiler (ADCP) was retrieved from the river bottom via crane in a boat after deployment period.
(ID/Location: ADCP-04)



| Photo No. 20 | Date: 07/15/2020 |
|---|---|

**Description:**

A temporary HDPE pipe elbow was installed at the mouth of Outfall #1 concrete pipe. The HDPE elbow serves as an extension of the concrete pipe to allow installation of a sediment trap at the outlet.
(Location/ID: Outfall #1)



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# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No. 21** | **Date:** 07/30/2020 |
|---|---|

**Description:**

A sediment trap and a flow meter installed within the HDPE pipe extension. (Location/ID: Outfall #1)




| **Photo No. 22** | **Date:** 07/30/2020 |
|---|---|

**Description:**

A sediment trap and a flow meter installed in the HDPE pipe extension. (Location/ID: Outfall #3)



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# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No. 23** | **Date:** 07/28/2020 |
|---|---|

**Description:**

A data logger and a solar power panel were installed on two T-posts inserted to the ground (~ 40 feet north of Outfall #1).



| **Photo No. 24** | **Date:** 07/30/2020 |
|---|---|

**Description:**

Powered by the solar power panel, the data logger receives flow data transmitted from the flow meters installed at Outfall #1 and Outfall #3.



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No.** **25** | **Date:** 07/14/2020 |
|---|---|

**Description:**

A temporary HDPE pipe was installed at Outfall #4 to facilitate data collection as the bottom of the existing corrugated metal pipe was corroded. The HDPE elbow serves as an extension of the concrete pipe to allow installation of a sediment trap at the outlet. A sediment trap and a flow meter were installed within the HDPE pipe extension. (Location/ID: Outfall #4)




| **Photo No.** **26** | **Date:** 07/30/2020 |
|---|---|

**Description:**

A data logger and a solar power panel were installed on two T-posts inserted to the ground (~ 5 feet away from Outfall #4). Powered by the solar power panel, the data logger receives flow data transmitted from the flow meters installed at Outfall #4.

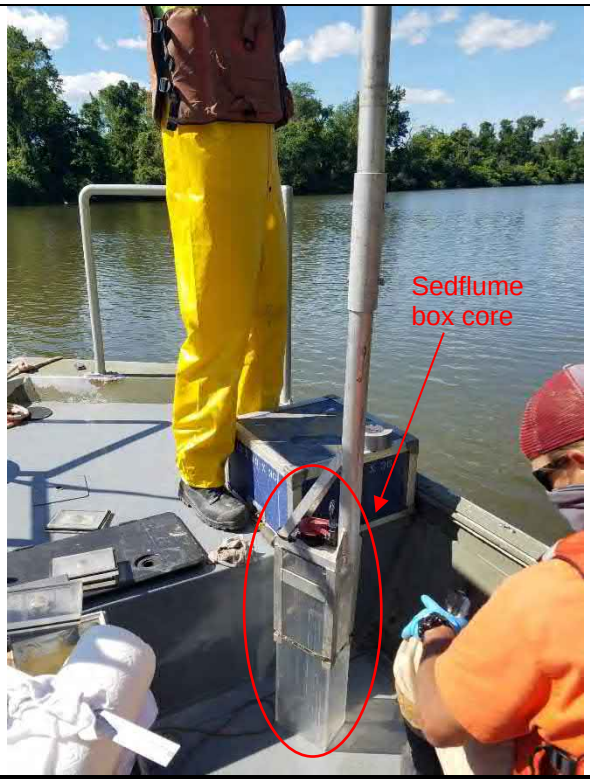


# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No. 27** | **Date:** 06/04/2020 |
|---|---|

**Description:**

Preparing an empty sediment box core for sedflume sampling in a boat (sample ID/location: SED7ESF).




| **Photo No. 28** | **Date:** 06/04/2020 |
|---|---|

**Description:**

Inserting an empty sedflume box core into sediment in a boat (sample ID/location: SED7ESF).



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# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No.** **29** | **Date:** 06/04/2020 |
|---|---|

**Description:**

Inserting a sediment box core into sediment at river bottom (sample ID/location: SED7ESF).




| **Photo No.** **30** | **Date:** 06/04/2020 |
|---|---|

**Description:**

Retrieving a sediment box core sample from river bottom in a boat (sample ID/location: SED7ESF).



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No. 31** | **Date:** 06/04/2020 |
|---|---|

**Description:**

Sealing a sediment box core sample in a boat at the Cove following retrieval of the core (sample ID/location: SED7ESF).

Sediment core sample was collected and contained in the box for Sedflume testing.




| **Photo No. 32** | **Date:** 06/04/2020 |
|---|---|

**Description:**

Preparing sediment box core samples for shipment.



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No. 33** | **Date:** 06/04/2020 |
|---|---|

**Description:**

Turbidity monitoring was conducted in a dedicated boat moving between 50 feet of upstream and downstream from the sampling location during seflume operation.

Equipment (YSI ProDSS Multi-Parameter Water Quality Meter, 4-port digital Sampling System) was used for turbidity monitoring.




| **Photo No. 34** | **Date:** 06/16/2020 |
|---|---|

**Description:**

Standard sediment traps. Clean gravel was placed at the bottom of the bucket as weight.



AECOM

# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 35 | Date: 06/16/2020 |
|---|---|

**Description:**

A standard sediment trap was attached to a buoy via rope and lower to the river bottom.



| Photo No. 36 | Date: 06/16/2020 |
|---|---|

**Description:**

Holes in the standard sediment trap bucket to allow water to flow out when the trap is retrieved from the river bottom. A rebar was installed at the bottom to keep the bucket from tipping over while at the river bottom.



AECOM

# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 37 | Date: 06/16/2020 |
|---|---|

**Description:**

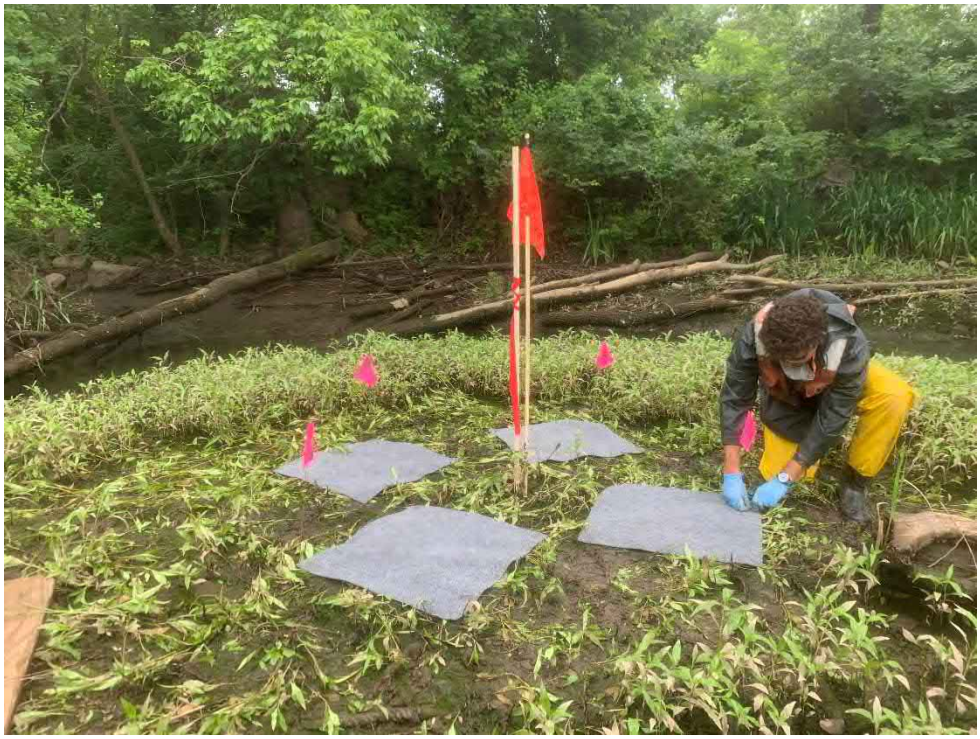
A standard sediment trap placed at river bottom. (sediment trap ID: SEDTRAP-02 near north end of the Cove)



| Photo No. 38 | Date: 06/17/2020 |
|---|---|

**Description:**

Installing turf mats in the Cove near Pepco outfall during low tide. Four mats were installed as duplicates at one location. Mats were secured to the sediment by metal wires and flagged for the locations. (ID/Location: SEDMAT-01 near Pepco outfall)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No.** **39** | **Date:** 06/17/2020 |
|---|---|

**Description:**

Turf mats installed near the northern bank of the Cove. (ID/Location: SEDMAT-02)



| **Photo No.** **40** | **Date:** 10/15/2020 |
|---|---|

**Description:**

A sediment mat was identified for measurement of accumulated sediment after deployment period. (ID/Location: SEDMAT-01)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 41 | Date: 10/15/2020 |
|---|---|

**Description:**

Depths of accumulated sediment on top of the mat surface were measured with a ruler. A number of nine measurements were performed and averaged for a mat.
(ID/Location: SEEP-01)



| Photo No. 42 | Date: 10/15/2020 |
|---|---|

**Description:**

Sediment sampling from a sediment mat was performed by carefully transferring all accumulated sediment from the mat surface to sampling containers via a scoop. The mat and the scoop were also collected for analysis after transferring all sediment.
(ID/Location: SEDMAT-03)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 43 | Date: 10/09/2020 |
|---|---|

**Description:**

After accumulated sediment on top of the sediment mat was transferred to sampling containers, the underside of the mat was scraped of sediment before the mat was collected for analysis. (ID/Location: SEEP-03)



| Photo No. 44 | Date: 09/15/2020 |
|---|---|

**Description:**

Accessing proposed location for installation of a seepage meter via boat during low tide.

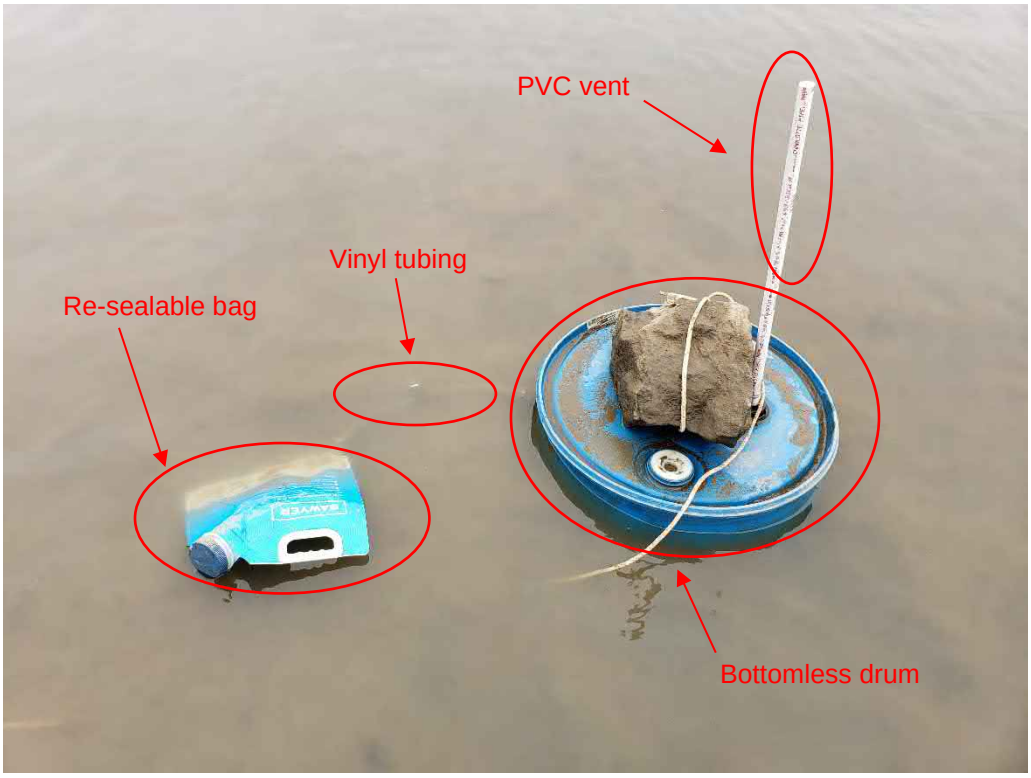


# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 45 | Date: 09/15/2020 |
|---|---|

**Description:**

The seepage meter is comprised of a bottomless drum and a re-sealable bag. The bag is connected to the drum via vinyl tubing. The connection to the drum is submerged under water inside the drum to allow water to move between the bag and the drum. There is an extended PVC vent on top of the drum to maintain atmosphere pressure inside the drum and to prevent river water from entering the drum through the vent. (ID/Location: SEEP-01)




| Photo No. 46 | Date: 09/15/2020 |
|---|---|

**Description:**

The bottomless drum is directly pushed into the sediment to a depth so that tubing connection to the drum is submerged under water and above sediment inside the drum. After the installation, the seepage meter is left for equilibrium before measurement can be conducted. The seepage meter is secured with a big rock and flagged. (ID/Location: SEEP-01)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 47 | Date: 09/15/2020 |
|---|---|

**Description:**

After the installation, the bag is filled with some river water for testing to ensure water can move between the bag and the drum.
(ID/Location: SEEP-01)



| Photo No. 48 | Date: 09/17/2020 |
|---|---|

**Description:**

A seepage meter installed in the middle of the Cove near northern bank. A total number of three seepage meters were installed.
(ID/Location: SEEP-02)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 49 | Date: 09/17/2020 |
|---|---|

**Description:**

A seepage meter installed inside the Cove near Pepco outfall and a transducer station (TRANS-03). A total number of three seepage meters were installed.
(ID/Location: SEEP-03)




| Photo No. 50 | Date: 09/17/2020 |
|---|---|

**Description:**

A sediment sample was collected from a seepage meter installation location via shallow push core. a 1-foot sediment from the surface was taken and mixed in a zip-lock bag to create a composite sample.
(ID/Location: SEEP-01)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 51 | Date: 10/09/2020 |
|---|---|

**Description:**

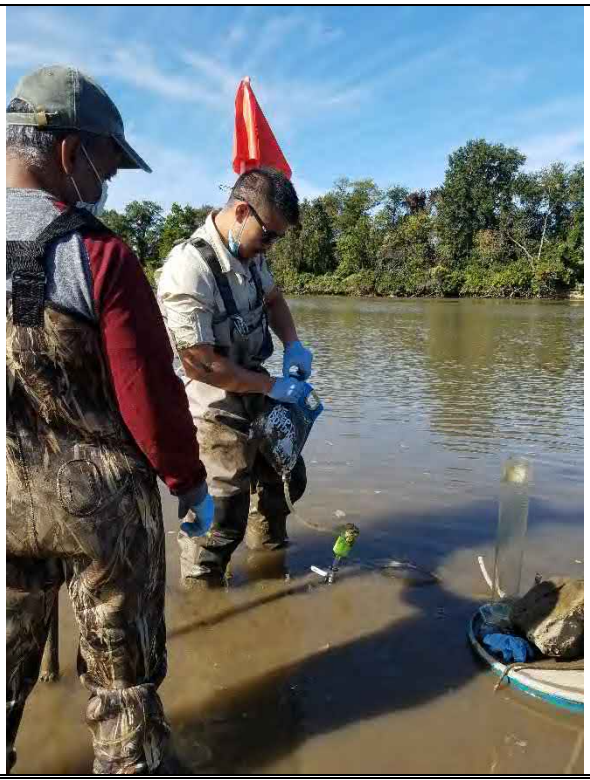
Accessing a seepage meter after equilibrium to conduct measurements during low tide. (ID/Location: SEEP-02)



| Photo No. 52 | Date: 10/09/2020 |
|---|---|

**Description:**

Measurements were conducted at a seepage meter after equilibrium to determine the groundwater hydrology flux into the overlying sediment. The measurement was performed by adding distill water in the bag and measuring the amount of water leaving or entering the bag after a period of time. (ID/Location: SEEP-01)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 53 | Date: 10/09/2020 |
|---|---|

**Description:**

Measurements were conducted at a seepage meter after equilibrium to determine the groundwater hydrology flux into the overlying sediment. The measurement was performed by adding distill water in the bag and measuring the amount of water leaving or entering the bag after a period of time. (ID/Location: SEEP-01)



| Photo No. 54 | Date: 10/09/2020 |
|---|---|

**Description:**

Eight intact cores collected for laboratory seepage study. (ID/Location: SEEP-03)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 55 | Date: 10/09/2020 |
|---|---|

**Description:**

Sediment laboratory study for the placement of amendments. A sediment sample was homogenized prior to collection of triplicate subsamples for the analysis of PCBs and Total Organic Carbon. Three liter subsamples of the homogenized sediment were placed in clean containers for mixing with the carbon amendments.



| Photo No. 56 | Date: 06/16/2020 |
|---|---|

**Description:**

Laboratory bioaccumulation study with freshwater oligochaetes. Bioaccumulation setup with air tubes supplying sparging air to oxygenate the overlying water.



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| **Photo No.** 57 | **Date:** 06/16/2020 |
|---|---|

**Description:**

Left and middle: Clean, laboratory cultured freshwater oligochaetes (Lumbriculus variegatus) were added to the sediments in 1L glass beakers (1000 g wet sediment and 1 g organisms per beaker; 3 replicates per treatment).
Right: closeup of worms in culture chamber.



| **Photo No.** 58 | **Date:** 06/16/2020 |
|---|---|

**Description:**

A Hester-Dandy sampler was secured to a weight block via rope.



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 59 | Date: 06/16/2020 |
|---|---|

**Description:**

The weight block with a Hester-Dandy sampler secured was tied to a metal post which was inserted to the river bottom.



| Photo No. 60 | Date: 06/16/2020 |
|---|---|

**Description:**

A Hester-Dandy sampler was installed at the river bottom. (ID/Location: HD-4 in the Cove near Pepco outfall)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 61 | Date: 07/14/2020 |
|---|---|

**Description:**

A Hester-Dandy sampler was found exposed during low tide (Location/ID: HD-03).



| Photo No. 62 | Date: 07/16/2020 |
|---|---|

**Description:**

The exposed Hester-Dandy sampler (Location/ID: HD-03) was retrieved, cleaned, and re-set at a deeper location approximately 12 feet away from where it was previously installed.



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 63 | Date: 07/14/2020 |
|---|---|

**Description:**

A Hester-Dandy sampler was found exposed during low tide (Location/ID: HD-02).



| Photo No. 64 | Date: 07/16/2020 |
|---|---|

**Description:**

The exposed Hester-Dandy sampler (Location/ID: HD-02) was retrieved, cleaned, and re-set at a deeper location approximately 12 feet away from where it was previously installed.



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 65 | Date: 07/29/2020 |
|---|---|

**Description:**

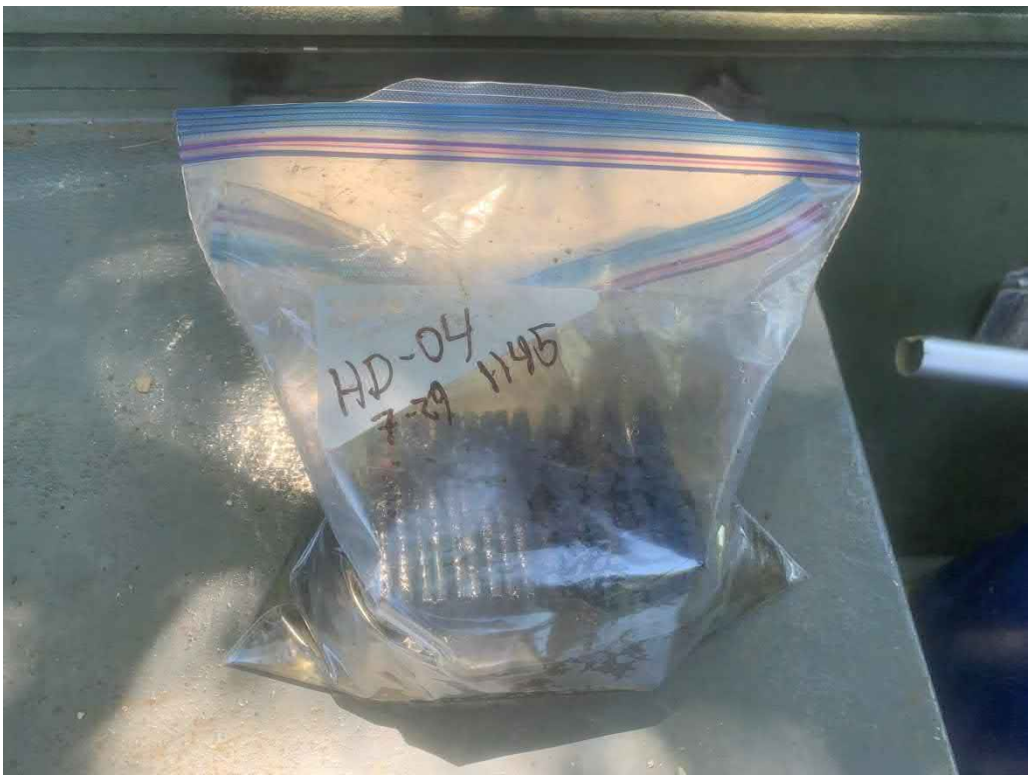
A Hester-Dandy sampler was retrieved during low tide from the river after a 6-week deployment. Before the sampler was retrieved, there was approximately 5 inch of water above the sampler in the river. (ID: HD-1)



| Photo No. 66 | Date: 07/29/2020 |
|---|---|

**Description:**

After being retrieved from the river during low tide, a Hester-Dandy sampler was stored in 70% alcohol and sent to lab for benthic macro invertebrate organism analysis. (ID: HD-4)



# PHOTOGRAPHIC LOC
# PEPCO TREATABILITY STUDY

| Photo No. 67 | Date: 06/05/2020 |
|---|---|

**Description:**

Collecting sediment samples for sequestration study during low tide. (sample ID: SED7E)



| Photo No. 68 | Date: 06/04/2020 |
|---|---|

**Description:**

Surface water samples in 5-gallon carboys collected for geotextile dewatering. The samples were collected from the boat using a whale pump.



# Appendix B

# Eurofins TestAmerica Lab Packages

eurofins | Environment Testing America



# ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-108704-1
Client Project/Site: Pepco Benning Road Facility

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

*Authorized for release by:*
*8/7/2020 4:25:46 PM*

Jill Colussy, Project Manager I
(412)963-2444
Jill.Colussy@Eurofinset.com

LINKS
Review your project results through TotalAccess
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

*PA Lab ID: 02-00416*

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## Job ID: 180-108704-1

**Laboratory: Eurofins TestAmerica, Pittsburgh**

**Narrative**

# CASE NARRATIVE

## Client: AECOM

## Project: Pepco Benning Road Facility

## Report Number: 180-108704-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**
The samples were received on 7/24/2020 8:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.6º C, 3.5º C and 4.2º C.

Two Amber liters and two out of four 250 amber glass container labels for the following sample did not match the information listed on the Chain-of-Custody (COC): OFW0100R (180-108704-2). The container labels list an id of OFW0100N, while the COC lists OFW0100R. The sample collection time matches sample two and the id on the COC was used.

**SEMIVILATILES**
An incorrect volume of surrogate spiking solution was inadvertently added the following samples: OFW0100N (180-108704-1). Percent recoveries are based on the amount spiked.

**DRO**
Due to the concentration of DRO detected, sample OFW0300N (180-108704-4) was analyzed at a dilution. The reporting limit has been adjusted accordingly.

**DIOXINS**
The following samples went through Gel-Permeation Cleanup procedure, based on EPA method 3640A:
OFW0100N (180-108704-1), OFW0100R (180-108704-2), OFW0200N (180-108704-3), OFW0300N (180-108704-4) and OFW0500N (180-108704-5)

Samples OFW0100N (180-108704-1), OFW0100R (180-108704-2), OFW0200N (180-108704-3), OFW0300N (180-108704-4) and OFW0500N (180-108704-5) were analyzed at a dilution. The reporting limits have been adjusted accordingly.

Ion abundance ratios are outside criteria for the Isotope Dilution Analyte (IDA) associated with the following sample: OFW0300N (180-108704-4).

Polychlorinated biphenyls, Total was detected in method blank MB 140-41399/7-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Several analytes were detected in method blank MB 140-41399/7-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the

## Job ID: 180-108704-1 (Continued)

### Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

MDL and/or RL, the result has been flagged.

**METALS**

Calcium and Zinc were detected in method blank MB 180-323777/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

**TOTAL SUSPENDED SOLIDS**

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

## Qualifiers

### GC/MS Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

### Dioxin

| Qualifier | Qualifier Description |
|---|---|
| B | Compound was found in the blank and sample. |
| C | The compound co-eluted with other compounds |
| C108 | The compound co-eluted with PCB-108 |
| C110 | The compound co-eluted with PCB-110 |
| C12 | The compound co-eluted with PCB-12 |
| C128 | The compound co-eluted with PCB-128 |
| C129 | The compound co-eluted with PCB-129 |
| C134 | The compound co-eluted with PCB-134 |
| C135 | The compound co-eluted with PCB-135 |
| C139 | The compound co-eluted with PCB-139 |
| C147 | The compound co-eluted with PCB-147 |
| C153 | The compound co-eluted with PCB-153 |
| C156 | The compound co-eluted with PCB-156 |
| C171 | The compound co-eluted with PCB-171 |
| C18 | The compound co-eluted with PCB-18 |
| C180 | The compound co-eluted with PCB-180 |
| C183 | The compound co-eluted with PCB-183 |
| C198 | The compound co-eluted with PCB-198 |
| C20 | The compound co-eluted with PCB-20 |
| C21 | The compound co-eluted with PCB-21 |
| C26 | The compound co-eluted with PCB-26 |
| C40 | The compound co-eluted with PCB-40 |
| C43 | The compound co-eluted with PCB-43 |
| C44 | The compound co-eluted with PCB-44 |
| C45 | The compound co-eluted with PCB-45 |
| C49 | The compound co-eluted with PCB-49 |
| C50 | The compound co-eluted with PCB-50 |
| C59 | The compound co-eluted with PCB-59 |
| C61 | The compound co-eluted with PCB-61 |
| C83 | The compound co-eluted with PCB-83 |
| C85 | The compound co-eluted with PCB-85 |
| C86 | The compound co-eluted with PCB-86 |
| C88 | The compound co-eluted with PCB-88 |
| C90 | The compound co-eluted with PCB-90 |
| C93 | The compound co-eluted with PCB-93 |
| C98 | The compound co-eluted with PCB-98 |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| q | The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference. |

### Metals

| Qualifier | Qualifier Description |
|---|---|
| B | Compound was found in the blank and sample. |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |

## Glossary (Continued)

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| CFU | Colony Forming Unit |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MCL | EPA recommended "Maximum Contaminant Level" |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| MPN | Most Probable Number |
| MQL | Method Quantitation Limit |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| NEG | Negative / Absent |
| POS | Positive / Present |
| PQL | Practical Quantitation Limit |
| PRES | Presumptive |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |
| TNTC | Too Numerous To Count |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-108704-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| Arkansas DEQ | State | 19-033-0 | 06-27-21 |
| California | State | 2891 | 04-30-21 |
| Connecticut | State | PH-0688 | 09-30-20 |
| Florida | NELAP | E871008 | 06-30-21 |
| Georgia | State | PA 02-00416 | 04-30-21 |
| Illinois | NELAP | 004375 | 06-30-21 |
| Kansas | NELAP | E-10350 | 01-31-21 |
| Kentucky (UST) | State | 162013 | 04-30-21 |
| Kentucky (WW) | State | KY98043 | 12-31-20 |
| Louisiana | NELAP | 04041 | 06-30-21 |
| Maine | State | PA00164 | 03-06-22 |
| Minnesota | NELAP | 042-999-482 | 12-31-20 |
| Nevada | State | PA00164 | 07-31-21 |
| New Hampshire | NELAP | 2030 | 04-05-21 |
| New Jersey | NELAP | PA005 | 06-30-21 |
| New York | NELAP | 11182 | 04-01-21 |
| North Carolina (WW/SW) | State | 434 | 01-01-21 |
| North Dakota | State | R-227 | 04-30-21 |
| Oregon | NELAP | PA-2151 | 02-06-21 |
| Pennsylvania | NELAP | 02-00416 | 04-30-21 |
| Rhode Island | State | LAO00362 | 12-31-20 |
| South Carolina | State | 89014 | 04-30-21 |
| Texas | NELAP | T104704528 | 03-31-21 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | Federal | P-Soil-01 | 06-26-22 |
| USDA | US Federal Programs | P330-16-00211 | 06-26-22 |
| Utah | NELAP | PA001462019-8 | 05-31-21 |
| Virginia | NELAP | 10043 | 09-15-20 |
| West Virginia DEP | State | 142 | 02-01-21 |
| Wisconsin | State | 998027800 | 08-31-20 |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-108704-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| California | State | 2927 | 02-23-21 |
| Connecticut | State | PH-0590 | 12-31-21 |
| Florida | NELAP | E87225 | 06-30-21 |
| Georgia | State | 4062 | 02-23-21 |
| Illinois | NELAP | 004498 | 07-31-20 |
| Iowa | State | 421 | 06-01-21 |
| Kansas | NELAP | E-10336 | 04-30-21 |
| Kentucky (UST) | State | 112225 | 02-23-21 |
| Kentucky (WW) | State | KY98016 | 12-31-20 |
| Minnesota | NELAP | OH00048 | 12-31-20 |
| Minnesota (Petrofund) | State | 3506 | 08-01-21 |
| New Jersey | NELAP | OH001 | 06-30-21 |
| New York | NELAP | 10975 | 03-31-21 |
| Ohio VAP | State | CL0024 | 06-05-21 |
| Oregon | NELAP | 4062 | 02-24-21 |
| Pennsylvania | NELAP | 68-00340 | 08-31-20 |
| Texas | NELAP | T104704517-18-10 | 08-31-20 |
| USDA | US Federal Programs | P330-18-00281 | 09-17-21 |
| Virginia | NELAP | 010101 | 09-14-20 |
| Washington | State | C971 | 01-12-21 |
| West Virginia DEP | State | 210 | 12-31-20 |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-108704-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| | AFCEE | N/A | |
| ANAB | Dept. of Defense ELAP | L2311 | 02-13-22 |
| ANAB | Dept. of Energy | L2311.01 | 02-13-22 |
| ANAB | ISO/IEC 17025 | L2311 | 02-13-22 |
| ANAB | ISO/IEC 17025 | L2311 | 02-14-22 |
| Arkansas DEQ | State | 88-0688 | 06-17-21 |
| California | State | 2423 | 06-30-21 |
| Colorado | State | TN00009 | 02-28-21 |
| Connecticut | State | PH-0223 | 09-30-21 |
| Florida | NELAP | E87177 | 07-01-21 |
| Georgia (DW) | State | 906 | 12-11-22 |
| Hawaii | State | NA | 12-11-21 |
| Kansas | NELAP | E-10349 | 11-01-20 |
| Kentucky (DW) | State | 90101 | 01-01-21 |
| Louisiana | NELAP | LA110001 | 12-31-12 * |
| Louisiana | NELAP | 83979 | 06-30-21 |
| Louisiana (DW) | State | LA019 | 12-31-20 |
| Maryland | State | 277 | 03-31-21 |
| Michigan | State | 9933 | 12-11-22 |
| Nevada | State | TN00009 | 08-31-20 |
| New Hampshire | NELAP | 299919 | 01-17-21 |
| New Jersey | NELAP | TN001 | 07-01-21 |
| New York | NELAP | 10781 | 03-31-21 |
| North Carolina (DW) | State | 21705 | 07-31-21 |
| North Carolina (WW/SW) | State | 64 | 12-31-20 |
| Ohio VAP | State | CL0059 | 06-02-23 |
| Oklahoma | State | 9415 | 09-01-20 |
| Oregon | NELAP | TNI0189 | 01-02-21 |
| Pennsylvania | NELAP | 68-00576 | 12-31-20 |
| Tennessee | State | 02014 | 12-11-22 |
| Texas | NELAP | T104704380-18-12 | 08-31-20 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | US Federal Programs | P330-19-00236 | 08-20-22 |
| Utah | NELAP | TN00009 | 07-31-20 * |
| Virginia | NELAP | 460176 | 09-15-20 |
| Washington | State | C593 | 01-19-21 |
| West Virginia (DW) | State | 9955C | 01-01-21 |
| West Virginia DEP | State | 345 | 05-01-21 |
| Wisconsin | State | 998044300 | 08-31-21 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Sample Summary

Client: AECOM
Job ID: 180-108704-1
Project/Site: Pepco Benning Road Facility

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Water | 07/22/20 16:25 | 07/24/20 08:45 | |
| 180-108704-2 | OFW0100R | Water | 07/22/20 16:30 | 07/24/20 08:45 | |
| 180-108704-3 | OFW0200N | Water | 07/22/20 16:40 | 07/24/20 08:45 | |
| 180-108704-4 | OFW0300N | Water | 07/22/20 16:50 | 07/24/20 08:45 | |
| 180-108704-5 | OFW0500N | Water | 07/22/20 17:30 | 07/24/20 08:45 | |

# Method Summary

Client: AECOM
Job ID: 180-108704-1
Project/Site: Pepco Benning Road Facility

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| EPA 8270D LL | Semivolatile Organic Compounds by GC/MS - Low Level | SW846 | TAL PIT |
| 8015D | Diesel Range Organics (DRO) (GC) | SW846 | TAL CAN |
| 1668C | Chlorinated Biphenyl Congeners (HRGC/HRMS) | EPA | TAL KNX |
| EPA 6020A | Metals (ICP/MS) | SW846 | TAL PIT |
| EPA 7470A | Mercury (CVAA) | SW846 | TAL PIT |
| SM 2540D | Solids, Total Suspended (TSS) | SM | TAL PIT |
| 3005A | Preparation, Total Recoverable or Dissolved Metals | SW846 | TAL PIT |
| 3510C LVI | Liquid-Liquid Extraction (Separatory Funnel) LVI | SW846 | TAL CAN |
| 3520C | Liquid-Liquid Extraction (Continuous) | SW846 | TAL PIT |
| 7470A | Preparation, Mercury | SW846 | TAL PIT |
| HRMS-Sepf | Separatory Funnel (Liquid-Liquid) Extraction | EPA | TAL KNX |

**Protocol References:**

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: AECOM
Job ID: 180-108704-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: OFW0100N
**Lab Sample ID: 180-108704-1**
**Date Collected: 07/22/20 16:25**
**Matrix: Water**
**Date Received: 07/24/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3520C | | | 310 mL | 250 uL | 323155 | 07/27/20 11:53 | BJT | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 1 | 1 mL | 1 mL | 323410 | 07/29/20 16:14 | VVP | TAL PIT |
| | Instrument ID: CH733 | | | | | | | | | |
| Total/NA | Prep | 3510C LVI | | | 250 mL | 5 mL | 444506 | 07/28/20 06:30 | MDH | TAL CAN |
| Total/NA | Analysis | 8015D | | 1 | | | 444816 | 07/29/20 19:12 | LKG | TAL CAN |
| | Instrument ID: A2HP14R | | | | | | | | | |
| Total/NA | Prep | HRMS-Sepf | | | 1045.5 mL | 20 uL | 41399 | 07/29/20 09:50 | SSS | TAL KNX |
| Total/NA | Analysis | 1668C | | 2 | | | 41630 | 08/05/20 13:28 | JMN | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 323777 | 07/31/20 08:03 | TJO | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 324024 | 08/01/20 21:10 | NAM | TAL PIT |
| | Instrument ID: DORY | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 323777 | 07/31/20 08:03 | TJO | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 324170 | 08/03/20 21:40 | NAM | TAL PIT |
| | Instrument ID: DORY | | | | | | | | | |
| Total/NA | Prep | 7470A | | | 50 mL | 50 mL | 323724 | 07/31/20 05:35 | RJR | TAL PIT |
| Total/NA | Analysis | EPA 7470A | | 1 | | | 324008 | 08/03/20 10:29 | RJR | TAL PIT |
| | Instrument ID: HGZ | | | | | | | | | |
| Total/NA | Analysis | SM 2540D | | 1 | 600 mL | 1000 mL | 323013 | 07/25/20 13:18 | AGP | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: OFW0100R
**Lab Sample ID: 180-108704-2**
**Date Collected: 07/22/20 16:30**
**Matrix: Water**
**Date Received: 07/24/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3520C | | | 300 mL | 250 uL | 323155 | 07/27/20 11:57 | BJT | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 1 | 1 mL | 1 mL | 323410 | 07/29/20 16:40 | VVP | TAL PIT |
| | Instrument ID: CH733 | | | | | | | | | |
| Total/NA | Prep | 3510C LVI | | | 240 mL | 5 mL | 444506 | 07/28/20 06:30 | MDH | TAL CAN |
| Total/NA | Analysis | 8015D | | 1 | | | 444816 | 07/29/20 19:39 | LKG | TAL CAN |
| | Instrument ID: A2HP14R | | | | | | | | | |
| Total/NA | Prep | HRMS-Sepf | | | 1023.5 mL | 20 uL | 41399 | 07/29/20 09:50 | SSS | TAL KNX |
| Total/NA | Analysis | 1668C | | 2 | | | 41630 | 08/05/20 14:29 | JMN | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 323777 | 07/31/20 08:03 | TJO | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 324024 | 08/01/20 21:14 | NAM | TAL PIT |
| | Instrument ID: DORY | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 323777 | 07/31/20 08:03 | TJO | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 324170 | 08/03/20 21:44 | NAM | TAL PIT |
| | Instrument ID: DORY | | | | | | | | | |
| Total/NA | Prep | 7470A | | | 50 mL | 50 mL | 323724 | 07/31/20 05:35 | RJR | TAL PIT |
| Total/NA | Analysis | EPA 7470A | | 1 | | | 324008 | 08/03/20 10:30 | RJR | TAL PIT |
| | Instrument ID: HGZ | | | | | | | | | |

# Lab Chronicle

Client: AECOM
Job ID: 180-108704-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: OFW0100R
**Lab Sample ID: 180-108704-2**
**Date Collected: 07/22/20 16:30**
**Matrix: Water**
**Date Received: 07/24/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | SM 2540D | | 1 | 450 mL | 1000 mL | 323013 | 07/25/20 13:18 | AGP | TAL PIT |

## Client Sample ID: OFW0200N
**Lab Sample ID: 180-108704-3**
**Date Collected: 07/22/20 16:40**
**Matrix: Water**
**Date Received: 07/24/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3520C | | | 290 mL | 250 uL | 323155 | 07/27/20 11:57 | BJT | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 1 | 1 mL | 1 mL | 323410 | 07/29/20 17:05 | VVP | TAL PIT |
| | Instrument ID: CH733 | | | | | | | | | |
| Total/NA | Prep | 3510C LVI | | | 240 mL | 5 mL | 444506 | 07/28/20 06:30 | MDH | TAL CAN |
| Total/NA | Analysis | 8015D | | 1 | | | 444816 | 07/29/20 20:07 | LKG | TAL CAN |
| | Instrument ID: A2HP14R | | | | | | | | | |
| Total/NA | Prep | HRMS-Sepf | | | 1011 mL | 20 uL | 41399 | 07/29/20 09:50 | SSS | TAL KNX |
| Total/NA | Analysis | 1668C | | 2 | | | 41630 | 08/05/20 15:31 | JMN | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 323777 | 07/31/20 08:03 | TJO | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 324024 | 08/01/20 21:17 | NAM | TAL PIT |
| | Instrument ID: DORY | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 323777 | 07/31/20 08:03 | TJO | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 324170 | 08/03/20 21:47 | NAM | TAL PIT |
| | Instrument ID: DORY | | | | | | | | | |
| Total/NA | Prep | 7470A | | | 50 mL | 50 mL | 323724 | 07/31/20 05:35 | RJR | TAL PIT |
| Total/NA | Analysis | EPA 7470A | | 1 | | | 324008 | 08/03/20 10:31 | RJR | TAL PIT |
| | Instrument ID: HGZ | | | | | | | | | |
| Total/NA | Analysis | SM 2540D | | 1 | 750 mL | 1000 mL | 323013 | 07/25/20 13:18 | AGP | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: OFW0300N
**Lab Sample ID: 180-108704-4**
**Date Collected: 07/22/20 16:50**
**Matrix: Water**
**Date Received: 07/24/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3520C | | | 290 mL | 250 uL | 323155 | 07/27/20 11:57 | BJT | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 1 | 1 mL | 1 mL | 323410 | 07/29/20 17:30 | VVP | TAL PIT |
| | Instrument ID: CH733 | | | | | | | | | |
| Total/NA | Prep | 3510C LVI | | | 240 mL | 5 mL | 444506 | 07/28/20 06:30 | MDH | TAL CAN |
| Total/NA | Analysis | 8015D | | 5 | | | 444889 | 07/30/20 12:04 | LKG | TAL CAN |
| | Instrument ID: A2HP14R | | | | | | | | | |
| Total/NA | Prep | HRMS-Sepf | | | 1021.3 mL | 20 uL | 41399 | 07/29/20 09:50 | SSS | TAL KNX |
| Total/NA | Analysis | 1668C | | 5 | | | 41619 | 08/05/20 07:51 | PMP | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 323777 | 07/31/20 08:03 | TJO | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 324024 | 08/01/20 21:21 | NAM | TAL PIT |
| | Instrument ID: DORY | | | | | | | | | |

# Lab Chronicle

Client: AECOM
Job ID: 180-108704-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: OFW0300N
**Lab Sample ID: 180-108704-4**
**Date Collected: 07/22/20 16:50**
**Matrix: Water**
**Date Received: 07/24/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 323777 | 07/31/20 08:03 | TJO | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 324170 | 08/03/20 21:51 | NAM | TAL PIT |
| | Instrument ID: DORY | | | | | | | | | |
| Total/NA | Prep | 7470A | | | 50 mL | 50 mL | 323724 | 07/31/20 05:35 | RJR | TAL PIT |
| Total/NA | Analysis | EPA 7470A | | 1 | | | 324008 | 08/03/20 10:32 | RJR | TAL PIT |
| | Instrument ID: HGZ | | | | | | | | | |
| Total/NA | Analysis | SM 2540D | | 1 | 250 mL | 1000 mL | 323013 | 07/25/20 13:18 | AGP | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: OFW0500N
**Lab Sample ID: 180-108704-5**
**Date Collected: 07/22/20 17:30**
**Matrix: Water**
**Date Received: 07/24/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3520C | | | 310 mL | 250 uL | 323155 | 07/27/20 11:57 | BJT | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 1 | 1 mL | 1 mL | 323410 | 07/29/20 17:55 | VVP | TAL PIT |
| | Instrument ID: CH733 | | | | | | | | | |
| Total/NA | Prep | 3510C LVI | | | 240 mL | 5 mL | 444506 | 07/28/20 06:30 | MDH | TAL CAN |
| Total/NA | Analysis | 8015D | | 1 | | | 444816 | 07/29/20 21:02 | LKG | TAL CAN |
| | Instrument ID: A2HP14R | | | | | | | | | |
| Total/NA | Prep | HRMS-Sepf | | | 1026.7 mL | 20 uL | 41399 | 07/29/20 09:50 | SSS | TAL KNX |
| Total/NA | Analysis | 1668C | | 2 | | | 41630 | 08/05/20 16:32 | JMN | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 323777 | 07/31/20 08:03 | TJO | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 324024 | 08/01/20 21:24 | NAM | TAL PIT |
| | Instrument ID: DORY | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 323777 | 07/31/20 08:03 | TJO | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 324170 | 08/03/20 22:01 | NAM | TAL PIT |
| | Instrument ID: DORY | | | | | | | | | |
| Total/NA | Prep | 7470A | | | 50 mL | 50 mL | 323724 | 07/31/20 05:35 | RJR | TAL PIT |
| Total/NA | Analysis | EPA 7470A | | 1 | | | 324008 | 08/03/20 10:33 | RJR | TAL PIT |
| | Instrument ID: HGZ | | | | | | | | | |
| Total/NA | Analysis | SM 2540D | | 1 | 400 mL | 1000 mL | 323013 | 07/25/20 13:18 | AGP | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

**Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: AECOM
Job ID: 180-108704-1
Project/Site: Pepco Benning Road Facility

**Analyst References:**

Lab: TAL CAN
- Batch Type: Prep
  - MDH = Matthew Howell
- Batch Type: Analysis
  - LKG = Lucas Grossman

Lab: TAL KNX
- Batch Type: Prep
  - SSS = Samuel Stockton
- Batch Type: Analysis
  - JMN = Jon Nordquist
  - PMP = Trish Parsly

Lab: TAL PIT
- Batch Type: Prep
  - BJT = Bill Trout
  - RJR = Ron Rosenbaum
  - TJO = Tyler Oliver
- Batch Type: Analysis
  - AGP = Angela Partridge
  - NAM = Nicole Marfisi
  - RJR = Ron Rosenbaum
  - VVP = Vincent Piccolino

## Client Sample ID: OFW0100N

**Date Collected: 07/22/20 16:25**
**Date Received: 07/24/20 08:45**

## Lab Sample ID: 180-108704-1

**Matrix: Water**

### Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.15 | 0.052 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Acenaphthylene | ND | | 0.15 | 0.052 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Anthracene | ND | | 0.15 | 0.040 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Benzo[a]anthracene | ND | | 0.15 | 0.060 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Benzo[b]fluoranthene | ND | | 0.15 | 0.078 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Benzo[k]fluoranthene | ND | | 0.15 | 0.071 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Benzo[g,h,i]perylene | ND | | 0.15 | 0.056 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Benzo[a]pyrene | ND | | 0.15 | 0.043 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Chrysene | ND | | 0.15 | 0.065 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.15 | 0.058 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Fluoranthene | ND | | 0.15 | 0.048 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Fluorene | ND | | 0.15 | 0.056 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.15 | 0.069 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Naphthalene | ND | | 0.15 | 0.048 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| **Phenanthrene** | **0.061** | **J** | 0.15 | 0.044 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |
| Pyrene | ND | | 0.15 | 0.044 | ug/L | | 07/27/20 11:53 | 07/29/20 16:14 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *88* | | *23 - 105* | *07/27/20 11:53* | *07/29/20 16:14* | *1* |
| *Nitrobenzene-d5 (Surr)* | *81* | | *28 - 111* | *07/27/20 11:53* | *07/29/20 16:14* | *1* |
| *Terphenyl-d14 (Surr)* | *78* | | *20 - 126* | *07/27/20 11:53* | *07/29/20 16:14* | *1* |

### Method: 8015D - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Diesel Range Organics [C10 - C28]** | **1900** | | 500 | 230 | ug/L | | 07/28/20 06:30 | 07/29/20 19:12 | 1 |
| **ORO C24-C40** | **2800** | | 500 | 230 | ug/L | | 07/28/20 06:30 | 07/29/20 19:12 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *81* | | *52 - 121* | *07/28/20 06:30* | *07/29/20 19:12* | *1* |

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.088** | **B q** | 0.077 | 0.00066 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-2** | **0.015** | **J B** | 0.077 | 0.00078 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-3** | **0.052** | **J B** | 0.077 | 0.00089 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-4** | **0.020** | **J q** | 0.11 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-5 | ND | | 0.077 | 0.0029 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-6** | **0.0098** | **J q** | 0.077 | 0.0025 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-7 | ND | | 0.077 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-8** | **0.044** | **J** | 0.11 | 0.0023 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-9 | ND | | 0.077 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-10 | ND | | 0.077 | 0.0028 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-11** | **0.34** | **B** | 0.11 | 0.0025 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-12** | **0.0088** | **J C q** | 0.15 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-13** | **0.0088** | **J C12 q** | 0.15 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-14 | ND | | 0.077 | 0.0022 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-15** | **0.040** | **J** | 0.077 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-16** | **0.040** | **J** | 0.077 | 0.00094 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-17** | **0.028** | **J q** | 0.077 | 0.00084 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-18** | **0.073** | **J C** | 0.15 | 0.00074 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |

**Client Sample ID: OFW0100N**
**Date Collected: 07/22/20 16:25**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-1**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | 0.0070 | J | 0.077 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-20 | 0.17 | C B | 0.15 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-21 | 0.091 | J C B | 0.15 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-22 | 0.069 | J | 0.077 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-23 | ND | | 0.077 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-24 | 0.0019 | J | 0.077 | 0.00071 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-25 | 0.011 | J | 0.077 | 0.0016 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-26 | 0.024 | J C | 0.15 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-27 | 0.0058 | J | 0.077 | 0.00061 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-28 | 0.17 | B C20 | 0.15 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-29 | 0.024 | J C26 | 0.15 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-30 | 0.073 | J C18 | 0.15 | 0.00074 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-31 | 0.13 | B | 0.077 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-32 | 0.028 | J | 0.077 | 0.00059 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-33 | 0.091 | J B C21 | 0.15 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-34 | ND | | 0.077 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-35 | 0.012 | J B | 0.077 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-36 | ND | | 0.077 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-37 | 0.084 | B | 0.077 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-38 | ND | | 0.077 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-39 | ND | | 0.077 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-40 | 0.13 | J C | 0.23 | 0.0084 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-41 | 0.13 | J C40 | 0.23 | 0.0084 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-42 | 0.055 | J | 0.077 | 0.0084 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-43 | ND | C | 0.15 | 0.0079 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-44 | 0.27 | C B | 0.23 | 0.0074 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-45 | 0.032 | J C B | 0.15 | 0.0088 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-46 | 0.012 | J | 0.077 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-47 | 0.27 | B C44 | 0.23 | 0.0074 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-48 | 0.038 | J q | 0.077 | 0.0084 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-49 | 0.13 | J C | 0.15 | 0.0068 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-50 | 0.018 | J C q | 0.15 | 0.0081 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-51 | 0.032 | J C45 B | 0.15 | 0.0088 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-52 | 0.41 | | 0.077 | 0.0083 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-53 | 0.018 | J C50 q | 0.15 | 0.0081 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-54 | ND | | 0.077 | 0.00020 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-55 | 0.011 | J | 0.077 | 0.0061 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-56 | 0.17 | | 0.077 | 0.0061 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-57 | ND | | 0.077 | 0.0062 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-58 | ND | | 0.077 | 0.0063 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-59 | 0.017 | J C B | 0.23 | 0.0059 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-60 | 0.088 | | 0.077 | 0.0062 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-61 | 0.88 | C B | 0.31 | 0.0058 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-62 | 0.017 | J B C59 | 0.23 | 0.0059 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-63 | 0.0074 | J q | 0.077 | 0.0057 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-64 | 0.11 | | 0.077 | 0.0056 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-65 | 0.27 | B C44 | 0.23 | 0.0074 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-66 | 0.32 | | 0.077 | 0.0058 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-67 | 0.0088 | J q | 0.077 | 0.0054 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |

## Client Sample ID: OFW0100N

**Date Collected: 07/22/20 16:25**
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## Lab Sample ID: 180-108704-1

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | ND | | 0.077 | 0.0055 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-69** | **0.13** | **J C49** | 0.15 | 0.0068 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-70** | **0.88** | **C61 B** | 0.31 | 0.0058 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-71** | **0.13** | **J C40** | 0.23 | 0.0084 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-72 | ND | | 0.077 | 0.0061 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-73 | ND | C43 | 0.15 | 0.0079 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-74** | **0.88** | **C61 B** | 0.31 | 0.0058 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-75** | **0.017** | **J B C59** | 0.23 | 0.0059 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-76** | **0.88** | **C61 B** | 0.31 | 0.0058 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-77** | **0.13** | | 0.077 | 0.0061 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-78 | ND | | 0.077 | 0.0063 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-79** | **0.017** | **J q** | 0.077 | 0.0054 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-80 | ND | | 0.077 | 0.0053 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-81 | ND | | 0.077 | 0.0056 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-82** | **0.23** | **B** | 0.077 | 0.00054 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-83** | **0.77** | **C B** | 0.15 | 0.00050 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-84** | **0.33** | | 0.077 | 0.00055 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-85** | **0.27** | **C B** | 0.23 | 0.00040 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-86** | **1.1** | **C B** | 0.46 | 0.00040 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-87** | **1.1** | **B C86** | 0.46 | 0.00040 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-88** | **0.11** | **J C q** | 0.15 | 0.00049 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-89** | **0.0092** | **J q** | 0.077 | 0.00053 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-90** | **1.6** | **C B** | 0.23 | 0.00041 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-91** | **0.11** | **J C88 q** | 0.15 | 0.00049 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-92** | **0.23** | | 0.077 | 0.00046 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-93** | **0.0090** | **J C** | 0.15 | 0.00047 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-94** | **0.0025** | **J q** | 0.077 | 0.00053 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-95** | **0.89** | **B** | 0.077 | 0.00051 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-96** | **0.0034** | **J** | 0.077 | 0.00040 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-97** | **1.1** | **B C86** | 0.46 | 0.00040 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-98** | **0.022** | **J C** | 0.15 | 0.00046 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-99** | **0.77** | **C83 B** | 0.15 | 0.00050 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-100** | **0.0090** | **J C93** | 0.15 | 0.00047 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-101** | **1.6** | **B C90** | 0.23 | 0.00041 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-102** | **0.022** | **J C98** | 0.15 | 0.00046 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-103** | **0.0043** | **J** | 0.077 | 0.00047 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-104 | ND | | 0.077 | 0.00036 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-105** | **1.2** | **B** | 0.077 | 0.0088 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-106 | ND | | 0.077 | 0.0083 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-107** | **0.19** | **B q** | 0.077 | 0.0089 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-108** | **0.10** | **J C B q** | 0.15 | 0.0086 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-109** | **1.1** | **B C86** | 0.46 | 0.00040 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-110** | **2.0** | **C B** | 0.15 | 0.00034 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-111** | **0.0039** | **J B** | 0.077 | 0.00033 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-112** | **0.0020** | **J q** | 0.077 | 0.00035 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-113** | **1.6** | **B C90** | 0.23 | 0.00041 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-114** | **0.039** | **J B q** | 0.077 | 0.0076 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-115** | **2.0** | **B C110** | 0.15 | 0.00034 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| **PCB-116** | **0.27** | **C85 B** | 0.23 | 0.00040 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |

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**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-117 | 0.27 | C85 B | 0.23 | 0.00040 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-118 | 2.5 | B | 0.077 | 0.0067 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-119 | 1.1 | B C86 | 0.46 | 0.00040 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-120 | 0.0047 | J q | 0.077 | 0.00034 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-121 | ND | | 0.077 | 0.00035 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-122 | 0.038 | J B q | 0.077 | 0.0096 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-123 | 0.035 | J B | 0.077 | 0.0077 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-124 | 0.10 | J B q C108 | 0.15 | 0.0086 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-125 | 1.1 | B C86 | 0.46 | 0.00040 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-126 | 0.078 | B | 0.077 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-127 | ND | | 0.077 | 0.0083 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-128 | 0.76 | C B | 0.15 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-129 | 4.6 | C B | 0.31 | 0.029 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-130 | 0.28 | | 0.077 | 0.038 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-131 | 0.049 | J q | 0.077 | 0.040 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-132 | 1.4 | | 0.077 | 0.037 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-133 | 0.053 | J | 0.077 | 0.036 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-134 | 0.25 | C | 0.15 | 0.038 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-135 | 0.71 | C | 0.15 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-136 | 0.23 | | 0.077 | 0.00048 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-137 | 0.23 | q | 0.077 | 0.033 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-138 | 4.6 | B C129 | 0.31 | 0.029 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-139 | 0.066 | J C q | 0.15 | 0.032 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-140 | 0.066 | J C139 q | 0.15 | 0.032 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-141 | 0.97 | | 0.077 | 0.034 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-142 | ND | | 0.077 | 0.036 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-143 | 0.25 | C134 | 0.15 | 0.038 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-144 | 0.090 | | 0.077 | 0.00060 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-145 | ND | | 0.077 | 0.00046 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-146 | 0.55 | | 0.077 | 0.032 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-147 | 3.9 | C | 0.15 | 0.036 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-148 | 0.0022 | J q | 0.077 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-149 | 3.9 | C147 | 0.15 | 0.036 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-150 | ND | | 0.077 | 0.00044 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-151 | 0.71 | C135 | 0.15 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-152 | ND | | 0.077 | 0.00047 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-153 | 3.8 | C B | 0.15 | 0.025 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-154 | 0.015 | J | 0.077 | 0.00052 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-155 | ND | | 0.077 | 0.00044 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-156 | 0.57 | C B | 0.15 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-157 | 0.57 | C156 B | 0.15 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-158 | 0.51 | | 0.077 | 0.023 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-159 | 0.054 | J B | 0.077 | 0.024 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-160 | 4.6 | B C129 | 0.31 | 0.029 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-161 | ND | | 0.077 | 0.024 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-162 | 0.041 | J B q | 0.077 | 0.024 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-163 | 4.6 | B C129 | 0.31 | 0.029 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-164 | 0.28 | | 0.077 | 0.025 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-165 | ND | | 0.077 | 0.027 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |

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**Lab Sample ID: 180-108704-1**
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**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 0.76 | C128 B | 0.15 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-167 | 0.17 | B | 0.077 | 0.018 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-168 | 3.8 | B C153 | 0.15 | 0.025 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-169 | 0.051 | J B q | 0.077 | 0.021 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-170 | 1.3 | B | 0.077 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-171 | 0.27 | C B | 0.15 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-172 | 0.19 | | 0.077 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-173 | 0.27 | C171 B | 0.15 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-174 | 1.6 | B | 0.077 | 0.00094 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-175 | 0.036 | J q | 0.077 | 0.00091 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-176 | 0.17 | | 0.077 | 0.00069 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-177 | 0.68 | B | 0.077 | 0.00097 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-178 | 0.32 | | 0.077 | 0.00098 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-179 | 0.76 | | 0.077 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-180 | 3.0 | C B | 0.15 | 0.00076 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-181 | ND | | 0.077 | 0.00091 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-182 | ND | | 0.077 | 0.00087 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-183 | 1.0 | C B | 0.15 | 0.00089 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-184 | ND | | 0.077 | 0.00074 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-185 | 1.0 | B C183 | 0.15 | 0.00089 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-186 | ND | | 0.077 | 0.00072 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-187 | 1.9 | B | 0.077 | 0.00084 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-188 | ND | | 0.077 | 0.00055 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-189 | 0.032 | J B q | 0.077 | 0.0087 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-190 | 0.20 | B | 0.077 | 0.00066 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-191 | 0.039 | J B q | 0.077 | 0.00068 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-192 | ND | | 0.077 | 0.00076 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-193 | 3.0 | C180 B | 0.15 | 0.00076 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-194 | 1.2 | B | 0.077 | 0.012 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-195 | 0.41 | B | 0.077 | 0.013 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-196 | 0.58 | B | 0.077 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-197 | 0.036 | J B q | 0.077 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-198 | 1.4 | C B | 0.15 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-199 | 1.4 | C198 B | 0.15 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-200 | 0.14 | B | 0.077 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-201 | 0.16 | | 0.077 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-202 | 0.28 | | 0.077 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-203 | 0.79 | B | 0.077 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-204 | ND | | 0.077 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-205 | 0.052 | J B | 0.077 | 0.0098 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-206 | 0.44 | | 0.077 | 0.013 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-207 | 0.050 | J | 0.077 | 0.0091 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-208 | 0.083 | | 0.077 | 0.0092 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| PCB-209 | 0.023 | J B q | 0.077 | 0.0060 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| Total Monochlorobiphenyls | 0.16 | B q | 0.077 | 0.00078 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| Total Dichlorobiphenyls | 0.46 | B q | 0.15 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| Total Trichlorobiphenyls | 0.77 | B q | 0.15 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| Total Tetrachlorobiphenyls | 2.9 | B q | 0.31 | 0.0065 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| Total Pentachlorobiphenyls | 12 | B q | 0.46 | 0.0031 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |

## Client Sample ID: OFW0100N

**Date Collected: 07/22/20 16:25**
**Date Received: 07/24/20 08:45**

## Lab Sample ID: 180-108704-1

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Hexachlorobiphenyls | 20 | B q | 0.31 | 0.022 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| Total Heptachlorobiphenyls | 11 | B q | 0.15 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| Total Octachlorobiphenyls | 5.0 | B q | 0.15 | 0.0042 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| Total Nonachlorobiphenyls | 0.57 | | 0.077 | 0.010 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |
| Polychlorinated biphenyls, Total | 53 | B q | 0.46 | 0.0064 | ng/L | | 07/29/20 09:50 | 08/05/20 13:28 | 2 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *66* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-3L* | *68* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-4L* | *75* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-15L* | *79* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-19L* | *88* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-37L* | *83* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-54L* | *81* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-77L* | *62* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-81L* | *67* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-104L* | *80* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-105L* | *86* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-114L* | *99* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-118L* | *102* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-123L* | *103* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-126L* | *73* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-155L* | *78* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-156L* | *70* | *C* | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-157L* | *70* | *C156* | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-167L* | *75* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-169L* | *71* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-170L* | *73* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-188L* | *118* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-189L* | *80* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-202L* | *94* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-205L* | *68* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-206L* | *61* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-208L* | *70* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-209L* | *66* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *98* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-111L* | *70* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |
| *PCB-178L* | *117* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 13:28* | *2* |

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 570 | | 30 | 13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Arsenic | 0.99 | J | 1.0 | 0.31 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Barium | 19 | | 10 | 1.6 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Cadmium | 0.27 | J | 1.0 | 0.22 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Calcium | 11000 | B | 500 | 130 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Chromium | 3.6 | | 2.0 | 1.5 | ug/L | | 07/31/20 08:03 | 08/03/20 21:40 | 1 |
| Cobalt | 0.89 | | 0.50 | 0.13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-108704-1

**Client Sample ID: OFW0100N**
**Date Collected: 07/22/20 16:25**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-1**
**Matrix: Water**

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Copper | 17 | | 2.0 | 0.63 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Iron | 1500 | | 50 | 20 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Silver | ND | | 1.0 | 0.18 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Potassium | 3200 | | 500 | 160 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Magnesium | 1100 | | 500 | 83 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Manganese | 36 | | 5.0 | 0.87 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Sodium | 5000 | | 500 | 350 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Nickel | 3.0 | | 1.0 | 0.34 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Lead | 9.7 | | 1.0 | 0.13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Antimony | 1.2 | J | 2.0 | 0.38 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Vanadium | 4.0 | | 1.0 | 0.99 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |
| Zinc | 110 | B | 5.0 | 3.2 | ug/L | | 07/31/20 08:03 | 08/01/20 21:10 | 1 |

### Method: EPA 7470A - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 07/31/20 05:35 | 08/03/20 10:29 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 33 | | 0.83 | 0.83 | mg/L | | | 07/25/20 13:18 | 1 |

## Client Sample ID: OFW0100R

**Date Collected: 07/22/20 16:30**
**Date Received: 07/24/20 08:45**

## Lab Sample ID: 180-108704-2

**Matrix: Water**

### Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.16 | 0.054 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Acenaphthylene | ND | | 0.16 | 0.054 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Anthracene | ND | | 0.16 | 0.041 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Benzo[a]anthracene | ND | | 0.16 | 0.063 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Benzo[b]fluoranthene | ND | | 0.16 | 0.081 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Benzo[k]fluoranthene | ND | | 0.16 | 0.073 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Benzo[g,h,i]perylene | ND | | 0.16 | 0.058 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Benzo[a]pyrene | ND | | 0.16 | 0.044 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Chrysene | ND | | 0.16 | 0.068 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.16 | 0.060 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Fluoranthene | ND | | 0.16 | 0.050 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Fluorene | ND | | 0.16 | 0.058 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.16 | 0.071 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Naphthalene | ND | | 0.16 | 0.049 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| **Phenanthrene** | **0.058** | **J** | 0.16 | 0.046 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |
| Pyrene | ND | | 0.16 | 0.045 | ug/L | | 07/27/20 11:57 | 07/29/20 16:40 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *54* | | *23 - 105* | *07/27/20 11:57* | *07/29/20 16:40* | *1* |
| *Nitrobenzene-d5 (Surr)* | *57* | | *28 - 111* | *07/27/20 11:57* | *07/29/20 16:40* | *1* |
| *Terphenyl-d14 (Surr)* | *33* | | *20 - 126* | *07/27/20 11:57* | *07/29/20 16:40* | *1* |

### Method: 8015D - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Diesel Range Organics [C10 - C28]** | **1800** | | 520 | 240 | ug/L | | 07/28/20 06:30 | 07/29/20 19:39 | 1 |
| **ORO C24-C40** | **2700** | | 520 | 240 | ug/L | | 07/28/20 06:30 | 07/29/20 19:39 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *79* | | *52 - 121* | *07/28/20 06:30* | *07/29/20 19:39* | *1* |

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.10** | **B** | 0.078 | 0.00070 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-2** | **0.014** | **J B** | 0.078 | 0.00076 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-3** | **0.053** | **J B** | 0.078 | 0.00077 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-4** | **0.018** | **J** | 0.12 | 0.0032 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-5** | **0.0028** | **J q** | 0.078 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-6** | **0.010** | **J q** | 0.078 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-7 | ND | | 0.078 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-8** | **0.048** | **J** | 0.12 | 0.0022 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-9** | **0.0035** | **J q** | 0.078 | 0.0025 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-10 | ND | | 0.078 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-11** | **0.38** | **B** | 0.12 | 0.0023 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-12** | **0.015** | **J C** | 0.16 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-13** | **0.015** | **J C12** | 0.16 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-14 | ND | | 0.078 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-15** | **0.047** | **J** | 0.078 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-16** | **0.042** | **J** | 0.078 | 0.00093 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-17** | **0.034** | **J** | 0.078 | 0.00083 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-18** | **0.081** | **J C** | 0.16 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-108704-1

**Client Sample ID: OFW0100R**
**Date Collected: 07/22/20 16:30**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-2**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | 0.0068 | J q | 0.078 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-20 | 0.18 | C B | 0.16 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-21 | 0.11 | J C B | 0.16 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-22 | 0.076 | J | 0.078 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-23 | ND | | 0.078 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-24 | 0.0015 | J q | 0.078 | 0.00070 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-25 | 0.011 | J | 0.078 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-26 | 0.027 | J C | 0.16 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-27 | 0.0055 | J q | 0.078 | 0.00061 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-28 | 0.18 | B C20 | 0.16 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-29 | 0.027 | J C26 | 0.16 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-30 | 0.081 | J C18 | 0.16 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-31 | 0.15 | B | 0.078 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-32 | 0.028 | J | 0.078 | 0.00058 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-33 | 0.11 | J B C21 | 0.16 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-34 | ND | | 0.078 | 0.0021 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-35 | 0.011 | J B q | 0.078 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-36 | ND | | 0.078 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-37 | 0.092 | B | 0.078 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-38 | ND | | 0.078 | 0.0021 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-39 | ND | | 0.078 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-40 | 0.20 | J C | 0.23 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-41 | 0.20 | J C40 | 0.23 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-42 | 0.076 | J | 0.078 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-43 | ND | C | 0.16 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-44 | 0.40 | C B | 0.23 | 0.0099 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-45 | 0.043 | J C B | 0.16 | 0.012 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-46 | 0.018 | J | 0.078 | 0.014 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-47 | 0.40 | B C44 | 0.23 | 0.0099 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-48 | 0.057 | J | 0.078 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-49 | 0.19 | C | 0.16 | 0.0092 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-50 | 0.030 | J C | 0.16 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-51 | 0.043 | J C45 B | 0.16 | 0.012 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-52 | 0.62 | | 0.078 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-53 | 0.030 | J C50 | 0.16 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-54 | ND | | 0.078 | 0.00026 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-55 | 0.013 | J q | 0.078 | 0.0082 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-56 | 0.23 | | 0.078 | 0.0082 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-57 | ND | | 0.078 | 0.0083 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-58 | ND | | 0.078 | 0.0084 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-59 | 0.026 | J C B | 0.23 | 0.0079 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-60 | 0.13 | | 0.078 | 0.0083 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-61 | 1.4 | C B | 0.31 | 0.0078 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-62 | 0.026 | J B C59 | 0.23 | 0.0079 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-63 | 0.013 | J q | 0.078 | 0.0076 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-64 | 0.17 | | 0.078 | 0.0075 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-65 | 0.40 | B C44 | 0.23 | 0.0099 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-66 | 0.47 | | 0.078 | 0.0078 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-67 | 0.012 | J | 0.078 | 0.0072 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |

**Client Sample ID: OFW0100R**
**Date Collected: 07/22/20 16:30**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-2**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | ND | | 0.078 | 0.0073 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-69** | **0.19** | **C49** | 0.16 | 0.0092 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-70** | **1.4** | **C61 B** | 0.31 | 0.0078 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-71** | **0.20** | **J C40** | 0.23 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-72 | ND | | 0.078 | 0.0081 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-73 | ND | C43 | 0.16 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-74** | **1.4** | **C61 B** | 0.31 | 0.0078 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-75** | **0.026** | **J B C59** | 0.23 | 0.0079 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-76** | **1.4** | **C61 B** | 0.31 | 0.0078 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-77** | **0.17** | | 0.078 | 0.0082 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-78 | ND | | 0.078 | 0.0084 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-79** | **0.020** | **J** | 0.078 | 0.0073 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-80 | ND | | 0.078 | 0.0071 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-81 | ND | | 0.078 | 0.0074 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-82** | **0.22** | **B** | 0.078 | 0.00080 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-83** | **0.77** | **C B** | 0.16 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-84** | **0.38** | | 0.078 | 0.00081 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-85** | **0.26** | **C B** | 0.23 | 0.00059 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-86** | **1.2** | **C B** | 0.47 | 0.00060 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-87** | **1.2** | **B C86** | 0.47 | 0.00060 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-88** | **0.15** | **J C** | 0.16 | 0.00072 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-89** | **0.013** | **J** | 0.078 | 0.00078 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-90** | **1.7** | **C B** | 0.23 | 0.00061 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-91** | **0.15** | **J C88** | 0.16 | 0.00072 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-92** | **0.27** | | 0.078 | 0.00069 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-93** | **0.0063** | **J C q** | 0.16 | 0.00069 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-94 | ND | | 0.078 | 0.00078 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-95** | **1.1** | **B** | 0.078 | 0.00076 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-96** | **0.0037** | **J q** | 0.078 | 0.00059 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-97** | **1.2** | **B C86** | 0.47 | 0.00060 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-98** | **0.026** | **J C q** | 0.16 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-99** | **0.77** | **C83 B** | 0.16 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-100** | **0.0063** | **J C93 q** | 0.16 | 0.00069 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-101** | **1.7** | **B C90** | 0.23 | 0.00061 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-102** | **0.026** | **J C98 q** | 0.16 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-103 | ND | | 0.078 | 0.00069 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-104 | ND | | 0.078 | 0.00053 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-105** | **1.5** | **B** | 0.078 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-106 | ND | | 0.078 | 0.010 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-107** | **0.27** | **B** | 0.078 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-108** | **0.14** | **J C B** | 0.16 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-109** | **1.2** | **B C86** | 0.47 | 0.00060 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-110** | **1.9** | **C B** | 0.16 | 0.00050 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-111 | ND | | 0.078 | 0.00049 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-112** | **0.0068** | **J q** | 0.078 | 0.00051 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-113** | **1.7** | **B C90** | 0.23 | 0.00061 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-114** | **0.071** | **J B** | 0.078 | 0.0094 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-115** | **1.9** | **B C110** | 0.16 | 0.00050 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| **PCB-116** | **0.26** | **C85 B** | 0.23 | 0.00059 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |

**Client Sample ID: OFW0100R**
**Date Collected: 07/22/20 16:30**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-2**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-117 | 0.26 | C85 B | 0.23 | 0.00059 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-118 | 3.2 | B | 0.078 | 0.0088 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-119 | 1.2 | B C86 | 0.47 | 0.00060 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-120 | ND | | 0.078 | 0.00050 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-121 | ND | | 0.078 | 0.00051 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-122 | 0.050 | J B q | 0.078 | 0.012 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-123 | 0.027 | J B q | 0.078 | 0.0098 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-124 | 0.14 | J B C108 | 0.16 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-125 | 1.2 | B C86 | 0.47 | 0.00060 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-126 | 0.076 | J B | 0.078 | 0.014 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-127 | ND | | 0.078 | 0.010 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-128 | 1.0 | C B | 0.16 | 0.041 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-129 | 6.2 | C B | 0.31 | 0.043 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-130 | 0.38 | | 0.078 | 0.056 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-131 | 0.071 | J | 0.078 | 0.059 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-132 | 1.8 | | 0.078 | 0.055 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-133 | 0.056 | J | 0.078 | 0.053 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-134 | 0.29 | C | 0.16 | 0.056 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-135 | 0.76 | C | 0.16 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-136 | 0.28 | | 0.078 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-137 | 0.30 | | 0.078 | 0.048 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-138 | 6.2 | B C129 | 0.31 | 0.043 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-139 | 0.069 | J C q | 0.16 | 0.047 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-140 | 0.069 | J C139 q | 0.16 | 0.047 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-141 | 1.3 | | 0.078 | 0.050 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-142 | ND | | 0.078 | 0.053 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-143 | 0.29 | C134 | 0.16 | 0.056 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-144 | 0.087 | | 0.078 | 0.0016 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-145 | ND | | 0.078 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-146 | 0.69 | | 0.078 | 0.047 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-147 | 4.8 | C | 0.16 | 0.054 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-148 | ND | | 0.078 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-149 | 4.8 | C147 | 0.16 | 0.054 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-150 | 0.0023 | J q | 0.078 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-151 | 0.76 | C135 | 0.16 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-152 | 0.0035 | J | 0.078 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-153 | 4.9 | C B | 0.16 | 0.037 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-154 | 0.010 | J q | 0.078 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-155 | ND | | 0.078 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-156 | 0.73 | C B | 0.16 | 0.040 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-157 | 0.73 | C156 B | 0.16 | 0.040 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-158 | 0.64 | | 0.078 | 0.034 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-159 | 0.065 | J B q | 0.078 | 0.035 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-160 | 6.2 | B C129 | 0.31 | 0.043 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-161 | ND | | 0.078 | 0.035 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-162 | 0.065 | J B | 0.078 | 0.035 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-163 | 6.2 | B C129 | 0.31 | 0.043 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-164 | 0.41 | | 0.078 | 0.037 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-165 | ND | | 0.078 | 0.040 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-108704-1

**Client Sample ID: OFW0100R**
**Date Collected: 07/22/20 16:30**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-2**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 1.0 | C128 B | 0.16 | 0.041 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-167 | 0.23 | B | 0.078 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-168 | 4.9 | B C153 | 0.16 | 0.037 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-169 | 0.10 | B q | 0.078 | 0.031 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-170 | 1.7 | B | 0.078 | 0.0085 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-171 | 0.37 | C B | 0.16 | 0.0068 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-172 | 0.26 | | 0.078 | 0.0067 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-173 | 0.37 | C171 B | 0.16 | 0.0068 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-174 | 2.1 | B | 0.078 | 0.0063 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-175 | 0.073 | J | 0.078 | 0.0061 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-176 | 0.22 | | 0.078 | 0.0046 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-177 | 0.90 | B | 0.078 | 0.0065 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-178 | 0.41 | | 0.078 | 0.0066 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-179 | 1.0 | | 0.078 | 0.0049 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-180 | 4.1 | C B | 0.16 | 0.0051 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-181 | ND | | 0.078 | 0.0061 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-182 | ND | | 0.078 | 0.0059 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-183 | 1.3 | C B | 0.16 | 0.0060 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-184 | ND | | 0.078 | 0.0050 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-185 | 1.3 | B C183 | 0.16 | 0.0060 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-186 | ND | | 0.078 | 0.0049 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-187 | 2.6 | B | 0.078 | 0.0057 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-188 | ND | | 0.078 | 0.0039 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-189 | 0.080 | B | 0.078 | 0.036 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-190 | 0.25 | B | 0.078 | 0.0044 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-191 | 0.049 | J B q | 0.078 | 0.0046 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-192 | ND | | 0.078 | 0.0051 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-193 | 4.1 | C180 B | 0.16 | 0.0051 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-194 | 1.4 | B | 0.078 | 0.023 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-195 | 0.17 | B | 0.078 | 0.025 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-196 | 0.79 | B | 0.078 | 0.0093 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-197 | 0.076 | J B | 0.078 | 0.0071 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-198 | 1.9 | C B | 0.16 | 0.0094 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-199 | 1.9 | C198 B | 0.16 | 0.0094 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-200 | 0.20 | B | 0.078 | 0.0063 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-201 | 0.24 | | 0.078 | 0.0065 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-202 | 0.37 | | 0.078 | 0.0073 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-203 | 1.1 | B | 0.078 | 0.0084 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-204 | ND | | 0.078 | 0.0071 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-205 | 0.061 | J B | 0.078 | 0.020 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-206 | 0.54 | | 0.078 | 0.017 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-207 | 0.059 | J | 0.078 | 0.019 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-208 | 0.11 | | 0.078 | 0.032 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| PCB-209 | 0.024 | J B q | 0.078 | 0.0064 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| Total Monochlorobiphenyls | 0.17 | B | 0.078 | 0.00074 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| Total Dichlorobiphenyls | 0.52 | B q | 0.16 | 0.0025 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| Total Trichlorobiphenyls | 0.86 | B q | 0.16 | 0.0016 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| Total Tetrachlorobiphenyls | 4.3 | B q | 0.31 | 0.0087 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| Total Pentachlorobiphenyls | 13 | B q | 0.47 | 0.0039 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |

## Client Sample ID: OFW0100R
**Date Collected: 07/22/20 16:30**
**Date Received: 07/24/20 08:45**

## Lab Sample ID: 180-108704-2
**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Hexachlorobiphenyls | 25 | B q | 0.31 | 0.032 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| Total Heptachlorobiphenyls | 15 | B q | 0.16 | 0.0071 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| Total Octachlorobiphenyls | 6.3 | B | 0.16 | 0.012 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| Total Nonachlorobiphenyls | 0.71 | | 0.078 | 0.023 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |
| Polychlorinated biphenyls, Total | 67 | B q | 0.47 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 14:29 | 2 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *72* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-3L* | *76* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-4L* | *80* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-15L* | *81* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-19L* | *92* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-37L* | *85* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-54L* | *85* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-77L* | *49* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-81L* | *56* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-104L* | *96* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-105L* | *92* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-114L* | *103* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-118L* | *102* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-123L* | *106* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-126L* | *78* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-155L* | *81* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-156L* | *72* | *C* | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-157L* | *72* | *C156* | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-167L* | *75* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-169L* | *70* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-170L* | *78* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-188L* | *117* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-189L* | *31* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-202L* | *89* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-205L* | *82* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-206L* | *84* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-208L* | *32* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-209L* | *79* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *103* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-111L* | *62* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |
| *PCB-178L* | *115* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 14:29* | *2* |

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 710 | | 30 | 13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Arsenic | 1.1 | | 1.0 | 0.31 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Barium | 20 | | 10 | 1.6 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Cadmium | 0.23 | J | 1.0 | 0.22 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Calcium | 11000 | B | 500 | 130 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Chromium | 3.5 | | 2.0 | 1.5 | ug/L | | 07/31/20 08:03 | 08/03/20 21:44 | 1 |
| Cobalt | 0.98 | | 0.50 | 0.13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-108704-1

**Client Sample ID: OFW0100R**
**Date Collected: 07/22/20 16:30**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-2**
**Matrix: Water**

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Copper | 17 | | 2.0 | 0.63 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Iron | 1700 | | 50 | 20 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Silver | ND | | 1.0 | 0.18 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Potassium | 3300 | | 500 | 160 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Magnesium | 1200 | | 500 | 83 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Manganese | 37 | | 5.0 | 0.87 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Sodium | 4900 | | 500 | 350 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Nickel | 3.1 | | 1.0 | 0.34 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Lead | 11 | | 1.0 | 0.13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Antimony | 1.1 | J | 2.0 | 0.38 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Vanadium | 4.3 | | 1.0 | 0.99 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |
| Zinc | 130 | B | 5.0 | 3.2 | ug/L | | 07/31/20 08:03 | 08/01/20 21:14 | 1 |

### Method: EPA 7470A - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 07/31/20 05:35 | 08/03/20 10:30 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 31 | | 1.1 | 1.1 | mg/L | | | 07/25/20 13:18 | 1 |

## Client Sample ID: OFW0200N

**Date Collected: 07/22/20 16:40**
**Date Received: 07/24/20 08:45**

## Lab Sample ID: 180-108704-3

**Matrix: Water**

### Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.16 | 0.056 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Acenaphthylene | ND | | 0.16 | 0.056 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Anthracene | ND | | 0.16 | 0.042 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Benzo[a]anthracene | ND | | 0.16 | 0.065 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Benzo[b]fluoranthene | ND | | 0.16 | 0.084 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Benzo[k]fluoranthene | ND | | 0.16 | 0.076 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Benzo[g,h,i]perylene | ND | | 0.16 | 0.059 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Benzo[a]pyrene | ND | | 0.16 | 0.046 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Chrysene | ND | | 0.16 | 0.070 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.16 | 0.062 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| **Fluoranthene** | **0.088** | **J** | 0.16 | 0.052 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Fluorene | ND | | 0.16 | 0.059 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.16 | 0.073 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Naphthalene | ND | | 0.16 | 0.051 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| **Phenanthrene** | **0.071** | **J** | 0.16 | 0.047 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |
| Pyrene | ND | | 0.16 | 0.047 | ug/L | | 07/27/20 11:57 | 07/29/20 17:05 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *63* | | *23 - 105* | *07/27/20 11:57* | *07/29/20 17:05* | *1* |
| *Nitrobenzene-d5 (Surr)* | *66* | | *28 - 111* | *07/27/20 11:57* | *07/29/20 17:05* | *1* |
| *Terphenyl-d14 (Surr)* | *56* | | *20 - 126* | *07/27/20 11:57* | *07/29/20 17:05* | *1* |

### Method: 8015D - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Diesel Range Organics [C10 - C28]** | **840** | | 520 | 240 | ug/L | | 07/28/20 06:30 | 07/29/20 20:07 | 1 |
| **ORO C24-C40** | **1000** | | 520 | 240 | ug/L | | 07/28/20 06:30 | 07/29/20 20:07 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *78* | | *52 - 121* | *07/28/20 06:30* | *07/29/20 20:07* | *1* |

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.014** | **J q B** | 0.079 | 0.00061 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-2** | **0.0051** | **J B** | 0.079 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-3** | **0.0087** | **J q B** | 0.079 | 0.00068 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-4** | **0.024** | **J q** | 0.12 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-5 | ND | | 0.079 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-6** | **0.0063** | **J q** | 0.079 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-7 | ND | | 0.079 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-8** | **0.033** | **J** | 0.12 | 0.0016 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-9 | ND | | 0.079 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-10 | ND | | 0.079 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-11** | **0.45** | **B** | 0.12 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-12** | **0.011** | **J C** | 0.16 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-13** | **0.011** | **J C12** | 0.16 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-14 | ND | | 0.079 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-15** | **0.058** | **J** | 0.079 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-16** | **0.018** | **J q** | 0.079 | 0.00091 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-17** | **0.021** | **J q** | 0.079 | 0.00082 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-18** | **0.036** | **J q C** | 0.16 | 0.00072 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |

**Client Sample ID: OFW0200N**
**Date Collected: 07/22/20 16:40**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-3**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | 0.0078 | J | 0.079 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-20 | 0.18 | C B | 0.16 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-21 | 0.049 | J C B | 0.16 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-22 | 0.059 | J | 0.079 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-23 | ND | | 0.079 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-24 | 0.0011 | J | 0.079 | 0.00069 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-25 | 0.010 | J | 0.079 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-26 | 0.018 | J C | 0.16 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-27 | 0.0033 | J q | 0.079 | 0.00060 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-28 | 0.18 | C20 B | 0.16 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-29 | 0.018 | J C26 | 0.16 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-30 | 0.036 | J q C18 | 0.16 | 0.00072 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-31 | 0.10 | B | 0.079 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-32 | 0.025 | J | 0.079 | 0.00057 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-33 | 0.049 | J C21 B | 0.16 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-34 | ND | | 0.079 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-35 | 0.028 | J B | 0.079 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-36 | ND | | 0.079 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-37 | 0.089 | B | 0.079 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-38 | ND | | 0.079 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-39 | ND | | 0.079 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-40 | 0.077 | J C | 0.24 | 0.0038 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-41 | 0.077 | J C40 | 0.24 | 0.0038 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-42 | 0.031 | J | 0.079 | 0.0038 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-43 | ND | C | 0.16 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-44 | 0.13 | J C B | 0.24 | 0.0033 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-45 | 0.024 | J C B | 0.16 | 0.0040 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-46 | 0.0083 | J | 0.079 | 0.0048 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-47 | 0.13 | J C44 B | 0.24 | 0.0033 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-48 | 0.016 | J | 0.079 | 0.0038 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-49 | 0.069 | J C | 0.16 | 0.0031 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-50 | 0.014 | J C | 0.16 | 0.0037 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-51 | 0.024 | J C45 B | 0.16 | 0.0040 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-52 | 0.16 | | 0.079 | 0.0037 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-53 | 0.014 | J C50 | 0.16 | 0.0037 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-54 | 0.0018 | J | 0.079 | 0.00036 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-55 | 0.0047 | J q | 0.079 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-56 | 0.078 | J | 0.079 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-57 | ND | | 0.079 | 0.0028 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-58 | ND | | 0.079 | 0.0028 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-59 | 0.011 | J C B | 0.24 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-60 | 0.040 | J | 0.079 | 0.0028 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-61 | 0.28 | J C B | 0.32 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-62 | 0.011 | J C59 B | 0.24 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-63 | 0.0036 | J q | 0.079 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-64 | 0.061 | J | 0.079 | 0.0025 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-65 | 0.13 | J C44 B | 0.24 | 0.0033 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-66 | 0.16 | | 0.079 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-67 | 0.0046 | J q | 0.079 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |

**Client Sample ID: OFW0200N**
**Date Collected: 07/22/20 16:40**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-3**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | ND | | 0.079 | 0.0025 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-69** | **0.069** | **J C49** | 0.16 | 0.0031 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-70** | **0.28** | **J C61 B** | 0.32 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-71** | **0.077** | **J C40** | 0.24 | 0.0038 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-72 | ND | | 0.079 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-73 | ND | C43 | 0.16 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-74** | **0.28** | **J C61 B** | 0.32 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-75** | **0.011** | **J C59 B** | 0.24 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-76** | **0.28** | **J C61 B** | 0.32 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-77** | **0.048** | **J** | 0.079 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-78 | ND | | 0.079 | 0.0028 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-79** | **0.0035** | **J q** | 0.079 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-80 | ND | | 0.079 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-81 | ND | | 0.079 | 0.0025 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-82** | **0.068** | **J B** | 0.079 | 0.00086 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-83** | **0.24** | **C B** | 0.16 | 0.00079 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-84** | **0.095** | **q** | 0.079 | 0.00087 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-85** | **0.088** | **J C B** | 0.24 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-86** | **0.38** | **J C B** | 0.47 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-87** | **0.38** | **J C86 B** | 0.47 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-88** | **0.052** | **J C** | 0.16 | 0.00078 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-89** | **0.0047** | **J q** | 0.079 | 0.00085 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-90** | **0.47** | **C B** | 0.24 | 0.00065 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-91** | **0.052** | **J C88** | 0.16 | 0.00078 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-92** | **0.075** | **J** | 0.079 | 0.00074 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-93** | **0.0048** | **J q C** | 0.16 | 0.00075 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-94** | **0.0018** | **J q** | 0.079 | 0.00085 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-95** | **0.32** | **B** | 0.079 | 0.00082 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-96** | **0.0029** | **J** | 0.079 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-97** | **0.38** | **J C86 B** | 0.47 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-98** | **0.010** | **J C** | 0.16 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-99** | **0.24** | **C83 B** | 0.16 | 0.00079 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-100** | **0.0048** | **J q C93** | 0.16 | 0.00075 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-101** | **0.47** | **C90 B** | 0.24 | 0.00065 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-102** | **0.010** | **J C98** | 0.16 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-103 | ND | | 0.079 | 0.00075 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-104 | ND | | 0.079 | 0.00057 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-105** | **0.27** | **B** | 0.079 | 0.0029 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-106 | ND | | 0.079 | 0.0030 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-107** | **0.043** | **J B** | 0.079 | 0.0032 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-108** | **0.026** | **J C B** | 0.16 | 0.0031 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-109** | **0.38** | **J C86 B** | 0.47 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-110** | **0.64** | **C B** | 0.16 | 0.00054 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-111 | ND | | 0.079 | 0.00053 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-112 | ND | | 0.079 | 0.00055 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-113** | **0.47** | **C90 B** | 0.24 | 0.00065 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-114** | **0.011** | **J q B** | 0.079 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-115** | **0.64** | **C110 B** | 0.16 | 0.00054 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| **PCB-116** | **0.088** | **J C85 B** | 0.24 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-108704-1

**Client Sample ID: OFW0200N**
**Date Collected: 07/22/20 16:40**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-3**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-117 | 0.088 | J C85 B | 0.24 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-118 | 0.58 | B | 0.079 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-119 | 0.38 | J C86 B | 0.47 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-120 | ND | | 0.079 | 0.00053 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-121 | ND | | 0.079 | 0.00055 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-122 | 0.0095 | J q B | 0.079 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-123 | 0.012 | J B | 0.079 | 0.0029 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-124 | 0.026 | J C108 B | 0.16 | 0.0031 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-125 | 0.38 | J C86 B | 0.47 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-126 | 0.0091 | J q B | 0.079 | 0.0036 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-127 | ND | | 0.079 | 0.0030 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-128 | 0.19 | C B | 0.16 | 0.0067 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-129 | 1.4 | C B | 0.32 | 0.0069 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-130 | 0.071 | J q | 0.079 | 0.0091 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-131 | ND | | 0.079 | 0.0095 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-132 | 0.43 | | 0.079 | 0.0089 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-133 | ND | | 0.079 | 0.0086 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-134 | 0.056 | J C | 0.16 | 0.0090 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-135 | 0.33 | C | 0.16 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-136 | 0.10 | | 0.079 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-137 | 0.043 | J | 0.079 | 0.0077 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-138 | 1.4 | C129 B | 0.32 | 0.0069 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-139 | 0.015 | J q C | 0.16 | 0.0076 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-140 | 0.015 | J q C139 | 0.16 | 0.0076 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-141 | 0.32 | | 0.079 | 0.0080 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-142 | ND | | 0.079 | 0.0085 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-143 | 0.056 | J C134 | 0.16 | 0.0090 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-144 | 0.042 | J | 0.079 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-145 | ND | | 0.079 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-146 | 0.19 | | 0.079 | 0.0076 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-147 | 1.2 | C | 0.16 | 0.0087 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-148 | ND | | 0.079 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-149 | 1.2 | C147 | 0.16 | 0.0087 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-150 | ND | | 0.079 | 0.00098 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-151 | 0.33 | C135 | 0.16 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-152 | ND | | 0.079 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-153 | 1.2 | C B | 0.16 | 0.0060 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-154 | 0.0077 | J q | 0.079 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-155 | ND | | 0.079 | 0.00098 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-156 | 0.13 | J C B | 0.16 | 0.0070 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-157 | 0.13 | J C156 B | 0.16 | 0.0070 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-158 | 0.14 | | 0.079 | 0.0054 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-159 | 0.013 | J B | 0.079 | 0.0057 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-160 | 1.4 | C129 B | 0.32 | 0.0069 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-161 | ND | | 0.079 | 0.0057 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-162 | ND | | 0.079 | 0.0056 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-163 | 1.4 | C129 B | 0.32 | 0.0069 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-164 | 0.095 | | 0.079 | 0.0060 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-165 | ND | | 0.079 | 0.0065 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |

**Client Sample ID: OFW0200N**
**Date Collected: 07/22/20 16:40**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-3**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 0.19 | C128 B | 0.16 | 0.0067 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-167 | 0.052 | J B | 0.079 | 0.0041 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-168 | 1.2 | C153 B | 0.16 | 0.0060 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-169 | ND | | 0.079 | 0.0050 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-170 | 0.48 | B | 0.079 | 0.0040 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-171 | 0.11 | J C B | 0.16 | 0.0030 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-172 | 0.077 | J | 0.079 | 0.0030 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-173 | 0.11 | J C171 B | 0.16 | 0.0030 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-174 | 0.49 | B | 0.079 | 0.0028 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-175 | 0.021 | J | 0.079 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-176 | 0.059 | J | 0.079 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-177 | 0.25 | B | 0.079 | 0.0029 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-178 | 0.11 | | 0.079 | 0.0029 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-179 | 0.21 | | 0.079 | 0.0022 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-180 | 0.93 | C B | 0.16 | 0.0023 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-181 | ND | | 0.079 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-182 | 0.0066 | J q | 0.079 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-183 | 0.33 | C B | 0.16 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-184 | ND | | 0.079 | 0.0022 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-185 | 0.33 | C183 B | 0.16 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-186 | ND | | 0.079 | 0.0022 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-187 | 0.59 | B | 0.079 | 0.0025 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-188 | ND | | 0.079 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-189 | 0.016 | J B | 0.079 | 0.0048 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-190 | 0.067 | J B | 0.079 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-191 | 0.013 | J q B | 0.079 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-192 | ND | | 0.079 | 0.0023 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-193 | 0.93 | C180 B | 0.16 | 0.0023 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-194 | 0.38 | B | 0.079 | 0.015 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-195 | 0.16 | B | 0.079 | 0.016 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-196 | 0.18 | B | 0.079 | 0.0052 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-197 | 0.016 | J q B | 0.079 | 0.0040 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-198 | 0.55 | C B | 0.16 | 0.0053 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-199 | 0.55 | C198 B | 0.16 | 0.0053 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-200 | 0.040 | J B | 0.079 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-201 | 0.064 | J | 0.079 | 0.0036 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-202 | 0.12 | | 0.079 | 0.0040 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-203 | 0.33 | B | 0.079 | 0.0047 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-204 | ND | | 0.079 | 0.0040 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-205 | 0.025 | J B | 0.079 | 0.012 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-206 | 0.85 | | 0.079 | 0.0084 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-207 | 0.073 | J | 0.079 | 0.0056 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-208 | 0.24 | | 0.079 | 0.0055 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| PCB-209 | 0.17 | B | 0.079 | 0.0040 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| Total Monochlorobiphenyls | 0.028 | J q B | 0.079 | 0.00065 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| Total Dichlorobiphenyls | 0.58 | q B | 0.16 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| Total Trichlorobiphenyls | 0.65 | q B | 0.16 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| Total Tetrachlorobiphenyls | 1.2 | q B | 0.32 | 0.0029 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| Total Pentachlorobiphenyls | 3.4 | q B | 0.47 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |

## Client Sample ID: OFW0200N

**Date Collected: 07/22/20 16:40**
**Date Received: 07/24/20 08:45**

## Lab Sample ID: 180-108704-3

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Hexachlorobiphenyls | 6.0 | q B | 0.32 | 0.0054 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| Total Heptachlorobiphenyls | 3.8 | q B | 0.16 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| Total Octachlorobiphenyls | 1.9 | q B | 0.16 | 0.0071 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| Total Nonachlorobiphenyls | 1.2 | | 0.079 | 0.0065 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |
| Polychlorinated biphenyls, Total | 19 | q B | 0.47 | 0.0037 | ng/L | | 07/29/20 09:50 | 08/05/20 15:31 | 2 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *61* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-3L* | *67* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-4L* | *76* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-15L* | *81* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-19L* | *92* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-37L* | *92* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-54L* | *89* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-77L* | *84* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-81L* | *86* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-104L* | *80* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-105L* | *93* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-114L* | *94* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-118L* | *93* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-123L* | *93* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-126L* | *75* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-155L* | *84* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-156L* | *72* | *C* | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-157L* | *72* | *C156* | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-167L* | *79* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-169L* | *66* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-170L* | *78* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-188L* | *124* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-189L* | *106* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-202L* | *103* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-205L* | *75* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-206L* | *85* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-208L* | *100* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-209L* | *89* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *100* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-111L* | *90* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |
| *PCB-178L* | *130* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 15:31* | *2* |

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 530 | | 30 | 13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Arsenic | 1.1 | | 1.0 | 0.31 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Barium | 15 | | 10 | 1.6 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Cadmium | 0.30 | J | 1.0 | 0.22 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Calcium | 8700 | B | 500 | 130 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Chromium | 3.0 | | 2.0 | 1.5 | ug/L | | 07/31/20 08:03 | 08/03/20 21:47 | 1 |
| Cobalt | 0.89 | | 0.50 | 0.13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-108704-1

**Client Sample ID: OFW0200N**
**Date Collected: 07/22/20 16:40**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-3**
**Matrix: Water**

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Copper | 24 | | 2.0 | 0.63 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Iron | 1200 | | 50 | 20 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Silver | ND | | 1.0 | 0.18 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Potassium | 2600 | | 500 | 160 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Magnesium | 1600 | | 500 | 83 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Manganese | 52 | | 5.0 | 0.87 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Sodium | 5400 | | 500 | 350 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Nickel | 4.5 | | 1.0 | 0.34 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Lead | 20 | | 1.0 | 0.13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Antimony | 1.9 | J | 2.0 | 0.38 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Vanadium | 8.0 | | 1.0 | 0.99 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |
| Zinc | 150 | B | 5.0 | 3.2 | ug/L | | 07/31/20 08:03 | 08/01/20 21:17 | 1 |

### Method: EPA 7470A - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 07/31/20 05:35 | 08/03/20 10:31 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 29 | | 0.67 | 0.67 | mg/L | | | 07/25/20 13:18 | 1 |

## Client Sample ID: OFW0300N

**Date Collected: 07/22/20 16:50**
**Date Received: 07/24/20 08:45**

## Lab Sample ID: 180-108704-4

**Matrix: Water**

### Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.16 | 0.056 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| Acenaphthylene | ND | | 0.16 | 0.056 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| Anthracene | ND | | 0.16 | 0.042 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| Benzo[a]anthracene | ND | | 0.16 | 0.065 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| Benzo[b]fluoranthene | ND | | 0.16 | 0.084 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| Benzo[k]fluoranthene | ND | | 0.16 | 0.076 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| **Benzo[g,h,i]perylene** | **0.075** | **J** | 0.16 | 0.059 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| Benzo[a]pyrene | ND | | 0.16 | 0.046 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| Chrysene | ND | | 0.16 | 0.070 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.16 | 0.062 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| **Fluoranthene** | **0.077** | **J** | 0.16 | 0.052 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| Fluorene | ND | | 0.16 | 0.059 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.16 | 0.073 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| Naphthalene | ND | | 0.16 | 0.051 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| **Phenanthrene** | **0.088** | **J** | 0.16 | 0.047 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |
| **Pyrene** | **0.15** | **J** | 0.16 | 0.047 | ug/L | | 07/27/20 11:57 | 07/29/20 17:30 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *54* | | *23 - 105* | *07/27/20 11:57* | *07/29/20 17:30* | *1* |
| *Nitrobenzene-d5 (Surr)* | *66* | | *28 - 111* | *07/27/20 11:57* | *07/29/20 17:30* | *1* |
| *Terphenyl-d14 (Surr)* | *54* | | *20 - 126* | *07/27/20 11:57* | *07/29/20 17:30* | *1* |

### Method: 8015D - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Diesel Range Organics [C10 - C28]** | **8200** | | 2600 | 1200 | ug/L | | 07/28/20 06:30 | 07/30/20 12:04 | 5 |
| **ORO C24-C40** | **7200** | | 2600 | 1200 | ug/L | | 07/28/20 06:30 | 07/30/20 12:04 | 5 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *75* | | *52 - 121* | *07/28/20 06:30* | *07/30/20 12:04* | *5* |

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.016** | **J B** | 0.20 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-2 | ND | | 0.20 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-3** | **0.013** | **J B** | 0.20 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-4 | ND | | 0.29 | 0.012 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-5 | ND | | 0.20 | 0.010 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-6 | ND | | 0.20 | 0.0089 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-7 | ND | | 0.20 | 0.0091 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-8** | **0.021** | **J q** | 0.29 | 0.0082 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-9 | ND | | 0.20 | 0.0093 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-10 | ND | | 0.20 | 0.0099 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-11** | **2.0** | **B** | 0.29 | 0.0087 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-12 | ND | C | 0.39 | 0.0090 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-13 | ND | C12 | 0.39 | 0.0090 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-14 | ND | | 0.20 | 0.0076 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-15** | **0.031** | **J q** | 0.20 | 0.0099 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-16** | **0.014** | **J q** | 0.20 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-17** | **0.019** | **J q** | 0.20 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-18** | **0.034** | **J C q** | 0.39 | 0.00099 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |

**Client Sample ID: OFW0300N**
**Date Collected: 07/22/20 16:50**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-4**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | ND | | 0.20 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-20** | **0.14** | **J C B** | 0.39 | 0.0050 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-21** | **0.071** | **J C B** | 0.39 | 0.0049 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-22** | **0.053** | **J** | 0.20 | 0.0051 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-23 | ND | | 0.20 | 0.0051 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-24 | ND | | 0.20 | 0.00095 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-25** | **0.0091** | **J q** | 0.20 | 0.0046 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-26** | **0.021** | **J C** | 0.39 | 0.0049 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-27 | ND | | 0.20 | 0.00082 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-28** | **0.14** | **J B C20** | 0.39 | 0.0050 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-29** | **0.021** | **J C26** | 0.39 | 0.0049 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-30** | **0.034** | **J C18 q** | 0.39 | 0.00099 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-31** | **0.11** | **J B q** | 0.20 | 0.0049 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-32** | **0.012** | **J q** | 0.20 | 0.00079 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-33** | **0.071** | **J B C21** | 0.39 | 0.0049 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-34 | ND | | 0.20 | 0.0053 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-35** | **0.015** | **J B q** | 0.20 | 0.0051 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-36 | ND | | 0.20 | 0.0049 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-37** | **0.046** | **J B q** | 0.20 | 0.0051 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-38 | ND | | 0.20 | 0.0053 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-39 | ND | | 0.20 | 0.0048 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-40** | **0.18** | **J C** | 0.59 | 0.040 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-41** | **0.18** | **J C40** | 0.59 | 0.040 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-42 | ND | | 0.20 | 0.040 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-43 | ND | C | 0.39 | 0.037 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-44** | **0.27** | **J C B q** | 0.59 | 0.035 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-45 | ND | C | 0.39 | 0.042 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-46 | ND | | 0.20 | 0.051 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-47** | **0.27** | **J B C44 q** | 0.59 | 0.035 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-48** | **0.068** | **J** | 0.20 | 0.040 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-49** | **0.16** | **J C** | 0.39 | 0.033 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-50 | ND | C | 0.39 | 0.039 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-51 | ND | C45 | 0.39 | 0.042 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-52** | **0.54** | | 0.20 | 0.040 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-53 | ND | C50 | 0.39 | 0.039 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-54 | ND | | 0.20 | 0.00083 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-55 | ND | | 0.20 | 0.029 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-56** | **0.13** | **J** | 0.20 | 0.029 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-57 | ND | | 0.20 | 0.029 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-58 | ND | | 0.20 | 0.030 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-59 | ND | C | 0.59 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-60** | **0.061** | **J q** | 0.20 | 0.030 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-61** | **0.68** | **J C B** | 0.78 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-62 | ND | C59 | 0.59 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-63 | ND | | 0.20 | 0.027 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-64** | **0.14** | **J** | 0.20 | 0.027 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-65** | **0.27** | **J B C44 q** | 0.59 | 0.035 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-66** | **0.25** | | 0.20 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-67 | ND | | 0.20 | 0.026 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-108704-1

**Client Sample ID: OFW0300N**
**Date Collected: 07/22/20 16:50**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-4**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | ND | | 0.20 | 0.026 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-69** | **0.16** | **J C49** | 0.39 | 0.033 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-70** | **0.68** | **J C61 B** | 0.78 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-71** | **0.18** | **J C40** | 0.59 | 0.040 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-72 | ND | | 0.20 | 0.029 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-73 | ND | C43 | 0.39 | 0.037 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-74** | **0.68** | **J C61 B** | 0.78 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-75 | ND | C59 | 0.59 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-76** | **0.68** | **J C61 B** | 0.78 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-77** | **0.061** | **J** | 0.20 | 0.031 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-78 | ND | | 0.20 | 0.030 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-79 | ND | | 0.20 | 0.026 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-80 | ND | | 0.20 | 0.025 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-81 | ND | | 0.20 | 0.025 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-82** | **0.046** | **J B q** | 0.20 | 0.0021 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-83** | **0.021** | **J C B q** | 0.39 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-84** | **0.11** | **J** | 0.20 | 0.0021 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-85** | **0.051** | **J C B q** | 0.59 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-86** | **0.32** | **J C B** | 1.2 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-87** | **0.32** | **J B C86** | 1.2 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-88** | **0.064** | **J C** | 0.39 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-89 | ND | | 0.20 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-90** | **0.47** | **J C B** | 0.59 | 0.0016 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-91** | **0.064** | **J C88** | 0.39 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-92** | **0.077** | **J** | 0.20 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-93 | ND | C | 0.39 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-94 | ND | | 0.20 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-95** | **0.36** | **B q** | 0.20 | 0.0020 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-96 | ND | | 0.20 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-97** | **0.32** | **J B C86** | 1.2 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-98 | ND | C | 0.39 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-99** | **0.021** | **J C83 B q** | 0.39 | 0.0019 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-100 | ND | C93 | 0.39 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-101** | **0.47** | **J B C90** | 0.59 | 0.0016 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-102 | ND | C98 | 0.39 | 0.0017 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-103 | ND | | 0.20 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-104 | ND | | 0.20 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-105** | **0.29** | **B** | 0.20 | 0.036 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-106 | ND | | 0.20 | 0.033 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-107 | ND | | 0.20 | 0.035 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-108 | ND | C | 0.39 | 0.034 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-109** | **0.32** | **J B C86** | 1.2 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-110** | **0.50** | **C B** | 0.39 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-111 | ND | | 0.20 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-112** | **0.11** | **J q** | 0.20 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-113** | **0.47** | **J B C90** | 0.59 | 0.0016 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-114 | ND | | 0.20 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-115** | **0.50** | **B C110** | 0.39 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-116** | **0.051** | **J C85 B q** | 0.59 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |

## Client Sample ID: OFW0300N

**Date Collected: 07/22/20 16:50**
**Date Received: 07/24/20 08:45**

## Lab Sample ID: 180-108704-4

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-117** | **0.051** | **J C85 B q** | 0.59 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-118** | **0.63** | **B** | 0.20 | 0.028 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-119** | **0.32** | **J B C86** | 1.2 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-120 | ND | | 0.20 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-121 | ND | | 0.20 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-122 | ND | | 0.20 | 0.038 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-123 | ND | | 0.20 | 0.029 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-124 | ND | C108 | 0.39 | 0.034 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-125** | **0.32** | **J B C86** | 1.2 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-126 | ND | | 0.20 | 0.042 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-127 | ND | | 0.20 | 0.033 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-128** | **0.14** | **J C B** | 0.39 | 0.053 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-129** | **1.2** | **C B** | 0.78 | 0.054 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-130 | ND | | 0.20 | 0.072 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-131 | ND | | 0.20 | 0.075 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-132** | **0.33** | | 0.20 | 0.070 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-133 | ND | | 0.20 | 0.068 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-134 | ND | C | 0.39 | 0.071 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-135** | **0.21** | **J C q** | 0.39 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-136** | **0.085** | **J** | 0.20 | 0.00099 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-137 | ND | | 0.20 | 0.061 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-138** | **1.2** | **B C129** | 0.78 | 0.054 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-139 | ND | C | 0.39 | 0.060 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-140 | ND | C139 | 0.39 | 0.060 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-141** | **0.19** | **J q** | 0.20 | 0.063 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-142 | ND | | 0.20 | 0.068 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-143 | ND | C134 | 0.39 | 0.071 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-144** | **0.038** | **J** | 0.20 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-145 | ND | | 0.20 | 0.00094 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-146 | ND | | 0.20 | 0.060 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-147** | **0.84** | **C** | 0.39 | 0.068 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-148 | ND | | 0.20 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-149** | **0.84** | **C147** | 0.39 | 0.068 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-150 | ND | | 0.20 | 0.00090 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-151** | **0.21** | **J C135 q** | 0.39 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-152 | ND | | 0.20 | 0.00097 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-153** | **0.98** | **C B** | 0.39 | 0.047 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-154** | **0.0064** | **J q** | 0.20 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-155 | ND | | 0.20 | 0.00090 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-156** | **0.098** | **J C B q** | 0.39 | 0.052 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-157** | **0.098** | **J C156 B q** | 0.39 | 0.052 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-158** | **0.12** | **J** | 0.20 | 0.043 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-159 | ND | | 0.20 | 0.045 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-160** | **1.2** | **B C129** | 0.78 | 0.054 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-161** | **0.094** | **J q** | 0.20 | 0.045 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-162 | ND | | 0.20 | 0.044 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-163** | **1.2** | **B C129** | 0.78 | 0.054 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-164 | ND | | 0.20 | 0.048 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-165 | ND | | 0.20 | 0.051 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |

**Client Sample ID: OFW0300N**
**Date Collected: 07/22/20 16:50**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-4**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-166** | **0.14** | **J C128 B** | 0.39 | 0.053 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-167 | ND | | 0.20 | 0.036 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-168** | **0.98** | **B C153** | 0.39 | 0.047 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-169 | ND | | 0.20 | 0.039 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-170** | **0.22** | **B q** | 0.20 | 0.0073 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-171** | **0.084** | **J C B** | 0.39 | 0.0060 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-172** | **0.052** | **J** | 0.20 | 0.0060 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-173** | **0.084** | **J C171 B** | 0.39 | 0.0060 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-174** | **0.27** | **B** | 0.20 | 0.0056 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-175 | ND | | 0.20 | 0.0055 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-176** | **0.024** | **J q** | 0.20 | 0.0041 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-177** | **0.12** | **J B q** | 0.20 | 0.0058 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-178** | **0.068** | **J q** | 0.20 | 0.0059 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-179** | **0.18** | **J** | 0.20 | 0.0044 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-180** | **0.60** | **C B q** | 0.39 | 0.0046 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-181 | ND | | 0.20 | 0.0054 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-182 | ND | | 0.20 | 0.0052 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-183** | **0.24** | **J C B** | 0.39 | 0.0053 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-184 | ND | | 0.20 | 0.0045 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-185** | **0.24** | **J B C183** | 0.39 | 0.0053 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-186 | ND | | 0.20 | 0.0043 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-187** | **0.40** | **B** | 0.20 | 0.0051 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-188 | ND | | 0.20 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-189 | ND | | 0.20 | 0.052 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-190** | **0.049** | **J B q** | 0.20 | 0.0039 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-191 | ND | | 0.20 | 0.0041 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-192 | ND | | 0.20 | 0.0046 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-193** | **0.60** | **C180 B q** | 0.39 | 0.0046 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-194** | **0.14** | **J B q** | 0.20 | 0.059 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-195 | ND | | 0.20 | 0.065 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-196** | **0.077** | **J B q** | 0.20 | 0.010 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-197 | ND | | 0.20 | 0.0080 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-198** | **0.25** | **J C B q** | 0.39 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-199** | **0.25** | **J C198 B q** | 0.39 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-200** | **0.029** | **J B q** | 0.20 | 0.0071 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-201 | ND | | 0.20 | 0.0073 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-202** | **0.040** | **J q** | 0.20 | 0.0082 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-203** | **0.17** | **J B** | 0.20 | 0.0095 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-204 | ND | | 0.20 | 0.0080 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-205 | ND | | 0.20 | 0.050 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-206** | **0.17** | **J q** | 0.20 | 0.041 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-207 | ND | | 0.20 | 0.042 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| PCB-208 | ND | | 0.20 | 0.062 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **PCB-209** | **0.074** | **J B** | 0.20 | 0.031 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **Total Monochlorobiphenyls** | **0.029** | **J B** | 0.20 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **Total Dichlorobiphenyls** | **2.1** | **B q** | 0.39 | 0.0093 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **Total Trichlorobiphenyls** | **0.54** | **B q** | 0.39 | 0.0036 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **Total Tetrachlorobiphenyls** | **2.5** | **B q** | 0.78 | 0.031 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| **Total Pentachlorobiphenyls** | **3.0** | **B q** | 1.2 | 0.012 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |

## Client Sample ID: OFW0300N

**Date Collected: 07/22/20 16:50**
**Date Received: 07/24/20 08:45**

## Lab Sample ID: 180-108704-4

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Hexachlorobiphenyls | 4.3 | B q | 0.78 | 0.041 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| Total Heptachlorobiphenyls | 2.3 | B q | 0.39 | 0.0073 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| Total Octachlorobiphenyls | 0.71 | B q | 0.39 | 0.022 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| Total Nonachlorobiphenyls | 0.17 | J q | 0.20 | 0.048 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |
| Polychlorinated biphenyls, Total | 16 | B q | 1.2 | 0.023 | ng/L | | 07/29/20 09:50 | 08/05/20 07:51 | 5 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *83* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-3L* | *81* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-4L* | *75* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-15L* | *65* | *q* | *5 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-19L* | *79* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-37L* | *67* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-54L* | *62* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-77L* | *34* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-81L* | *36* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-104L* | *84* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-105L* | *62* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-114L* | *76* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-118L* | *74* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-123L* | *75* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-126L* | *51* | *q* | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-155L* | *60* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-156L* | *56* | *C* | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-157L* | *56* | *C156* | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-167L* | *59* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-169L* | *57* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-170L* | *64* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-188L* | *87* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-189L* | *40* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-202L* | *78* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-205L* | *58* | *q* | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-206L* | *72* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-208L* | *37* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-209L* | *67* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *103* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-111L* | *75* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |
| *PCB-178L* | *115* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 07:51* | *5* |

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 650 | | 30 | 13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Arsenic | 2.1 | | 1.0 | 0.31 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Barium | 28 | | 10 | 1.6 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Cadmium | 0.25 | J | 1.0 | 0.22 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Calcium | 28000 | B | 500 | 130 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Chromium | 5.1 | | 2.0 | 1.5 | ug/L | | 07/31/20 08:03 | 08/03/20 21:51 | 1 |
| Cobalt | 2.5 | | 0.50 | 0.13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-108704-1

**Client Sample ID: OFW0300N**
**Date Collected: 07/22/20 16:50**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-4**
**Matrix: Water**

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Copper | 47 | | 2.0 | 0.63 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Iron | 2200 | | 50 | 20 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Silver | 0.20 | J | 1.0 | 0.18 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Potassium | 14000 | | 500 | 160 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Magnesium | 2600 | | 500 | 83 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Manganese | 100 | | 5.0 | 0.87 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Sodium | 18000 | | 500 | 350 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Nickel | 8.8 | | 1.0 | 0.34 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Lead | 48 | | 1.0 | 0.13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Antimony | 2.2 | | 2.0 | 0.38 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Vanadium | 9.1 | | 1.0 | 0.99 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |
| Zinc | 300 | B | 5.0 | 3.2 | ug/L | | 07/31/20 08:03 | 08/01/20 21:21 | 1 |

### Method: EPA 7470A - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 07/31/20 05:35 | 08/03/20 10:32 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 98 | | 2.0 | 2.0 | mg/L | | | 07/25/20 13:18 | 1 |

## Client Sample ID: OFW0500N

**Date Collected: 07/22/20 17:30**
**Date Received: 07/24/20 08:45**

## Lab Sample ID: 180-108704-5

**Matrix: Water**

### Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.15 | 0.052 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| Acenaphthylene | ND | | 0.15 | 0.052 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| Anthracene | ND | | 0.15 | 0.040 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| **Benzo[a]anthracene** | **0.085** | **J** | 0.15 | 0.060 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| **Benzo[b]fluoranthene** | **0.13** | **J** | 0.15 | 0.078 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| **Benzo[k]fluoranthene** | **0.15** | | 0.15 | 0.071 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| **Benzo[g,h,i]perylene** | **0.17** | | 0.15 | 0.056 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| **Benzo[a]pyrene** | **0.069** | **J** | 0.15 | 0.043 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| **Chrysene** | **0.14** | **J** | 0.15 | 0.065 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| **Dibenz(a,h)anthracene** | **0.17** | | 0.15 | 0.058 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| Fluoranthene | ND | | 0.15 | 0.048 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| Fluorene | ND | | 0.15 | 0.056 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| **Indeno[1,2,3-cd]pyrene** | **0.16** | | 0.15 | 0.069 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| Naphthalene | ND | | 0.15 | 0.048 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| **Phenanthrene** | **0.074** | **J** | 0.15 | 0.044 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |
| Pyrene | ND | | 0.15 | 0.044 | ug/L | | 07/27/20 11:57 | 07/29/20 17:55 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *62* | | *23 - 105* | *07/27/20 11:57* | *07/29/20 17:55* | *1* |
| *Nitrobenzene-d5 (Surr)* | *61* | | *28 - 111* | *07/27/20 11:57* | *07/29/20 17:55* | *1* |
| *Terphenyl-d14 (Surr)* | *67* | | *20 - 126* | *07/27/20 11:57* | *07/29/20 17:55* | *1* |

### Method: 8015D - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Diesel Range Organics [C10 - C28]** | **2000** | | 520 | 240 | ug/L | | 07/28/20 06:30 | 07/29/20 21:02 | 1 |
| **ORO C24-C40** | **2800** | | 520 | 240 | ug/L | | 07/28/20 06:30 | 07/29/20 21:02 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *75* | | *52 - 121* | *07/28/20 06:30* | *07/29/20 21:02* | *1* |

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.0033** | **J B** | 0.078 | 0.00053 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-2** | **0.0024** | **J q B** | 0.078 | 0.00061 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-3** | **0.0027** | **J B** | 0.078 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-4 | ND | | 0.12 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-5 | ND | | 0.078 | 0.0028 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-6 | ND | | 0.078 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-7 | ND | | 0.078 | 0.0025 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-8** | **0.0092** | **J q** | 0.12 | 0.0022 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-9 | ND | | 0.078 | 0.0025 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-10 | ND | | 0.078 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-11** | **0.25** | **B** | 0.12 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-12 | ND | C | 0.16 | 0.0025 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-13 | ND | C12 | 0.16 | 0.0025 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-14 | ND | | 0.078 | 0.0021 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-15** | **0.013** | **J q** | 0.078 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-16** | **0.0057** | **J** | 0.078 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-17** | **0.0064** | **J** | 0.078 | 0.00089 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-18** | **0.014** | **J C** | 0.16 | 0.00079 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-108704-1

**Client Sample ID: OFW0500N**
**Date Collected: 07/22/20 17:30**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-5**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | ND | | 0.078 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-20** | **0.033** | **J C B** | 0.16 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-21** | **0.015** | **J q C B** | 0.16 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-22** | **0.012** | **J** | 0.078 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-23 | ND | | 0.078 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-24 | ND | | 0.078 | 0.00075 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-25** | **0.0021** | **J q** | 0.078 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-26** | **0.0042** | **J q C** | 0.16 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-27 | ND | | 0.078 | 0.00065 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-28** | **0.033** | **J C20 B** | 0.16 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-29** | **0.0042** | **J q C26** | 0.16 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-30** | **0.014** | **J C18** | 0.16 | 0.00079 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-31** | **0.028** | **J B** | 0.078 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-32** | **0.0046** | **J q** | 0.078 | 0.00062 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-33** | **0.015** | **J q C21 B** | 0.16 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-34 | ND | | 0.078 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-35** | **0.0020** | **J q B** | 0.078 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-36 | ND | | 0.078 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-37** | **0.016** | **J B** | 0.078 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-38 | ND | | 0.078 | 0.0014 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-39 | ND | | 0.078 | 0.0012 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-40** | **0.019** | **J q C** | 0.23 | 0.0050 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-41** | **0.019** | **J q C40** | 0.23 | 0.0050 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-42** | **0.0063** | **J q** | 0.078 | 0.0050 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-43 | ND | C | 0.16 | 0.0047 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-44** | **0.041** | **J C B** | 0.23 | 0.0044 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-45** | **0.0064** | **J q C B** | 0.16 | 0.0052 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-46 | ND | | 0.078 | 0.0063 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-47** | **0.041** | **J C44 B** | 0.23 | 0.0044 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-48** | **0.0070** | **J** | 0.078 | 0.0050 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-49** | **0.014** | **J q C** | 0.16 | 0.0040 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-50 | ND | C | 0.16 | 0.0048 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-51** | **0.0064** | **J q C45 B** | 0.16 | 0.0052 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-52** | **0.048** | **J** | 0.078 | 0.0049 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-53 | ND | C50 | 0.16 | 0.0048 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-54 | ND | | 0.078 | 0.00040 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-55 | ND | | 0.078 | 0.0036 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-56** | **0.018** | **J** | 0.078 | 0.0036 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-57 | ND | | 0.078 | 0.0037 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-58 | ND | | 0.078 | 0.0037 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-59 | ND | C | 0.23 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-60** | **0.011** | **J** | 0.078 | 0.0037 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-61** | **0.072** | **J C B** | 0.31 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-62 | ND | C59 | 0.23 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-63 | ND | | 0.078 | 0.0034 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-64** | **0.013** | **J q** | 0.078 | 0.0033 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-65** | **0.041** | **J C44 B** | 0.23 | 0.0044 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-66** | **0.032** | **J** | 0.078 | 0.0034 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-67 | ND | | 0.078 | 0.0032 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |

**Client Sample ID: OFW0500N**
**Date Collected: 07/22/20 17:30**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-5**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | ND | | 0.078 | 0.0032 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-69** | **0.014** | **J q C49** | 0.16 | 0.0040 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-70** | **0.072** | **J C61 B** | 0.31 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-71** | **0.019** | **J q C40** | 0.23 | 0.0050 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-72 | ND | | 0.078 | 0.0036 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-73 | ND | C43 | 0.16 | 0.0047 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-74** | **0.072** | **J C61 B** | 0.31 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-75 | ND | C59 | 0.23 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-76** | **0.072** | **J C61 B** | 0.31 | 0.0035 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-77** | **0.011** | **J q** | 0.078 | 0.0036 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-78 | ND | | 0.078 | 0.0037 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-79 | ND | | 0.078 | 0.0032 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-80 | ND | | 0.078 | 0.0032 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-81 | ND | | 0.078 | 0.0033 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-82** | **0.018** | **J q B** | 0.078 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-83** | **0.052** | **J q C B** | 0.16 | 0.00098 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-84** | **0.025** | **J q** | 0.078 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-85** | **0.023** | **J C B** | 0.23 | 0.00080 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-86** | **0.081** | **J q C B** | 0.47 | 0.00080 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-87** | **0.081** | **J q C86 B** | 0.47 | 0.00080 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-88** | **0.011** | **J q C** | 0.16 | 0.00097 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-89 | ND | | 0.078 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-90** | **0.12** | **J C B** | 0.23 | 0.00082 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-91** | **0.011** | **J q C88** | 0.16 | 0.00097 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-92** | **0.018** | **J** | 0.078 | 0.00092 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-93** | **0.0016** | **J q C** | 0.16 | 0.00093 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-94 | ND | | 0.078 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-95** | **0.081** | **B** | 0.078 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-96 | ND | | 0.078 | 0.00080 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-97** | **0.081** | **J q C86 B** | 0.47 | 0.00080 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-98 | ND | C | 0.16 | 0.00090 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-99** | **0.052** | **J q C83 B** | 0.16 | 0.00098 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-100** | **0.0016** | **J q C93** | 0.16 | 0.00093 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-101** | **0.12** | **J C90 B** | 0.23 | 0.00082 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-102 | ND | C98 | 0.16 | 0.00090 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-103 | ND | | 0.078 | 0.00093 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-104 | ND | | 0.078 | 0.00071 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-105** | **0.054** | **J B** | 0.078 | 0.0029 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-106 | ND | | 0.078 | 0.0029 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-107** | **0.0069** | **J q B** | 0.078 | 0.0031 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-108** | **0.0062** | **J q C B** | 0.16 | 0.0030 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-109** | **0.081** | **J q C86 B** | 0.47 | 0.00080 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-110** | **0.19** | **C B** | 0.16 | 0.00068 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-111 | ND | | 0.078 | 0.00065 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-112 | ND | | 0.078 | 0.00069 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-113** | **0.12** | **J C90 B** | 0.23 | 0.00082 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-114 | ND | | 0.078 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-115** | **0.19** | **C110 B** | 0.16 | 0.00068 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-116** | **0.023** | **J C85 B** | 0.23 | 0.00080 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |

**Client Sample ID: OFW0500N**
**Date Collected: 07/22/20 17:30**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-5**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-117** | **0.023** | **J C85 B** | 0.23 | 0.00080 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-118** | **0.13** | **B** | 0.078 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-119** | **0.081** | **J q C86 B** | 0.47 | 0.00080 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-120 | ND | | 0.078 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-121 | ND | | 0.078 | 0.00068 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-122 | ND | | 0.078 | 0.0034 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-123 | ND | | 0.078 | 0.0028 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-124** | **0.0062** | **J q C108 B** | 0.16 | 0.0030 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-125** | **0.081** | **J q C86 B** | 0.47 | 0.00080 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-126 | ND | | 0.078 | 0.0033 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-127 | ND | | 0.078 | 0.0029 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-128** | **0.033** | **J C B** | 0.16 | 0.0061 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-129** | **0.26** | **J C B** | 0.31 | 0.0063 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-130** | **0.014** | **J q** | 0.078 | 0.0083 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-131 | ND | | 0.078 | 0.0086 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-132** | **0.081** | | 0.078 | 0.0081 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-133 | ND | | 0.078 | 0.0078 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-134 | ND | C | 0.16 | 0.0082 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-135** | **0.046** | **J q C** | 0.16 | 0.00078 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-136** | **0.016** | **J** | 0.078 | 0.00056 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-137** | **0.013** | **J** | 0.078 | 0.0071 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-138** | **0.26** | **J C129 B** | 0.31 | 0.0063 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-139 | ND | C | 0.16 | 0.0070 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-140 | ND | C139 | 0.16 | 0.0070 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-141** | **0.053** | **J** | 0.078 | 0.0073 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-142 | ND | | 0.078 | 0.0078 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-143 | ND | C134 | 0.16 | 0.0082 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-144** | **0.0071** | **J** | 0.078 | 0.00071 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-145 | ND | | 0.078 | 0.00054 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-146** | **0.033** | **J** | 0.078 | 0.0069 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-147** | **0.18** | **C** | 0.16 | 0.0079 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-148 | ND | | 0.078 | 0.00076 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-149** | **0.18** | **C147** | 0.16 | 0.0079 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-150 | ND | | 0.078 | 0.00051 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-151** | **0.046** | **J q C135** | 0.16 | 0.00078 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-152 | ND | | 0.078 | 0.00055 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-153** | **0.18** | **C B** | 0.16 | 0.0055 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-154 | ND | | 0.078 | 0.00061 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-155 | ND | | 0.078 | 0.00052 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-156** | **0.021** | **J C B** | 0.16 | 0.0063 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-157** | **0.021** | **J C156 B** | 0.16 | 0.0063 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-158** | **0.023** | **J** | 0.078 | 0.0049 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-159 | ND | | 0.078 | 0.0052 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-160** | **0.26** | **J C129 B** | 0.31 | 0.0063 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-161 | ND | | 0.078 | 0.0052 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-162 | ND | | 0.078 | 0.0051 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-163** | **0.26** | **J C129 B** | 0.31 | 0.0063 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| **PCB-164** | **0.017** | **J** | 0.078 | 0.0055 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-165 | ND | | 0.078 | 0.0059 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-108704-1

**Client Sample ID: OFW0500N**
**Date Collected: 07/22/20 17:30**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-5**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 0.033 | J C128 B | 0.16 | 0.0061 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-167 | 0.0082 | J q B | 0.078 | 0.0038 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-168 | 0.18 | C153 B | 0.16 | 0.0055 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-169 | ND | | 0.078 | 0.0046 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-170 | 0.059 | J B | 0.078 | 0.0042 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-171 | 0.015 | J q C B | 0.16 | 0.0032 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-172 | 0.010 | J q | 0.078 | 0.0032 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-173 | 0.015 | J q C171 B | 0.16 | 0.0032 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-174 | 0.059 | J B | 0.078 | 0.0030 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-175 | 0.0034 | J q | 0.078 | 0.0029 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-176 | 0.0055 | J q | 0.078 | 0.0022 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-177 | 0.032 | J B | 0.078 | 0.0031 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-178 | 0.011 | J | 0.078 | 0.0032 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-179 | 0.030 | J | 0.078 | 0.0023 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-180 | 0.12 | J C B | 0.16 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-181 | ND | | 0.078 | 0.0029 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-182 | ND | | 0.078 | 0.0028 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-183 | 0.040 | J C B | 0.16 | 0.0028 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-184 | ND | | 0.078 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-185 | 0.040 | J C183 B | 0.16 | 0.0028 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-186 | ND | | 0.078 | 0.0023 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-187 | 0.060 | J q B | 0.078 | 0.0027 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-188 | ND | | 0.078 | 0.0018 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-189 | ND | | 0.078 | 0.0049 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-190 | 0.0086 | J q B | 0.078 | 0.0021 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-191 | ND | | 0.078 | 0.0022 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-192 | ND | | 0.078 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-193 | 0.12 | J C180 B | 0.16 | 0.0024 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-194 | 0.025 | J q B | 0.078 | 0.010 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-195 | ND | | 0.078 | 0.011 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-196 | 0.023 | J B | 0.078 | 0.0059 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-197 | ND | | 0.078 | 0.0045 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-198 | 0.039 | J q C B | 0.16 | 0.0060 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-199 | 0.039 | J q C198 B | 0.16 | 0.0060 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-200 | ND | | 0.078 | 0.0040 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-201 | ND | | 0.078 | 0.0041 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-202 | ND | | 0.078 | 0.0046 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-203 | 0.019 | J q B | 0.078 | 0.0053 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-204 | ND | | 0.078 | 0.0045 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-205 | ND | | 0.078 | 0.0088 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-206 | 0.024 | J q | 0.078 | 0.0078 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-207 | ND | | 0.078 | 0.0058 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-208 | ND | | 0.078 | 0.0062 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| PCB-209 | 0.010 | J B | 0.078 | 0.0048 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| Total Monochlorobiphenyls | 0.0084 | J q B | 0.078 | 0.00061 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| Total Dichlorobiphenyls | 0.27 | q B | 0.16 | 0.0026 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| Total Trichlorobiphenyls | 0.14 | J q B | 0.16 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| Total Tetrachlorobiphenyls | 0.30 | J q B | 0.31 | 0.0039 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| Total Pentachlorobiphenyls | 0.82 | q B | 0.47 | 0.0015 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |

## Client Sample ID: OFW0500N

**Date Collected: 07/22/20 17:30**
**Date Received: 07/24/20 08:45**

## Lab Sample ID: 180-108704-5

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Hexachlorobiphenyls | 0.99 | q B | 0.31 | 0.0048 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| Total Heptachlorobiphenyls | 0.45 | q B | 0.16 | 0.0028 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| Total Octachlorobiphenyls | 0.11 | J q B | 0.16 | 0.0063 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| Total Nonachlorobiphenyls | 0.024 | J q | 0.078 | 0.0066 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |
| Polychlorinated biphenyls, Total | 3.1 | q B | 0.47 | 0.0038 | ng/L | | 07/29/20 09:50 | 08/05/20 16:32 | 2 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *60* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-3L* | *66* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-4L* | *69* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-15L* | *70* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-19L* | *76* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-37L* | *72* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-54L* | *66* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-77L* | *67* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-81L* | *67* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-104L* | *61* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-105L* | *69* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-114L* | *74* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-118L* | *75* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-123L* | *74* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-126L* | *65* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-155L* | *67* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-156L* | *62* | *C* | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-157L* | *62* | *C156* | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-167L* | *65* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-169L* | *58* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-170L* | *59* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-188L* | *93* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-189L* | *73* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-202L* | *82* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-205L* | *62* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-206L* | *69* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-208L* | *68* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-209L* | *69* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *104* | | *5 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-111L* | *96* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |
| *PCB-178L* | *127* | | *10 - 145* | *07/29/20 09:50* | *08/05/20 16:32* | *2* |

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 260 | | 30 | 13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Arsenic | 1.4 | | 1.0 | 0.31 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Barium | 21 | | 10 | 1.6 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Cadmium | ND | | 1.0 | 0.22 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Calcium | 18000 | B | 500 | 130 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Chromium | 9.7 | | 2.0 | 1.5 | ug/L | | 07/31/20 08:03 | 08/03/20 22:01 | 1 |
| Cobalt | 0.68 | | 0.50 | 0.13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-108704-1

**Client Sample ID: OFW0500N**
**Date Collected: 07/22/20 17:30**
**Date Received: 07/24/20 08:45**

**Lab Sample ID: 180-108704-5**
**Matrix: Water**

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Copper | 20 | | 2.0 | 0.63 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Iron | 650 | | 50 | 20 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Silver | ND | | 1.0 | 0.18 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Potassium | 5500 | | 500 | 160 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Magnesium | 1800 | | 500 | 83 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Manganese | 30 | | 5.0 | 0.87 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Sodium | 12000 | | 500 | 350 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Nickel | 4.1 | | 1.0 | 0.34 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Lead | 5.5 | | 1.0 | 0.13 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Antimony | 1.3 | J | 2.0 | 0.38 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Vanadium | 10 | | 1.0 | 0.99 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |
| Zinc | 74 | B | 5.0 | 3.2 | ug/L | | 07/31/20 08:03 | 08/01/20 21:24 | 1 |

### Method: EPA 7470A - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 07/31/20 05:35 | 08/03/20 10:33 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 17 | | 1.3 | 1.3 | mg/L | | | 07/25/20 13:18 | 1 |

## Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

**Lab Sample ID: MB 180-323155/1-A**
**Matrix: Water**
**Analysis Batch: 323469**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 323155**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.19 | 0.065 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Acenaphthylene | ND | | 0.19 | 0.065 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Anthracene | ND | | 0.19 | 0.049 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Benzo[a]anthracene | ND | | 0.19 | 0.075 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Benzo[b]fluoranthene | ND | | 0.19 | 0.097 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Benzo[k]fluoranthene | ND | | 0.19 | 0.088 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Benzo[g,h,i]perylene | ND | | 0.19 | 0.069 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Benzo[a]pyrene | ND | | 0.19 | 0.053 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Chrysene | ND | | 0.19 | 0.081 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.19 | 0.072 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Fluoranthene | ND | | 0.19 | 0.060 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Fluorene | ND | | 0.19 | 0.069 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.19 | 0.085 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Naphthalene | ND | | 0.19 | 0.059 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Phenanthrene | ND | | 0.19 | 0.055 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |
| Pyrene | ND | | 0.19 | 0.054 | ug/L | | 07/27/20 11:53 | 07/29/20 12:14 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *80* | | *23 - 105* | *07/27/20 11:53* | *07/29/20 12:14* | *1* |
| *Nitrobenzene-d5 (Surr)* | *80* | | *28 - 111* | *07/27/20 11:53* | *07/29/20 12:14* | *1* |
| *Terphenyl-d14 (Surr)* | *81* | | *20 - 126* | *07/27/20 11:53* | *07/29/20 12:14* | *1* |

**Lab Sample ID: LCS 180-323155/2-A**
**Matrix: Water**
**Analysis Batch: 323469**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 323155**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Acenaphthene | 20.0 | 14.5 | | ug/L | | 73 | 50 - 100 |
| Acenaphthylene | 20.0 | 14.7 | | ug/L | | 73 | 51 - 100 |
| Anthracene | 20.0 | 15.4 | | ug/L | | 77 | 53 - 100 |
| Benzo[a]anthracene | 20.0 | 15.5 | | ug/L | | 77 | 51 - 100 |
| Benzo[b]fluoranthene | 20.0 | 14.5 | | ug/L | | 73 | 45 - 100 |
| Benzo[k]fluoranthene | 20.0 | 15.4 | | ug/L | | 77 | 49 - 100 |
| Benzo[g,h,i]perylene | 20.0 | 14.7 | | ug/L | | 73 | 51 - 100 |
| Benzo[a]pyrene | 20.0 | 16.1 | | ug/L | | 80 | 51 - 100 |
| Chrysene | 20.0 | 15.4 | | ug/L | | 77 | 51 - 100 |
| Dibenz(a,h)anthracene | 20.0 | 15.0 | | ug/L | | 75 | 50 - 100 |
| Fluoranthene | 20.0 | 16.5 | | ug/L | | 83 | 54 - 100 |
| Fluorene | 20.0 | 14.8 | | ug/L | | 74 | 53 - 100 |
| Indeno[1,2,3-cd]pyrene | 20.0 | 14.9 | | ug/L | | 75 | 50 - 100 |
| Naphthalene | 20.0 | 14.3 | | ug/L | | 72 | 55 - 100 |
| Phenanthrene | 20.0 | 14.9 | | ug/L | | 74 | 51 - 100 |
| Pyrene | 20.0 | 16.4 | | ug/L | | 82 | 47 - 100 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *2-Fluorobiphenyl* | *71* | | *23 - 105* |
| *Nitrobenzene-d5 (Surr)* | *70* | | *28 - 111* |
| *Terphenyl-d14 (Surr)* | *80* | | *20 - 126* |

## Method: 8015D - Diesel Range Organics (DRO) (GC)

**Lab Sample ID: MB 240-444506/6-A**
**Matrix: Water**
**Analysis Batch: 444816**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 444506**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics [C10 - C28] | ND | | 500 | 230 | ug/L | | 07/28/20 06:30 | 07/29/20 21:30 | 1 |
| ORO C24-C40 | ND | | 500 | 230 | ug/L | | 07/28/20 06:30 | 07/29/20 21:30 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *82* | | *52 - 121* | *07/28/20 06:30* | *07/29/20 21:30* | *1* |

**Lab Sample ID: LCS 240-444506/7-A**
**Matrix: Water**
**Analysis Batch: 444816**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 444506**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics [C10 - C28] | 2000 | 1690 | | ug/L | | 85 | 56 - 120 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *82* | | *52 - 121* |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

**Lab Sample ID: MB 140-41399/7-A**
**Matrix: Water**
**Analysis Batch: 41606**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 41399**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1 | 0.00143 | J q | 0.040 | 0.00025 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-2 | 0.00172 | J q | 0.040 | 0.00030 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-3 | 0.00124 | J q | 0.040 | 0.00035 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-4 | ND | | 0.060 | 0.0057 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-5 | ND | | 0.040 | 0.0049 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-6 | ND | | 0.040 | 0.0043 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-7 | ND | | 0.040 | 0.0044 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-8 | ND | | 0.060 | 0.0040 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-9 | ND | | 0.040 | 0.0045 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-10 | ND | | 0.040 | 0.0048 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-11 | 0.0142 | J q | 0.060 | 0.0042 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-12 | ND | C | 0.080 | 0.0043 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-13 | ND | C12 | 0.080 | 0.0043 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-14 | ND | | 0.040 | 0.0037 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-15 | ND | | 0.040 | 0.0048 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-16 | ND | | 0.040 | 0.00066 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-17 | ND | | 0.040 | 0.00059 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-18 | ND | C | 0.080 | 0.00052 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-19 | ND | | 0.040 | 0.00072 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-20 | 0.00246 | J q C | 0.080 | 0.00061 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-21 | 0.00287 | J C | 0.080 | 0.00059 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-22 | ND | | 0.040 | 0.00062 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-23 | ND | | 0.040 | 0.00062 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-24 | ND | | 0.040 | 0.00050 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-41399/7-A**
**Matrix: Water**
**Analysis Batch: 41606**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 41399**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-25 | ND | | 0.040 | 0.00056 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-26 | ND | C | 0.080 | 0.00060 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-27 | ND | | 0.040 | 0.00043 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-28 | 0.00246 | J q C20 | 0.080 | 0.00061 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-29 | ND | C26 | 0.080 | 0.00060 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-30 | ND | C18 | 0.080 | 0.00052 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-31 | 0.00266 | J q | 0.040 | 0.00059 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-32 | ND | | 0.040 | 0.00041 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-33 | 0.00287 | J C21 | 0.080 | 0.00059 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-34 | ND | | 0.040 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-35 | 0.00116 | J q | 0.040 | 0.00062 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-36 | ND | | 0.040 | 0.00060 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-37 | 0.00230 | J | 0.040 | 0.00062 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-38 | ND | | 0.040 | 0.00065 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-39 | ND | | 0.040 | 0.00058 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-40 | ND | C | 0.12 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-41 | ND | C40 | 0.12 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-42 | ND | | 0.040 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-43 | ND | C | 0.080 | 0.00099 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-44 | 0.0665 | J C | 0.12 | 0.00093 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-45 | 0.00658 | J C | 0.080 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-46 | ND | | 0.040 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-47 | 0.0665 | J C44 | 0.12 | 0.00093 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-48 | ND | | 0.040 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-49 | ND | C | 0.080 | 0.00086 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-50 | ND | C | 0.080 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-51 | 0.00658 | J C45 | 0.080 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-52 | ND | | 0.040 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-53 | ND | C50 | 0.080 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-54 | ND | | 0.040 | 0.00017 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-55 | ND | | 0.040 | 0.00076 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-56 | ND | | 0.040 | 0.00077 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-57 | ND | | 0.040 | 0.00078 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-58 | ND | | 0.040 | 0.00079 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-59 | 0.00207 | J C | 0.12 | 0.00074 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-60 | ND | | 0.040 | 0.00078 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-61 | 0.00644 | J C | 0.16 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-62 | 0.00207 | J C59 | 0.12 | 0.00074 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-63 | ND | | 0.040 | 0.00071 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-64 | ND | | 0.040 | 0.00070 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-65 | 0.0665 | J C44 | 0.12 | 0.00093 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-66 | ND | | 0.040 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-67 | ND | | 0.040 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-68 | 0.0101 | J | 0.040 | 0.00069 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-69 | ND | C49 | 0.080 | 0.00086 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-70 | 0.00644 | J C61 | 0.16 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-71 | ND | C40 | 0.12 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-72 | ND | | 0.040 | 0.00076 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-73 | ND | C43 | 0.080 | 0.00099 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-41399/7-A**
**Matrix: Water**
**Analysis Batch: 41606**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 41399**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-74 | 0.00644 | J C61 | 0.16 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-75 | 0.00207 | J C59 | 0.12 | 0.00074 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-76 | 0.00644 | J C61 | 0.16 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-77 | ND | | 0.040 | 0.00072 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-78 | 0.00141 | J q | 0.040 | 0.00079 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-79 | ND | | 0.040 | 0.00068 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-80 | ND | | 0.040 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-81 | ND | | 0.040 | 0.00074 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-82 | 0.00138 | J | 0.040 | 0.00034 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-83 | 0.00250 | J q C | 0.080 | 0.00031 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-84 | ND | | 0.040 | 0.00035 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-85 | 0.00338 | J q C | 0.12 | 0.00025 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-86 | 0.00496 | J q C | 0.24 | 0.00026 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-87 | 0.00496 | J q C86 | 0.24 | 0.00026 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-88 | ND | C | 0.080 | 0.00031 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-89 | ND | | 0.040 | 0.00034 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-90 | 0.00352 | J C | 0.12 | 0.00026 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-91 | ND | C88 | 0.080 | 0.00031 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-92 | ND | | 0.040 | 0.00030 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-93 | ND | C | 0.080 | 0.00030 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-94 | ND | | 0.040 | 0.00034 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-95 | 0.00170 | J q | 0.040 | 0.00033 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-96 | ND | | 0.040 | 0.00025 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-97 | 0.00496 | J q C86 | 0.24 | 0.00026 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-98 | ND | C | 0.080 | 0.00029 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-99 | 0.00250 | J q C83 | 0.080 | 0.00031 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-100 | ND | C93 | 0.080 | 0.00030 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-101 | 0.00352 | J C90 | 0.12 | 0.00026 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-102 | ND | C98 | 0.080 | 0.00029 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-103 | ND | | 0.040 | 0.00030 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-104 | ND | | 0.040 | 0.00023 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-105 | 0.00263 | J | 0.040 | 0.00048 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-106 | 0.00103 | J q | 0.040 | 0.00050 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-107 | 0.00121 | J q | 0.040 | 0.00054 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-108 | 0.00275 | J q C | 0.080 | 0.00052 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-109 | 0.00496 | J q C86 | 0.24 | 0.00026 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-110 | 0.00494 | J q C | 0.080 | 0.00022 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-111 | 0.00102 | J | 0.040 | 0.00021 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-112 | ND | | 0.040 | 0.00022 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-113 | 0.00352 | J C90 | 0.12 | 0.00026 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-114 | 0.00136 | J | 0.040 | 0.00047 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-115 | 0.00494 | J q C110 | 0.080 | 0.00022 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-116 | 0.00338 | J q C85 | 0.12 | 0.00025 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-117 | 0.00338 | J q C85 | 0.12 | 0.00025 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-118 | 0.00434 | J q | 0.040 | 0.00047 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-119 | 0.00496 | J q C86 | 0.24 | 0.00026 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-120 | ND | | 0.040 | 0.00021 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-121 | ND | | 0.040 | 0.00022 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-122 | 0.00192 | J | 0.040 | 0.00058 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-41399/7-A**
**Matrix: Water**
**Analysis Batch: 41606**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 41399**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-123 | 0.00114 | J q | 0.040 | 0.00050 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-124 | 0.00275 | J q C108 | 0.080 | 0.00052 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-125 | 0.00496 | J q C86 | 0.24 | 0.00026 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-126 | 0.00234 | J q | 0.040 | 0.00054 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-127 | 0.00210 | J | 0.040 | 0.00050 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-128 | 0.00318 | J q C | 0.080 | 0.00075 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-129 | 0.00996 | J C | 0.16 | 0.00077 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-130 | ND | | 0.040 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-131 | ND | | 0.040 | 0.0011 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-132 | ND | | 0.040 | 0.00099 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-133 | ND | | 0.040 | 0.00096 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-134 | ND | C | 0.080 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-135 | ND | C | 0.080 | 0.00029 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-136 | ND | | 0.040 | 0.00021 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-137 | ND | | 0.040 | 0.00087 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-138 | 0.00996 | J C129 | 0.16 | 0.00077 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-139 | ND | C | 0.080 | 0.00086 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-140 | ND | C139 | 0.080 | 0.00086 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-141 | ND | | 0.040 | 0.00090 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-142 | ND | | 0.040 | 0.00096 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-143 | ND | C134 | 0.080 | 0.0010 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-144 | ND | | 0.040 | 0.00026 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-145 | ND | | 0.040 | 0.00020 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-146 | ND | | 0.040 | 0.00085 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-147 | ND | C | 0.080 | 0.00097 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-148 | ND | | 0.040 | 0.00028 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-149 | ND | C147 | 0.080 | 0.00097 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-150 | ND | | 0.040 | 0.00019 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-151 | ND | C135 | 0.080 | 0.00029 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-152 | ND | | 0.040 | 0.00020 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-153 | 0.00371 | J q C | 0.080 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-154 | ND | | 0.040 | 0.00023 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-155 | ND | | 0.040 | 0.00019 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-156 | 0.00516 | J C | 0.080 | 0.00079 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-157 | 0.00516 | J C156 | 0.080 | 0.00079 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-158 | ND | | 0.040 | 0.00061 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-159 | 0.00190 | J | 0.040 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-160 | 0.00996 | J C129 | 0.16 | 0.00077 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-161 | ND | | 0.040 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-162 | 0.00110 | J q | 0.040 | 0.00063 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-163 | 0.00996 | J C129 | 0.16 | 0.00077 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-164 | ND | | 0.040 | 0.00068 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-165 | ND | | 0.040 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-166 | 0.00318 | J q C128 | 0.080 | 0.00075 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-167 | 0.00231 | J q | 0.040 | 0.00050 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-168 | 0.00371 | J q C153 | 0.080 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-169 | 0.00409 | J | 0.040 | 0.00050 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-170 | 0.00236 | J q | 0.040 | 0.00079 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-171 | 0.00352 | J C | 0.080 | 0.00076 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-41399/7-A**
**Matrix: Water**
**Analysis Batch: 41606**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 41399**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-172 | ND | | 0.040 | 0.00075 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-173 | 0.00352 | J C171 | 0.080 | 0.00076 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-174 | 0.00202 | J q | 0.040 | 0.00071 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-175 | ND | | 0.040 | 0.00069 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-176 | ND | | 0.040 | 0.00052 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-177 | 0.00172 | J q | 0.040 | 0.00073 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-178 | ND | | 0.040 | 0.00074 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-179 | ND | | 0.040 | 0.00055 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-180 | 0.00372 | J q C | 0.080 | 0.00057 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-181 | 0.00192 | J q | 0.040 | 0.00068 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-182 | ND | | 0.040 | 0.00066 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-183 | 0.00303 | J q C | 0.080 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-184 | ND | | 0.040 | 0.00056 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-185 | 0.00303 | J q C183 | 0.080 | 0.00067 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-186 | ND | | 0.040 | 0.00055 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-187 | 0.00291 | J | 0.040 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-188 | ND | | 0.040 | 0.00048 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-189 | 0.00528 | J | 0.040 | 0.00044 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-190 | 0.00217 | J q | 0.040 | 0.00050 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-191 | 0.00174 | J q | 0.040 | 0.00052 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-192 | ND | | 0.040 | 0.00058 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-193 | 0.00372 | J q C180 | 0.080 | 0.00057 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-194 | 0.00530 | J | 0.040 | 0.00021 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-195 | 0.00214 | J q | 0.040 | 0.00023 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-196 | 0.00130 | J q | 0.040 | 0.00028 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-197 | 0.00176 | J | 0.040 | 0.00022 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-198 | 0.00191 | J q C | 0.080 | 0.00029 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-199 | 0.00191 | J q C198 | 0.080 | 0.00029 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-200 | 0.000542 | J q | 0.040 | 0.00019 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-201 | ND | | 0.040 | 0.00020 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-202 | ND | | 0.040 | 0.00022 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-203 | 0.00156 | J q | 0.040 | 0.00026 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-204 | ND | | 0.040 | 0.00022 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-205 | 0.00524 | J q | 0.040 | 0.00018 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-206 | ND | | 0.040 | 0.0034 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-207 | ND | | 0.040 | 0.0023 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-208 | ND | | 0.040 | 0.0023 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-209 | 0.00374 | J q | 0.040 | 0.00013 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| Total Monochlorobiphenyls | 0.00439 | J q | 0.040 | 0.00030 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| Total Dichlorobiphenyls | 0.0142 | J q | 0.080 | 0.0045 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| Total Trichlorobiphenyls | 0.0115 | J q | 0.080 | 0.00059 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| Total Tetrachlorobiphenyls | 0.0931 | J q | 0.16 | 0.00082 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| Total Pentachlorobiphenyls | 0.0442 | J q | 0.24 | 0.00035 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| Total Hexachlorobiphenyls | 0.0314 | J q | 0.16 | 0.00064 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| Total Heptachlorobiphenyls | 0.0304 | J q | 0.080 | 0.00062 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| Total Octachlorobiphenyls | 0.0198 | J q | 0.080 | 0.00023 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| Total Nonachlorobiphenyls | ND | | 0.040 | 0.0034 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| Polychlorinated biphenyls, Total | 0.253 | q | 0.24 | 0.0013 | ng/L | | 07/29/20 09:50 | 08/04/20 15:05 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Isotope Dilution | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-1L | 86 | | 5 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-3L | 84 | | 5 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-4L | 77 | | 5 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-15L | 77 | | 5 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-19L | 92 | | 5 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-37L | 93 | | 5 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-54L | 94 | | 5 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-77L | 91 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-81L | 87 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-104L | 82 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-105L | 98 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-114L | 95 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-118L | 94 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-123L | 92 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-126L | 94 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-155L | 83 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-156L | 91 | C | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-157L | 91 | C156 | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-167L | 91 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-169L | 95 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-170L | 89 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-188L | 92 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-189L | 100 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-202L | 102 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-205L | 83 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-206L | 86 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-208L | 89 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-209L | 78 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-28L | 100 | | 5 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-111L | 97 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |
| PCB-178L | 102 | | 10 - 145 | 07/29/20 09:50 | 08/04/20 15:05 | 1 |

**Lab Sample ID: LCS 140-41399/6-A**
**Matrix: Water**
**Analysis Batch: 41606**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 41399**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| PCB-1 | 1.00 | 0.896 | | ng/L | | 90 | 60 - 135 |
| PCB-3 | 1.00 | 0.925 | | ng/L | | 92 | 60 - 135 |
| PCB-4 | 1.00 | 1.01 | | ng/L | | 101 | 60 - 135 |
| PCB-15 | 1.00 | 1.13 | | ng/L | | 113 | 60 - 135 |
| PCB-19 | 1.00 | 1.13 | | ng/L | | 113 | 60 - 135 |
| PCB-37 | 1.00 | 1.06 | | ng/L | | 106 | 60 - 135 |
| PCB-54 | 1.00 | 0.997 | | ng/L | | 100 | 60 - 135 |
| PCB-77 | 1.00 | 1.04 | | ng/L | | 104 | 60 - 135 |
| PCB-81 | 1.00 | 0.921 | | ng/L | | 92 | 60 - 135 |
| PCB-104 | 1.00 | 1.08 | | ng/L | | 108 | 60 - 135 |
| PCB-105 | 1.00 | 1.07 | | ng/L | | 107 | 60 - 135 |
| PCB-114 | 1.00 | 1.14 | | ng/L | | 114 | 60 - 135 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: LCS 140-41399/6-A**
**Matrix: Water**
**Analysis Batch: 41606**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 41399**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PCB-118 | | | 1.00 | 1.11 | | ng/L | | 111 | 60 - 135 | | |
| PCB-123 | | | 1.00 | 1.09 | | ng/L | | 109 | 60 - 135 | | |
| PCB-126 | | | 1.00 | 1.14 | | ng/L | | 114 | 60 - 135 | | |
| PCB-155 | | | 1.00 | 1.04 | | ng/L | | 104 | 60 - 135 | | |
| PCB-156 | | | 2.00 | 2.12 | C | ng/L | | 106 | 60 - 135 | | |
| PCB-157 | | | 2.00 | 2.12 | C156 | ng/L | | 106 | 60 - 135 | | |
| PCB-167 | | | 1.00 | 1.09 | | ng/L | | 109 | 60 - 135 | | |
| PCB-169 | | | 1.00 | 0.966 | | ng/L | | 97 | 60 - 135 | | |
| PCB-188 | | | 1.00 | 0.998 | | ng/L | | 100 | 60 - 135 | | |
| PCB-189 | | | 1.00 | 1.08 | | ng/L | | 108 | 60 - 135 | | |
| PCB-202 | | | 1.00 | 0.912 | | ng/L | | 91 | 60 - 135 | | |
| PCB-205 | | | 1.00 | 1.12 | | ng/L | | 112 | 60 - 135 | | |
| PCB-206 | | | 1.00 | 0.889 | | ng/L | | 89 | 60 - 135 | | |
| PCB-208 | | | 1.00 | 0.893 | | ng/L | | 89 | 60 - 135 | | |
| PCB-209 | | | 1.00 | 0.837 | | ng/L | | 84 | 60 - 135 | | |

| *Isotope Dilution* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *PCB-1L* | *91* | | *15 - 145* |
| *PCB-3L* | *87* | | *15 - 145* |
| *PCB-4L* | *84* | | *15 - 145* |
| *PCB-15L* | *83* | | *15 - 145* |
| *PCB-19L* | *95* | | *15 - 145* |
| *PCB-37L* | *95* | | *15 - 145* |
| *PCB-54L* | *96* | | *15 - 145* |
| *PCB-77L* | *91* | | *40 - 145* |
| *PCB-81L* | *90* | | *40 - 145* |
| *PCB-104L* | *85* | | *40 - 145* |
| *PCB-105L* | *98* | | *40 - 145* |
| *PCB-114L* | *96* | | *40 - 145* |
| *PCB-118L* | *94* | | *40 - 145* |
| *PCB-123L* | *94* | | *40 - 145* |
| *PCB-126L* | *95* | | *40 - 145* |
| *PCB-155L* | *85* | | *40 - 145* |
| *PCB-156L* | *92* | *C* | *40 - 145* |
| *PCB-157L* | *92* | *C156* | *40 - 145* |
| *PCB-167L* | *94* | | *40 - 145* |
| *PCB-169L* | *96* | | *40 - 145* |
| *PCB-170L* | *88* | | *40 - 145* |
| *PCB-188L* | *96* | | *40 - 145* |
| *PCB-189L* | *101* | | *40 - 145* |
| *PCB-202L* | *101* | | *40 - 145* |
| *PCB-205L* | *82* | | *40 - 145* |
| *PCB-206L* | *83* | | *40 - 145* |
| *PCB-208L* | *88* | | *40 - 145* |
| *PCB-209L* | *77* | | *40 - 145* |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *PCB-28L* | *97* | | *15 - 145* |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: LCS 140-41399/6-A**
**Matrix: Water**
**Analysis Batch: 41606**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 41399**

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *PCB-111L* | *95* | | *40 - 145* |
| *PCB-178L* | *102* | | *40 - 145* |

## Method: EPA 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 180-323777/1-A**
**Matrix: Water**
**Analysis Batch: 324024**

**Client Sample ID: Method Blank**
**Prep Type: Total Recoverable**
**Prep Batch: 323777**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ND | | 30 | 13 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Arsenic | ND | | 1.0 | 0.31 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Barium | ND | | 10 | 1.6 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Cadmium | ND | | 1.0 | 0.22 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Calcium | 187 | J | 500 | 130 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Chromium | ND | | 2.0 | 1.5 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Cobalt | ND | | 0.50 | 0.13 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Copper | ND | | 2.0 | 0.63 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Iron | ND | | 50 | 20 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Silver | ND | | 1.0 | 0.18 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Potassium | ND | | 500 | 160 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Magnesium | ND | | 500 | 83 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Manganese | ND | | 5.0 | 0.87 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Sodium | ND | | 500 | 350 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Nickel | ND | | 1.0 | 0.34 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Lead | ND | | 1.0 | 0.13 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Antimony | ND | | 2.0 | 0.38 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Vanadium | ND | | 1.0 | 0.99 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |
| Zinc | 4.00 | J | 5.0 | 3.2 | ug/L | | 07/31/20 08:03 | 08/01/20 20:28 | 1 |

**Lab Sample ID: LCS 180-323777/2-A**
**Matrix: Water**
**Analysis Batch: 324024**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total Recoverable**
**Prep Batch: 323777**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Aluminum | 5000 | 4850 | | ug/L | | 97 | 80 - 120 |
| Arsenic | 1000 | 985 | | ug/L | | 98 | 80 - 120 |
| Barium | 1000 | 985 | | ug/L | | 99 | 80 - 120 |
| Beryllium | 500 | 495 | | ug/L | | 99 | 80 - 120 |
| Cadmium | 500 | 490 | | ug/L | | 98 | 80 - 120 |
| Calcium | 25000 | 27700 | | ug/L | | 111 | 80 - 120 |
| Chromium | 500 | 490 | | ug/L | | 98 | 80 - 120 |
| Cobalt | 500 | 488 | | ug/L | | 98 | 80 - 120 |
| Copper | 500 | 480 | | ug/L | | 96 | 80 - 120 |
| Iron | 5000 | 5020 | | ug/L | | 100 | 80 - 120 |
| Silver | 250 | 244 | | ug/L | | 98 | 80 - 120 |

## Method: EPA 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 180-323777/2-A**
**Matrix: Water**
**Analysis Batch: 324024**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total Recoverable**
**Prep Batch: 323777**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Potassium | 25000 | 24700 | | ug/L | | 99 | 80 - 120 |
| Magnesium | 25000 | 24900 | | ug/L | | 99 | 80 - 120 |
| Manganese | 500 | 485 | | ug/L | | 97 | 80 - 120 |
| Sodium | 25000 | 24100 | | ug/L | | 97 | 80 - 120 |
| Nickel | 500 | 478 | | ug/L | | 96 | 80 - 120 |
| Lead | 500 | 494 | | ug/L | | 99 | 80 - 120 |
| Antimony | 250 | 256 | | ug/L | | 102 | 80 - 120 |
| Selenium | 1000 | 994 | | ug/L | | 99 | 80 - 120 |
| Thallium | 1000 | 991 | | ug/L | | 99 | 80 - 120 |
| Vanadium | 500 | 486 | | ug/L | | 97 | 80 - 120 |
| Zinc | 250 | 248 | | ug/L | | 99 | 80 - 120 |

## Method: EPA 7470A - Mercury (CVAA)

**Lab Sample ID: MB 180-323724/1-A**
**Matrix: Water**
**Analysis Batch: 324008**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 323724**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 07/31/20 05:35 | 08/03/20 10:16 | 1 |

**Lab Sample ID: LCS 180-323724/2-A**
**Matrix: Water**
**Analysis Batch: 324008**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 323724**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Mercury | 2.50 | 2.66 | | ug/L | | 106 | 80 - 120 |

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 180-323013/2**
**Matrix: Water**
**Analysis Batch: 323013**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | ND | | 0.50 | 0.50 | mg/L | | | 07/25/20 13:18 | 1 |

**Lab Sample ID: LCS 180-323013/1**
**Matrix: Water**
**Analysis Batch: 323013**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 84.7 | 96.0 | | mg/L | | 113 | 80 - 120 |

## GC/MS Semi VOA

### Prep Batch: 323155

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Total/NA | Water | 3520C | |
| 180-108704-2 | OFW0100R | Total/NA | Water | 3520C | |
| 180-108704-3 | OFW0200N | Total/NA | Water | 3520C | |
| 180-108704-4 | OFW0300N | Total/NA | Water | 3520C | |
| 180-108704-5 | OFW0500N | Total/NA | Water | 3520C | |
| MB 180-323155/1-A | Method Blank | Total/NA | Water | 3520C | |
| LCS 180-323155/2-A | Lab Control Sample | Total/NA | Water | 3520C | |

### Analysis Batch: 323410

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Total/NA | Water | EPA 8270D LL | 323155 |
| 180-108704-2 | OFW0100R | Total/NA | Water | EPA 8270D LL | 323155 |
| 180-108704-3 | OFW0200N | Total/NA | Water | EPA 8270D LL | 323155 |
| 180-108704-4 | OFW0300N | Total/NA | Water | EPA 8270D LL | 323155 |
| 180-108704-5 | OFW0500N | Total/NA | Water | EPA 8270D LL | 323155 |

### Analysis Batch: 323469

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| MB 180-323155/1-A | Method Blank | Total/NA | Water | EPA 8270D LL | 323155 |
| LCS 180-323155/2-A | Lab Control Sample | Total/NA | Water | EPA 8270D LL | 323155 |

## GC Semi VOA

### Prep Batch: 444506

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Total/NA | Water | 3510C LVI | |
| 180-108704-2 | OFW0100R | Total/NA | Water | 3510C LVI | |
| 180-108704-3 | OFW0200N | Total/NA | Water | 3510C LVI | |
| 180-108704-4 | OFW0300N | Total/NA | Water | 3510C LVI | |
| 180-108704-5 | OFW0500N | Total/NA | Water | 3510C LVI | |
| MB 240-444506/6-A | Method Blank | Total/NA | Water | 3510C LVI | |
| LCS 240-444506/7-A | Lab Control Sample | Total/NA | Water | 3510C LVI | |

### Analysis Batch: 444816

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Total/NA | Water | 8015D | 444506 |
| 180-108704-2 | OFW0100R | Total/NA | Water | 8015D | 444506 |
| 180-108704-3 | OFW0200N | Total/NA | Water | 8015D | 444506 |
| 180-108704-5 | OFW0500N | Total/NA | Water | 8015D | 444506 |
| MB 240-444506/6-A | Method Blank | Total/NA | Water | 8015D | 444506 |
| LCS 240-444506/7-A | Lab Control Sample | Total/NA | Water | 8015D | 444506 |

### Analysis Batch: 444889

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-4 | OFW0300N | Total/NA | Water | 8015D | 444506 |

## Specialty Organics

### Prep Batch: 41399

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Total/NA | Water | HRMS-Sepf | |
| 180-108704-2 | OFW0100R | Total/NA | Water | HRMS-Sepf | |

## Specialty Organics (Continued)

### Prep Batch: 41399 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-3 | OFW0200N | Total/NA | Water | HRMS-Sepf | |
| 180-108704-4 | OFW0300N | Total/NA | Water | HRMS-Sepf | |
| 180-108704-5 | OFW0500N | Total/NA | Water | HRMS-Sepf | |
| MB 140-41399/7-A | Method Blank | Total/NA | Water | HRMS-Sepf | |
| LCS 140-41399/6-A | Lab Control Sample | Total/NA | Water | HRMS-Sepf | |

### Analysis Batch: 41606

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| MB 140-41399/7-A | Method Blank | Total/NA | Water | 1668C | 41399 |
| LCS 140-41399/6-A | Lab Control Sample | Total/NA | Water | 1668C | 41399 |

### Analysis Batch: 41619

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-4 | OFW0300N | Total/NA | Water | 1668C | 41399 |

### Analysis Batch: 41630

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Total/NA | Water | 1668C | 41399 |
| 180-108704-2 | OFW0100R | Total/NA | Water | 1668C | 41399 |
| 180-108704-3 | OFW0200N | Total/NA | Water | 1668C | 41399 |
| 180-108704-5 | OFW0500N | Total/NA | Water | 1668C | 41399 |

## Metals

### Prep Batch: 323724

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Total/NA | Water | 7470A | |
| 180-108704-2 | OFW0100R | Total/NA | Water | 7470A | |
| 180-108704-3 | OFW0200N | Total/NA | Water | 7470A | |
| 180-108704-4 | OFW0300N | Total/NA | Water | 7470A | |
| 180-108704-5 | OFW0500N | Total/NA | Water | 7470A | |
| MB 180-323724/1-A | Method Blank | Total/NA | Water | 7470A | |
| LCS 180-323724/2-A | Lab Control Sample | Total/NA | Water | 7470A | |

### Prep Batch: 323777

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Total Recoverable | Water | 3005A | |
| 180-108704-2 | OFW0100R | Total Recoverable | Water | 3005A | |
| 180-108704-3 | OFW0200N | Total Recoverable | Water | 3005A | |
| 180-108704-4 | OFW0300N | Total Recoverable | Water | 3005A | |
| 180-108704-5 | OFW0500N | Total Recoverable | Water | 3005A | |
| MB 180-323777/1-A | Method Blank | Total Recoverable | Water | 3005A | |
| LCS 180-323777/2-A | Lab Control Sample | Total Recoverable | Water | 3005A | |

### Analysis Batch: 324008

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Total/NA | Water | EPA 7470A | 323724 |
| 180-108704-2 | OFW0100R | Total/NA | Water | EPA 7470A | 323724 |
| 180-108704-3 | OFW0200N | Total/NA | Water | EPA 7470A | 323724 |
| 180-108704-4 | OFW0300N | Total/NA | Water | EPA 7470A | 323724 |
| 180-108704-5 | OFW0500N | Total/NA | Water | EPA 7470A | 323724 |

## Metals (Continued)

### Analysis Batch: 324008 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| MB 180-323724/1-A | Method Blank | Total/NA | Water | EPA 7470A | 323724 |
| LCS 180-323724/2-A | Lab Control Sample | Total/NA | Water | EPA 7470A | 323724 |

### Analysis Batch: 324024

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Total Recoverable | Water | EPA 6020A | 323777 |
| 180-108704-2 | OFW0100R | Total Recoverable | Water | EPA 6020A | 323777 |
| 180-108704-3 | OFW0200N | Total Recoverable | Water | EPA 6020A | 323777 |
| 180-108704-4 | OFW0300N | Total Recoverable | Water | EPA 6020A | 323777 |
| 180-108704-5 | OFW0500N | Total Recoverable | Water | EPA 6020A | 323777 |
| MB 180-323777/1-A | Method Blank | Total Recoverable | Water | EPA 6020A | 323777 |
| LCS 180-323777/2-A | Lab Control Sample | Total Recoverable | Water | EPA 6020A | 323777 |

### Analysis Batch: 324170

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Total Recoverable | Water | EPA 6020A | 323777 |
| 180-108704-2 | OFW0100R | Total Recoverable | Water | EPA 6020A | 323777 |
| 180-108704-3 | OFW0200N | Total Recoverable | Water | EPA 6020A | 323777 |
| 180-108704-4 | OFW0300N | Total Recoverable | Water | EPA 6020A | 323777 |
| 180-108704-5 | OFW0500N | Total Recoverable | Water | EPA 6020A | 323777 |

## General Chemistry

### Analysis Batch: 323013

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-108704-1 | OFW0100N | Total/NA | Water | SM 2540D | |
| 180-108704-2 | OFW0100R | Total/NA | Water | SM 2540D | |
| 180-108704-3 | OFW0200N | Total/NA | Water | SM 2540D | |
| 180-108704-4 | OFW0300N | Total/NA | Water | SM 2540D | |
| 180-108704-5 | OFW0500N | Total/NA | Water | SM 2540D | |
| MB 180-323013/2 | Method Blank | Total/NA | Water | SM 2540D | |
| LCS 180-323013/1 | Lab Control Sample | Total/NA | Water | SM 2540D | |

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

Baltimore #201

eurofins | Environment Testing America

| Client Information | Sampler: Qiang Huang | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-62216-12590.1 |
|---|---|---|---|---|
| Client Contact: Mr. Robert Kennedy | Phone: 240 - 374 - 8920 | E-Mail: Jill.Colussy@Eurofinset.com | | Page: Page 1 of 1 |
| Company: AECOM | | | | Job #: |
| Address: 250 Apollo Drive | Due Date Requested: | | | |
| City: Chelmsford | TAT Requested (days): Standard | | | |
| State, Zip: MA, 01824 | | | | |
| Phone: | PO #: 126546 | | | |
| Email: robert.kennedy@aecom.com | WO #: 60631088.3 | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: Pepco Benning Road | SSOW#: | | | |

**Analysis Requested**

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 1668C - PCB Congeners | 8270D - PAHs | 6020A - TAL Metals 6010C | 2540 - TSS | 8015D - TPH DRO/ORO | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | | | |
| OFW0100N | 7/22/20 | 1675 | G | W | | | X | X | X | X | X | | |
| OFW0100R | 7/22/20 | 1630 | G | W | | | X | X | X | X | X | | |
| OFW0200N | 7/22/20 | 1640 | G | W | | | X | X | X | X | X | | |
| OFW0300N | 7/22/20 | 1650 | G | W | | | X | X | X | X | X | | |
| OFW0500N | 7/22/20 | 1730 | G | W | | | X | X | X | X | X | | |

180-108704 Chain of Custody

*Possible Hazard Identification*
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

*Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)*
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

| | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|---|
| 1 | | 7-23-20 1300 | AECOM | | 7/23/20 1800 | ETA |
| 2 | | 7/23/20 1700 | ETA | | 7-24-20 | ETA/PT |
| 3 | | Date/Time: | Company | | Date/Time: 8:45 | Company |

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

# Do Not Lift Using This Tag




ORIGIN ID:KEUA (410) 869-0085
SETH CAPLAN
EUROFINS TESTAMERICA
7526 CONNELLEY DR
SUITE F
BALTIMORE, MD 21228
UNITED STATES US

SHIP DATE: 23JUL20
ACTWGT: 20.00 LB
CAD: 1030460/INET4280

BILL RECIPIENT

TO SAMPLE RECEIVING
TEST AMERICA PITTSBURGH
301 ALPHA DR
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058 REF: AECOM PEPCO
INV:
PO: DEPT:

56BJ3/C6A6/B766

FedEx Express

2 of 3
MPS# 0263 7710 7630 5408
Mstr# 7710 7630 5614

FRI - 24 JUL 10:30A
PRIORITY OVERNIGHT

0201

15238
PIT
PA-US

NA AGCA

Uncorrected temp 4.2 °C
Thermometer ID 14
CF 0 Initials

PT-WI-SR-001 effective 7/26/13

Part # 156297-435 RRDW2 EXP 05/21

DO NOT LIFT USING



ORIGIN ID:KEUA (410) 869-0085
SETH CAPLAN
EUROFINS TESTAMERICA
7526 CONNELLEY DR
SUITE F
BALTIMORE, MD 21228
UNITED STATES US

SHIP DATE: 23JUL20
ACTWGT: 20.00 LB
CAD: 1030460/INET4280

BILL RECIPIENT

TO SAMPLE RECEIVING
TEST AMERICA PITTSBURGH
301 ALPHA DR
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058 REF: AECOM PEPCO
INV:
PO: DEPT:

FedEx Express

3 of 3
MPS# 0263 7710 7630 5338
Mstr# 7710 7630 5614

FRI - 24 JUL 10:30A
PRIORITY OVERNIGHT
0201

NA AGCA
15238
PA-US PIT

Uncorrected temp 2.6 °C
Thermometer ID 14
CF 0 Initials MY

T-WI-SR-001 effective 7/26/13

Part # 156297-435 RRDW2 EXP 05/20



ORIGIN ID:KEUA (410) 869-0085
SETH CAPLAN
EUROFINS TESTAMERICA
7526 CONNELLEY DR
SUITE F
BALTIMORE, MD 21228
UNITED STATES US

SHIP DATE: 23JUL20
ACTWGT: 20.00 LB
CAD: 1030460/INET4280

BILL RECIPIENT

TO SAMPLE RECEIVING
TEST AMERICA PITTSBURGH
301 ALPHA DR
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058 REF: AECOM PEPCO
INV:
PO: DEPT:

FedEx Express

1 of 3
TRK# 0201 7710 7630 5614
## MASTER ##

FRI - 24 JUL 10:30A
PRIORITY OVERNIGHT

NA AGCA
15238
PA-US PIT

Uncorrected temp 3.5 °C
Thermometer ID 14
CF 0 Initials MY

PT-WI-SR-001 effective 7/26/13

Part # 156297-435 RRDW2 EXP 05/20

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

eurofins | Environment Testing America

| | | | | |
|---|---|---|---|---|
| **Client Information (Sub Contract Lab)** | Sampler: | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-404629.1 |
| Client Contact: Shipping/Receiving | Phone: | E-Mail: Jill.Colussy@Eurofinset.com | State of Origin: Maryland | Page: Page 1 of 1 |
| Company: TestAmerica Laboratories, Inc. | | Accreditations Required (See note): | | Job #: 180-108704-1 |
| Address: 5815 Middlebrook Pike, , | Due Date Requested: 8/7/2020 | | | |
| City: Knoxville | TAT Requested (days): | | | |
| State, Zip: TN, 37921 | | | | |
| Phone: 865-291-3000(Tel) 865-584-4315(Fax) | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

**Preservation Codes:**

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 1668C/1668_P_Sep PCB Congeners | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | |
| OFW0100N (180-108704-1) | 7/22/20 | 16:25 Eastern | | Water | | | X | 2 | RC/ND |
| OFW0100R (180-108704-2) | 7/22/20 | 16:30 Eastern | | Water | | | X | 2 | |
| OFW0200N (180-108704-3) | 7/22/20 | 16:40 Eastern | | Water | | | X | 2 | |
| OFW0300N (180-108704-4) | 7/22/20 | 16:50 Eastern | | Water | | | X | 2 | |
| OFW0500N (180-108704-5) | 7/22/20 | 17:30 Eastern | | Water | | | X | 2 | |

CUSTODY SEALS INTACT
RECEIVED AT RT 0.7/CT 0.7°C
DKD 7-28-20
1 COOLER FEDX # 168951018897 PO

180-108704 Chain of Custody

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be p fins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

| | |
|---|---|
| ***Possible Hazard Identification*** *Unconfirmed* | ***Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months* |
| Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4 | Special Instructions/QC Requirements: |

| | | | | | |
|---|---|---|---|---|---|
| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: | | |
| Relinquished by: [signature] | Date/Time: 7/27/20 1700 | Company: PNT | Received by: [signature] | Date/Time: 7-28-20 10:20 | Company: ETA KNX |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

| | | |
|---|---|---|
| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: |

Ver: 01/16/2019

Loc: 180
108704

**EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST** **Log In Number:**

| Review Items | Yes | No | NA | If No, what was the problem? |
|---|---|---|---|---|
| 1. Are the shipping containers intact? | ✓ | | ✓ | ☐ **Containers, Broken** |
| 2. Were ambient air containers received intact? | | | ✓ | ☐ Checked in lab |
| 3. The coolers/containers custody seal if present, is it intact? | ✓ | | | ☐ Yes<br>☐ NA |
| 4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)<br>Thermometer ID : SC68<br>Correction factor: 0.0 | ✓ | | | ☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel**<br>☐ **Cooler Out of Temp, Same Day Receipt** |
| 5. Were all of the sample containers received intact? | ✓ | | | ☐ **Containers, Broken** |
| 6. Were samples received in appropriate containers? | ✓ | | | ☐ **Containers, Improper; Client Contacted; Proceed/Cancel** |
| 7. Do sample container labels match COC? (IDs, Dates, Times) | ✓ | | | ☐ **COC & Samples Do Not Match**<br>☐ **COC Incorrect/Incomplete**<br>☐ **COC Not Received** |
| 8. Were all of the samples listed on the COC received? | ✓ | | | ☐ **Sample Received, Not on COC**<br>☐ **Sample on COC, Not Received** |
| 9. Is the date/time of sample collection noted? | ✓ | | | ☐ **COC; No Date/Time; Client Contacted** |
| 10. Was the sampler identified on the COC? | | | ✓ | ☐ **Sampler Not Listed on COC** |
| 11. Is the client and project name/# identified? | ✓ | | | ☐ **COC Incorrect/Incomplete** |
| 12. Are tests/parameters listed for each sample? | ✓ | | | ☐ **COC No tests on COC** |
| 13. Is the matrix of the samples noted? | ✓ | | | ☐ **COC Incorrect/Incomplete** |
| 14. Was COC relinquished? (Signed/Dated/Timed) | ✓ | | | ☐ **COC Incorrect/Incomplete** |
| 15. Were samples received within holding time? | ✓ | | | ☐ **Holding Time - Receipt** |
| 16. Were samples received with correct chemical preservative (excluding Encore)? | | | ✓ | ☐ **pH Adjusted, pH Included (See box 16A)**<br>☐ **Incorrect Preservative** |
| 17. Were VOA samples received without headspace? | | | ✓ | ☐ **Headspace (VOA only)** |
| 18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668)<br>Chlorine test strip lot number: 8178 2021/04 | ✓ | | | ☐ **Residual Chlorine** |
| 19. For 1613B water samples is pH<9? | | | ✓ | ☐ If no, notify lab to adjust |
| 20. For rad samples was sample activity info. Provided? | | | ✓ | ☐ Project missing info |

**Comments/Actions Taken**

**Labeling Verified by:** **Date:**

**pH test strip lot number:**

| | Box 16A: pH Preservation | Box 18A: Residual Chlorine |
|---|---|---|
| Preservative: | | |
| Lot Number: | | |
| Exp Date: | | |
| Analyst: | | |
| Date: | | |
| Time: | | |

Project #: _____ PM Instructions: _____

Sample Receiving Associate: _____ Date: 7.28.20

QA026R32.doc, 062719



8/7/2020

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-108704-1

**Login Number: 108704**
**List Number: 1**
**Creator: Watson, Debbie**

**List Source: Eurofins TestAmerica, Pittsburgh**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | False | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

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# ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-109612-1
Client Project/Site: Pepco Benning Road Facility

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

*Authorized for release by:*
*9/2/2020 12:46:34 PM*

Jill Colussy, Project Manager I
(412)963-2444
Jill.Colussy@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

*PA Lab ID: 02-00416*

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## Job ID: 180-109612-1

**Laboratory: Eurofins TestAmerica, Pittsburgh**

**Narrative**

# CASE NARRATIVE

## Client: AECOM

## Project: Pepco Benning Road Facility

## Report Number: 180-109612-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**
The samples were received on 08/14/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.9 C.

**SEMIVOLATILES**
The matrix spike of sample OFW0400N (180-109612-1) recovered outside of the control limits for several analytes.

**DRO**
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**PCB CONGENERS**
Several analytes were detected in method blank MB 140-41958/13-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

The laboratory control sample (LCS) for batch 140-41958 recovered outside control limits for the following analytes: PCB-104, PCB-155. These analytes were biased high in the LCS but were not detected above the reporting limit in the associated samples; therefore, the data have been reported as is with no adverse affects to data quality.

**METALS**
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**TOTAL SUSPENDED SOLIDS**
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

## Qualifiers

### GC/MS Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| F1 | MS and/or MSD recovery exceeds control limits. |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

### GC Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

### Dioxin

| Qualifier | Qualifier Description |
|---|---|
| * | LCS or LCSD is outside acceptance limits. |
| B | Compound was found in the blank and sample. |
| C | The compound co-eluted with other compounds |
| C108 | The compound co-eluted with PCB-108 |
| C110 | The compound co-eluted with PCB-110 |
| C12 | The compound co-eluted with PCB-12 |
| C128 | The compound co-eluted with PCB-128 |
| C129 | The compound co-eluted with PCB-129 |
| C134 | The compound co-eluted with PCB-134 |
| C135 | The compound co-eluted with PCB-135 |
| C139 | The compound co-eluted with PCB-139 |
| C147 | The compound co-eluted with PCB-147 |
| C153 | The compound co-eluted with PCB-153 |
| C156 | The compound co-eluted with PCB-156 |
| C171 | The compound co-eluted with PCB-171 |
| C18 | The compound co-eluted with PCB-18 |
| C180 | The compound co-eluted with PCB-180 |
| C183 | The compound co-eluted with PCB-183 |
| C198 | The compound co-eluted with PCB-198 |
| C20 | The compound co-eluted with PCB-20 |
| C21 | The compound co-eluted with PCB-21 |
| C26 | The compound co-eluted with PCB-26 |
| C40 | The compound co-eluted with PCB-40 |
| C43 | The compound co-eluted with PCB-43 |
| C44 | The compound co-eluted with PCB-44 |
| C45 | The compound co-eluted with PCB-45 |
| C49 | The compound co-eluted with PCB-49 |
| C50 | The compound co-eluted with PCB-50 |
| C59 | The compound co-eluted with PCB-59 |
| C61 | The compound co-eluted with PCB-61 |
| C83 | The compound co-eluted with PCB-83 |
| C85 | The compound co-eluted with PCB-85 |
| C86 | The compound co-eluted with PCB-86 |
| C88 | The compound co-eluted with PCB-88 |
| C90 | The compound co-eluted with PCB-90 |
| C93 | The compound co-eluted with PCB-93 |
| C98 | The compound co-eluted with PCB-98 |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| q | The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference. |

### Metals

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

# Definitions/Glossary

Client: AECOM
Job ID: 180-109612-1
Project/Site: Pepco Benning Road Facility

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CFU | Colony Forming Unit |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MCL | EPA recommended "Maximum Contaminant Level" |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| MPN | Most Probable Number |
| MQL | Method Quantitation Limit |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| NEG | Negative / Absent |
| POS | Positive / Present |
| PQL | Practical Quantitation Limit |
| PRES | Presumptive |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |
| TNTC | Too Numerous To Count |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-109612-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| Arkansas DEQ | State | 19-033-0 | 06-27-21 |
| California | State | 2891 | 04-30-21 |
| Connecticut | State | PH-0688 | 09-30-20 |
| Florida | NELAP | E871008 | 06-30-21 |
| Georgia | State | PA 02-00416 | 04-30-21 |
| Illinois | NELAP | 004375 | 06-30-21 |
| Kansas | NELAP | E-10350 | 01-31-21 |
| Kentucky (UST) | State | 162013 | 04-30-21 |
| Kentucky (WW) | State | KY98043 | 12-31-20 |
| Louisiana | NELAP | 04041 | 06-30-21 |
| Maine | State | PA00164 | 03-06-22 |
| Minnesota | NELAP | 042-999-482 | 12-31-20 |
| Nevada | State | PA00164 | 07-31-21 |
| New Hampshire | NELAP | 2030 | 04-05-21 |
| New Jersey | NELAP | PA005 | 06-30-21 |
| New York | NELAP | 11182 | 04-01-21 |
| North Carolina (WW/SW) | State | 434 | 01-01-21 |
| North Dakota | State | R-227 | 04-30-21 |
| Oregon | NELAP | PA-2151 | 02-06-21 |
| Pennsylvania | NELAP | 02-00416 | 04-30-21 |
| Rhode Island | State | LAO00362 | 12-31-20 |
| South Carolina | State | 89014 | 04-30-21 |
| Texas | NELAP | T104704528 | 03-31-21 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | Federal | P-Soil-01 | 06-26-22 |
| USDA | US Federal Programs | P330-16-00211 | 06-26-22 |
| Utah | NELAP | PA001462019-8 | 05-31-21 |
| Virginia | NELAP | 10043 | 09-15-20 |
| West Virginia DEP | State | 142 | 02-01-21 |
| Wisconsin | State | 998027800 | 08-31-20 |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-109612-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| California | State | 2927 | 02-23-21 |
| Connecticut | State | PH-0590 | 12-31-21 |
| Florida | NELAP | E87225 | 06-30-21 |
| Georgia | State | 4062 | 02-23-21 |
| Illinois | NELAP | 004498 | 07-31-20 * |
| Iowa | State | 421 | 06-01-21 |
| Kansas | NELAP | E-10336 | 04-30-21 |
| Kentucky (UST) | State | 112225 | 02-23-21 |
| Kentucky (WW) | State | KY98016 | 12-31-20 |
| Minnesota | NELAP | OH00048 | 12-31-20 |
| Minnesota (Petrofund) | State | 3506 | 08-01-21 |
| New Jersey | NELAP | OH001 | 06-30-21 |
| New York | NELAP | 10975 | 03-31-21 |
| Ohio VAP | State | CL0024 | 06-05-21 |
| Oregon | NELAP | 4062 | 02-24-21 |
| Pennsylvania | NELAP | 68-00340 | 08-31-20 |
| Texas | NELAP | T104704517-18-10 | 08-31-20 |
| USDA | US Federal Programs | P330-18-00281 | 09-17-21 |
| Virginia | NELAP | 010101 | 09-14-20 |
| Washington | State | C971 | 01-12-21 |
| West Virginia DEP | State | 210 | 12-31-20 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-109612-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| | AFCEE | N/A | |
| ANAB | Dept. of Defense ELAP | L2311 | 02-13-22 |
| ANAB | Dept. of Energy | L2311.01 | 02-13-22 |
| ANAB | ISO/IEC 17025 | L2311 | 02-13-22 |
| ANAB | ISO/IEC 17025 | L2311 | 02-14-22 |
| Arkansas DEQ | State | 88-0688 | 06-17-21 |
| California | State | 2423 | 06-30-21 |
| Colorado | State | TN00009 | 02-28-21 |
| Connecticut | State | PH-0223 | 09-30-21 |
| Florida | NELAP | E87177 | 07-01-21 |
| Georgia (DW) | State | 906 | 12-11-22 |
| Hawaii | State | NA | 12-11-21 |
| Kansas | NELAP | E-10349 | 11-01-20 |
| Kentucky (DW) | State | 90101 | 01-01-21 |
| Louisiana | NELAP | LA110001 | 12-31-12 * |
| Louisiana | NELAP | 83979 | 06-30-21 |
| Louisiana (DW) | State | LA019 | 12-31-20 |
| Maryland | State | 277 | 03-31-21 |
| Michigan | State | 9933 | 12-11-22 |
| Nevada | State | TN00009 | 07-31-21 |
| New Hampshire | NELAP | 299919 | 01-17-21 |
| New Jersey | NELAP | TN001 | 07-01-21 |
| New York | NELAP | 10781 | 03-31-21 |
| North Carolina (DW) | State | 21705 | 07-31-21 |
| North Carolina (WW/SW) | State | 64 | 12-31-20 |
| Ohio VAP | State | CL0059 | 06-02-23 |
| Oklahoma | State | 9415 | 08-31-20 |
| Oregon | NELAP | TNI0189 | 01-02-21 |
| Pennsylvania | NELAP | 68-00576 | 12-31-20 |
| Tennessee | State | 02014 | 12-11-22 |
| Texas | NELAP | T104704380-18-12 | 08-31-20 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | US Federal Programs | P330-19-00236 | 08-20-22 |
| Utah | NELAP | TN00009 | 07-31-21 |
| Virginia | NELAP | 460176 | 09-15-20 |
| Washington | State | C593 | 01-19-21 |
| West Virginia (DW) | State | 9955C | 01-01-21 |
| West Virginia DEP | State | 345 | 05-01-21 |
| Wisconsin | State | 998044300 | 08-31-21 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Sample Summary

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-109612-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 180-109612-1 | OFW0400N | Water | 08/13/20 08:50 | 08/14/20 09:00 | |

# Method Summary

Client: AECOM
Job ID: 180-109612-1
Project/Site: Pepco Benning Road Facility

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| EPA 8270D LL | Semivolatile Organic Compounds by GC/MS - Low Level | SW846 | TAL PIT |
| 8015D | Diesel Range Organics (DRO) (GC) | SW846 | TAL CAN |
| 1668C | Chlorinated Biphenyl Congeners (HRGC/HRMS) | EPA | TAL KNX |
| EPA 6020A | Metals (ICP/MS) | SW846 | TAL PIT |
| EPA 7470A | Mercury (CVAA) | SW846 | TAL PIT |
| SM 2540D | Solids, Total Suspended (TSS) | SM | TAL PIT |
| 3005A | Preparation, Total Recoverable or Dissolved Metals | SW846 | TAL PIT |
| 3510C LVI | Liquid-Liquid Extraction (Separatory Funnel) LVI | SW846 | TAL CAN |
| 3520C | Liquid-Liquid Extraction (Continuous) | SW846 | TAL PIT |
| 7470A | Preparation, Mercury | SW846 | TAL PIT |
| HRMS-Sepf | Separatory Funnel (Liquid-Liquid) Extraction | EPA | TAL KNX |

**Protocol References:**

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: AECOM
Job ID: 180-109612-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: OFW0400N
## Lab Sample ID: 180-109612-1
**Date Collected: 08/13/20 08:50**
**Matrix: Water**
**Date Received: 08/14/20 09:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3520C | | | 320 mL | 250 uL | 326164 | 08/19/20 09:22 | BJT | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 1 | 1 mL | 1 mL | 326981 | 08/25/20 15:32 | VVP | TAL PIT |
| | Instrument ID: CH732 | | | | | | | | | |
| Total/NA | Prep | 3510C LVI | | | 260 mL | 5 mL | 447423 | 08/17/20 09:11 | MDH | TAL CAN |
| Total/NA | Analysis | 8015D | | 1 | | | 447510 | 08/17/20 18:40 | LKG | TAL CAN |
| | Instrument ID: A2HP14R | | | | | | | | | |
| Total/NA | Prep | HRMS-Sepf | | | 1014.6 mL | 20 uL | 41958 | 08/19/20 15:50 | SMA | TAL KNX |
| Total/NA | Analysis | 1668C | | 1 | | | 42160 | 08/26/20 19:13 | JMN | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 326168 | 08/19/20 09:29 | KEM | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 327802 | 08/29/20 15:40 | RSK | TAL PIT |
| | Instrument ID: DORY | | | | | | | | | |
| Total/NA | Prep | 7470A | | | 50 mL | 50 mL | 326779 | 08/24/20 05:16 | RJR | TAL PIT |
| Total/NA | Analysis | EPA 7470A | | 1 | | | 326852 | 08/24/20 10:47 | RJR | TAL PIT |
| | Instrument ID: HGZ | | | | | | | | | |
| Total/NA | Analysis | SM 2540D | | 1 | 1000 mL | 1000 mL | 325702 | 08/15/20 10:59 | AGP | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

**Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

**Analyst References:**

Lab: TAL CAN
- Batch Type: Prep
  - MDH = Matthew Howell
- Batch Type: Analysis
  - LKG = Lucas Grossman

Lab: TAL KNX
- Batch Type: Prep
  - SMA = Syed Ahmed
- Batch Type: Analysis
  - JMN = Jon Nordquist

Lab: TAL PIT
- Batch Type: Prep
  - BJT = Bill Trout
  - KEM = Kimberly Mahoney
  - RJR = Ron Rosenbaum
- Batch Type: Analysis
  - AGP = Angela Partridge
  - RJR = Ron Rosenbaum
  - RSK = Robert Kurtz
  - VVP = Vincent Piccolino

## Client Sample ID: OFW0400N

**Date Collected: 08/13/20 08:50**
**Date Received: 08/14/20 09:00**

## Lab Sample ID: 180-109612-1

**Matrix: Water**

### Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | F1 | 0.15 | 0.051 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Acenaphthylene | ND | | 0.15 | 0.051 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Anthracene | ND | F1 | 0.15 | 0.038 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Benzo[a]anthracene | ND | F1 | 0.15 | 0.059 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Benzo[b]fluoranthene | ND | F1 | 0.15 | 0.076 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Benzo[k]fluoranthene | ND | F1 | 0.15 | 0.069 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Benzo[g,h,i]perylene | ND | F1 | 0.15 | 0.054 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Benzo[a]pyrene | ND | F1 | 0.15 | 0.041 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Chrysene | ND | F1 | 0.15 | 0.063 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Dibenz(a,h)anthracene | ND | F1 | 0.15 | 0.056 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Fluoranthene | ND | F1 | 0.15 | 0.047 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Fluorene | ND | F1 | 0.15 | 0.054 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | F1 | 0.15 | 0.066 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Naphthalene | ND | | 0.15 | 0.046 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| **Phenanthrene** | **0.058** | **J F1** | 0.15 | 0.043 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |
| Pyrene | ND | F1 | 0.15 | 0.042 | ug/L | | 08/19/20 09:22 | 08/25/20 15:32 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *58* | | *23 - 105* | *08/19/20 09:22* | *08/25/20 15:32* | *1* |
| *Nitrobenzene-d5 (Surr)* | *68* | | *28 - 111* | *08/19/20 09:22* | *08/25/20 15:32* | *1* |
| *Terphenyl-d14 (Surr)* | *44* | | *20 - 126* | *08/19/20 09:22* | *08/25/20 15:32* | *1* |

### Method: 8015D - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Diesel Range Organics [C10 - C28]** | **330** | **J** | 480 | 220 | ug/L | | 08/17/20 09:11 | 08/17/20 18:40 | 1 |
| **ORO C24-C40** | **560** | | 480 | 220 | ug/L | | 08/17/20 09:11 | 08/17/20 18:40 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *84* | | *52 - 121* | *08/17/20 09:11* | *08/17/20 18:40* | *1* |

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.0063** | **J B** | 0.039 | 0.00040 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-2** | **0.0035** | **J B q** | 0.039 | 0.00049 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-3** | **0.0048** | **J B q** | 0.039 | 0.00058 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-4** | **0.011** | **J** | 0.059 | 0.0041 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-5 | ND | | 0.039 | 0.0033 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-6** | **0.0033** | **J q** | 0.039 | 0.0029 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-7 | ND | | 0.039 | 0.0030 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-8** | **0.020** | **J q** | 0.059 | 0.0027 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-9 | ND | | 0.039 | 0.0031 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-10 | ND | | 0.039 | 0.0033 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-11** | **0.098** | **B** | 0.059 | 0.0029 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-12** | **0.0071** | **J C q** | 0.079 | 0.0030 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-13** | **0.0071** | **J C12 q** | 0.079 | 0.0030 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-14 | ND | | 0.039 | 0.0025 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-15** | **0.022** | **J** | 0.039 | 0.0032 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-16** | **0.0087** | **J** | 0.039 | 0.0014 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-17** | **0.0082** | **J q** | 0.039 | 0.0013 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-18** | **0.016** | **J C q** | 0.079 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-109612-1

**Client Sample ID: OFW0400N**
**Date Collected: 08/13/20 08:50**
**Date Received: 08/14/20 09:00**

**Lab Sample ID: 180-109612-1**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | ND | | 0.039 | 0.0015 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-20** | **0.051** | **J C B** | 0.079 | 0.0012 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-21** | **0.022** | **J C** | 0.079 | 0.0012 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-22** | **0.022** | **J** | 0.039 | 0.0013 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-23 | ND | | 0.039 | 0.0013 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-24 | ND | | 0.039 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-25** | **0.0038** | **J q** | 0.039 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-26** | **0.0077** | **J C** | 0.079 | 0.0012 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-27 | ND | | 0.039 | 0.00092 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-28** | **0.051** | **J B C20** | 0.079 | 0.0012 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-29** | **0.0077** | **J C26** | 0.079 | 0.0012 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-30** | **0.016** | **J C18 q** | 0.079 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-31** | **0.037** | **J B** | 0.039 | 0.0012 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-32** | **0.011** | **J** | 0.039 | 0.00088 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-33** | **0.022** | **J C21** | 0.079 | 0.0012 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-34 | ND | | 0.039 | 0.0013 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-35 | ND | | 0.039 | 0.0013 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-36 | ND | | 0.039 | 0.0012 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-37** | **0.031** | **J** | 0.039 | 0.0013 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-38 | ND | | 0.039 | 0.0013 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-39 | ND | | 0.039 | 0.0012 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-40** | **0.028** | **J C q** | 0.12 | 0.0028 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-41** | **0.028** | **J q C40** | 0.12 | 0.0028 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-42** | **0.015** | **J** | 0.039 | 0.0028 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-43 | ND | C | 0.079 | 0.0026 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-44** | **0.044** | **J C B** | 0.12 | 0.0025 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-45 | ND | C | 0.079 | 0.0029 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-46 | ND | | 0.039 | 0.0035 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-47** | **0.044** | **J B C44** | 0.12 | 0.0025 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-48** | **0.0073** | **J q** | 0.039 | 0.0028 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-49** | **0.023** | **J C** | 0.079 | 0.0023 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-50** | **0.0064** | **J C** | 0.079 | 0.0027 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-51 | ND | C45 | 0.079 | 0.0029 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-52** | **0.059** | **B** | 0.039 | 0.0028 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-53** | **0.0064** | **J C50** | 0.079 | 0.0027 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-54 | ND | | 0.039 | 0.00086 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-55** | **0.0039** | **J q** | 0.039 | 0.0020 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-56** | **0.032** | **J** | 0.039 | 0.0020 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-57 | ND | | 0.039 | 0.0021 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-58 | ND | | 0.039 | 0.0021 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-59** | **0.0045** | **J C q** | 0.12 | 0.0020 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-60** | **0.020** | **J** | 0.039 | 0.0021 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-61** | **0.093** | **J C B** | 0.16 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-62** | **0.0045** | **J C59 q** | 0.12 | 0.0020 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-63 | ND | | 0.039 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-64** | **0.034** | **J** | 0.039 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-65** | **0.044** | **J B C44** | 0.12 | 0.0025 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-66** | **0.058** | | 0.039 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-67 | ND | | 0.039 | 0.0018 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |

**Client Sample ID: OFW0400N**
**Date Collected: 08/13/20 08:50**
**Date Received: 08/14/20 09:00**

**Lab Sample ID: 180-109612-1**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | ND | | 0.039 | 0.0018 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-69** | **0.023** | **J C49** | 0.079 | 0.0023 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-70** | **0.093** | **J C61 B** | 0.16 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-71** | **0.028** | **J q C40** | 0.12 | 0.0028 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-72 | ND | | 0.039 | 0.0020 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-73 | ND | C43 | 0.079 | 0.0026 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-74** | **0.093** | **J C61 B** | 0.16 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-75** | **0.0045** | **J C59 q** | 0.12 | 0.0020 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-76** | **0.093** | **J C61 B** | 0.16 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-77** | **0.014** | **J** | 0.039 | 0.0020 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-78 | ND | | 0.039 | 0.0021 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-79 | ND | | 0.039 | 0.0018 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-80 | ND | | 0.039 | 0.0018 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-81 | ND | | 0.039 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-82** | **0.027** | **J q** | 0.039 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-83** | **0.086** | **C** | 0.079 | 0.0010 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-84** | **0.051** | | 0.039 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-85** | **0.037** | **J C B** | 0.12 | 0.00081 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-86** | **0.11** | **J C B** | 0.24 | 0.00082 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-87** | **0.11** | **J B C86** | 0.24 | 0.00082 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-88** | **0.023** | **J C** | 0.079 | 0.00099 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-89 | ND | | 0.039 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-90** | **0.15** | **C B** | 0.12 | 0.00083 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-91** | **0.023** | **J C88** | 0.079 | 0.00099 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-92** | **0.031** | **J** | 0.039 | 0.00094 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-93** | **0.0034** | **J C q** | 0.079 | 0.00095 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-94 | ND | | 0.039 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-95** | **0.14** | **B** | 0.039 | 0.0010 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-96 | ND | | 0.039 | 0.00081 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-97** | **0.11** | **J B C86** | 0.24 | 0.00082 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-98** | **0.0056** | **J C q** | 0.079 | 0.00092 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-99** | **0.086** | **C83** | 0.079 | 0.0010 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-100** | **0.0034** | **J C93 q** | 0.079 | 0.00095 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-101** | **0.15** | **B C90** | 0.12 | 0.00083 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-102** | **0.0056** | **J C98 q** | 0.079 | 0.00092 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-103 | ND | | 0.039 | 0.00094 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-104 | ND | * | 0.039 | 0.00072 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-105** | **0.064** | | 0.039 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-106 | ND | | 0.039 | 0.0020 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-107** | **0.011** | **J** | 0.039 | 0.0021 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-108** | **0.0067** | **J C q** | 0.079 | 0.0021 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-109** | **0.11** | **J B C86** | 0.24 | 0.00082 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-110** | **0.31** | **C B** | 0.079 | 0.00069 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-111 | ND | | 0.039 | 0.00066 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-112** | **0.0012** | **J** | 0.039 | 0.00070 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-113** | **0.15** | **B C90** | 0.12 | 0.00083 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-114 | ND | | 0.039 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-115** | **0.31** | **B C110** | 0.079 | 0.00069 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-116** | **0.037** | **J C85 B** | 0.12 | 0.00081 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |

**Client Sample ID: OFW0400N**
**Date Collected: 08/13/20 08:50**
**Date Received: 08/14/20 09:00**

**Lab Sample ID: 180-109612-1**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-117** | **0.037** | **J C85 B** | 0.12 | 0.00081 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-118** | **0.14** | **B** | 0.039 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-119** | **0.11** | **J B C86** | 0.24 | 0.00082 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-120 | ND | | 0.039 | 0.00068 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-121 | ND | | 0.039 | 0.00070 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-122 | ND | | 0.039 | 0.0023 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-123** | **0.0032** | **J q** | 0.039 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-124** | **0.0067** | **J q C108** | 0.079 | 0.0021 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-125** | **0.11** | **J B C86** | 0.24 | 0.00082 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-126** | **0.0027** | **J q** | 0.039 | 0.0021 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-127 | ND | | 0.039 | 0.0020 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-128** | **0.065** | **J C q** | 0.079 | 0.0030 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-129** | **0.41** | **C B** | 0.16 | 0.0031 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-130** | **0.024** | **J q** | 0.039 | 0.0040 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-131 | ND | | 0.039 | 0.0042 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-132** | **0.14** | | 0.039 | 0.0039 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-133 | ND | | 0.039 | 0.0038 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-134** | **0.020** | **J C q** | 0.079 | 0.0040 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-135** | **0.15** | **C** | 0.079 | 0.0012 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-136** | **0.043** | | 0.039 | 0.00084 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-137** | **0.015** | **J q** | 0.039 | 0.0034 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-138** | **0.41** | **B C129** | 0.16 | 0.0031 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-139** | **0.0099** | **J C** | 0.079 | 0.0034 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-140** | **0.0099** | **J C139** | 0.079 | 0.0034 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-141** | **0.084** | | 0.039 | 0.0036 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-142 | ND | | 0.039 | 0.0038 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-143** | **0.020** | **J C134 q** | 0.079 | 0.0040 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-144** | **0.019** | **J q** | 0.039 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-145 | ND | | 0.039 | 0.00080 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-146** | **0.056** | **B** | 0.039 | 0.0034 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-147** | **0.33** | **C B** | 0.079 | 0.0039 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-148 | ND | | 0.039 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-149** | **0.33** | **B C147** | 0.079 | 0.0039 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-150 | ND | | 0.039 | 0.00076 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-151** | **0.15** | **C135** | 0.079 | 0.0012 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-152 | ND | | 0.039 | 0.00082 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-153** | **0.26** | **C B** | 0.079 | 0.0027 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-154** | **0.0027** | **J q** | 0.039 | 0.00091 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-155 | ND | * | 0.039 | 0.00076 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-156** | **0.043** | **J C** | 0.079 | 0.0032 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-157** | **0.043** | **J C156** | 0.079 | 0.0032 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-158** | **0.048** | | 0.039 | 0.0024 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-159** | **0.0043** | **J** | 0.039 | 0.0025 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-160** | **0.41** | **B C129** | 0.16 | 0.0031 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-161 | ND | | 0.039 | 0.0025 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-162 | ND | | 0.039 | 0.0025 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-163** | **0.41** | **B C129** | 0.16 | 0.0031 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| **PCB-164** | **0.027** | **J q** | 0.039 | 0.0027 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-165 | ND | | 0.039 | 0.0029 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |

**Client Sample ID: OFW0400N**
**Date Collected: 08/13/20 08:50**
**Date Received: 08/14/20 09:00**

**Lab Sample ID: 180-109612-1**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 0.065 | J C128 q | 0.079 | 0.0030 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-167 | 0.017 | J | 0.039 | 0.0019 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-168 | 0.26 | B C153 | 0.079 | 0.0027 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-169 | ND | | 0.039 | 0.0021 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-170 | 0.13 | | 0.039 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-171 | 0.043 | J C | 0.079 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-172 | 0.026 | J | 0.039 | 0.0010 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-173 | 0.043 | J C171 | 0.079 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-174 | 0.13 | | 0.039 | 0.00098 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-175 | 0.0071 | J | 0.039 | 0.00095 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-176 | 0.015 | J | 0.039 | 0.00072 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-177 | 0.080 | | 0.039 | 0.0010 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-178 | 0.028 | J | 0.039 | 0.0010 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-179 | 0.054 | | 0.039 | 0.00076 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-180 | 0.25 | C B | 0.079 | 0.00080 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-181 | ND | | 0.039 | 0.00095 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-182 | ND | | 0.039 | 0.00092 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-183 | 0.086 | C B | 0.079 | 0.00093 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-184 | ND | | 0.039 | 0.00078 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-185 | 0.086 | B C183 | 0.079 | 0.00093 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-186 | ND | | 0.039 | 0.00076 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-187 | 0.15 | | 0.039 | 0.00088 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-188 | ND | | 0.039 | 0.00066 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-189 | 0.0054 | J | 0.039 | 0.0017 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-190 | 0.027 | J | 0.039 | 0.00069 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-191 | 0.0051 | J q | 0.039 | 0.00072 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-192 | ND | | 0.039 | 0.00080 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-193 | 0.25 | C180 B | 0.079 | 0.00080 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-194 | 0.064 | | 0.039 | 0.0024 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-195 | 0.037 | J | 0.039 | 0.0026 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-196 | 0.030 | J | 0.039 | 0.0010 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-197 | ND | | 0.039 | 0.00080 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-198 | 0.067 | J C B | 0.079 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-199 | 0.067 | J C198 B | 0.079 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-200 | 0.0069 | J | 0.039 | 0.00071 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-201 | 0.0060 | J q | 0.039 | 0.00073 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-202 | 0.0084 | J q | 0.039 | 0.00081 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-203 | 0.035 | J | 0.039 | 0.00094 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-204 | ND | | 0.039 | 0.00080 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-205 | ND | | 0.039 | 0.0020 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-206 | 0.032 | J | 0.039 | 0.0061 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-207 | ND | | 0.039 | 0.0041 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-208 | ND | | 0.039 | 0.0041 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| PCB-209 | 0.014 | J | 0.039 | 0.0014 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| Total Monochlorobiphenyls | 0.015 | J B q | 0.039 | 0.00049 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| Total Dichlorobiphenyls | 0.16 | B q | 0.079 | 0.0031 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| Total Trichlorobiphenyls | 0.22 | B q | 0.079 | 0.0012 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| Total Tetrachlorobiphenyls | 0.44 | B q | 0.16 | 0.0022 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| Total Pentachlorobiphenyls | 1.2 | B q | 0.24 | 0.0013 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |

**Client Sample ID: OFW0400N**
**Date Collected: 08/13/20 08:50**
**Date Received: 08/14/20 09:00**

**Lab Sample ID: 180-109612-1**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Hexachlorobiphenyls | 1.8 | B q | 0.16 | 0.0025 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| Total Heptachlorobiphenyls | 1.0 | B q | 0.079 | 0.00092 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| Total Octachlorobiphenyls | 0.25 | B q | 0.079 | 0.0013 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| Total Nonachlorobiphenyls | 0.032 | J | 0.039 | 0.0048 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |
| Polychlorinated biphenyls, Total | 5.1 | B q | 0.24 | 0.0021 | ng/L | | 08/19/20 15:50 | 08/26/20 19:13 | 1 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *68* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-3L* | *66* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-4L* | *68* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-15L* | *68* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-19L* | *73* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-37L* | *77* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-54L* | *78* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-77L* | *73* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-81L* | *72* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-104L* | *67* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-105L* | *71* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-114L* | *71* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-118L* | *72* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-123L* | *71* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-126L* | *73* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-155L* | *69* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-156L* | *67* | *C* | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-157L* | *67* | *C156* | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-167L* | *69* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-169L* | *66* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-170L* | *67* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-188L* | *73* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-189L* | *75* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-202L* | *81* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-205L* | *59* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-206L* | *65* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-208L* | *74* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-209L* | *62* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *95* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-111L* | *94* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |
| *PCB-178L* | *100* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 19:13* | *1* |

## Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 380 | | 30 | 13 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| Arsenic | 2.1 | | 1.0 | 0.31 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| Barium | 12 | | 10 | 1.6 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| Cadmium | ND | | 1.0 | 0.22 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| Calcium | 14000 | | 500 | 130 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| Chromium | 2.1 | | 2.0 | 1.5 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| Cobalt | 0.52 | | 0.50 | 0.13 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-109612-1

## Client Sample ID: OFW0400N

**Date Collected: 08/13/20 08:50**
**Date Received: 08/14/20 09:00**

## Lab Sample ID: 180-109612-1

**Matrix: Water**

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Copper** | **8.2** | | 2.0 | 0.63 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| **Iron** | **720** | | 50 | 20 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| Silver | ND | | 1.0 | 0.18 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| **Potassium** | **2000** | | 500 | 160 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| **Magnesium** | **3300** | | 500 | 83 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| **Manganese** | **21** | | 5.0 | 0.87 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| **Sodium** | **7900** | | 500 | 350 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| **Nickel** | **6.8** | | 1.0 | 0.34 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| **Lead** | **3.4** | | 1.0 | 0.13 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| **Antimony** | **0.51** | **J** | 2.0 | 0.38 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| **Vanadium** | **29** | | 1.0 | 0.99 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |
| **Zinc** | **36** | | 5.0 | 3.2 | ug/L | | 08/19/20 09:29 | 08/29/20 15:40 | 1 |

### Method: EPA 7470A - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 08/24/20 05:16 | 08/24/20 10:47 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Total Suspended Solids** | **17** | | 0.50 | 0.50 | mg/L | | | 08/15/20 10:59 | 1 |

## Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

**Lab Sample ID: MB 180-326164/1-A**
**Matrix: Water**
**Analysis Batch: 326981**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 326164**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.19 | 0.065 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Acenaphthylene | ND | | 0.19 | 0.065 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Anthracene | ND | | 0.19 | 0.049 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Benzo[a]anthracene | ND | | 0.19 | 0.075 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Benzo[b]fluoranthene | ND | | 0.19 | 0.097 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Benzo[k]fluoranthene | ND | | 0.19 | 0.088 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Benzo[g,h,i]perylene | ND | | 0.19 | 0.069 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Benzo[a]pyrene | ND | | 0.19 | 0.053 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Chrysene | ND | | 0.19 | 0.081 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.19 | 0.072 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Fluoranthene | ND | | 0.19 | 0.060 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Fluorene | ND | | 0.19 | 0.069 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.19 | 0.085 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Naphthalene | ND | | 0.19 | 0.059 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Phenanthrene | ND | | 0.19 | 0.055 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |
| Pyrene | ND | | 0.19 | 0.054 | ug/L | | 08/19/20 09:22 | 08/25/20 12:51 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *67* | | *23 - 105* | *08/19/20 09:22* | *08/25/20 12:51* | *1* |
| *Nitrobenzene-d5 (Surr)* | *67* | | *28 - 111* | *08/19/20 09:22* | *08/25/20 12:51* | *1* |
| *Terphenyl-d14 (Surr)* | *67* | | *20 - 126* | *08/19/20 09:22* | *08/25/20 12:51* | *1* |

**Lab Sample ID: LCS 180-326164/2-A**
**Matrix: Water**
**Analysis Batch: 326981**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 326164**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Acenaphthene | 20.0 | 15.1 | | ug/L | | 75 | 50 - 100 |
| Acenaphthylene | 20.0 | 14.8 | | ug/L | | 74 | 51 - 100 |
| Anthracene | 20.0 | 15.5 | | ug/L | | 77 | 53 - 100 |
| Benzo[a]anthracene | 20.0 | 15.3 | | ug/L | | 77 | 51 - 100 |
| Benzo[b]fluoranthene | 20.0 | 15.8 | | ug/L | | 79 | 45 - 100 |
| Benzo[k]fluoranthene | 20.0 | 15.8 | | ug/L | | 79 | 49 - 100 |
| Benzo[g,h,i]perylene | 20.0 | 16.4 | | ug/L | | 82 | 51 - 100 |
| Benzo[a]pyrene | 20.0 | 16.2 | | ug/L | | 81 | 51 - 100 |
| Chrysene | 20.0 | 16.1 | | ug/L | | 81 | 51 - 100 |
| Dibenz(a,h)anthracene | 20.0 | 16.2 | | ug/L | | 81 | 50 - 100 |
| Fluoranthene | 20.0 | 15.7 | | ug/L | | 78 | 54 - 100 |
| Fluorene | 20.0 | 14.8 | | ug/L | | 74 | 53 - 100 |
| Indeno[1,2,3-cd]pyrene | 20.0 | 16.4 | | ug/L | | 82 | 50 - 100 |
| Naphthalene | 20.0 | 14.1 | | ug/L | | 71 | 55 - 100 |
| Phenanthrene | 20.0 | 14.9 | | ug/L | | 74 | 51 - 100 |
| Pyrene | 20.0 | 16.5 | | ug/L | | 83 | 47 - 100 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *2-Fluorobiphenyl* | *74* | | *23 - 105* |
| *Nitrobenzene-d5 (Surr)* | *78* | | *28 - 111* |
| *Terphenyl-d14 (Surr)* | *85* | | *20 - 126* |

## Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

**Lab Sample ID: 180-109612-1 MS**
**Matrix: Water**
**Analysis Batch: 326981**

**Client Sample ID: OFW0400N**
**Prep Type: Total/NA**
**Prep Batch: 326164**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | F1 | 15.6 | 16.7 | F1 | ug/L | | 107 | 50 - 100 |
| Acenaphthylene | ND | | 15.6 | 15.4 | | ug/L | | 99 | 51 - 100 |
| Anthracene | ND | F1 | 15.6 | 16.7 | F1 | ug/L | | 107 | 53 - 100 |
| Benzo[a]anthracene | ND | F1 | 15.6 | 18.2 | F1 | ug/L | | 117 | 51 - 100 |
| Benzo[b]fluoranthene | ND | F1 | 15.6 | 17.7 | F1 | ug/L | | 113 | 45 - 100 |
| Benzo[k]fluoranthene | ND | F1 | 15.6 | 18.0 | F1 | ug/L | | 115 | 49 - 100 |
| Benzo[g,h,i]perylene | ND | F1 | 15.6 | 20.8 | F1 | ug/L | | 133 | 51 - 100 |
| Benzo[a]pyrene | ND | F1 | 15.6 | 16.3 | F1 | ug/L | | 104 | 51 - 100 |
| Chrysene | ND | F1 | 15.6 | 19.2 | F1 | ug/L | | 123 | 51 - 100 |
| Dibenz(a,h)anthracene | ND | F1 | 15.6 | 21.2 | F1 | ug/L | | 136 | 50 - 100 |
| Fluoranthene | ND | F1 | 15.6 | 18.6 | F1 | ug/L | | 119 | 54 - 100 |
| Fluorene | ND | F1 | 15.6 | 18.3 | F1 | ug/L | | 117 | 53 - 100 |
| Indeno[1,2,3-cd]pyrene | ND | F1 | 15.6 | 20.7 | F1 | ug/L | | 132 | 50 - 100 |
| Naphthalene | ND | | 15.6 | 13.1 | | ug/L | | 84 | 55 - 100 |
| Phenanthrene | 0.058 | J F1 | 15.6 | 18.3 | F1 | ug/L | | 117 | 51 - 100 |
| Pyrene | ND | F1 | 15.6 | 18.4 | F1 | ug/L | | 117 | 47 - 100 |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *2-Fluorobiphenyl* | *61* | | *23 - 105* |
| *Nitrobenzene-d5 (Surr)* | *67* | | *28 - 111* |
| *Terphenyl-d14 (Surr)* | *44* | | *20 - 126* |

## Method: 8015D - Diesel Range Organics (DRO) (GC)

**Lab Sample ID: MB 240-447423/3-A**
**Matrix: Water**
**Analysis Batch: 447510**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 447423**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics [C10 - C28] | ND | | 500 | 230 | ug/L | | 08/17/20 09:11 | 08/17/20 17:45 | 1 |
| ORO C24-C40 | ND | | 500 | 230 | ug/L | | 08/17/20 09:11 | 08/17/20 17:45 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *85* | | *52 - 121* | *08/17/20 09:11* | *08/17/20 17:45* | *1* |

**Lab Sample ID: LCS 240-447423/4-A**
**Matrix: Water**
**Analysis Batch: 447510**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 447423**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics [C10 - C28] | | | 2000 | 1800 | | ug/L | | 90 | 56 - 120 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *87* | | *52 - 121* |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

**Lab Sample ID: MB 140-41958/13-A**
**Matrix: Water**
**Analysis Batch: 42160**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 41958**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1 | 0.00228 | J q | 0.040 | 0.00025 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-2 | 0.00261 | J q | 0.040 | 0.00031 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-3 | 0.00269 | J | 0.040 | 0.00037 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-4 | ND | | 0.060 | 0.0042 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-5 | ND | | 0.040 | 0.0036 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-6 | ND | | 0.040 | 0.0032 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-7 | ND | | 0.040 | 0.0033 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-8 | ND | | 0.060 | 0.0030 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-9 | ND | | 0.040 | 0.0034 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-10 | ND | | 0.040 | 0.0036 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-11 | 0.00889 | J q | 0.060 | 0.0031 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-12 | ND | C | 0.080 | 0.0032 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-13 | ND | C12 | 0.080 | 0.0032 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-14 | ND | | 0.040 | 0.0028 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-15 | ND | | 0.040 | 0.0036 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-16 | ND | | 0.040 | 0.00085 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-17 | ND | | 0.040 | 0.00076 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-18 | ND | C | 0.080 | 0.00067 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-19 | ND | | 0.040 | 0.00094 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-20 | 0.00215 | J C | 0.080 | 0.00055 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-21 | ND | C | 0.080 | 0.00054 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-22 | ND | | 0.040 | 0.00057 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-23 | ND | | 0.040 | 0.00056 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-24 | ND | | 0.040 | 0.00064 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-25 | ND | | 0.040 | 0.00051 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-26 | ND | C | 0.080 | 0.00054 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-27 | ND | | 0.040 | 0.00056 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-28 | 0.00215 | J C20 | 0.080 | 0.00055 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-29 | ND | C26 | 0.080 | 0.00054 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-30 | ND | C18 | 0.080 | 0.00067 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-31 | 0.00188 | J q | 0.040 | 0.00054 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-32 | ND | | 0.040 | 0.00053 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-33 | ND | C21 | 0.080 | 0.00054 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-34 | ND | | 0.040 | 0.00058 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-35 | ND | | 0.040 | 0.00057 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-36 | ND | | 0.040 | 0.00055 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-37 | ND | | 0.040 | 0.00056 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-38 | ND | | 0.040 | 0.00059 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-39 | ND | | 0.040 | 0.00053 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-40 | ND | C | 0.12 | 0.00090 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-41 | ND | C40 | 0.12 | 0.00090 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-42 | ND | | 0.040 | 0.00090 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-43 | ND | C | 0.080 | 0.00085 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-44 | 0.00900 | J C | 0.12 | 0.00080 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-45 | ND | C | 0.080 | 0.00095 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-46 | ND | | 0.040 | 0.0011 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-47 | 0.00900 | J C44 | 0.12 | 0.00080 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-48 | ND | | 0.040 | 0.00090 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-41958/13-A**
**Matrix: Water**
**Analysis Batch: 42160**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 41958**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-49 | ND | C | 0.080 | 0.00074 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-50 | ND | C | 0.080 | 0.00088 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-51 | ND | C45 | 0.080 | 0.00095 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-52 | 0.00140 | J q | 0.040 | 0.00090 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-53 | ND | C50 | 0.080 | 0.00088 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-54 | ND | | 0.040 | 0.00014 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-55 | ND | | 0.040 | 0.00066 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-56 | ND | | 0.040 | 0.00066 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-57 | ND | | 0.040 | 0.00067 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-58 | ND | | 0.040 | 0.00068 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-59 | ND | C | 0.12 | 0.00064 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-60 | ND | | 0.040 | 0.00067 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-61 | 0.00210 | J q C | 0.16 | 0.00063 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-62 | ND | C59 | 0.12 | 0.00064 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-63 | ND | | 0.040 | 0.00061 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-64 | ND | | 0.040 | 0.00060 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-65 | 0.00900 | J C44 | 0.12 | 0.00080 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-66 | ND | | 0.040 | 0.00063 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-67 | ND | | 0.040 | 0.00058 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-68 | 0.00163 | J | 0.040 | 0.00059 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-69 | ND | C49 | 0.080 | 0.00074 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-70 | 0.00210 | J q C61 | 0.16 | 0.00063 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-71 | ND | C40 | 0.12 | 0.00090 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-72 | ND | | 0.040 | 0.00065 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-73 | ND | C43 | 0.080 | 0.00085 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-74 | 0.00210 | J q C61 | 0.16 | 0.00063 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-75 | ND | C59 | 0.12 | 0.00064 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-76 | 0.00210 | J q C61 | 0.16 | 0.00063 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-77 | ND | | 0.040 | 0.00065 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-78 | ND | | 0.040 | 0.00068 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-79 | ND | | 0.040 | 0.00059 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-80 | ND | | 0.040 | 0.00057 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-81 | ND | | 0.040 | 0.00060 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-82 | ND | | 0.040 | 0.00030 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-83 | ND | C | 0.080 | 0.00027 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-84 | ND | | 0.040 | 0.00030 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-85 | 0.00167 | J q C | 0.12 | 0.00022 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-86 | 0.00271 | J C | 0.24 | 0.00022 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-87 | 0.00271 | J C86 | 0.24 | 0.00022 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-88 | ND | C | 0.080 | 0.00027 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-89 | ND | | 0.040 | 0.00029 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-90 | 0.00321 | J C | 0.12 | 0.00023 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-91 | ND | C88 | 0.080 | 0.00027 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-92 | ND | | 0.040 | 0.00026 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-93 | ND | C | 0.080 | 0.00026 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-94 | ND | | 0.040 | 0.00029 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-95 | 0.00195 | J q | 0.040 | 0.00028 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-96 | ND | | 0.040 | 0.00022 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-97 | 0.00271 | J C86 | 0.24 | 0.00022 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-41958/13-A**
**Matrix: Water**
**Analysis Batch: 42160**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 41958**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-98 | ND | C | 0.080 | 0.00025 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-99 | ND | C83 | 0.080 | 0.00027 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-100 | ND | C93 | 0.080 | 0.00026 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-101 | 0.00321 | J C90 | 0.12 | 0.00023 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-102 | ND | C98 | 0.080 | 0.00025 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-103 | ND | | 0.040 | 0.00026 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-104 | ND | | 0.040 | 0.00020 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-105 | ND | | 0.040 | 0.00040 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-106 | ND | | 0.040 | 0.00043 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-107 | ND | | 0.040 | 0.00046 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-108 | ND | C | 0.080 | 0.00044 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-109 | 0.00271 | J C86 | 0.24 | 0.00022 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-110 | 0.00243 | J C | 0.080 | 0.00019 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-111 | ND | | 0.040 | 0.00018 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-112 | ND | | 0.040 | 0.00019 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-113 | 0.00321 | J C90 | 0.12 | 0.00023 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-114 | ND | | 0.040 | 0.00040 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-115 | 0.00243 | J C110 | 0.080 | 0.00019 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-116 | 0.00167 | J q C85 | 0.12 | 0.00022 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-117 | 0.00167 | J q C85 | 0.12 | 0.00022 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-118 | 0.00107 | J q | 0.040 | 0.00039 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-119 | 0.00271 | J C86 | 0.24 | 0.00022 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-120 | ND | | 0.040 | 0.00018 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-121 | ND | | 0.040 | 0.00019 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-122 | ND | | 0.040 | 0.00049 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-123 | ND | | 0.040 | 0.00043 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-124 | ND | C108 | 0.080 | 0.00044 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-125 | 0.00271 | J C86 | 0.24 | 0.00022 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-126 | ND | | 0.040 | 0.00047 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-127 | ND | | 0.040 | 0.00043 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-128 | ND | C | 0.080 | 0.00037 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-129 | 0.00201 | J C | 0.16 | 0.00038 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-130 | ND | | 0.040 | 0.00050 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-131 | ND | | 0.040 | 0.00052 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-132 | ND | | 0.040 | 0.00049 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-133 | ND | | 0.040 | 0.00047 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-134 | ND | C | 0.080 | 0.00050 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-135 | ND | C | 0.080 | 0.00021 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-136 | ND | | 0.040 | 0.00015 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-137 | ND | | 0.040 | 0.00043 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-138 | 0.00201 | J C129 | 0.16 | 0.00038 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-139 | ND | C | 0.080 | 0.00042 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-140 | ND | C139 | 0.080 | 0.00042 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-141 | ND | | 0.040 | 0.00044 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-142 | ND | | 0.040 | 0.00047 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-143 | ND | C134 | 0.080 | 0.00050 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-144 | ND | | 0.040 | 0.00019 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-145 | ND | | 0.040 | 0.00015 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-146 | 0.000829 | J q | 0.040 | 0.00042 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-41958/13-A**
**Matrix: Water**
**Analysis Batch: 42160**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 41958**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-147 | 0.000817 | J q C | 0.080 | 0.00048 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-148 | ND | | 0.040 | 0.00021 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-149 | 0.000817 | J q C147 | 0.080 | 0.00048 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-150 | ND | | 0.040 | 0.00014 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-151 | ND | C135 | 0.080 | 0.00021 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-152 | ND | | 0.040 | 0.00015 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-153 | 0.00126 | J q C | 0.080 | 0.00033 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-154 | ND | | 0.040 | 0.00017 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-155 | ND | | 0.040 | 0.00014 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-156 | ND | C | 0.080 | 0.00040 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-157 | ND | C156 | 0.080 | 0.00040 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-158 | ND | | 0.040 | 0.00030 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-159 | ND | | 0.040 | 0.00032 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-160 | 0.00201 | J C129 | 0.16 | 0.00038 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-161 | ND | | 0.040 | 0.00031 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-162 | ND | | 0.040 | 0.00031 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-163 | 0.00201 | J C129 | 0.16 | 0.00038 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-164 | ND | | 0.040 | 0.00033 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-165 | ND | | 0.040 | 0.00036 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-166 | ND | C128 | 0.080 | 0.00037 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-167 | ND | | 0.040 | 0.00024 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-168 | 0.00126 | J q C153 | 0.080 | 0.00033 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-169 | ND | | 0.040 | 0.00025 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-170 | ND | | 0.040 | 0.00017 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-171 | ND | C | 0.080 | 0.00018 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-172 | ND | | 0.040 | 0.00018 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-173 | ND | C171 | 0.080 | 0.00018 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-174 | ND | | 0.040 | 0.00017 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-175 | ND | | 0.040 | 0.00017 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-176 | ND | | 0.040 | 0.00013 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-177 | ND | | 0.040 | 0.00018 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-178 | ND | | 0.040 | 0.00018 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-179 | ND | | 0.040 | 0.00013 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-180 | 0.00202 | J q C | 0.080 | 0.00014 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-181 | ND | | 0.040 | 0.00017 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-182 | ND | | 0.040 | 0.00016 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-183 | 0.00201 | J C | 0.080 | 0.00016 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-184 | ND | | 0.040 | 0.00014 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-185 | 0.00201 | J C183 | 0.080 | 0.00016 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-186 | ND | | 0.040 | 0.00013 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-187 | ND | | 0.040 | 0.00015 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-188 | ND | | 0.040 | 0.00013 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-189 | ND | | 0.040 | 0.00031 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-190 | ND | | 0.040 | 0.00012 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-191 | ND | | 0.040 | 0.00013 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-192 | ND | | 0.040 | 0.00014 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-193 | 0.00202 | J q C180 | 0.080 | 0.00014 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-194 | ND | | 0.040 | 0.00029 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-195 | ND | | 0.040 | 0.00032 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-41958/13-A**
**Matrix: Water**
**Analysis Batch: 42160**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 41958**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-196 | ND | | 0.040 | 0.000087 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-197 | ND | | 0.040 | 0.000067 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-198 | 0.000803 | J C | 0.080 | 0.000089 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-199 | 0.000803 | J C198 | 0.080 | 0.000089 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-200 | ND | | 0.040 | 0.000059 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-201 | ND | | 0.040 | 0.000061 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-202 | ND | | 0.040 | 0.000068 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-203 | ND | | 0.040 | 0.000079 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-204 | ND | | 0.040 | 0.000067 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-205 | 0.00127 | J | 0.040 | 0.00025 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-206 | ND | | 0.040 | 0.0018 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-207 | ND | | 0.040 | 0.0013 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-208 | ND | | 0.040 | 0.0013 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-209 | ND | | 0.040 | 0.00023 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| Total Monochlorobiphenyls | 0.00758 | J q | 0.040 | 0.00031 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| Total Dichlorobiphenyls | 0.00889 | J q | 0.080 | 0.0034 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| Total Trichlorobiphenyls | 0.00403 | J q | 0.080 | 0.00061 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| Total Tetrachlorobiphenyls | 0.0141 | J q | 0.16 | 0.00071 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| Total Pentachlorobiphenyls | 0.0130 | J q | 0.24 | 0.00030 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| Total Hexachlorobiphenyls | 0.00492 | J q | 0.16 | 0.00033 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| Total Heptachlorobiphenyls | 0.00403 | J q | 0.080 | 0.00016 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| Total Octachlorobiphenyls | 0.00207 | J | 0.080 | 0.00013 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| Total Nonachlorobiphenyls | ND | | 0.040 | 0.0018 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| Polychlorinated biphenyls, Total | 0.0587 | J q | 0.24 | 0.00085 | ng/L | | 08/19/20 15:50 | 08/26/20 15:08 | 1 |

| *Isotope Dilution* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *62* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-3L* | *61* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-4L* | *66* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-15L* | *70* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-19L* | *68* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-37L* | *76* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-54L* | *73* | | *5 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-77L* | *79* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-81L* | *77* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-104L* | *56* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-105L* | *81* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-114L* | *77* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-118L* | *78* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-123L* | *75* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-126L* | *76* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-155L* | *58* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-156L* | *79* | *C* | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-157L* | *79* | *C156* | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-167L* | *80* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-169L* | *82* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-170L* | *78* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-188L* | *69* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |
| *PCB-189L* | *81* | | *10 - 145* | *08/19/20 15:50* | *08/26/20 15:08* | *1* |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-41958/13-A**
**Matrix: Water**
**Analysis Batch: 42160**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 41958**

| Isotope Dilution | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-202L | 85 | | 10 - 145 | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-205L | 71 | | 10 - 145 | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-206L | 75 | | 10 - 145 | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-208L | 78 | | 10 - 145 | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-209L | 70 | | 10 - 145 | 08/19/20 15:50 | 08/26/20 15:08 | 1 |

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-28L | 90 | | 5 - 145 | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-111L | 89 | | 10 - 145 | 08/19/20 15:50 | 08/26/20 15:08 | 1 |
| PCB-178L | 94 | | 10 - 145 | 08/19/20 15:50 | 08/26/20 15:08 | 1 |

**Lab Sample ID: LCS 140-41958/12-A**
**Matrix: Water**
**Analysis Batch: 42191**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 41958**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| PCB-1 | 1.00 | 0.983 | | ng/L | | 98 | 60 - 135 |
| PCB-3 | 1.00 | 1.02 | | ng/L | | 102 | 60 - 135 |
| PCB-4 | 1.00 | 1.16 | | ng/L | | 116 | 60 - 135 |
| PCB-15 | 1.00 | 1.34 | | ng/L | | 134 | 60 - 135 |
| PCB-19 | 1.00 | 1.26 | | ng/L | | 126 | 60 - 135 |
| PCB-37 | 1.00 | 1.12 | | ng/L | | 112 | 60 - 135 |
| PCB-54 | 1.00 | 1.15 | | ng/L | | 115 | 60 - 135 |
| PCB-77 | 1.00 | 1.04 | | ng/L | | 104 | 60 - 135 |
| PCB-81 | 1.00 | 1.08 | | ng/L | | 108 | 60 - 135 |
| PCB-104 | 1.00 | 1.42 | * | ng/L | | 142 | 60 - 135 |
| PCB-105 | 1.00 | 1.11 | | ng/L | | 111 | 60 - 135 |
| PCB-114 | 1.00 | 1.24 | | ng/L | | 124 | 60 - 135 |
| PCB-118 | 1.00 | 1.17 | | ng/L | | 117 | 60 - 135 |
| PCB-123 | 1.00 | 1.29 | | ng/L | | 129 | 60 - 135 |
| PCB-126 | 1.00 | 1.18 | | ng/L | | 118 | 60 - 135 |
| PCB-155 | 1.00 | 1.43 | * | ng/L | | 143 | 60 - 135 |
| PCB-156 | 2.00 | 2.32 | C | ng/L | | 116 | 60 - 135 |
| PCB-157 | 2.00 | 2.32 | C156 | ng/L | | 116 | 60 - 135 |
| PCB-167 | 1.00 | 1.17 | | ng/L | | 117 | 60 - 135 |
| PCB-169 | 1.00 | 1.05 | | ng/L | | 105 | 60 - 135 |
| PCB-188 | 1.00 | 1.23 | | ng/L | | 123 | 60 - 135 |
| PCB-189 | 1.00 | 1.13 | | ng/L | | 113 | 60 - 135 |
| PCB-202 | 1.00 | 0.988 | | ng/L | | 99 | 60 - 135 |
| PCB-205 | 1.00 | 1.21 | | ng/L | | 121 | 60 - 135 |
| PCB-206 | 1.00 | 0.885 | | ng/L | | 88 | 60 - 135 |
| PCB-208 | 1.00 | 0.912 | | ng/L | | 91 | 60 - 135 |
| PCB-209 | 1.00 | 0.683 | | ng/L | | 68 | 60 - 135 |

| Isotope Dilution | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| PCB-1L | 78 | | 15 - 145 |
| PCB-3L | 77 | | 15 - 145 |
| PCB-4L | 69 | | 15 - 145 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: LCS 140-41958/12-A**
**Matrix: Water**
**Analysis Batch: 42191**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 41958**

| Isotope Dilution | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| PCB-15L | 66 | | 15 - 145 |
| PCB-19L | 77 | | 15 - 145 |
| PCB-37L | 79 | | 15 - 145 |
| PCB-54L | 68 | | 15 - 145 |
| PCB-77L | 80 | | 40 - 145 |
| PCB-81L | 77 | | 40 - 145 |
| PCB-104L | 59 | | 40 - 145 |
| PCB-105L | 83 | | 40 - 145 |
| PCB-114L | 80 | | 40 - 145 |
| PCB-118L | 79 | | 40 - 145 |
| PCB-123L | 77 | | 40 - 145 |
| PCB-126L | 80 | | 40 - 145 |
| PCB-155L | 56 | | 40 - 145 |
| PCB-156L | 79 | C | 40 - 145 |
| PCB-157L | 79 | C156 | 40 - 145 |
| PCB-167L | 81 | | 40 - 145 |
| PCB-169L | 85 | | 40 - 145 |
| PCB-170L | 78 | | 40 - 145 |
| PCB-188L | 70 | | 40 - 145 |
| PCB-189L | 83 | | 40 - 145 |
| PCB-202L | 81 | | 40 - 145 |
| PCB-205L | 68 | | 40 - 145 |
| PCB-206L | 70 | | 40 - 145 |
| PCB-208L | 67 | | 40 - 145 |
| PCB-209L | 66 | | 40 - 145 |

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| PCB-28L | 94 | | 15 - 145 |
| PCB-111L | 88 | | 40 - 145 |
| PCB-178L | 95 | | 40 - 145 |

## Method: EPA 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 180-326168/1-A**
**Matrix: Water**
**Analysis Batch: 327802**

**Client Sample ID: Method Blank**
**Prep Type: Total Recoverable**
**Prep Batch: 326168**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ND | | 30 | 13 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Arsenic | ND | | 1.0 | 0.31 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Barium | ND | | 10 | 1.6 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Cadmium | ND | | 1.0 | 0.22 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Calcium | ND | | 500 | 130 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Chromium | ND | | 2.0 | 1.5 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Cobalt | ND | | 0.50 | 0.13 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Copper | ND | | 2.0 | 0.63 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Iron | ND | | 50 | 20 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Silver | ND | | 1.0 | 0.18 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |

## Method: EPA 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 180-326168/1-A**
**Matrix: Water**
**Analysis Batch: 327802**

**Client Sample ID: Method Blank**
**Prep Type: Total Recoverable**
**Prep Batch: 326168**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Potassium | ND | | 500 | 160 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Magnesium | ND | | 500 | 83 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Manganese | ND | | 5.0 | 0.87 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Sodium | ND | | 500 | 350 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Nickel | ND | | 1.0 | 0.34 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Lead | ND | | 1.0 | 0.13 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Antimony | ND | | 2.0 | 0.38 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Vanadium | ND | | 1.0 | 0.99 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |
| Zinc | ND | | 5.0 | 3.2 | ug/L | | 08/19/20 09:29 | 08/29/20 15:30 | 1 |

**Lab Sample ID: LCS 180-326168/2-A**
**Matrix: Water**
**Analysis Batch: 327802**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total Recoverable**
**Prep Batch: 326168**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Aluminum | 5000 | 4820 | | ug/L | | 96 | 80 - 120 |
| Arsenic | 1000 | 1000 | | ug/L | | 100 | 80 - 120 |
| Barium | 1000 | 1060 | | ug/L | | 106 | 80 - 120 |
| Beryllium | 500 | 482 | | ug/L | | 96 | 80 - 120 |
| Cadmium | 500 | 487 | | ug/L | | 97 | 80 - 120 |
| Calcium | 25000 | 27700 | | ug/L | | 111 | 80 - 120 |
| Chromium | 500 | 509 | | ug/L | | 102 | 80 - 120 |
| Cobalt | 500 | 484 | | ug/L | | 97 | 80 - 120 |
| Copper | 500 | 487 | | ug/L | | 97 | 80 - 120 |
| Iron | 5000 | 4930 | | ug/L | | 99 | 80 - 120 |
| Silver | 250 | 246 | | ug/L | | 99 | 80 - 120 |
| Potassium | 25000 | 24900 | | ug/L | | 99 | 80 - 120 |
| Magnesium | 25000 | 24900 | | ug/L | | 100 | 80 - 120 |
| Manganese | 500 | 487 | | ug/L | | 97 | 80 - 120 |
| Sodium | 25000 | 24400 | | ug/L | | 97 | 80 - 120 |
| Nickel | 500 | 495 | | ug/L | | 99 | 80 - 120 |
| Lead | 500 | 500 | | ug/L | | 100 | 80 - 120 |
| Antimony | 250 | 265 | | ug/L | | 106 | 80 - 120 |
| Selenium | 1000 | 1030 | | ug/L | | 103 | 80 - 120 |
| Thallium | 1000 | 1020 | | ug/L | | 102 | 80 - 120 |
| Vanadium | 500 | 498 | | ug/L | | 100 | 80 - 120 |
| Zinc | 250 | 249 | | ug/L | | 100 | 80 - 120 |

## Method: EPA 7470A - Mercury (CVAA)

**Lab Sample ID: MB 180-326779/1-A**
**Matrix: Water**
**Analysis Batch: 326852**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 326779**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 08/24/20 05:16 | 08/24/20 10:28 | 1 |

## Method: EPA 7470A - Mercury (CVAA) (Continued)

**Lab Sample ID: LCS 180-326779/2-A**
**Matrix: Water**
**Analysis Batch: 326852**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 326779**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Mercury | 2.50 | 2.59 | | ug/L | | 103 | 80 - 120 |

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 180-325702/2**
**Matrix: Water**
**Analysis Batch: 325702**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | ND | | 0.50 | 0.50 | mg/L | | | 08/15/20 10:59 | 1 |

**Lab Sample ID: LCS 180-325702/1**
**Matrix: Water**
**Analysis Batch: 325702**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 84.7 | 90.0 | | mg/L | | 106 | 80 - 120 |

# QC Association Summary

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-109612-1

## GC/MS Semi VOA

### Prep Batch: 326164

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-109612-1 | OFW0400N | Total/NA | Water | 3520C | |
| MB 180-326164/1-A | Method Blank | Total/NA | Water | 3520C | |
| LCS 180-326164/2-A | Lab Control Sample | Total/NA | Water | 3520C | |
| 180-109612-1 MS | OFW0400N | Total/NA | Water | 3520C | |

### Analysis Batch: 326981

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-109612-1 | OFW0400N | Total/NA | Water | EPA 8270D LL | 326164 |
| MB 180-326164/1-A | Method Blank | Total/NA | Water | EPA 8270D LL | 326164 |
| LCS 180-326164/2-A | Lab Control Sample | Total/NA | Water | EPA 8270D LL | 326164 |
| 180-109612-1 MS | OFW0400N | Total/NA | Water | EPA 8270D LL | 326164 |

## GC Semi VOA

### Prep Batch: 447423

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-109612-1 | OFW0400N | Total/NA | Water | 3510C LVI | |
| MB 240-447423/3-A | Method Blank | Total/NA | Water | 3510C LVI | |
| LCS 240-447423/4-A | Lab Control Sample | Total/NA | Water | 3510C LVI | |

### Analysis Batch: 447510

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-109612-1 | OFW0400N | Total/NA | Water | 8015D | 447423 |
| MB 240-447423/3-A | Method Blank | Total/NA | Water | 8015D | 447423 |
| LCS 240-447423/4-A | Lab Control Sample | Total/NA | Water | 8015D | 447423 |

## Specialty Organics

### Prep Batch: 41958

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-109612-1 | OFW0400N | Total/NA | Water | HRMS-Sepf | |
| MB 140-41958/13-A | Method Blank | Total/NA | Water | HRMS-Sepf | |
| LCS 140-41958/12-A | Lab Control Sample | Total/NA | Water | HRMS-Sepf | |

### Analysis Batch: 42160

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-109612-1 | OFW0400N | Total/NA | Water | 1668C | 41958 |
| MB 140-41958/13-A | Method Blank | Total/NA | Water | 1668C | 41958 |

### Analysis Batch: 42191

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| LCS 140-41958/12-A | Lab Control Sample | Total/NA | Water | 1668C | 41958 |

## Metals

### Prep Batch: 326168

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-109612-1 | OFW0400N | Total Recoverable | Water | 3005A | |
| MB 180-326168/1-A | Method Blank | Total Recoverable | Water | 3005A | |
| LCS 180-326168/2-A | Lab Control Sample | Total Recoverable | Water | 3005A | |

# QC Association Summary

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-109612-1

## Metals

### Prep Batch: 326779

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-109612-1 | OFW0400N | Total/NA | Water | 7470A | |
| MB 180-326779/1-A | Method Blank | Total/NA | Water | 7470A | |
| LCS 180-326779/2-A | Lab Control Sample | Total/NA | Water | 7470A | |

### Analysis Batch: 326852

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-109612-1 | OFW0400N | Total/NA | Water | EPA 7470A | 326779 |
| MB 180-326779/1-A | Method Blank | Total/NA | Water | EPA 7470A | 326779 |
| LCS 180-326779/2-A | Lab Control Sample | Total/NA | Water | EPA 7470A | 326779 |

### Analysis Batch: 327802

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-109612-1 | OFW0400N | Total Recoverable | Water | EPA 6020A | 326168 |
| MB 180-326168/1-A | Method Blank | Total Recoverable | Water | EPA 6020A | 326168 |
| LCS 180-326168/2-A | Lab Control Sample | Total Recoverable | Water | EPA 6020A | 326168 |

## General Chemistry

### Analysis Batch: 325702

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-109612-1 | OFW0400N | Total/NA | Water | SM 2540D | |
| MB 180-325702/2 | Method Blank | Total/NA | Water | SM 2540D | |
| LCS 180-325702/1 | Lab Control Sample | Total/NA | Water | SM 2540D | |

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

Baltimore #201

eurofins | Environment Testing America

| Client Information | Sampler: Qiang Huang | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-62216-12590.1 |
|---|---|---|---|---|
| Client Contact: Mr. Robert Kennedy | Phone: 240-374-8920 | E-Mail: Jill.Colussy@Eurofinset.com | | Page: Page 1 of 1 |
| Company: AECOM | | | | Job #: |
| Address: 250 Apollo Drive | Due Date Requested: | | | |
| City: Chelmsford | TAT Requested (days): Standard. | | | |
| State, Zip: MA, 01824 | | | | |
| Phone: | PO #: 126546 | | | |
| Email: robert.kennedy@aecom.com | WO #: 60631088.3 | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: Pepco Benning Rd. | SSOW#: | | | |

**Analysis Requested**

**Preservation Codes:**

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 1668C - PCB Congeners | 8270D - PAHs | 6020A - TAL Metal 6020/7470 | 2540 - TSS | 8015D - TPH DRO/ORO | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | | | |
| OFW0400N | 8/13/20 | 0850 | G | W | | | X | X | X | X | X | | |

180-109612 Chain of Custody

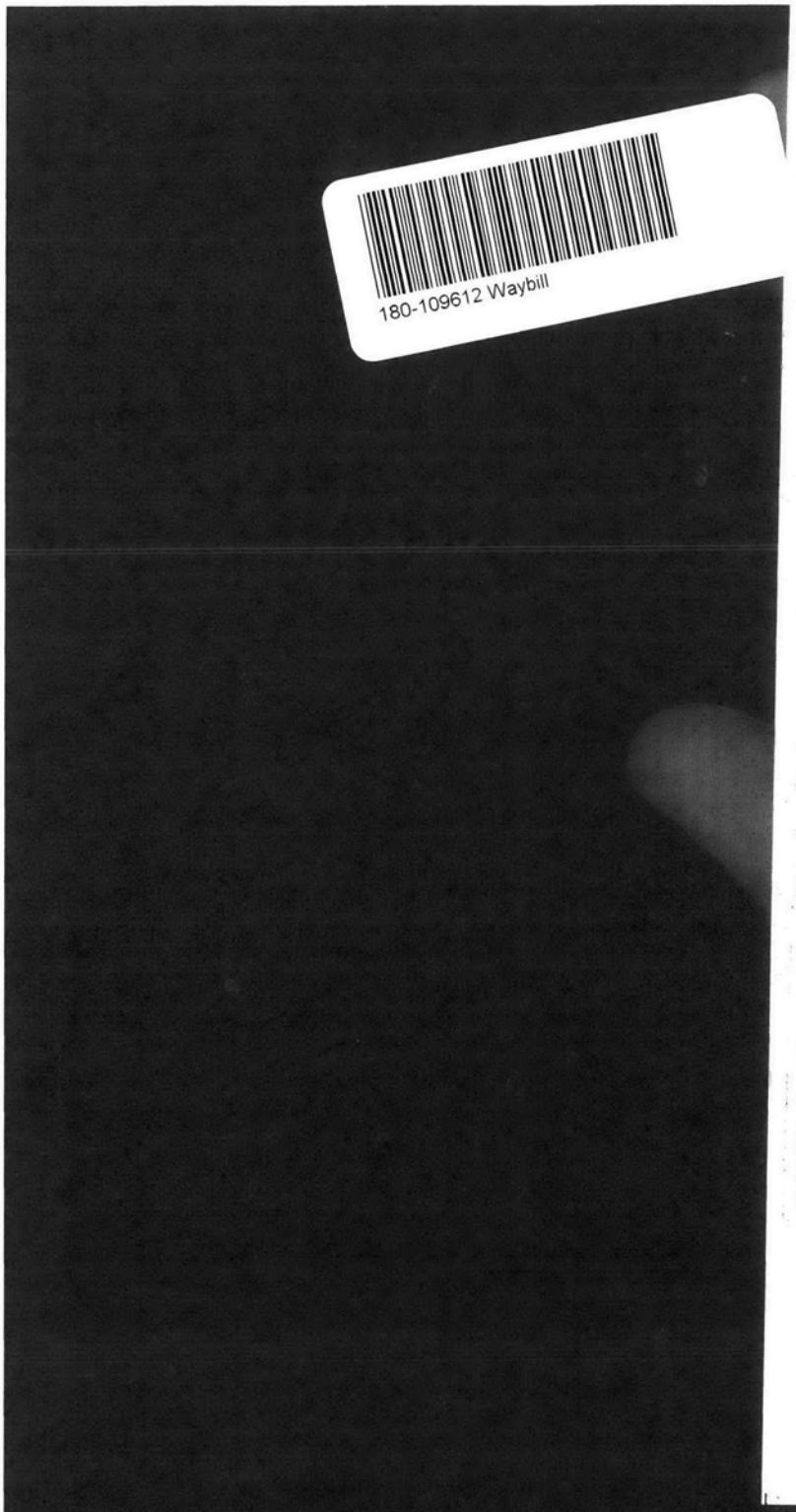
| Possible Hazard Identification | Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) |
|---|---|
| ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological | ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months |
| Deliverable Requested: I, II, III, IV, Other (specify) | Special Instructions/QC Requirements: |

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|
| Qiang Huang | 8/13/20 1200 | | | 8/13/20 1700 | BTA Balt |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| | 8/13/20 1700 | BTA Balt | | 8/14/20 900 | BTA Balt |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: |
|---|---|---|

Ver: 01/16/2019



180-109612 Waybill

FZ 1 10:30 A

8306
08.14

ORIGIN ID:KEUA (410) 869-0085
SETH CAPLAN
EUROFINS TESTAMERICA
7526 CONNELLEY DR
SUITE F
BALTIMORE, MD 21228
UNITED STATES US

SHIP DATE: 13AUG20
ACTWGT: 20.00 LB
CAD: 1030460/INET4280

BILL RECIPIENT

TO **SAMPLE RECEIVING**
**TEST AMERICA PITTSBURGH**
**301 ALPHA DR**
**RIDC PARK**
**PITTSBURGH PA 15238**

(412) 963-7058 REF: AECOM PEPCO
INV:
PO: DEPT:

56BJ2/7709/B766

FedEx Express

E

FRI - 14 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7712 5678 8306

NA AGCA

15238
PA-US PIT

Uncorrected temp 2.9 C
Thermometer ID 14
CF 0 Initials JJ
PT-WI-SR-001 effective 11/8/18

Part # 156297-435 RRDW2 EXP 09/01

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

180-109612 Chain of Custody

Eurofins | Environment Testing America

| | | | | |
|---|---|---|---|---|
| **Client Information (Sub Contract Lab)** | Sampler: | Lab PM: Colussy, Jill L | | J: 180-407250.1 |
| Client Contact: Shipping/Receiving | Phone: | E-Mail: Jill.Colussy@Eurofinset.com | State of Origin: Maryland | Page: Page 1 of 1 |
| Company: TestAmerica Laboratories, Inc. | | Accreditations Required (See note): | | Job #: 180-109612-1 |
| Address: 5815 Middlebrook Pike, , | Due Date Requested: 8/28/2020 | | | Preservation Codes: |
| City: Knoxville | TAT Requested (days): | | | A - HCL M - Hexane<br>B - NaOH N - None<br>C - Zn Acetate O - AsNaO2<br>D - Nitric Acid P - Na2O4S<br>E - NaHSO4 Q - Na2SO3<br>F - MeOH R - Na2S2O3<br>G - Amchlor S - H2SO4<br>H - Ascorbic Acid T - TSP Dodecahydrate<br>I - Ice U - Acetone<br>J - DI Water V - MCAA<br>K - EDTA W - pH 4-5<br>L - EDA Z - other (specify)<br>Other: |
| State, Zip: TN, 37921 | | | | |
| Phone: 865-291-3000(Tel) 865-584-4315(Fax) | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 1668C/1668_P_Sep PCB Congeners | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | |
| OFW0400N (180-109612-1) | 8/13/20 | 08:50 Eastern | | Water | | | X | 2 | |

RT: 2.1°C CT: 2.1°C, 1 Cooler
Fedex Po, RC-NO, Custody seal intact
trk# 1689 5102 2661
KW 8/15/20

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

| | |
|---|---|
| ***Possible Hazard Identification*** *Unconfirmed* | ***Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months* |
| Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4 | Special Instructions/QC Requirements: |

| | | | | | | |
|---|---|---|---|---|---|---|
| Empty Kit Relinquished by: | | Date: | Time: | Method of Shipment: | | |
| Relinquished by: | Date/Time: 8/14/20 1700 | Company: NT | Received by: | Date/Time: 8/15/20 1010 | Company: ETA | |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company | |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company | |

| | | |
|---|---|---|
| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: |

Ver: 01/16/2019

Loc: 180

## EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

**Log In Number:** 109612

| Review Items | Yes | No | NA | If No, what was the problem? |
|---|---|---|---|---|
| 1. Are the shipping containers intact? | ✓ | | | ☐ **Containers, Broken** |
| 2. Were ambient air containers received intact? | | | ✓ | ☐ Checked in lab |
| 3. The coolers/containers custody seal if present, is it intact? | ✓ | | | ☐ Yes<br>☐ NA |
| 4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)<br>Thermometer ID : SC68<br>Correction factor: 0.0 | ✓ | | | ☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel**<br>☐ **Cooler Out of Temp, Same Day Receipt** |
| 5. Were all of the sample containers received intact? | ✓ | | | ☐ **Containers, Broken** |
| 6. Were samples received in appropriate containers? | ✓ | | | ☐ **Containers, Improper; Client Contacted; Proceed/Cancel** |
| 7. Do sample container labels match COC? (IDs, Dates, Times) | ✓ | | | ☐ **COC & Samples Do Not Match**<br>☐ **COC Incorrect/Incomplete**<br>☐ **COC Not Received** |
| 8. Were all of the samples listed on the COC received? | ✓ | | | ☐ **Sample Received, Not on COC**<br>☐ **Sample on COC, Not Received** |
| 9. Is the date/time of sample collection noted? | ✓ | | | ☐ **COC; No Date/Time; Client Contacted** |
| 10. Was the sampler identified on the COC? | | | ✓ | ☐ **Sampler Not Listed on COC** |
| 11. Is the client and project name/# identified? | ✓ | | | ☐ **COC Incorrect/Incomplete** |
| 12. Are tests/parameters listed for each sample? | ✓ | | | ☐ **COC No tests on COC** |
| 13. Is the matrix of the samples noted? | ✓ | | | ☐ **COC Incorrect/Incomplete** |
| 14. Was COC relinquished? (Signed/Dated/Timed) | ✓ | | | ☐ **COC Incorrect/Incomplete** |
| 15. Were samples received within holding time? | ✓ | | | ☐ **Holding Time - Receipt** |
| 16. Were samples received with correct chemical preservative (excluding Encore)? | | | ✓ | ☐ **pH Adjusted, pH Included (See box 16A)**<br>☐ **Incorrect Preservative** |
| 17. Were VOA samples received without headspace? | | | ✓ | ☐ **Headspace (VOA only)** |
| 18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668)<br>Chlorine test strip lot number: 8178 2021/04 | ✓ | | | ☐ **Residual Chlorine** |
| 19. For 1613B water samples is pH<9? | | | ✓ | ☐ If no, notify lab to adjust |
| 20. For rad samples was sample activity info. Provided? | | | ✓ | ☐ Project missing info |

**Comments/Actions Taken**

**Labeling Verified by:** **Date:**

**pH test strip lot number:**

| | Box 16A: pH Preservation | Box 18A: Residual Chlorine |
|---|---|---|
| Preservative: | | |
| Lot Number: | | |
| Exp Date: | | |
| Analyst: | | |
| Date: | | |
| Time: | | |

Project #: _____ PM Instructions: _____

Sample Receiving Associate: _____ Date: 8/15/20

QA026R32.doc, 062719

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-109612-1

**Login Number: 109612**
**List Number: 1**
**Creator: Say, Thomas C**

**List Source: Eurofins TestAmerica, Pittsburgh**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

eurofins | Environment Testing America



# ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-111218-1
Client Project/Site: Pepco Benning Road Facility

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

*Authorized for release by:*
*10/23/2020 9:38:06 AM*

Jill Colussy, Project Manager I
(412)963-2444
Jill.Colussy@Eurofinset.com

LINKS
Review your project results through TotalAccess
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

*PA Lab ID: 02-00416*

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## Job ID: 180-111218-1

**Laboratory: Eurofins TestAmerica, Pittsburgh**

**Narrative**

# CASE NARRATIVE

## Client: AECOM

## Project: Pepco Benning Road Facility

## Report Number: 180-111218-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**
The samples were received on 09/19/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.9 C.

**1668A**
The samples were sent through the Gel-Permeation Cleanup procedure, based on EPA method 3640A

Samples STS0300N (180-111218-1), STS0200N (180-111218-2) and STS0100N (180-111218-3) were analyzed at a dilution. The reporting limits have been adjusted accordingly.

Several analytes were detected in method blank MB 140-43261/19-B at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

**GRAIN SIZE**
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**SPECIFIC GRAVITY**
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**TOTAL ORGANIC CARBON**
Please note that the reporting limit for Lloyd Kahn TOC analysis is a nominal value and does not reflect adjustments in sample mass processed on an individual basis..

**PERCENT SOLIDS**
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**PARTICLE SIZE DISTRIBUTION VIA LASER LIGHT SCATTERING**
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

## Qualifiers

### Dioxin

| Qualifier | Qualifier Description |
|---|---|
| B | Compound was found in the blank and sample. |
| C | The compound co-eluted with other compounds |
| C108 | The compound co-eluted with PCB-108 |
| C110 | The compound co-eluted with PCB-110 |
| C12 | The compound co-eluted with PCB-12 |
| C128 | The compound co-eluted with PCB-128 |
| C129 | The compound co-eluted with PCB-129 |
| C134 | The compound co-eluted with PCB-134 |
| C135 | The compound co-eluted with PCB-135 |
| C139 | The compound co-eluted with PCB-139 |
| C147 | The compound co-eluted with PCB-147 |
| C153 | The compound co-eluted with PCB-153 |
| C156 | The compound co-eluted with PCB-156 |
| C171 | The compound co-eluted with PCB-171 |
| C18 | The compound co-eluted with PCB-18 |
| C180 | The compound co-eluted with PCB-180 |
| C183 | The compound co-eluted with PCB-183 |
| C198 | The compound co-eluted with PCB-198 |
| C20 | The compound co-eluted with PCB-20 |
| C21 | The compound co-eluted with PCB-21 |
| C26 | The compound co-eluted with PCB-26 |
| C40 | The compound co-eluted with PCB-40 |
| C43 | The compound co-eluted with PCB-43 |
| C44 | The compound co-eluted with PCB-44 |
| C45 | The compound co-eluted with PCB-45 |
| C49 | The compound co-eluted with PCB-49 |
| C50 | The compound co-eluted with PCB-50 |
| C59 | The compound co-eluted with PCB-59 |
| C61 | The compound co-eluted with PCB-61 |
| C83 | The compound co-eluted with PCB-83 |
| C85 | The compound co-eluted with PCB-85 |
| C86 | The compound co-eluted with PCB-86 |
| C88 | The compound co-eluted with PCB-88 |
| C90 | The compound co-eluted with PCB-90 |
| C93 | The compound co-eluted with PCB-93 |
| C98 | The compound co-eluted with PCB-98 |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| q | The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference. |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CFU | Colony Forming Unit |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |

## Glossary (Continued)

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MCL | EPA recommended "Maximum Contaminant Level" |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| MPN | Most Probable Number |
| MQL | Method Quantitation Limit |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| NEG | Negative / Absent |
| POS | Positive / Present |
| PQL | Practical Quantitation Limit |
| PRES | Presumptive |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |
| TNTC | Too Numerous To Count |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-111218-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| Arkansas DEQ | State | 19-033-0 | 10-12-20 |
| California | State | 2891 | 04-30-21 |
| Connecticut | State | PH-0688 | 09-30-20 |
| Florida | NELAP | E871008 | 10-12-20 |
| Georgia | State | PA 02-00416 | 04-30-21 |
| Illinois | NELAP | 004375 | 10-12-20 |
| Kansas | NELAP | E-10350 | 10-12-20 |
| Kentucky (UST) | State | 162013 | 04-30-21 |
| Kentucky (WW) | State | KY98043 | 10-12-20 |
| Louisiana | NELAP | 04041 | 10-12-20 |
| Maine | State | PA00164 | 03-06-22 |
| Minnesota | NELAP | 042-999-482 | 10-12-20 |
| Nevada | State | PA00164 | 07-31-21 |
| New Hampshire | NELAP | 2030 | 10-12-20 |
| New Jersey | NELAP | PA005 | 10-12-20 |
| New York | NELAP | 11182 | 10-12-20 |
| North Carolina (WW/SW) | State | 434 | 01-01-21 |
| North Dakota | State | R-227 | 04-30-21 |
| Oregon | NELAP | PA-2151 | 02-06-21 |
| Pennsylvania | NELAP | 02-00416 | 10-12-20 |
| Rhode Island | State | LAO00362 | 12-31-20 |
| South Carolina | State | 89014 | 04-30-21 |
| Texas | NELAP | T104704528 | 10-12-20 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | Federal | P-Soil-01 | 06-26-22 |
| USDA | US Federal Programs | P330-16-00211 | 06-26-22 |
| Utah | NELAP | PA001462019-8 | 05-31-21 |
| Virginia | NELAP | 10043 | 10-12-20 |
| West Virginia DEP | State | 142 | 02-01-21 |
| Wisconsin | State | 998027800 | 08-31-21 |

## Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| California | Los Angeles County Sanitation Districts | 10109 | 09-30-21 |
| California | SCAQMD LAP | 17LA0919 | 11-30-20 |
| California | State | 2944 | 09-30-21 |
| Guam | State | 20-003R | 10-31-20 |
| Nevada | State | CA00111 | 07-31-21 |
| Oregon | NELAP | CA300001 | 01-29-21 |
| USDA | US Federal Programs | P330-20-00034 | 02-10-23 |
| Washington | State | C916-18 | 10-11-21 |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-111218-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| ANAB | Dept. of Defense ELAP | L2336 | 02-25-23 |
| Connecticut | State | PH-0751 | 09-30-21 |
| DE Haz. Subst. Cleanup Act (HSCA) | State | N/A | 05-16-21 |
| Florida | NELAP | E87467 | 06-30-21 |
| Minnesota | NELAP | 050-999-436 | 12-31-20 |
| New Hampshire | NELAP | 2006 | 12-18-20 |
| New Jersey | NELAP | VT972 | 06-30-21 |
| New York | NELAP | 10391 | 04-01-21 |
| Pennsylvania | NELAP | 68-00489 | 04-30-21 |
| Rhode Island | State | LAO00298 | 12-30-20 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | US Federal Programs | P330-17-00272 | 08-09-20 * |
| Vermont | State | VT4000 | 12-31-20 |
| Virginia | NELAP | 460209 | 12-14-20 |
| Wisconsin | State | 399133350 | 08-31-21 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-111218-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| | AFCEE | N/A | |
| ANAB | Dept. of Defense ELAP | L2311 | 02-13-22 |
| ANAB | Dept. of Energy | L2311.01 | 02-13-22 |
| ANAB | ISO/IEC 17025 | L2311 | 02-13-22 |
| ANAB | ISO/IEC 17025 | L2311 | 02-14-22 |
| Arkansas DEQ | State | 88-0688 | 06-17-21 |
| California | State | 2423 | 06-30-21 |
| Colorado | State | TN00009 | 02-28-21 |
| Connecticut | State | PH-0223 | 09-30-21 |
| Florida | NELAP | E87177 | 07-01-21 |
| Georgia (DW) | State | 906 | 12-11-22 |
| Hawaii | State | NA | 12-11-21 |
| Kansas | NELAP | E-10349 | 11-01-20 |
| Kentucky (DW) | State | 90101 | 01-01-21 |
| Louisiana | NELAP | LA110001 | 12-31-12 * |
| Louisiana | NELAP | 83979 | 06-30-21 |
| Louisiana (DW) | State | LA019 | 12-31-20 |
| Maryland | State | 277 | 03-31-21 |
| Michigan | State | 9933 | 12-11-22 |
| Nevada | State | TN00009 | 07-31-21 |
| New Hampshire | NELAP | 299919 | 01-17-21 |
| New Jersey | NELAP | TN001 | 07-01-21 |
| New York | NELAP | 10781 | 03-31-21 |
| North Carolina (DW) | State | 21705 | 07-31-21 |
| North Carolina (WW/SW) | State | 64 | 12-31-20 |
| Ohio VAP | State | CL0059 | 06-02-23 |
| Oklahoma | State | 9415 | 08-31-21 |
| Oregon | NELAP | TNI0189 | 01-02-21 |
| Pennsylvania | NELAP | 68-00576 | 12-31-20 |
| Tennessee | State | 02014 | 12-11-22 |
| Texas | NELAP | T104704380-18-12 | 08-31-21 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | US Federal Programs | P330-19-00236 | 08-20-22 |
| Utah | NELAP | TN00009 | 07-31-21 |
| Virginia | NELAP | 460176 | 09-14-21 |
| Washington | State | C593 | 01-19-21 |
| West Virginia (DW) | State | 9955C | 01-01-21 |
| West Virginia DEP | State | 345 | 05-01-21 |
| Wisconsin | State | 998044300 | 08-31-21 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Sample Summary

Client: AECOM
Job ID: 180-111218-1
Project/Site: Pepco Benning Road Facility

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 180-111218-1 | STS0300N | Sediment | 09/17/20 11:55 | 09/19/20 11:00 | |
| 180-111218-2 | STS0200N | Sediment | 09/17/20 12:20 | 09/19/20 11:00 | |
| 180-111218-3 | STS0100N | Sediment | 09/17/20 12:35 | 09/19/20 11:00 | |
| 180-111218-4 | SEE0101N | Sediment | 09/17/20 13:15 | 09/19/20 11:00 | |
| 180-111218-5 | SEE0201N | Sediment | 09/17/20 13:45 | 09/19/20 11:00 | |
| 180-111218-6 | SEE0301N | Sediment | 09/17/20 14:02 | 09/19/20 11:00 | |
| 180-111218-7 | STS0300N | Solid | 09/17/20 11:55 | 09/19/20 11:00 | |
| 180-111218-8 | STS0200N | Solid | 09/17/20 12:20 | 09/19/20 11:00 | |
| 180-111218-9 | STS0100N | Solid | 09/17/20 12:35 | 09/19/20 11:00 | |

# Method Summary

Client: AECOM
Job ID: 180-111218-1
Project/Site: Pepco Benning Road Facility

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 1668C | Chlorinated Biphenyl Congeners (HRGC/HRMS) | EPA | TAL KNX |
| 2540G | SM 2540G | SM22 | TAL PIT |
| ASTM D5057-90 | Specific Gravity and Bulk Density (Screening) | ASTM | TAL PIT |
| EPA-Lloyd Kahn | Organic Carbon, Total (TOC) | EPA | TAL PIT |
| D422 | Grain Size | ASTM | TAL BUR |
| D4464 | Particle Size Distribution of Catalytic Material ( Laser light scattering) | ASTM | ECL 1 |
| HRMS-Sox | Soxhlet Extraction | EPA | TAL KNX |
| Split | Split Factor Determination | None | TAL KNX |

**Protocol References:**

ASTM = ASTM International
EPA = US Environmental Protection Agency
None = None
SM22 = Standard Methods For The Examination Of Water And Wastewater, 22nd Edition

**Laboratory References:**

ECL 1 = Eurofins Calscience LLC  Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494
TAL BUR = Eurofins TestAmerica, Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: AECOM
Job ID: 180-111218-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: STS0300N
**Lab Sample ID: 180-111218-1**
**Date Collected: 09/17/20 11:55**
**Matrix: Sediment**
**Date Received: 09/19/20 11:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 331732 | 09/29/20 21:22 | PMH | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| Total/NA | Analysis | ASTM D5057-90 | | 1 | 50 g | 50 mL | 331888 | 09/30/20 18:28 | TAM | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: STS0300N
**Lab Sample ID: 180-111218-1**
**Date Collected: 09/17/20 11:55**
**Matrix: Sediment**
**Date Received: 09/19/20 11:00**
**Percent Solids: 44.5**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | HRMS-Sox | | | 20.72 g | 20 mL | 43261 | 10/03/20 06:25 | CLI | TAL KNX |
| Total/NA | Cleanup | Split | | | 10 mL | 50 uL | 43349 | 10/07/20 12:39 | ALS | TAL KNX |
| Total/NA | Analysis | 1668C | | 2 | | | 43723 | 10/21/20 15:46 | JMN | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total/NA | Analysis | EPA-Lloyd Kahn | | 1 | | | 331767 | 09/29/20 16:30 | DLF | TAL PIT |
| | Instrument ID: FLASHEA | | | | | | | | | |

## Client Sample ID: STS0200N
**Lab Sample ID: 180-111218-2**
**Date Collected: 09/17/20 12:20**
**Matrix: Sediment**
**Date Received: 09/19/20 11:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 331732 | 09/29/20 21:22 | PMH | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| Total/NA | Analysis | ASTM D5057-90 | | 1 | 50 g | 50 mL | 331888 | 09/30/20 18:30 | TAM | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: STS0200N
**Lab Sample ID: 180-111218-2**
**Date Collected: 09/17/20 12:20**
**Matrix: Sediment**
**Date Received: 09/19/20 11:00**
**Percent Solids: 43.7**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | HRMS-Sox | | | 20.12 g | 20 mL | 43261 | 10/03/20 06:25 | CLI | TAL KNX |
| Total/NA | Cleanup | Split | | | 10 mL | 50 uL | 43349 | 10/07/20 12:39 | ALS | TAL KNX |
| Total/NA | Analysis | 1668C | | 2 | | | 43723 | 10/21/20 16:47 | JMN | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total/NA | Analysis | EPA-Lloyd Kahn | | 1 | | | 331767 | 09/29/20 16:47 | DLF | TAL PIT |
| | Instrument ID: FLASHEA | | | | | | | | | |

## Client Sample ID: STS0100N
**Lab Sample ID: 180-111218-3**
**Date Collected: 09/17/20 12:35**
**Matrix: Sediment**
**Date Received: 09/19/20 11:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 331732 | 09/29/20 21:22 | PMH | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

# Lab Chronicle

Client: AECOM
Job ID: 180-111218-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: STS0100N
**Lab Sample ID: 180-111218-3**
**Date Collected: 09/17/20 12:35**
**Matrix: Sediment**
**Date Received: 09/19/20 11:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | ASTM D5057-90 | | 1 | 50 g | 50 mL | 331888 | 09/30/20 18:32 | TAM | TAL PIT |

## Client Sample ID: STS0100N
**Lab Sample ID: 180-111218-3**
**Date Collected: 09/17/20 12:35**
**Matrix: Sediment**
**Date Received: 09/19/20 11:00**
**Percent Solids: 40.2**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | HRMS-Sox | | | 20.18 g | 20 mL | 43261 | 10/03/20 06:25 | CLI | TAL KNX |
| Total/NA | Cleanup | Split | | | 10 mL | 50 uL | 43349 | 10/07/20 12:39 | ALS | TAL KNX |
| Total/NA | Analysis | 1668C | | 2 | | | 43723 | 10/21/20 19:54 | JMN | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total/NA | Analysis | EPA-Lloyd Kahn | | 1 | | | 331767 | 09/29/20 17:43 | DLF | TAL PIT |
| | Instrument ID: FLASHEA | | | | | | | | | |

## Client Sample ID: SEE0101N
**Lab Sample ID: 180-111218-4**
**Date Collected: 09/17/20 13:15**
**Matrix: Sediment**
**Date Received: 09/19/20 11:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | ASTM D5057-90 | | 1 | 50 g | 50 mL | 331888 | 09/30/20 18:33 | TAM | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| Total/NA | Analysis | D422 | | 1 | | | 159682 | 09/30/20 20:32 | CPF | TAL BUR |
| | Instrument ID: D422_import | | | | | | | | | |

## Client Sample ID: SEE0201N
**Lab Sample ID: 180-111218-5**
**Date Collected: 09/17/20 13:45**
**Matrix: Sediment**
**Date Received: 09/19/20 11:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | ASTM D5057-90 | | 1 | 50 g | 50 mL | 331888 | 09/30/20 18:35 | TAM | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| Total/NA | Analysis | D422 | | 1 | | | 159682 | 09/30/20 20:34 | CPF | TAL BUR |
| | Instrument ID: D422_import | | | | | | | | | |

## Client Sample ID: SEE0301N
**Lab Sample ID: 180-111218-6**
**Date Collected: 09/17/20 14:02**
**Matrix: Sediment**
**Date Received: 09/19/20 11:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | ASTM D5057-90 | | 1 | 50 g | 50 mL | 331888 | 09/30/20 18:36 | TAM | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| Total/NA | Analysis | D422 | | 1 | | | 159682 | 09/30/20 20:36 | CPF | TAL BUR |
| | Instrument ID: D422_import | | | | | | | | | |

# Lab Chronicle

Client: AECOM
Job ID: 180-111218-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: STS0300N
**Lab Sample ID: 180-111218-7**
**Date Collected: 09/17/20 11:55**
**Matrix: Solid**
**Date Received: 09/19/20 11:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | D4464 | | 1 | | | 103533 | 10/21/20 13:26 | C4LT | ECL 1 |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: STS0200N
**Lab Sample ID: 180-111218-8**
**Date Collected: 09/17/20 12:20**
**Matrix: Solid**
**Date Received: 09/19/20 11:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | D4464 | | 1 | | | 103533 | 10/21/20 13:30 | C4LT | ECL 1 |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: STS0100N
**Lab Sample ID: 180-111218-9**
**Date Collected: 09/17/20 12:35**
**Matrix: Solid**
**Date Received: 09/19/20 11:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | D4464 | | 1 | | | 103533 | 10/21/20 13:40 | C4LT | ECL 1 |
| | Instrument ID: NOEQUIP | | | | | | | | | |

**Laboratory References:**

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

TAL BUR = Eurofins TestAmerica, Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

**Analyst References:**

Lab: ECL 1
- Batch Type: Analysis
  - C4LT = Jordan Stratford

Lab: TAL BUR
- Batch Type: Analysis
  - CPF = Fred Cota

Lab: TAL KNX
- Batch Type: Cleanup
  - ALS = Allan Sudderth
- Batch Type: Prep
  - CLI = Crystal Ivey
- Batch Type: Analysis
  - JMN = Jon Nordquist

Lab: TAL PIT
- Batch Type: Analysis
  - DLF = Donald Ferguson
  - PMH = Paloma Hoelzle
  - TAM = Tessa Mastalski

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-111218-1

**Client Sample ID: STS0300N**
**Date Collected: 09/17/20 11:55**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-1**
**Matrix: Sediment**
**Percent Solids: 44.5**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1 | 0.17 | | 0.022 | 0.00056 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-2 | 0.024 | | 0.022 | 0.00071 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-3 | 0.069 | | 0.022 | 0.00089 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-4 | 0.96 | | 0.043 | 0.0036 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-5 | 0.027 | q | 0.022 | 0.0028 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-6 | 0.29 | | 0.022 | 0.0025 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-7 | 0.065 | | 0.022 | 0.0025 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-8 | 1.3 | | 0.043 | 0.0023 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-9 | 0.076 | | 0.022 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-10 | 0.042 | q | 0.022 | 0.0028 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-11 | 0.19 | B | 0.043 | 0.0024 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-12 | 0.11 | C | 0.043 | 0.0025 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-13 | 0.11 | C12 | 0.043 | 0.0025 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-14 | ND | | 0.022 | 0.0021 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-15 | 0.84 | | 0.022 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-16 | 1.0 | | 0.022 | 0.00065 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-17 | 1.5 | | 0.022 | 0.00059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-18 | 2.5 | C B | 0.043 | 0.00051 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-19 | 0.52 | | 0.022 | 0.00072 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-20 | 3.8 | C B | 0.043 | 0.0027 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-21 | 1.6 | C B | 0.043 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-22 | 1.2 | | 0.022 | 0.0027 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-23 | 0.0033 | J | 0.022 | 0.0027 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-24 | 0.059 | | 0.022 | 0.00049 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-25 | 0.39 | | 0.022 | 0.0025 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-26 | 0.68 | C | 0.043 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-27 | 0.36 | | 0.022 | 0.00043 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-28 | 3.8 | B C20 | 0.043 | 0.0027 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-29 | 0.68 | C26 | 0.043 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-30 | 2.5 | C18 B | 0.043 | 0.00051 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-31 | 3.0 | B | 0.043 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-32 | 1.1 | | 0.022 | 0.00041 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-33 | 1.6 | B C21 | 0.043 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-34 | 0.017 | J | 0.022 | 0.0028 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-35 | 0.053 | | 0.022 | 0.0027 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-36 | 0.0038 | J | 0.022 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-37 | 0.86 | | 0.022 | 0.0027 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-38 | ND | | 0.022 | 0.0028 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-39 | 0.016 | J | 0.022 | 0.0025 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-40 | 2.1 | C | 0.065 | 0.0047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-41 | 2.1 | C40 | 0.065 | 0.0047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-42 | 0.94 | | 0.022 | 0.0048 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-43 | 0.14 | C | 0.043 | 0.0045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-44 | 3.8 | C B | 0.065 | 0.0042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-45 | 0.93 | C | 0.043 | 0.0050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-46 | 0.27 | | 0.022 | 0.0060 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-47 | 3.8 | B C44 | 0.065 | 0.0042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-48 | 0.67 | | 0.022 | 0.0047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-49 | 2.3 | C | 0.043 | 0.0039 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |

**Client Sample ID: STS0300N**
**Date Collected: 09/17/20 11:55**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-1**
**Matrix: Sediment**
**Percent Solids: 44.5**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-50 | 0.73 | C | 0.043 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-51 | 0.93 | C45 | 0.043 | 0.0050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-52 | 4.3 | B | 0.022 | 0.0047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-53 | 0.73 | C50 | 0.043 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-54 | 0.034 | | 0.022 | 0.00028 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-55 | 0.048 | q | 0.022 | 0.0035 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-56 | 1.1 | | 0.022 | 0.0035 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-57 | 0.019 | J | 0.022 | 0.0035 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-58 | 0.010 | J q | 0.022 | 0.0036 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-59 | 0.34 | C | 0.065 | 0.0034 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-60 | 0.57 | | 0.022 | 0.0035 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-61 | 4.2 | C B | 0.087 | 0.0033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-62 | 0.34 | C59 | 0.065 | 0.0034 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-63 | 0.11 | | 0.022 | 0.0032 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-64 | 1.5 | | 0.022 | 0.0032 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-65 | 3.8 | B C44 | 0.065 | 0.0042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-66 | 2.6 | | 0.022 | 0.0033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-67 | 0.077 | | 0.022 | 0.0030 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-68 | 0.020 | J q | 0.022 | 0.0031 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-69 | 2.3 | C49 | 0.043 | 0.0039 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-70 | 4.2 | C61 B | 0.087 | 0.0033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-71 | 2.1 | C40 | 0.065 | 0.0047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-72 | 0.033 | | 0.022 | 0.0034 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-73 | 0.14 | C43 | 0.043 | 0.0045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-74 | 4.2 | C61 B | 0.087 | 0.0033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-75 | 0.34 | C59 | 0.065 | 0.0034 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-76 | 4.2 | C61 B | 0.087 | 0.0033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-77 | 0.28 | | 0.022 | 0.0033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-78 | ND | | 0.022 | 0.0036 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-79 | 0.022 | q | 0.022 | 0.0031 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-80 | ND | | 0.022 | 0.0030 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-81 | 0.0090 | J q | 0.022 | 0.0032 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-82 | 0.55 | | 0.022 | 0.00050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-83 | 2.3 | C B | 0.043 | 0.00045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-84 | 1.0 | | 0.022 | 0.00050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-85 | 0.84 | C B | 0.065 | 0.00037 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-86 | 2.6 | C B | 0.13 | 0.00037 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-87 | 2.6 | B C86 | 0.13 | 0.00037 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-88 | 0.71 | C | 0.043 | 0.00045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-89 | 0.051 | q | 0.022 | 0.00049 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-90 | 4.0 | C B | 0.065 | 0.00038 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-91 | 0.71 | C88 | 0.043 | 0.00045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-92 | 0.69 | | 0.022 | 0.00043 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-93 | 0.13 | C | 0.043 | 0.00043 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-94 | 0.046 | | 0.022 | 0.00049 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-95 | 3.5 | B | 0.022 | 0.00047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-96 | 0.055 | | 0.022 | 0.00037 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-97 | 2.6 | B C86 | 0.13 | 0.00037 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-98 | 0.18 | C | 0.043 | 0.00042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |

**Client Sample ID: STS0300N**
**Date Collected: 09/17/20 11:55**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-1**
**Matrix: Sediment**
**Percent Solids: 44.5**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-99 | 2.3 | C83 B | 0.043 | 0.00045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-100 | 0.13 | C93 | 0.043 | 0.00043 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-101 | 4.0 | B C90 | 0.065 | 0.00038 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-102 | 0.18 | C98 | 0.043 | 0.00042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-103 | 0.042 | | 0.022 | 0.00043 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-104 | 0.0030 | J | 0.022 | 0.00033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-105 | 1.5 | | 0.022 | 0.0044 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-106 | ND | | 0.022 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-107 | 0.24 | | 0.022 | 0.0050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-108 | 0.13 | C | 0.043 | 0.0048 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-109 | 2.6 | B C86 | 0.13 | 0.00037 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-110 | 4.8 | C B | 0.043 | 0.00031 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-111 | ND | | 0.022 | 0.00030 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-112 | 0.016 | J | 0.022 | 0.00032 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-113 | 4.0 | B C90 | 0.065 | 0.00038 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-114 | 0.080 | | 0.022 | 0.0044 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-115 | 4.8 | B C110 | 0.043 | 0.00031 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-116 | 0.84 | C85 B | 0.065 | 0.00037 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-117 | 0.84 | C85 B | 0.065 | 0.00037 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-118 | 3.3 | B | 0.022 | 0.0042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-119 | 2.6 | B C86 | 0.13 | 0.00037 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-120 | 0.0086 | J q | 0.022 | 0.00031 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-121 | ND | | 0.022 | 0.00032 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-122 | 0.072 | | 0.022 | 0.0054 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-123 | 0.088 | | 0.022 | 0.0045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-124 | 0.13 | C108 | 0.043 | 0.0048 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-125 | 2.6 | B C86 | 0.13 | 0.00037 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-126 | 0.011 | J | 0.022 | 0.0052 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-127 | ND | | 0.022 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-128 | 0.77 | C | 0.043 | 0.0051 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-129 | 5.6 | C B | 0.087 | 0.0053 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-130 | 0.30 | | 0.022 | 0.0070 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-131 | 0.061 | | 0.022 | 0.0073 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-132 | 1.7 | | 0.022 | 0.0068 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-133 | 0.069 | | 0.022 | 0.0066 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-134 | 0.28 | C | 0.043 | 0.0069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-135 | 1.7 | C | 0.043 | 0.00042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-136 | 0.58 | | 0.022 | 0.00030 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-137 | 0.21 | | 0.022 | 0.0060 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-138 | 5.6 | B C129 | 0.087 | 0.0053 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-139 | 0.076 | C | 0.043 | 0.0059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-140 | 0.076 | C139 | 0.043 | 0.0059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-141 | 1.1 | | 0.022 | 0.0062 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-142 | ND | | 0.022 | 0.0066 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-143 | 0.28 | C134 | 0.043 | 0.0069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-144 | 0.20 | | 0.022 | 0.00038 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-145 | 0.0026 | J q | 0.022 | 0.00029 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-146 | 0.72 | | 0.022 | 0.0058 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-147 | 4.7 | C B | 0.043 | 0.0067 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |

**Client Sample ID: STS0300N**
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**Lab Sample ID: 180-111218-1**
**Matrix: Sediment**
**Percent Solids: 44.5**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-148 | 0.0067 | J | 0.022 | 0.00041 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-149 | 4.7 | B C147 | 0.043 | 0.0067 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-150 | 0.0071 | J | 0.022 | 0.00028 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-151 | 1.7 | C135 | 0.043 | 0.00042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-152 | 0.0054 | J | 0.022 | 0.00030 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-153 | 4.4 | C B | 0.043 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-154 | 0.050 | | 0.022 | 0.00033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-155 | ND | | 0.022 | 0.00028 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-156 | 0.52 | C | 0.043 | 0.0055 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-157 | 0.52 | C156 | 0.043 | 0.0055 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-158 | 0.53 | | 0.022 | 0.0042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-159 | 0.045 | | 0.022 | 0.0044 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-160 | 5.6 | B C129 | 0.087 | 0.0053 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-161 | 0.0051 | J q | 0.022 | 0.0044 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-162 | 0.010 | J q | 0.022 | 0.0043 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-163 | 5.6 | B C129 | 0.087 | 0.0053 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-164 | 0.38 | | 0.022 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-165 | ND | | 0.022 | 0.0050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-166 | 0.77 | C128 | 0.043 | 0.0051 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-167 | 0.18 | | 0.022 | 0.0034 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-168 | 4.4 | B C153 | 0.043 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-169 | 0.017 | J B q | 0.022 | 0.0034 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-170 | 1.5 | | 0.022 | 0.00071 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-171 | 0.38 | C | 0.043 | 0.00066 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-172 | 0.25 | | 0.022 | 0.00065 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-173 | 0.38 | C171 | 0.043 | 0.00066 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-174 | 1.6 | | 0.022 | 0.00061 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-175 | 0.055 | | 0.022 | 0.00059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-176 | 0.17 | | 0.022 | 0.00045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-177 | 0.88 | | 0.022 | 0.00063 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-178 | 0.32 | | 0.022 | 0.00064 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-179 | 0.67 | | 0.022 | 0.00047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-180 | 3.3 | C B | 0.043 | 0.00050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-181 | ND | | 0.022 | 0.00059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-182 | 0.011 | J q | 0.022 | 0.00057 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-183 | 1.0 | C B | 0.043 | 0.00058 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-184 | ND | | 0.022 | 0.00048 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-185 | 1.0 | B C183 | 0.043 | 0.00058 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-186 | ND | | 0.022 | 0.00047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-187 | 1.9 | B | 0.022 | 0.00055 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-188 | ND | | 0.022 | 0.00041 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-189 | 0.053 | | 0.022 | 0.0024 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-190 | 0.29 | | 0.022 | 0.00043 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-191 | 0.063 | | 0.022 | 0.00045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-192 | ND | | 0.022 | 0.00050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-193 | 3.3 | C180 B | 0.043 | 0.00050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-194 | 0.83 | | 0.022 | 0.0020 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-195 | 0.33 | | 0.022 | 0.0022 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-196 | 0.35 | | 0.022 | 0.00053 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |

**Client Sample ID: STS0300N**
**Date Collected: 09/17/20 11:55**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-1**
**Matrix: Sediment**
**Percent Solids: 44.5**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-197 | 0.024 | q | 0.022 | 0.00041 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-198 | 0.95 | C | 0.043 | 0.00054 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-199 | 0.95 | C198 | 0.043 | 0.00054 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-200 | 0.094 | | 0.022 | 0.00036 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-201 | 0.092 | | 0.022 | 0.00037 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-202 | 0.19 | | 0.022 | 0.00041 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-203 | 0.58 | | 0.022 | 0.00048 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-204 | ND | | 0.022 | 0.00041 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-205 | 0.044 | | 0.022 | 0.0017 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-206 | 0.66 | | 0.022 | 0.0027 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-207 | 0.060 | | 0.022 | 0.0018 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-208 | 0.20 | | 0.022 | 0.0018 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-209 | 0.37 | | 0.022 | 0.0012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| Total Monochlorobiphenyls | 0.26 | | 0.022 | 0.00072 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| Total Dichlorobiphenyls | 3.9 | B q | 0.043 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| Total Trichlorobiphenyls | 19 | B | 0.043 | 0.0019 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| Total Tetrachlorobiphenyls | 27 | B q | 0.087 | 0.0037 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| Total Pentachlorobiphenyls | 27 | B q | 0.13 | 0.0018 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| Total Hexachlorobiphenyls | 24 | B q | 0.087 | 0.0040 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| Total Heptachlorobiphenyls | 12 | B q | 0.043 | 0.00064 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| Total Octachlorobiphenyls | 3.5 | q | 0.043 | 0.00085 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| Total Nonachlorobiphenyls | 0.92 | | 0.022 | 0.0021 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| Polychlorinated biphenyls, Total | 120 | B q | 0.13 | 0.0021 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 15:46 | 2 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *61* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-3L* | *58* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-4L* | *69* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-15L* | *76* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-19L* | *85* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-37L* | *77* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-54L* | *90* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-77L* | *81* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-81L* | *81* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-104L* | *79* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-105L* | *85* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-114L* | *84* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-118L* | *84* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-123L* | *83* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-126L* | *81* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-155L* | *86* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-156L* | *81* | *C* | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-157L* | *81* | *C156* | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-167L* | *83* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-169L* | *87* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-170L* | *81* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-188L* | *86* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-189L* | *81* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-202L* | *94* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |
| *PCB-205L* | *70* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 15:46* | *2* |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-111218-1

**Client Sample ID: STS0300N**
**Date Collected: 09/17/20 11:55**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-1**
**Matrix: Sediment**
**Percent Solids: 44.5**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Isotope Dilution | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-206L | 76 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-208L | 80 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-209L | 77 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 15:46 | 2 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-28L | 89 | | 5 - 145 | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-111L | 94 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 15:46 | 2 |
| PCB-178L | 98 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 15:46 | 2 |

## General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 55.5 | | 0.1 | 0.1 | % | | | 09/29/20 21:22 | 1 |
| Bulk Density | 1.4 | | 0.010 | 0.010 | g/cc | | | 09/30/20 18:28 | 1 |
| Total Organic Carbon - Duplicates | 31000 | | 2200 | 1700 | mg/Kg | ☼ | | 09/29/20 16:30 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-111218-1

**Client Sample ID: STS0200N**
**Date Collected: 09/17/20 12:20**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-2**
**Matrix: Sediment**
**Percent Solids: 43.7**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1 | 0.091 | | 0.023 | 0.00065 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-2 | 0.023 | | 0.023 | 0.00078 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-3 | 0.054 | | 0.023 | 0.00088 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-4 | 0.87 | | 0.045 | 0.0034 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-5 | 0.023 | | 0.023 | 0.0029 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-6 | 0.27 | | 0.023 | 0.0025 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-7 | 0.051 | q | 0.023 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-8 | 1.2 | | 0.045 | 0.0023 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-9 | 0.076 | | 0.023 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-10 | 0.041 | q | 0.023 | 0.0028 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-11 | 0.39 | B | 0.045 | 0.0025 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-12 | 0.13 | C | 0.045 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-13 | 0.13 | C12 | 0.045 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-14 | ND | | 0.023 | 0.0022 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-15 | 1.0 | | 0.023 | 0.0028 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-16 | 0.82 | | 0.023 | 0.00075 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-17 | 1.3 | | 0.023 | 0.00067 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-18 | 2.2 | C B | 0.045 | 0.00059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-19 | 0.48 | | 0.023 | 0.00082 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-20 | 4.2 | C B | 0.045 | 0.0041 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-21 | 1.7 | C B | 0.045 | 0.0040 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-22 | 1.3 | | 0.023 | 0.0042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-23 | 0.0044 | J | 0.023 | 0.0042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-24 | 0.052 | | 0.023 | 0.00056 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-25 | 0.43 | | 0.023 | 0.0038 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-26 | 0.75 | C | 0.045 | 0.0040 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-27 | 0.35 | | 0.023 | 0.00049 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-28 | 4.2 | B C20 | 0.045 | 0.0041 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-29 | 0.75 | C26 | 0.045 | 0.0040 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-30 | 2.2 | C18 B | 0.045 | 0.00059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-31 | 3.2 | B | 0.045 | 0.0040 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-32 | 1.1 | | 0.023 | 0.00047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-33 | 1.7 | B C21 | 0.045 | 0.0040 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-34 | 0.019 | J | 0.023 | 0.0043 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-35 | 0.064 | | 0.023 | 0.0042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-36 | ND | | 0.023 | 0.0040 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-37 | 1.1 | | 0.023 | 0.0042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-38 | ND | | 0.023 | 0.0043 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-39 | 0.019 | J | 0.023 | 0.0039 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-40 | 2.3 | C | 0.068 | 0.0066 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-41 | 2.3 | C40 | 0.068 | 0.0066 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-42 | 1.1 | | 0.023 | 0.0066 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-43 | 0.18 | C | 0.045 | 0.0062 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-44 | 4.5 | C B | 0.068 | 0.0058 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-45 | 0.89 | C | 0.045 | 0.0069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-46 | 0.27 | | 0.023 | 0.0084 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-47 | 4.5 | B C44 | 0.068 | 0.0058 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-48 | 0.77 | | 0.023 | 0.0066 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-49 | 2.9 | C | 0.045 | 0.0054 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-111218-1

**Client Sample ID: STS0200N**
**Date Collected: 09/17/20 12:20**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-2**
**Matrix: Sediment**
**Percent Solids: 43.7**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-50 | 0.80 | C | 0.045 | 0.0064 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-51 | 0.89 | C45 | 0.045 | 0.0069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-52 | 6.0 | B | 0.023 | 0.0065 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-53 | 0.80 | C50 | 0.045 | 0.0064 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-54 | 0.027 | | 0.023 | 0.00033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-55 | 0.099 | | 0.023 | 0.0048 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-56 | 1.5 | | 0.023 | 0.0048 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-57 | 0.025 | | 0.023 | 0.0049 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-58 | 0.016 | J q | 0.023 | 0.0049 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-59 | 0.40 | C | 0.068 | 0.0047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-60 | 0.78 | | 0.023 | 0.0049 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-61 | 6.3 | C B | 0.091 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-62 | 0.40 | C59 | 0.068 | 0.0047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-63 | 0.16 | | 0.023 | 0.0045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-64 | 1.8 | | 0.023 | 0.0044 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-65 | 4.5 | B C44 | 0.068 | 0.0058 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-66 | 3.7 | | 0.023 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-67 | 0.10 | | 0.023 | 0.0042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-68 | 0.024 | q | 0.023 | 0.0043 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-69 | 2.9 | C49 | 0.045 | 0.0054 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-70 | 6.3 | C61 B | 0.091 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-71 | 2.3 | C40 | 0.068 | 0.0066 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-72 | 0.044 | | 0.023 | 0.0048 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-73 | 0.18 | C43 | 0.045 | 0.0062 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-74 | 6.3 | C61 B | 0.091 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-75 | 0.40 | C59 | 0.068 | 0.0047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-76 | 6.3 | C61 B | 0.091 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-77 | 0.39 | | 0.023 | 0.0045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-78 | ND | | 0.023 | 0.0049 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-79 | 0.047 | | 0.023 | 0.0043 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-80 | ND | | 0.023 | 0.0042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-81 | 0.015 | J | 0.023 | 0.0047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-82 | 1.1 | | 0.023 | 0.00092 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-83 | 4.8 | C B | 0.045 | 0.00084 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-84 | 2.0 | | 0.023 | 0.00093 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-85 | 1.7 | C B | 0.068 | 0.00068 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-86 | 5.6 | C B | 0.14 | 0.00069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-87 | 5.6 | B C86 | 0.14 | 0.00069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-88 | 1.2 | C | 0.045 | 0.00083 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-89 | 0.094 | | 0.023 | 0.00090 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-90 | 8.1 | C B | 0.068 | 0.00070 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-91 | 1.2 | C88 | 0.045 | 0.00083 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-92 | 1.4 | | 0.023 | 0.00079 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-93 | 0.12 | C q | 0.045 | 0.00080 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-94 | 0.050 | q | 0.023 | 0.00090 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-95 | 6.4 | B | 0.023 | 0.00087 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-96 | 0.062 | q | 0.023 | 0.00068 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-97 | 5.6 | B C86 | 0.14 | 0.00069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-98 | 0.27 | C | 0.045 | 0.00078 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |

**Client Sample ID: STS0200N**
**Date Collected: 09/17/20 12:20**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-2**
**Matrix: Sediment**
**Percent Solids: 43.7**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-99 | 4.8 | C83 B | 0.045 | 0.00084 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-100 | 0.12 | C93 q | 0.045 | 0.00080 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-101 | 8.1 | B C90 | 0.068 | 0.00070 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-102 | 0.27 | C98 | 0.045 | 0.00078 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-103 | 0.060 | | 0.023 | 0.00080 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-104 | ND | | 0.023 | 0.00061 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-105 | 3.9 | | 0.023 | 0.0066 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-106 | ND | | 0.023 | 0.0068 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-107 | 0.63 | | 0.023 | 0.0072 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-108 | 0.36 | C | 0.045 | 0.0069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-109 | 5.6 | B C86 | 0.14 | 0.00069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-110 | 10 | C B | 0.045 | 0.00058 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-111 | ND | | 0.023 | 0.00056 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-112 | 0.027 | | 0.023 | 0.00059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-113 | 8.1 | B C90 | 0.068 | 0.00070 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-114 | 0.20 | | 0.023 | 0.0063 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-115 | 10 | B C110 | 0.045 | 0.00058 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-116 | 1.7 | C85 B | 0.068 | 0.00068 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-117 | 1.7 | C85 B | 0.068 | 0.00068 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-118 | 8.4 | B | 0.023 | 0.0063 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-119 | 5.6 | B C86 | 0.14 | 0.00069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-120 | 0.022 | J | 0.023 | 0.00057 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-121 | ND | | 0.023 | 0.00059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-122 | 0.15 | q | 0.023 | 0.0078 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-123 | 0.20 | | 0.023 | 0.0067 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-124 | 0.36 | C108 | 0.045 | 0.0069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-125 | 5.6 | B C86 | 0.14 | 0.00069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-126 | 0.024 | | 0.023 | 0.0072 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-127 | 0.0086 | J q | 0.023 | 0.0067 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-128 | 1.8 | C | 0.045 | 0.0092 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-129 | 12 | C B | 0.091 | 0.0095 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-130 | 0.71 | | 0.023 | 0.013 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-131 | 0.16 | | 0.023 | 0.013 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-132 | 3.9 | | 0.023 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-133 | 0.14 | | 0.023 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-134 | 0.65 | C | 0.045 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-135 | 3.1 | C | 0.045 | 0.00095 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-136 | 1.1 | | 0.023 | 0.00068 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-137 | 0.57 | | 0.023 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-138 | 12 | B C129 | 0.091 | 0.0095 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-139 | 0.20 | C | 0.045 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-140 | 0.20 | C139 | 0.045 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-141 | 2.2 | | 0.023 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-142 | ND | | 0.023 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-143 | 0.65 | C134 | 0.045 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-144 | 0.37 | | 0.023 | 0.00086 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-145 | 0.0053 | J q | 0.023 | 0.00065 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-146 | 1.5 | | 0.023 | 0.010 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-147 | 9.6 | C B | 0.045 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |

**Client Sample ID: STS0200N**
**Date Collected: 09/17/20 12:20**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-2**
**Matrix: Sediment**
**Percent Solids: 43.7**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-148 | 0.0096 | J | 0.023 | 0.00091 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-149 | 9.6 | B C147 | 0.045 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-150 | 0.012 | J | 0.023 | 0.00062 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-151 | 3.1 | C135 | 0.045 | 0.00095 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-152 | 0.0069 | J q | 0.023 | 0.00067 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-153 | 8.9 | C B | 0.045 | 0.0083 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-154 | 0.095 | | 0.023 | 0.00074 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-155 | ND | | 0.023 | 0.00062 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-156 | 1.3 | C | 0.045 | 0.0097 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-157 | 1.3 | C156 | 0.045 | 0.0097 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-158 | 1.2 | | 0.023 | 0.0075 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-159 | 0.076 | | 0.023 | 0.0079 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-160 | 12 | B C129 | 0.091 | 0.0095 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-161 | ND | | 0.023 | 0.0079 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-162 | 0.025 | q | 0.023 | 0.0078 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-163 | 12 | B C129 | 0.091 | 0.0095 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-164 | 0.81 | | 0.023 | 0.0084 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-165 | ND | | 0.023 | 0.0090 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-166 | 1.8 | C128 | 0.045 | 0.0092 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-167 | 0.40 | | 0.023 | 0.0061 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-168 | 8.9 | B C153 | 0.045 | 0.0083 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-169 | 0.026 | B q | 0.023 | 0.0064 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-170 | 2.6 | | 0.023 | 0.0019 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-171 | 0.74 | C | 0.045 | 0.0017 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-172 | 0.42 | | 0.023 | 0.0016 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-173 | 0.74 | C171 | 0.045 | 0.0017 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-174 | 2.6 | | 0.023 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-175 | 0.095 | | 0.023 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-176 | 0.30 | | 0.023 | 0.0011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-177 | 1.4 | | 0.023 | 0.0016 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-178 | 0.54 | | 0.023 | 0.0016 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-179 | 1.1 | | 0.023 | 0.0012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-180 | 5.2 | C B | 0.045 | 0.0013 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-181 | 0.028 | | 0.023 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-182 | 0.010 | J q | 0.023 | 0.0014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-183 | 1.7 | C B | 0.045 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-184 | ND | | 0.023 | 0.0012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-185 | 1.7 | B C183 | 0.045 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-186 | ND | | 0.023 | 0.0012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-187 | 3.2 | B | 0.023 | 0.0014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-188 | ND | | 0.023 | 0.0010 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-189 | 0.090 | | 0.023 | 0.0038 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-190 | 0.51 | | 0.023 | 0.0011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-191 | 0.11 | | 0.023 | 0.0011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-192 | ND | | 0.023 | 0.0013 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-193 | 5.2 | C180 B | 0.045 | 0.0013 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-194 | 1.4 | | 0.023 | 0.0045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-195 | 0.54 | | 0.023 | 0.0050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-196 | 0.57 | | 0.023 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |

**Client Sample ID: STS0200N**
**Lab Sample ID: 180-111218-2**
**Date Collected: 09/17/20 12:20**
**Matrix: Sediment**
**Date Received: 09/19/20 11:00**
**Percent Solids: 43.7**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-197** | **0.042** | | 0.023 | 0.0011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **PCB-198** | **1.5** | **C** | 0.045 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **PCB-199** | **1.5** | **C198** | 0.045 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **PCB-200** | **0.14** | | 0.023 | 0.0010 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **PCB-201** | **0.15** | | 0.023 | 0.0010 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **PCB-202** | **0.30** | | 0.023 | 0.0012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **PCB-203** | **0.93** | | 0.023 | 0.0013 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-204 | ND | | 0.023 | 0.0011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **PCB-205** | **0.071** | | 0.023 | 0.0038 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **PCB-206** | **1.1** | | 0.023 | 0.0049 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **PCB-207** | **0.10** | | 0.023 | 0.0033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **PCB-208** | **0.32** | | 0.023 | 0.0033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **PCB-209** | **0.57** | | 0.023 | 0.0016 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **Total Monochlorobiphenyls** | **0.17** | | 0.023 | 0.00077 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **Total Dichlorobiphenyls** | **4.1** | **B q** | 0.045 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **Total Trichlorobiphenyls** | **19** | **B** | 0.045 | 0.0029 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **Total Tetrachlorobiphenyls** | **35** | **B q** | 0.091 | 0.0051 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **Total Pentachlorobiphenyls** | **57** | **B q** | 0.14 | 0.0027 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **Total Hexachlorobiphenyls** | **51** | **B q** | 0.091 | 0.0073 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **Total Heptachlorobiphenyls** | **21** | **B q** | 0.045 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **Total Octachlorobiphenyls** | **5.6** | | 0.045 | 0.0021 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **Total Nonachlorobiphenyls** | **1.5** | | 0.023 | 0.0038 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| **Polychlorinated biphenyls, Total** | **190** | **B q** | 0.14 | 0.0033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 16:47 | 2 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *63* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-3L* | *59* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-4L* | *74* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-15L* | *77* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-19L* | *87* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-37L* | *80* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-54L* | *88* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-77L* | *80* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-81L* | *78* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-104L* | *87* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-105L* | *88* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-114L* | *89* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-118L* | *88* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-123L* | *86* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-126L* | *84* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-155L* | *89* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-156L* | *83* | *C* | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-157L* | *83* | *C156* | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-167L* | *86* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-169L* | *88* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-170L* | *84* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-188L* | *97* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-189L* | *85* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-202L* | *101* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |
| *PCB-205L* | *73* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 16:47* | *2* |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-111218-1

**Client Sample ID: STS0200N**
**Date Collected: 09/17/20 12:20**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-2**
**Matrix: Sediment**
**Percent Solids: 43.7**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Isotope Dilution | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-206L | 80 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-208L | 80 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-209L | 83 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 16:47 | 2 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-28L | 91 | | 5 - 145 | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-111L | 91 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 16:47 | 2 |
| PCB-178L | 103 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 16:47 | 2 |

## General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 56.3 | | 0.1 | 0.1 | % | | | 09/29/20 21:22 | 1 |
| Bulk Density | 1.4 | | 0.010 | 0.010 | g/cc | | | 09/30/20 18:30 | 1 |
| Total Organic Carbon - Duplicates | 38000 | | 2300 | 1700 | mg/Kg | ☼ | | 09/29/20 16:47 | 1 |

**Client Sample ID: STS0100N**
**Date Collected: 09/17/20 12:35**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-3**
**Matrix: Sediment**
**Percent Solids: 40.2**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1 | 0.13 | | 0.025 | 0.00084 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-2 | 0.033 | | 0.025 | 0.00099 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-3 | 0.080 | | 0.025 | 0.0011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-4 | 1.0 | | 0.049 | 0.0036 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-5 | 0.024 | J q | 0.025 | 0.0029 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-6 | 0.39 | | 0.025 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-7 | 0.072 | | 0.025 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-8 | 1.5 | | 0.049 | 0.0024 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-9 | 0.097 | | 0.025 | 0.0027 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-10 | 0.055 | | 0.025 | 0.0029 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-11 | 0.34 | B | 0.049 | 0.0025 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-12 | 0.19 | C | 0.049 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-13 | 0.19 | C12 | 0.049 | 0.0026 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-14 | ND | | 0.025 | 0.0022 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-15 | 1.4 | | 0.025 | 0.0028 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-16 | 1.2 | | 0.025 | 0.00075 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-17 | 1.8 | | 0.025 | 0.00067 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-18 | 3.1 | C B | 0.049 | 0.00059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-19 | 0.64 | | 0.025 | 0.00082 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-20 | 7.5 | C B | 0.049 | 0.0051 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-21 | 2.5 | C B | 0.049 | 0.0050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-22 | 2.3 | | 0.025 | 0.0052 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-23 | 0.0052 | J q | 0.025 | 0.0052 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-24 | 0.077 | | 0.025 | 0.00057 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-25 | 0.75 | | 0.025 | 0.0047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-26 | 1.3 | C | 0.049 | 0.0050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-27 | 0.47 | | 0.025 | 0.00049 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-28 | 7.5 | B C20 | 0.049 | 0.0051 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-29 | 1.3 | C26 | 0.049 | 0.0050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-30 | 3.1 | C18 B | 0.049 | 0.00059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-31 | 5.2 | B | 0.049 | 0.0050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-32 | 1.8 | | 0.025 | 0.00047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-33 | 2.5 | B C21 | 0.049 | 0.0050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-34 | 0.037 | | 0.025 | 0.0054 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-35 | 0.11 | | 0.025 | 0.0053 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-36 | ND | | 0.025 | 0.0051 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-37 | 2.2 | | 0.025 | 0.0052 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-38 | ND | | 0.025 | 0.0055 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-39 | 0.033 | | 0.025 | 0.0049 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-40 | 3.9 | C | 0.074 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-41 | 3.9 | C40 | 0.074 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-42 | 1.9 | | 0.025 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-43 | 0.26 | C | 0.049 | 0.010 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-44 | 7.4 | C B | 0.074 | 0.0096 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-45 | 1.6 | C | 0.049 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-46 | 0.46 | | 0.025 | 0.014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-47 | 7.4 | B C44 | 0.074 | 0.0096 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-48 | 1.3 | | 0.025 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-49 | 4.7 | C | 0.049 | 0.0088 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |

**Client Sample ID: STS0100N**
**Date Collected: 09/17/20 12:35**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-3**
**Matrix: Sediment**
**Percent Solids: 40.2**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-50 | 1.3 | C | 0.049 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-51 | 1.6 | C45 | 0.049 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-52 | 9.0 | B | 0.025 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-53 | 1.3 | C50 | 0.049 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-54 | 0.055 | | 0.025 | 0.00047 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-55 | 0.14 | | 0.025 | 0.0079 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-56 | 2.7 | | 0.025 | 0.0079 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-57 | 0.055 | | 0.025 | 0.0080 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-58 | 0.028 | | 0.025 | 0.0081 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-59 | 0.68 | C | 0.074 | 0.0077 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-60 | 1.4 | | 0.025 | 0.0080 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-61 | 10 | C B | 0.099 | 0.0075 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-62 | 0.68 | C59 | 0.074 | 0.0077 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-63 | 0.26 | | 0.025 | 0.0073 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-64 | 3.0 | | 0.025 | 0.0072 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-65 | 7.4 | B C44 | 0.074 | 0.0096 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-66 | 6.4 | | 0.025 | 0.0075 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-67 | 0.20 | | 0.025 | 0.0069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-68 | 0.056 | | 0.025 | 0.0071 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-69 | 4.7 | C49 | 0.049 | 0.0088 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-70 | 10 | C61 B | 0.099 | 0.0075 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-71 | 3.9 | C40 | 0.074 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-72 | 0.084 | | 0.025 | 0.0078 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-73 | 0.26 | C43 | 0.049 | 0.010 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-74 | 10 | C61 B | 0.099 | 0.0075 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-75 | 0.68 | C59 | 0.074 | 0.0077 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-76 | 10 | C61 B | 0.099 | 0.0075 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-77 | 0.69 | | 0.025 | 0.0075 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-78 | ND | | 0.025 | 0.0081 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-79 | 0.065 | | 0.025 | 0.0070 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-80 | ND | | 0.025 | 0.0069 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-81 | 0.026 | | 0.025 | 0.0076 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-82 | 1.2 | | 0.025 | 0.00095 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-83 | 5.6 | C B | 0.049 | 0.00086 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-84 | 2.4 | | 0.025 | 0.00096 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-85 | 1.8 | C B | 0.074 | 0.00070 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-86 | 6.3 | C B | 0.15 | 0.00071 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-87 | 6.3 | B C86 | 0.15 | 0.00071 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-88 | 1.5 | C | 0.049 | 0.00086 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-89 | 0.12 | | 0.025 | 0.00093 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-90 | 10 | C B | 0.074 | 0.00072 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-91 | 1.5 | C88 | 0.049 | 0.00086 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-92 | 1.9 | | 0.025 | 0.00081 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-93 | 0.22 | C | 0.049 | 0.00082 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-94 | 0.093 | | 0.025 | 0.00093 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-95 | 8.6 | B | 0.025 | 0.00090 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-96 | 0.10 | | 0.025 | 0.00070 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-97 | 6.3 | B C86 | 0.15 | 0.00071 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-98 | 0.37 | C | 0.049 | 0.00080 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |

**Client Sample ID: STS0100N**
**Date Collected: 09/17/20 12:35**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-3**
**Matrix: Sediment**
**Percent Solids: 40.2**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-99 | 5.6 | C83 B | 0.049 | 0.00086 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-100 | 0.22 | C93 | 0.049 | 0.00082 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-101 | 10 | B C90 | 0.074 | 0.00072 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-102 | 0.37 | C98 | 0.049 | 0.00080 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-103 | 0.12 | | 0.025 | 0.00082 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-104 | ND | | 0.025 | 0.00062 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-105 | 3.5 | | 0.025 | 0.0083 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-106 | ND | | 0.025 | 0.0086 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-107 | 0.72 | | 0.025 | 0.0092 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-108 | 0.37 | C | 0.049 | 0.0088 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-109 | 6.3 | B C86 | 0.15 | 0.00071 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-110 | 11 | C B | 0.049 | 0.00060 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-111 | ND | | 0.025 | 0.00058 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-112 | 0.040 | | 0.025 | 0.00061 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-113 | 10 | B C90 | 0.074 | 0.00072 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-114 | 0.20 | | 0.025 | 0.0079 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-115 | 11 | B C110 | 0.049 | 0.00060 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-116 | 1.8 | C85 B | 0.074 | 0.00070 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-117 | 1.8 | C85 B | 0.074 | 0.00070 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-118 | 8.4 | B | 0.025 | 0.0079 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-119 | 6.3 | B C86 | 0.15 | 0.00071 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-120 | 0.032 | | 0.025 | 0.00059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-121 | ND | | 0.025 | 0.00060 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-122 | 0.16 | | 0.025 | 0.010 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-123 | 0.16 | q | 0.025 | 0.0085 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-124 | 0.37 | C108 | 0.049 | 0.0088 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-125 | 6.3 | B C86 | 0.15 | 0.00071 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-126 | 0.034 | | 0.025 | 0.0097 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-127 | ND | | 0.025 | 0.0086 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-128 | 2.1 | C | 0.049 | 0.014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-129 | 16 | C B | 0.099 | 0.014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-130 | 0.92 | | 0.025 | 0.019 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-131 | 0.18 | | 0.025 | 0.019 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-132 | 5.2 | | 0.025 | 0.018 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-133 | 0.26 | | 0.025 | 0.018 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-134 | 0.87 | C | 0.049 | 0.018 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-135 | 5.3 | C | 0.049 | 0.00083 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-136 | 1.8 | | 0.025 | 0.00060 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-137 | 0.56 | | 0.025 | 0.016 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-138 | 16 | B C129 | 0.099 | 0.014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-139 | 0.23 | C | 0.049 | 0.016 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-140 | 0.23 | C139 | 0.049 | 0.016 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-141 | 3.5 | | 0.025 | 0.017 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-142 | ND | | 0.025 | 0.018 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-143 | 0.87 | C134 | 0.049 | 0.018 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-144 | 0.63 | | 0.025 | 0.00075 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-145 | 0.0053 | J | 0.025 | 0.00057 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-146 | 2.6 | | 0.025 | 0.016 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-147 | 16 | C B | 0.049 | 0.018 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |

**Client Sample ID: STS0100N**
**Date Collected: 09/17/20 12:35**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-3**
**Matrix: Sediment**
**Percent Solids: 40.2**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-148 | 0.029 | | 0.025 | 0.00080 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-149 | 16 | B C147 | 0.049 | 0.018 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-150 | 0.026 | | 0.025 | 0.00055 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-151 | 5.3 | C135 | 0.049 | 0.00083 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-152 | 0.012 | J | 0.025 | 0.00059 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-153 | 14 | C B | 0.049 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-154 | 0.19 | | 0.025 | 0.00065 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-155 | ND | | 0.025 | 0.00055 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-156 | 1.5 | C | 0.049 | 0.014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-157 | 1.5 | C156 | 0.049 | 0.014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-158 | 1.6 | | 0.025 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-159 | 0.16 | | 0.025 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-160 | 16 | B C129 | 0.099 | 0.014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-161 | 0.016 | J | 0.025 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-162 | 0.044 | | 0.025 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-163 | 16 | B C129 | 0.099 | 0.014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-164 | 1.1 | | 0.025 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-165 | ND | | 0.025 | 0.013 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-166 | 2.1 | C128 | 0.049 | 0.014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-167 | 0.52 | | 0.025 | 0.0090 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-168 | 14 | B C153 | 0.049 | 0.012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-169 | 0.061 | B q | 0.025 | 0.0096 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-170 | 5.1 | | 0.025 | 0.0018 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-171 | 1.4 | C | 0.049 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-172 | 0.85 | | 0.025 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-173 | 1.4 | C171 | 0.049 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-174 | 5.3 | | 0.025 | 0.0014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-175 | 0.20 | | 0.025 | 0.0013 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-176 | 0.64 | | 0.025 | 0.0010 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-177 | 2.9 | | 0.025 | 0.0014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-178 | 1.1 | | 0.025 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-179 | 2.5 | | 0.025 | 0.0011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-180 | 11 | C B | 0.049 | 0.0011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-181 | 0.032 | | 0.025 | 0.0013 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-182 | 0.043 | | 0.025 | 0.0013 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-183 | 3.6 | C B | 0.049 | 0.0013 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-184 | ND | | 0.025 | 0.0011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-185 | 3.6 | B C183 | 0.049 | 0.0013 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-186 | ND | | 0.025 | 0.0011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-187 | 6.5 | B | 0.025 | 0.0012 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-188 | ND | | 0.025 | 0.00087 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-189 | 0.17 | | 0.025 | 0.0046 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-190 | 0.89 | | 0.025 | 0.00097 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-191 | 0.21 | | 0.025 | 0.0010 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-192 | ND | | 0.025 | 0.0011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-193 | 11 | C180 B | 0.049 | 0.0011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-194 | 2.9 | | 0.025 | 0.0060 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-195 | 1.1 | | 0.025 | 0.0065 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-196 | 1.2 | | 0.025 | 0.0021 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |

**Client Sample ID: STS0100N**
**Date Collected: 09/17/20 12:35**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-3**
**Matrix: Sediment**
**Percent Solids: 40.2**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-197 | 0.096 | | 0.025 | 0.0016 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-198 | 2.9 | C | 0.049 | 0.0021 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-199 | 2.9 | C198 | 0.049 | 0.0021 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-200 | 0.32 | | 0.025 | 0.0014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-201 | 0.32 | | 0.025 | 0.0015 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-202 | 0.57 | | 0.025 | 0.0016 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-203 | 1.8 | | 0.025 | 0.0019 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-204 | ND | | 0.025 | 0.0016 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-205 | 0.15 | | 0.025 | 0.0050 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-206 | 1.4 | | 0.025 | 0.0068 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-207 | 0.14 | | 0.025 | 0.0044 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-208 | 0.37 | | 0.025 | 0.0042 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-209 | 0.56 | | 0.025 | 0.0023 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| Total Monochlorobiphenyls | 0.24 | | 0.025 | 0.00098 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| Total Dichlorobiphenyls | 5.1 | B q | 0.049 | 0.0027 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| Total Trichlorobiphenyls | 31 | B q | 0.049 | 0.0036 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| Total Tetrachlorobiphenyls | 58 | B | 0.099 | 0.0084 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| Total Pentachlorobiphenyls | 65 | B q | 0.15 | 0.0033 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| Total Hexachlorobiphenyls | 75 | B q | 0.099 | 0.011 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| Total Heptachlorobiphenyls | 42 | B | 0.049 | 0.0014 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| Total Octachlorobiphenyls | 11 | | 0.049 | 0.0029 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| Total Nonachlorobiphenyls | 1.9 | | 0.025 | 0.0051 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| Polychlorinated biphenyls, Total | 290 | B q | 0.15 | 0.0045 | ng/g | ☼ | 10/03/20 06:25 | 10/21/20 19:54 | 2 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *62* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-3L* | *62* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-4L* | *76* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-15L* | *80* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-19L* | *86* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-37L* | *79* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-54L* | *84* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-77L* | *79* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-81L* | *79* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-104L* | *83* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-105L* | *88* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-114L* | *90* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-118L* | *88* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-123L* | *87* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-126L* | *80* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-155L* | *87* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-156L* | *79* | *C* | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-157L* | *79* | *C156* | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-167L* | *83* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-169L* | *83* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-170L* | *81* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-188L* | *97* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-189L* | *85* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-202L* | *100* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |
| *PCB-205L* | *72* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 19:54* | *2* |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-111218-1

**Client Sample ID: STS0100N**
**Date Collected: 09/17/20 12:35**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-3**
**Matrix: Sediment**
**Percent Solids: 40.2**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Isotope Dilution | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-206L | 77 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-208L | 77 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-209L | 80 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 19:54 | 2 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-28L | 92 | | 5 - 145 | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-111L | 93 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 19:54 | 2 |
| PCB-178L | 104 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 19:54 | 2 |

## General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 59.8 | | 0.1 | 0.1 | % | | | 09/29/20 21:22 | 1 |
| Bulk Density | 1.4 | | 0.010 | 0.010 | g/cc | | | 09/30/20 18:32 | 1 |
| Total Organic Carbon - Duplicates | 37000 | | 2500 | 1900 | mg/Kg | ☼ | | 09/29/20 17:43 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-111218-1

**Client Sample ID: SEE0101N**
**Date Collected: 09/17/20 13:15**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-4**
**Matrix: Sediment**

## General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Bulk Density | 1.7 | | 0.010 | 0.010 | g/cc | | | 09/30/20 18:33 | 1 |

## Method: D422 - Grain Size

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Sieve Size 3 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size 2 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size 1.5 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size 1 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size 0.75 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size 0.375 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size #4 - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size #10 - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size #20 - Percent Finer | 99.5 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size #40 - Percent Finer | 97.7 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size #60 - Percent Finer | 96.0 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size #80 - Percent Finer | 95.2 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size #100 - Percent Finer | 94.1 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Sieve Size #200 - Percent Finer | 91.0 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Hydrometer Reading 1 - Percent Finer | 71.7 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Hydrometer Reading 2 - Percent Finer | 61.3 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Hydrometer Reading 3 - Percent Finer | 52.1 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Hydrometer Reading 4 - Percent Finer | 45.2 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Hydrometer Reading 5 - Percent Finer | 38.3 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Hydrometer Reading 6 - Percent Finer | 29.0 | | | | % Passing | | | 09/30/20 20:32 | 1 |
| Hydrometer Reading 7 - Percent Finer | 21.0 | | | | % Passing | | | 09/30/20 20:32 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-111218-1

**Client Sample ID: SEE0201N**
**Date Collected: 09/17/20 13:45**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-5**
**Matrix: Sediment**

## General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Bulk Density | 1.5 | | 0.010 | 0.010 | g/cc | | | 09/30/20 18:35 | 1 |

## Method: D422 - Grain Size

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Sieve Size 3 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size 2 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size 1.5 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size 1 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size 0.75 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size 0.375 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size #4 - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size #10 - Percent Finer | 98.5 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size #20 - Percent Finer | 96.7 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size #40 - Percent Finer | 93.9 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size #60 - Percent Finer | 90.8 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size #80 - Percent Finer | 88.4 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size #100 - Percent Finer | 86.7 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Sieve Size #200 - Percent Finer | 82.4 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Hydrometer Reading 1 - Percent Finer | 78.3 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Hydrometer Reading 2 - Percent Finer | 71.8 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Hydrometer Reading 3 - Percent Finer | 61.4 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Hydrometer Reading 4 - Percent Finer | 52.3 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Hydrometer Reading 5 - Percent Finer | 41.9 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Hydrometer Reading 6 - Percent Finer | 31.5 | | | | % Passing | | | 09/30/20 20:34 | 1 |
| Hydrometer Reading 7 - Percent Finer | 19.7 | | | | % Passing | | | 09/30/20 20:34 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-111218-1

**Client Sample ID: SEE0301N**
**Date Collected: 09/17/20 14:02**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-6**
**Matrix: Sediment**

## General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Bulk Density | 2.1 | | 0.010 | 0.010 | g/cc | | | 09/30/20 18:36 | 1 |

## Method: D422 - Grain Size

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Sieve Size 3 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size 2 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size 1.5 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size 1 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size 0.75 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size 0.375 inch - Percent Finer | 100.0 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size #4 - Percent Finer | 80.5 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size #10 - Percent Finer | 74.9 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size #20 - Percent Finer | 69.4 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size #40 - Percent Finer | 58.2 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size #60 - Percent Finer | 48.5 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size #80 - Percent Finer | 44.6 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size #100 - Percent Finer | 42.1 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Sieve Size #200 - Percent Finer | 36.4 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Hydrometer Reading 1 - Percent Finer | 33.2 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Hydrometer Reading 2 - Percent Finer | 30.1 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Hydrometer Reading 3 - Percent Finer | 24.3 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Hydrometer Reading 4 - Percent Finer | 21.1 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Hydrometer Reading 5 - Percent Finer | 18.0 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Hydrometer Reading 6 - Percent Finer | 13.5 | | | | % Passing | | | 09/30/20 20:36 | 1 |
| Hydrometer Reading 7 - Percent Finer | 9.7 | | | | % Passing | | | 09/30/20 20:36 | 1 |

Client: AECOM
Job ID: 180-111218-1
Project/Site: Pepco Benning Road Facility

**Client Sample ID: STS0300N**
**Lab Sample ID: 180-111218-7**
**Date Collected: 09/17/20 11:55**
**Matrix: Solid**
**Date Received: 09/19/20 11:00**

**Method: D4464 - Particle Size Distribution of Catalytic Material ( Laser light scattering)**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Clay(less than 0.00391 mm)** | **6.96** | | 0.01 | 0.01 | % | | | 10/21/20 13:26 | 1 |
| Coarse Sand (0.5mm to 1mm) | ND | | 0.01 | 0.01 | % | | | 10/21/20 13:26 | 1 |
| **Fine Sand (0.125 to 0.25mm)** | **17.67** | | 0.01 | 0.01 | % | | | 10/21/20 13:26 | 1 |
| Gravel (greater than 2 mm) | ND | | 0.01 | 0.01 | % | | | 10/21/20 13:26 | 1 |
| **Medium Sand (0.25 to 0.5 mm)** | **1.86** | | 0.01 | 0.01 | % | | | 10/21/20 13:26 | 1 |
| **Silt (0.00391 to 0.0625mm)** | **56.12** | | 0.01 | 0.01 | % | | | 10/21/20 13:26 | 1 |
| **Total Silt and Clay (0 to 0.0626mm)** | **63.08** | | 0.01 | 0.01 | % | | | 10/21/20 13:26 | 1 |
| Very Coarse Sand (1 to 2mm) | ND | | 0.01 | 0.01 | % | | | 10/21/20 13:26 | 1 |
| **Very Fine Sand (0.0625 to 0.125 mm)** | **17.39** | | 0.01 | 0.01 | % | | | 10/21/20 13:26 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-111218-1

**Client Sample ID: STS0200N**
**Date Collected: 09/17/20 12:20**
**Date Received: 09/19/20 11:00**

**Lab Sample ID: 180-111218-8**
**Matrix: Solid**

**Method: D4464 - Particle Size Distribution of Catalytic Material ( Laser light scattering)**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Clay(less than 0.00391 mm)** | **7.42** | | 0.01 | 0.01 | % | | | 10/21/20 13:30 | 1 |
| Coarse Sand (0.5mm to 1mm) | ND | | 0.01 | 0.01 | % | | | 10/21/20 13:30 | 1 |
| **Fine Sand (0.125 to 0.25mm)** | **12.41** | | 0.01 | 0.01 | % | | | 10/21/20 13:30 | 1 |
| Gravel (greater than 2 mm) | ND | | 0.01 | 0.01 | % | | | 10/21/20 13:30 | 1 |
| **Medium Sand (0.25 to 0.5 mm)** | **2.22** | | 0.01 | 0.01 | % | | | 10/21/20 13:30 | 1 |
| **Silt (0.00391 to 0.0625mm)** | **61.97** | | 0.01 | 0.01 | % | | | 10/21/20 13:30 | 1 |
| **Total Silt and Clay (0 to 0.0626mm)** | **69.39** | | 0.01 | 0.01 | % | | | 10/21/20 13:30 | 1 |
| Very Coarse Sand (1 to 2mm) | ND | | 0.01 | 0.01 | % | | | 10/21/20 13:30 | 1 |
| **Very Fine Sand (0.0625 to 0.125 mm)** | **15.98** | | 0.01 | 0.01 | % | | | 10/21/20 13:30 | 1 |

# Client Sample Results

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-111218-1

## Client Sample ID: STS0100N

**Date Collected: 09/17/20 12:35**
**Date Received: 09/19/20 11:00**

## Lab Sample ID: 180-111218-9

**Matrix: Solid**

### Method: D4464 - Particle Size Distribution of Catalytic Material ( Laser light scattering)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Clay(less than 0.00391 mm)** | **9.48** | | 0.01 | 0.01 | % | | | 10/21/20 13:40 | 1 |
| Coarse Sand (0.5mm to 1mm) | ND | | 0.01 | 0.01 | % | | | 10/21/20 13:40 | 1 |
| **Fine Sand (0.125 to 0.25mm)** | **7.30** | | 0.01 | 0.01 | % | | | 10/21/20 13:40 | 1 |
| Gravel (greater than 2 mm) | ND | | 0.01 | 0.01 | % | | | 10/21/20 13:40 | 1 |
| Medium Sand (0.25 to 0.5 mm) | ND | | 0.01 | 0.01 | % | | | 10/21/20 13:40 | 1 |
| **Silt (0.00391 to 0.0625mm)** | **70.72** | | 0.01 | 0.01 | % | | | 10/21/20 13:40 | 1 |
| **Total Silt and Clay (0 to 0.0626mm)** | **80.20** | | 0.01 | 0.01 | % | | | 10/21/20 13:40 | 1 |
| Very Coarse Sand (1 to 2mm) | ND | | 0.01 | 0.01 | % | | | 10/21/20 13:40 | 1 |
| **Very Fine Sand (0.0625 to 0.125 mm)** | **12.50** | | 0.01 | 0.01 | % | | | 10/21/20 13:40 | 1 |

# PARTICLE SIZE SUMMARY

**(ASTM D422 / D4464M)**

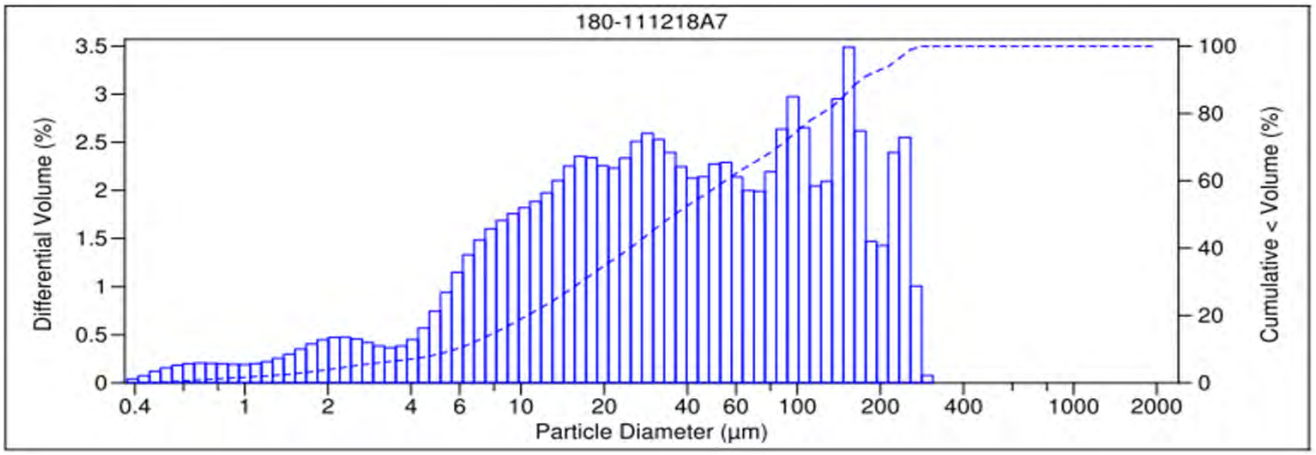
AECOM

| | |
|---|---|
| Date Sampled: | 09/17/20 |
| Date Received: | 09/22/20 |
| Work Order No: | 180-111218 |
| Date Analyzed: | 10/21/20 |
| Method: | ASTM D4464M |

Project: Pepco Benning Road Facility

| Sample ID | Depth ft | Description | Mean Grain Size mm |
|---|---|---|---|
| STS0300N | | Very Fine Sand | 0.066 |

| Particle Size Distribution, wt by percent | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Gravel | Very Coarse Sand | Coarse Sand | Medium Sand | Fine Sand | Very Fine Sand | Silt | Clay | Total Silt & Clay |
| 0.00 | 0.00 | 0.00 | 1.86 | 17.67 | 17.39 | 56.12 | 6.96 | 63.08 |




V 3.0

# PARTICLE SIZE SUMMARY

**(ASTM D422 / D4464M)**

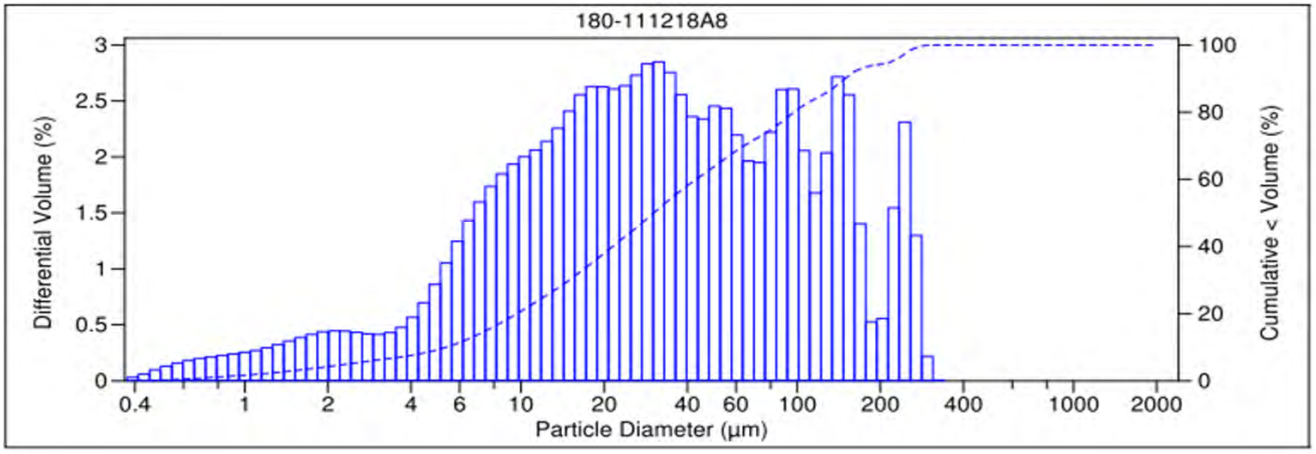
AECOM

| | |
|---|---|
| Date Sampled: | 09/17/20 |
| Date Received: | 09/22/20 |
| Work Order No: | 180-111218 |
| Date Analyzed: | 10/21/20 |
| Method: | ASTM D4464M |

Project: Pepco Benning Road Facility

| Sample ID | Depth ft | Description | Mean Grain Size mm |
|---|---|---|---|
| STS0200N | | Silt | 0.057 |

| Particle Size Distribution, wt by percent | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Gravel | Very Coarse Sand | Coarse Sand | Medium Sand | Fine Sand | Very Fine Sand | Silt | Clay | Total Silt & Clay |
| 0.00 | 0.00 | 0.00 | 2.22 | 12.41 | 15.98 | 61.97 | 7.42 | 69.39 |




V 3.0

# PARTICLE SIZE SUMMARY

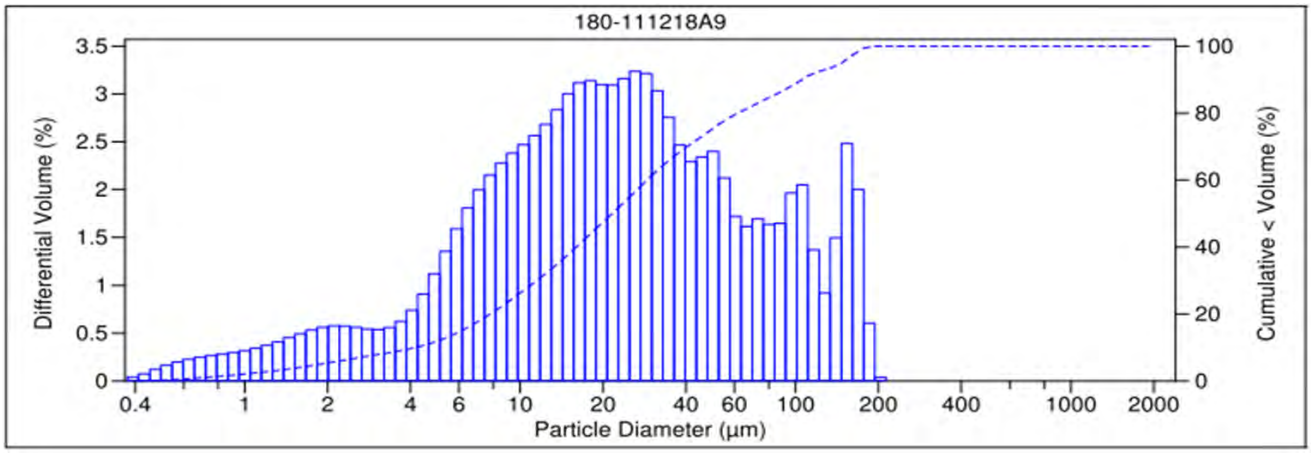
**(ASTM D422 / D4464M)**

| | | | |
|---|---|---|---|
| AECOM | | Date Sampled: | 09/17/20 |
| | | Date Received: | 09/22/20 |
| | | Work Order No: | 180-111218 |
| | | Date Analyzed: | 10/21/20 |
| | | Method: | ASTM D4464M |

Project: Pepco Benning Road Facility

| Sample ID | Depth ft | Description | Mean Grain Size mm |
|---|---|---|---|
| STS0100N | | Silt | 0.039 |

| Particle Size Distribution, wt by percent | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Gravel | Very Coarse Sand | Coarse Sand | Medium Sand | Fine Sand | Very Fine Sand | Silt | Clay | Total Silt & Clay |
| 0.00 | 0.00 | 0.00 | 0.00 | 7.30 | 12.50 | 70.72 | 9.48 | 80.20 |




V 3.0

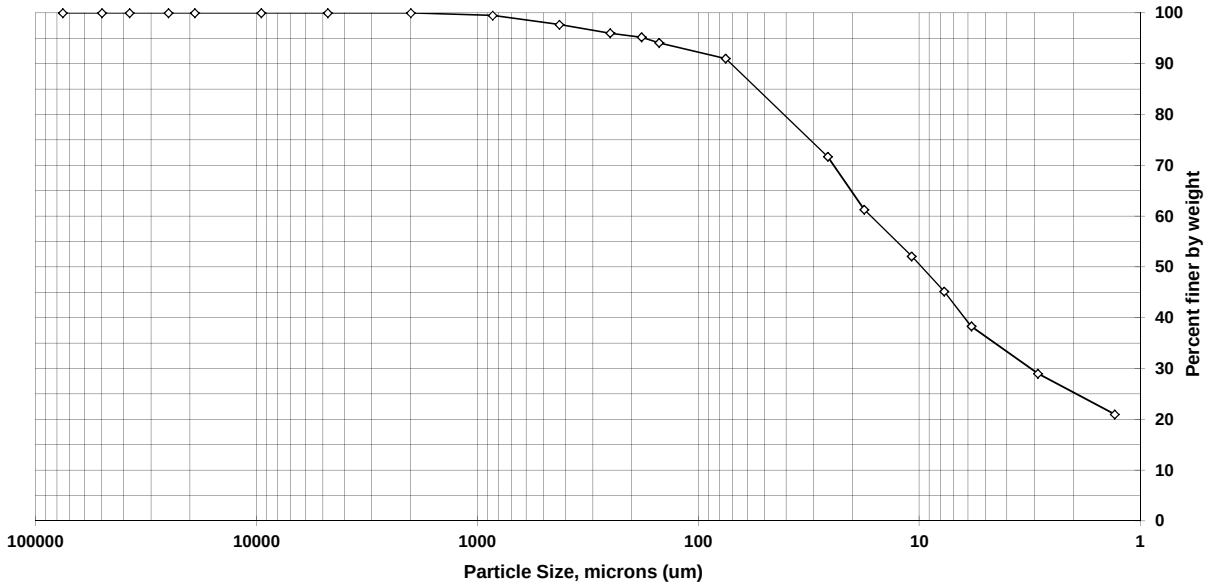
# Particle Size of Soils by ASTM D422

| | | | | | |
|---|---|---|---|---|---|
| **Sample ID:** | SEE0101N | **Percent Solids:** | 54.5% | **Date Received:** | 9/19/2020 |
| **Lab ID:** | 180-111218-A-4 | **Specific Gravity:** | 2.650 | **Start Date:** | 9/30/2020 |
| | | | | **End Date:** | 10/7/2020 |

**Shape (> #10):** na

**Non-soil material:** na

**Hardness (> #10):** na




| Sieve size | Particle size, um | Percent finer | Incremental percent |
|---|---|---|---|
| 3 inch | 75000 | 100.0 | 0.0 |
| 2 inch | 50000 | 100.0 | 0.0 |
| 1.5 inch | 37500 | 100.0 | 0.0 |
| 1 inch | 25000 | 100.0 | 0.0 |
| 3/4 inch | 19000 | 100.0 | 0.0 |
| 3/8 inch | 9500 | 100.0 | 0.0 |
| #4 | 4750 | 100.0 | 0.0 |
| #10 | 2000 | 100.0 | 0.0 |
| #20 | 850 | 99.5 | 0.5 |
| #40 | 425 | 97.7 | 1.8 |
| #60 | 250 | 96.0 | 1.7 |
| #80 | 180 | 95.2 | 0.8 |
| #100 | 150 | 94.1 | 1.1 |
| #200 | 75 | 91.0 | 3.1 |
| Hyd1 | 25.9 | 71.7 | 19.3 |
| Hyd2 | 17.7 | 61.3 | 10.4 |
| Hyd3 | 10.8 | 52.1 | 9.2 |
| Hyd4 | 7.7 | 45.2 | 6.9 |
| Hyd5 | 5.8 | 38.3 | 6.9 |
| Hyd6 | 2.9 | 29.0 | 9.3 |
| Hyd7 | 1.3 | 21.0 | 8.0 |
| | | | |

| Soil Classification | Percent of sample |
|---|---|
| Gravel | 0.0 |
| Sand | 9.0 |
| Coarse Sand | 0.0 |
| Medium Sand | 2.3 |
| Fine Sand | 6.7 |
| Silt | 52.7 |
| Clay | 38.3 |
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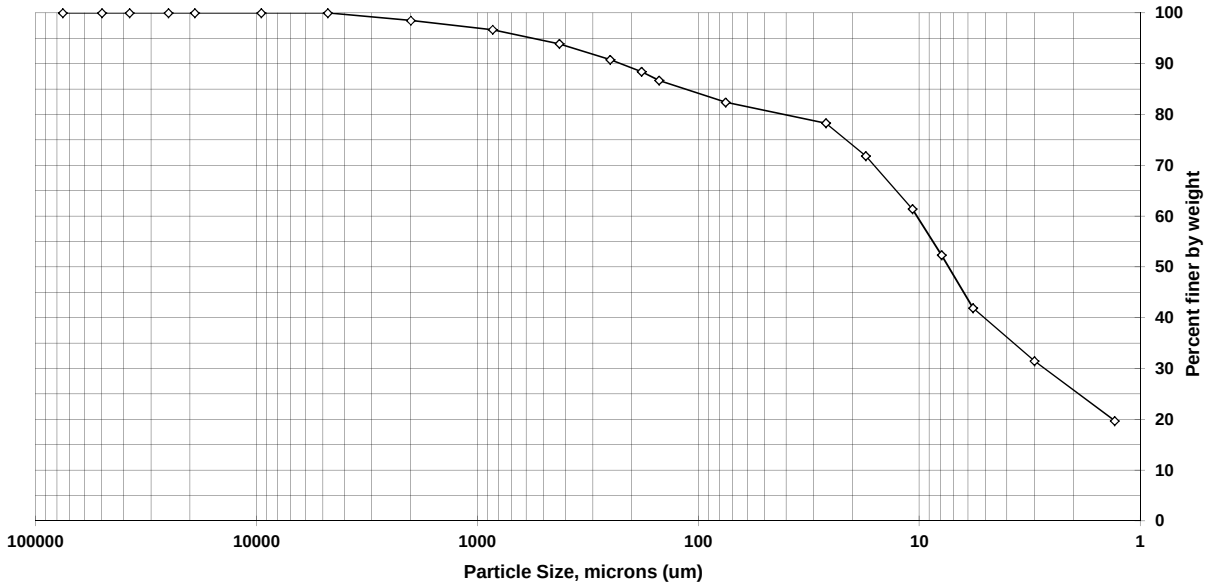
# Particle Size of Soils by ASTM D422

| | | | | | |
|---|---|---|---|---|---|
| **Sample ID:** | SEE0201N | **Percent Solids:** | 53.7% | **Date Received:** | 9/19/2020 |
| **Lab ID:** | 180-111218-A-5 | **Specific Gravity:** | 2.650 | **Start Date:** | 9/30/2020 |
| | | | | **End Date:** | 10/7/2020 |

**Shape (> #10):** na

**Non-soil material:** plant

**Hardness (> #10):** na




| Sieve size | Particle size, um | Percent finer | Incremental percent |
|---|---|---|---|
| 3 inch | 75000 | 100.0 | 0.0 |
| 2 inch | 50000 | 100.0 | 0.0 |
| 1.5 inch | 37500 | 100.0 | 0.0 |
| 1 inch | 25000 | 100.0 | 0.0 |
| 3/4 inch | 19000 | 100.0 | 0.0 |
| 3/8 inch | 9500 | 100.0 | 0.0 |
| #4 | 4750 | 100.0 | 0.0 |
| #10 | 2000 | 98.5 | 1.5 |
| #20 | 850 | 96.7 | 1.8 |
| #40 | 425 | 93.9 | 2.8 |
| #60 | 250 | 90.8 | 3.1 |
| #80 | 180 | 88.4 | 2.4 |
| #100 | 150 | 86.7 | 1.7 |
| #200 | 75 | 82.4 | 4.3 |
| Hyd1 | 26.4 | 78.3 | 4.1 |
| Hyd2 | 17.4 | 71.8 | 6.5 |
| Hyd3 | 10.7 | 61.4 | 10.4 |
| Hyd4 | 7.9 | 52.3 | 9.1 |
| Hyd5 | 5.7 | 41.9 | 10.4 |
| Hyd6 | 3 | 31.5 | 10.4 |
| Hyd7 | 1.3 | 19.7 | 11.8 |
| | | | |

| Soil Classification | Percent of sample |
|---|---|
| Gravel | 0.0 |
| Sand | 17.6 |
| Coarse Sand | 1.5 |
| Medium Sand | 4.6 |
| Fine Sand | 11.5 |
| Silt | 40.5 |
| Clay | 41.9 |
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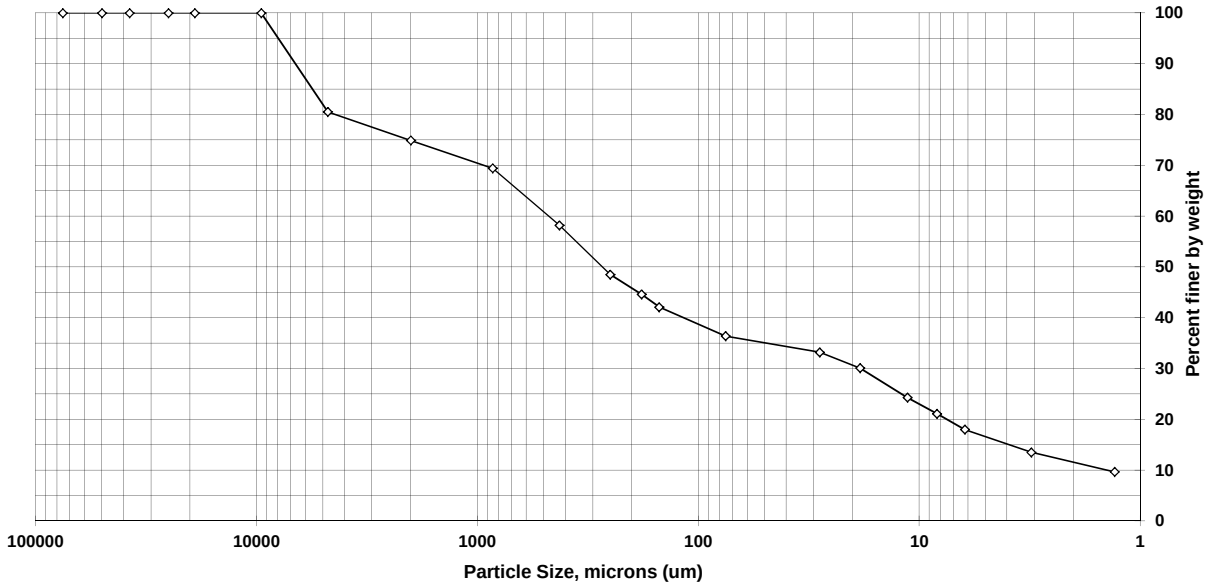
# Particle Size of Soils by ASTM D422

| | | | | | |
|---|---|---|---|---|---|
| **Sample ID:** | SEE0301N | **Percent Solids:** | 74.2% | **Date Received:** | 9/19/2020 |
| **Lab ID:** | 180-111218-A-6 | **Specific Gravity:** | 2.650 | **Start Date:** | 9/30/2020 |
| | | | | **End Date:** | 10/7/2020 |

**Shape (> #10):** angular

**Non-soil material:** plant, glass

**Hardness (> #10):** hard




| Sieve size | Particle size, um | Percent finer | Incremental percent |
|---|---|---|---|
| 3 inch | 75000 | 100.0 | 0.0 |
| 2 inch | 50000 | 100.0 | 0.0 |
| 1.5 inch | 37500 | 100.0 | 0.0 |
| 1 inch | 25000 | 100.0 | 0.0 |
| 3/4 inch | 19000 | 100.0 | 0.0 |
| 3/8 inch | 9500 | 100.0 | 0.0 |
| #4 | 4750 | 80.5 | 19.5 |
| #10 | 2000 | 74.9 | 5.6 |
| #20 | 850 | 69.4 | 5.5 |
| #40 | 425 | 58.2 | 11.2 |
| #60 | 250 | 48.5 | 9.7 |
| #80 | 180 | 44.6 | 3.9 |
| #100 | 150 | 42.1 | 2.5 |
| #200 | 75 | 36.4 | 5.7 |
| Hyd1 | 28.2 | 33.2 | 3.2 |
| Hyd2 | 18.5 | 30.1 | 3.1 |
| Hyd3 | 11.3 | 24.3 | 5.8 |
| Hyd4 | 8.3 | 21.1 | 3.2 |
| Hyd5 | 6.2 | 18.0 | 3.1 |
| Hyd6 | 3.1 | 13.5 | 4.5 |
| Hyd7 | 1.3 | 9.7 | 3.8 |
| | | | |

| Soil Classification | Percent of sample |
|---|---|
| Gravel | 19.5 |
| Sand | 44.1 |
| Coarse Sand | 5.6 |
| Medium Sand | 16.7 |
| Fine Sand | 21.8 |
| Silt | 18.4 |
| Clay | 18.0 |
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**Sediment Grain Size - D422**

| | |
|---|---|
| Client | |
| Client Sample ID | SEE0101N |
| Lab Sample ID | 180-111218-A-4 |

| | |
|---|---|
| Date Received | 9/19/2020 |
| Start Date | 09/30/2020 20:32 |
| End Date | 10/07/2020 13:20 |

**Dry Weight Determination**

| | | |
|---|---|---|
| Tin Weight | 0.98 | g |
| Wet Sample + Tin | 23.23 | g |
| Dry Sample + Tin | 13.11 | g |
| % Moisture | 45.48 | % |

| | |
|---|---|
| Non-soil material: | na |
| Shape (> #10): | na |
| Hardness (> #10): | na |

| | |
|---|---|
| Date/Time in oven | 09/30/2020 20:34 |
| Date/Time out of oven | 10/01/2020 16:05 |

| **Sample Weights** | Tare (g) | Pan+Samp (g) | Samp (g) |
|---|---|---|---|
| Sample Weight (Wet) | 47.82 | 175.43 | 127.61 |
| Sample Weight (Oven Dried) | | | 69.6 |

| **Sample Split (oven dried)** | Tare (g) | Pan+Samp (g) | Samp (g) |
|---|---|---|---|
| Sample >=#10 | | | 0 |
| Sample <#10 | | | 69.6 |
| % Passing #10 | | | 54.5 |

| **Hydrometer Data** | |
|---|---|
| Serial Number | 542321 |
| Calib. Date (mm/dd/yyyy) | 12/18/2019 |
| Low Temp (C) | 17.0 |
| Reading at Low Temp | 1.0035 |
| High Temp (C) | 23.0 |
| Reading at High Temp | 1.0025 |
| Hydrometer Cal Slope | -0.000166667 |
| Hydrometer Cal Intercept | 1.006333333 |
| Default Soil Gravity | 2.6500 |

**Gravel/Sand Fraction (Sieves)**

| Sample Fraction | Size (um) | Pan Tare (g) | Pan+Sample (g) | Sample | | % Finer | Classification | Sub Class |
|---|---|---|---|---|---|---|---|---|
| 3 inch | 75000 | | | 0.00 | g | 100.0 | Gravel | |
| 2 inch | 50000 | | | 0.00 | g | 100.0 | Gravel | |
| 1.5 inch | 37500 | | | 0.00 | g | 100.0 | Gravel | |
| 1 inch | 25000 | | | 0.00 | g | 100.0 | Gravel | |
| 3/4 inch | 19000 | | | 0.00 | g | 100.0 | Gravel | |
| 3/8 inch | 9500 | | | 0.00 | g | 100.0 | Gravel | |
| #4 | 4750 | | | 0.00 | g | 100.0 | Gravel | |
| #10 | 2000 | | | 0.00 | g | 100.0 | Sand | Coarse |
| #20 | 850 | 373.62 | 373.96 | 0.34 | g | 99.5 | Sand | Medium |
| #40 | 425 | 361.96 | 363.21 | 1.25 | g | 97.7 | Sand | Medium |
| #60 | 250 | 351.98 | 353.19 | 1.21 | g | 96.0 | Sand | Fine |
| #80 | 180 | 318.91 | 319.45 | 0.54 | g | 95.2 | Sand | Fine |
| #100 | 150 | 328.17 | 328.92 | 0.75 | g | 94.1 | Sand | Fine |
| #200 | 75 | 314.14 | 316.27 | 2.13 | g | 91.0 | Sand | Fine |
| | | | | 0.00 | g | 91.0 | | |

**Adjusted Hydrometer Sample Mass**

| | |
|---|---|
| Hydrometer Sample Mass (g) | 69.6 |

**Silt/Clay Fraction (Hydrometer Test)**

| Hydrometer Test Time (min) | Actual | Spec. Gravity | Temp C | Particle Size (Micron) | % Finer | Classification | Sub Class |
|---|---|---|---|---|---|---|---|
| 2 | 2 | 1.0340 | 20.5 | 25.9 | 71.7 | Silt | |
| 5 | 5 | 1.0295 | 20.5 | 17.7 | 61.3 | Silt | |
| 15 | 15 | 1.0255 | 20.5 | 10.8 | 52.1 | Silt | |
| 30 | 32 | 1.0225 | 20.5 | 7.7 | 45.2 | Silt | |
| 60 | 60 | 1.0195 | 20.5 | 5.8 | 38.3 | Silt | |
| 250 | 259 | 1.0155 | 20.5 | 2.9 | 29 | Clay | |
| 1440 | 1406 | 1.0120 | 20.5 | 1.3 | 21 | Clay | |

**Sediment Grain Size - D422**

| | |
|---|---|
| Client | |
| Client Sample ID | SEE0201N |
| Lab Sample ID | 180-111218-A-5 |

| | |
|---|---|
| Date Received | 9/19/2020 |
| Start Date | 09/30/2020 20:34 |
| End Date | 10/07/2020 13:28 |

**Dry Weight Determination**

| | | |
|---|---|---|
| Tin Weight | 0.99 | g |
| Wet Sample + Tin | 26.17 | g |
| Dry Sample + Tin | 14.51 | g |
| % Moisture | 46.31 | % |

| | |
|---|---|
| Non-soil material: | plant |
| Shape (> #10): | na |
| Hardness (> #10): | na |

| | |
|---|---|
| Date/Time in oven | 09/30/2020 20:36 |
| Date/Time out of oven | 10/01/2020 16:05 |

| **Sample Weights** | Tare (g) | Pan+Samp (g) | Samp (g) |
|---|---|---|---|
| Sample Weight (Wet) | 44.05 | 158.97 | 114.92 |
| Sample Weight (Oven Dried) | | | 61.7 |

| **Sample Split (oven dried)** | Tare (g) | Pan+Samp (g) | Samp (g) |
|---|---|---|---|
| Sample >=#10 | | | 0.91 |
| Sample <#10 | | | 60.8 |
| % Passing #10 | | | 52.9 |

**Hydrometer Data**

| | |
|---|---|
| Serial Number | 542321 |
| Calib. Date (mm/dd/yyyy) | 12/18/2019 |
| Low Temp (C) | 17.0 |
| Reading at Low Temp | 1.0035 |
| High Temp (C) | 23.0 |
| Reading at High Temp | 1.0025 |
| Hydrometer Cal Slope | -0.000166667 |
| Hydrometer Cal Intercept | 1.006333333 |
| Default Soil Gravity | 2.6500 |

**Gravel/Sand Fraction (Sieves)**

| Sample Fraction | Size (um) | Pan Tare (g) | Pan+Sample (g) | Sample | | % Finer | Classification | Sub Class |
|---|---|---|---|---|---|---|---|---|
| 3 inch | 75000 | | | 0.00 | g | 100.0 | Gravel | |
| 2 inch | 50000 | | | 0.00 | g | 100.0 | Gravel | |
| 1.5 inch | 37500 | | | 0.00 | g | 100.0 | Gravel | |
| 1 inch | 25000 | | | 0.00 | g | 100.0 | Gravel | |
| 3/4 inch | 19000 | | | 0.00 | g | 100.0 | Gravel | |
| 3/8 inch | 9500 | | | 0.00 | g | 100.0 | Gravel | |
| #4 | 4750 | | | 0.00 | g | 100.0 | Gravel | |
| #10 | 2000 | 462.61 | 463.52 | 0.91 | g | 98.5 | Sand | Coarse |
| #20 | 850 | 378.33 | 379.43 | 1.10 | g | 96.7 | Sand | Medium |
| #40 | 425 | 366.26 | 367.96 | 1.70 | g | 93.9 | Sand | Medium |
| #60 | 250 | 347.91 | 349.81 | 1.90 | g | 90.8 | Sand | Fine |
| #80 | 180 | 337.55 | 339.05 | 1.50 | g | 88.4 | Sand | Fine |
| #100 | 150 | 327.89 | 328.95 | 1.06 | g | 86.7 | Sand | Fine |
| #200 | 75 | 312.66 | 315.31 | 2.65 | g | 82.4 | Sand | Fine |
| | | | | 0.00 | g | 82.4 | | |

**Adjusted Hydrometer Sample Mass**

| | |
|---|---|
| Hydrometer Sample Mass (g) | 61.7 |

**Silt/Clay Fraction (Hydrometer Test)**

| Hydrometer Test Time (min) | Actual | Spec. Gravity | Temp C | Particle Size (Micron) | % Finer | Classification | Sub Class |
|---|---|---|---|---|---|---|---|
| 2 | 2 | 1.0330 | 20.5 | 26.4 | 78.3 | Silt | |
| 5 | 5 | 1.0305 | 20.5 | 17.4 | 71.8 | Silt | |
| 15 | 15 | 1.0265 | 20.5 | 10.7 | 61.4 | Silt | |
| 30 | 30 | 1.0230 | 20.5 | 7.9 | 52.3 | Silt | |
| 60 | 63 | 1.0190 | 20.5 | 5.7 | 41.9 | Silt | |
| 250 | 253 | 1.0150 | 20.5 | 3 | 31.5 | Clay | |
| 1440 | 1400 | 1.0105 | 20.5 | 1.3 | 19.7 | Clay | |

**Sediment Grain Size - D422**

| | |
|---|---|
| Client | |
| Client Sample ID | SEE0301N |
| Lab Sample ID | 180-111218-A-6 |

| | |
|---|---|
| Date Received | 9/19/2020 |
| Start Date | 09/30/2020 20:36 |
| End Date | 10/07/2020 13:32 |

**Dry Weight Determination**

| | | |
|---|---|---|
| Tin Weight | 0.98 | g |
| Wet Sample + Tin | 27.61 | g |
| Dry Sample + Tin | 20.75 | g |
| % Moisture | 25.76 | % |

| | |
|---|---|
| Non-soil material: | plant, glass |
| Shape (> #10): | angular |
| Hardness (> #10): | hard |
| Date/Time in oven | 09/30/2020 20:38 |
| Date/Time out of oven | 10/01/2020 16:05 |

| **Sample Weights** | Tare (g) | Pan+Samp (g) | Samp (g) |
|---|---|---|---|
| Sample Weight (Wet) | 47.85 | 216.97 | 169.12 |
| Sample Weight (Oven Dried) | | | 126 |

| **Sample Split (oven dried)** | Tare (g) | Pan+Samp (g) | Samp (g) |
|---|---|---|---|
| Sample >=#10 | | | 31.5 |
| Sample <#10 | | | 94.5 |
| % Passing #10 | | | 55.9 |

**Hydrometer Data**

| | |
|---|---|
| Serial Number | 542321 |
| Calib. Date (mm/dd/yyyy) | 12/18/2019 |
| Low Temp (C) | 17.0 |
| Reading at Low Temp | 1.0035 |
| High Temp (C) | 23.0 |
| Reading at High Temp | 1.0025 |
| Hydrometer Cal Slope | -0.000166667 |
| Hydrometer Cal Intercept | 1.006333333 |
| Default Soil Gravity | 2.6500 |

**Gravel/Sand Fraction (Sieves)**

| Sample Fraction | Size (um) | Pan Tare (g) | Pan+Sample (g) | Sample | | % Finer | Classification | Sub Class |
|---|---|---|---|---|---|---|---|---|
| 3 inch | 75000 | | | 0.00 | g | 100.0 | Gravel | |
| 2 inch | 50000 | | | 0.00 | g | 100.0 | Gravel | |
| 1.5 inch | 37500 | | | 0.00 | g | 100.0 | Gravel | |
| 1 inch | 25000 | | | 0.00 | g | 100.0 | Gravel | |
| 3/4 inch | 19000 | | | 0.00 | g | 100.0 | Gravel | |
| 3/8 inch | 9500 | | | 0.00 | g | 100.0 | Gravel | |
| #4 | 4750 | 487.98 | 512.50 | 24.52 | g | 80.5 | Gravel | |
| #10 | 2000 | 462.61 | 469.62 | 7.01 | g | 74.9 | Sand | Coarse |
| #20 | 850 | 373.62 | 380.57 | 6.95 | g | 69.4 | Sand | Medium |
| #40 | 425 | 361.96 | 376.03 | 14.07 | g | 58.2 | Sand | Medium |
| #60 | 250 | 351.98 | 364.22 | 12.24 | g | 48.5 | Sand | Fine |
| #80 | 180 | 318.91 | 323.78 | 4.87 | g | 44.6 | Sand | Fine |
| #100 | 150 | 328.17 | 331.30 | 3.13 | g | 42.1 | Sand | Fine |
| #200 | 75 | 314.14 | 321.36 | 7.22 | g | 36.4 | Sand | Fine |
| | | | | 0.00 | g | 36.4 | | |

**Adjusted Hydrometer Sample Mass**

| | |
|---|---|
| Hydrometer Sample Mass (g) | 126 |

**Silt/Clay Fraction (Hydrometer Test)**

| Hydrometer Test Time (min) | Actual | Spec. Gravity | Temp C | Particle Size (Micron) | % Finer | Classification | Sub Class |
|---|---|---|---|---|---|---|---|
| 2 | 2 | 1.0290 | 20.5 | 28.2 | 33.2 | Silt | |
| 5 | 5 | 1.0265 | 20.5 | 18.5 | 30.1 | Silt | |
| 15 | 15 | 1.0220 | 20.5 | 11.3 | 24.3 | Silt | |
| 30 | 30 | 1.0195 | 20.5 | 8.3 | 21.1 | Silt | |
| 60 | 57 | 1.0170 | 20.5 | 6.2 | 18 | Silt | |
| 250 | 247 | 1.0135 | 20.5 | 3.1 | 13.5 | Clay | |
| 1440 | 1394 | 1.0105 | 20.5 | 1.3 | 9.67 | Clay | |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

**Lab Sample ID: MB 140-43261/19-B**
**Matrix: Sediment**
**Analysis Batch: 43723**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43261**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1 | ND | | 0.010 | 0.00011 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-2 | ND | | 0.010 | 0.00014 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-3 | ND | | 0.010 | 0.00018 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-4 | ND | | 0.020 | 0.0016 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-5 | ND | | 0.010 | 0.0015 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-6 | ND | | 0.010 | 0.0013 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-7 | ND | | 0.010 | 0.0014 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-8 | ND | | 0.020 | 0.0012 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-9 | ND | | 0.010 | 0.0014 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-10 | ND | | 0.010 | 0.0015 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-11 | 0.00361 | J q | 0.020 | 0.0013 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-12 | ND | C | 0.020 | 0.0013 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-13 | ND | C12 | 0.020 | 0.0013 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-14 | ND | | 0.010 | 0.0011 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-15 | ND | | 0.010 | 0.0017 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-16 | ND | | 0.010 | 0.00030 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-17 | ND | | 0.010 | 0.00027 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-18 | 0.000776 | J C q | 0.020 | 0.00024 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-19 | ND | | 0.010 | 0.00033 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-20 | 0.00121 | J C | 0.020 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-21 | 0.000452 | J C | 0.020 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-22 | ND | | 0.010 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-23 | ND | | 0.010 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-24 | ND | | 0.010 | 0.00023 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-25 | ND | | 0.010 | 0.00024 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-26 | ND | C | 0.020 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-27 | ND | | 0.010 | 0.00020 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-28 | 0.00121 | J C20 | 0.020 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-29 | ND | C26 | 0.020 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-30 | 0.000776 | J C18 q | 0.020 | 0.00024 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-31 | 0.000879 | J q | 0.020 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-32 | ND | | 0.010 | 0.00019 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-33 | 0.000452 | J C21 | 0.020 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-34 | ND | | 0.010 | 0.00027 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-35 | ND | | 0.010 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-36 | ND | | 0.010 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-37 | ND | | 0.010 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-38 | ND | | 0.010 | 0.00027 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-39 | ND | | 0.010 | 0.00024 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-40 | ND | C | 0.030 | 0.00036 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-41 | ND | C40 | 0.030 | 0.00036 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-42 | ND | | 0.010 | 0.00036 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-43 | ND | C | 0.020 | 0.00034 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-44 | 0.00224 | J C | 0.030 | 0.00032 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-45 | ND | C | 0.020 | 0.00038 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-46 | ND | | 0.010 | 0.00046 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-47 | 0.00224 | J C44 | 0.030 | 0.00032 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-48 | ND | | 0.010 | 0.00036 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-43261/19-B**
**Matrix: Sediment**
**Analysis Batch: 43723**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43261**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-49 | ND | C | 0.020 | 0.00029 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-50 | ND | C | 0.020 | 0.00035 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-51 | ND | C45 | 0.020 | 0.00038 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-52 | 0.000685 | J q | 0.010 | 0.00036 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-53 | ND | C50 | 0.020 | 0.00035 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-54 | ND | | 0.010 | 0.000053 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-55 | ND | | 0.010 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-56 | ND | | 0.010 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-57 | ND | | 0.010 | 0.00027 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-58 | ND | | 0.010 | 0.00027 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-59 | ND | C | 0.030 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-60 | ND | | 0.010 | 0.00027 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-61 | 0.00125 | J C | 0.040 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-62 | ND | C59 | 0.030 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-63 | ND | | 0.010 | 0.00024 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-64 | ND | | 0.010 | 0.00024 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-65 | 0.00224 | J C44 | 0.030 | 0.00032 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-66 | ND | | 0.010 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-67 | ND | | 0.010 | 0.00023 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-68 | ND | | 0.010 | 0.00024 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-69 | ND | C49 | 0.020 | 0.00029 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-70 | 0.00125 | J C61 | 0.040 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-71 | ND | C40 | 0.030 | 0.00036 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-72 | ND | | 0.010 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-73 | ND | C43 | 0.020 | 0.00034 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-74 | 0.00125 | J C61 | 0.040 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-75 | ND | C59 | 0.030 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-76 | 0.00125 | J C61 | 0.040 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-77 | ND | | 0.010 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-78 | ND | | 0.010 | 0.00027 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-79 | ND | | 0.010 | 0.00023 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-80 | ND | | 0.010 | 0.00023 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-81 | ND | | 0.010 | 0.00024 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-82 | ND | | 0.010 | 0.000095 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-83 | 0.000666 | J C | 0.020 | 0.000086 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-84 | ND | | 0.010 | 0.000096 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-85 | 0.000277 | J C q | 0.030 | 0.000070 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-86 | 0.000612 | J C q | 0.060 | 0.000071 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-87 | 0.000612 | J C86 q | 0.060 | 0.000071 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-88 | ND | C | 0.020 | 0.000086 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-89 | ND | | 0.010 | 0.000093 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-90 | 0.000934 | J C | 0.030 | 0.000072 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-91 | ND | C88 | 0.020 | 0.000086 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-92 | ND | | 0.010 | 0.000081 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-93 | ND | C | 0.020 | 0.000082 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-94 | ND | | 0.010 | 0.000093 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-95 | 0.000584 | J q | 0.010 | 0.000090 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-96 | ND | | 0.010 | 0.000070 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-97 | 0.000612 | J C86 q | 0.060 | 0.000071 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-43261/19-B**
**Matrix: Sediment**
**Analysis Batch: 43723**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43261**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-98 | ND | C | 0.020 | 0.000080 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-99 | 0.000666 | J C83 | 0.020 | 0.000086 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-100 | ND | C93 | 0.020 | 0.000082 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-101 | 0.000934 | J C90 | 0.030 | 0.000072 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-102 | ND | C98 | 0.020 | 0.000080 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-103 | ND | | 0.010 | 0.000082 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-104 | ND | | 0.010 | 0.000062 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-105 | ND | | 0.010 | 0.00015 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-106 | ND | | 0.010 | 0.00016 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-107 | ND | | 0.010 | 0.00017 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-108 | ND | C | 0.020 | 0.00016 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-109 | 0.000612 | J C86 q | 0.060 | 0.000071 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-110 | 0.000797 | J C | 0.020 | 0.000060 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-111 | ND | | 0.010 | 0.000058 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-112 | ND | | 0.010 | 0.000061 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-113 | 0.000934 | J C90 | 0.030 | 0.000072 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-114 | ND | | 0.010 | 0.00014 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-115 | 0.000797 | J C110 | 0.020 | 0.000060 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-116 | 0.000277 | J C85 q | 0.030 | 0.000070 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-117 | 0.000277 | J C85 q | 0.030 | 0.000070 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-118 | 0.000652 | J | 0.010 | 0.00015 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-119 | 0.000612 | J C86 q | 0.060 | 0.000071 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-120 | ND | | 0.010 | 0.000059 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-121 | ND | | 0.010 | 0.000060 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-122 | ND | | 0.010 | 0.00019 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-123 | ND | | 0.010 | 0.00016 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-124 | ND | C108 | 0.020 | 0.00016 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-125 | 0.000612 | J C86 q | 0.060 | 0.000071 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-126 | ND | | 0.010 | 0.00018 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-127 | ND | | 0.010 | 0.00016 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-128 | ND | C | 0.020 | 0.00020 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-129 | 0.000796 | J C | 0.040 | 0.00021 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-130 | ND | | 0.010 | 0.00027 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-131 | ND | | 0.010 | 0.00028 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-132 | ND | | 0.010 | 0.00027 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-133 | ND | | 0.010 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-134 | ND | C | 0.020 | 0.00027 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-135 | ND | C | 0.020 | 0.000077 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-136 | ND | | 0.010 | 0.000056 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-137 | ND | | 0.010 | 0.00023 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-138 | 0.000796 | J C129 | 0.040 | 0.00021 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-139 | ND | C | 0.020 | 0.00023 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-140 | ND | C139 | 0.020 | 0.00023 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-141 | ND | | 0.010 | 0.00024 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-142 | ND | | 0.010 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-143 | ND | C134 | 0.020 | 0.00027 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-144 | ND | | 0.010 | 0.000070 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-145 | ND | | 0.010 | 0.000053 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-146 | ND | | 0.010 | 0.00023 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-43261/19-B**
**Matrix: Sediment**
**Analysis Batch: 43723**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43261**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-147 | 0.000716 | J C q | 0.020 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-148 | ND | | 0.010 | 0.000075 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-149 | 0.000716 | J C147 q | 0.020 | 0.00026 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-150 | ND | | 0.010 | 0.000051 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-151 | ND | C135 | 0.020 | 0.000077 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-152 | ND | | 0.010 | 0.000054 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-153 | 0.000590 | J C q | 0.020 | 0.00018 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-154 | ND | | 0.010 | 0.000060 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-155 | ND | | 0.010 | 0.000051 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-156 | ND | C | 0.020 | 0.00022 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-157 | ND | C156 | 0.020 | 0.00022 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-158 | ND | | 0.010 | 0.00016 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-159 | ND | | 0.010 | 0.00017 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-160 | 0.000796 | J C129 | 0.040 | 0.00021 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-161 | ND | | 0.010 | 0.00017 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-162 | ND | | 0.010 | 0.00017 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-163 | 0.000796 | J C129 | 0.040 | 0.00021 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-164 | ND | | 0.010 | 0.00018 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-165 | ND | | 0.010 | 0.00019 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-166 | ND | C128 | 0.020 | 0.00020 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-167 | ND | | 0.010 | 0.00013 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-168 | 0.000590 | J C153 q | 0.020 | 0.00018 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-169 | 0.000150 | J q | 0.010 | 0.00014 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-170 | ND | | 0.010 | 0.00012 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-171 | ND | C | 0.020 | 0.00011 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-172 | ND | | 0.010 | 0.00011 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-173 | ND | C171 | 0.020 | 0.00011 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-174 | ND | | 0.010 | 0.00011 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-175 | ND | | 0.010 | 0.00010 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-176 | ND | | 0.010 | 0.000078 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-177 | ND | | 0.010 | 0.00011 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-178 | ND | | 0.010 | 0.00011 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-179 | ND | | 0.010 | 0.000083 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-180 | 0.000615 | J C | 0.020 | 0.000087 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-181 | ND | | 0.010 | 0.00010 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-182 | ND | | 0.010 | 0.00010 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-183 | 0.000572 | J C q | 0.020 | 0.00010 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-184 | ND | | 0.010 | 0.000085 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-185 | 0.000572 | J C183 q | 0.020 | 0.00010 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-186 | ND | | 0.010 | 0.000082 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-187 | 0.000327 | J | 0.010 | 0.000096 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-188 | ND | | 0.010 | 0.000074 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-189 | ND | | 0.010 | 0.00024 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-190 | ND | | 0.010 | 0.000075 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-191 | ND | | 0.010 | 0.000078 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-192 | ND | | 0.010 | 0.000087 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-193 | 0.000615 | J C180 | 0.020 | 0.000087 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-194 | ND | | 0.010 | 0.00033 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-195 | ND | | 0.010 | 0.00036 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-43261/19-B**
**Matrix: Sediment**
**Analysis Batch: 43723**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43261**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-196 | ND | | 0.010 | 0.00012 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-197 | ND | | 0.010 | 0.000089 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-198 | ND | C | 0.020 | 0.00012 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-199 | ND | C198 | 0.020 | 0.00012 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-200 | ND | | 0.010 | 0.000079 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-201 | ND | | 0.010 | 0.000081 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-202 | ND | | 0.010 | 0.000090 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-203 | ND | | 0.010 | 0.00010 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-204 | ND | | 0.010 | 0.000089 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-205 | ND | | 0.010 | 0.00028 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-206 | ND | | 0.010 | 0.00069 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-207 | ND | | 0.010 | 0.00050 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-208 | ND | | 0.010 | 0.00052 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-209 | ND | | 0.010 | 0.00038 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| Total Monochlorobiphenyls | ND | | 0.010 | 0.00018 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| Total Dichlorobiphenyls | 0.00361 | J q | 0.020 | 0.0014 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| Total Trichlorobiphenyls | 0.00332 | J q | 0.020 | 0.00025 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| Total Tetrachlorobiphenyls | 0.00418 | J q | 0.040 | 0.00028 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| Total Pentachlorobiphenyls | 0.00452 | J q | 0.060 | 0.00010 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| Total Hexachlorobiphenyls | 0.00225 | J q | 0.040 | 0.00017 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| Total Heptachlorobiphenyls | 0.00151 | J q | 0.020 | 0.00010 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| Total Octachlorobiphenyls | ND | | 0.020 | 0.00036 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| Total Nonachlorobiphenyls | ND | | 0.010 | 0.00069 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| Polychlorinated biphenyls, Total | 0.0194 | J q | 0.060 | 0.00041 | ng/g | | 10/03/20 06:25 | 10/21/20 14:45 | 1 |

| *Isotope Dilution* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *47* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-3L* | *45* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-4L* | *54* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-15L* | *52* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-19L* | *60* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-37L* | *59* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-54L* | *70* | | *5 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-77L* | *69* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-81L* | *66* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-104L* | *64* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-105L* | *82* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-114L* | *80* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-118L* | *80* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-123L* | *77* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-126L* | *76* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-155L* | *76* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-156L* | *81* | *C* | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-157L* | *81* | *C156* | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-167L* | *81* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-169L* | *85* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-170L* | *79* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-188L* | *78* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |
| *PCB-189L* | *75* | | *10 - 145* | *10/03/20 06:25* | *10/21/20 14:45* | *1* |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-43261/19-B**
**Matrix: Sediment**
**Analysis Batch: 43723**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43261**

| Isotope Dilution | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-202L | 92 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-205L | 70 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-206L | 80 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-208L | 78 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-209L | 81 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 14:45 | 1 |

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-28L | 77 | | 5 - 145 | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-111L | 82 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 14:45 | 1 |
| PCB-178L | 91 | | 10 - 145 | 10/03/20 06:25 | 10/21/20 14:45 | 1 |

**Lab Sample ID: LCS 140-43261/20-B**
**Matrix: Sediment**
**Analysis Batch: 43723**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 43261**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| PCB-1 | 0.500 | 0.411 | | ng/g | | 82 | 60 - 135 |
| PCB-3 | 0.500 | 0.433 | | ng/g | | 87 | 60 - 135 |
| PCB-4 | 0.500 | 0.477 | | ng/g | | 95 | 60 - 135 |
| PCB-15 | 0.500 | 0.613 | | ng/g | | 123 | 60 - 135 |
| PCB-19 | 0.500 | 0.523 | | ng/g | | 105 | 60 - 135 |
| PCB-37 | 0.500 | 0.495 | | ng/g | | 99 | 60 - 135 |
| PCB-54 | 0.500 | 0.483 | | ng/g | | 97 | 60 - 135 |
| PCB-77 | 0.500 | 0.480 | | ng/g | | 96 | 60 - 135 |
| PCB-81 | 0.500 | 0.475 | | ng/g | | 95 | 60 - 135 |
| PCB-104 | 0.500 | 0.537 | | ng/g | | 107 | 60 - 135 |
| PCB-105 | 0.500 | 0.529 | | ng/g | | 106 | 60 - 135 |
| PCB-114 | 0.500 | 0.574 | | ng/g | | 115 | 60 - 135 |
| PCB-118 | 0.500 | 0.546 | | ng/g | | 109 | 60 - 135 |
| PCB-123 | 0.500 | 0.594 | | ng/g | | 119 | 60 - 135 |
| PCB-126 | 0.500 | 0.563 | | ng/g | | 113 | 60 - 135 |
| PCB-155 | 0.500 | 0.522 | | ng/g | | 104 | 60 - 135 |
| PCB-156 | 1.00 | 1.08 | C | ng/g | | 108 | 60 - 135 |
| PCB-157 | 1.00 | 1.08 | C156 | ng/g | | 108 | 60 - 135 |
| PCB-167 | 0.500 | 0.528 | | ng/g | | 106 | 60 - 135 |
| PCB-169 | 0.500 | 0.491 | | ng/g | | 98 | 60 - 135 |
| PCB-188 | 0.500 | 0.523 | | ng/g | | 105 | 60 - 135 |
| PCB-189 | 0.500 | 0.552 | | ng/g | | 110 | 60 - 135 |
| PCB-202 | 0.500 | 0.475 | | ng/g | | 95 | 60 - 135 |
| PCB-205 | 0.500 | 0.593 | | ng/g | | 119 | 60 - 135 |
| PCB-206 | 0.500 | 0.507 | | ng/g | | 101 | 60 - 135 |
| PCB-208 | 0.500 | 0.529 | | ng/g | | 106 | 60 - 135 |
| PCB-209 | 0.500 | 0.558 | | ng/g | | 112 | 60 - 135 |

| Isotope Dilution | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| PCB-1L | 51 | | 15 - 145 |
| PCB-3L | 48 | | 15 - 145 |
| PCB-4L | 58 | | 15 - 145 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: LCS 140-43261/20-B**
**Matrix: Sediment**
**Analysis Batch: 43723**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 43261**

| Isotope Dilution | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| PCB-15L | 56 | | 15 - 145 |
| PCB-19L | 69 | | 15 - 145 |
| PCB-37L | 66 | | 15 - 145 |
| PCB-54L | 76 | | 15 - 145 |
| PCB-77L | 74 | | 40 - 145 |
| PCB-81L | 73 | | 40 - 145 |
| PCB-104L | 68 | | 40 - 145 |
| PCB-105L | 82 | | 40 - 145 |
| PCB-114L | 83 | | 40 - 145 |
| PCB-118L | 81 | | 40 - 145 |
| PCB-123L | 78 | | 40 - 145 |
| PCB-126L | 79 | | 40 - 145 |
| PCB-155L | 79 | | 40 - 145 |
| PCB-156L | 80 | C | 40 - 145 |
| PCB-157L | 80 | C156 | 40 - 145 |
| PCB-167L | 82 | | 40 - 145 |
| PCB-169L | 86 | | 40 - 145 |
| PCB-170L | 80 | | 40 - 145 |
| PCB-188L | 82 | | 40 - 145 |
| PCB-189L | 77 | | 40 - 145 |
| PCB-202L | 97 | | 40 - 145 |
| PCB-205L | 71 | | 40 - 145 |
| PCB-206L | 79 | | 40 - 145 |
| PCB-208L | 80 | | 40 - 145 |
| PCB-209L | 82 | | 40 - 145 |

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| PCB-28L | 76 | | 15 - 145 |
| PCB-111L | 84 | | 40 - 145 |
| PCB-178L | 92 | | 40 - 145 |

## Method: 2540G - SM 2540G

**Lab Sample ID: 180-111218-3 DU**
**Matrix: Sediment**
**Analysis Batch: 331732**

**Client Sample ID: STS0100N**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 59.8 | | | 59.6 | | % | | | | 0.3 | 10 |

## Method: ASTM D5057-90 - Specific Gravity and Bulk Density (Screening)

**Lab Sample ID: 180-111218-1 DU**
**Matrix: Sediment**
**Analysis Batch: 331888**

**Client Sample ID: STS0300N**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bulk Density | 1.4 | | | 1.45 | | g/cc | | | | 2 | 20 |

## Method: EPA-Lloyd Kahn - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 180-331767/4**
**Matrix: Sediment**
**Analysis Batch: 331767**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Organic Carbon - Duplicates | ND | | 1000 | 750 | mg/Kg | | | 09/29/20 13:25 | 1 |

**Lab Sample ID: LCS 180-331767/5**
**Matrix: Sediment**
**Analysis Batch: 331767**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Organic Carbon - Duplicates | | | 37800 | 33800 | | mg/Kg | | 89 | 75 - 125 | | |

## Specialty Organics

### Prep Batch: 43261

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-111218-1 | STS0300N | Total/NA | Sediment | HRMS-Sox | |
| 180-111218-2 | STS0200N | Total/NA | Sediment | HRMS-Sox | |
| 180-111218-3 | STS0100N | Total/NA | Sediment | HRMS-Sox | |
| MB 140-43261/19-B | Method Blank | Total/NA | Sediment | HRMS-Sox | |
| LCS 140-43261/20-B | Lab Control Sample | Total/NA | Sediment | HRMS-Sox | |

### Cleanup Batch: 43349

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-111218-1 | STS0300N | Total/NA | Sediment | Split | 43261 |
| 180-111218-2 | STS0200N | Total/NA | Sediment | Split | 43261 |
| 180-111218-3 | STS0100N | Total/NA | Sediment | Split | 43261 |
| MB 140-43261/19-B | Method Blank | Total/NA | Sediment | Split | 43261 |
| LCS 140-43261/20-B | Lab Control Sample | Total/NA | Sediment | Split | 43261 |

### Analysis Batch: 43723

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-111218-1 | STS0300N | Total/NA | Sediment | 1668C | 43349 |
| 180-111218-2 | STS0200N | Total/NA | Sediment | 1668C | 43349 |
| 180-111218-3 | STS0100N | Total/NA | Sediment | 1668C | 43349 |
| MB 140-43261/19-B | Method Blank | Total/NA | Sediment | 1668C | 43349 |
| LCS 140-43261/20-B | Lab Control Sample | Total/NA | Sediment | 1668C | 43349 |

## General Chemistry

### Analysis Batch: 331732

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-111218-1 | STS0300N | Total/NA | Sediment | 2540G | |
| 180-111218-2 | STS0200N | Total/NA | Sediment | 2540G | |
| 180-111218-3 | STS0100N | Total/NA | Sediment | 2540G | |
| 180-111218-3 DU | STS0100N | Total/NA | Sediment | 2540G | |

### Analysis Batch: 331767

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-111218-1 | STS0300N | Total/NA | Sediment | EPA-Lloyd Kahn | |
| 180-111218-2 | STS0200N | Total/NA | Sediment | EPA-Lloyd Kahn | |
| 180-111218-3 | STS0100N | Total/NA | Sediment | EPA-Lloyd Kahn | |
| MB 180-331767/4 | Method Blank | Total/NA | Sediment | EPA-Lloyd Kahn | |
| LCS 180-331767/5 | Lab Control Sample | Total/NA | Sediment | EPA-Lloyd Kahn | |

### Analysis Batch: 331888

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-111218-1 | STS0300N | Total/NA | Sediment | ASTM D5057-90 | |
| 180-111218-2 | STS0200N | Total/NA | Sediment | ASTM D5057-90 | |
| 180-111218-3 | STS0100N | Total/NA | Sediment | ASTM D5057-90 | |
| 180-111218-4 | SEE0101N | Total/NA | Sediment | ASTM D5057-90 | |
| 180-111218-5 | SEE0201N | Total/NA | Sediment | ASTM D5057-90 | |
| 180-111218-6 | SEE0301N | Total/NA | Sediment | ASTM D5057-90 | |
| 180-111218-1 DU | STS0300N | Total/NA | Sediment | ASTM D5057-90 | |

# QC Association Summary

Client: AECOM
Job ID: 180-111218-1
Project/Site: Pepco Benning Road Facility

## Geotechnical

### Analysis Batch: 103533

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-111218-7 | STS0300N | Total/NA | Solid | D4464 | |
| 180-111218-8 | STS0200N | Total/NA | Solid | D4464 | |
| 180-111218-9 | STS0100N | Total/NA | Solid | D4464 | |

### Analysis Batch: 159682

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-111218-4 | SEE0101N | Total/NA | Sediment | D422 | |
| 180-111218-5 | SEE0201N | Total/NA | Sediment | D422 | |
| 180-111218-6 | SEE0301N | Total/NA | Sediment | D422 | |

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

Baltimore #201

eurofins | Environment Testing America

| Client Information | Sampler: QIANG HUANG | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-63272-12755.1 |
|---|---|---|---|---|
| Client Contact: Mr. Robert Kennedy | Phone: 240-374-8920 | E-Mail: Jill.Colussy@Eurofinset.com | | Page: Page 1 of 2 |
| Company: AECOM | | | | Job #: |
| Address: 250 Apollo Drive | Due Date Requested: | | | |
| City: Chelmsford | TAT Requested (days): standard. | | | |
| State, Zip: MA, 01824 | | | | |
| Phone: | PO #: 126546 | | | |
| Email: robert.kennedy@aecom.com | WO #: 60631088.3 | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

Preservation Codes:

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - pH 4-5 |
| L - EDA | Z - other (specify) |

Other:

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | ASTM D4464 (Eurofins Calscience) | Lloyd Kahn (TOC) | EPA 1668C | Dry Density, Percent Moisture | ASTM D422 | ASTM D2937 | Total Number of containers | Special |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation Code: | | | | | | | | | | | | | | |
| STS0300N | 9/17/20 | 1155 | C | S | | | X | X | X | X | | | 3 | |
| STS0200N | 9/17/20 | 1220 | C | S | | | X | X | X | X | | | 3 | |
| STS0100N | 9/17/20 | 1235 | C | S | | | X | X | X | X | | | 3 | |
| SEE0101N | 9/17/20 | 1315 | C | S | | | | | | | X | X | 2 | |
| SEE0201N | 9/17/20 | 1345 | C | S | | | | | | | X | X | 2 | |
| SEE0301N | 9/17/20 | 1402 | C | S | | | | | | | X | X | 2 | |

180-111218 Chain of Custody

***Possible Hazard Identification***
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

***Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)***
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

| | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|---|
| 1 | QIANG HUANG | 9/18/2020 1015 | | | 9/18/20 10:15 | EAB&A |
| 2 | | 9/18/20 1700 | EAB&A | | 9-19-20 | EAB&A |
| 3 | | Date/Time: | Company | Received by: | Date/Time: 11:00 | Company |

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019



Do Not Lift Using This T

5 A
12:00 3370
09.19

RI 639
ST 18

ORIGIN ID:KEUA (410) 869-0085
SETH CAPLAN
EUROFINS TESTAMERICA
7526 CONNELLEY DR
SUITE F
BALTIMORE, MD 21228
UNITED STATES US

SHIP DATE: 18SEP20
ACTWGT: 20.00 LB
CAD: 1030460/INET4280

BILL RECIPIENT

TO SAMPLE RECEIVING
TEST AMERICA PITTSBURGH
301 ALPHA DR
RIDC PARK
PITTSBURGH PA 15238

(412) 963-7058 REF: AECOM PEPCO BENNING

INV:
PO: DEPT:

568J61545/B766

FedEx Express

SATURDAY 12:00P
PRIORITY OVERNIGHT

TRK# 0201 7715 7050 3370

15238
PA-US PIT

XO AGCA

PT-WI-SR-001 effective 7/26/13

Uncorrected temp 2.9 °C
Thermometer ID TM

CF 0 Initials TB

Part # 156297-435 RRDW2 EB 0741

180-111218 Waybill

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

eurofins | Environment Testing America

| | | | | |
|---|---|---|---|---|
| **Client Information (Sub Contract Lab)** | Sampler: | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-412108.1 |
| Client Contact: Shipping/Receiving | Phone: | E-Mail: Jill.Colussy@Eurofinset.com | State of Origin: Maryland | Page: Page 1 of 1 |
| Company: TestAmerica Laboratories, Inc. | | Accreditations Required (See note): | | Job #: 180-111218-1 |
| Address: 5815 Middlebrook Pike, , | Due Date Requested: 10/5/2020 | | | |
| City: Knoxville | TAT Requested (days): | | | |
| State, Zip: TN, 37921 | | | | |
| Phone: 865-291-3000(Tel) 865-584-4315(Fax) | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

**Preservation Codes:**

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | Screen_1668/Screen_PCB_P_S | 1668C/1668_P_Sox Standard 209 List with Coelutions for Re | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | |
| STS0300N (180-111218-1) | 9/17/20 | 11:55 Eastern | | Sediment | | | X | X | 1 | |
| STS0200N (180-111218-2) | 9/17/20 | 12:20 Eastern | | Sediment | | | X | X | 1 | |
| STS0100N (180-111218-3) | 9/17/20 | 12:35 Eastern | | Sediment | | | X | X | 1 | |

180-111218 Chain of Custody

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sampl ... chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

| | |
|---|---|
| ***Possible Hazard Identification*** *Unconfirmed* | ***Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months* |
| Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4 | Special Instructions/QC Requirements: |

| | | | | | |
|---|---|---|---|---|---|
| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: | | |
| Relinquished by: [signature] | Date/Time: 09/21/2020 1800 | Company: ETA PHX | Received by: [signature] | Date/Time: 9-22-20 10:20 | Company: ETA KNX |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | | Cooler Temperature(s) °C and Other Remarks: | | |

Ver: 01/16/2019

Loc: 180
111218

## EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

**Log In Number:**

| Review Items | Yes | No | NA | If No, what was the problem? |
|---|---|---|---|---|
| 1. Are the shipping containers intact? | ✓ | | ✓ | ☐ Containers, Broken |
| 2. Were ambient air containers received intact? | | | ✓ | ☐ Checked in lab |
| 3. The coolers/containers custody seal if present, is it intact? | ✓ | | | ☐ Yes<br>☐ NA |
| 4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)<br>Thermometer ID : S168<br>Correction factor: 0.0 | ✓<br>✓ | | | ☐ Cooler Out of Temp, Client Contacted, Proceed/Cancel<br>☐ Cooler Out of Temp, Same Day Receipt |
| 5. Were all of the sample containers received intact? | ✓ | | | ☐ Containers, Broken |
| 6. Were samples received in appropriate containers? | ✓ | | | ☐ Containers, Improper; Client Contacted; Proceed/Cancel |
| 7. Do sample container labels match COC? (IDs, Dates, Times) | ✓ | | | ☐ COC & Samples Do Not Match<br>☐ COC Incorrect/Incomplete<br>☐ COC Not Received |
| 8. Were all of the samples listed on the COC received? | ✓ | | | ☐ Sample Received, Not on COC<br>☐ Sample on COC, Not Received |
| 9. Is the date/time of sample collection noted? | ✓ | | | ☐ COC; No Date/Time; Client Contacted |
| 10. Was the sampler identified on the COC? | | | ✓ | ☐ Sampler Not Listed on COC |
| 11. Is the client and project name/# identified? | ✓ | | | ☐ COC Incorrect/Incomplete |
| 12. Are tests/parameters listed for each sample? | ✓ | | | ☐ COC No tests on COC |
| 13. Is the matrix of the samples noted? | ✓ | | | ☐ COC Incorrect/Incomplete |
| 14. Was COC relinquished? (Signed/Dated/Timed) | ✓ | | | ☐ COC Incorrect/Incomplete |
| 15. Were samples received within holding time? | ✓ | | | ☐ Holding Time - Receipt |
| 16. Were samples received with correct chemical preservative (excluding Encore)? | | | ✓<br>✓ | ☐ pH Adjusted, pH Included (See box 16A)<br>☐ Incorrect Preservative |
| 17. Were VOA samples received without headspace? | | | ✓ | ☐ Headspace (VOA only) |
| 18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668)<br>Chlorine test strip lot number: | | | ✓ | ☐ Residual Chlorine |
| 19. For 1613B water samples is pH<9? | | | ✓ | ☐ If no, notify lab to adjust |
| 20. For rad samples was sample activity info. Provided? | | | ✓ | ☐ Project missing info |

**Comments/Actions Taken**

CUSTODY SEALS INTACT
RECEIVED AT RT 0.6, 0.2 / CT 0.6, 0.2°C
DM 9-22-20
2 COOLERS FEDEX #1689 5102 9346 em PD

**Labeling Verified by:** **Date:**

**pH test strip lot number:**

| Box 16A: pH Preservation | Box 18A: Residual Chlorine |
|---|---|
| Preservative: | |
| Lot Number: | |
| Exp Date: | |
| Analyst: | |
| Date: | |
| Time: | |

Project #: _____ PM Instructions: _____

Sample Receiving Associate: _____ Date: 9-22-20

QA026R32.doc, 062719



10/23/2020

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

180-111218 Chain of Custody

eurofins | Environment Testing America

| | | | |
|---|---|---|---|
| **Client Information (Sub Contract Lab)** | Sampler: | Lab PM: Colussy, Jill L | COC No: 180-412105.1 |
| Client Contact: Shipping/Receiving | Phone: | E-Mail: Jill.Colussy@Eurofinset.com | State of Origin: Maryland | Page: Page 1 of 1 |
| Company: TestAmerica Laboratories, Inc. | | Accreditations Required (See note): | Job #: 180-111218-1 |
| Address: 30 Community Drive, Suite 11, | Due Date Requested: 10/1/2020 | | |
| City: South Burlington | TAT Requested (days): | | |
| State, Zip: VT, 05403 | | | |
| Phone: 802-660-1990(Tel) 802-660-1919(Fax) | PO #: | | |
| Email: | WO #: | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | |
| Site: | SSOW#: | | |

**Analysis Requested**

**Preservation Codes:**

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Other:

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | D422/ Grain Size (Sieve and Hydrometer) | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | |
| SEE0101N (180-111218-4) | 9/17/20 | 13:15 Eastern | | Sediment | | | X | 1 | |
| SEE0201N (180-111218-5) | 9/17/20 | 13:45 Eastern | | Sediment | | | X | 1 | |
| SEE0301N (180-111218-6) | 9/17/20 | 14:02 Eastern | | Sediment | | | X | 1 | |

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

| | |
|---|---|
| ***Possible Hazard Identification*** *Unconfirmed* | ***Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months* |
| Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4 | Special Instructions/QC Requirements: |

| | | | | | | |
|---|---|---|---|---|---|---|
| Empty Kit Relinquished by: | | Date: | Time: | Method of Shipment: | | |
| Relinquished by: | Date/Time: 09/21/2020 1800 | Company EDA FIL | Received by: | Date/Time: 9/22/2020 1040 | Company TMBCH | |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company | |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company | |

| | | |
|---|---|---|
| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: |

Ver: 01/16/2019

ORIGIN ID:AGCA (412) 963-7058
PITTSBURGH SAMPLE RECEIVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH, PA 152381330
UNITED STATES US

SHIP DATE: 21SEP20
ACTWGT: 45.00 LB MAN
CAD: 741733/CAFE3406

BILL RECIPIENT

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403

(802) 660-1990 REF: 8180-64194
PO: YES DEPT: SAMPLE RECEIVING

FedEx Express

2 of 3
MPS# 0263 1689 5102 9324
Mstr# 1689 5102 9313 0201

TUE - 22 SEP 10:30A
PRIORITY OVERNIGHT

NL BTVA

05403
VT-US BTV

ORIGIN ID:AGCA (412) 963-7058
PITTSBURGH SAMPLE RECEIVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH, PA 152381330
UNITED STATES US

SHIP DATE: 21SEP20
ACTWGT: 45.00 LB MAN
CAD: 741733/CAFE3406

BILL RECIPIENT

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403

(802) 660-1990 REF: 8180-64194
PO: YES DEPT: SAMPLE RECEIVING

FedEx Express

3 of 3
MPS# 0263 1689 5102 9335
Mstr# 1689 5102 9313 0201

TUE - 22 SEP 10:30A
PRIORITY OVERNIGHT

NL BTVA

0540
VT-US BTV

1 of 3
TRK# 0201 1689 5102 9313
## MASTER ##

TUE - 22 SEP 10:30A
PRIORITY OVERNIGHT

NL BTVA

05403
VT-US BTV

ORIGIN ID:AGCA (412) 963-7058
PITTSBURGH SAMPLE RECEIVING
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301 ALPHA DRIVE

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30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403

(802) 660-1990 REF: 8180-64194
PO: YES DEPT: SAMPLE RECEIVING

FedEx Express

eurofins

Environment Testing
TestAmerica



10/23/2020

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

eurofins | Environment Testing America

| Client Information (Sub Contract Lab) | Sampler: | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-412131.1 |
|---|---|---|---|---|
| Client Contact: Shipping/Receiving | Phone: | E-Mail: Jill.Colussy@Eurofinset.com | State of Origin: Maryland | Page: Page 1 of 1 |
| Company: Eurofins Calscience LLC | | Accreditations Required (See note): | | Job #: 180-111218-1 |
| Address: 7440 Lincoln Way, | Due Date Requested: 10/1/2020 | | | |
| City: Garden Grove | TAT Requested (days): | | | |
| State, Zip: CA, 92841 | | | | |
| Phone: 714-895-5494(Tel) 714-894-7501(Fax) | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - pH 4-5 |
| L - EDA | Z - other (specify) |

Other:

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | SUB (ASTM D4464)/ ASTM D4464 | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | |
| STS0300N (180-111218-1) | 9/17/20 | 11:55 Eastern | | Sediment | | | X | 1 | ICO is $88 |
| STS0200N (180-111218-2) | 9/17/20 | 12:20 Eastern | | Sediment | | | X | 1 | ICO is $88 |
| STS0100N (180-111218-3) | 9/17/20 | 12:35 Eastern | | Sediment | | | X | 1 | ICO is $88 |

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

| *Possible Hazard Identification* | *Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)* |
|---|---|
| *Unconfirmed* | ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months* |
| Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4 | Special Instructions/QC Requirements: |

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

| | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|---|
| 1 | | 9/21/20 1800 | ETACH | | 09/22/2020 1030 | |
| 2 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| 3 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 2.1/2.7 SW |
|---|---|---|

Ver: 01/16/2019



10/23/2020

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-111218-1

**Login Number: 111218**
**List Number: 1**
**Creator: Watson, Debbie**

**List Source: Eurofins TestAmerica, Pittsburgh**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-111218-1

**Login Number: 111218**
**List Number: 4**
**Creator: Stratford, Jordan**

**List Source: Eurofins Calscience**
**List Creation: 10/21/20 12:31 PM**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-111218-1

**Login Number: 111218**
**List Number: 3**
**Creator: Jaffe, Nat S**

**List Source: Eurofins TestAmerica, Burlington**
**List Creation: 09/22/20 01:24 PM**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | Lab does not accept radioactive samples. |
| The cooler's custody seal, if present, is intact. | True | Seal present with no number. |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | 0.2ºC, 0.7ºC, 0.7ºC |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | N/A | Received project as a subcontract. |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | N/A | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

eurofins | Environment Testing America



# ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-112434-1
Client Project/Site: Pepco Benning Road Facility

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

*Authorized for release by:*
*11/10/2020 9:19:28 AM*

Jill Colussy, Project Manager I
(412)963-2444
Jill.Colussy@Eurofinset.com

LINKS
Review your project results through TotalAccess
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

*PA Lab ID: 02-00416*

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## Job ID: 180-112434-1

**Laboratory: Eurofins TestAmerica, Pittsburgh**

**Narrative**

# CASE NARRATIVE

## Client: AECOM

## Project: Pepco Benning Road Facility

## Report Number: 180-112434-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**
The samples were received on 10/17/2020 9:30 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 2.4º C, 15.1º C and 17.8º C.

**SEMIVOLATILES**
Due to the concentration of target compounds detected and/or matrix, the samples were analyzed at a dilution. The reporting limits have been adjusted accordingly. The samples had the surrogates diluted out.

The matrix spike duplicate of sample 0FS0300N (180-112434-2) recovered outside of the control limits for Benzo[k]fluoranthene. The relative percent difference between the matrix spike and the matrix spike duplicate was outside of the control limits for Benzo[k]fluoranthene.

The continuing calibration verification (CCV) analyzed in 180-334654 was outside the method criteria for the following analyte: 2,4,6-Tribromophenol(surr). As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

**DRO**
Due to the concentration of DRO/ORO detected, the samples were analyzed at a dilution. The reporting limits have been adjusted accordingly.

Several analytes were detected in method blank MB 140-43801/12-B at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

**PCB COMGENERS**
Due to the concentration of target compounds detected and/or matrix, the samples were analyzed at a dilution. The reporting limits have been adjusted accordingly. The samples had the surrogates diluted out.

One or more ion abundance ratios are outside criteria for the Isotope Dilution Analyte (IDA) associated with the following samples: 0FS0300N (180-112434-2) and 0FS0100N (180-112434-4).

## Job ID: 180-112434-1 (Continued)

### Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

An ion abundance ratio(s) is outside criteria for the Internal Standard(s) associated with the following sample: 0FS0300N (180-112434-2).

**DIOXINS**

Reported OCDD and/or OCDF analytes that are flagged with the “E” qualifier exceed the upper calibration range of the instrument. Per the method, dilutions are not required to bring these analytes within the calibration range.

The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: 0FS0300N (180-112434-2) and 0FS0400N (180-112434-6). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

The bracketing continuing calibration verification (CCV) associated with batch 140-44180 has analytes with percent difference values that are between the method criteria of 30% to 35% deviation from the initial calibration curve. Per method guidelines, an average relative response factor (RRF) is calculated from the bracketing CCV and is used to quantitate the Isotope Dilution Analyte (IDA) recovery in the associated samples.

The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: 0FS0300N (180-112434-2). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Several analytes were detected in method blank MB 140-43808/20-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Several analytes were detected in method blank MB 140-43801/12-B at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

**METALS**

The method blank for batch 180-335170 contained nickel above the reporting limit (RL). Associated samples were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Calcium was detected in method blank MB 180-335170/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Mercury was detected in method blank MB 180-334165/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The aluminum concentrations found in the continuing calibration blanks (CCB) were greater than the reporting limit. All associated samples bracketed by these CCB's had aluminum concentrations at least 10x greater than the CCB concentrations. All associated results have been flagged with a "^" qualifier.

**GRAIN SIZE**

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GENERAL CHEMISTRY**

The following samples are mats: SMS0100N-MAT, SMS0200N-MAT, and SM0300N-MAT. The laboratory was instructed to rinse sediment off of the mats using a squirt bottle of water. This approach yielded minimal success. The laboratory then submersed the mat in a bucket of water and "washed" the mat by hand. This processed was performed three times. The "wash" water was then placed in baking dishes and placed into a drying oven. After the sample was completely dry, the amount of dried sediment was weighed. The results are as follows:
SMS0100N-MAT- 263.8 grams
SMS0200N-MAT- 415.8 grams

## Job ID: 180-112434-1 (Continued)

### Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

SM0300N-MAT- 471.8 grams

Please note that the reporting limit for Lloyd Kahn TOC analysis is a nominal value and does not reflect adjustments in sample mass processed on an individual basis.

## Qualifiers

### GC/MS Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| D | Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D. |
| F1 | MS and/or MSD recovery exceeds control limits. |
| F2 | MS/MSD RPD exceeds control limits |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| X | Surrogate recovery exceeds control limits |

### GC Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

### Dioxin

| Qualifier | Qualifier Description |
|---|---|
| *5 | Isotope dilution analyte is outside acceptance limits. |
| B | Compound was found in the blank and sample. |
| C | The compound co-eluted with other compounds |
| C108 | The compound co-eluted with PCB-108 |
| C110 | The compound co-eluted with PCB-110 |
| C12 | The compound co-eluted with PCB-12 |
| C128 | The compound co-eluted with PCB-128 |
| C129 | The compound co-eluted with PCB-129 |
| C134 | The compound co-eluted with PCB-134 |
| C135 | The compound co-eluted with PCB-135 |
| C139 | The compound co-eluted with PCB-139 |
| C147 | The compound co-eluted with PCB-147 |
| C153 | The compound co-eluted with PCB-153 |
| C156 | The compound co-eluted with PCB-156 |
| C171 | The compound co-eluted with PCB-171 |
| C18 | The compound co-eluted with PCB-18 |
| C180 | The compound co-eluted with PCB-180 |
| C183 | The compound co-eluted with PCB-183 |
| C198 | The compound co-eluted with PCB-198 |
| C20 | The compound co-eluted with PCB-20 |
| C21 | The compound co-eluted with PCB-21 |
| C26 | The compound co-eluted with PCB-26 |
| C40 | The compound co-eluted with PCB-40 |
| C43 | The compound co-eluted with PCB-43 |
| C44 | The compound co-eluted with PCB-44 |
| C45 | The compound co-eluted with PCB-45 |
| C49 | The compound co-eluted with PCB-49 |
| C50 | The compound co-eluted with PCB-50 |
| C59 | The compound co-eluted with PCB-59 |
| C61 | The compound co-eluted with PCB-61 |
| C83 | The compound co-eluted with PCB-83 |
| C85 | The compound co-eluted with PCB-85 |
| C86 | The compound co-eluted with PCB-86 |
| C88 | The compound co-eluted with PCB-88 |
| C90 | The compound co-eluted with PCB-90 |
| C93 | The compound co-eluted with PCB-93 |
| C98 | The compound co-eluted with PCB-98 |
| E | Result exceeded calibration range. |
| I | Value is EMPC (estimated maximum possible concentration). |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

## Qualifiers (Continued)

### Dioxin (Continued)

| Qualifier | Qualifier Description |
|---|---|
| q | The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference. |

### Metals

| Qualifier | Qualifier Description |
|---|---|
| ^ | ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits. |
| B | Compound was found in the blank and sample. |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CFU | Colony Forming Unit |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MCL | EPA recommended "Maximum Contaminant Level" |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| MPN | Most Probable Number |
| MQL | Method Quantitation Limit |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| NEG | Negative / Absent |
| POS | Positive / Present |
| PQL | Practical Quantitation Limit |
| PRES | Presumptive |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |
| TNTC | Too Numerous To Count |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-112434-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| Arkansas DEQ | State | 19-033-0 | 06-27-21 |
| California | State | 2891 | 04-30-21 |
| Connecticut | State | PH-0688 | 09-30-20 * |
| Florida | NELAP | E871008 | 06-30-21 |
| Georgia | State | PA 02-00416 | 04-30-21 |
| Illinois | NELAP | 004375 | 06-30-21 |
| Kansas | NELAP | E-10350 | 01-31-21 |
| Kentucky (UST) | State | 162013 | 04-30-21 |
| Kentucky (WW) | State | KY98043 | 12-31-20 |
| Louisiana | NELAP | 04041 | 06-30-21 |
| Maine | State | PA00164 | 03-06-22 |
| Minnesota | NELAP | 042-999-482 | 12-31-20 |
| Nevada | State | PA00164 | 07-31-21 |
| New Hampshire | NELAP | 2030 | 04-05-21 |
| New Jersey | NELAP | PA005 | 06-30-21 |
| New York | NELAP | 11182 | 04-01-21 |
| North Carolina (WW/SW) | State | 434 | 12-31-21 |
| North Dakota | State | R-227 | 04-30-21 |
| Oregon | NELAP | PA-2151 | 02-06-21 |
| Pennsylvania | NELAP | 02-00416 | 04-30-21 |
| Rhode Island | State | LAO00362 | 12-31-20 |
| South Carolina | State | 89014 | 04-30-21 |
| Texas | NELAP | T104704528 | 03-31-21 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | Federal | P-Soil-01 | 06-26-22 |
| USDA | US Federal Programs | P330-16-00211 | 06-26-22 |
| Utah | NELAP | PA001462019-8 | 05-31-21 |
| Virginia | NELAP | 10043 | 09-14-21 |
| West Virginia DEP | State | 142 | 02-01-21 |
| Wisconsin | State | 998027800 | 08-31-21 |

## Laboratory: Eurofins TestAmerica, Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| ANAB | Dept. of Defense ELAP | L2336 | 02-25-23 |
| Connecticut | State | PH-0751 | 09-30-21 |
| DE Haz. Subst. Cleanup Act (HSCA) | State | N/A | 05-16-21 |
| Florida | NELAP | E87467 | 06-30-21 |
| Minnesota | NELAP | 050-999-436 | 12-31-20 |
| New Hampshire | NELAP | 2006 | 12-18-20 |
| New Jersey | NELAP | VT972 | 06-30-21 |
| New York | NELAP | 10391 | 04-01-21 |
| Pennsylvania | NELAP | 68-00489 | 04-30-21 |
| Rhode Island | State | LAO00298 | 12-30-20 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| Vermont | State | VT4000 | 12-31-20 |
| Virginia | NELAP | 460209 | 12-14-20 |
| Wisconsin | State | 399133350 | 08-31-21 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-112434-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| California | State | 2927 | 02-23-21 |
| Connecticut | State | PH-0590 | 12-31-21 |
| Florida | NELAP | E87225 | 06-30-21 |
| Georgia | State | 4062 | 02-23-21 |
| Illinois | NELAP | 004498 | 07-31-21 |
| Iowa | State | 421 | 06-01-21 |
| Kansas | NELAP | E-10336 | 04-30-21 |
| Kentucky (UST) | State | 112225 | 02-23-21 |
| Kentucky (WW) | State | KY98016 | 12-31-20 |
| Minnesota | NELAP | OH00048 | 12-31-20 |
| Minnesota (Petrofund) | State | 3506 | 08-01-21 |
| New Jersey | NELAP | OH001 | 06-30-21 |
| New York | NELAP | 10975 | 03-31-21 |
| Ohio VAP | State | CL0024 | 06-05-21 |
| Oregon | NELAP | 4062 | 02-24-21 |
| Pennsylvania | NELAP | 68-00340 | 08-31-21 |
| Texas | NELAP | T104704517-18-10 | 08-31-21 |
| USDA | US Federal Programs | P330-18-00281 | 09-17-21 |
| Virginia | NELAP | 010101 | 09-14-21 |
| Washington | State | C971 | 01-12-21 |
| West Virginia DEP | State | 210 | 12-31-20 |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-112434-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| | AFCEE | N/A | |
| ANAB | Dept. of Defense ELAP | L2311 | 02-13-22 |
| ANAB | Dept. of Energy | L2311.01 | 02-13-22 |
| ANAB | ISO/IEC 17025 | L2311 | 02-13-22 |
| ANAB | ISO/IEC 17025 | L2311 | 02-14-22 |
| Arkansas DEQ | State | 88-0688 | 06-17-21 |
| California | State | 2423 | 06-30-21 |
| Colorado | State | TN00009 | 02-28-21 |
| Connecticut | State | PH-0223 | 09-30-21 |
| Florida | NELAP | E87177 | 07-01-21 |
| Georgia (DW) | State | 906 | 12-11-22 |
| Hawaii | State | NA | 12-11-21 |
| Kansas | NELAP | E-10349 | 11-01-20 * |
| Kentucky (DW) | State | 90101 | 01-01-21 |
| Louisiana | NELAP | LA110001 | 12-31-12 * |
| Louisiana | NELAP | 83979 | 06-30-21 |
| Louisiana (DW) | State | LA019 | 12-31-20 |
| Maryland | State | 277 | 03-31-21 |
| Michigan | State | 9933 | 12-11-22 |
| Nevada | State | TN00009 | 07-31-21 |
| New Hampshire | NELAP | 299919 | 01-17-21 |
| New Jersey | NELAP | TN001 | 07-01-21 |
| New York | NELAP | 10781 | 03-31-21 |
| North Carolina (DW) | State | 21705 | 07-31-21 |
| North Carolina (WW/SW) | State | 64 | 12-31-20 |
| Ohio VAP | State | CL0059 | 06-02-23 |
| Oklahoma | State | 9415 | 08-31-21 |
| Oregon | NELAP | TNI0189 | 01-02-21 |
| Pennsylvania | NELAP | 68-00576 | 12-31-20 |
| Tennessee | State | 02014 | 12-11-22 |
| Texas | NELAP | T104704380-18-12 | 08-31-21 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | US Federal Programs | P330-19-00236 | 08-20-22 |
| Utah | NELAP | TN00009 | 07-31-21 |
| Virginia | NELAP | 460176 | 09-14-21 |
| Washington | State | C593 | 01-19-21 |
| West Virginia (DW) | State | 9955C | 01-01-21 |
| West Virginia DEP | State | 345 | 05-01-21 |
| Wisconsin | State | 998044300 | 08-31-21 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Sample Summary

Client: AECOM
Job ID: 180-112434-1
Project/Site: Pepco Benning Road Facility

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 180-112434-1 | SMS0100N | Sediment | 10/15/20 12:15 | 10/17/20 09:30 | |
| 180-112434-2 | 0FS0300N | Sediment | 10/15/20 13:00 | 10/17/20 09:30 | |
| 180-112434-3 | SMS0200N | Sediment | 10/15/20 13:55 | 10/17/20 09:30 | |
| 180-112434-4 | 0FS0100N | Sediment | 10/15/20 14:00 | 10/17/20 09:30 | |
| 180-112434-5 | SMS0300N | Sediment | 10/15/20 15:00 | 10/17/20 09:30 | |
| 180-112434-6 | 0FS0400N | Sediment | 10/15/20 15:15 | 10/17/20 09:30 | |

# Method Summary

Client: AECOM
Job ID: 180-112434-1
Project/Site: Pepco Benning Road Facility

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| EPA 8270D LL | Semivolatile Organic Compounds by GC/MS - Low Level | SW846 | TAL PIT |
| 8015C | Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics) | SW846 | TAL CAN |
| 1668C | Chlorinated Biphenyl Congeners (HRGC/HRMS) | EPA | TAL KNX |
| 8290A | Dioxins and Furans (HRGC/HRMS) | SW846 | TAL KNX |
| EPA 6020A | Metals (ICP/MS) | SW846 | TAL PIT |
| EPA 7471B | Mercury (CVAA) | SW846 | TAL PIT |
| 2540G | SM 2540G | SM22 | TAL PIT |
| EPA-Lloyd Kahn | Organic Carbon, Total (TOC) | EPA | TAL PIT |
| D422 | Grain Size | ASTM | TAL BUR |
| 3050B | Preparation, Metals | SW846 | TAL PIT |
| 3540C | Soxhlet Extraction | SW846 | TAL CAN |
| 3541 | Automated Soxhlet Extraction (Low Level) | SW846 | TAL PIT |
| 7471B | Preparation, Mercury | SW846 | TAL PIT |
| 8290 | Soxhlet Extraction of Dioxins and Furans | SW846 | TAL KNX |
| HRMS-Sox | Soxhlet Extraction | EPA | TAL KNX |
| Split | Split Factor Determination | None | TAL KNX |

**Protocol References:**

ASTM = ASTM International
EPA = US Environmental Protection Agency
None = None
SM22 = Standard Methods For The Examination Of Water And Wastewater, 22nd Edition
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL BUR = Eurofins TestAmerica, Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: AECOM
Job ID: 180-112434-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: SMS0100N
**Lab Sample ID: 180-112434-1**
**Date Collected: 10/15/20 12:15**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 334684 | 10/25/20 15:07 | KPO | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| Total/NA | Analysis | D422 | | 1 | | | 160516 | 10/22/20 22:01 | CPF | TAL BUR |
| | Instrument ID: D422_import | | | | | | | | | |

## Client Sample ID: SMS0100N
**Lab Sample ID: 180-112434-1**
**Date Collected: 10/15/20 12:15**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**
**Percent Solids: 31.8**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | HRMS-Sox | | | 20.09 g | 20 mL | 43801 | 10/23/20 04:33 | CLI | TAL KNX |
| Total/NA | Cleanup | Split | | | 10 mL | 50 uL | 43973 | 10/28/20 10:07 | EDD | TAL KNX |
| Total/NA | Analysis | 1668C | | 10 | | | 44136 | 11/03/20 02:24 | LKM | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total/NA | Analysis | EPA-Lloyd Kahn | | 1 | | | 334869 | 10/24/20 14:24 | DLF | TAL PIT |
| | Instrument ID: FLASHEA | | | | | | | | | |

## Client Sample ID: 0FS0300N
**Lab Sample ID: 180-112434-2**
**Date Collected: 10/15/20 13:00**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 334684 | 10/25/20 15:07 | KPO | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: 0FS0300N
**Lab Sample ID: 180-112434-2**
**Date Collected: 10/15/20 13:00**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**
**Percent Solids: 69.2**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3541 | | | 30.5 g | 0.50 mL | 334547 | 10/23/20 12:09 | JAS | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 25 | 1 mL | 1 mL | 334654 | 10/24/20 15:04 | VVP | TAL PIT |
| | Instrument ID: CH731 | | | | | | | | | |
| Total/NA | Prep | 3540C | | | 18.62 g | 5 mL | 457770 | 10/26/20 13:07 | SDE | TAL CAN |
| Total/NA | Analysis | 8015C | | 10 | | | 457876 | 10/27/20 14:59 | LKG | TAL CAN |
| | Instrument ID: A2HP5F | | | | | | | | | |
| Total/NA | Prep | HRMS-Sox | | | 20.02 g | 20 mL | 43801 | 10/23/20 04:33 | CLI | TAL KNX |
| Total/NA | Cleanup | Split | | | 10 mL | 50 uL | 43973 | 10/28/20 10:07 | EDD | TAL KNX |
| Total/NA | Analysis | 1668C | | 10 | | | 44136 | 11/03/20 03:25 | LKM | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total/NA | Prep | 8290 | | | 20.51 g | 20 uL | 43808 | 10/23/20 08:34 | SSS | TAL KNX |
| Total/NA | Analysis | 8290A | | 1 | | | 44206 | 11/05/20 07:12 | PMP | TAL KNX |
| | Instrument ID: D12C | | | | | | | | | |
| Total/NA | Prep | 8290 | | | 20.51 g | 20 uL | 43808 | 10/23/20 08:34 | SSS | TAL KNX |
| Total/NA | Analysis | 8290A | | 1 | | | 44180 | 11/04/20 15:45 | MSD | TAL KNX |
| | Instrument ID: D2A | | | | | | | | | |

## Client Sample ID: 0FS0300N
**Lab Sample ID: 180-112434-2**
**Date Collected: 10/15/20 13:00**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**
**Percent Solids: 69.2**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3050B | | | 2.01 g | 100 mL | 335170 | 10/29/20 08:20 | KHM | TAL PIT |
| Total/NA | Analysis | EPA 6020A | | 1 | | | 335640 | 11/02/20 19:08 | RJR | TAL PIT |
| | Instrument ID: NEMO | | | | | | | | | |
| Total/NA | Prep | 3050B | | | 2.01 g | 100 mL | 335170 | 10/29/20 08:20 | KHM | TAL PIT |
| Total/NA | Analysis | EPA 6020A | | 1 | | | 335795 | 11/03/20 18:28 | RJR | TAL PIT |
| | Instrument ID: NEMO | | | | | | | | | |
| Total/NA | Prep | 3050B | | | 2.01 g | 100 mL | 335170 | 10/29/20 08:20 | KHM | TAL PIT |
| Total/NA | Analysis | EPA 6020A | | 1 | | | 335951 | 11/04/20 19:02 | RJR | TAL PIT |
| | Instrument ID: NEMO | | | | | | | | | |
| Total/NA | Prep | 3050B | | | 2.01 g | 100 mL | 335170 | 10/29/20 08:20 | KHM | TAL PIT |
| Total/NA | Analysis | EPA 6020A | | 1 | | | 336056 | 11/05/20 10:59 | RJR | TAL PIT |
| | Instrument ID: NEMO | | | | | | | | | |
| Total/NA | Prep | 7471B | | | 1.36 g | 100 mL | 334165 | 10/21/20 08:22 | MM1 | TAL PIT |
| Total/NA | Analysis | EPA 7471B | | 1 | | | 334475 | 10/22/20 13:55 | KEM | TAL PIT |
| | Instrument ID: HGY | | | | | | | | | |

## Client Sample ID: SMS0200N
**Lab Sample ID: 180-112434-3**
**Date Collected: 10/15/20 13:55**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 334684 | 10/25/20 15:07 | KPO | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| Total/NA | Analysis | D422 | | 1 | | | 160516 | 10/22/20 22:03 | CPF | TAL BUR |
| | Instrument ID: D422_import | | | | | | | | | |

## Client Sample ID: SMS0200N
**Lab Sample ID: 180-112434-3**
**Date Collected: 10/15/20 13:55**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**
**Percent Solids: 27.3**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | HRMS-Sox | | | 20.27 g | 20 mL | 43801 | 10/23/20 04:33 | CLI | TAL KNX |
| Total/NA | Cleanup | Split | | | 10 mL | 50 uL | 43973 | 10/28/20 10:07 | EDD | TAL KNX |
| Total/NA | Analysis | 1668C | | 10 | | | 44136 | 11/03/20 04:27 | LKM | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total/NA | Analysis | EPA-Lloyd Kahn | | 1 | | | 335026 | 10/27/20 16:46 | DLF | TAL PIT |
| | Instrument ID: FLASHEA | | | | | | | | | |

## Client Sample ID: 0FS0100N
**Lab Sample ID: 180-112434-4**
**Date Collected: 10/15/20 14:00**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 334684 | 10/25/20 15:07 | KPO | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

# Lab Chronicle

Client: AECOM
Job ID: 180-112434-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: 0FS0100N
**Lab Sample ID: 180-112434-4**
**Date Collected: 10/15/20 14:00**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**
**Percent Solids: 75.8**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3541 | | | 30.1 g | 0.50 mL | 334547 | 10/23/20 12:09 | JAS | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 40 | 1 mL | 1 mL | 334654 | 10/24/20 16:21 | VVP | TAL PIT |
| | Instrument ID: CH731 | | | | | | | | | |
| Total/NA | Prep | 3540C | | | 29.99 g | 5 mL | 457770 | 10/26/20 13:07 | SDE | TAL CAN |
| Total/NA | Analysis | 8015C | | 10 | | | 457876 | 10/27/20 15:27 | LKG | TAL CAN |
| | Instrument ID: A2HP5F | | | | | | | | | |
| Total/NA | Prep | HRMS-Sox | | | 20.06 g | 20 mL | 43801 | 10/23/20 04:33 | CLI | TAL KNX |
| Total/NA | Cleanup | Split | | | 10 mL | 50 uL | 43973 | 10/28/20 10:07 | EDD | TAL KNX |
| Total/NA | Analysis | 1668C | | 10 | | | 44136 | 11/03/20 05:28 | LKM | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total/NA | Prep | 8290 | | | 20.58 g | 20 uL | 43808 | 10/23/20 08:34 | SSS | TAL KNX |
| Total/NA | Analysis | 8290A | | 1 | | | 44206 | 11/05/20 07:45 | PMP | TAL KNX |
| | Instrument ID: D12C | | | | | | | | | |
| Total/NA | Prep | 8290 | | | 20.58 g | 20 uL | 43808 | 10/23/20 08:34 | SSS | TAL KNX |
| Total/NA | Analysis | 8290A | | 1 | | | 44180 | 11/04/20 16:46 | MSD | TAL KNX |
| | Instrument ID: D2A | | | | | | | | | |
| Total/NA | Prep | 3050B | | | 2.04 g | 100 mL | 335170 | 10/29/20 08:20 | KHM | TAL PIT |
| Total/NA | Analysis | EPA 6020A | | 1 | | | 335640 | 11/02/20 19:11 | RJR | TAL PIT |
| | Instrument ID: NEMO | | | | | | | | | |
| Total/NA | Prep | 3050B | | | 2.04 g | 100 mL | 335170 | 10/29/20 08:20 | KHM | TAL PIT |
| Total/NA | Analysis | EPA 6020A | | 1 | | | 335795 | 11/03/20 18:30 | RJR | TAL PIT |
| | Instrument ID: NEMO | | | | | | | | | |
| Total/NA | Prep | 3050B | | | 2.04 g | 100 mL | 335170 | 10/29/20 08:20 | KHM | TAL PIT |
| Total/NA | Analysis | EPA 6020A | | 1 | | | 335951 | 11/04/20 19:05 | RJR | TAL PIT |
| | Instrument ID: NEMO | | | | | | | | | |
| Total/NA | Prep | 3050B | | | 2.04 g | 100 mL | 335170 | 10/29/20 08:20 | KHM | TAL PIT |
| Total/NA | Analysis | EPA 6020A | | 1 | | | 336056 | 11/05/20 11:02 | RJR | TAL PIT |
| | Instrument ID: NEMO | | | | | | | | | |
| Total/NA | Prep | 7471B | | | 1.61 g | 100 mL | 334165 | 10/21/20 08:22 | MM1 | TAL PIT |
| Total/NA | Analysis | EPA 7471B | | 1 | | | 334475 | 10/22/20 13:56 | KEM | TAL PIT |
| | Instrument ID: HGY | | | | | | | | | |

## Client Sample ID: SMS0300N
**Lab Sample ID: 180-112434-5**
**Date Collected: 10/15/20 15:00**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 334684 | 10/25/20 15:07 | KPO | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| Total/NA | Analysis | D422 | | 1 | | | 160516 | 10/22/20 22:05 | CPF | TAL BUR |
| | Instrument ID: D422_import | | | | | | | | | |

# Lab Chronicle

Client: AECOM
Job ID: 180-112434-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: SMS0300N
**Lab Sample ID: 180-112434-5**
**Date Collected: 10/15/20 15:00**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**
**Percent Solids: 33.2**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | HRMS-Sox | | | 4.10 g | 10 mL | 43801 | 10/23/20 04:33 | CLI | TAL KNX |
| Total/NA | Cleanup | Split | | | 10 mL | 100 uL | 43973 | 10/28/20 10:07 | EDD | TAL KNX |
| Total/NA | Analysis | 1668C | | 1 | | | 44166 | 11/04/20 03:11 | PMP | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total/NA | Analysis | EPA-Lloyd Kahn | | 1 | | | 335026 | 10/27/20 17:03 | DLF | TAL PIT |
| | Instrument ID: FLASHEA | | | | | | | | | |

## Client Sample ID: 0FS0400N
**Lab Sample ID: 180-112434-6**
**Date Collected: 10/15/20 15:15**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 334684 | 10/25/20 15:07 | KPO | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: 0FS0400N
**Lab Sample ID: 180-112434-6**
**Date Collected: 10/15/20 15:15**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**
**Percent Solids: 71.2**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3541 | | | 30.1 g | 0.50 mL | 334547 | 10/23/20 12:09 | JAS | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 40 | 1 mL | 1 mL | 334654 | 10/24/20 16:47 | VVP | TAL PIT |
| | Instrument ID: CH731 | | | | | | | | | |
| Total/NA | Prep | 3540C | | | 18.41 g | 5 mL | 457770 | 10/26/20 13:07 | SDE | TAL CAN |
| Total/NA | Analysis | 8015C | | 2 | | | 458086 | 10/28/20 10:32 | LKG | TAL CAN |
| | Instrument ID: A2HP5F | | | | | | | | | |
| Total/NA | Prep | HRMS-Sox | | | 20.31 g | 20 mL | 43801 | 10/23/20 04:33 | CLI | TAL KNX |
| Total/NA | Cleanup | Split | | | 10 mL | 50 uL | 43973 | 10/28/20 10:07 | EDD | TAL KNX |
| Total/NA | Analysis | 1668C | | 10 | | | 44136 | 11/03/20 07:31 | LKM | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total/NA | Prep | 8290 | | | 20.51 g | 20 uL | 43808 | 10/23/20 08:34 | SSS | TAL KNX |
| Total/NA | Analysis | 8290A | | 1 | | | 44206 | 11/05/20 08:19 | PMP | TAL KNX |
| | Instrument ID: D12C | | | | | | | | | |
| Total/NA | Prep | 8290 | | | 20.51 g | 20 uL | 43808 | 10/23/20 08:34 | SSS | TAL KNX |
| Total/NA | Analysis | 8290A | | 1 | | | 44180 | 11/04/20 17:48 | MSD | TAL KNX |
| | Instrument ID: D2A | | | | | | | | | |
| Total/NA | Prep | 3050B | | | 2.03 g | 100 mL | 335170 | 10/29/20 08:20 | KHM | TAL PIT |
| Total/NA | Analysis | EPA 6020A | | 1 | | | 335640 | 11/02/20 19:13 | RJR | TAL PIT |
| | Instrument ID: NEMO | | | | | | | | | |
| Total/NA | Prep | 3050B | | | 2.03 g | 100 mL | 335170 | 10/29/20 08:20 | KHM | TAL PIT |
| Total/NA | Analysis | EPA 6020A | | 1 | | | 335795 | 11/03/20 18:33 | RJR | TAL PIT |
| | Instrument ID: NEMO | | | | | | | | | |
| Total/NA | Prep | 3050B | | | 2.03 g | 100 mL | 335170 | 10/29/20 08:20 | KHM | TAL PIT |
| Total/NA | Analysis | EPA 6020A | | 1 | | | 335951 | 11/04/20 19:07 | RJR | TAL PIT |
| | Instrument ID: NEMO | | | | | | | | | |

# Lab Chronicle

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-1

## Client Sample ID: 0FS0400N

**Date Collected: 10/15/20 15:15**
**Date Received: 10/17/20 09:30**

## Lab Sample ID: 180-112434-6

**Matrix: Sediment**
**Percent Solids: 71.2**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3050B | | | 2.03 g | 100 mL | 335170 | 10/29/20 08:20 | KHM | TAL PIT |
| Total/NA | Analysis | EPA 6020A | | 1 | | | 336056 | 11/05/20 11:04 | RJR | TAL PIT |
| | Instrument ID: NEMO | | | | | | | | | |
| Total/NA | Prep | 7471B | | | 1.48 g | 100 mL | 334165 | 10/21/20 08:22 | MM1 | TAL PIT |
| Total/NA | Analysis | EPA 7471B | | 1 | | | 334475 | 10/22/20 13:57 | KEM | TAL PIT |
| | Instrument ID: HGY | | | | | | | | | |

**Laboratory References:**

TAL BUR = Eurofins TestAmerica, Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

**Analyst References:**

Lab: TAL BUR
- Batch Type: Analysis
  - CPF = Fred Cota

Lab: TAL CAN
- Batch Type: Prep
  - SDE = Steve Earle
- Batch Type: Analysis
  - LKG = Lucas Grossman

Lab: TAL KNX
- Batch Type: Cleanup
  - EDD = Erica Dinkins
- Batch Type: Prep
  - CLI = Crystal Ivey
  - SSS = Samuel Stockton
- Batch Type: Analysis
  - LKM = Linda McWhirter
  - MSD = Melissa Davidson
  - PMP = Trish Parsly

Lab: TAL PIT
- Batch Type: Prep
  - JAS = Jeremy Stundon
  - KHM = Kyle Mucroski
  - MM1 = Mary Beth Miller
- Batch Type: Analysis
  - DLF = Donald Ferguson
  - KEM = Kimberly Mahoney
  - KPO = Kiera O'Neil
  - RJR = Ron Rosenbaum
  - VVP = Vincent Piccolino

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-1

**Client Sample ID: SMS0100N**
**Date Collected: 10/15/20 12:15**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-1**
**Matrix: Sediment**
**Percent Solids: 31.8**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1 | 0.34 | B | 0.16 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-2 | 0.045 | J q | 0.16 | 0.0031 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-3 | 0.24 | B | 0.16 | 0.0036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-4 | 1.2 | | 0.31 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-5 | 0.065 | J q | 0.16 | 0.022 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-6 | 0.80 | | 0.16 | 0.019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-7 | 0.14 | J | 0.16 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-8 | 3.5 | | 0.31 | 0.018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-9 | 0.18 | q | 0.16 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-10 | 0.071 | J q | 0.16 | 0.022 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-11 | 2.2 | B | 0.31 | 0.019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-12 | 0.47 | C | 0.31 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-13 | 0.47 | C12 | 0.31 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-14 | ND | | 0.16 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-15 | 4.7 | | 0.16 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-16 | 2.1 | | 0.16 | 0.0070 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-17 | 2.4 | | 0.16 | 0.0063 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-18 | 5.3 | C | 0.31 | 0.0055 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-19 | 0.77 | | 0.16 | 0.0077 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-20 | 15 | C B | 0.31 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-21 | 5.3 | C B | 0.31 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-22 | 4.5 | | 0.16 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-23 | ND | | 0.16 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-24 | 0.095 | J q | 0.16 | 0.0053 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-25 | 1.1 | | 0.16 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-26 | 2.0 | C B | 0.31 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-27 | 0.63 | | 0.16 | 0.0046 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-28 | 15 | B C20 | 0.31 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-29 | 2.0 | C26 B | 0.31 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-30 | 5.3 | C18 | 0.31 | 0.0055 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-31 | 9.7 | B | 0.31 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-32 | 2.7 | B | 0.16 | 0.0044 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-33 | 5.3 | B C21 | 0.31 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-34 | ND | | 0.16 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-35 | 0.30 | | 0.16 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-36 | ND | | 0.16 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-37 | 6.3 | | 0.16 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-38 | ND | | 0.16 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-39 | ND | | 0.16 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-40 | 6.2 | C | 0.47 | 0.034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-41 | 6.2 | C40 | 0.47 | 0.034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-42 | 2.9 | | 0.16 | 0.035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-43 | 0.32 | C | 0.31 | 0.032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-44 | 11 | C B | 0.47 | 0.030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-45 | 2.4 | C | 0.31 | 0.036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-46 | 0.69 | | 0.16 | 0.044 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-47 | 11 | B C44 | 0.47 | 0.030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-48 | 1.7 | | 0.16 | 0.034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-49 | 7.1 | C | 0.31 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-1

**Client Sample ID: SMS0100N**
**Date Collected: 10/15/20 12:15**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-1**
**Matrix: Sediment**
**Percent Solids: 31.8**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-50 | 1.8 | C | 0.31 | 0.033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-51 | 2.4 | C45 | 0.31 | 0.036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-52 | 14 | | 0.16 | 0.034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-53 | 1.8 | C50 | 0.31 | 0.033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-54 | 0.058 | J | 0.16 | 0.0021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-55 | 0.31 | | 0.16 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-56 | 5.1 | | 0.16 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-57 | ND | | 0.16 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-58 | 0.033 | J | 0.16 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-59 | 1.1 | C | 0.47 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-60 | 2.5 | | 0.16 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-61 | 17 | C | 0.63 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-62 | 1.1 | C59 | 0.47 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-63 | 0.37 | | 0.16 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-64 | 4.7 | | 0.16 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-65 | 11 | B C44 | 0.47 | 0.030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-66 | 11 | | 0.16 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-67 | 0.34 | | 0.16 | 0.022 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-68 | 0.082 | J q | 0.16 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-69 | 7.1 | C49 | 0.31 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-70 | 17 | C61 | 0.63 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-71 | 6.2 | C40 | 0.47 | 0.034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-72 | 0.12 | J | 0.16 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-73 | 0.32 | C43 | 0.31 | 0.032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-74 | 17 | C61 | 0.63 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-75 | 1.1 | C59 | 0.47 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-76 | 17 | C61 | 0.63 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-77 | 2.0 | | 0.16 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-78 | ND | | 0.16 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-79 | 0.13 | J q | 0.16 | 0.022 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-80 | ND | | 0.16 | 0.022 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-81 | 0.048 | J q | 0.16 | 0.022 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-82 | 2.9 | | 0.16 | 0.0040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-83 | 13 | C | 0.31 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-84 | 5.3 | | 0.16 | 0.0040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-85 | 4.4 | C B | 0.47 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-86 | 15 | C | 0.94 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-87 | 15 | C86 | 0.94 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-88 | 3.6 | C | 0.31 | 0.0036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-89 | 0.18 | | 0.16 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-90 | 26 | C B | 0.47 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-91 | 3.6 | C88 | 0.31 | 0.0036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-92 | 4.7 | | 0.16 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-93 | 0.50 | C | 0.31 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-94 | 0.18 | | 0.16 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-95 | 21 | | 0.16 | 0.0038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-96 | 0.17 | | 0.16 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-97 | 15 | C86 | 0.94 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-98 | 0.58 | C q | 0.31 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-1

**Client Sample ID: SMS0100N**
**Date Collected: 10/15/20 12:15**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-1**
**Matrix: Sediment**
**Percent Solids: 31.8**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-99 | 13 | C83 | 0.31 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-100 | 0.50 | C93 | 0.31 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-101 | 26 | B C90 | 0.47 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-102 | 0.58 | C98 q | 0.31 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-103 | 0.19 | q | 0.16 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-104 | ND | | 0.16 | 0.0026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-105 | 8.0 | | 0.16 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-106 | ND | | 0.16 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-107 | 1.6 | | 0.16 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-108 | 0.81 | C | 0.31 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-109 | 15 | C86 | 0.94 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-110 | 31 | C B | 0.31 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-111 | ND | | 0.16 | 0.0024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-112 | 0.12 | J | 0.16 | 0.0026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-113 | 26 | B C90 | 0.47 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-114 | 0.32 | q | 0.16 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-115 | 31 | B C110 | 0.31 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-116 | 4.4 | C85 B | 0.47 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-117 | 4.4 | C85 B | 0.47 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-118 | 19 | | 0.16 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-119 | 15 | C86 | 0.94 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-120 | 0.085 | J | 0.16 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-121 | ND | | 0.16 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-122 | 0.37 | | 0.16 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-123 | 0.35 | q | 0.16 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-124 | 0.81 | C108 | 0.31 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-125 | 15 | C86 | 0.94 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-126 | 0.11 | J q | 0.16 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-127 | ND | | 0.16 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-128 | 5.4 | C | 0.31 | 0.044 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-129 | 46 | C B | 0.63 | 0.046 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-130 | 2.6 | | 0.16 | 0.060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-131 | 0.33 | q | 0.16 | 0.063 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-132 | 13 | | 0.16 | 0.059 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-133 | 0.56 | | 0.16 | 0.057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-134 | 2.2 | C | 0.31 | 0.060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-135 | 18 | C | 0.31 | 0.0045 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-136 | 5.4 | | 0.16 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-137 | 1.4 | | 0.16 | 0.052 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-138 | 46 | B C129 | 0.63 | 0.046 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-139 | 0.45 | C | 0.31 | 0.051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-140 | 0.45 | C139 | 0.31 | 0.051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-141 | 10 | | 0.16 | 0.053 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-142 | ND | | 0.16 | 0.057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-143 | 2.2 | C134 | 0.31 | 0.060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-144 | 1.9 | | 0.16 | 0.0041 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-145 | ND | | 0.16 | 0.0031 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-146 | 7.0 | | 0.16 | 0.050 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-147 | 42 | C B | 0.31 | 0.058 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |

**Client Sample ID: SMS0100N**
**Date Collected: 10/15/20 12:15**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-1**
**Matrix: Sediment**
**Percent Solids: 31.8**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-148 | 0.043 | J | 0.16 | 0.0044 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-149 | 42 | B C147 | 0.31 | 0.058 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-150 | 0.042 | J q | 0.16 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-151 | 18 | C135 | 0.31 | 0.0045 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-152 | ND | | 0.16 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-153 | 39 | C | 0.31 | 0.040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-154 | 0.37 | q | 0.16 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-155 | ND | | 0.16 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-156 | 3.8 | C B | 0.31 | 0.048 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-157 | 3.8 | C156 B | 0.31 | 0.048 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-158 | 4.0 | | 0.16 | 0.036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-159 | 0.49 | | 0.16 | 0.038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-160 | 46 | B C129 | 0.63 | 0.046 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-161 | ND | | 0.16 | 0.038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-162 | 0.14 | J | 0.16 | 0.037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-163 | 46 | B C129 | 0.63 | 0.046 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-164 | 3.1 | | 0.16 | 0.040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-165 | ND | | 0.16 | 0.043 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-166 | 5.4 | C128 | 0.31 | 0.044 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-167 | 1.6 | | 0.16 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-168 | 39 | C153 | 0.31 | 0.040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-169 | ND | | 0.16 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-170 | 18 | | 0.16 | 0.0078 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-171 | 5.4 | C | 0.31 | 0.0076 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-172 | 3.3 | | 0.16 | 0.0075 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-173 | 5.4 | C171 | 0.31 | 0.0076 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-174 | 20 | | 0.16 | 0.0070 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-175 | 0.72 | | 0.16 | 0.0068 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-176 | 2.2 | | 0.16 | 0.0051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-177 | 11 | | 0.16 | 0.0072 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-178 | 4.0 | | 0.16 | 0.0074 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-179 | 8.4 | | 0.16 | 0.0054 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-180 | 41 | C | 0.31 | 0.0057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-181 | 0.072 | J q | 0.16 | 0.0068 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-182 | 0.091 | J q | 0.16 | 0.0065 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-183 | 13 | C | 0.31 | 0.0067 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-184 | ND | | 0.16 | 0.0056 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-185 | 13 | C183 | 0.31 | 0.0067 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-186 | ND | | 0.16 | 0.0054 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-187 | 23 | | 0.16 | 0.0063 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-188 | ND | | 0.16 | 0.0048 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-189 | 0.56 | | 0.16 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-190 | 3.2 | | 0.16 | 0.0049 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-191 | 0.65 | q | 0.16 | 0.0051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-192 | ND | | 0.16 | 0.0057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-193 | 41 | C180 | 0.31 | 0.0057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-194 | 8.8 | | 0.16 | 0.033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-195 | 3.5 | | 0.16 | 0.036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-196 | 4.3 | | 0.16 | 0.0090 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |

**Client Sample ID: SMS0100N**
**Date Collected: 10/15/20 12:15**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-1**
**Matrix: Sediment**
**Percent Solids: 31.8**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-197 | 0.25 | | 0.16 | 0.0068 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-198 | 9.9 | C | 0.31 | 0.0091 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-199 | 9.9 | C198 | 0.31 | 0.0091 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-200 | 1.0 | | 0.16 | 0.0061 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-201 | 0.97 | | 0.16 | 0.0062 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-202 | 1.6 | | 0.16 | 0.0070 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-203 | 5.5 | | 0.16 | 0.0081 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-204 | ND | | 0.16 | 0.0069 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-205 | 0.40 | | 0.16 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-206 | 4.4 | | 0.16 | 0.041 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-207 | 0.40 | | 0.16 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-208 | 1.1 | | 0.16 | 0.030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| PCB-209 | 1.1 | | 0.16 | 0.021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| Total Monochlorobiphenyls | 0.63 | B q | 0.16 | 0.0031 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| Total Dichlorobiphenyls | 13 | B q | 0.31 | 0.021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| Total Trichlorobiphenyls | 58 | B q | 0.31 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| Total Tetrachlorobiphenyls | 93 | B q | 0.63 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| Total Pentachlorobiphenyls | 160 | B q | 0.94 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| Total Hexachlorobiphenyls | 210 | B q | 0.63 | 0.035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| Total Heptachlorobiphenyls | 150 | q | 0.31 | 0.0069 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| Total Octachlorobiphenyls | 36 | | 0.31 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| Total Nonachlorobiphenyls | 5.9 | | 0.16 | 0.033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |
| Polychlorinated biphenyls, Total | 730 | B q | 0.94 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 02:24 | 10 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *60* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-3L* | *57* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-4L* | *69* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-15L* | *71* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-19L* | *75* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-37L* | *74* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-54L* | *81* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-77L* | *76* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-81L* | *81* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-104L* | *70* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-105L* | *80* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-114L* | *77* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-118L* | *79* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-123L* | *81* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-126L* | *75* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-155L* | *82* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-156L* | *80* | *C* | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-157L* | *80* | *C156* | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-167L* | *81* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-169L* | *82* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-170L* | *71* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-188L* | *75* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-189L* | *73* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-202L* | *89* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-205L* | *68* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |

## Client Sample ID: SMS0100N

**Date Collected: 10/15/20 12:15**
**Date Received: 10/17/20 09:30**

## Lab Sample ID: 180-112434-1

**Matrix: Sediment**
**Percent Solids: 31.8**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-206L* | *71* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-208L* | *75* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-209L* | *73* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *84* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-111L* | *95* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |
| *PCB-178L* | *89* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 02:24* | *10* |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 68.2 | | 0.1 | 0.1 | % | | | 10/25/20 15:07 | 1 |
| Total Organic Carbon - Duplicates | 85000 | | 3100 | 2300 | mg/Kg | ☼ | | 10/24/20 14:24 | 1 |

### Method: D422 - Grain Size

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Sieve Size 3 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size 2 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size 1.5 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size 1 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size 0.75 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size 0.375 inch - Percent Finer | 95.4 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size #4 - Percent Finer | 87.6 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size #10 - Percent Finer | 82.6 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size #20 - Percent Finer | 78.9 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size #40 - Percent Finer | 74.7 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size #60 - Percent Finer | 70.7 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size #80 - Percent Finer | 68.5 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size #100 - Percent Finer | 66.6 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Sieve Size #200 - Percent Finer | 62.2 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Hydrometer Reading 1 - Percent Finer | 21.1 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Hydrometer Reading 2 - Percent Finer | 17.9 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Hydrometer Reading 3 - Percent Finer | 14.7 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Hydrometer Reading 4 - Percent Finer | 13.1 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Hydrometer Reading 5 - Percent Finer | 9.9 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Hydrometer Reading 6 - Percent Finer | 6.7 | | | | % Passing | | | 10/22/20 22:01 | 1 |
| Hydrometer Reading 7 - Percent Finer | 3.5 | | | | % Passing | | | 10/22/20 22:01 | 1 |

**Client Sample ID: 0FS0300N**
**Date Collected: 10/15/20 13:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-2**
**Matrix: Sediment**
**Percent Solids: 69.2**

## Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 120 | 34 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| Acenaphthylene | ND | | 120 | 26 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| Anthracene | ND | | 120 | 31 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| **Benzo[a]anthracene** | **63** | **J** | 120 | 53 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| **Benzo[b]fluoranthene** | **77** | **J** | 120 | 29 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| **Benzo[k]fluoranthene** | **70** | **J F1 F2** | 120 | 36 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| Benzo[g,h,i]perylene | ND | | 120 | 26 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| Benzo[a]pyrene | ND | | 120 | 51 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| **Chrysene** | **95** | **J** | 120 | 66 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| Dibenz(a,h)anthracene | ND | | 120 | 76 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| **Fluoranthene** | **98** | **J** | 120 | 31 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| Fluorene | ND | | 120 | 23 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| Indeno[1,2,3-cd]pyrene | ND | | 120 | 59 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| Naphthalene | ND | | 120 | 23 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| **Phenanthrene** | **44** | **J** | 120 | 32 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |
| **Pyrene** | **100** | **J** | 120 | 28 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 15:04 | 25 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *0* | *D X* | *37 - 107* | *10/23/20 12:09* | *10/24/20 15:04* | *25* |
| *Nitrobenzene-d5 (Surr)* | *0* | *D X* | *41 - 112* | *10/23/20 12:09* | *10/24/20 15:04* | *25* |
| *Terphenyl-d14 (Surr)* | *0* | *D X* | *32 - 115* | *10/23/20 12:09* | *10/24/20 15:04* | *25* |

## Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **DRO C10-C20** | **810** | | 390 | 180 | mg/Kg | ☼ | 10/26/20 13:07 | 10/27/20 14:59 | 10 |
| **Oil Range Organics (C20-C36)** | **4400** | | 390 | 180 | mg/Kg | ☼ | 10/26/20 13:07 | 10/27/20 14:59 | 10 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl (Surr)* | *75* | | *39 - 120* | *10/26/20 13:07* | *10/27/20 14:59* | *10* |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.0055** | **J B** | 0.072 | 0.00082 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-2 | ND | | 0.072 | 0.00092 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-3** | **0.0043** | **J q B** | 0.072 | 0.00097 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-4 | ND | | 0.14 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-5 | ND | | 0.072 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-6 | ND | | 0.072 | 0.0096 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-7 | ND | | 0.072 | 0.0098 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-8** | **0.038** | **J q** | 0.14 | 0.0089 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-9 | ND | | 0.072 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-10 | ND | | 0.072 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-11** | **0.82** | **B** | 0.14 | 0.0094 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-12 | ND | C | 0.14 | 0.0097 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-13 | ND | C12 | 0.14 | 0.0097 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-14 | ND | | 0.072 | 0.0082 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-15** | **0.067** | **J q** | 0.072 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-16** | **0.021** | **J q** | 0.072 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-17** | **0.021** | **J q** | 0.072 | 0.0021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-18** | **0.058** | **J C** | 0.14 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |

**Client Sample ID: 0FS0300N**
**Date Collected: 10/15/20 13:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-2**
**Matrix: Sediment**
**Percent Solids: 69.2**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | ND | | 0.072 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-20** | **0.17** | **C B** | 0.14 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-21** | **0.081** | **J C B** | 0.14 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-22** | **0.056** | **J** | 0.072 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-23 | ND | | 0.072 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-24 | ND | | 0.072 | 0.0017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-25** | **0.0099** | **J** | 0.072 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-26** | **0.022** | **J C B** | 0.14 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-27 | ND | | 0.072 | 0.0015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-28** | **0.17** | **C20 B** | 0.14 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-29** | **0.022** | **J C26 B** | 0.14 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-30** | **0.058** | **J C18** | 0.14 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-31** | **0.12** | **J B** | 0.14 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-32** | **0.020** | **J q B** | 0.072 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-33** | **0.081** | **J C21 B** | 0.14 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-34 | ND | | 0.072 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-35** | **0.0064** | **J q** | 0.072 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-36 | ND | | 0.072 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-37** | **0.069** | **J** | 0.072 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-38 | ND | | 0.072 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-39 | ND | | 0.072 | 0.0031 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-40** | **0.11** | **J C** | 0.22 | 0.0073 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-41** | **0.11** | **J C40** | 0.22 | 0.0073 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-42** | **0.044** | **J** | 0.072 | 0.0073 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-43 | ND | C | 0.14 | 0.0068 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-44** | **0.25** | **C B** | 0.22 | 0.0064 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-45** | **0.025** | **J q C** | 0.14 | 0.0076 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-46 | ND | | 0.072 | 0.0093 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-47** | **0.25** | **C44 B** | 0.22 | 0.0064 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-48** | **0.019** | **J q** | 0.072 | 0.0073 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-49** | **0.12** | **J C** | 0.14 | 0.0059 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-50** | **0.019** | **J q C** | 0.14 | 0.0071 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-51** | **0.025** | **J q C45** | 0.14 | 0.0076 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-52** | **0.33** | | 0.072 | 0.0072 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-53** | **0.019** | **J q C50** | 0.14 | 0.0071 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-54 | ND | | 0.072 | 0.00085 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-55 | ND | | 0.072 | 0.0053 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-56** | **0.069** | **J** | 0.072 | 0.0053 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-57 | ND | | 0.072 | 0.0054 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-58 | ND | | 0.072 | 0.0055 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-59** | **0.017** | **J C** | 0.22 | 0.0051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-60** | **0.043** | **J** | 0.072 | 0.0054 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-61** | **0.35** | **C** | 0.29 | 0.0051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-62** | **0.017** | **J C59** | 0.22 | 0.0051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-63 | ND | | 0.072 | 0.0049 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-64** | **0.10** | | 0.072 | 0.0049 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-65** | **0.25** | **C44 B** | 0.22 | 0.0064 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-66** | **0.17** | | 0.072 | 0.0050 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-67 | ND | | 0.072 | 0.0047 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |

**Client Sample ID: 0FS0300N**
**Date Collected: 10/15/20 13:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-2**
**Matrix: Sediment**
**Percent Solids: 69.2**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | ND | | 0.072 | 0.0048 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-69** | **0.12** | **J C49** | 0.14 | 0.0059 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-70** | **0.35** | **C61** | 0.29 | 0.0051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-71** | **0.11** | **J C40** | 0.22 | 0.0073 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-72 | ND | | 0.072 | 0.0053 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-73 | ND | C43 | 0.14 | 0.0068 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-74** | **0.35** | **C61** | 0.29 | 0.0051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-75** | **0.017** | **J C59** | 0.22 | 0.0051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-76** | **0.35** | **C61** | 0.29 | 0.0051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-77** | **0.058** | **J** | 0.072 | 0.0052 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-78 | ND | | 0.072 | 0.0055 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-79 | ND | | 0.072 | 0.0047 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-80 | ND | | 0.072 | 0.0046 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-81 | ND | | 0.072 | 0.0049 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-82** | **0.090** | | 0.072 | 0.0021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-83** | **0.53** | **C** | 0.14 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-84** | **0.17** | | 0.072 | 0.0021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-85** | **0.15** | **J C B** | 0.22 | 0.0015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-86** | **0.53** | **C** | 0.43 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-87** | **0.53** | **C86** | 0.43 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-88** | **0.091** | **J C** | 0.14 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-89 | ND | | 0.072 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-90** | **0.84** | **C B** | 0.22 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-91** | **0.091** | **J C88** | 0.14 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-92** | **0.11** | **q** | 0.072 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-93 | ND | C | 0.14 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-94 | ND | | 0.072 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-95** | **0.72** | | 0.072 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-96 | ND | | 0.072 | 0.0015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-97** | **0.53** | **C86** | 0.43 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-98** | **0.015** | **J C** | 0.14 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-99** | **0.53** | **C83** | 0.14 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-100 | ND | C93 | 0.14 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-101** | **0.84** | **C90 B** | 0.22 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-102** | **0.015** | **J C98** | 0.14 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-103 | ND | | 0.072 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-104 | ND | | 0.072 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-105** | **0.30** | | 0.072 | 0.0074 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-106 | ND | | 0.072 | 0.0076 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-107** | **0.055** | **J q** | 0.072 | 0.0081 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-108** | **0.025** | **J C** | 0.14 | 0.0078 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-109** | **0.53** | **C86** | 0.43 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-110** | **1.3** | **C B** | 0.14 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-111 | ND | | 0.072 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-112 | ND | | 0.072 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-113** | **0.84** | **C90 B** | 0.22 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-114** | **0.0086** | **J q** | 0.072 | 0.0069 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-115** | **1.3** | **C110 B** | 0.14 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| **PCB-116** | **0.15** | **J C85 B** | 0.22 | 0.0015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |

**Client Sample ID: 0FS0300N**
**Date Collected: 10/15/20 13:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-2**
**Matrix: Sediment**
**Percent Solids: 69.2**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-117 | 0.15 | J C85 B | 0.22 | 0.0015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-118 | 0.79 | | 0.072 | 0.0069 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-119 | 0.53 | C86 | 0.43 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-120 | 0.0069 | J | 0.072 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-121 | ND | | 0.072 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-122 | 0.010 | J | 0.072 | 0.0088 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-123 | 0.013 | J | 0.072 | 0.0074 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-124 | 0.025 | J C108 | 0.14 | 0.0078 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-125 | 0.53 | C86 | 0.43 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-126 | ND | | 0.072 | 0.0085 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-127 | ND | | 0.072 | 0.0076 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-128 | 0.30 | C | 0.14 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-129 | 1.9 | C B | 0.29 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-130 | 0.11 | | 0.072 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-131 | ND | | 0.072 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-132 | 0.51 | | 0.072 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-133 | 0.023 | J | 0.072 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-134 | 0.063 | J q C | 0.14 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-135 | 0.56 | C | 0.14 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-136 | 0.16 | | 0.072 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-137 | 0.055 | J q | 0.072 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-138 | 1.9 | C129 B | 0.29 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-139 | 0.022 | J q C | 0.14 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-140 | 0.022 | J q C139 | 0.14 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-141 | 0.25 | q | 0.072 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-142 | ND | | 0.072 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-143 | 0.063 | J q C134 | 0.14 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-144 | 0.056 | J | 0.072 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-145 | ND | | 0.072 | 0.0017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-146 | 0.30 | | 0.072 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-147 | 1.5 | C B | 0.14 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-148 | ND | | 0.072 | 0.0024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-149 | 1.5 | C147 B | 0.14 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-150 | ND | | 0.072 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-151 | 0.56 | C135 | 0.14 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-152 | ND | | 0.072 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-153 | 1.6 | C | 0.14 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-154 | 0.021 | J q | 0.072 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-155 | ND | | 0.072 | 0.0017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-156 | 0.14 | C B | 0.14 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-157 | 0.14 | C156 B | 0.14 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-158 | 0.17 | | 0.072 | 0.0093 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-159 | ND | | 0.072 | 0.0098 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-160 | 1.9 | C129 B | 0.29 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-161 | ND | | 0.072 | 0.0097 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-162 | ND | | 0.072 | 0.0096 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-163 | 1.9 | C129 B | 0.29 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-164 | 0.12 | | 0.072 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-165 | ND | | 0.072 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |

**Client Sample ID: 0FS0300N**
**Date Collected: 10/15/20 13:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-2**
**Matrix: Sediment**
**Percent Solids: 69.2**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 0.30 | C128 | 0.14 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-167 | 0.063 | J | 0.072 | 0.0082 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-168 | 1.6 | C153 | 0.14 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-169 | ND | | 0.072 | 0.0074 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-170 | 0.50 | | 0.072 | 0.0063 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-171 | 0.12 | J C | 0.14 | 0.0060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-172 | 0.075 | | 0.072 | 0.0059 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-173 | 0.12 | J C171 | 0.14 | 0.0060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-174 | 0.44 | | 0.072 | 0.0056 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-175 | 0.016 | J q | 0.072 | 0.0054 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-176 | 0.044 | J | 0.072 | 0.0041 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-177 | 0.25 | | 0.072 | 0.0057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-178 | 0.11 | | 0.072 | 0.0058 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-179 | 0.19 | | 0.072 | 0.0043 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-180 | 1.1 | C | 0.14 | 0.0045 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-181 | ND | | 0.072 | 0.0054 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-182 | 0.0052 | J | 0.072 | 0.0052 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-183 | 0.32 | C | 0.14 | 0.0053 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-184 | ND | | 0.072 | 0.0044 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-185 | 0.32 | C183 | 0.14 | 0.0053 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-186 | ND | | 0.072 | 0.0043 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-187 | 0.69 | | 0.072 | 0.0050 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-188 | ND | | 0.072 | 0.0038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-189 | ND | | 0.072 | 0.0069 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-190 | 0.084 | | 0.072 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-191 | 0.018 | J q | 0.072 | 0.0040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-192 | ND | | 0.072 | 0.0045 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-193 | 1.1 | C180 | 0.14 | 0.0045 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-194 | 0.19 | | 0.072 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-195 | 0.080 | q | 0.072 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-196 | 0.099 | | 0.072 | 0.0049 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-197 | 0.0088 | J q | 0.072 | 0.0038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-198 | 0.26 | C | 0.14 | 0.0050 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-199 | 0.26 | C198 | 0.14 | 0.0050 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-200 | 0.019 | J q | 0.072 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-201 | 0.025 | J q | 0.072 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-202 | 0.051 | J q | 0.072 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-203 | 0.13 | | 0.072 | 0.0045 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-204 | ND | | 0.072 | 0.0038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-205 | ND | | 0.072 | 0.0097 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-206 | 0.16 | | 0.072 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-207 | ND | | 0.072 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-208 | 0.045 | J | 0.072 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| PCB-209 | 0.082 | | 0.072 | 0.0085 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| Total Monochlorobiphenyls | 0.0098 | J q B | 0.072 | 0.00091 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| Total Dichlorobiphenyls | 0.93 | q B | 0.14 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| Total Trichlorobiphenyls | 0.65 | q B | 0.14 | 0.0028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| Total Tetrachlorobiphenyls | 1.7 | q B | 0.29 | 0.0057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| Total Pentachlorobiphenyls | 5.8 | q B | 0.43 | 0.0036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |

**Client Sample ID: 0FS0300N**
**Date Collected: 10/15/20 13:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-2**
**Matrix: Sediment**
**Percent Solids: 69.2**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Hexachlorobiphenyls | 7.9 | q B | 0.29 | 0.0093 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| Total Heptachlorobiphenyls | 4.0 | q | 0.14 | 0.0050 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| Total Octachlorobiphenyls | 0.86 | q | 0.14 | 0.0060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| Total Nonachlorobiphenyls | 0.21 | | 0.072 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |
| Polychlorinated biphenyls, Total | 22 | q B | 0.43 | 0.0069 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 03:25 | 10 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *74* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-3L* | *68* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-4L* | *80* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-15L* | *67* | *q* | *5 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-19L* | *84* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-37L* | *78* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-54L* | *91* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-77L* | *86* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-81L* | *85* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-104L* | *80* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-105L* | *87* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-114L* | *88* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-118L* | *87* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-123L* | *87* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-126L* | *84* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-155L* | *91* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-156L* | *87* | *C* | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-157L* | *87* | *C156* | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-167L* | *89* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-169L* | *89* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-170L* | *77* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-188L* | *87* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-189L* | *84* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-202L* | *99* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-205L* | *73* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-206L* | *84* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-208L* | *87* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-209L* | *83* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *87* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-111L* | *96* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |
| *PCB-178L* | *99* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 03:25* | *10* |

## Method: 8290A - Dioxins and Furans (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.14 | J I | 0.70 | 0.090 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| Total TCDD | 4.2 | I | 0.70 | 0.090 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 1,2,3,7,8-PeCDD | 1.1 | J | 3.5 | 0.075 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| Total PeCDD | 10 | I | 3.5 | 0.075 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 1,2,3,4,7,8-HxCDD | 1.4 | J I B | 3.5 | 0.089 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 1,2,3,6,7,8-HxCDD | 1.9 | J | 3.5 | 0.087 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 1,2,3,7,8,9-HxCDD | 2.6 | J | 3.5 | 0.084 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| Total HxCDD | 20 | I B | 3.5 | 0.087 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |

**Client Sample ID: 0FS0300N**
**Date Collected: 10/15/20 13:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-2**
**Matrix: Sediment**
**Percent Solids: 69.2**

## Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2,3,4,6,7,8-HpCDD | 22 | | 3.5 | 0.18 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| Total HpCDD | 48 | | 3.5 | 0.18 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| OCDD | 180 | B | 7.0 | 0.15 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 2,3,7,8-TCDF | 0.44 | J I | 0.70 | 0.16 | pg/g | ☼ | 10/23/20 08:34 | 11/05/20 07:12 | 1 |
| Total TCDF | 13 | I | 0.70 | 0.10 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 1,2,3,7,8-PeCDF | 0.52 | J I | 3.5 | 0.12 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 2,3,4,7,8-PeCDF | 0.88 | J | 3.5 | 0.11 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| Total PeCDF | 12 | I | 3.5 | 0.12 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 1,2,3,4,7,8-HxCDF | 1.9 | J | 3.5 | 0.11 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 1,2,3,6,7,8-HxCDF | 1.1 | J I | 3.5 | 0.12 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 2,3,4,6,7,8-HxCDF | 0.99 | J | 3.5 | 0.12 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 1,2,3,7,8,9-HxCDF | ND | | 3.5 | 0.14 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| Total HxCDF | 11 | I | 3.5 | 0.12 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 1,2,3,4,6,7,8-HpCDF | 9.7 | I B | 3.5 | 0.22 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| 1,2,3,4,7,8,9-HpCDF | 0.84 | J I | 3.5 | 0.25 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| Total HpCDF | 15 | I B | 3.5 | 0.23 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |
| OCDF | 7.1 | B | 7.0 | 0.10 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 15:45 | 1 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *13C-2,3,7,8-TCDD* | *34* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-1,2,3,7,8-PeCDD* | *30* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-1,2,3,4,7,8-HxCDD* | *32* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-1,2,3,6,7,8-HxCDD* | *33* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-1,2,3,4,6,7,8-HpCDD* | *37* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-OCDD* | *31* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-2,3,7,8-TCDF* | *32* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-2,3,7,8-TCDF* | *35* | *5 | *40 - 135* | *10/23/20 08:34* | *11/05/20 07:12* | *1* |
| *13C-1,2,3,7,8-PeCDF* | *29* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-2,3,4,7,8-PeCDF* | *28* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-1,2,3,4,7,8-HxCDF* | *35* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-1,2,3,6,7,8-HxCDF* | *32* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-2,3,4,6,7,8-HxCDF* | *32* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-1,2,3,7,8,9-HxCDF* | *33* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-1,2,3,4,6,7,8-HpCDF* | *33* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-1,2,3,4,7,8,9-HpCDF* | *35* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |
| *13C-OCDF* | *33* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 15:45* | *1* |

## Method: EPA 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 1300 | ^ | 4.3 | 4.2 | mg/Kg | ☼ | 10/29/20 08:20 | 11/05/20 10:59 | 1 |
| Arsenic | 1.2 | | 0.072 | 0.023 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Barium | 13 | | 0.72 | 0.092 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Antimony | 0.63 | | 0.14 | 0.032 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Beryllium | 0.069 | J | 0.072 | 0.052 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Cadmium | 0.13 | | 0.072 | 0.012 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Calcium | 18000 | B | 36 | 5.5 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Chromium | 5.0 | | 0.14 | 0.060 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Cobalt | 1.9 | | 0.036 | 0.0093 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Copper | 35 | | 0.22 | 0.15 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Magnesium | 8700 | | 36 | 11 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-1

**Client Sample ID: 0FS0300N**
**Date Collected: 10/15/20 13:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-2**
**Matrix: Sediment**
**Percent Solids: 69.2**

### Method: EPA 6020A - Metals (ICP/MS) (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Manganese | 110 | | 0.36 | 0.31 | mg/Kg | ☼ | 10/29/20 08:20 | 11/03/20 18:28 | 1 |
| Iron | 8400 | | 3.6 | 3.4 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Lead | 28 | | 0.072 | 0.072 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Potassium | 160 | | 36 | 29 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Nickel | 12 | B | 0.072 | 0.068 | mg/Kg | ☼ | 10/29/20 08:20 | 11/03/20 18:28 | 1 |
| Selenium | 0.088 | J | 0.36 | 0.088 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Sodium | 190 | | 36 | 14 | mg/Kg | ☼ | 10/29/20 08:20 | 11/04/20 19:02 | 1 |
| Silver | 0.046 | J | 0.072 | 0.020 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Thallium | 0.063 | J | 0.072 | 0.050 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Vanadium | 24 | | 0.072 | 0.068 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:08 | 1 |
| Zinc | 47 | | 0.36 | 0.35 | mg/Kg | ☼ | 10/29/20 08:20 | 11/03/20 18:28 | 1 |

### Method: EPA 7471B - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.036 | B | 0.021 | 0.014 | mg/Kg | ☼ | 10/21/20 08:22 | 10/22/20 13:55 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 30.8 | | 0.1 | 0.1 | % | | | 10/25/20 15:07 | 1 |
| Percent Solids | 69.2 | | 0.1 | 0.1 | % | | | 10/25/20 15:07 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-1

**Client Sample ID: SMS0200N**
**Date Collected: 10/15/20 13:55**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-3**
**Matrix: Sediment**
**Percent Solids: 27.3**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1 | 0.43 | B | 0.18 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-2 | 0.14 | J | 0.18 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-3 | 0.32 | B | 0.18 | 0.0040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-4 | 2.2 | | 0.36 | 0.033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-5 | 0.13 | J q | 0.18 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-6 | 1.6 | | 0.18 | 0.022 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-7 | 0.26 | q | 0.18 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-8 | 7.4 | | 0.36 | 0.021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-9 | 0.41 | q | 0.18 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-10 | 0.099 | J q | 0.18 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-11 | 0.58 | B | 0.36 | 0.022 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-12 | 0.86 | C | 0.36 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-13 | 0.86 | C12 | 0.36 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-14 | ND | | 0.18 | 0.019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-15 | 7.2 | | 0.18 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-16 | 4.4 | | 0.18 | 0.0076 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-17 | 5.8 | | 0.18 | 0.0068 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-18 | 11 | C | 0.36 | 0.0060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-19 | 0.99 | | 0.18 | 0.0083 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-20 | 32 | C B | 0.36 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-21 | 14 | C B | 0.36 | 0.019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-22 | 10 | | 0.18 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-23 | ND | | 0.18 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-24 | 0.18 | q | 0.18 | 0.0057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-25 | 2.4 | | 0.18 | 0.018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-26 | 4.5 | C B | 0.36 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-27 | 1.1 | | 0.18 | 0.0050 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-28 | 32 | C20 B | 0.36 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-29 | 4.5 | C26 B | 0.36 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-30 | 11 | C18 | 0.36 | 0.0060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-31 | 23 | B | 0.36 | 0.019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-32 | 4.6 | B | 0.18 | 0.0048 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-33 | 14 | C21 B | 0.36 | 0.019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-34 | 0.10 | J | 0.18 | 0.021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-35 | 0.46 | | 0.18 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-36 | ND | | 0.18 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-37 | 13 | | 0.18 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-38 | ND | | 0.18 | 0.021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-39 | 0.060 | J q | 0.18 | 0.019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-40 | 12 | C | 0.54 | 0.039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-41 | 12 | C40 | 0.54 | 0.039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-42 | 5.4 | | 0.18 | 0.039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-43 | 0.64 | C | 0.36 | 0.037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-44 | 19 | C B | 0.54 | 0.035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-45 | 3.4 | C | 0.36 | 0.041 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-46 | 1.0 | | 0.18 | 0.050 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-47 | 19 | C44 B | 0.54 | 0.035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-48 | 4.2 | | 0.18 | 0.039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-49 | 12 | C | 0.36 | 0.032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |

**Client Sample ID: SMS0200N**
**Date Collected: 10/15/20 13:55**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-3**
**Matrix: Sediment**
**Percent Solids: 27.3**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-50 | 2.4 | C | 0.36 | 0.038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-51 | 3.4 | C45 | 0.36 | 0.041 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-52 | 21 | | 0.18 | 0.039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-53 | 2.4 | C50 | 0.36 | 0.038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-54 | 0.058 | J | 0.18 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-55 | 0.70 | | 0.18 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-56 | 10 | | 0.18 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-57 | 0.12 | J | 0.18 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-58 | 0.061 | J q | 0.18 | 0.030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-59 | 2.0 | C | 0.54 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-60 | 5.0 | | 0.18 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-61 | 35 | C | 0.72 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-62 | 2.0 | C59 | 0.54 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-63 | 0.78 | | 0.18 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-64 | 8.6 | | 0.18 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-65 | 19 | C44 B | 0.54 | 0.035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-66 | 22 | | 0.18 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-67 | 0.81 | | 0.18 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-68 | 0.072 | J q | 0.18 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-69 | 12 | C49 | 0.36 | 0.032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-70 | 35 | C61 | 0.72 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-71 | 12 | C40 | 0.54 | 0.039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-72 | 0.17 | J q | 0.18 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-73 | 0.64 | C43 | 0.36 | 0.037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-74 | 35 | C61 | 0.72 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-75 | 2.0 | C59 | 0.54 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-76 | 35 | C61 | 0.72 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-77 | 3.0 | | 0.18 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-78 | ND | | 0.18 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-79 | 0.16 | J q | 0.18 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-80 | ND | | 0.18 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-81 | 0.073 | J q | 0.18 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-82 | 3.7 | | 0.18 | 0.0047 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-83 | 15 | C | 0.36 | 0.0043 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-84 | 6.2 | | 0.18 | 0.0047 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-85 | 4.8 | C B | 0.54 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-86 | 17 | C | 1.1 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-87 | 17 | C86 | 1.1 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-88 | 3.8 | C | 0.36 | 0.0042 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-89 | 0.31 | | 0.18 | 0.0046 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-90 | 29 | C B | 0.54 | 0.0036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-91 | 3.8 | C88 | 0.36 | 0.0042 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-92 | 5.0 | | 0.18 | 0.0040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-93 | 0.39 | C | 0.36 | 0.0041 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-94 | 0.15 | J | 0.18 | 0.0046 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-95 | 22 | | 0.18 | 0.0044 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-96 | 0.20 | | 0.18 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-97 | 17 | C86 | 1.1 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-98 | 0.80 | C | 0.36 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |

**Client Sample ID: SMS0200N**
**Date Collected: 10/15/20 13:55**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-3**
**Matrix: Sediment**
**Percent Solids: 27.3**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-99 | 15 | C83 | 0.36 | 0.0043 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-100 | 0.39 | C93 | 0.36 | 0.0041 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-101 | 29 | C90 B | 0.54 | 0.0036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-102 | 0.80 | C98 | 0.36 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-103 | 0.24 | | 0.18 | 0.0041 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-104 | ND | | 0.18 | 0.0031 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-105 | 9.7 | | 0.18 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-106 | ND | | 0.18 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-107 | 2.1 | | 0.18 | 0.030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-108 | 0.98 | C | 0.36 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-109 | 17 | C86 | 1.1 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-110 | 33 | C B | 0.36 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-111 | ND | | 0.18 | 0.0029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-112 | 0.083 | J q | 0.18 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-113 | 29 | C90 B | 0.54 | 0.0036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-114 | 0.53 | | 0.18 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-115 | 33 | C110 B | 0.36 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-116 | 4.8 | C85 B | 0.54 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-117 | 4.8 | C85 B | 0.54 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-118 | 23 | | 0.18 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-119 | 17 | C86 | 1.1 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-120 | 0.12 | J | 0.18 | 0.0029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-121 | ND | | 0.18 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-122 | 0.41 | | 0.18 | 0.032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-123 | 0.39 | | 0.18 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-124 | 0.98 | C108 | 0.36 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-125 | 17 | C86 | 1.1 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-126 | 0.21 | | 0.18 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-127 | ND | | 0.18 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-128 | 5.4 | C | 0.36 | 0.044 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-129 | 48 | C B | 0.72 | 0.046 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-130 | 2.6 | | 0.18 | 0.060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-131 | 0.41 | | 0.18 | 0.063 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-132 | 14 | | 0.18 | 0.059 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-133 | 0.65 | | 0.18 | 0.057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-134 | 2.1 | C | 0.36 | 0.059 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-135 | 19 | C | 0.36 | 0.0050 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-136 | 5.6 | | 0.18 | 0.0036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-137 | 1.3 | | 0.18 | 0.051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-138 | 48 | C129 B | 0.72 | 0.046 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-139 | 0.40 | q C | 0.36 | 0.051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-140 | 0.40 | q C139 | 0.36 | 0.051 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-141 | 11 | | 0.18 | 0.053 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-142 | ND | | 0.18 | 0.057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-143 | 2.1 | C134 | 0.36 | 0.059 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-144 | 2.1 | | 0.18 | 0.0045 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-145 | ND | | 0.18 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-146 | 7.6 | | 0.18 | 0.050 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-147 | 45 | C B | 0.36 | 0.057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |

**Client Sample ID: SMS0200N**
**Date Collected: 10/15/20 13:55**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-3**
**Matrix: Sediment**
**Percent Solids: 27.3**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-148 | 0.042 | J | 0.18 | 0.0048 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-149 | 45 | C147 B | 0.36 | 0.057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-150 | 0.059 | J | 0.18 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-151 | 19 | C135 | 0.36 | 0.0050 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-152 | ND | | 0.18 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-153 | 43 | C | 0.36 | 0.040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-154 | 0.41 | | 0.18 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-155 | ND | | 0.18 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-156 | 4.1 | C B | 0.36 | 0.049 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-157 | 4.1 | C156 B | 0.36 | 0.049 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-158 | 4.3 | | 0.18 | 0.036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-159 | 0.59 | | 0.18 | 0.038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-160 | 48 | C129 B | 0.72 | 0.046 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-161 | ND | | 0.18 | 0.038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-162 | 0.12 | J q | 0.18 | 0.037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-163 | 48 | C129 B | 0.72 | 0.046 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-164 | 3.4 | | 0.18 | 0.040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-165 | ND | | 0.18 | 0.043 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-166 | 5.4 | C128 | 0.36 | 0.044 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-167 | 1.7 | | 0.18 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-168 | 43 | C153 | 0.36 | 0.040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-169 | ND | | 0.18 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-170 | 19 | | 0.18 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-171 | 5.5 | C | 0.36 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-172 | 3.6 | | 0.18 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-173 | 5.5 | C171 | 0.36 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-174 | 21 | | 0.18 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-175 | 0.69 | | 0.18 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-176 | 2.3 | | 0.18 | 0.0077 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-177 | 11 | | 0.18 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-178 | 4.1 | | 0.18 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-179 | 8.8 | | 0.18 | 0.0081 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-180 | 44 | C | 0.36 | 0.0085 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-181 | 0.077 | J q | 0.18 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-182 | 0.10 | J | 0.18 | 0.0098 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-183 | 13 | C | 0.36 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-184 | ND | | 0.18 | 0.0083 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-185 | 13 | C183 | 0.36 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-186 | ND | | 0.18 | 0.0081 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-187 | 24 | | 0.18 | 0.0094 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-188 | ND | | 0.18 | 0.0070 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-189 | 0.64 | | 0.18 | 0.020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-190 | 3.5 | | 0.18 | 0.0073 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-191 | 0.74 | | 0.18 | 0.0077 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-192 | ND | | 0.18 | 0.0086 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-193 | 44 | C180 | 0.36 | 0.0085 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-194 | 9.6 | | 0.18 | 0.035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-195 | 3.8 | | 0.18 | 0.038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-196 | 4.6 | | 0.18 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |

**Client Sample ID: SMS0200N**
**Date Collected: 10/15/20 13:55**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-3**
**Matrix: Sediment**
**Percent Solids: 27.3**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-197 | 0.26 | q | 0.18 | 0.0089 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-198 | 11 | C | 0.36 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-199 | 11 | C198 | 0.36 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-200 | 1.1 | | 0.18 | 0.0079 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-201 | 1.1 | | 0.18 | 0.0081 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-202 | 1.8 | | 0.18 | 0.0091 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-203 | 6.1 | | 0.18 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-204 | ND | | 0.18 | 0.0089 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-205 | 0.48 | | 0.18 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-206 | 3.8 | | 0.18 | 0.033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-207 | 0.37 | | 0.18 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-208 | 0.90 | | 0.18 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| PCB-209 | 0.76 | | 0.18 | 0.019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| Total Monochlorobiphenyls | 0.89 | B | 0.18 | 0.0036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| Total Dichlorobiphenyls | 21 | q B | 0.36 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| Total Trichlorobiphenyls | 130 | q B | 0.36 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| Total Tetrachlorobiphenyls | 170 | q B | 0.72 | 0.031 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| Total Pentachlorobiphenyls | 180 | q B | 1.1 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| Total Hexachlorobiphenyls | 220 | q B | 0.72 | 0.035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| Total Heptachlorobiphenyls | 160 | q | 0.36 | 0.0099 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| Total Octachlorobiphenyls | 40 | q | 0.36 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| Total Nonachlorobiphenyls | 5.1 | | 0.18 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |
| Polychlorinated biphenyls, Total | 930 | q B | 1.1 | 0.021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 04:27 | 10 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *71* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-3L* | *68* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-4L* | *78* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-15L* | *81* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-19L* | *92* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-37L* | *79* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-54L* | *91* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-77L* | *88* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-81L* | *81* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-104L* | *77* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-105L* | *85* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-114L* | *86* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-118L* | *84* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-123L* | *85* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-126L* | *81* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-155L* | *89* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-156L* | *85* | *C* | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-157L* | *85* | *C156* | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-167L* | *87* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-169L* | *91* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-170L* | *84* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-188L* | *87* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-189L* | *79* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-202L* | *99* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-205L* | *73* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |

## Client Sample ID: SMS0200N
**Date Collected: 10/15/20 13:55**
**Date Received: 10/17/20 09:30**

## Lab Sample ID: 180-112434-3
**Matrix: Sediment**
**Percent Solids: 27.3**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-206L* | *77* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-208L* | *81* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-209L* | *84* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *88* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-111L* | *91* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |
| *PCB-178L* | *91* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 04:27* | *10* |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 72.7 | | 0.1 | 0.1 | % | | | 10/25/20 15:07 | 1 |
| Total Organic Carbon - Duplicates | 82000 | | 3700 | 2700 | mg/Kg | ☼ | | 10/27/20 16:46 | 1 |

### Method: D422 - Grain Size

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Sieve Size 3 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size 2 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size 1.5 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size 1 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size 0.75 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size 0.375 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size #4 - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size #10 - Percent Finer | 97.6 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size #20 - Percent Finer | 95.0 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size #40 - Percent Finer | 91.8 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size #60 - Percent Finer | 88.5 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size #80 - Percent Finer | 86.5 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size #100 - Percent Finer | 84.3 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Sieve Size #200 - Percent Finer | 79.5 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Hydrometer Reading 1 - Percent Finer | 41.4 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Hydrometer Reading 2 - Percent Finer | 33.2 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Hydrometer Reading 3 - Percent Finer | 25.0 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Hydrometer Reading 4 - Percent Finer | 20.0 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Hydrometer Reading 5 - Percent Finer | 15.1 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Hydrometer Reading 6 - Percent Finer | 10.1 | | | | % Passing | | | 10/22/20 22:03 | 1 |
| Hydrometer Reading 7 - Percent Finer | 8.5 | | | | % Passing | | | 10/22/20 22:03 | 1 |

## Client Sample ID: 0FS0100N

**Date Collected: 10/15/20 14:00**
**Date Received: 10/17/20 09:30**

## Lab Sample ID: 180-112434-4

**Matrix: Sediment**
**Percent Solids: 75.8**

### Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 180 | 51 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| Acenaphthylene | ND | | 180 | 38 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| Anthracene | ND | | 180 | 46 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| **Benzo[a]anthracene** | **93** | **J** | 180 | 79 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| **Benzo[b]fluoranthene** | **130** | **J** | 180 | 43 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| **Benzo[k]fluoranthene** | **55** | **J** | 180 | 53 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| Benzo[g,h,i]perylene | ND | | 180 | 38 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| Benzo[a]pyrene | ND | | 180 | 76 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| **Chrysene** | **150** | **J** | 180 | 97 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| Dibenz(a,h)anthracene | ND | | 180 | 110 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| **Fluoranthene** | **200** | | 180 | 46 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| Fluorene | ND | | 180 | 34 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| Indeno[1,2,3-cd]pyrene | ND | | 180 | 87 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| Naphthalene | ND | | 180 | 34 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| **Phenanthrene** | **57** | **J** | 180 | 47 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |
| **Pyrene** | **240** | | 180 | 42 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:21 | 40 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *0* | *D X* | *37 - 107* | *10/23/20 12:09* | *10/24/20 16:21* | *40* |
| *Nitrobenzene-d5 (Surr)* | *0* | *D X* | *41 - 112* | *10/23/20 12:09* | *10/24/20 16:21* | *40* |
| *Terphenyl-d14 (Surr)* | *0* | *D X* | *32 - 115* | *10/23/20 12:09* | *10/24/20 16:21* | *40* |

### Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **DRO C10-C20** | **160** | **J** | 220 | 100 | mg/Kg | ☼ | 10/26/20 13:07 | 10/27/20 15:27 | 10 |
| **Oil Range Organics (C20-C36)** | **1600** | | 220 | 100 | mg/Kg | ☼ | 10/26/20 13:07 | 10/27/20 15:27 | 10 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl (Surr)* | *78* | | *39 - 120* | *10/26/20 13:07* | *10/27/20 15:27* | *10* |

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.12** | **B** | 0.066 | 0.00079 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| **PCB-2** | **0.014** | **J** | 0.066 | 0.00094 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| **PCB-3** | **0.051** | **J B** | 0.066 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| **PCB-4** | **0.073** | **J** | 0.13 | 0.0096 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-5 | ND | | 0.066 | 0.0078 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| **PCB-6** | **0.026** | **J** | 0.066 | 0.0069 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-7 | ND | | 0.066 | 0.0071 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| **PCB-8** | **0.13** | | 0.13 | 0.0064 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-9 | ND | | 0.066 | 0.0072 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-10 | ND | | 0.066 | 0.0077 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| **PCB-11** | **0.78** | **B** | 0.13 | 0.0067 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-12 | ND | C | 0.13 | 0.0070 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-13 | ND | C12 | 0.13 | 0.0070 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-14 | ND | | 0.066 | 0.0059 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| **PCB-15** | **0.14** | | 0.066 | 0.0074 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| **PCB-16** | **0.12** | **q** | 0.066 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| **PCB-17** | **0.12** | | 0.066 | 0.0021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| **PCB-18** | **0.28** | **q C** | 0.13 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |

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**Lab Sample ID: 180-112434-4**
**Matrix: Sediment**
**Percent Solids: 75.8**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | 0.031 | J q | 0.066 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-20 | 0.54 | C B | 0.13 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-21 | 0.27 | C B | 0.13 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-22 | 0.21 | | 0.066 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-23 | ND | | 0.066 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-24 | 0.0050 | J | 0.066 | 0.0017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-25 | 0.034 | J | 0.066 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-26 | 0.078 | J C B | 0.13 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-27 | 0.017 | J q | 0.066 | 0.0015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-28 | 0.54 | C20 B | 0.13 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-29 | 0.078 | J C26 B | 0.13 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-30 | 0.28 | q C18 | 0.13 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-31 | 0.42 | B | 0.13 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-32 | 0.12 | B | 0.066 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-33 | 0.27 | C21 B | 0.13 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-34 | ND | | 0.066 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-35 | 0.017 | J q | 0.066 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-36 | ND | | 0.066 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-37 | 0.33 | | 0.066 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-38 | ND | | 0.066 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-39 | 0.0044 | J q | 0.066 | 0.0031 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-40 | 0.52 | C | 0.20 | 0.0087 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-41 | 0.52 | C40 | 0.20 | 0.0087 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-42 | 0.22 | | 0.066 | 0.0087 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-43 | 0.028 | J C | 0.13 | 0.0081 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-44 | 0.77 | C B | 0.20 | 0.0077 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-45 | 0.14 | q C | 0.13 | 0.0091 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-46 | 0.044 | J | 0.066 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-47 | 0.77 | C44 B | 0.20 | 0.0077 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-48 | 0.15 | | 0.066 | 0.0087 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-49 | 0.42 | C | 0.13 | 0.0071 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-50 | 0.10 | J C | 0.13 | 0.0084 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-51 | 0.14 | q C45 | 0.13 | 0.0091 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-52 | 0.91 | | 0.066 | 0.0086 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-53 | 0.10 | J C50 | 0.13 | 0.0084 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-54 | ND | | 0.066 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-55 | 0.027 | J | 0.066 | 0.0063 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-56 | 0.48 | | 0.066 | 0.0063 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-57 | ND | | 0.066 | 0.0064 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-58 | ND | | 0.066 | 0.0065 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-59 | 0.078 | J C | 0.20 | 0.0061 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-60 | 0.28 | | 0.066 | 0.0064 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-61 | 1.6 | C | 0.26 | 0.0060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-62 | 0.078 | J C59 | 0.20 | 0.0061 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-63 | 0.025 | J | 0.066 | 0.0059 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-64 | 0.36 | | 0.066 | 0.0058 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-65 | 0.77 | C44 B | 0.20 | 0.0077 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-66 | 0.84 | | 0.066 | 0.0060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-67 | 0.025 | J | 0.066 | 0.0055 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |

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**Lab Sample ID: 180-112434-4**
**Matrix: Sediment**
**Percent Solids: 75.8**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | ND | | 0.066 | 0.0057 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-69 | 0.42 | C49 | 0.13 | 0.0071 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-70 | 1.6 | C61 | 0.26 | 0.0060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-71 | 0.52 | C40 | 0.20 | 0.0087 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-72 | ND | | 0.066 | 0.0063 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-73 | 0.028 | J C43 | 0.13 | 0.0081 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-74 | 1.6 | C61 | 0.26 | 0.0060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-75 | 0.078 | J C59 | 0.20 | 0.0061 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-76 | 1.6 | C61 | 0.26 | 0.0060 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-77 | 0.20 | | 0.066 | 0.0059 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-78 | ND | | 0.066 | 0.0065 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-79 | 0.017 | J | 0.066 | 0.0056 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-80 | ND | | 0.066 | 0.0055 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-81 | 0.0071 | J | 0.066 | 0.0061 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-82 | 0.32 | q | 0.066 | 0.0022 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-83 | 1.1 | C | 0.13 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-84 | 0.57 | | 0.066 | 0.0022 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-85 | 0.45 | C B | 0.20 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-86 | 1.7 | C | 0.39 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-87 | 1.7 | C86 | 0.39 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-88 | 0.22 | C | 0.13 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-89 | 0.017 | J | 0.066 | 0.0021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-90 | 2.1 | C B | 0.20 | 0.0017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-91 | 0.22 | C88 | 0.13 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-92 | 0.34 | | 0.066 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-93 | 0.012 | J q C | 0.13 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-94 | ND | | 0.066 | 0.0021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-95 | 1.5 | | 0.066 | 0.0021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-96 | 0.010 | J q | 0.066 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-97 | 1.7 | C86 | 0.39 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-98 | 0.035 | J q C | 0.13 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-99 | 1.1 | C83 | 0.13 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-100 | 0.012 | J q C93 | 0.13 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-101 | 2.1 | C90 B | 0.20 | 0.0017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-102 | 0.035 | J q C98 | 0.13 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-103 | ND | | 0.066 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-104 | ND | | 0.066 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-105 | 1.2 | | 0.066 | 0.0072 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-106 | ND | | 0.066 | 0.0071 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-107 | 0.17 | | 0.066 | 0.0076 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-108 | 0.10 | J C | 0.13 | 0.0073 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-109 | 1.7 | C86 | 0.39 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-110 | 3.2 | C B | 0.13 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-111 | ND | | 0.066 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-112 | 0.0091 | J | 0.066 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-113 | 2.1 | C90 B | 0.20 | 0.0017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-114 | 0.053 | J | 0.066 | 0.0065 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-115 | 3.2 | C110 B | 0.13 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-116 | 0.45 | C85 B | 0.20 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |

**Client Sample ID: 0FS0100N**
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**Lab Sample ID: 180-112434-4**
**Matrix: Sediment**
**Percent Solids: 75.8**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-117 | 0.45 | C85 B | 0.20 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-118 | 2.4 | | 0.066 | 0.0064 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-119 | 1.7 | C86 | 0.39 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-120 | ND | | 0.066 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-121 | ND | | 0.066 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-122 | 0.035 | J | 0.066 | 0.0082 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-123 | 0.052 | J | 0.066 | 0.0071 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-124 | 0.10 | J C108 | 0.13 | 0.0073 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-125 | 1.7 | C86 | 0.39 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-126 | 0.022 | J q | 0.066 | 0.0075 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-127 | ND | | 0.066 | 0.0071 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-128 | 0.61 | C | 0.13 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-129 | 3.9 | C B | 0.26 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-130 | 0.23 | | 0.066 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-131 | 0.041 | J | 0.066 | 0.018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-132 | 1.2 | | 0.066 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-133 | 0.026 | J | 0.066 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-134 | 0.17 | C | 0.13 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-135 | 1.0 | C | 0.13 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-136 | 0.29 | | 0.066 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-137 | 0.19 | | 0.066 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-138 | 3.9 | C129 B | 0.26 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-139 | 0.057 | J C | 0.13 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-140 | 0.057 | J C139 | 0.13 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-141 | 0.75 | | 0.066 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-142 | ND | | 0.066 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-143 | 0.17 | C134 | 0.13 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-144 | 0.12 | | 0.066 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-145 | ND | | 0.066 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-146 | 0.45 | | 0.066 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-147 | 2.8 | C B | 0.13 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-148 | ND | | 0.066 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-149 | 2.8 | C147 B | 0.13 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-150 | ND | | 0.066 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-151 | 1.0 | C135 | 0.13 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-152 | ND | | 0.066 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-153 | 2.8 | C | 0.13 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-154 | 0.021 | J | 0.066 | 0.0015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-155 | ND | | 0.066 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-156 | 0.46 | C B | 0.13 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-157 | 0.46 | C156 B | 0.13 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-158 | 0.42 | | 0.066 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-159 | 0.025 | J q | 0.066 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-160 | 3.9 | C129 B | 0.26 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-161 | ND | | 0.066 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-162 | 0.012 | J q | 0.066 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-163 | 3.9 | C129 B | 0.26 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-164 | 0.26 | | 0.066 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-165 | ND | | 0.066 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |

**Client Sample ID: 0FS0100N**
**Date Collected: 10/15/20 14:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-4**
**Matrix: Sediment**
**Percent Solids: 75.8**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 0.61 | C128 | 0.13 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-167 | 0.14 | | 0.066 | 0.0082 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-168 | 2.8 | C153 | 0.13 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-169 | ND | | 0.066 | 0.0083 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-170 | 1.3 | | 0.066 | 0.0049 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-171 | 0.32 | C | 0.13 | 0.0042 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-172 | 0.18 | q | 0.066 | 0.0042 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-173 | 0.32 | C171 | 0.13 | 0.0042 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-174 | 1.4 | | 0.066 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-175 | 0.040 | J | 0.066 | 0.0038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-176 | 0.13 | | 0.066 | 0.0029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-177 | 0.65 | | 0.066 | 0.0040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-178 | 0.29 | | 0.066 | 0.0041 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-179 | 0.56 | | 0.066 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-180 | 2.9 | C | 0.13 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-181 | 0.011 | J q | 0.066 | 0.0038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-182 | ND | | 0.066 | 0.0036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-183 | 0.90 | C | 0.13 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-184 | ND | | 0.066 | 0.0031 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-185 | 0.90 | C183 | 0.13 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-186 | ND | | 0.066 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-187 | 1.6 | | 0.066 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-188 | ND | | 0.066 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-189 | 0.019 | J q | 0.066 | 0.0076 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-190 | 0.21 | | 0.066 | 0.0027 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-191 | 0.032 | J q | 0.066 | 0.0028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-192 | ND | | 0.066 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-193 | 2.9 | C180 | 0.13 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-194 | 0.81 | | 0.066 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-195 | 0.31 | | 0.066 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-196 | 0.40 | | 0.066 | 0.0044 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-197 | 0.0088 | J q | 0.066 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-198 | 0.93 | C | 0.13 | 0.0045 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-199 | 0.93 | C198 | 0.13 | 0.0045 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-200 | 0.090 | | 0.066 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-201 | 0.094 | | 0.066 | 0.0031 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-202 | 0.17 | | 0.066 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-203 | 0.54 | | 0.066 | 0.0040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-204 | ND | | 0.066 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-205 | 0.025 | J q | 0.066 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-206 | 0.27 | | 0.066 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-207 | 0.025 | J q | 0.066 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-208 | 0.050 | J | 0.066 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| PCB-209 | 0.034 | J q | 0.066 | 0.0059 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| Total Monochlorobiphenyls | 0.19 | B | 0.066 | 0.00093 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| Total Dichlorobiphenyls | 1.1 | B | 0.13 | 0.0073 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| Total Trichlorobiphenyls | 2.6 | q B | 0.13 | 0.0028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| Total Tetrachlorobiphenyls | 7.2 | q B | 0.26 | 0.0068 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| Total Pentachlorobiphenyls | 16 | q B | 0.39 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |

**Client Sample ID: 0FS0100N**
**Date Collected: 10/15/20 14:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-4**
**Matrix: Sediment**
**Percent Solids: 75.8**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Hexachlorobiphenyls | 16 | q B | 0.26 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| Total Heptachlorobiphenyls | 11 | q | 0.13 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| Total Octachlorobiphenyls | 3.4 | q | 0.13 | 0.0059 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| Total Nonachlorobiphenyls | 0.35 | q | 0.066 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |
| Polychlorinated biphenyls, Total | 57 | q B | 0.39 | 0.0064 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 05:28 | 10 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *68* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-3L* | *64* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-4L* | *76* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-15L* | *69* | *q* | *5 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-19L* | *79* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-37L* | *80* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-54L* | *79* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-77L* | *82* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-81L* | *82* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-104L* | *73* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-105L* | *82* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-114L* | *88* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-118L* | *89* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-123L* | *86* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-126L* | *94* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-155L* | *83* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-156L* | *83* | *C* | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-157L* | *83* | *C156* | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-167L* | *87* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-169L* | *87* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-170L* | *83* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-188L* | *98* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-189L* | *80* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-202L* | *105* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-205L* | *71* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-206L* | *74* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-208L* | *77* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-209L* | *73* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *88* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-111L* | *88* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |
| *PCB-178L* | *102* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 05:28* | *10* |

## Method: 8290A - Dioxins and Furans (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.25 | J | 0.64 | 0.071 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| Total TCDD | 7.8 | I | 0.64 | 0.071 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 1,2,3,7,8-PeCDD | 1.3 | J | 3.2 | 0.22 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| Total PeCDD | 68 | I | 3.2 | 0.22 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 1,2,3,4,7,8-HxCDD | 1.5 | J B | 3.2 | 0.075 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 1,2,3,6,7,8-HxCDD | 3.1 | J | 3.2 | 0.090 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 1,2,3,7,8,9-HxCDD | 3.6 | | 3.2 | 0.077 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| Total HxCDD | 34 | B | 3.2 | 0.081 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |

## Client Sample ID: 0FS0100N

**Date Collected: 10/15/20 14:00**
**Date Received: 10/17/20 09:30**

## Lab Sample ID: 180-112434-4

**Matrix: Sediment**
**Percent Solids: 75.8**

### Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2,3,4,6,7,8-HpCDD | 53 | | 3.2 | 0.056 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| Total HpCDD | 270 | | 3.2 | 0.056 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| OCDD | 460 | B | 6.4 | 0.059 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 2,3,7,8-TCDF | 0.80 | | 0.64 | 0.10 | pg/g | ☼ | 10/23/20 08:34 | 11/05/20 07:45 | 1 |
| Total TCDF | 17 | I | 0.64 | 0.080 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 1,2,3,7,8-PeCDF | 0.87 | J I | 3.2 | 0.061 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 2,3,4,7,8-PeCDF | 1.4 | J | 3.2 | 0.053 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| Total PeCDF | 17 | I | 3.2 | 0.057 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 1,2,3,4,7,8-HxCDF | 2.7 | J | 3.2 | 0.055 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 1,2,3,6,7,8-HxCDF | 1.6 | J | 3.2 | 0.059 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 2,3,4,6,7,8-HxCDF | 1.7 | J | 3.2 | 0.065 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 1,2,3,7,8,9-HxCDF | 0.23 | J | 3.2 | 0.070 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| Total HxCDF | 18 | I | 3.2 | 0.062 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 1,2,3,4,6,7,8-HpCDF | 9.2 | B | 3.2 | 0.090 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| 1,2,3,4,7,8,9-HpCDF | 1.2 | J | 3.2 | 0.11 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| Total HpCDF | 23 | I B | 3.2 | 0.10 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |
| OCDF | 18 | B | 6.4 | 0.050 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 16:46 | 1 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *13C-2,3,7,8-TCDD* | *63* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-1,2,3,7,8-PeCDD* | *56* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-1,2,3,4,7,8-HxCDD* | *65* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-1,2,3,6,7,8-HxCDD* | *55* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-1,2,3,4,6,7,8-HpCDD* | *65* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-OCDD* | *63* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-2,3,7,8-TCDF* | *58* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-2,3,7,8-TCDF* | *56* | | *40 - 135* | *10/23/20 08:34* | *11/05/20 07:45* | *1* |
| *13C-1,2,3,7,8-PeCDF* | *53* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-2,3,4,7,8-PeCDF* | *52* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-1,2,3,4,7,8-HxCDF* | *60* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-1,2,3,6,7,8-HxCDF* | *52* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-2,3,4,6,7,8-HxCDF* | *52* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-1,2,3,7,8,9-HxCDF* | *56* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-1,2,3,4,6,7,8-HpCDF* | *62* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-1,2,3,4,7,8,9-HpCDF* | *63* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |
| *13C-OCDF* | *69* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 16:46* | *1* |

### Method: EPA 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 1400 | ^ | 3.9 | 3.8 | mg/Kg | ☼ | 10/29/20 08:20 | 11/05/20 11:02 | 1 |
| Arsenic | 0.55 | | 0.065 | 0.021 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Barium | 17 | | 0.65 | 0.083 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Antimony | 0.21 | | 0.13 | 0.028 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Beryllium | 0.050 | J | 0.065 | 0.047 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Cadmium | 0.31 | | 0.065 | 0.011 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Calcium | 10000 | B | 32 | 4.9 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Chromium | 4.9 | | 0.13 | 0.054 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Cobalt | 1.8 | | 0.032 | 0.0084 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Copper | 14 | | 0.19 | 0.13 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Magnesium | 3700 | | 32 | 10 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |

Client: AECOM
Job ID: 180-112434-1
Project/Site: Pepco Benning Road Facility

**Client Sample ID: 0FS0100N**
**Lab Sample ID: 180-112434-4**
**Date Collected: 10/15/20 14:00**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**
**Percent Solids: 75.8**

### Method: EPA 6020A - Metals (ICP/MS) (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Manganese | 72 | | 0.32 | 0.28 | mg/Kg | ☼ | 10/29/20 08:20 | 11/03/20 18:30 | 1 |
| Iron | 6300 | | 3.2 | 3.1 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Lead | 15 | | 0.065 | 0.065 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Potassium | 140 | | 32 | 26 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Nickel | 4.2 | B | 0.065 | 0.061 | mg/Kg | ☼ | 10/29/20 08:20 | 11/03/20 18:30 | 1 |
| Selenium | ND | | 0.32 | 0.079 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Sodium | 170 | | 32 | 13 | mg/Kg | ☼ | 10/29/20 08:20 | 11/04/20 19:05 | 1 |
| Silver | 0.085 | | 0.065 | 0.018 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Thallium | ND | | 0.065 | 0.045 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Vanadium | 11 | | 0.065 | 0.061 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:11 | 1 |
| Zinc | 98 | | 0.32 | 0.31 | mg/Kg | ☼ | 10/29/20 08:20 | 11/03/20 18:30 | 1 |

### Method: EPA 7471B - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.016 | B | 0.016 | 0.010 | mg/Kg | ☼ | 10/21/20 08:22 | 10/22/20 13:56 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 24.2 | | 0.1 | 0.1 | % | | | 10/25/20 15:07 | 1 |
| Percent Solids | 75.8 | | 0.1 | 0.1 | % | | | 10/25/20 15:07 | 1 |

## Client Sample ID: SMS0300N

**Date Collected: 10/15/20 15:00**
**Date Received: 10/17/20 09:30**

## Lab Sample ID: 180-112434-5

**Matrix: Sediment**
**Percent Solids: 33.2**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1 | 0.77 | B | 0.074 | 0.0021 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-2 | 0.19 | | 0.074 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-3 | 0.50 | B | 0.074 | 0.0029 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-4 | 3.6 | | 0.15 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-5 | 0.18 | | 0.074 | 0.0089 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-6 | 2.7 | | 0.074 | 0.0078 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-7 | 0.40 | | 0.074 | 0.0080 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-8 | 9.9 | | 0.15 | 0.0072 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-9 | 0.57 | | 0.074 | 0.0082 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-10 | 0.16 | | 0.074 | 0.0088 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-11 | 2.4 | B | 0.15 | 0.0076 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-12 | 1.1 | C | 0.15 | 0.0079 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-13 | 1.1 | C12 | 0.15 | 0.0079 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-14 | ND | | 0.074 | 0.0067 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-15 | 9.3 | | 0.074 | 0.0082 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-16 | 6.2 | | 0.074 | 0.0024 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-17 | 8.8 | | 0.074 | 0.0022 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-18 | 15 | C | 0.15 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-19 | 1.9 | | 0.074 | 0.0026 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-20 | 37 | C B | 0.15 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-21 | 15 | C B | 0.15 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-22 | 12 | | 0.074 | 0.018 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-23 | 0.031 | J | 0.074 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-24 | 0.32 | | 0.074 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-25 | 4.9 | | 0.074 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-26 | 9.4 | C B | 0.15 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-27 | 1.6 | | 0.074 | 0.0016 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-28 | 37 | B C20 | 0.15 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-29 | 9.4 | C26 B | 0.15 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-30 | 15 | C18 | 0.15 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-31 | 27 | B | 0.15 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-32 | 6.6 | B | 0.074 | 0.0015 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-33 | 15 | B C21 | 0.15 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-34 | 0.16 | | 0.074 | 0.018 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-35 | 0.70 | | 0.074 | 0.018 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-36 | ND | | 0.074 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-37 | 14 | | 0.074 | 0.018 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-38 | ND | | 0.074 | 0.018 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-39 | ND | | 0.074 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-40 | 17 | C | 0.22 | 0.040 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-41 | 17 | C40 | 0.22 | 0.040 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-42 | 9.1 | | 0.074 | 0.040 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-43 | 0.89 | C | 0.15 | 0.037 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-44 | 35 | C B | 0.22 | 0.035 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-45 | 6.3 | C | 0.15 | 0.042 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-46 | 1.9 | | 0.074 | 0.050 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-47 | 35 | B C44 | 0.22 | 0.035 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-48 | 4.9 | | 0.074 | 0.039 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-49 | 27 | C | 0.15 | 0.032 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |

**Client Sample ID: SMS0300N**
**Date Collected: 10/15/20 15:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-5**
**Matrix: Sediment**
**Percent Solids: 33.2**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-50 | 5.0 | C | 0.15 | 0.038 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-51 | 6.3 | C45 | 0.15 | 0.042 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-52 | 48 | | 0.074 | 0.039 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-53 | 5.0 | C50 | 0.15 | 0.038 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-54 | 0.20 | | 0.074 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-55 | 0.76 | | 0.074 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-56 | 12 | | 0.074 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-57 | 0.36 | | 0.074 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-58 | 0.22 | | 0.074 | 0.030 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-59 | 2.9 | C | 0.22 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-60 | 5.5 | | 0.074 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-61 | 47 | C | 0.29 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-62 | 2.9 | C59 | 0.22 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-63 | 1.1 | | 0.074 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-64 | 12 | | 0.074 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-65 | 35 | B C44 | 0.22 | 0.035 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-66 | 28 | | 0.074 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-67 | 1.1 | | 0.074 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-68 | 0.35 | | 0.074 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-69 | 27 | C49 | 0.15 | 0.032 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-70 | 47 | C61 | 0.29 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-71 | 17 | C40 | 0.22 | 0.040 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-72 | 0.92 | | 0.074 | 0.029 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-73 | 0.89 | C43 | 0.15 | 0.037 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-74 | 47 | C61 | 0.29 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-75 | 2.9 | C59 | 0.22 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-76 | 47 | C61 | 0.29 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-77 | 3.7 | | 0.074 | 0.028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-78 | ND | | 0.074 | 0.030 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-79 | 0.27 | q | 0.074 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-80 | ND | | 0.074 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-81 | 0.13 | q | 0.074 | 0.027 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-82 | 4.6 | | 0.074 | 0.0031 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-83 | 24 | C | 0.15 | 0.0028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-84 | 14 | | 0.074 | 0.0031 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-85 | 7.0 | C B | 0.22 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-86 | 26 | C | 0.44 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-87 | 26 | C86 | 0.44 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-88 | 8.2 | C | 0.15 | 0.0028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-89 | 0.46 | | 0.074 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-90 | 50 | C B | 0.22 | 0.0024 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-91 | 8.2 | C88 | 0.15 | 0.0028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-92 | 10 | | 0.074 | 0.0027 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-93 | 1.2 | C | 0.15 | 0.0027 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-94 | 0.46 | | 0.074 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-95 | 53 | | 0.074 | 0.0029 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-96 | 0.51 | | 0.074 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-97 | 26 | C86 | 0.44 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-98 | 1.5 | C | 0.15 | 0.0026 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |

**Client Sample ID: SMS0300N**
**Date Collected: 10/15/20 15:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-5**
**Matrix: Sediment**
**Percent Solids: 33.2**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-99 | 24 | C83 | 0.15 | 0.0028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-100 | 1.2 | C93 | 0.15 | 0.0027 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-101 | 50 | B C90 | 0.22 | 0.0024 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-102 | 1.5 | C98 | 0.15 | 0.0026 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-103 | 0.84 | | 0.074 | 0.0027 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-104 | 0.026 | J q | 0.074 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-105 | 13 | | 0.074 | 0.022 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-106 | ND | | 0.074 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-107 | 3.2 | | 0.074 | 0.024 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-108 | 1.4 | C | 0.15 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-109 | 26 | C86 | 0.44 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-110 | 52 | C B | 0.15 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-111 | ND | | 0.074 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-112 | 0.24 | | 0.074 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-113 | 50 | B C90 | 0.22 | 0.0024 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-114 | 0.67 | | 0.074 | 0.022 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-115 | 52 | B C110 | 0.15 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-116 | 7.0 | C85 B | 0.22 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-117 | 7.0 | C85 B | 0.22 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-118 | 36 | | 0.074 | 0.021 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-119 | 26 | C86 | 0.44 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-120 | ND | | 0.074 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-121 | ND | | 0.074 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-122 | 0.57 | | 0.074 | 0.026 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-123 | 0.65 | | 0.074 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-124 | 1.4 | C108 | 0.15 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-125 | 26 | C86 | 0.44 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-126 | 0.36 | | 0.074 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-127 | ND | | 0.074 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-128 | 8.8 | C | 0.15 | 0.048 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-129 | 81 | C B | 0.29 | 0.050 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-130 | 4.5 | | 0.074 | 0.066 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-131 | 0.75 | | 0.074 | 0.069 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-132 | 27 | | 0.074 | 0.065 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-133 | 1.3 | | 0.074 | 0.063 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-134 | 4.0 | C | 0.15 | 0.065 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-135 | 34 | C | 0.15 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-136 | 11 | | 0.074 | 0.0028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-137 | 2.1 | | 0.074 | 0.056 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-138 | 81 | B C129 | 0.29 | 0.050 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-139 | 0.92 | C | 0.15 | 0.056 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-140 | 0.92 | C139 | 0.15 | 0.056 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-141 | 20 | | 0.074 | 0.058 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-142 | ND | | 0.074 | 0.062 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-143 | 4.0 | C134 | 0.15 | 0.065 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-144 | 3.8 | | 0.074 | 0.0036 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-145 | ND | | 0.074 | 0.0027 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-146 | 14 | | 0.074 | 0.055 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-147 | 86 | C B | 0.15 | 0.063 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-1

**Client Sample ID: SMS0300N**
**Date Collected: 10/15/20 15:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-5**
**Matrix: Sediment**
**Percent Solids: 33.2**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-148 | 0.12 | | 0.074 | 0.0038 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-149 | 86 | B C147 | 0.15 | 0.063 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-150 | 0.15 | | 0.074 | 0.0026 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-151 | 34 | C135 | 0.15 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-152 | 0.067 | J | 0.074 | 0.0028 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-153 | 77 | C | 0.15 | 0.044 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-154 | 0.94 | | 0.074 | 0.0031 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-155 | 0.0098 | J q | 0.074 | 0.0026 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-156 | 6.3 | C B | 0.15 | 0.051 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-157 | 6.3 | C156 B | 0.15 | 0.051 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-158 | 7.2 | | 0.074 | 0.039 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-159 | 1.0 | | 0.074 | 0.042 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-160 | 81 | B C129 | 0.29 | 0.050 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-161 | ND | | 0.074 | 0.041 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-162 | 0.25 | q | 0.074 | 0.041 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-163 | 81 | B C129 | 0.29 | 0.050 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-164 | 6.0 | | 0.074 | 0.044 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-165 | ND | | 0.074 | 0.047 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-166 | 8.8 | C128 | 0.15 | 0.048 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-167 | 2.7 | | 0.074 | 0.034 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-168 | 77 | C153 | 0.15 | 0.044 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-169 | ND | | 0.074 | 0.032 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-170 | 32 | | 0.074 | 0.0081 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-171 | 9.5 | C | 0.15 | 0.0077 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-172 | 6.0 | | 0.074 | 0.0077 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-173 | 9.5 | C171 | 0.15 | 0.0077 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-174 | 36 | | 0.074 | 0.0072 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-175 | 1.4 | | 0.074 | 0.0070 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-176 | 4.3 | | 0.074 | 0.0053 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-177 | 19 | | 0.074 | 0.0074 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-178 | 7.4 | | 0.074 | 0.0075 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-179 | 16 | | 0.074 | 0.0056 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-180 | 72 | C | 0.15 | 0.0058 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-181 | ND | | 0.074 | 0.0069 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-182 | 0.19 | | 0.074 | 0.0067 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-183 | 24 | C | 0.15 | 0.0068 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-184 | ND | | 0.074 | 0.0057 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-185 | 24 | C183 | 0.15 | 0.0068 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-186 | ND | | 0.074 | 0.0055 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-187 | 42 | | 0.074 | 0.0065 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-188 | 0.045 | J q | 0.074 | 0.0049 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-189 | 1.0 | | 0.074 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-190 | 5.6 | | 0.074 | 0.0050 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-191 | 1.3 | | 0.074 | 0.0052 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-192 | ND | | 0.074 | 0.0058 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-193 | 72 | C180 | 0.15 | 0.0058 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-194 | 16 | | 0.074 | 0.023 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-195 | 6.8 | | 0.074 | 0.025 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-196 | 8.0 | | 0.074 | 0.0087 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |

**Client Sample ID: SMS0300N**
**Date Collected: 10/15/20 15:00**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-5**
**Matrix: Sediment**
**Percent Solids: 33.2**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-197 | 0.49 | q | 0.074 | 0.0067 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-198 | 18 | C | 0.15 | 0.0089 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-199 | 18 | C198 | 0.15 | 0.0089 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-200 | 1.9 | | 0.074 | 0.0059 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-201 | 1.9 | | 0.074 | 0.0061 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-202 | 3.0 | | 0.074 | 0.0068 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-203 | 9.8 | | 0.074 | 0.0079 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-204 | ND | | 0.074 | 0.0067 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-205 | 0.82 | | 0.074 | 0.019 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-206 | 5.3 | | 0.074 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-207 | 0.59 | | 0.074 | 0.0081 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-208 | 1.3 | | 0.074 | 0.0080 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| PCB-209 | 0.94 | | 0.074 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| Total Monochlorobiphenyls | 1.5 | B | 0.074 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| Total Dichlorobiphenyls | 30 | B | 0.15 | 0.0082 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| Total Trichlorobiphenyls | 160 | B | 0.15 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| Total Tetrachlorobiphenyls | 270 | B q | 0.29 | 0.031 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| Total Pentachlorobiphenyls | 310 | B q | 0.44 | 0.0091 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| Total Hexachlorobiphenyls | 400 | B q | 0.29 | 0.038 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| Total Heptachlorobiphenyls | 280 | q | 0.15 | 0.0068 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| Total Octachlorobiphenyls | 67 | q | 0.15 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| Total Nonachlorobiphenyls | 7.2 | | 0.074 | 0.0094 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |
| Polychlorinated biphenyls, Total | 1500 | B q | 0.44 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/04/20 03:11 | 1 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *67* | | *5 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-3L* | *68* | | *5 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-4L* | *74* | | *5 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-15L* | *80* | | *5 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-19L* | *89* | | *5 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-37L* | *79* | | *5 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-54L* | *92* | | *5 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-77L* | *76* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-81L* | *76* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-104L* | *83* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-105L* | *85* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-114L* | *86* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-118L* | *86* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-123L* | *85* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-126L* | *83* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-155L* | *84* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-156L* | *83* | *C* | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-157L* | *83* | *C156* | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-167L* | *84* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-169L* | *86* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-170L* | *80* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-188L* | *89* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-189L* | *80* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-202L* | *92* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-205L* | *71* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |

## Client Sample ID: SMS0300N
**Date Collected: 10/15/20 15:00**
**Date Received: 10/17/20 09:30**

## Lab Sample ID: 180-112434-5
**Matrix: Sediment**
**Percent Solids: 33.2**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-206L* | *76* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-208L* | *79* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-209L* | *76* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *84* | | *5 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-111L* | *83* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |
| *PCB-178L* | *92* | | *10 - 145* | *10/23/20 04:33* | *11/04/20 03:11* | *1* |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 66.8 | | 0.1 | 0.1 | % | | | 10/25/20 15:07 | 1 |
| Total Organic Carbon - Duplicates | 75000 | | 3000 | 2200 | mg/Kg | ☼ | | 10/27/20 17:03 | 1 |

### Method: D422 - Grain Size

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Sieve Size 3 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size 2 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size 1.5 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size 1 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size 0.75 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size 0.375 inch - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size #4 - Percent Finer | 100.0 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size #10 - Percent Finer | 97.8 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size #20 - Percent Finer | 95.6 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size #40 - Percent Finer | 91.5 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size #60 - Percent Finer | 87.1 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size #80 - Percent Finer | 83.4 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size #100 - Percent Finer | 79.5 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Sieve Size #200 - Percent Finer | 66.9 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Hydrometer Reading 1 - Percent Finer | 39.4 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Hydrometer Reading 2 - Percent Finer | 29.9 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Hydrometer Reading 3 - Percent Finer | 25.1 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Hydrometer Reading 4 - Percent Finer | 20.4 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Hydrometer Reading 5 - Percent Finer | 15.6 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Hydrometer Reading 6 - Percent Finer | 10.9 | | | | % Passing | | | 10/22/20 22:05 | 1 |
| Hydrometer Reading 7 - Percent Finer | 7.3 | | | | % Passing | | | 10/22/20 22:05 | 1 |

## Client Sample ID: 0FS0400N
**Date Collected: 10/15/20 15:15**
**Date Received: 10/17/20 09:30**

## Lab Sample ID: 180-112434-6
**Matrix: Sediment**
**Percent Solids: 71.2**

### Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 190 | 54 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| **Acenaphthylene** | **44** | **J** | 190 | 41 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| Anthracene | ND | | 190 | 48 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| **Benzo[a]anthracene** | **99** | **J** | 190 | 84 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| **Benzo[b]fluoranthene** | **120** | **J** | 190 | 46 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| Benzo[k]fluoranthene | ND | | 190 | 56 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| **Benzo[g,h,i]perylene** | **150** | **J** | 190 | 40 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| **Benzo[a]pyrene** | **84** | **J** | 190 | 81 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| **Chrysene** | **110** | **J** | 190 | 100 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| Dibenz(a,h)anthracene | ND | | 190 | 120 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| **Fluoranthene** | **120** | **J** | 190 | 49 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| Fluorene | ND | | 190 | 37 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| **Indeno[1,2,3-cd]pyrene** | **98** | **J** | 190 | 93 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| Naphthalene | ND | | 190 | 36 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| **Phenanthrene** | **50** | **J** | 190 | 50 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |
| **Pyrene** | **100** | **J** | 190 | 44 | ug/Kg | ☼ | 10/23/20 12:09 | 10/24/20 16:47 | 40 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *0* | *D X* | *37 - 107* | *10/23/20 12:09* | *10/24/20 16:47* | *40* |
| *Nitrobenzene-d5 (Surr)* | *0* | *D X* | *41 - 112* | *10/23/20 12:09* | *10/24/20 16:47* | *40* |
| *Terphenyl-d14 (Surr)* | *0* | *D X* | *32 - 115* | *10/23/20 12:09* | *10/24/20 16:47* | *40* |

### Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **DRO C10-C20** | **35** | **J** | 76 | 35 | mg/Kg | ☼ | 10/26/20 13:07 | 10/28/20 10:32 | 2 |
| **Oil Range Organics (C20-C36)** | **540** | | 76 | 35 | mg/Kg | ☼ | 10/26/20 13:07 | 10/28/20 10:32 | 2 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl (Surr)* | *86* | | *39 - 120* | *10/26/20 13:07* | *10/28/20 10:32* | *2* |

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.047** | **J B** | 0.069 | 0.00093 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-2 | ND | | 0.069 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-3** | **0.043** | **J B q** | 0.069 | 0.0012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-4** | **0.067** | **J q** | 0.14 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-5 | ND | | 0.069 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-6** | **0.063** | **J q** | 0.069 | 0.0089 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-7** | **0.015** | **J q** | 0.069 | 0.0091 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-8** | **0.37** | | 0.14 | 0.0082 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-9 | ND | | 0.069 | 0.0094 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-10 | ND | | 0.069 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-11** | **0.24** | **B** | 0.14 | 0.0087 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-12** | **0.056** | **J C** | 0.14 | 0.0090 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-13** | **0.056** | **J C12** | 0.14 | 0.0090 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-14 | ND | | 0.069 | 0.0077 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-15** | **0.58** | | 0.069 | 0.0094 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-16** | **0.076** | | 0.069 | 0.0027 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-17** | **0.073** | **q** | 0.069 | 0.0024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-18** | **0.17** | **C q** | 0.14 | 0.0021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-1

**Client Sample ID: 0FS0400N**
**Date Collected: 10/15/20 15:15**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-6**
**Matrix: Sediment**
**Percent Solids: 71.2**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | 0.017 | J | 0.069 | 0.0029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-20 | 1.1 | C B | 0.14 | 0.0038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-21 | 0.43 | C B | 0.14 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-22 | 0.34 | | 0.069 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-23 | ND | | 0.069 | 0.0038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-24 | 0.0044 | J | 0.069 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-25 | 0.063 | J | 0.069 | 0.0035 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-26 | 0.12 | J C B | 0.14 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-27 | 0.015 | J q | 0.069 | 0.0017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-28 | 1.1 | B C20 | 0.14 | 0.0038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-29 | 0.12 | J C26 B | 0.14 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-30 | 0.17 | C18 q | 0.14 | 0.0021 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-31 | 0.75 | B | 0.14 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-32 | 0.093 | B q | 0.069 | 0.0017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-33 | 0.43 | B C21 | 0.14 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-34 | ND | | 0.069 | 0.0040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-35 | 0.022 | J | 0.069 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-36 | ND | | 0.069 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-37 | 0.65 | | 0.069 | 0.0039 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-38 | ND | | 0.069 | 0.0040 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-39 | ND | | 0.069 | 0.0036 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-40 | 0.32 | C | 0.21 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-41 | 0.32 | C40 | 0.21 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-42 | 0.13 | | 0.069 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-43 | ND | C | 0.14 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-44 | 0.66 | C B | 0.21 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-45 | 0.10 | J C | 0.14 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-46 | 0.024 | J q | 0.069 | 0.019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-47 | 0.66 | B C44 | 0.21 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-48 | 0.062 | J | 0.069 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-49 | 0.36 | C | 0.14 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-50 | 0.076 | J C | 0.14 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-51 | 0.10 | J C45 | 0.14 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-52 | 1.2 | | 0.069 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-53 | 0.076 | J C50 | 0.14 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-54 | ND | | 0.069 | 0.00058 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-55 | 0.029 | J | 0.069 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-56 | 0.47 | | 0.069 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-57 | ND | | 0.069 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-58 | ND | | 0.069 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-59 | 0.076 | J C | 0.21 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-60 | 0.25 | | 0.069 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-61 | 1.8 | C | 0.28 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-62 | 0.076 | J C59 | 0.21 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-63 | 0.017 | J q | 0.069 | 0.0099 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-64 | 0.41 | | 0.069 | 0.0098 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-65 | 0.66 | B C44 | 0.21 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-66 | 1.0 | | 0.069 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-67 | 0.020 | J | 0.069 | 0.0093 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |

**Client Sample ID: 0FS0400N**
**Date Collected: 10/15/20 15:15**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-6**
**Matrix: Sediment**
**Percent Solids: 71.2**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | ND | | 0.069 | 0.0095 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-69** | **0.36** | **C49** | 0.14 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-70** | **1.8** | **C61** | 0.28 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-71** | **0.32** | **C40** | 0.21 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-72 | ND | | 0.069 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-73 | ND | C43 | 0.14 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-74** | **1.8** | **C61** | 0.28 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-75** | **0.076** | **J C59** | 0.21 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-76** | **1.8** | **C61** | 0.28 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-77** | **0.23** | | 0.069 | 0.0098 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-78 | ND | | 0.069 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-79** | **0.014** | **J q** | 0.069 | 0.0095 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-80 | ND | | 0.069 | 0.0093 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-81 | ND | | 0.069 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-82** | **0.46** | | 0.069 | 0.0015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-83** | **1.7** | **C** | 0.14 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-84** | **1.1** | | 0.069 | 0.0015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-85** | **0.67** | **C B** | 0.21 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-86** | **2.3** | **C** | 0.41 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-87** | **2.3** | **C86** | 0.41 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-88** | **0.77** | **C** | 0.14 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-89** | **0.024** | **J q** | 0.069 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-90** | **3.8** | **C B** | 0.21 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-91** | **0.77** | **C88** | 0.14 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-92** | **0.76** | | 0.069 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-93** | **0.029** | **J C q** | 0.14 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-94** | **0.016** | **J q** | 0.069 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-95** | **5.3** | | 0.069 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-96** | **0.027** | **J** | 0.069 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-97** | **2.3** | **C86** | 0.41 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-98** | **0.10** | **J C** | 0.14 | 0.0012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-99** | **1.7** | **C83** | 0.14 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-100** | **0.029** | **J C93 q** | 0.14 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-101** | **3.8** | **B C90** | 0.21 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-102** | **0.10** | **J C98** | 0.14 | 0.0012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-103** | **0.015** | **J q** | 0.069 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-104 | ND | | 0.069 | 0.00096 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-105** | **1.3** | | 0.069 | 0.0078 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-106 | ND | | 0.069 | 0.0079 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-107** | **0.23** | **q** | 0.069 | 0.0085 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-108** | **0.15** | **C** | 0.14 | 0.0081 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-109** | **2.3** | **C86** | 0.41 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-110** | **7.8** | **C B** | 0.14 | 0.00092 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-111 | ND | | 0.069 | 0.00089 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-112** | **0.0094** | **J q** | 0.069 | 0.00094 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-113** | **3.8** | **B C90** | 0.21 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-114** | **0.058** | **J q** | 0.069 | 0.0075 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-115** | **7.8** | **B C110** | 0.14 | 0.00092 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| **PCB-116** | **0.67** | **C85 B** | 0.21 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |

**Client Sample ID: 0FS0400N**
**Date Collected: 10/15/20 15:15**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-6**
**Matrix: Sediment**
**Percent Solids: 71.2**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-117 | 0.67 | C85 B | 0.21 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-118 | 3.0 | | 0.069 | 0.0074 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-119 | 2.3 | C86 | 0.41 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-120 | 0.010 | J q | 0.069 | 0.00090 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-121 | ND | | 0.069 | 0.00093 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-122 | 0.038 | J q | 0.069 | 0.0091 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-123 | 0.042 | J q | 0.069 | 0.0078 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-124 | 0.15 | C108 | 0.14 | 0.0081 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-125 | 2.3 | C86 | 0.41 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-126 | 0.021 | J q | 0.069 | 0.0082 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-127 | ND | | 0.069 | 0.0079 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-128 | 1.6 | C | 0.14 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-129 | 12 | C B | 0.28 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-130 | 0.71 | | 0.069 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-131 | 0.12 | q | 0.069 | 0.018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-132 | 4.2 | | 0.069 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-133 | 0.13 | q | 0.069 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-134 | 0.67 | C | 0.14 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-135 | 5.8 | C | 0.14 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-136 | 1.8 | | 0.069 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-137 | 0.40 | | 0.069 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-138 | 12 | B C129 | 0.28 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-139 | 0.14 | C | 0.14 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-140 | 0.14 | C139 | 0.14 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-141 | 2.4 | | 0.069 | 0.015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-142 | ND | | 0.069 | 0.016 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-143 | 0.67 | C134 | 0.14 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-144 | 0.67 | | 0.069 | 0.0018 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-145 | 0.0079 | J q | 0.069 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-146 | 1.7 | | 0.069 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-147 | 13 | C B | 0.14 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-148 | ND | | 0.069 | 0.0019 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-149 | 13 | B C147 | 0.14 | 0.017 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-150 | 0.0086 | J q | 0.069 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-151 | 5.8 | C135 | 0.14 | 0.0020 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-152 | ND | | 0.069 | 0.0014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-153 | 8.4 | C | 0.14 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-154 | 0.056 | J q | 0.069 | 0.0015 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-155 | ND | | 0.069 | 0.0013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-156 | 0.84 | C B | 0.14 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-157 | 0.84 | C156 B | 0.14 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-158 | 1.1 | | 0.069 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-159 | 0.14 | | 0.069 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-160 | 12 | B C129 | 0.28 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-161 | ND | | 0.069 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-162 | 0.029 | J q | 0.069 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-163 | 12 | B C129 | 0.28 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-164 | 0.99 | | 0.069 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-165 | ND | | 0.069 | 0.012 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-1

**Client Sample ID: 0FS0400N**
**Date Collected: 10/15/20 15:15**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-6**
**Matrix: Sediment**
**Percent Solids: 71.2**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 1.6 | C128 | 0.14 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-167 | 0.37 | | 0.069 | 0.0087 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-168 | 8.4 | C153 | 0.14 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-169 | ND | | 0.069 | 0.0081 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-170 | 4.5 | | 0.069 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-171 | 1.3 | C | 0.14 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-172 | 0.82 | | 0.069 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-173 | 1.3 | C171 | 0.14 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-174 | 5.3 | | 0.069 | 0.0031 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-175 | 0.18 | | 0.069 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-176 | 0.57 | | 0.069 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-177 | 2.8 | | 0.069 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-178 | 1.0 | | 0.069 | 0.0033 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-179 | 2.2 | | 0.069 | 0.0024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-180 | 11 | C | 0.14 | 0.0026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-181 | ND | | 0.069 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-182 | ND | | 0.069 | 0.0029 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-183 | 3.4 | C | 0.14 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-184 | ND | | 0.069 | 0.0025 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-185 | 3.4 | C183 | 0.14 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-186 | ND | | 0.069 | 0.0024 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-187 | 6.1 | | 0.069 | 0.0028 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-188 | ND | | 0.069 | 0.0022 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-189 | 0.13 | | 0.069 | 0.0075 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-190 | 0.81 | | 0.069 | 0.0022 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-191 | 0.17 | | 0.069 | 0.0023 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-192 | ND | | 0.069 | 0.0026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-193 | 11 | C180 | 0.14 | 0.0026 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-194 | 2.2 | | 0.069 | 0.013 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-195 | 0.91 | | 0.069 | 0.014 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-196 | 1.1 | | 0.069 | 0.0055 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-197 | 0.046 | J q | 0.069 | 0.0042 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-198 | 2.5 | C | 0.14 | 0.0056 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-199 | 2.5 | C198 | 0.14 | 0.0056 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-200 | 0.27 | | 0.069 | 0.0037 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-201 | 0.23 | | 0.069 | 0.0038 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-202 | 0.40 | | 0.069 | 0.0043 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-203 | 1.4 | | 0.069 | 0.0050 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-204 | ND | | 0.069 | 0.0042 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-205 | 0.11 | | 0.069 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-206 | 0.67 | | 0.069 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-207 | 0.063 | J | 0.069 | 0.0082 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-208 | 0.14 | | 0.069 | 0.0087 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| PCB-209 | 0.25 | | 0.069 | 0.0072 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| Total Monochlorobiphenyls | 0.090 | B q | 0.069 | 0.0011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| Total Dichlorobiphenyls | 1.4 | B q | 0.14 | 0.0094 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| Total Trichlorobiphenyls | 3.9 | B q | 0.14 | 0.0032 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| Total Tetrachlorobiphenyls | 7.2 | B q | 0.28 | 0.011 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| Total Pentachlorobiphenyls | 30 | B q | 0.41 | 0.0034 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |

**Client Sample ID: 0FS0400N**
**Date Collected: 10/15/20 15:15**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-6**
**Matrix: Sediment**
**Percent Solids: 71.2**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Hexachlorobiphenyls | 57 | B q | 0.28 | 0.010 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| Total Heptachlorobiphenyls | 40 | | 0.14 | 0.0030 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| Total Octachlorobiphenyls | 9.2 | q | 0.14 | 0.0067 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| Total Nonachlorobiphenyls | 0.87 | | 0.069 | 0.0093 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |
| Polychlorinated biphenyls, Total | 150 | B q | 0.41 | 0.0071 | ng/g | ☼ | 10/23/20 04:33 | 11/03/20 07:31 | 10 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *69* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-3L* | *70* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-4L* | *74* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-15L* | *80* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-19L* | *93* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-37L* | *79* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-54L* | *87* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-77L* | *78* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-81L* | *75* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-104L* | *75* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-105L* | *79* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-114L* | *78* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-118L* | *78* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-123L* | *77* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-126L* | *78* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-155L* | *81* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-156L* | *80* | *C* | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-157L* | *80* | *C156* | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-167L* | *83* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-169L* | *83* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-170L* | *81* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-188L* | *81* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-189L* | *72* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-202L* | *89* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-205L* | *66* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-206L* | *71* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-208L* | *73* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-209L* | *72* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *83* | | *5 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-111L* | *86* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |
| *PCB-178L* | *88* | | *10 - 145* | *10/23/20 04:33* | *11/03/20 07:31* | *10* |

## Method: 8290A - Dioxins and Furans (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 2,3,7,8-TCDD | 1.3 | | 0.68 | 0.13 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| Total TCDD | 35 | I | 0.68 | 0.13 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 1,2,3,7,8-PeCDD | 6.9 | | 3.4 | 0.64 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| Total PeCDD | 190 | I | 3.4 | 0.64 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 1,2,3,4,7,8-HxCDD | 8.6 | B | 3.4 | 0.24 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 1,2,3,6,7,8-HxCDD | 14 | | 3.4 | 0.24 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 1,2,3,7,8,9-HxCDD | 22 | | 3.4 | 0.23 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| Total HxCDD | 170 | B | 3.4 | 0.24 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |

## Client Sample ID: 0FS0400N
**Date Collected: 10/15/20 15:15**
**Date Received: 10/17/20 09:30**

## Lab Sample ID: 180-112434-6
**Matrix: Sediment**
**Percent Solids: 71.2**

### Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2,3,4,6,7,8-HpCDD | 190 | | 3.4 | 0.16 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| Total HpCDD | 430 | | 3.4 | 0.16 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| OCDD | 3700 | E B | 6.8 | 0.21 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 2,3,7,8-TCDF | 2.4 | | 0.68 | 0.47 | pg/g | ☼ | 10/23/20 08:34 | 11/05/20 08:19 | 1 |
| Total TCDF | 110 | I | 0.68 | 0.11 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 1,2,3,7,8-PeCDF | 3.4 | | 3.4 | 0.15 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 2,3,4,7,8-PeCDF | 5.6 | | 3.4 | 0.14 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| Total PeCDF | 110 | I | 3.4 | 0.14 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 1,2,3,4,7,8-HxCDF | 11 | | 3.4 | 0.32 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 1,2,3,6,7,8-HxCDF | 6.9 | I | 3.4 | 0.34 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 2,3,4,6,7,8-HxCDF | 6.8 | | 3.4 | 0.39 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 1,2,3,7,8,9-HxCDF | 0.59 | J | 3.4 | 0.39 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| Total HxCDF | 89 | I | 3.4 | 0.36 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 1,2,3,4,6,7,8-HpCDF | 29 | B | 3.4 | 0.13 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| 1,2,3,4,7,8,9-HpCDF | 3.6 | | 3.4 | 0.15 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| Total HpCDF | 65 | I B | 3.4 | 0.14 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |
| OCDF | 46 | B | 6.8 | 0.21 | pg/g | ☼ | 10/23/20 08:34 | 11/04/20 17:48 | 1 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *13C-2,3,7,8-TCDD* | *46* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-1,2,3,7,8-PeCDD* | *42* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-1,2,3,4,7,8-HxCDD* | *35* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-1,2,3,6,7,8-HxCDD* | *37* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-1,2,3,4,6,7,8-HpCDD* | *39* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-OCDD* | *32* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-2,3,7,8-TCDF* | *42* | | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-2,3,7,8-TCDF* | *41* | | *40 - 135* | *10/23/20 08:34* | *11/05/20 08:19* | *1* |
| *13C-1,2,3,7,8-PeCDF* | *39* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-2,3,4,7,8-PeCDF* | *37* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-1,2,3,4,7,8-HxCDF* | *38* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-1,2,3,6,7,8-HxCDF* | *33* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-2,3,4,6,7,8-HxCDF* | *32* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-1,2,3,7,8,9-HxCDF* | *37* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-1,2,3,4,6,7,8-HpCDF* | *35* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-1,2,3,4,7,8,9-HpCDF* | *38* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |
| *13C-OCDF* | *37* | *5 | *40 - 135* | *10/23/20 08:34* | *11/04/20 17:48* | *1* |

### Method: EPA 6020A - Metals (ICP/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 3900 | ^ | 4.1 | 4.0 | mg/Kg | ☼ | 10/29/20 08:20 | 11/05/20 11:04 | 1 |
| Arsenic | 7.6 | | 0.069 | 0.022 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Barium | 41 | | 0.69 | 0.089 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Antimony | 0.44 | | 0.14 | 0.030 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Beryllium | 0.46 | | 0.069 | 0.050 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Cadmium | 0.60 | | 0.069 | 0.012 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Calcium | 4600 | B | 35 | 5.3 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Chromium | 21 | | 0.14 | 0.058 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Cobalt | 7.8 | | 0.035 | 0.0090 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Copper | 55 | | 0.21 | 0.14 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Magnesium | 3100 | | 35 | 11 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |

Client: AECOM
Job ID: 180-112434-1
Project/Site: Pepco Benning Road Facility

**Client Sample ID: 0FS0400N**
**Lab Sample ID: 180-112434-6**
**Date Collected: 10/15/20 15:15**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**
**Percent Solids: 71.2**

### Method: EPA 6020A - Metals (ICP/MS) (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Manganese | 300 | | 0.35 | 0.30 | mg/Kg | ☼ | 10/29/20 08:20 | 11/03/20 18:33 | 1 |
| Iron | 30000 | | 3.5 | 3.3 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Lead | 35 | | 0.069 | 0.069 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Potassium | 520 | | 35 | 28 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Nickel | 29 | B | 0.069 | 0.065 | mg/Kg | ☼ | 10/29/20 08:20 | 11/03/20 18:33 | 1 |
| Selenium | 0.33 | J | 0.35 | 0.084 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Sodium | 77 | | 35 | 14 | mg/Kg | ☼ | 10/29/20 08:20 | 11/04/20 19:07 | 1 |
| Silver | 0.24 | | 0.069 | 0.019 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Thallium | 0.13 | | 0.069 | 0.048 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Vanadium | 75 | | 0.069 | 0.065 | mg/Kg | ☼ | 10/29/20 08:20 | 11/02/20 19:13 | 1 |
| Zinc | 1200 | | 0.35 | 0.33 | mg/Kg | ☼ | 10/29/20 08:20 | 11/03/20 18:33 | 1 |

### Method: EPA 7471B - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.084 | B | 0.019 | 0.012 | mg/Kg | ☼ | 10/21/20 08:22 | 10/22/20 13:57 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 28.8 | | 0.1 | 0.1 | % | | | 10/25/20 15:07 | 1 |
| Percent Solids | 71.2 | | 0.1 | 0.1 | % | | | 10/25/20 15:07 | 1 |

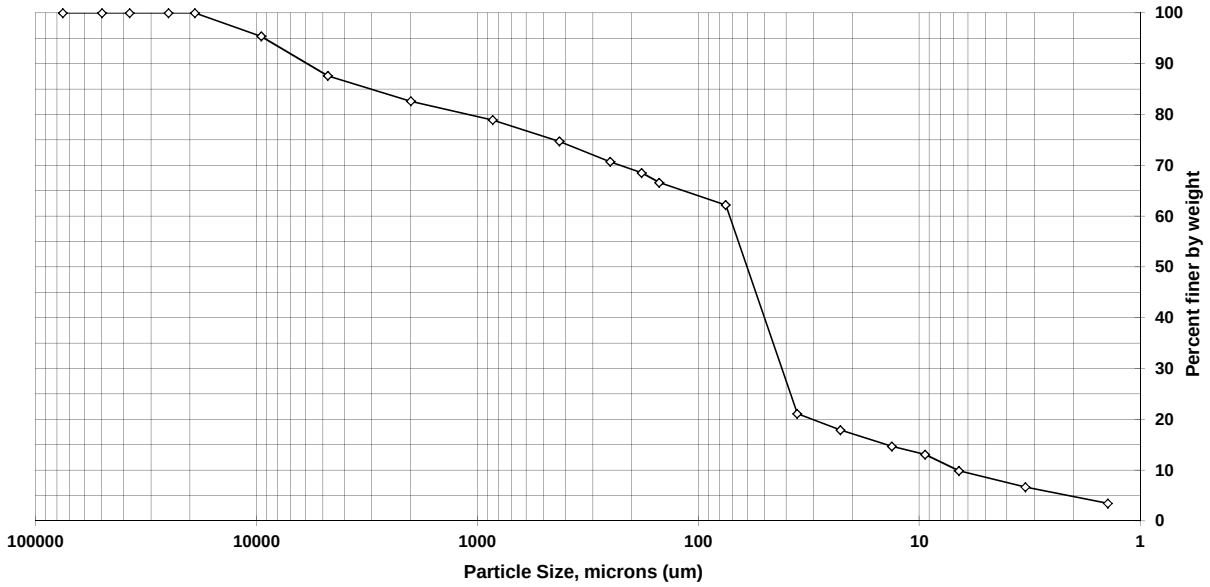
# Particle Size of Soils by ASTM D422

| | | | | | |
|---|---|---|---|---|---|
| **Sample ID:** | SMS0100N | **Percent Solids:** | 28.5% | **Date Received:** | 10/17/2020 |
| **Lab ID:** | 180-112434-A-1 | **Specific Gravity:** | 2.650 | **Start Date:** | 10/22/2020 |
| | | | | **End Date:** | 10/28/2020 |

**Shape (> #10):** na

**Non-soil material:** plant

**Hardness (> #10):** na




| Sieve size | Particle size, um | Percent finer | Incremental percent |
|---|---|---|---|
| 3 inch | 75000 | 100.0 | 0.0 |
| 2 inch | 50000 | 100.0 | 0.0 |
| 1.5 inch | 37500 | 100.0 | 0.0 |
| 1 inch | 25000 | 100.0 | 0.0 |
| 3/4 inch | 19000 | 100.0 | 0.0 |
| 3/8 inch | 9500 | 95.4 | 4.6 |
| #4 | 4750 | 87.6 | 7.8 |
| #10 | 2000 | 82.6 | 5.0 |
| #20 | 850 | 78.9 | 3.7 |
| #40 | 425 | 74.7 | 4.2 |
| #60 | 250 | 70.7 | 4.0 |
| #80 | 180 | 68.5 | 2.2 |
| #100 | 150 | 66.6 | 1.9 |
| #200 | 75 | 62.2 | 4.4 |
| Hyd1 | 35.6 | 21.1 | 41.1 |
| Hyd2 | 22.7 | 17.9 | 3.2 |
| Hyd3 | 13.3 | 14.7 | 3.2 |
| Hyd4 | 9.4 | 13.1 | 1.6 |
| Hyd5 | 6.6 | 9.9 | 3.2 |
| Hyd6 | 3.3 | 6.7 | 3.2 |
| Hyd7 | 1.4 | 3.5 | 3.2 |
| | | | |

| Soil Classification | Percent of sample |
|---|---|
| Gravel | 12.4 |
| Sand | 25.4 |
| Coarse Sand | 5.0 |
| Medium Sand | 7.9 |
| Fine Sand | 12.5 |
| Silt | 52.3 |
| Clay | 9.9 |
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# Particle Size of Soils by ASTM D422

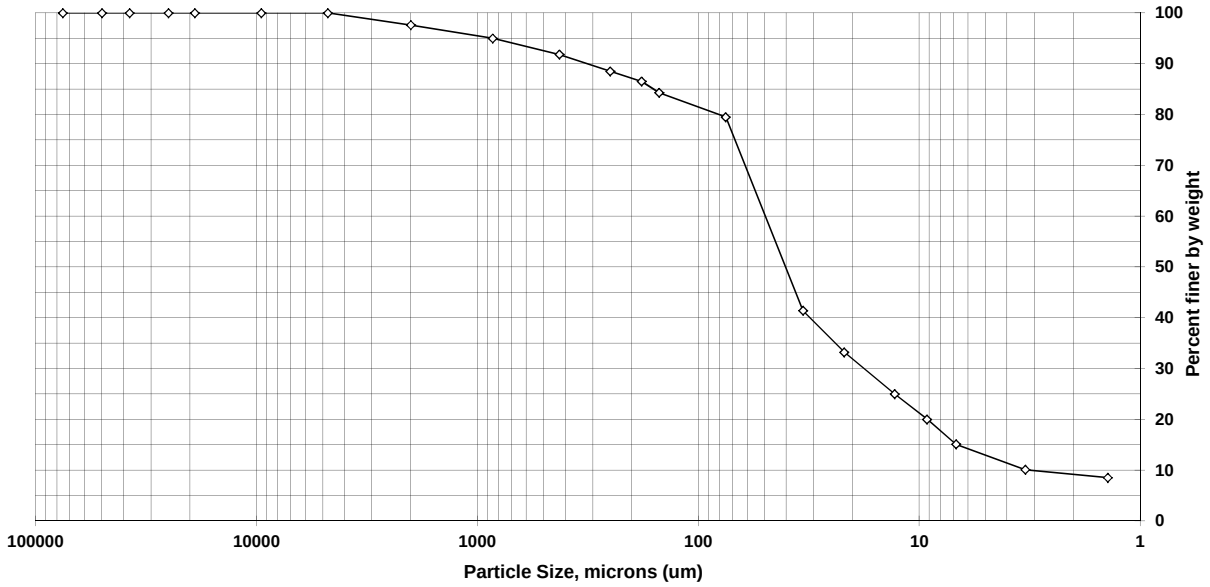
**Sample ID:** SMS0200N
**Lab ID:** 180-112434-A-3

**Percent Solids:** 28.0%
**Specific Gravity:** 2.650

**Date Received:** 10/17/2020
**Start Date:** 10/22/2020
**End Date:** 10/28/2020

**Shape (> #10):** na

**Non-soil material:** plant
**Hardness (> #10):** na




| Sieve size | Particle size, um | Percent finer | Incremental percent |
|---|---|---|---|
| 3 inch | 75000 | 100.0 | 0.0 |
| 2 inch | 50000 | 100.0 | 0.0 |
| 1.5 inch | 37500 | 100.0 | 0.0 |
| 1 inch | 25000 | 100.0 | 0.0 |
| 3/4 inch | 19000 | 100.0 | 0.0 |
| 3/8 inch | 9500 | 100.0 | 0.0 |
| #4 | 4750 | 100.0 | 0.0 |
| #10 | 2000 | 97.6 | 2.4 |
| #20 | 850 | 95.0 | 2.6 |
| #40 | 425 | 91.8 | 3.2 |
| #60 | 250 | 88.5 | 3.3 |
| #80 | 180 | 86.5 | 2.0 |
| #100 | 150 | 84.3 | 2.2 |
| #200 | 75 | 79.5 | 4.8 |
| Hyd1 | 33.5 | 41.4 | 38.1 |
| Hyd2 | 21.8 | 33.2 | 8.2 |
| Hyd3 | 12.9 | 25.0 | 8.2 |
| Hyd4 | 9.2 | 20.0 | 5.0 |
| Hyd5 | 6.8 | 15.1 | 4.9 |
| Hyd6 | 3.3 | 10.1 | 5.0 |
| Hyd7 | 1.4 | 8.5 | 1.6 |
| | | | |

| Soil Classification | Percent of sample |
|---|---|
| Gravel | 0.0 |
| Sand | 20.5 |
| Coarse Sand | 2.4 |
| Medium Sand | 5.8 |
| Fine Sand | 12.3 |
| Silt | 64.4 |
| Clay | 15.1 |
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# Particle Size of Soils by ASTM D422

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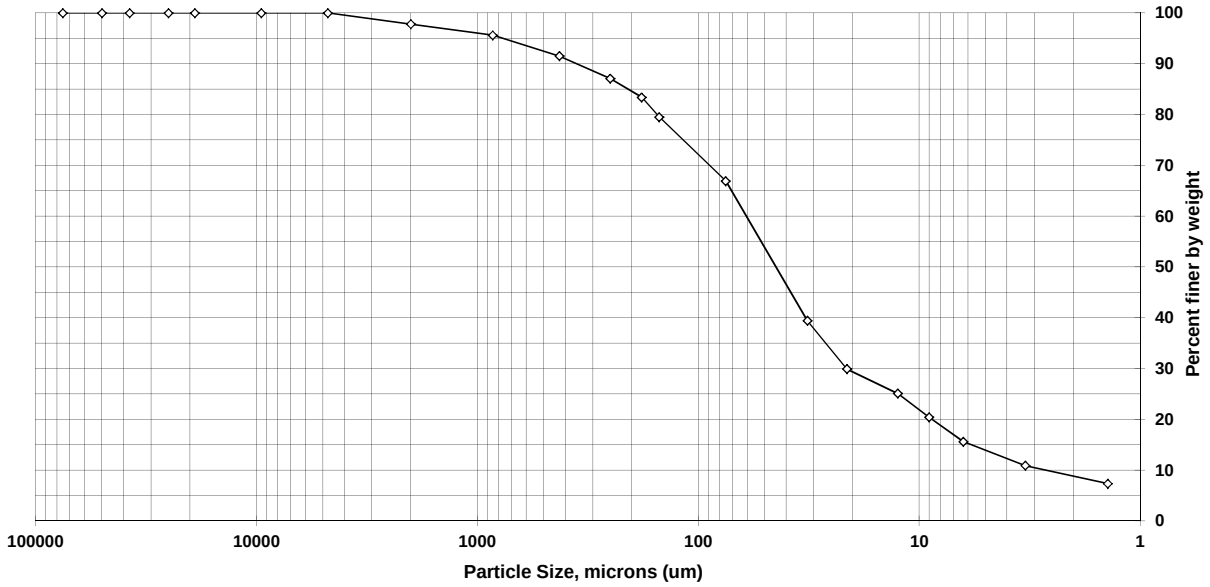
|---|---|---|---|---|---|
| **Sample ID:** | SMS0300N | **Percent Solids:** | 37.0% | **Date Received:** | 10/17/2020 |
| **Lab ID:** | 180-112434-A-5 | **Specific Gravity:** | 2.650 | **Start Date:** | 10/22/2020 |
| | | | | **End Date:** | 10/28/2020 |

**Shape (> #10):** na

**Non-soil material:** plant

**Hardness (> #10):** na




| Sieve size | Particle size, um | Percent finer | Incremental percent |
|---|---|---|---|
| 3 inch | 75000 | 100.0 | 0.0 |
| 2 inch | 50000 | 100.0 | 0.0 |
| 1.5 inch | 37500 | 100.0 | 0.0 |
| 1 inch | 25000 | 100.0 | 0.0 |
| 3/4 inch | 19000 | 100.0 | 0.0 |
| 3/8 inch | 9500 | 100.0 | 0.0 |
| #4 | 4750 | 100.0 | 0.0 |
| #10 | 2000 | 97.8 | 2.2 |
| #20 | 850 | 95.6 | 2.2 |
| #40 | 425 | 91.5 | 4.1 |
| #60 | 250 | 87.1 | 4.4 |
| #80 | 180 | 83.4 | 3.7 |
| #100 | 150 | 79.5 | 3.9 |
| #200 | 75 | 66.9 | 12.6 |
| Hyd1 | 32 | 39.4 | 27.5 |
| Hyd2 | 21.2 | 29.9 | 9.5 |
| Hyd3 | 12.5 | 25.1 | 4.8 |
| Hyd4 | 9 | 20.4 | 4.7 |
| Hyd5 | 6.3 | 15.6 | 4.8 |
| Hyd6 | 3.3 | 10.9 | 4.7 |
| Hyd7 | 1.4 | 7.3 | 3.6 |
| | | | |

| Soil Classification | Percent of sample |
|---|---|
| Gravel | 0.0 |
| Sand | 33.1 |
| Coarse Sand | 2.2 |
| Medium Sand | 6.3 |
| Fine Sand | 24.6 |
| Silt | 51.3 |
| Clay | 15.6 |
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**Sediment Grain Size - D422**

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|---|---|
| Client | |
| Client Sample ID | SMS0100N |
| Lab Sample ID | 180-112434-A-1 |

| | |
|---|---|
| Date Received | 10/17/2020 |
| Start Date | 10/22/2020 22:01 |
| End Date | 10/28/2020 12:27 |

**Dry Weight Determination**

| | | |
|---|---|---|
| Tin Weight | 1.03 | g |
| Wet Sample + Tin | 27.88 | g |
| Dry Sample + Tin | 8.69 | g |
| % Moisture | 71.47 | % |

| | |
|---|---|
| Non-soil material: | plant |
| Shape (> #10): | na |
| Hardness (> #10): | na |

| | |
|---|---|
| Date/Time in oven | 10/22/2020 22:02 |
| Date/Time out of oven | 10/23/2020 15:44 |

| Sample Weights | Tare (g) | Pan+Samp (g) | Samp (g) |
|---|---|---|---|
| Sample Weight (Wet) | 47.85 | 223.65 | 175.8 |
| Sample Weight (Oven Dried) | | | 50.2 |

| Sample Split (oven dried) | Tare (g) | Pan+Samp (g) | Samp (g) |
|---|---|---|---|
| Sample >=#10 | | | 8.78 |
| Sample <#10 | | | 41.4 |
| % Passing #10 | | | 23.5 |

**Hydrometer Data**

| | |
|---|---|
| Serial Number | 542321 |
| Calib. Date (mm/dd/yyyy) | 12/18/2019 |
| Low Temp (C) | 17.0 |
| Reading at Low Temp | 1.0035 |
| High Temp (C) | 23.0 |
| Reading at High Temp | 1.0025 |
| Hydrometer Cal Slope | -0.000166667 |
| Hydrometer Cal Intercept | 1.006333333 |
| Default Soil Gravity | 2.6500 |

**Gravel/Sand Fraction (Sieves)**

| Sample Fraction | Size (um) | Pan Tare (g) | Pan+Sample (g) | Sample | | % Finer | Classification | Sub Class |
|---|---|---|---|---|---|---|---|---|
| 3 inch | 75000 | | | 0.00 | g | 100.0 | Gravel | |
| 2 inch | 50000 | | | 0.00 | g | 100.0 | Gravel | |
| 1.5 inch | 37500 | | | 0.00 | g | 100.0 | Gravel | |
| 1 inch | 25000 | | | 0.00 | g | 100.0 | Gravel | |
| 3/4 inch | 19000 | | | 0.00 | g | 100.0 | Gravel | |
| 3/8 inch | 9500 | 447.21 | 449.54 | 2.33 | g | 95.4 | Gravel | |
| #4 | 4750 | 487.98 | 491.90 | 3.92 | g | 87.6 | Gravel | |
| #10 | 2000 | 462.59 | 465.12 | 2.53 | g | 82.6 | Sand | Coarse |
| #20 | 850 | 378.33 | 380.20 | 1.87 | g | 78.9 | Sand | Medium |
| #40 | 425 | 366.26 | 368.38 | 2.12 | g | 74.7 | Sand | Medium |
| #60 | 250 | 347.91 | 349.92 | 2.01 | g | 70.7 | Sand | Fine |
| #80 | 180 | 337.55 | 338.67 | 1.12 | g | 68.5 | Sand | Fine |
| #100 | 150 | 327.89 | 328.86 | 0.97 | g | 66.6 | Sand | Fine |
| #200 | 75 | 312.66 | 314.85 | 2.19 | g | 62.2 | Sand | Fine |
| | | | | 0.00 | g | 62.2 | | |

**Adjusted Hydrometer Sample Mass**

| | |
|---|---|
| Hydrometer Sample Mass (g) | 50.2 |

**Silt/Clay Fraction (Hydrometer Test)**

| Hydrometer Test Time (min) | Actual | Spec. Gravity | Temp C | Particle Size (Micron) | % Finer | Classification | Sub Class |
|---|---|---|---|---|---|---|---|
| 2 | 2 | 1.0095 | 20.5 | 35.6 | 21.1 | Silt | |
| 5 | 5 | 1.0085 | 20.5 | 22.7 | 17.9 | Silt | |
| 15 | 15 | 1.0075 | 20.5 | 13.3 | 14.7 | Silt | |
| 30 | 30 | 1.0070 | 20.5 | 9.4 | 13.1 | Silt | |
| 60 | 63 | 1.0060 | 20.5 | 6.6 | 9.86 | Silt | |
| 250 | 253 | 1.0050 | 20.5 | 3.3 | 6.67 | Clay | |
| 1440 | 1400 | 1.0040 | 20.5 | 1.4 | 3.47 | Clay | |

**Sediment Grain Size - D422**

| | |
|---|---|
| Client | |
| Client Sample ID | SMS0200N |
| Lab Sample ID | 180-112434-A-3 |

| | |
|---|---|
| Date Received | 10/17/2020 |
| Start Date | 10/22/2020 22:03 |
| End Date | 10/28/2020 12:30 |

**Dry Weight Determination**

| | | |
|---|---|---|
| Tin Weight | 1.02 | g |
| Wet Sample + Tin | 36.59 | g |
| Dry Sample + Tin | 10.97 | g |
| % Moisture | 72.03 | % |

| | |
|---|---|
| Non-soil material: | plant |
| Shape (> #10): | na |
| Hardness (> #10): | na |

| | |
|---|---|
| Date/Time in oven | 10/22/2020 22:04 |
| Date/Time out of oven | 10/23/2020 15:45 |

| **Sample Weights** | Tare (g) | Pan+Samp (g) | Samp (g) |
|---|---|---|---|
| Sample Weight (Wet) | 47.85 | 222.28 | 174.43 |
| Sample Weight (Oven Dried) | | | 48.8 |

| **Sample Split (oven dried)** | Tare (g) | Pan+Samp (g) | Samp (g) |
|---|---|---|---|
| Sample >=#10 | | | 1.19 |
| Sample <#10 | | | 47.6 |
| % Passing #10 | | | 27.3 |

**Hydrometer Data**

| | |
|---|---|
| Serial Number | 542321 |
| Calib. Date (mm/dd/yyyy) | 12/18/2019 |
| Low Temp (C) | 17.0 |
| Reading at Low Temp | 1.0035 |
| High Temp (C) | 23.0 |
| Reading at High Temp | 1.0025 |
| Hydrometer Cal Slope | -0.000166667 |
| Hydrometer Cal Intercept | 1.006333333 |
| Default Soil Gravity | 2.6500 |

**Gravel/Sand Fraction (Sieves)**

| Sample Fraction | Size (um) | Pan Tare (g) | Pan+Sample (g) | Sample | | % Finer | Classification | Sub Class |
|---|---|---|---|---|---|---|---|---|
| 3 inch | 75000 | | | 0.00 | g | 100.0 | Gravel | |
| 2 inch | 50000 | | | 0.00 | g | 100.0 | Gravel | |
| 1.5 inch | 37500 | | | 0.00 | g | 100.0 | Gravel | |
| 1 inch | 25000 | | | 0.00 | g | 100.0 | Gravel | |
| 3/4 inch | 19000 | | | 0.00 | g | 100.0 | Gravel | |
| 3/8 inch | 9500 | | | 0.00 | g | 100.0 | Gravel | |
| #4 | 4750 | | | 0.00 | g | 100.0 | Gravel | |
| #10 | 2000 | 462.59 | 463.78 | 1.19 | g | 97.6 | Sand | Coarse |
| #20 | 850 | 373.62 | 374.90 | 1.28 | g | 95.0 | Sand | Medium |
| #40 | 425 | 361.96 | 363.50 | 1.54 | g | 91.8 | Sand | Medium |
| #60 | 250 | 351.98 | 353.57 | 1.59 | g | 88.5 | Sand | Fine |
| #80 | 180 | 318.91 | 319.87 | 0.96 | g | 86.5 | Sand | Fine |
| #100 | 150 | 328.17 | 329.26 | 1.09 | g | 84.3 | Sand | Fine |
| #200 | 75 | 314.14 | 316.50 | 2.36 | g | 79.5 | Sand | Fine |
| | | | | 0.00 | g | 79.5 | | |

**Adjusted Hydrometer Sample Mass**

| | |
|---|---|
| Hydrometer Sample Mass (g) | 48.8 |

**Silt/Clay Fraction (Hydrometer Test)**

| Hydrometer Test Time (min) | Actual | Spec. Gravity | Temp C | Particle Size (Micron) | % Finer | Classification | Sub Class |
|---|---|---|---|---|---|---|---|
| 2 | 2 | 1.0155 | 20.5 | 33.5 | 41.4 | Silt | |
| 5 | 5 | 1.0130 | 20.5 | 21.8 | 33.2 | Silt | |
| 15 | 15 | 1.0105 | 20.5 | 12.9 | 25 | Silt | |
| 30 | 30 | 1.0090 | 20.5 | 9.2 | 20 | Silt | |
| 60 | 57 | 1.0075 | 20.5 | 6.8 | 15.1 | Silt | |
| 250 | 247 | 1.0060 | 20.5 | 3.3 | 10.1 | Clay | |
| 1440 | 1394 | 1.0055 | 20.5 | 1.4 | 8.5 | Clay | |

**Sediment Grain Size - D422**

| | |
|---|---|
| Client | |
| Client Sample ID | SMS0300N |
| Lab Sample ID | 180-112434-A-5 |

| | |
|---|---|
| Date Received | 10/17/2020 |
| Start Date | 10/22/2020 22:05 |
| End Date | 10/28/2020 12:38 |

**Dry Weight Determination**

| | | |
|---|---|---|
| Tin Weight | 1.02 | g |
| Wet Sample + Tin | 28.79 | g |
| Dry Sample + Tin | 11.30 | g |
| % Moisture | 62.98 | % |

| | |
|---|---|
| Non-soil material: | plant |
| Shape (> #10): | na |
| Hardness (> #10): | na |

| | |
|---|---|
| Date/Time in oven | 10/22/2020 22:06 |
| Date/Time out of oven | 10/23/2020 15:45 |

| Sample Weights | Tare (g) | Pan+Samp (g) | Samp (g) |
|---|---|---|---|
| Sample Weight (Wet) | 47.86 | 230.43 | 182.57 |
| Sample Weight (Oven Dried) | | | 67.6 |

| Sample Split (oven dried) | Tare (g) | Pan+Samp (g) | Samp (g) |
|---|---|---|---|
| Sample >=#10 | | | 1.51 |
| Sample <#10 | | | 66.1 |
| % Passing #10 | | | 36.2 |

**Hydrometer Data**

| | |
|---|---|
| Serial Number | 542321 |
| Calib. Date (mm/dd/yyyy) | 12/18/2019 |
| Low Temp (C) | 17.0 |
| Reading at Low Temp | 1.0035 |
| High Temp (C) | 23.0 |
| Reading at High Temp | 1.0025 |
| Hydrometer Cal Slope | -0.000166667 |
| Hydrometer Cal Intercept | 1.006333333 |
| Default Soil Gravity | 2.6500 |

**Gravel/Sand Fraction (Sieves)**

| Sample Fraction | Size (um) | Pan Tare (g) | Pan+Sample (g) | Sample | | % Finer | Classification | Sub Class |
|---|---|---|---|---|---|---|---|---|
| 3 inch | 75000 | | | 0.00 | g | 100.0 | Gravel | |
| 2 inch | 50000 | | | 0.00 | g | 100.0 | Gravel | |
| 1.5 inch | 37500 | | | 0.00 | g | 100.0 | Gravel | |
| 1 inch | 25000 | | | 0.00 | g | 100.0 | Gravel | |
| 3/4 inch | 19000 | | | 0.00 | g | 100.0 | Gravel | |
| 3/8 inch | 9500 | | | 0.00 | g | 100.0 | Gravel | |
| #4 | 4750 | | | 0.00 | g | 100.0 | Gravel | |
| #10 | 2000 | 462.59 | 464.10 | 1.51 | g | 97.8 | Sand | Coarse |
| #20 | 850 | 378.33 | 379.83 | 1.50 | g | 95.6 | Sand | Medium |
| #40 | 425 | 366.26 | 369.03 | 2.77 | g | 91.5 | Sand | Medium |
| #60 | 250 | 347.91 | 350.89 | 2.98 | g | 87.1 | Sand | Fine |
| #80 | 180 | 337.55 | 340.08 | 2.53 | g | 83.4 | Sand | Fine |
| #100 | 150 | 327.89 | 330.54 | 2.65 | g | 79.5 | Sand | Fine |
| #200 | 75 | 312.66 | 321.16 | 8.50 | g | 66.9 | Sand | Fine |
| | | | | 0.00 | g | 66.9 | | |

**Adjusted Hydrometer Sample Mass**

| | |
|---|---|
| Hydrometer Sample Mass (g) | 67.6 |

**Silt/Clay Fraction (Hydrometer Test)**

| Hydrometer Test Time (min) | Actual | Spec. Gravity | Temp C | Particle Size (Micron) | % Finer | Classification | Sub Class |
|---|---|---|---|---|---|---|---|
| 2 | 2 | 1.0195 | 20.5 | 32 | 39.4 | Silt | |
| 5 | 5 | 1.0155 | 20.5 | 21.2 | 29.9 | Silt | |
| 15 | 15 | 1.0135 | 20.5 | 12.5 | 25.1 | Silt | |
| 30 | 30 | 1.0115 | 20.5 | 9 | 20.4 | Silt | |
| 60 | 63 | 1.0095 | 20.5 | 6.3 | 15.6 | Silt | |
| 250 | 241 | 1.0075 | 20.5 | 3.3 | 10.9 | Clay | |
| 1440 | 1388 | 1.0060 | 20.5 | 1.4 | 7.33 | Clay | |

## Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

**Lab Sample ID: MB 180-334547/1-A**
**Matrix: Sediment**
**Analysis Batch: 334654**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 334547**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 3.4 | 0.96 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Acenaphthylene | ND | | 3.4 | 0.73 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Anthracene | ND | | 3.4 | 0.87 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Benzo[a]anthracene | ND | | 3.4 | 1.5 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Benzo[b]fluoranthene | ND | | 3.4 | 0.82 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Benzo[k]fluoranthene | ND | | 3.4 | 1.0 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Benzo[g,h,i]perylene | ND | | 3.4 | 0.72 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Benzo[a]pyrene | ND | | 3.4 | 1.4 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Chrysene | ND | | 3.4 | 1.9 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Dibenz(a,h)anthracene | ND | | 3.4 | 2.1 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Fluoranthene | ND | | 3.4 | 0.88 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Fluorene | ND | | 3.4 | 0.66 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 3.4 | 1.7 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Naphthalene | ND | | 3.4 | 0.65 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Phenanthrene | ND | | 3.4 | 0.90 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |
| Pyrene | ND | | 3.4 | 0.79 | ug/Kg | | 10/23/20 12:09 | 10/24/20 13:47 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *63* | | *37 - 107* | *10/23/20 12:09* | *10/24/20 13:47* | *1* |
| *Nitrobenzene-d5 (Surr)* | *77* | | *41 - 112* | *10/23/20 12:09* | *10/24/20 13:47* | *1* |
| *Terphenyl-d14 (Surr)* | *73* | | *32 - 115* | *10/23/20 12:09* | *10/24/20 13:47* | *1* |

**Lab Sample ID: LCS 180-334547/2-A**
**Matrix: Sediment**
**Analysis Batch: 334654**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 334547**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Acenaphthene | 333 | 182 | | ug/Kg | | 55 | 48 - 101 |
| Acenaphthylene | 333 | 177 | | ug/Kg | | 53 | 45 - 104 |
| Anthracene | 333 | 199 | | ug/Kg | | 60 | 50 - 111 |
| Benzo[a]anthracene | 333 | 210 | | ug/Kg | | 63 | 48 - 100 |
| Benzo[b]fluoranthene | 333 | 186 | | ug/Kg | | 56 | 46 - 100 |
| Benzo[k]fluoranthene | 333 | 182 | | ug/Kg | | 55 | 46 - 107 |
| Benzo[g,h,i]perylene | 333 | 219 | | ug/Kg | | 66 | 47 - 105 |
| Benzo[a]pyrene | 333 | 191 | | ug/Kg | | 57 | 48 - 106 |
| Chrysene | 333 | 204 | | ug/Kg | | 61 | 48 - 100 |
| Dibenz(a,h)anthracene | 333 | 221 | | ug/Kg | | 66 | 47 - 106 |
| Fluoranthene | 333 | 200 | | ug/Kg | | 60 | 52 - 100 |
| Fluorene | 333 | 179 | | ug/Kg | | 54 | 49 - 100 |
| Indeno[1,2,3-cd]pyrene | 333 | 213 | | ug/Kg | | 64 | 48 - 105 |
| Naphthalene | 333 | 195 | | ug/Kg | | 59 | 49 - 100 |
| Phenanthrene | 333 | 199 | | ug/Kg | | 60 | 48 - 106 |
| Pyrene | 333 | 202 | | ug/Kg | | 61 | 47 - 100 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *2-Fluorobiphenyl* | *55* | | *37 - 107* |
| *Nitrobenzene-d5 (Surr)* | *73* | | *41 - 112* |
| *Terphenyl-d14 (Surr)* | *66* | | *32 - 115* |

## Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

**Lab Sample ID: 180-112434-2 MS**
**Matrix: Sediment**
**Analysis Batch: 334654**

**Client Sample ID: 0FS0300N**
**Prep Type: Total/NA**
**Prep Batch: 334547**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 483 | 299 | | ug/Kg | ☼ | 62 | 48 - 101 |
| Acenaphthylene | ND | | 483 | 289 | | ug/Kg | ☼ | 60 | 45 - 104 |
| Anthracene | ND | | 483 | 342 | | ug/Kg | ☼ | 71 | 50 - 111 |
| Benzo[a]anthracene | 63 | J | 483 | 403 | | ug/Kg | ☼ | 71 | 48 - 100 |
| Benzo[b]fluoranthene | 77 | J | 483 | 380 | | ug/Kg | ☼ | 63 | 46 - 100 |
| Benzo[k]fluoranthene | 70 | J F1 F2 | 483 | 296 | | ug/Kg | ☼ | 47 | 46 - 107 |
| Benzo[g,h,i]perylene | ND | | 483 | 415 | | ug/Kg | ☼ | 86 | 47 - 105 |
| Benzo[a]pyrene | ND | | 483 | 322 | | ug/Kg | ☼ | 67 | 48 - 106 |
| Chrysene | 95 | J | 483 | 372 | | ug/Kg | ☼ | 57 | 48 - 100 |
| Dibenz(a,h)anthracene | ND | | 483 | 351 | | ug/Kg | ☼ | 73 | 47 - 106 |
| Fluoranthene | 98 | J | 483 | 427 | | ug/Kg | ☼ | 68 | 52 - 100 |
| Fluorene | ND | | 483 | 327 | | ug/Kg | ☼ | 68 | 49 - 100 |
| Indeno[1,2,3-cd]pyrene | ND | | 483 | 367 | | ug/Kg | ☼ | 76 | 48 - 105 |
| Naphthalene | ND | | 483 | 308 | | ug/Kg | ☼ | 64 | 49 - 100 |
| Phenanthrene | 44 | J | 483 | 344 | | ug/Kg | ☼ | 62 | 48 - 106 |
| Pyrene | 100 | J | 483 | 370 | | ug/Kg | ☼ | 55 | 47 - 100 |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *2-Fluorobiphenyl* | *0* | *D X* | *37 - 107* |
| *Nitrobenzene-d5 (Surr)* | *0* | *D X* | *41 - 112* |
| *Terphenyl-d14 (Surr)* | *0* | *D X* | *32 - 115* |

**Lab Sample ID: 180-112434-2 MSD**
**Matrix: Sediment**
**Analysis Batch: 334654**

**Client Sample ID: 0FS0300N**
**Prep Type: Total/NA**
**Prep Batch: 334547**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 483 | 280 | | ug/Kg | ☼ | 58 | 48 - 101 | 7 | 22 |
| Acenaphthylene | ND | | 483 | 266 | | ug/Kg | ☼ | 55 | 45 - 104 | 8 | 23 |
| Anthracene | ND | | 483 | 297 | | ug/Kg | ☼ | 62 | 50 - 111 | 14 | 26 |
| Benzo[a]anthracene | 63 | J | 483 | 385 | | ug/Kg | ☼ | 67 | 48 - 100 | 5 | 24 |
| Benzo[b]fluoranthene | 77 | J | 483 | 304 | | ug/Kg | ☼ | 47 | 46 - 100 | 22 | 26 |
| Benzo[k]fluoranthene | 70 | J F1 F2 | 483 | 232 | F1 F2 | ug/Kg | ☼ | 34 | 46 - 107 | 24 | 18 |
| Benzo[g,h,i]perylene | ND | | 483 | 355 | | ug/Kg | ☼ | 73 | 47 - 105 | 16 | 22 |
| Benzo[a]pyrene | ND | | 483 | 333 | | ug/Kg | ☼ | 69 | 48 - 106 | 3 | 21 |
| Chrysene | 95 | J | 483 | 379 | | ug/Kg | ☼ | 59 | 48 - 100 | 2 | 26 |
| Dibenz(a,h)anthracene | ND | | 483 | 321 | | ug/Kg | ☼ | 66 | 47 - 106 | 9 | 24 |
| Fluoranthene | 98 | J | 483 | 377 | | ug/Kg | ☼ | 58 | 52 - 100 | 12 | 26 |
| Fluorene | ND | | 483 | 300 | | ug/Kg | ☼ | 62 | 49 - 100 | 9 | 22 |
| Indeno[1,2,3-cd]pyrene | ND | | 483 | 380 | | ug/Kg | ☼ | 79 | 48 - 105 | 4 | 22 |
| Naphthalene | ND | | 483 | 306 | | ug/Kg | ☼ | 63 | 49 - 100 | 1 | 28 |
| Phenanthrene | 44 | J | 483 | 301 | | ug/Kg | ☼ | 53 | 48 - 106 | 13 | 27 |
| Pyrene | 100 | J | 483 | 360 | | ug/Kg | ☼ | 53 | 47 - 100 | 3 | 27 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *2-Fluorobiphenyl* | *0* | *D X* | *37 - 107* |
| *Nitrobenzene-d5 (Surr)* | *0* | *D X* | *41 - 112* |
| *Terphenyl-d14 (Surr)* | *0* | *D X* | *32 - 115* |

## Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)

**Lab Sample ID: MB 240-457770/15-A**
**Matrix: Sediment**
**Analysis Batch: 457876**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 457770**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| DRO C10-C20 | ND | | 17 | 7.6 | mg/Kg | | 10/26/20 13:07 | 10/27/20 14:06 | 1 |
| Oil Range Organics (C20-C36) | ND | | 17 | 7.6 | mg/Kg | | 10/26/20 13:07 | 10/27/20 14:06 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl (Surr)* | *89* | | *39 - 120* | *10/26/20 13:07* | *10/27/20 14:06* | *1* |

**Lab Sample ID: LCS 240-457770/16-A**
**Matrix: Sediment**
**Analysis Batch: 457876**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 457770**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel | | | 83.3 | 66.9 | | mg/Kg | | 80 | 49 - 120 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl (Surr)* | *87* | | *39 - 120* |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

**Lab Sample ID: MB 140-43801/12-B**
**Matrix: Sediment**
**Analysis Batch: 44124**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43801**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1 | 0.000209 | J q | 0.010 | 0.000073 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-2 | ND | | 0.010 | 0.000081 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-3 | 0.000226 | J q | 0.010 | 0.000085 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-4 | ND | | 0.020 | 0.0011 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-5 | ND | | 0.010 | 0.00092 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-6 | ND | | 0.010 | 0.00081 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-7 | ND | | 0.010 | 0.00083 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-8 | ND | | 0.020 | 0.00075 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-9 | ND | | 0.010 | 0.00085 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-10 | ND | | 0.010 | 0.00091 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-11 | 0.00267 | J q | 0.020 | 0.00079 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-12 | ND | C | 0.020 | 0.00082 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-13 | ND | C12 | 0.020 | 0.00082 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-14 | ND | | 0.010 | 0.00070 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-15 | ND | | 0.010 | 0.00086 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-16 | ND | | 0.010 | 0.00015 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-17 | ND | | 0.010 | 0.00014 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-18 | ND | C | 0.020 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-19 | ND | | 0.010 | 0.00017 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-20 | 0.000621 | J q C | 0.020 | 0.00016 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-21 | 0.000230 | J q C | 0.020 | 0.00015 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-22 | ND | | 0.010 | 0.00016 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-23 | ND | | 0.010 | 0.00016 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-24 | ND | | 0.010 | 0.00011 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-25 | ND | | 0.010 | 0.00014 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-43801/12-B**
**Matrix: Sediment**
**Analysis Batch: 44124**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43801**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-26 | 0.000298 | J C | 0.020 | 0.00015 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-27 | ND | | 0.010 | 0.000099 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-28 | 0.000621 | J q C20 | 0.020 | 0.00016 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-29 | 0.000298 | J C26 | 0.020 | 0.00015 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-30 | ND | C18 | 0.020 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-31 | 0.000470 | J q | 0.020 | 0.00015 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-32 | 0.000512 | J | 0.010 | 0.000095 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-33 | 0.000230 | J q C21 | 0.020 | 0.00015 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-34 | ND | | 0.010 | 0.00016 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-35 | ND | | 0.010 | 0.00016 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-36 | ND | | 0.010 | 0.00015 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-37 | ND | | 0.010 | 0.00016 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-38 | ND | | 0.010 | 0.00017 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-39 | ND | | 0.010 | 0.00015 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-40 | ND | C | 0.030 | 0.00041 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-41 | ND | C40 | 0.030 | 0.00041 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-42 | ND | | 0.010 | 0.00041 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-43 | ND | C | 0.020 | 0.00038 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-44 | 0.00331 | J q C | 0.030 | 0.00036 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-45 | ND | C | 0.020 | 0.00043 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-46 | ND | | 0.010 | 0.00052 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-47 | 0.00331 | J q C44 | 0.030 | 0.00036 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-48 | ND | | 0.010 | 0.00041 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-49 | ND | C | 0.020 | 0.00033 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-50 | ND | C | 0.020 | 0.00040 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-51 | ND | C45 | 0.020 | 0.00043 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-52 | ND | | 0.010 | 0.00041 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-53 | ND | C50 | 0.020 | 0.00040 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-54 | ND | | 0.010 | 0.000061 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-55 | ND | | 0.010 | 0.00030 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-56 | ND | | 0.010 | 0.00030 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-57 | ND | | 0.010 | 0.00030 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-58 | ND | | 0.010 | 0.00031 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-59 | ND | C | 0.030 | 0.00029 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-60 | ND | | 0.010 | 0.00030 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-61 | ND | C | 0.040 | 0.00029 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-62 | ND | C59 | 0.030 | 0.00029 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-63 | ND | | 0.010 | 0.00028 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-64 | ND | | 0.010 | 0.00027 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-65 | 0.00331 | J q C44 | 0.030 | 0.00036 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-66 | ND | | 0.010 | 0.00028 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-67 | ND | | 0.010 | 0.00026 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-68 | ND | | 0.010 | 0.00027 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-69 | ND | C49 | 0.020 | 0.00033 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-70 | ND | C61 | 0.040 | 0.00029 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-71 | ND | C40 | 0.030 | 0.00041 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-72 | ND | | 0.010 | 0.00030 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-73 | ND | C43 | 0.020 | 0.00038 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-74 | ND | C61 | 0.040 | 0.00029 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-43801/12-B**
**Matrix: Sediment**
**Analysis Batch: 44124**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43801**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-75 | ND | C59 | 0.030 | 0.00029 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-76 | ND | C61 | 0.040 | 0.00029 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-77 | ND | | 0.010 | 0.00028 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-78 | ND | | 0.010 | 0.00031 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-79 | ND | | 0.010 | 0.00027 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-80 | ND | | 0.010 | 0.00026 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-81 | ND | | 0.010 | 0.00029 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-82 | ND | | 0.010 | 0.000048 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-83 | ND | C | 0.020 | 0.000043 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-84 | ND | | 0.010 | 0.000048 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-85 | 0.000291 | J q C | 0.030 | 0.000035 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-86 | ND | C | 0.060 | 0.000036 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-87 | ND | C86 | 0.060 | 0.000036 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-88 | ND | C | 0.020 | 0.000043 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-89 | ND | | 0.010 | 0.000047 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-90 | 0.000269 | J q C | 0.030 | 0.000036 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-91 | ND | C88 | 0.020 | 0.000043 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-92 | ND | | 0.010 | 0.000041 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-93 | ND | C | 0.020 | 0.000041 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-94 | ND | | 0.010 | 0.000047 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-95 | ND | | 0.010 | 0.000045 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-96 | ND | | 0.010 | 0.000035 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-97 | ND | C86 | 0.060 | 0.000036 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-98 | ND | C | 0.020 | 0.000040 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-99 | ND | C83 | 0.020 | 0.000043 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-100 | ND | C93 | 0.020 | 0.000041 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-101 | 0.000269 | J q C90 | 0.030 | 0.000036 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-102 | ND | C98 | 0.020 | 0.000040 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-103 | ND | | 0.010 | 0.000041 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-104 | ND | | 0.010 | 0.000031 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-105 | ND | | 0.010 | 0.00011 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-106 | ND | | 0.010 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-107 | ND | | 0.010 | 0.00013 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-108 | ND | C | 0.020 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-109 | ND | C86 | 0.060 | 0.000036 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-110 | 0.0000741 | J q C | 0.020 | 0.000030 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-111 | ND | | 0.010 | 0.000029 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-112 | ND | | 0.010 | 0.000031 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-113 | 0.000269 | J q C90 | 0.030 | 0.000036 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-114 | ND | | 0.010 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-115 | 0.0000741 | J q C110 | 0.020 | 0.000030 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-116 | 0.000291 | J q C85 | 0.030 | 0.000035 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-117 | 0.000291 | J q C85 | 0.030 | 0.000035 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-118 | ND | | 0.010 | 0.00011 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-119 | ND | C86 | 0.060 | 0.000036 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-120 | ND | | 0.010 | 0.000029 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-121 | ND | | 0.010 | 0.000030 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-122 | ND | | 0.010 | 0.00014 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-123 | ND | | 0.010 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-43801/12-B**
**Matrix: Sediment**
**Analysis Batch: 44124**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43801**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-124 | ND | C108 | 0.020 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-125 | ND | C86 | 0.060 | 0.000036 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-126 | ND | | 0.010 | 0.00013 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-127 | ND | | 0.010 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-128 | ND | C | 0.020 | 0.000095 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-129 | 0.000364 | J q C | 0.040 | 0.000098 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-130 | ND | | 0.010 | 0.00013 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-131 | ND | | 0.010 | 0.00014 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-132 | ND | | 0.010 | 0.00013 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-133 | ND | | 0.010 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-134 | ND | C | 0.020 | 0.00013 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-135 | ND | C | 0.020 | 0.000056 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-136 | ND | | 0.010 | 0.000040 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-137 | ND | | 0.010 | 0.00011 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-138 | 0.000364 | J q C129 | 0.040 | 0.000098 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-139 | ND | C | 0.020 | 0.00011 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-140 | ND | C139 | 0.020 | 0.00011 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-141 | ND | | 0.010 | 0.00011 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-142 | ND | | 0.010 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-143 | ND | C134 | 0.020 | 0.00013 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-144 | ND | | 0.010 | 0.000050 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-145 | ND | | 0.010 | 0.000038 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-146 | ND | | 0.010 | 0.00011 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-147 | 0.000330 | J q C | 0.020 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-148 | ND | | 0.010 | 0.000054 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-149 | 0.000330 | J q C147 | 0.020 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-150 | ND | | 0.010 | 0.000037 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-151 | ND | C135 | 0.020 | 0.000056 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-152 | ND | | 0.010 | 0.000039 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-153 | ND | C | 0.020 | 0.000086 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-154 | ND | | 0.010 | 0.000043 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-155 | ND | | 0.010 | 0.000037 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-156 | 0.000328 | J q C | 0.020 | 0.00010 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-157 | 0.000328 | J q C156 | 0.020 | 0.00010 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-158 | ND | | 0.010 | 0.000077 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-159 | ND | | 0.010 | 0.000082 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-160 | 0.000364 | J q C129 | 0.040 | 0.000098 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-161 | ND | | 0.010 | 0.000081 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-162 | ND | | 0.010 | 0.000080 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-163 | 0.000364 | J q C129 | 0.040 | 0.000098 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-164 | ND | | 0.010 | 0.000086 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-165 | ND | | 0.010 | 0.000092 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-166 | ND | C128 | 0.020 | 0.000095 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-167 | ND | | 0.010 | 0.000064 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-168 | ND | C153 | 0.020 | 0.000086 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-169 | ND | | 0.010 | 0.000062 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-170 | ND | | 0.010 | 0.000085 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-171 | ND | C | 0.020 | 0.000084 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-172 | ND | | 0.010 | 0.000083 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-43801/12-B**
**Matrix: Sediment**
**Analysis Batch: 44124**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43801**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-173 | ND | C171 | 0.020 | 0.000084 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-174 | ND | | 0.010 | 0.000078 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-175 | ND | | 0.010 | 0.000075 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-176 | ND | | 0.010 | 0.000057 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-177 | ND | | 0.010 | 0.000080 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-178 | ND | | 0.010 | 0.000082 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-179 | ND | | 0.010 | 0.000060 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-180 | ND | C | 0.020 | 0.000063 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-181 | ND | | 0.010 | 0.000075 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-182 | ND | | 0.010 | 0.000072 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-183 | ND | C | 0.020 | 0.000074 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-184 | ND | | 0.010 | 0.000062 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-185 | ND | C183 | 0.020 | 0.000074 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-186 | ND | | 0.010 | 0.000060 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-187 | ND | | 0.010 | 0.000070 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-188 | ND | | 0.010 | 0.000054 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-189 | ND | | 0.010 | 0.00015 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-190 | ND | | 0.010 | 0.000054 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-191 | ND | | 0.010 | 0.000057 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-192 | ND | | 0.010 | 0.000063 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-193 | ND | C180 | 0.020 | 0.000063 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-194 | ND | | 0.010 | 0.00012 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-195 | ND | | 0.010 | 0.00013 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-196 | ND | | 0.010 | 0.000077 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-197 | ND | | 0.010 | 0.000059 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-198 | ND | C | 0.020 | 0.000079 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-199 | ND | C198 | 0.020 | 0.000079 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-200 | ND | | 0.010 | 0.000053 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-201 | ND | | 0.010 | 0.000054 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-202 | ND | | 0.010 | 0.000060 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-203 | ND | | 0.010 | 0.000070 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-204 | ND | | 0.010 | 0.000059 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-205 | ND | | 0.010 | 0.00010 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-206 | ND | | 0.010 | 0.00084 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-207 | ND | | 0.010 | 0.00058 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-208 | ND | | 0.010 | 0.00058 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-209 | ND | | 0.010 | 0.000060 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| Total Monochlorobiphenyls | 0.000435 | J q | 0.010 | 0.000079 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| Total Dichlorobiphenyls | 0.00267 | J q | 0.020 | 0.00085 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| Total Trichlorobiphenyls | 0.00213 | J q | 0.020 | 0.00015 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| Total Tetrachlorobiphenyls | 0.00331 | J q | 0.040 | 0.00032 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| Total Pentachlorobiphenyls | 0.000634 | J q | 0.060 | 0.000065 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| Total Hexachlorobiphenyls | 0.00102 | J q | 0.040 | 0.000085 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| Total Heptachlorobiphenyls | ND | | 0.020 | 0.00015 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| Total Octachlorobiphenyls | ND | | 0.020 | 0.00013 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| Total Nonachlorobiphenyls | ND | | 0.010 | 0.00084 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| Polychlorinated biphenyls, Total | 0.0102 | J q | 0.060 | 0.00029 | ng/g | | 10/23/20 04:33 | 11/02/20 15:53 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Isotope Dilution | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-1L | 61 | | 5 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-3L | 61 | | 5 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-4L | 68 | | 5 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-15L | 68 | | 5 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-19L | 79 | | 5 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-37L | 69 | | 5 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-54L | 83 | | 5 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-77L | 73 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-81L | 71 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-104L | 72 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-105L | 85 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-114L | 82 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-118L | 82 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-123L | 80 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-126L | 78 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-155L | 79 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-156L | 81 | C | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-157L | 81 | C156 | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-167L | 81 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-169L | 85 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-170L | 81 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-188L | 84 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-189L | 78 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-202L | 95 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-205L | 71 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-206L | 78 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-208L | 82 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-209L | 76 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-28L | 80 | | 5 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-111L | 85 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |
| PCB-178L | 93 | | 10 - 145 | 10/23/20 04:33 | 11/02/20 15:53 | 1 |

**Lab Sample ID: LCS 140-43801/13-B**
**Matrix: Sediment**
**Analysis Batch: 44124**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 43801**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| PCB-1 | 0.500 | 0.425 | | ng/g | | 85 | 60 - 135 |
| PCB-3 | 0.500 | 0.431 | | ng/g | | 86 | 60 - 135 |
| PCB-4 | 0.500 | 0.485 | | ng/g | | 97 | 60 - 135 |
| PCB-15 | 0.500 | 0.505 | | ng/g | | 101 | 60 - 135 |
| PCB-19 | 0.500 | 0.521 | | ng/g | | 104 | 60 - 135 |
| PCB-37 | 0.500 | 0.512 | | ng/g | | 102 | 60 - 135 |
| PCB-54 | 0.500 | 0.482 | | ng/g | | 96 | 60 - 135 |
| PCB-77 | 0.500 | 0.473 | | ng/g | | 95 | 60 - 135 |
| PCB-81 | 0.500 | 0.469 | | ng/g | | 94 | 60 - 135 |
| PCB-104 | 0.500 | 0.543 | | ng/g | | 109 | 60 - 135 |
| PCB-105 | 0.500 | 0.516 | | ng/g | | 103 | 60 - 135 |
| PCB-114 | 0.500 | 0.562 | | ng/g | | 112 | 60 - 135 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: LCS 140-43801/13-B**
**Matrix: Sediment**
**Analysis Batch: 44124**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 43801**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PCB-118 | | | 0.500 | 0.554 | | ng/g | | 111 | 60 - 135 | | |
| PCB-123 | | | 0.500 | 0.593 | | ng/g | | 119 | 60 - 135 | | |
| PCB-126 | | | 0.500 | 0.529 | | ng/g | | 106 | 60 - 135 | | |
| PCB-155 | | | 0.500 | 0.520 | | ng/g | | 104 | 60 - 135 | | |
| PCB-156 | | | 1.00 | 1.06 | C | ng/g | | 106 | 60 - 135 | | |
| PCB-157 | | | 1.00 | 1.06 | C156 | ng/g | | 106 | 60 - 135 | | |
| PCB-167 | | | 0.500 | 0.546 | | ng/g | | 109 | 60 - 135 | | |
| PCB-169 | | | 0.500 | 0.482 | | ng/g | | 96 | 60 - 135 | | |
| PCB-188 | | | 0.500 | 0.521 | | ng/g | | 104 | 60 - 135 | | |
| PCB-189 | | | 0.500 | 0.541 | | ng/g | | 108 | 60 - 135 | | |
| PCB-202 | | | 0.500 | 0.476 | | ng/g | | 95 | 60 - 135 | | |
| PCB-205 | | | 0.500 | 0.581 | | ng/g | | 116 | 60 - 135 | | |
| PCB-206 | | | 0.500 | 0.492 | | ng/g | | 98 | 60 - 135 | | |
| PCB-208 | | | 0.500 | 0.521 | | ng/g | | 104 | 60 - 135 | | |
| PCB-209 | | | 0.500 | 0.559 | | ng/g | | 112 | 60 - 135 | | |

| *Isotope Dilution* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *PCB-1L* | *62* | | *15 - 145* |
| *PCB-3L* | *61* | | *15 - 145* |
| *PCB-4L* | *68* | | *15 - 145* |
| *PCB-15L* | *67* | | *15 - 145* |
| *PCB-19L* | *81* | | *15 - 145* |
| *PCB-37L* | *70* | | *15 - 145* |
| *PCB-54L* | *85* | | *15 - 145* |
| *PCB-77L* | *75* | | *40 - 145* |
| *PCB-81L* | *73* | | *40 - 145* |
| *PCB-104L* | *71* | | *40 - 145* |
| *PCB-105L* | *82* | | *40 - 145* |
| *PCB-114L* | *80* | | *40 - 145* |
| *PCB-118L* | *80* | | *40 - 145* |
| *PCB-123L* | *80* | | *40 - 145* |
| *PCB-126L* | *78* | | *40 - 145* |
| *PCB-155L* | *79* | | *40 - 145* |
| *PCB-156L* | *81* | *C* | *40 - 145* |
| *PCB-157L* | *81* | *C156* | *40 - 145* |
| *PCB-167L* | *81* | | *40 - 145* |
| *PCB-169L* | *86* | | *40 - 145* |
| *PCB-170L* | *81* | | *40 - 145* |
| *PCB-188L* | *84* | | *40 - 145* |
| *PCB-189L* | *78* | | *40 - 145* |
| *PCB-202L* | *96* | | *40 - 145* |
| *PCB-205L* | *71* | | *40 - 145* |
| *PCB-206L* | *78* | | *40 - 145* |
| *PCB-208L* | *82* | | *40 - 145* |
| *PCB-209L* | *75* | | *40 - 145* |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *PCB-28L* | *81* | | *15 - 145* |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: LCS 140-43801/13-B**
**Matrix: Sediment**
**Analysis Batch: 44124**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 43801**

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| PCB-111L | 86 | | 40 - 145 |
| PCB-178L | 94 | | 40 - 145 |

## Method: 8290A - Dioxins and Furans (HRGC/HRMS)

**Lab Sample ID: MB 140-43808/20-A**
**Matrix: Sediment**
**Analysis Batch: 44169**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43808**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 1.0 | 0.10 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| Total TCDD | ND | | 1.0 | 0.10 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 1,2,3,7,8-PeCDD | ND | | 5.0 | 0.069 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| Total PeCDD | ND | | 5.0 | 0.069 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 1,2,3,4,7,8-HxCDD | 0.259 | J | 5.0 | 0.070 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 1,2,3,6,7,8-HxCDD | ND | | 5.0 | 0.064 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 1,2,3,7,8,9-HxCDD | ND | | 5.0 | 0.063 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| Total HxCDD | 0.545 | J I | 5.0 | 0.065 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 1,2,3,4,6,7,8-HpCDD | ND | | 5.0 | 0.091 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| Total HpCDD | ND | | 5.0 | 0.091 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| OCDD | 0.920 | J | 10 | 0.066 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 2,3,7,8-TCDF | ND | | 1.0 | 0.093 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| Total TCDF | ND | | 1.0 | 0.093 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 1,2,3,7,8-PeCDF | ND | | 5.0 | 0.068 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 2,3,4,7,8-PeCDF | ND | | 5.0 | 0.062 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| Total PeCDF | ND | | 5.0 | 0.068 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 1,2,3,4,7,8-HxCDF | ND | | 5.0 | 0.060 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 1,2,3,6,7,8-HxCDF | ND | | 5.0 | 0.065 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 2,3,4,6,7,8-HxCDF | ND | | 5.0 | 0.063 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 1,2,3,7,8,9-HxCDF | ND | | 5.0 | 0.074 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| Total HxCDF | ND | | 5.0 | 0.074 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 1,2,3,4,6,7,8-HpCDF | 0.155 | J I | 5.0 | 0.032 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 1,2,3,4,7,8,9-HpCDF | ND | | 5.0 | 0.040 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| Total HpCDF | 0.155 | J I | 5.0 | 0.036 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| OCDF | 0.460 | J | 10 | 0.032 | pg/g | | 10/23/20 08:34 | 11/04/20 03:01 | 1 |

| Isotope Dilution | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| 13C-2,3,7,8-TCDD | 61 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-1,2,3,7,8-PeCDD | 56 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-1,2,3,4,7,8-HxCDD | 62 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-1,2,3,6,7,8-HxCDD | 75 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-1,2,3,4,6,7,8-HpCDD | 77 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-OCDD | 78 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-2,3,7,8-TCDF | 59 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-1,2,3,7,8-PeCDF | 55 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-2,3,4,7,8-PeCDF | 53 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-1,2,3,4,7,8-HxCDF | 75 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-1,2,3,6,7,8-HxCDF | 66 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-2,3,4,6,7,8-HxCDF | 72 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |

## Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-43808/20-A**
**Matrix: Sediment**
**Analysis Batch: 44169**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 43808**

| Isotope Dilution | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| 13C-1,2,3,7,8,9-HxCDF | 73 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-1,2,3,4,6,7,8-HpCDF | 74 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-1,2,3,4,7,8,9-HpCDF | 77 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |
| 13C-OCDF | 70 | | 40 - 135 | 10/23/20 08:34 | 11/04/20 03:01 | 1 |

**Lab Sample ID: LCS 140-43808/19-A**
**Matrix: Sediment**
**Analysis Batch: 44169**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 43808**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,3,7,8-TCDD | | | 20.0 | 19.1 | | pg/g | | 95 | 79 - 129 | | |
| 1,2,3,7,8-PeCDD | | | 100 | 97.3 | | pg/g | | 97 | 79 - 129 | | |
| 1,2,3,4,7,8-HxCDD | | | 100 | 110 | | pg/g | | 110 | 73 - 123 | | |
| 1,2,3,6,7,8-HxCDD | | | 100 | 102 | | pg/g | | 102 | 74 - 124 | | |
| 1,2,3,7,8,9-HxCDD | | | 100 | 110 | | pg/g | | 110 | 70 - 124 | | |
| 1,2,3,4,6,7,8-HpCDD | | | 100 | 107 | | pg/g | | 107 | 73 - 123 | | |
| OCDD | | | 200 | 195 | | pg/g | | 98 | 75 - 125 | | |
| 2,3,7,8-TCDF | | | 20.0 | 20.4 | | pg/g | | 102 | 75 - 125 | | |
| 1,2,3,7,8-PeCDF | | | 100 | 100 | | pg/g | | 100 | 74 - 124 | | |
| 2,3,4,7,8-PeCDF | | | 100 | 100 | | pg/g | | 100 | 75 - 125 | | |
| 1,2,3,4,7,8-HxCDF | | | 100 | 92.9 | | pg/g | | 93 | 75 - 125 | | |
| 1,2,3,6,7,8-HxCDF | | | 100 | 104 | | pg/g | | 104 | 76 - 126 | | |
| 2,3,4,6,7,8-HxCDF | | | 100 | 106 | | pg/g | | 106 | 76 - 126 | | |
| 1,2,3,7,8,9-HxCDF | | | 100 | 105 | | pg/g | | 105 | 77 - 127 | | |
| 1,2,3,4,6,7,8-HpCDF | | | 100 | 96.6 | | pg/g | | 97 | 77 - 127 | | |
| 1,2,3,4,7,8,9-HpCDF | | | 100 | 101 | | pg/g | | 101 | 73 - 123 | | |
| OCDF | | | 200 | 221 | | pg/g | | 111 | 49 - 128 | | |

| Isotope Dilution | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| 13C-2,3,7,8-TCDD | 62 | | 40 - 135 |
| 13C-1,2,3,7,8-PeCDD | 56 | | 40 - 135 |
| 13C-1,2,3,4,7,8-HxCDD | 66 | | 40 - 135 |
| 13C-1,2,3,6,7,8-HxCDD | 75 | | 40 - 135 |
| 13C-1,2,3,4,6,7,8-HpCDD | 74 | | 40 - 135 |
| 13C-OCDD | 74 | | 40 - 135 |
| 13C-2,3,7,8-TCDF | 58 | | 40 - 135 |
| 13C-1,2,3,7,8-PeCDF | 52 | | 40 - 135 |
| 13C-2,3,4,7,8-PeCDF | 53 | | 40 - 135 |
| 13C-1,2,3,4,7,8-HxCDF | 79 | | 40 - 135 |
| 13C-1,2,3,6,7,8-HxCDF | 72 | | 40 - 135 |
| 13C-2,3,4,6,7,8-HxCDF | 74 | | 40 - 135 |
| 13C-1,2,3,7,8,9-HxCDF | 73 | | 40 - 135 |
| 13C-1,2,3,4,6,7,8-HpCDF | 77 | | 40 - 135 |
| 13C-1,2,3,4,7,8,9-HpCDF | 77 | | 40 - 135 |
| 13C-OCDF | 67 | | 40 - 135 |

## Method: EPA 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 180-335170/1-A**
**Matrix: Sediment**
**Analysis Batch: 335640**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 335170**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | | 0.050 | 0.016 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Barium | ND | | 0.50 | 0.064 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Antimony | ND | | 0.10 | 0.022 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Beryllium | ND | | 0.050 | 0.036 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Cadmium | ND | | 0.050 | 0.0085 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Calcium | 6.54 | J | 25 | 3.8 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Chromium | ND | | 0.10 | 0.042 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Cobalt | ND | | 0.025 | 0.0065 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Copper | ND | | 0.15 | 0.10 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Magnesium | ND | | 25 | 7.9 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Iron | ND | | 2.5 | 2.4 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Lead | ND | | 0.050 | 0.050 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Potassium | ND | | 25 | 20 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Selenium | ND | | 0.25 | 0.061 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Silver | ND | | 0.050 | 0.014 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Thallium | ND | | 0.050 | 0.035 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |
| Vanadium | ND | | 0.050 | 0.047 | mg/Kg | | 10/29/20 08:20 | 11/02/20 18:55 | 1 |

**Lab Sample ID: MB 180-335170/1-A**
**Matrix: Sediment**
**Analysis Batch: 335795**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 335170**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Manganese | ND | | 0.25 | 0.22 | mg/Kg | | 10/29/20 08:20 | 11/03/20 18:15 | 1 |
| Nickel | 0.107 | | 0.050 | 0.047 | mg/Kg | | 10/29/20 08:20 | 11/03/20 18:15 | 1 |
| Zinc | ND | | 0.25 | 0.24 | mg/Kg | | 10/29/20 08:20 | 11/03/20 18:15 | 1 |

**Lab Sample ID: MB 180-335170/1-A**
**Matrix: Sediment**
**Analysis Batch: 335951**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 335170**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Sodium | ND | | 25 | 10 | mg/Kg | | 10/29/20 08:20 | 11/04/20 18:52 | 1 |

**Lab Sample ID: MB 180-335170/1-A**
**Matrix: Sediment**
**Analysis Batch: 336056**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 335170**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ND | | 3.0 | 2.9 | mg/Kg | | 10/29/20 08:20 | 11/05/20 10:51 | 1 |

**Lab Sample ID: LCS 180-335170/2-A**
**Matrix: Sediment**
**Analysis Batch: 335640**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 335170**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Arsenic | 50.0 | 43.7 | | mg/Kg | | 87 | 80 - 120 |
| Barium | 50.0 | 45.7 | | mg/Kg | | 91 | 80 - 120 |
| Antimony | 12.5 | 11.5 | | mg/Kg | | 92 | 80 - 120 |

## Method: EPA 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 180-335170/2-A**
**Matrix: Sediment**
**Analysis Batch: 335640**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 335170**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Beryllium | 25.0 | 23.4 | | mg/Kg | | 94 | 80 - 120 |
| Cadmium | 25.0 | 23.7 | | mg/Kg | | 95 | 80 - 120 |
| Calcium | 1250 | 1190 | | mg/Kg | | 96 | 80 - 120 |
| Chromium | 25.0 | 23.8 | | mg/Kg | | 95 | 80 - 120 |
| Cobalt | 25.0 | 22.4 | | mg/Kg | | 89 | 80 - 120 |
| Copper | 25.0 | 22.2 | | mg/Kg | | 89 | 80 - 120 |
| Magnesium | 1250 | 1160 | | mg/Kg | | 93 | 80 - 120 |
| Iron | 250 | 236 | | mg/Kg | | 94 | 80 - 120 |
| Lead | 25.0 | 22.8 | | mg/Kg | | 91 | 80 - 120 |
| Potassium | 1250 | 1100 | | mg/Kg | | 88 | 80 - 120 |
| Selenium | 50.0 | 45.4 | | mg/Kg | | 91 | 80 - 120 |
| Silver | 12.5 | 11.2 | | mg/Kg | | 90 | 80 - 120 |
| Thallium | 50.0 | 45.1 | | mg/Kg | | 90 | 80 - 120 |
| Vanadium | 25.0 | 23.6 | | mg/Kg | | 94 | 80 - 120 |

**Lab Sample ID: LCS 180-335170/2-A**
**Matrix: Sediment**
**Analysis Batch: 335795**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 335170**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Manganese | 25.0 | 23.1 | | mg/Kg | | 92 | 80 - 120 |
| Nickel | 25.0 | 22.2 | | mg/Kg | | 89 | 80 - 120 |
| Zinc | 12.5 | 12.0 | | mg/Kg | | 96 | 80 - 120 |

**Lab Sample ID: LCS 180-335170/2-A**
**Matrix: Sediment**
**Analysis Batch: 336056**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 335170**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Aluminum | 250 | 242 | | mg/Kg | | 97 | 80 - 120 |
| Sodium | 1250 | 1350 | | mg/Kg | | 108 | 80 - 120 |

## Method: EPA 7471B - Mercury (CVAA)

**Lab Sample ID: MB 180-334165/1-A**
**Matrix: Sediment**
**Analysis Batch: 334475**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 334165**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.0133 | J | 0.017 | 0.011 | mg/Kg | | 10/21/20 08:22 | 10/22/20 13:32 | 1 |

**Lab Sample ID: LCS 180-334165/2-A**
**Matrix: Sediment**
**Analysis Batch: 334475**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 334165**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Mercury | 0.208 | 0.209 | | mg/Kg | | 100 | 80 - 120 |

## Method: 2540G - SM 2540G

**Lab Sample ID: 180-112434-6 DU**
**Matrix: Sediment**
**Analysis Batch: 334684**

**Client Sample ID: 0FS0400N**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 28.8 | | | 30.8 | | % | | | | 7 | 10 |
| Percent Solids | 71.2 | | | 69.2 | | % | | | | 3 | 10 |

## Method: EPA-Lloyd Kahn - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 180-334869/4**
**Matrix: Sediment**
**Analysis Batch: 334869**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Organic Carbon - Duplicates | ND | | 1000 | 750 | mg/Kg | | | 10/24/20 13:39 | 1 |

**Lab Sample ID: LCS 180-334869/5**
**Matrix: Sediment**
**Analysis Batch: 334869**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Organic Carbon - Duplicates | | | 37800 | 32400 | | mg/Kg | | 86 | 75 - 125 | | |

**Lab Sample ID: MB 180-335026/4**
**Matrix: Sediment**
**Analysis Batch: 335026**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Organic Carbon - Duplicates | ND | | 1000 | 750 | mg/Kg | | | 10/27/20 12:44 | 1 |

**Lab Sample ID: LCS 180-335026/5**
**Matrix: Sediment**
**Analysis Batch: 335026**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Organic Carbon - Duplicates | | | 37800 | 34800 | | mg/Kg | | 92 | 75 - 125 | | |

# QC Association Summary

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-1

## GC/MS Semi VOA

### Prep Batch: 334547

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | 3541 | |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | 3541 | |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | 3541 | |
| MB 180-334547/1-A | Method Blank | Total/NA | Sediment | 3541 | |
| LCS 180-334547/2-A | Lab Control Sample | Total/NA | Sediment | 3541 | |
| 180-112434-2 MS | 0FS0300N | Total/NA | Sediment | 3541 | |
| 180-112434-2 MSD | 0FS0300N | Total/NA | Sediment | 3541 | |

### Analysis Batch: 334654

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | EPA 8270D LL | 334547 |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | EPA 8270D LL | 334547 |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | EPA 8270D LL | 334547 |
| MB 180-334547/1-A | Method Blank | Total/NA | Sediment | EPA 8270D LL | 334547 |
| LCS 180-334547/2-A | Lab Control Sample | Total/NA | Sediment | EPA 8270D LL | 334547 |
| 180-112434-2 MS | 0FS0300N | Total/NA | Sediment | EPA 8270D LL | 334547 |
| 180-112434-2 MSD | 0FS0300N | Total/NA | Sediment | EPA 8270D LL | 334547 |

## GC Semi VOA

### Prep Batch: 457770

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | 3540C | |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | 3540C | |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | 3540C | |
| MB 240-457770/15-A | Method Blank | Total/NA | Sediment | 3540C | |
| LCS 240-457770/16-A | Lab Control Sample | Total/NA | Sediment | 3540C | |

### Analysis Batch: 457876

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | 8015C | 457770 |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | 8015C | 457770 |
| MB 240-457770/15-A | Method Blank | Total/NA | Sediment | 8015C | 457770 |
| LCS 240-457770/16-A | Lab Control Sample | Total/NA | Sediment | 8015C | 457770 |

### Analysis Batch: 458086

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | 8015C | 457770 |

## Specialty Organics

### Prep Batch: 43801

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-1 | SMS0100N | Total/NA | Sediment | HRMS-Sox | |
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | HRMS-Sox | |
| 180-112434-3 | SMS0200N | Total/NA | Sediment | HRMS-Sox | |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | HRMS-Sox | |
| 180-112434-5 | SMS0300N | Total/NA | Sediment | HRMS-Sox | |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | HRMS-Sox | |
| MB 140-43801/12-B | Method Blank | Total/NA | Sediment | HRMS-Sox | |
| LCS 140-43801/13-B | Lab Control Sample | Total/NA | Sediment | HRMS-Sox | |

# QC Association Summary

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-1

## Specialty Organics

### Prep Batch: 43808

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | 8290 | |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | 8290 | |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | 8290 | |
| MB 140-43808/20-A | Method Blank | Total/NA | Sediment | 8290 | |
| LCS 140-43808/19-A | Lab Control Sample | Total/NA | Sediment | 8290 | |

### Cleanup Batch: 43973

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-1 | SMS0100N | Total/NA | Sediment | Split | 43801 |
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | Split | 43801 |
| 180-112434-3 | SMS0200N | Total/NA | Sediment | Split | 43801 |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | Split | 43801 |
| 180-112434-5 | SMS0300N | Total/NA | Sediment | Split | 43801 |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | Split | 43801 |
| MB 140-43801/12-B | Method Blank | Total/NA | Sediment | Split | 43801 |
| LCS 140-43801/13-B | Lab Control Sample | Total/NA | Sediment | Split | 43801 |

### Analysis Batch: 44124

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| MB 140-43801/12-B | Method Blank | Total/NA | Sediment | 1668C | 43973 |
| LCS 140-43801/13-B | Lab Control Sample | Total/NA | Sediment | 1668C | 43973 |

### Analysis Batch: 44136

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-1 | SMS0100N | Total/NA | Sediment | 1668C | 43973 |
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | 1668C | 43973 |
| 180-112434-3 | SMS0200N | Total/NA | Sediment | 1668C | 43973 |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | 1668C | 43973 |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | 1668C | 43973 |

### Analysis Batch: 44166

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-5 | SMS0300N | Total/NA | Sediment | 1668C | 43973 |

### Analysis Batch: 44169

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| MB 140-43808/20-A | Method Blank | Total/NA | Sediment | 8290A | 43808 |
| LCS 140-43808/19-A | Lab Control Sample | Total/NA | Sediment | 8290A | 43808 |

### Analysis Batch: 44180

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | 8290A | 43808 |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | 8290A | 43808 |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | 8290A | 43808 |

### Analysis Batch: 44206

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | 8290A | 43808 |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | 8290A | 43808 |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | 8290A | 43808 |

## Metals

### Prep Batch: 334165

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | 7471B | |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | 7471B | |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | 7471B | |
| MB 180-334165/1-A | Method Blank | Total/NA | Sediment | 7471B | |
| LCS 180-334165/2-A | Lab Control Sample | Total/NA | Sediment | 7471B | |

### Analysis Batch: 334475

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | EPA 7471B | 334165 |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | EPA 7471B | 334165 |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | EPA 7471B | 334165 |
| MB 180-334165/1-A | Method Blank | Total/NA | Sediment | EPA 7471B | 334165 |
| LCS 180-334165/2-A | Lab Control Sample | Total/NA | Sediment | EPA 7471B | 334165 |

### Prep Batch: 335170

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | 3050B | |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | 3050B | |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | 3050B | |
| MB 180-335170/1-A | Method Blank | Total/NA | Sediment | 3050B | |
| LCS 180-335170/2-A | Lab Control Sample | Total/NA | Sediment | 3050B | |

### Analysis Batch: 335640

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | EPA 6020A | 335170 |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | EPA 6020A | 335170 |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | EPA 6020A | 335170 |
| MB 180-335170/1-A | Method Blank | Total/NA | Sediment | EPA 6020A | 335170 |
| LCS 180-335170/2-A | Lab Control Sample | Total/NA | Sediment | EPA 6020A | 335170 |

### Analysis Batch: 335795

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | EPA 6020A | 335170 |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | EPA 6020A | 335170 |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | EPA 6020A | 335170 |
| MB 180-335170/1-A | Method Blank | Total/NA | Sediment | EPA 6020A | 335170 |
| LCS 180-335170/2-A | Lab Control Sample | Total/NA | Sediment | EPA 6020A | 335170 |

### Analysis Batch: 335951

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | EPA 6020A | 335170 |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | EPA 6020A | 335170 |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | EPA 6020A | 335170 |
| MB 180-335170/1-A | Method Blank | Total/NA | Sediment | EPA 6020A | 335170 |

### Analysis Batch: 336056

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | EPA 6020A | 335170 |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | EPA 6020A | 335170 |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | EPA 6020A | 335170 |
| MB 180-335170/1-A | Method Blank | Total/NA | Sediment | EPA 6020A | 335170 |

## Metals (Continued)

### Analysis Batch: 336056 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| LCS 180-335170/2-A | Lab Control Sample | Total/NA | Sediment | EPA 6020A | 335170 |

## General Chemistry

### Analysis Batch: 334684

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-1 | SMS0100N | Total/NA | Sediment | 2540G | |
| 180-112434-2 | 0FS0300N | Total/NA | Sediment | 2540G | |
| 180-112434-3 | SMS0200N | Total/NA | Sediment | 2540G | |
| 180-112434-4 | 0FS0100N | Total/NA | Sediment | 2540G | |
| 180-112434-5 | SMS0300N | Total/NA | Sediment | 2540G | |
| 180-112434-6 | 0FS0400N | Total/NA | Sediment | 2540G | |
| 180-112434-6 DU | 0FS0400N | Total/NA | Sediment | 2540G | |

### Analysis Batch: 334869

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-1 | SMS0100N | Total/NA | Sediment | EPA-Lloyd Kahn | |
| MB 180-334869/4 | Method Blank | Total/NA | Sediment | EPA-Lloyd Kahn | |
| LCS 180-334869/5 | Lab Control Sample | Total/NA | Sediment | EPA-Lloyd Kahn | |

### Analysis Batch: 335026

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-3 | SMS0200N | Total/NA | Sediment | EPA-Lloyd Kahn | |
| 180-112434-5 | SMS0300N | Total/NA | Sediment | EPA-Lloyd Kahn | |
| MB 180-335026/4 | Method Blank | Total/NA | Sediment | EPA-Lloyd Kahn | |
| LCS 180-335026/5 | Lab Control Sample | Total/NA | Sediment | EPA-Lloyd Kahn | |

## Geotechnical

### Analysis Batch: 160516

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-1 | SMS0100N | Total/NA | Sediment | D422 | |
| 180-112434-3 | SMS0200N | Total/NA | Sediment | D422 | |
| 180-112434-5 | SMS0300N | Total/NA | Sediment | D422 | |

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

Baltimore #201

eurofins | Environment Testing America

| | | | | |
|---|---|---|---|---|
| **Client Information** | Sampler: Sharon Drummond | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-63272-12755.2 |
| Client Contact: Mr. Robert Kennedy | Phone: 410.533.7095 | E-Mail: Jill.Colussy@Eurofinset.com | | Page: Page 2 of 2 |
| Company: AECOM | | | | Job #: |
| Address: 250 Apollo Drive | Due Date Requested: | | | |
| City: Chelmsford | TAT Requested (days): Standard | | | |
| State, Zip: MA, 01824 | | | | |
| Phone: | PO #: 126546 | | | |
| Email: robert.kennedy@aecom.com | WO #: 60631088.3 | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | Grain size (ASTM D 4464 [Eurofins Calscience]) | TOC Lloyd Kahn | PCB Congeners (EPA 1668C) | PAHs-primary pollutant list (EPA 8270D-4) | PCDD/FS (2378 [17]) (EPA 8290A) | TPH-DRO/ORO (EPA 8015D) | TAL Metals (Total) (EPA 6020/7471) | Wet Sediment weight | Percent Solids | Rinsed sediment dry weight | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | | | | | | | | |
| SMS0100N | 10/15/20 | 1215 | G | S | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | | | |
| OFS0300N | 10/15/20 | 1300 | G | S | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | Total wet sediment |
| SMS0200N | 10/15/20 | 1355 | G | S | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | | | weight + % solids |
| OFS0100N | 10/15/20 | 1400 | G | S | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | From 1-gal jars. |
| SMS0300N | 10/15/20 | 1500 | G | S | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | | | |
| OFS0400N | 10/15/20 | 1515 | G | S | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | OFS samples: |
| SMS0100N-Mat | 10/15/20 | 1215 | G | S/Mat | | | | | | | | | | | | ✓ | | prioritize chemical |
| SMS0200N-Mat | 10/15/20 | 1355 | G | S/Mat | | | | | | | | | | | | ✓ | | analysis if not |
| SM0300N-Mat | 10/15/20 | 1500 | G | S/Mat | | | | | | | | | | | | ✓ | | enough volume for |
| | | | | | | | | | | | | | | | | | | grain size analysis. |

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - pH 4-5 |
| L - EDA | Z - other (specify) |

Other:

**Possible Hazard Identification**
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown ☐ Radiological
SO 10/15/20

Sa[illegible] retained longer than 1 month)
☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Spe[illegible]

180-112434 Chain of Custody

Empty Kit Relinquished by: | Date: | Time:

| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|
| [signature] | 10/15/20 1724 | AECOM | [signature] | 10/16/20 10:41 | ETA Bart |
| [signature] | 10/16/20 1700 | ETA-BALT | [signature] | 10/17/20 950 | [illegible] |
| | | | | | |

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019



Do Not Lift Using This Tag

ORIGIN ID:KEUA (410) 869-0085
SETH CAPLAN
EUROFINS TESTAMERICA
7526 CONNELLEY DR
SUITE F
BALTIMORE, MD 21228
UNITED STATES US

SHIP DATE: 16OCT20
ACTWGT: 20.00 LB
CAD: 1030460/INET4280

BILL RECIPIENT

TO SAMPLE RECEIVING
TEST AMERICA PITTSBURGH
301 ALPHA DR
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058 REF: AECOM PEPCO
INV:
PO: DEPT:

FedEx Express

2 of 3
MPS# 0263 7718 2377 6693
Mstr# 7718 2377 6248

SATURDAY 12:00P
PRIORITY OVERNIGHT

0201

15238
PA-US PIT

X0 AGCA

Uncorrected temp 17.8 °C
Thermometer ID 14
CF 0 Initials TB

PT-WI-SR-001 effective 7/26/13

Part # 156297-435 RRDW2 EXP 07/21



Using This Tag

ORIGIN ID:KEUA (410) 869-0085
SETH CAPLAN
EUROFINS TESTAMERICA
7526 CONNELLEY DR
SUITE F
BALTIMORE, MD 21228
UNITED STATES US

SHIP DATE: 16OCT20
ACTWGT: 20.00 LB
CAD: 1030460/INET4280

BILL RECIPIENT

TO SAMPLE RECEIVING
TEST AMERICA PITTSBURGH
301 ALPHA DR
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058 REF: AECOM PEPCO
INV:
PO: DEPT:

FedEx Express

1 of 3
TRK# 0201 7718 2377 6248
## MASTER ##

SATURDAY 12:00P
PRIORITY OVERNIGHT

15238
PA-US PIT

X0 AGCA

Uncorrected temp 15.1 °C
Thermometer ID 14
CF 0 Initials TB

PT

180-112434 Waybill

Part # 156297-435 RRDW2 EXP 07/21


Do Not Lift Using This Tag
539
5
12.00
A
6546
10.17
SHIP DATE: 16OCT20
ACTWGT 20.00 LB
CAD: 1030460/INET4280
BILL RECIPIENT
SAMPLE RECEIVING
TEST AMERICA PITTSBURGH
301 ALPHA DR
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: AECOM PEPCO
DEPT:
FedEx Express
SATURDAY 12:00P
PRIORITY OVERNIGHT
3 of 3
MPS# 0263 7718 2377 6546
Mstr# 7718 2377 6248
0201
15238
PIT
PA-US
XO AGCA
Uncorrected temp 24 °C
Thermometer ID T4
CF 0 Initials B
PT-WI-SR-001 effective 7/26/13
Part # 156297-435 RRDW2 EXP 07/2

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

eurofins | Environment Testing America

| Client Information (Sub Contract Lab) | Sampler: | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-415718.1 |
|---|---|---|---|---|
| Client Contact: Shipping/Receiving | Phone: | E-Mail: Jill.Colussy@Eurofinset.com | State of Origin: Maryland | Page: Page 1 of 1 |
| Company: TestAmerica Laboratories, Inc. | | Accreditations Required (See note): | | Job #: 180-112434-1 |
| Address: 5815 Middlebrook Pike, , | Due Date Requested: 11/2/2020 | | | |
| City: Knoxville | TAT Requested (days): | | | |
| State, Zip: TN, 37921 | | | | |
| Phone: 865-291-3000(Tel) 865-584-4315(Fax) | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

**Preservation Codes:**
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
...2O3
4
...lodecahydrate
...ne
5
specify)

180-112434 Chain of Custody

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=Comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | Screen_1668/Screen_PCB_P_S | 1668C/1668_P_Sox Standard 209 List with Coolutions for Re | 8290A/8290_P_Sox 17 Isomers + Totals | Total Number | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | |
| SMS0100N (180-112434-1) | 10/15/20 | 12:15 Eastern | | Sediment | | | X | X | | 1 | |
| 0FS0300N (180-112434-2) | 10/15/20 | 13:00 Eastern | | Sediment | | | X | X | X | 1 | |
| SMS0200N (180-112434-3) | 10/15/20 | 13:55 Eastern | | Sediment | | | X | X | | 1 | |
| 0FS0100N (180-112434-4) | 10/15/20 | 14:00 Eastern | | Sediment | | | X | X | X | 1 | |
| SMS0300N (180-112434-5) | 10/15/20 | 15:00 Eastern | | Sediment | | | X | X | | 1 | |
| 0FS0400N (180-112434-6) | 10/15/20 | 15:15 Eastern | | Sediment | | | X | X | X | 1 | |
| CUSTODY SEALS INTACT | | | | | | | | | | | |
| RECEIVED AT RT 0.4/CT 0.4°C BAD 10.20.20 | | | | | | | | | | | |
| 1 COOLER FEDEX # 168951036576 PD | | | | | | | | | | | |

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

| *Possible Hazard Identification* | *Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)* |
|---|---|
| *Unconfirmed* | ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months* |
| Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4 | Special Instructions/QC Requirements: |

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

| | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|---|
| 1 | | 10/19/20 1700 | EHA | | 10.20.20 09:45 | EHA KNX |
| 2 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| 3 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: |
|---|---|---|

Ver: 01/16/2019

Loc: 180
112434

**EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST** **Log In Number:**

| Review Items | Yes | No | NA | If No, what was the problem? |
|---|---|---|---|---|
| 1. Are the shipping containers intact? | ✓ | | | ☐ **Containers, Broken** |
| 2. Were ambient air containers received intact? | | | ✓ | ☐ Checked in lab |
| 3. The coolers/containers custody seal if present, is it intact? | ✓ | | | ☐ Yes<br>☐ NA |
| 4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)<br>Thermometer ID : SC68<br>Correction factor: 0.0 | ✓<br>✓ | | | ☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel**<br>☐ **Cooler Out of Temp, Same Day Receipt** |
| 5. Were all of the sample containers received intact? | ✓ | | | ☐ **Containers, Broken** |
| 6. Were samples received in appropriate containers? | ✓ | | | ☐ **Containers, Improper; Client Contacted; Proceed/Cancel** |
| 7. Do sample container labels match COC? (IDs, Dates, Times) | ✓ | | | ☐ **COC & Samples Do Not Match**<br>☐ **COC Incorrect/Incomplete**<br>☐ **COC Not Received** |
| 8. Were all of the samples listed on the COC received? | ✓ | | | ☐ **Sample Received, Not on COC**<br>☐ **Sample on COC, Not Received** |
| 9. Is the date/time of sample collection noted? | ✓ | | | ☐ **COC; No Date/Time; Client Contacted** |
| 10. Was the sampler identified on the COC? | | | ✓ | ☐ **Sampler Not Listed on COC** |
| 11. Is the client and project name/# identified? | ✓ | | | ☐ **COC Incorrect/Incomplete** |
| 12. Are tests/parameters listed for each sample? | ✓ | | | ☐ **COC No tests on COC** |
| 13. Is the matrix of the samples noted? | ✓ | | | ☐ **COC Incorrect/Incomplete** |
| 14. Was COC relinquished? (Signed/Dated/Timed) | ✓ | | | ☐ **COC Incorrect/Incomplete** |
| 15. Were samples received within holding time? | ✓ | | | ☐ **Holding Time - Receipt** |
| 16. Were samples received with correct chemical preservative (excluding Encore)? | | | ✓ | ☐ **pH Adjusted, pH Included (See box 16A)**<br>☐ **Incorrect Preservative** |
| 17. Were VOA samples received without headspace? | | | ✓ | ☐ **Headspace (VOA only)** |
| 18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668)<br>Chlorine test strip lot number: | | | ✓ | ☐ **Residual Chlorine** |
| 19. For 1613B water samples is pH<9? | | | ✓ | ☐ If no, notify lab to adjust |
| 20. For rad samples was sample activity info. Provided? | | | ✓ | ☐ Project missing info |

**Comments/Actions Taken**

**Labeling Verified by:** **Date:**

**pH test strip lot number:**

| | Box 16A: pH Preservation | Box 18A: Residual Chlorine |
|---|---|---|
| Preservative: | | |
| Lot Number: | | |
| Exp Date: | | |
| Analyst: | | |
| Date: | | |
| Time: | | |

Project #: _____ PM Instructions: _____

Sample Receiving Associate: _____ Date: 10-20-20

QA026R32.doc, 062719

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

180-112434 Chain of Custody

eurofins | Environment Testing America

| Client Information (Sub Contract Lab) | Sampler: | Lab PM: Colussy, Jill L | | COC No: 180-415724.1 |
|---|---|---|---|---|
| Client Contact: Shipping/Receiving | Phone: | E-Mail: Jill.Colussy@Eurofinset.com | State of Origin: Maryland | Page: Page 1 of 1 |
| Company: TestAmerica Laboratories, Inc. | | Accreditations Required (See note): | | Job #: 180-112434-1 |
| Address: 30 Community Drive, Suite 11, | Due Date Requested: 10/29/2020 | | | |
| City: South Burlington | TAT Requested (days): | | | |
| State, Zip: VT, 05403 | | | | |
| Phone: 802-660-1990(Tel) 802-660-1919(Fax) | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - pH 4-5 |
| L - EDA | Z - other (specify) |

Other:

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=Comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | D422/ Grain Size (Sieve and Hydrometer) | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | |
| SMS0100N (180-112434-1) | 10/15/20 | 12:15 Eastern | | Sediment | | | X | | |
| SMS0200N (180-112434-3) | 10/15/20 | 13:55 Eastern | | Sediment | | | X | | |
| SMS0300N (180-112434-5) | 10/15/20 | 15:00 Eastern | | Sediment | | | X | | |

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

| ***Possible Hazard Identification*** | ***Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)*** |
|---|---|
| *Unconfirmed* | ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months* |
| Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4 | Special Instructions/QC Requirements: |

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

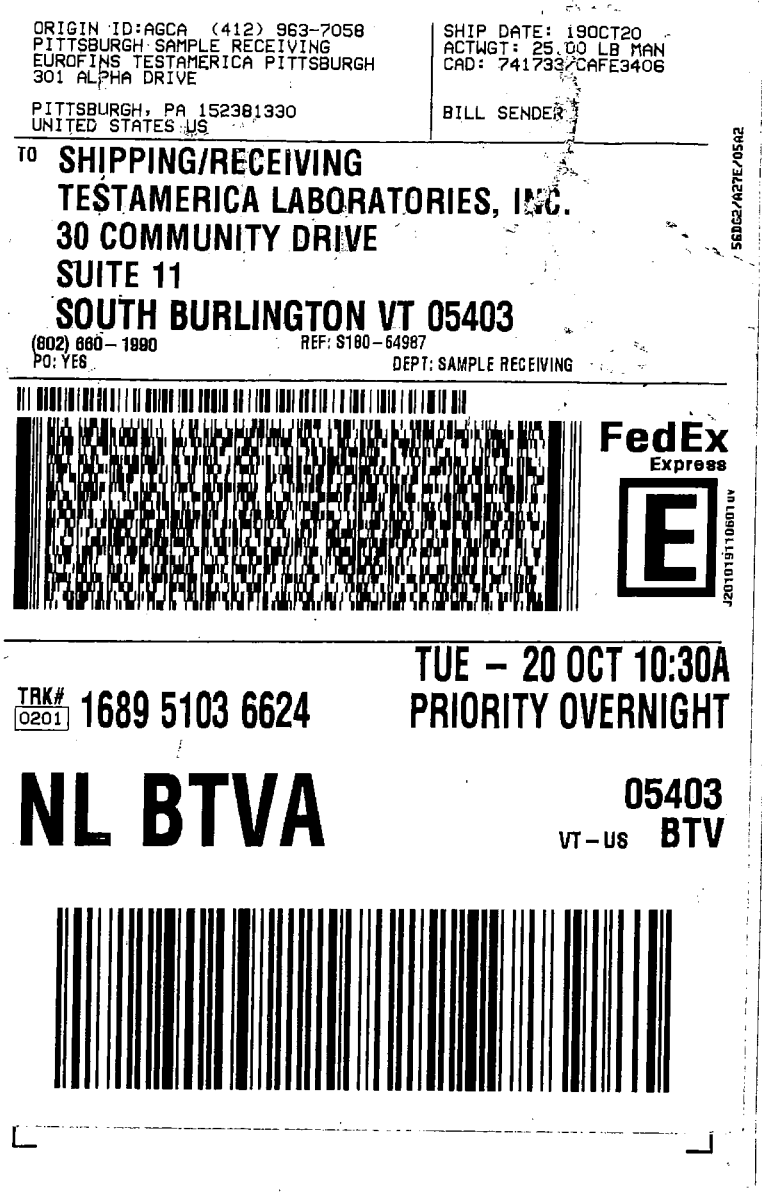
| | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|---|
| 1 | | 10/16/20 1700 | | Taylor Whitehouse | 10/20/20 1130 | TAB |
| 2 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| 3 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: NA | Cooler Temperature(s) °C and Other Remarks: 0-9 |
|---|---|---|

Ver: 01/16/2019



11/10/2020



ORIGIN ID:AGCA (412) 963-7058
PITTSBURGH SAMPLE RECEIVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH, PA 152381330
UNITED STATES US

SHIP DATE: 19OCT20
ACTWGT: 25.00 LB MAN
CAD: 7417337/CAFE3406

BILL SENDER

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990 REF: S180-64987
PO: YES DEPT: SAMPLE RECEIVING

FedEx Express

TRK# 0201 1689 5103 6624

TUE - 20 OCT 10:30A
PRIORITY OVERNIGHT

NL BTVA

05403
VT-US BTV

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

eurofins | Environment Testing America

| Client Information (Sub Contract Lab) | Sampler: | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-415739.1 |
|---|---|---|---|---|
| Client Contact: Shipping/Receiving | Phone: | E-Mail: Jill.Colussy@Eurofinset.com | State of Origin: Maryland | Page: Page 1 of 1 |
| Company: TestAmerica Laboratories, Inc. | | Accreditations Required (See note): | | Job #: 180-112434-1 |
| Address: 4101 Shuffel Street NW, , | Due Date Requested: 10/30/2020 | | | |
| City: North Canton | TAT Requested (days): | | | |
| State, Zip: OH, 44720 | | | | |
| Phone: 330-497-9396(Tel) 330-497-0772(Fax) | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - pH 4-5 |
| L - EDA | Z - other (specify) |

Other:

C 327

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=Comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 8015C_DRO/3540C (MOD) DRO/ORO (C10-C28, C28-C36) | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | |
| 0FS0300N (180-112434-2) | 10/15/20 | 13:00 Eastern | | Sediment | | | X | 1 | need to link ICVs |
| 0FS0100N (180-112434-4) | 10/15/20 | 14:00 Eastern | | Sediment | | | X | 1 | need to link ICVs |
| 0FS0400N (180-112434-6) | 10/15/20 | 15:15 Eastern | | Sediment | | | X | 1 | need to link ICVs |

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

| Possible Hazard Identification | Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) |
|---|---|
| Unconfirmed | ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months |
| Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4 | Special Instructions/QC Requirements: |

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

| | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|---|
| 1 | | 10/14/2017 | | | 10-20-20 1000 | |
| 2 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| 3 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: |
|---|---|---|

Ver: 01/16/2019

**Eurofins TestAmerica Canton Sample Receipt Form/Narrative** **Login # :** _____

**Canton Facility**

Client EMA Pittsburgh Site Name _____ Cooler unpacked by: _____

Cooler Received on 10-20-20 Opened on 10-20-20

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

**Receipt After-hours**: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # _____ Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-11 (CF +0.9 °C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C

IR GUN #IR-12 (CF +0.5°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C

| | | |
|---|---|---|
| 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 8 | Yes | No |
| -Were the seals on the outside of the cooler(s) signed & dated? | Yes | No NA |
| -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? | Yes | No |
| -Were tamper/custody seals intact and uncompromised? | Yes | No NA |
| 3. Shippers' packing slip attached to the cooler(s)? | Yes | No |
| 4. Did custody papers accompany the sample(s)? | Yes | No |
| 5. Were the custody papers relinquished & signed in the appropriate place? | Yes | No |
| 6. Was/were the person(s) who collected the samples clearly identified on the COC? | Yes | No |
| 7. Did all bottles arrive in good condition (Unbroken)? | Yes | No |
| 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? | Yes | No |
| 9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? | | |
| 10. Were correct bottle(s) used for the test(s) indicated? | Yes | No |
| 11. Sufficient quantity received to perform indicated analyses? | Yes | No |
| 12. Are these work share samples and all listed on the COC? | Yes | No |
| If yes, Questions 13-17 have been checked at the originating laboratory. | | |
| 13. Were all preserved sample(s) at the correct pH upon receipt? | Yes | No NA pH Strip Lot# HC907861 |
| 14. Were VOAs on the COC? | Yes | No |
| 15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. | Yes | No NA |
| 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ | Yes | No |
| 17. Was a LL Hg or Me Hg trip blank present? _____ | Yes | No |

**Tests that are not checked for pH by Receiving:**

**VOAs**
**Oil and Grease**
**TOC**

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

**18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES** ☐ additional next page

Samples processed by:

**19. SAMPLE CONDITION**

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

**20. SAMPLE PRESERVATION**

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

*WI-NC-099*

Login # : _____

## Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

| Cooler Description (Circle) | IR Gun # (Circle) | Observed Temp °C | Corrected Temp °C | Coolant (Circle) |
|---|---|---|---|---|
| (TA) Client Box Other | IR-10 (IR-11) | 2.0 | 2.9 | (Wet Ice) Blue Ice Dry Ice Water None |
| (TA) Client Box Other | IR-10 (IR-11) | 1.0 | 1.9 | (Wet Ice) Blue Ice Dry Ice Water None |
| (TA) Client Box Other | IR-10 (IR-11) | 13.4 | 14.3 | Wet Ice Blue Ice Dry Ice Water (None) |
| (TA) Client Box Other | IR-10 (IR-11) | 2.5 | 3.4 | (Wet Ice) Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |
| TA Client Box Other | IR-10 IR-11 | | | Wet Ice Blue Ice Dry Ice Water None |

☐ See Temperature Excursion Form

*WI-NC-099 Cooler Receipt Form Page 2 – Multiple Coolers*

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-112434-1

**Login Number: 112434**
**List Number: 1**
**Creator: Say, Thomas C**

**List Source: Eurofins TestAmerica, Pittsburgh**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-112434-1

**Login Number: 112434**
**List Number: 3**
**Creator: Jaffe, Nat S**

**List Source: Eurofins TestAmerica, Burlington**
**List Creation: 10/20/20 12:25 PM**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | Lab does not accept radioactive samples. |
| The cooler's custody seal, if present, is intact. | True | Seal present with no number. |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | 0.9ºC |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | N/A | Received project as a subcontract. |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | N/A | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

eurofins | Environment Testing America



# ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-112434-2
Client Project/Site: Pepco Benning Road Facility

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

*Authorized for release by:*
*11/20/2020 1:54:47 PM*

Jill Colussy, Project Manager I
(412)963-2444
Jill.Colussy@Eurofinset.com

LINKS
Review your project results through TotalAccess
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

*PA Lab ID: 02-00416*

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## Job ID: 180-112434-2

**Laboratory: Eurofins TestAmerica, Pittsburgh**

**Narrative**

### CASE NARRATIVE

### Client: AECOM

### Project: Pepco Benning Road Facility

### Report Number: 180-112434-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**

The samples were received on 10/17/2020 9:30 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 2.4º C, 15.1º C and 17.8º C.

**PARTICLE SIZE DISTRIBUTION VIA LASER LIGHT SCATTERING**

The relative percent difference between sample SMS0300N (180-112434-12) and the duplicate of this sample was outside of the control limits for Fine Sand (0.125 to 0.25 mm).

# Definitions/Glossary

Client: AECOM
Job ID: 180-112434-2
Project/Site: Pepco Benning Road Facility

## Qualifiers

### Geotechnical

| Qualifier | Qualifier Description |
|---|---|
| F3 | Duplicate RPD exceeds the control limit |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CFU | Colony Forming Unit |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MCL | EPA recommended "Maximum Contaminant Level" |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| MPN | Most Probable Number |
| MQL | Method Quantitation Limit |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| NEG | Negative / Absent |
| POS | Positive / Present |
| PQL | Practical Quantitation Limit |
| PRES | Presumptive |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |
| TNTC | Too Numerous To Count |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-112434-2
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| California | Los Angeles County Sanitation Districts | 10109 | 09-30-21 |
| California | SCAQMD LAP | 17LA0919 | 11-30-20 |
| California | State | 2944 | 09-30-21 |
| Nevada | State | CA00111 | 07-31-21 |
| Oregon | NELAP | CA300001 | 01-29-21 |
| USDA | US Federal Programs | P330-20-00034 | 02-10-23 |
| Washington | State | C916-18 | 10-11-21 |

# Sample Summary

Client: AECOM
Job ID: 180-112434-2
Project/Site: Pepco Benning Road Facility

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 180-112434-10 | SMS0100N | Solid | 10/15/20 12:15 | 10/17/20 09:30 | |
| 180-112434-11 | SMS0200N | Solid | 10/15/20 13:55 | 10/17/20 09:30 | |
| 180-112434-12 | SMS0300N | Solid | 10/15/20 15:00 | 10/17/20 09:30 | |

# Method Summary

Client: AECOM
Job ID: 180-112434-2
Project/Site: Pepco Benning Road Facility

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| D4464 | Particle Size Distribution of Catalytic Material ( Laser light scattering) | ASTM | ECL 1 |

**Protocol References:**

ASTM = ASTM International

**Laboratory References:**

ECL 1 = Eurofins Calscience LLC  Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

# Lab Chronicle

Client: AECOM
Job ID: 180-112434-2
Project/Site: Pepco Benning Road Facility

## Client Sample ID: SMS0100N
**Lab Sample ID: 180-112434-10**
**Date Collected: 10/15/20 12:15**
**Matrix: Solid**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | D4464 | | 1 | | | 110893 | 11/18/20 16:45 | C4LT | ECL 1 |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SMS0200N
**Lab Sample ID: 180-112434-11**
**Date Collected: 10/15/20 13:55**
**Matrix: Solid**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | D4464 | | 1 | | | 110893 | 11/18/20 16:51 | C4LT | ECL 1 |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SMS0300N
**Lab Sample ID: 180-112434-12**
**Date Collected: 10/15/20 15:00**
**Matrix: Solid**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | D4464 | | 1 | | | 110893 | 11/18/20 16:56 | C4LT | ECL 1 |
| | Instrument ID: NOEQUIP | | | | | | | | | |

**Laboratory References:**

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

**Analyst References:**

Lab: ECL 1

Batch Type: Analysis

C4LT = Jordan Stratford

# Client Sample Results

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-2

**Client Sample ID: SMS0100N**
**Date Collected: 10/15/20 12:15**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112434-10**
**Matrix: Solid**

## Method: D4464 - Particle Size Distribution of Catalytic Material ( Laser light scattering)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Clay(less than 0.00391 mm)** | **5.72** | | 0.01 | 0.01 | % | | | 11/18/20 16:45 | 1 |
| Coarse Sand (0.5mm to 1mm) | ND | | 0.01 | 0.01 | % | | | 11/18/20 16:45 | 1 |
| **Fine Sand (0.125 to 0.25mm)** | **15.96** | | 0.01 | 0.01 | % | | | 11/18/20 16:45 | 1 |
| Gravel (greater than 2 mm) | ND | | 0.01 | 0.01 | % | | | 11/18/20 16:45 | 1 |
| **Medium Sand (0.25 to 0.5 mm)** | **3.03** | | 0.01 | 0.01 | % | | | 11/18/20 16:45 | 1 |
| **Silt (0.00391 to 0.0625mm)** | **57.76** | | 0.01 | 0.01 | % | | | 11/18/20 16:45 | 1 |
| **Total Silt and Clay (0 to 0.0626mm)** | **63.48** | | 0.01 | 0.01 | % | | | 11/18/20 16:45 | 1 |
| Very Coarse Sand (1 to 2mm) | ND | | 0.01 | 0.01 | % | | | 11/18/20 16:45 | 1 |
| **Very Fine Sand (0.0625 to 0.125 mm)** | **17.54** | | 0.01 | 0.01 | % | | | 11/18/20 16:45 | 1 |

# Client Sample Results

Client: AECOM
Job ID: 180-112434-2
Project/Site: Pepco Benning Road Facility

**Client Sample ID: SMS0200N**
**Lab Sample ID: 180-112434-11**
**Date Collected: 10/15/20 13:55**
**Matrix: Solid**
**Date Received: 10/17/20 09:30**

## Method: D4464 - Particle Size Distribution of Catalytic Material ( Laser light scattering)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Clay(less than 0.00391 mm)** | **5.27** | | 0.01 | 0.01 | % | | | 11/18/20 16:51 | 1 |
| Coarse Sand (0.5mm to 1mm) | ND | | 0.01 | 0.01 | % | | | 11/18/20 16:51 | 1 |
| **Fine Sand (0.125 to 0.25mm)** | **10.65** | | 0.01 | 0.01 | % | | | 11/18/20 16:51 | 1 |
| Gravel (greater than 2 mm) | ND | | 0.01 | 0.01 | % | | | 11/18/20 16:51 | 1 |
| **Medium Sand (0.25 to 0.5 mm)** | **3.05** | | 0.01 | 0.01 | % | | | 11/18/20 16:51 | 1 |
| **Silt (0.00391 to 0.0625mm)** | **67.45** | | 0.01 | 0.01 | % | | | 11/18/20 16:51 | 1 |
| **Total Silt and Clay (0 to 0.0626mm)** | **72.72** | | 0.01 | 0.01 | % | | | 11/18/20 16:51 | 1 |
| Very Coarse Sand (1 to 2mm) | ND | | 0.01 | 0.01 | % | | | 11/18/20 16:51 | 1 |
| **Very Fine Sand (0.0625 to 0.125 mm)** | **13.59** | | 0.01 | 0.01 | % | | | 11/18/20 16:51 | 1 |

# Client Sample Results

Client: AECOM
Job ID: 180-112434-2
Project/Site: Pepco Benning Road Facility

**Client Sample ID: SMS0300N**
**Lab Sample ID: 180-112434-12**
**Date Collected: 10/15/20 15:00**
**Matrix: Solid**
**Date Received: 10/17/20 09:30**

## Method: D4464 - Particle Size Distribution of Catalytic Material ( Laser light scattering)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Clay(less than 0.00391 mm)** | **6.53** | | 0.01 | 0.01 | % | | | 11/18/20 16:56 | 1 |
| Coarse Sand (0.5mm to 1mm) | ND | | 0.01 | 0.01 | % | | | 11/18/20 16:56 | 1 |
| **Fine Sand (0.125 to 0.25mm)** | **9.34** | | 0.01 | 0.01 | % | | | 11/18/20 16:56 | 1 |
| Gravel (greater than 2 mm) | ND | | 0.01 | 0.01 | % | | | 11/18/20 16:56 | 1 |
| **Medium Sand (0.25 to 0.5 mm)** | **0.02** | | 0.01 | 0.01 | % | | | 11/18/20 16:56 | 1 |
| **Silt (0.00391 to 0.0625mm)** | **70.76** | | 0.01 | 0.01 | % | | | 11/18/20 16:56 | 1 |
| **Total Silt and Clay (0 to 0.0626mm)** | **77.29** | | 0.01 | 0.01 | % | | | 11/18/20 16:56 | 1 |
| Very Coarse Sand (1 to 2mm) | ND | | 0.01 | 0.01 | % | | | 11/18/20 16:56 | 1 |
| **Very Fine Sand (0.0625 to 0.125 mm)** | **13.35** | | 0.01 | 0.01 | % | | | 11/18/20 16:56 | 1 |

# PARTICLE SIZE SUMMARY

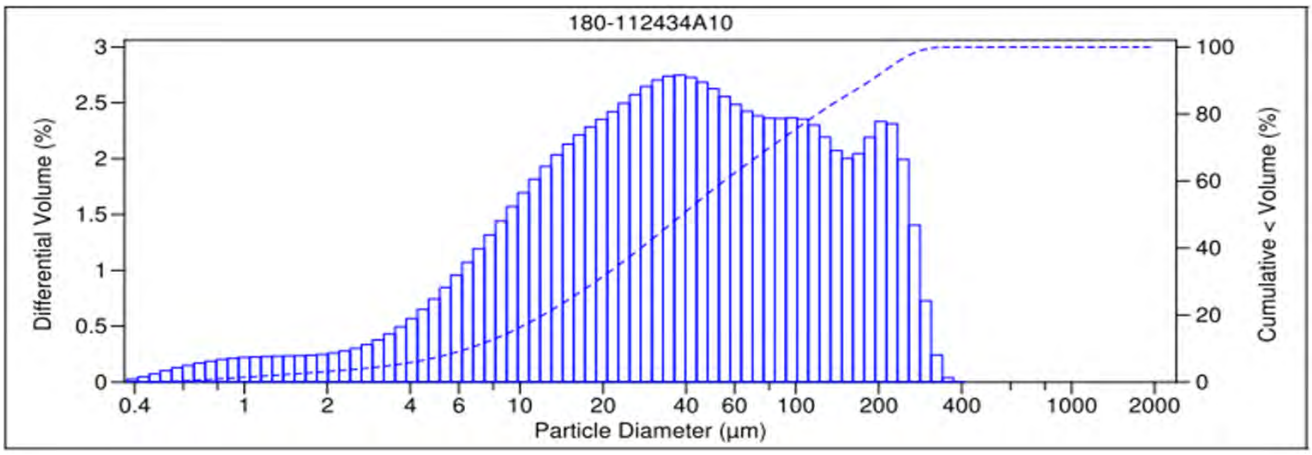
**(ASTM D422 / D4464M)**

| | | | |
|---|---|---|---|
| AECOM | | Date Sampled: | 10/15/20 |
| | | Date Received: | 11/17/20 |
| | | Work Order No: | 180-112434 |
| | | Date Analyzed: | 11/18/20 |
| | | Method: | ASTM D4464M |

Project: Pepco Benning Road Facility

| Sample ID | Depth ft | Description | Mean Grain Size mm |
|---|---|---|---|
| SMS0100N | | Very Fine Sand | 0.068 |

| Particle Size Distribution, wt by percent | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Gravel | Very Coarse Sand | Coarse Sand | Medium Sand | Fine Sand | Very Fine Sand | Silt | Clay | Total Silt & Clay |
| 0.00 | 0.00 | 0.00 | 3.03 | 15.96 | 17.54 | 57.76 | 5.72 | 63.48 |




V 3.0

# PARTICLE SIZE SUMMARY

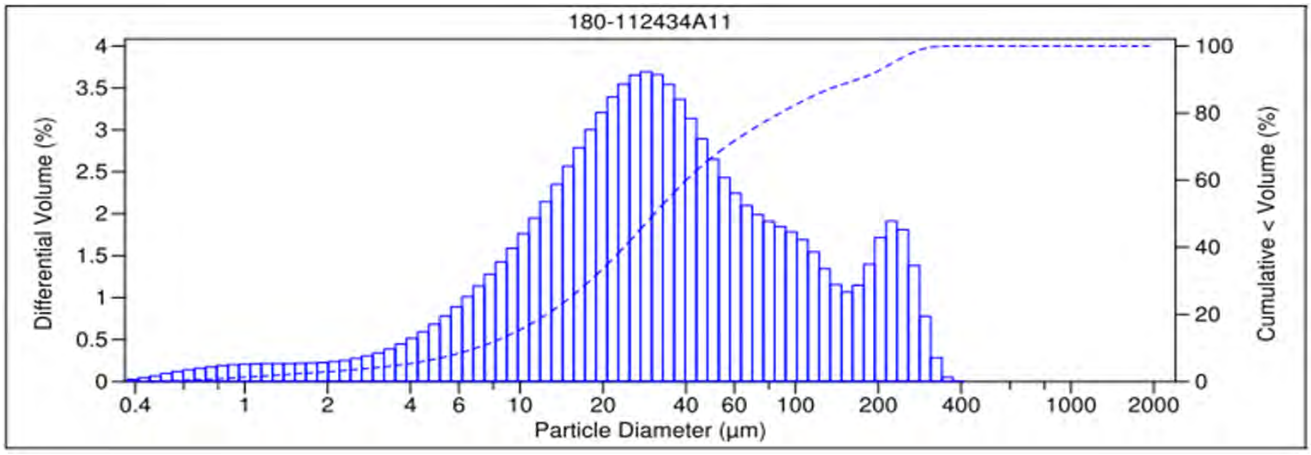
**(ASTM D422 / D4464M)**

| | | | |
|---|---|---|---|
| AECOM | | Date Sampled: | 10/15/20 |
| | | Date Received: | 11/17/20 |
| | | Work Order No: | 180-112434 |
| | | Date Analyzed: | 11/18/20 |
| | | Method: | ASTM D4464M |

Project: Pepco Benning Road Facility

| Sample ID | Depth ft | Description | Mean Grain Size mm |
|---|---|---|---|
| SMS0200N | | Silt | 0.058 |

| Particle Size Distribution, wt by percent | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Gravel | Very Coarse Sand | Coarse Sand | Medium Sand | Fine Sand | Very Fine Sand | Silt | Clay | Total Silt & Clay |
| 0.00 | 0.00 | 0.00 | 3.05 | 10.65 | 13.59 | 67.45 | 5.27 | 72.72 |




V 3.0

# PARTICLE SIZE SUMMARY

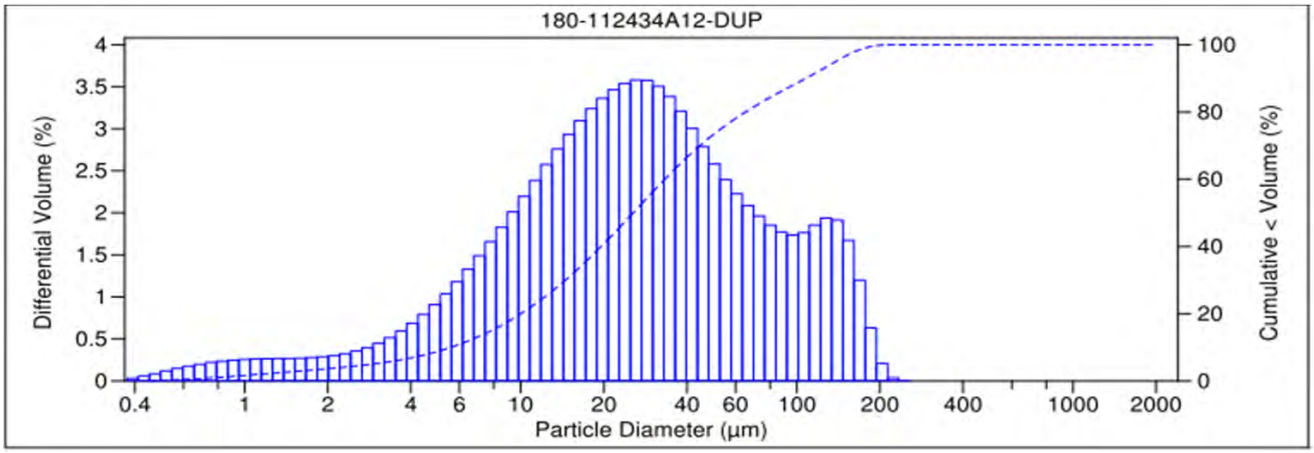
**(ASTM D422 / D4464M)**

| | | | |
|---|---|---|---|
| AECOM | | Date Sampled: | 10/15/20 |
| | | Date Received: | 11/17/20 |
| | | Work Order No: | 180-112434 |
| | | Date Analyzed: | 11/18/20 |
| | | Method: | ASTM D4464M |

Project: Pepco Benning Road Facility

| Sample ID | Depth ft | Description | Mean Grain Size mm |
|---|---|---|---|
| SMS0300N | | Silt | 0.041 |

| Particle Size Distribution, wt by percent | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Gravel | Very Coarse Sand | Coarse Sand | Medium Sand | Fine Sand | Very Fine Sand | Silt | Clay | Total Silt & Clay |
| 0.00 | 0.00 | 0.00 | 0.00 | 7.08 | 13.91 | 72.30 | 6.71 | 79.01 |




V 3.0

# PARTICLE SIZE SUMMARY

**(ASTM D422 / D4464M)**

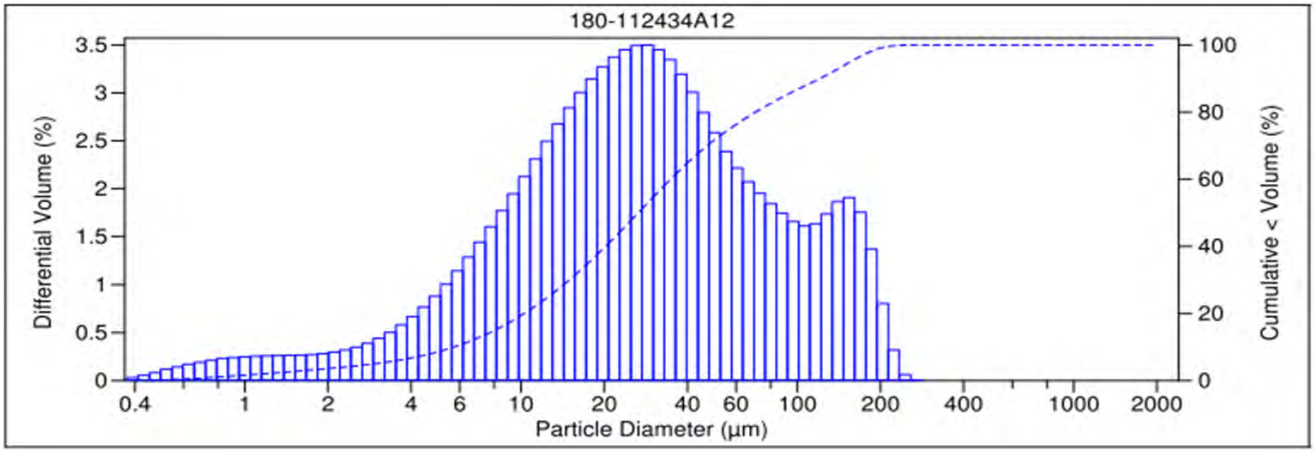
AECOM

| | |
|---|---|
| Date Sampled: | 10/15/20 |
| Date Received: | 11/17/20 |
| Work Order No: | 180-112434 |
| Date Analyzed: | 11/18/20 |
| Method: | ASTM D4464M |

Project: Pepco Benning Road Facility

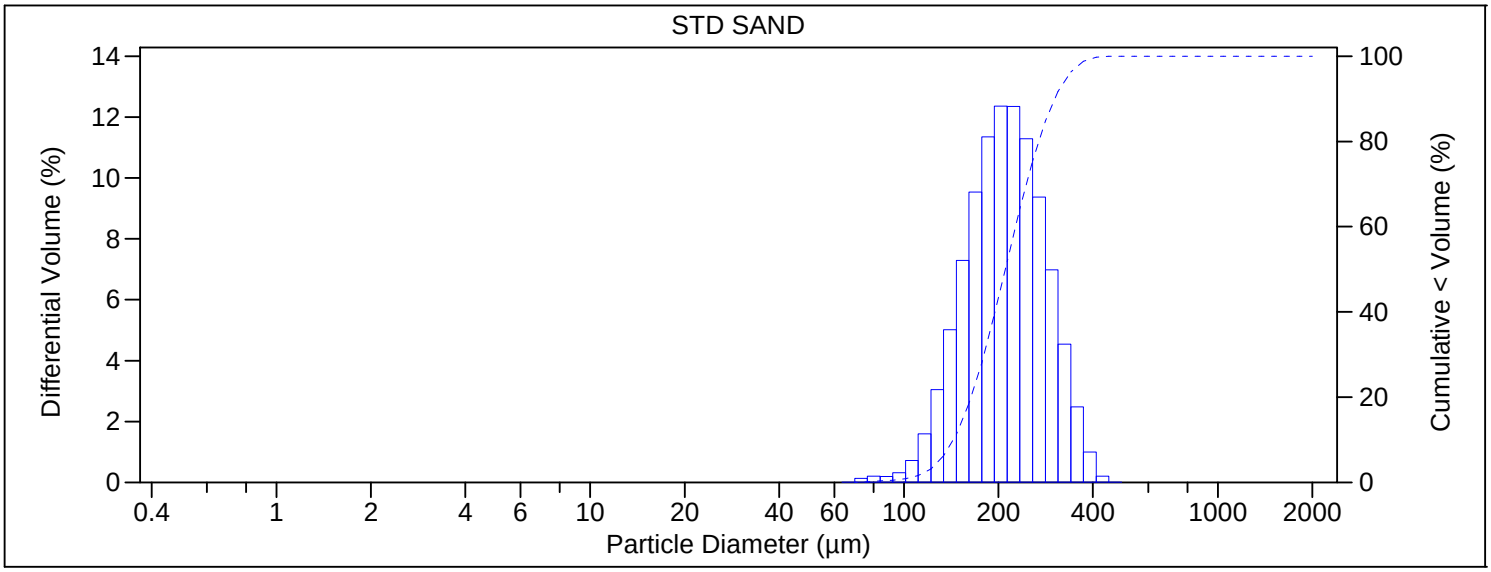
| Sample ID | Depth ft | Description | Mean Grain Size mm |
|---|---|---|---|
| SMS0300N | | Silt | 0.045 |

| Particle Size Distribution, wt by percent | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Gravel | Very Coarse Sand | Coarse Sand | Medium Sand | Fine Sand | Very Fine Sand | Silt | Clay | Total Silt & Clay |
| 0.00 | 0.00 | 0.00 | 0.02 | 9.34 | 13.35 | 70.76 | 6.53 | 77.29 |




V 3.0

| | | | |
|---|---|---|---|
| File name: | C:\LS13320\STD SAND_18 Nov 2020_17.04.49.$ls | | |
| | STD SAND_18 Nov 2020_17.04.49.$ls | | |
| File ID: | STD SAND | | |
| Sample ID: | STD SAND | | |
| Operator: | 1106 | | |
| Run number: | 5 | | |
| | Control Sample | | |
| Comment 1: | ASTM D4464M , LPSA 1 | | |
| Comment 2: | 1048387 | | |
| Optical model: | Fraunhofer.rf780d | | |
| Residual: | 0.96% | | |
| LS 13 320 | Aqueous Liquid Module | | |
| Start time: | 17:03 18 Nov 2020 | Run length: | 60 seconds |
| Pump speed: | 49 | | |
| Obscuration: | 10% | | |
| Fluid: | Water | | |
| Software: | 6.01 | Firmware: | 4.00 |




Volume Statistics (Arithmetic) STD SAND_18 Nov 2020_17.04.49.$ls

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 217.3 µm | S.D.: | 61.40 µm |
| Median: | 210.5 µm | Variance: | 3770 µm$^2$ |
| Mean/Median ratio: | 1.032 | Skewness: | 0.517 Right skewed |
| Mode: | 203.5 µm | Kurtosis: | 0.030 Leptokurtic |

$d_{10}$: 143.6 µm $d_{50}$: 210.5 µm $d_{90}$: 302.6 µm

Folk and Ward Statistics (Phi)

| | | | | | |
|---|---|---|---|---|---|
| Mean: | 2.25 | Median: | 2.25 | Deviation: | 0.42 |
| Skewness: | 0.03 | Kurtosis: | 0.97 | | |

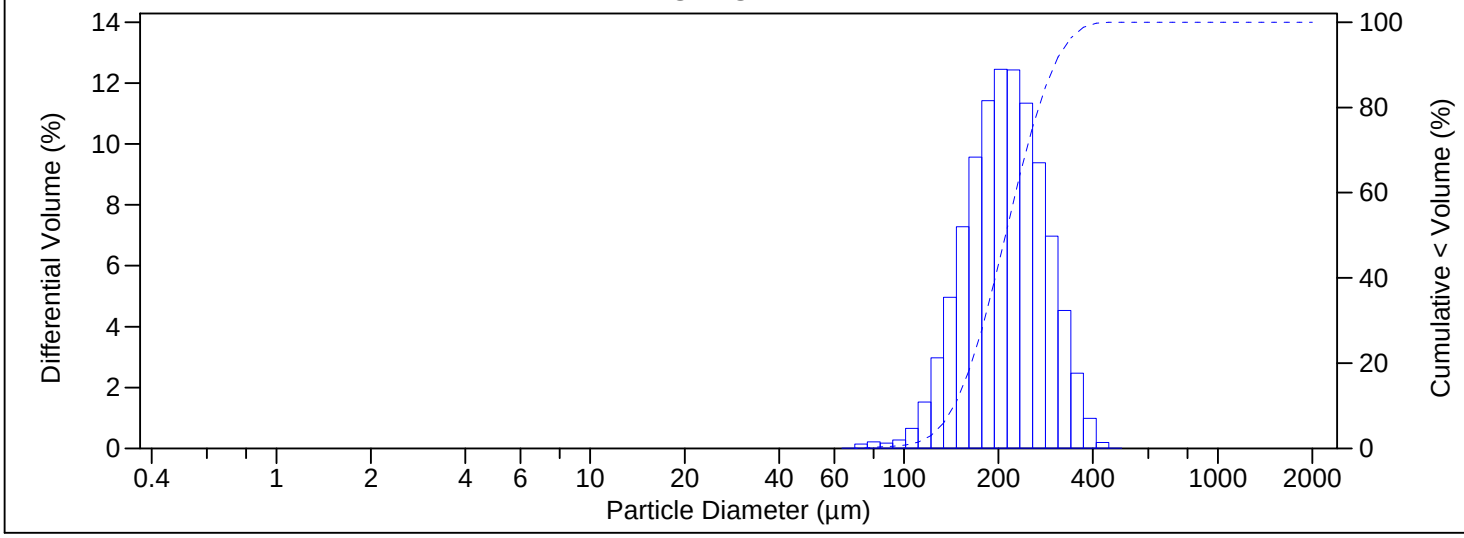
| <5% | <16% | <25% | <40% | <50% | <75% | <84% | <95% |
|---|---|---|---|---|---|---|---|
| 128.9 µm | 156.2 µm | 171.9 µm | 195.1 µm | 210.5 µm | 256.1 µm | 279.9 µm | 331.2 µm |

| Particle Diameter µm | STD SAND _18 Nov 2020_17.04 .49.$ls Volume % |
|---|---|
| 0.04 | 0 |
| 0.4 | 0 |
| 1.95 | 0 |
| 3.91 | 0 |
| 62.5 | 3.99 |
| 125 | 68.0 |
| 250 | 28.0 |
| 500 | 0 |
| 1000 | 0 |
| 2000 | |

STD SAND_18 Nov 2020_17.04.49.$ls

| Channel Diameter (Lower) µm | Diff. Volume % | Channel Diameter (Lower) µm | Diff. Volume % | Channel Diameter (Lower) µm | Diff. Volume % |
|---|---|---|---|---|---|
| 0.375 | 0 | 24.95 | 0 | 1660 | 0 |
| 0.412 | 0 | 27.39 | 0 | 1822 | 0 |
| 0.452 | 0 | 30.07 | 0 | 2000 | |
| 0.496 | 0 | 33.01 | 0 | | |
| 0.545 | 0 | 36.24 | 0 | | |
| 0.598 | 0 | 39.78 | 0 | | |
| 0.657 | 0 | 43.67 | 0 | | |
| 0.721 | 0 | 47.94 | 0 | | |
| 0.791 | 0 | 52.63 | 0 | | |
| 0.869 | 0 | 57.77 | 0 | | |
| 0.954 | 0 | 63.42 | 0.015 | | |
| 1.047 | 0 | 69.62 | 0.13 | | |
| 1.149 | 0 | 76.43 | 0.21 | | |
| 1.261 | 0 | 83.90 | 0.19 | | |
| 1.385 | 0 | 92.10 | 0.32 | | |
| 1.520 | 0 | 101.1 | 0.72 | | |
| 1.669 | 0 | 111.0 | 1.59 | | |
| 1.832 | 0 | 121.8 | 3.05 | | |
| 2.011 | 0 | 133.7 | 5.01 | | |
| 2.208 | 0 | 146.8 | 7.29 | | |
| 2.423 | 0 | 161.2 | 9.53 | | |
| 2.660 | 0 | 176.9 | 11.3 | | |
| 2.920 | 0 | 194.2 | 12.4 | | |
| 3.206 | 0 | 213.2 | 12.4 | | |
| 3.519 | 0 | 234.1 | 11.3 | | |
| 3.863 | 0 | 256.9 | 9.37 | | |
| 4.241 | 0 | 282.1 | 6.98 | | |
| 4.656 | 0 | 309.6 | 4.54 | | |
| 5.111 | 0 | 339.9 | 2.48 | | |
| 5.611 | 0 | 373.1 | 1.00 | | |
| 6.159 | 0 | 409.6 | 0.20 | | |
| 6.761 | 0 | 449.7 | 0.0097 | | |
| 7.422 | 0 | 493.6 | 0 | | |
| 8.148 | 0 | 541.9 | 0 | | |
| 8.944 | 0 | 594.9 | 0 | | |
| 9.819 | 0 | 653.0 | 0 | | |
| 10.78 | 0 | 716.9 | 0 | | |
| 11.83 | 0 | 786.9 | 0 | | |
| 12.99 | 0 | 863.9 | 0 | | |
| 14.26 | 0 | 948.3 | 0 | | |
| 15.65 | 0 | 1041 | 0 | | |
| 17.18 | 0 | 1143 | 0 | | |
| 18.86 | 0 | 1255 | 0 | | |
| 20.71 | 0 | 1377 | 0 | | |
| 22.73 | 0 | 1512 | 0 | | |

| | | | |
|---|---|---|---|
| File name: | C:\LS13320\STD SAND_18 Nov 2020_17.17.40.$ls | | |
| | STD SAND_18 Nov 2020_17.17.40.$ls | | |
| File ID: | STD SAND | | |
| Sample ID: | STD SAND | | |
| Operator: | 1106 | | |
| Run number: | 7 | | |
| | Control Sample | | |
| Comment 1: | ASTM D4464M , LPSA 1 | | |
| Comment 2: | 1048387 | | |
| Optical model: | Fraunhofer.rf780d | | |
| Residual: | 1.26% | | |
| LS 13 320 | Aqueous Liquid Module | | |
| Start time: | 17:16 18 Nov 2020 | Run length: | 60 seconds |
| Pump speed: | 49 | | |
| Obscuration: | 9% | | |
| Fluid: | Water | | |
| Software: | 6.01 | Firmware: | 4.00 |




Volume Statistics (Arithmetic) STD SAND_18 Nov 2020_17.17.40.$ls

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 217.5 µm | S.D.: | 61.13 µm |
| Median: | 210.7 µm | Variance: | 3736 µm$^2$ |
| Mean/Median ratio: | 1.033 | Skewness: | 0.521 Right skewed |
| Mode: | 203.5 µm | Kurtosis: | 0.040 Leptokurtic |

$d_{10}$: 144.3 µm $d_{50}$: 210.7 µm $d_{90}$: 302.5 µm

Folk and Ward Statistics (Phi)

| | | | | | |
|---|---|---|---|---|---|
| Mean: | 2.25 | Median: | 2.25 | Deviation: | 0.41 |
| Skewness: | 0.03 | Kurtosis: | 0.97 | | |

| <5% | <16% | <25% | <40% | <50% | <75% | <84% | <95% |
|---|---|---|---|---|---|---|---|
| 129.8 µm | 156.8 µm | 172.3 µm | 195.4 µm | 210.7 µm | 256.1 µm | 279.9 µm | 331.0 µm |

| Particle Diameter µm | STD SAND _18 Nov 2020_17.17 .40.$ls Volume % |
|---|---|
| 0.04 | 0 |
| 0.4 | 0 |
| 1.95 | 0 |
| 3.91 | 0 |
| 62.5 | 3.80 |
| 125 | 68.2 |
| 250 | 28.0 |
| 500 | 0 |
| 1000 | 0 |
| 2000 | |

STD SAND_18 Nov 2020_17.17.40.$ls

| Channel Diameter (Lower) µm | Diff. Volume % | Channel Diameter (Lower) µm | Diff. Volume % | Channel Diameter (Lower) µm | Diff. Volume % |
|---|---|---|---|---|---|
| 0.375 | 0 | 24.95 | 0 | 1660 | 0 |
| 0.412 | 0 | 27.39 | 0 | 1822 | 0 |
| 0.452 | 0 | 30.07 | 0 | 2000 | |
| 0.496 | 0 | 33.01 | 0 | | |
| 0.545 | 0 | 36.24 | 0 | | |
| 0.598 | 0 | 39.78 | 0 | | |
| 0.657 | 0 | 43.67 | 0 | | |
| 0.721 | 0 | 47.94 | 0 | | |
| 0.791 | 0 | 52.63 | 0 | | |
| 0.869 | 0 | 57.77 | 0 | | |
| 0.954 | 0 | 63.42 | 0.015 | | |
| 1.047 | 0 | 69.62 | 0.14 | | |
| 1.149 | 0 | 76.43 | 0.21 | | |
| 1.261 | 0 | 83.90 | 0.18 | | |
| 1.385 | 0 | 92.10 | 0.28 | | |
| 1.520 | 0 | 101.1 | 0.66 | | |
| 1.669 | 0 | 111.0 | 1.52 | | |
| 1.832 | 0 | 121.8 | 2.98 | | |
| 2.011 | 0 | 133.7 | 4.97 | | |
| 2.208 | 0 | 146.8 | 7.28 | | |
| 2.423 | 0 | 161.2 | 9.57 | | |
| 2.660 | 0 | 176.9 | 11.4 | | |
| 2.920 | 0 | 194.2 | 12.4 | | |
| 3.206 | 0 | 213.2 | 12.4 | | |
| 3.519 | 0 | 234.1 | 11.3 | | |
| 3.863 | 0 | 256.9 | 9.39 | | |
| 4.241 | 0 | 282.1 | 6.97 | | |
| 4.656 | 0 | 309.6 | 4.53 | | |
| 5.111 | 0 | 339.9 | 2.47 | | |
| 5.611 | 0 | 373.1 | 0.99 | | |
| 6.159 | 0 | 409.6 | 0.20 | | |
| 6.761 | 0 | 449.7 | 0.0090 | | |
| 7.422 | 0 | 493.6 | 0 | | |
| 8.148 | 0 | 541.9 | 0 | | |
| 8.944 | 0 | 594.9 | 0 | | |
| 9.819 | 0 | 653.0 | 0 | | |
| 10.78 | 0 | 716.9 | 0 | | |
| 11.83 | 0 | 786.9 | 0 | | |
| 12.99 | 0 | 863.9 | 0 | | |
| 14.26 | 0 | 948.3 | 0 | | |
| 15.65 | 0 | 1041 | 0 | | |
| 17.18 | 0 | 1143 | 0 | | |
| 18.86 | 0 | 1255 | 0 | | |
| 20.71 | 0 | 1377 | 0 | | |
| 22.73 | 0 | 1512 | 0 | | |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112434-2

## Method: D4464 - Particle Size Distribution of Catalytic Material ( Laser light scattering)

**Lab Sample ID: 180-112434-12 DU**
**Matrix: Solid**
**Analysis Batch: 110893**

**Client Sample ID: SMS0300N**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Clay(less than 0.00391 mm) | 6.53 | | | 6.71 | | % | | | | 3 | 20 |
| Coarse Sand (0.5mm to 1mm) | ND | | | ND | | % | | | | NC | 20 |
| Fine Sand (0.125 to 0.25mm) | 9.34 | | | 7.08 | F3 | % | | | | 28 | 20 |
| Gravel (greater than 2 mm) | ND | | | ND | | % | | | | NC | 20 |
| Medium Sand (0.25 to 0.5 mm) | 0.02 | | | ND | | % | | | | NC | 20 |
| Silt (0.00391 to 0.0625mm) | 70.76 | | | 72.30 | | % | | | | 2 | 20 |
| Total Silt and Clay (0 to 0.0626mm) | 77.29 | | | 79.01 | | % | | | | 2 | 20 |
| Very Coarse Sand (1 to 2mm) | ND | | | ND | | % | | | | NC | 20 |
| Very Fine Sand (0.0625 to 0.125 mm) | 13.35 | | | 13.91 | | % | | | | 4 | 20 |

Client: AECOM
Job ID: 180-112434-2
Project/Site: Pepco Benning Road Facility

## Geotechnical

### Analysis Batch: 110893

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112434-10 | SMS0100N | Total/NA | Solid | D4464 | |
| 180-112434-11 | SMS0200N | Total/NA | Solid | D4464 | |
| 180-112434-12 | SMS0300N | Total/NA | Solid | D4464 | |
| LCS 570-110893/5 | Lab Control Sample | Total/NA | Solid | D4464 | |
| LCSD 570-110893/7 | Lab Control Sample Dup | Total/NA | Solid | D4464 | |
| 180-112434-12 DU | SMS0300N | Total/NA | Solid | D4464 | |

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

Baltimore #201

eurofins | Environment Testing America

| | | | | |
|---|---|---|---|---|
| **Client Information** | Sampler: Sharon Drummond | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-63272-12755.2 |
| Client Contact: Mr. Robert Kennedy | Phone: 410.533.7095 | E-Mail: Jill.Colussy@Eurofinset.com | | Page: Page 2 of 2 |
| Company: AECOM | | | | Job #: |
| Address: 250 Apollo Drive | Due Date Requested: | | | |
| City: Chelmsford | TAT Requested (days): Standard | | | |
| State, Zip: MA, 01824 | | | | |
| Phone: | PO #: 126546 | | | |
| Email: robert.kennedy@aecom.com | WO #: 60631088.3 | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | Grain size (ASTM D 4464 [Eurofins Calscience]) | TOC Lloyd Kahn | PCB Congeners (EPA 1668C) | PAHs-primary pollutant list (EPA 8270D-4) | PCDD/FS (2378 [17]) (EPA 8290A) | TPH-DRO/ORO (EPA 8015D) | TAL Metals (Total) (EPA 6020/7471) | Wet Sediment weight | Percent Solids | Rinsed sediment dry weight | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | | | | | | | | |
| SMS0100N | 10/15/20 | 1215 | G | S | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | | | |
| OFS0300N | 10/15/20 | 1300 | G | S | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | Total wet sediment |
| SMS0200N | 10/15/20 | 1355 | G | S | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | | | weight + % solids |
| OFS0100N | 10/15/20 | 1400 | G | S | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | From 1-gal jars. |
| SMS0300N | 10/15/20 | 1500 | G | S | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | | | |
| OFS0400N | 10/15/20 | 1515 | G | S | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | OFS samples: |
| SMS0100N-Mat | 10/15/20 | 1215 | G | S/Mat | | | | | | | | | | | | ✓ | | prioritize chemical |
| SMS0200N-Mat | 10/15/20 | 1355 | G | S/Mat | | | | | | | | | | | | ✓ | | analysis if not |
| SM0300N-Mat | 10/15/20 | 1500 | G | S/Mat | | | | | | | | | | | | ✓ | | enough volume for |
| | | | | | | | | | | | | | | | | | | grain size analysis. |

**Possible Hazard Identification**
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown ☐ Radiological
SO 10/15/20

Sa[illegible] ☐ [illegible] retained longer than 1 month) ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Spe[illegible]

180-112434 Chain of Custody

Empty Kit Relinquished by: | Date: | Time:

| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|
| [signature] | 10/15/20 1724 | AECOM | [signature] | 10/16/20 10:41 | ETA Bart |
| [signature] | 10/16/20 1700 | ETA-BALT | [signature] | 10/17/20 950 | [illegible] |
| | | | | | |

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

**Eurofins TestAmerica, Knoxville**
5815 Middlebrook Pike
Knoxville, TN 37921
Phone: 865-291-3000 Fax: 865-584-4315

# Chain of Custody Record

180-112434 Chain of Custody

Environment Testing America

| Client Information (Sub Contract Lab) | Sampler: | Lab PM: Colussy, Jill L | |
|---|---|---|---|
| Client Contact: Shipping/Receiving | Phone: | E-Mail: Jill.Colussy@Eurofinset.com | |
| Company: TestAmerica Laboratories, Inc. | | Accreditations Required (See note): | Job #: 180-112434-1 |
| Address: 301 Alpha Drive, RIDC Park, | Due Date Requested: 10/22/2020 | | |
| City: Pittsburgh | TAT Requested (days): | | |
| State, Zip: PA, 15238 | | | |
| Phone: 412-963-7058(Tel) 412-963-2468(Fax) | PO #: | | |
| Email: | WO #: | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | |
| Site: | SSOW#: | | |

**Analysis Requested**

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - pH 4-5 |
| L - EDA | Z - other (specify) |

Other:

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=Comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | Lloyd_Kahn_Mod/ (MOD) Organic Carbon, Total (TOC) | Moisture/ (MOD) Percent Moisture | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | |
| SMS0100N (180-112434-1) | 10/15/20 | 12:15 Eastern | | Sediment | | | X | X | 1 | |
| SMS0200N (180-112434-3) | 10/15/20 | 13:55 Eastern | | Sediment | | | X | X | 1 | |
| SMS0300N (180-112434-5) | 10/15/20 | 15:00 Eastern | | Sediment | | | X | X | 1 | |

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

| Possible Hazard Identification | Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) |
|---|---|
| Unconfirmed | ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months |
| Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4 | Special Instructions/QC Requirements: |

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

| | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|---|
| 1 | | 11-13-20 15:30 | FTA FNX | | 11-14-20 | |
| 2 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: 10:30 | Company |
| 3 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks |
|---|---|---|

Ver: 01/16/2019

FedEx®

eurofins | Environment Testing TestAmerica

Part # 159469-434 RIT2 EXP 12/20

ORIGIN ID:RKWA (865) 291-3000
SAMPLE CONTRO
EUROFINS TES
5815 MIDDLEB
KNOXVILLE, T
UNITED STAT

SHIP DATE: 13NOV20
ACTWGT: 13.25 LB
CAD: 0862679/CAFE3406
DIMS: 11x8x7 IN

180-112434 Waybill

56DC5/BAB9/05A2

TO SHIPP
TESTA
301 ALPHA DR
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
PO: YES
REF: 8140-8662
DEPT: 140320

FedEx Express

E

J201019110601av

SATURDAY 12:00P
PRIORITY OVERNIGHT

TRK# 0201 9272 6084 4920

15238
PA-US PIT

XO AGCA

Uncorrected temp 29 °C
Thermometer ID 14
CF 0 Initials TS

PT-WI-SR-001 effective 7/26/13

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

eurofins | Environment Testing America

| Client Information (Sub Contract Lab) | Sampler: | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-419078.1 |
|---|---|---|---|---|
| Client Contact: Shipping/Receiving | Phone: | E-Mail: Jill.Colussy@Eurofinset.com | State of Origin: Maryland | Page: Page 1 of 1 |
| Company: Eurofins Calscience LLC | | Accreditations Required (See note): | | Job #: 180-112434-2 |
| Address: 7440 Lincoln Way, , | Due Date Requested: 10/23/2020 | | | |
| City: Garden Grove | TAT Requested (days): | | | |
| State, Zip: CA, 92841 | | | | |
| Phone: 714-895-5494(Tel) 714-894-7501(Fax) | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - pH 4-5 |
| L - EDA | Z - other (specify) |

Other:

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=Comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | D4464/ Full Analyte List | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | |
| SMS0100N (180-112434-10) | 10/15/20 | 12:15 Eastern | | Solid | | | X | 2 | |
| SMS0200N (180-112434-11) | 10/15/20 | 13:55 Eastern | | Solid | | | X | 2 | |
| SMS0300N (180-112434-12) | 10/15/20 | 15:00 Eastern | | Solid | | | X | 2 | |

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

| *Possible Hazard Identification* | *Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)* |
|---|---|
| *Unconfirmed* | ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months* |
| Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4 | Special Instructions/QC Requirements: |

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

| | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|---|
| 1 | | 11/16/20 1700 | | | 11/17/2020 1030 | |
| 2 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| 3 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: N/A | Cooler Temperature(s) °C and Other Remarks: 3.0/2.2 RCG |
|---|---|---|

Ver: 11/01/2020



11/20/2020

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-112434-2

**Login Number: 112434**
**List Number: 1**
**Creator: Say, Thomas C**

**List Source: Eurofins TestAmerica, Pittsburgh**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-112434-2

**Login Number: 112434**
**List Number: 5**
**Creator: Rivera, Isaac**

**List Source: Eurofins Calscience**
**List Creation: 11/17/20 01:54 PM**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | |
| The cooler's custody seal, if present, is intact. | True | Seal present with no number. |
| Sample custody seals, if present, are intact. | N/A | Not Present |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | 2.2 |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | False | Received project as a subcontract. |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

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# ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-112435-1
Client Project/Site: Pepco Benning Road Facility

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

*Authorized for release by:*
*11/4/2020 5:10:32 PM*

Jill Colussy, Project Manager I
(412)963-2444
Jill.Colussy@Eurofinset.com

LINKS
Review your project results through TotalAccess
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

*PA Lab ID: 02-00416*

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## Job ID: 180-112435-1

**Laboratory: Eurofins TestAmerica, Pittsburgh**

**Narrative**

# CASE NARRATIVE

## Client: AECOM

## Project: Pepco Benning Road Facility

## Report Number: 180-112435-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**

The samples were received on 10/17/2020 9:30 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 2.4º C, 15.1º C and 17.8º C.

**PERCENT SOLIDS**

For sample SMS0100N, 1 jar was received. The corrected wet weight of the sample was 2378.1 grams. The moisture content of the sample was 67 %. Therefore, the dry weight corrected result was 784.8 grams.

For sample SMS0200N, 3 jars were received. The corrected wet weight of the individual jars were 4597.9 grams, 4662.1 grams, and 4613.5 grams. The total wet weight was 13873.5 grams. The moisture content of each jar was 77.2%, 77%, and 73.4% respectively. Therefore, the dry weight of each jar was 1048.3 grams, 1072.3 grams, and 1227.2 grams. The total dry weight corrected result was 3347.8 grams.

For sample SMS0200N, 2 jars were received. The corrected wet weight of the individual jars were 4695.8 grams and 4792.0 grams. The total wet weight was 9487.8 grams. The moisture content of each jar was 70.8% and 72.4% respectively. Therefore, the dry weight of each jar was 1371.2 grams and 1322.6 grams. The total dry weight corrected result was 2693.8 grams.

# Definitions/Glossary

Client: AECOM
Job ID: 180-112435-1
Project/Site: Pepco Benning Road Facility

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CFU | Colony Forming Unit |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MCL | EPA recommended "Maximum Contaminant Level" |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| MPN | Most Probable Number |
| MQL | Method Quantitation Limit |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| NEG | Negative / Absent |
| POS | Positive / Present |
| PQL | Practical Quantitation Limit |
| PRES | Presumptive |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |
| TNTC | Too Numerous To Count |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-112435-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| Arkansas DEQ | State | 19-033-0 | 06-27-21 |
| California | State | 2891 | 04-30-21 |
| Connecticut | State | PH-0688 | 09-30-20 * |
| Florida | NELAP | E871008 | 06-30-21 |
| Georgia | State | PA 02-00416 | 04-30-21 |
| Illinois | NELAP | 004375 | 06-30-21 |
| Kansas | NELAP | E-10350 | 01-31-21 |
| Kentucky (UST) | State | 162013 | 04-30-21 |
| Kentucky (WW) | State | KY98043 | 12-31-20 |
| Louisiana | NELAP | 04041 | 06-30-21 |
| Maine | State | PA00164 | 03-06-22 |
| Minnesota | NELAP | 042-999-482 | 12-31-20 |
| Nevada | State | PA00164 | 07-31-21 |
| New Hampshire | NELAP | 2030 | 04-05-21 |
| New Jersey | NELAP | PA005 | 06-30-21 |
| New York | NELAP | 11182 | 04-01-21 |
| North Carolina (WW/SW) | State | 434 | 11-01-20 |
| North Dakota | State | R-227 | 04-30-21 |
| Oregon | NELAP | PA-2151 | 02-06-21 |
| Pennsylvania | NELAP | 02-00416 | 04-30-21 |
| Rhode Island | State | LAO00362 | 12-31-20 |
| South Carolina | State | 89014 | 04-30-21 |
| Texas | NELAP | T104704528 | 03-31-21 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | Federal | P-Soil-01 | 06-26-22 |
| USDA | US Federal Programs | P330-16-00211 | 06-26-22 |
| Utah | NELAP | PA001462019-8 | 05-31-21 |
| Virginia | NELAP | 10043 | 09-14-21 |
| West Virginia DEP | State | 142 | 02-01-21 |
| Wisconsin | State | 998027800 | 08-31-21 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Sample Summary

Client: AECOM
Job ID: 180-112435-1
Project/Site: Pepco Benning Road Facility

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 180-112435-1 | SMS0100N | Sediment | 10/15/20 12:15 | 10/17/20 09:30 | |
| 180-112435-2 | SMS0200N JAR A | Sediment | 10/15/20 13:55 | 10/17/20 09:30 | |
| 180-112435-3 | SMS0300N JAR A | Sediment | 10/15/20 15:00 | 10/17/20 09:30 | |
| 180-112435-4 | SMS0200N JAR B | Sediment | 10/15/20 13:55 | 10/17/20 09:30 | |
| 180-112435-5 | SMS0200N JAR C | Sediment | 10/15/20 13:55 | 10/17/20 09:30 | |
| 180-112435-6 | SMS0300N JAR B | Sediment | 10/15/20 15:00 | 10/17/20 09:30 | |

# Method Summary

Client: AECOM
Job ID: 180-112435-1
Project/Site: Pepco Benning Road Facility

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 2540G | SM 2540G | SM22 | TAL PIT |

**Protocol References:**

SM22 = Standard Methods For The Examination Of Water And Wastewater, 22nd Edition

**Laboratory References:**

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: AECOM
Job ID: 180-112435-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: SMS0100N
**Lab Sample ID: 180-112435-1**
**Date Collected: 10/15/20 12:15**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 334153 | 10/21/20 07:20 | MTW | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SMS0200N JAR A
**Lab Sample ID: 180-112435-2**
**Date Collected: 10/15/20 13:55**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 334153 | 10/21/20 07:20 | MTW | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SMS0300N JAR A
**Lab Sample ID: 180-112435-3**
**Date Collected: 10/15/20 15:00**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 334153 | 10/21/20 07:20 | MTW | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SMS0200N JAR B
**Lab Sample ID: 180-112435-4**
**Date Collected: 10/15/20 13:55**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 334153 | 10/21/20 07:20 | MTW | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SMS0200N JAR C
**Lab Sample ID: 180-112435-5**
**Date Collected: 10/15/20 13:55**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 334153 | 10/21/20 07:20 | MTW | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SMS0300N JAR B
**Lab Sample ID: 180-112435-6**
**Date Collected: 10/15/20 15:00**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 2540G | | 1 | | | 334153 | 10/21/20 07:20 | MTW | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

**Laboratory References:**
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: AECOM
Job ID: 180-112435-1
Project/Site: Pepco Benning Road Facility

**Analyst References:**

Lab: TAL PIT

Batch Type: Analysis

MTW = Michael Wesoloski

# Client Sample Results

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112435-1

**Client Sample ID: SMS0100N**
**Date Collected: 10/15/20 12:15**
**Date Received: 10/17/20 09:30**

**Lab Sample ID: 180-112435-1**
**Matrix: Sediment**

## General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 67.0 | | 0.1 | 0.1 | % | | | 10/21/20 07:20 | 1 |

Client: AECOM
Job ID: 180-112435-1
Project/Site: Pepco Benning Road Facility

**Client Sample ID: SMS0200N JAR A**
**Lab Sample ID: 180-112435-2**
**Date Collected: 10/15/20 13:55**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

## General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 77.2 | | 0.1 | 0.1 | % | | | 10/21/20 07:20 | 1 |

# Client Sample Results

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112435-1

## Client Sample ID: SMS0300N JAR A

**Date Collected: 10/15/20 15:00**
**Date Received: 10/17/20 09:30**

## Lab Sample ID: 180-112435-3

**Matrix: Sediment**

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 70.8 | | 0.1 | 0.1 | % | | | 10/21/20 07:20 | 1 |

# Client Sample Results

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112435-1

## Client Sample ID: SMS0200N JAR B

**Date Collected: 10/15/20 13:55**
**Date Received: 10/17/20 09:30**

## Lab Sample ID: 180-112435-4

**Matrix: Sediment**

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 77.0 | | 0.1 | 0.1 | % | | | 10/21/20 07:20 | 1 |

# Client Sample Results

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112435-1

## Client Sample ID: SMS0200N JAR C

**Date Collected: 10/15/20 13:55**
**Date Received: 10/17/20 09:30**

## Lab Sample ID: 180-112435-5

**Matrix: Sediment**

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 73.4 | | 0.1 | 0.1 | % | | | 10/21/20 07:20 | 1 |

Client: AECOM
Job ID: 180-112435-1
Project/Site: Pepco Benning Road Facility

**Client Sample ID: SMS0300N JAR B**
**Lab Sample ID: 180-112435-6**
**Date Collected: 10/15/20 15:00**
**Matrix: Sediment**
**Date Received: 10/17/20 09:30**

## General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 72.4 | | 0.1 | 0.1 | % | | | 10/21/20 07:20 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112435-1

## Method: 2540G - SM 2540G

**Lab Sample ID: 180-112435-1 DU**
**Matrix: Sediment**
**Analysis Batch: 334153**

**Client Sample ID: SMS0100N**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 67.0 | | | 68.2 | | % | | | | 2 | 10 |

# QC Association Summary

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112435-1

## General Chemistry

### Analysis Batch: 334153

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112435-1 | SMS0100N | Total/NA | Sediment | 2540G | |
| 180-112435-2 | SMS0200N JAR A | Total/NA | Sediment | 2540G | |
| 180-112435-3 | SMS0300N JAR A | Total/NA | Sediment | 2540G | |
| 180-112435-4 | SMS0200N JAR B | Total/NA | Sediment | 2540G | |
| 180-112435-5 | SMS0200N JAR C | Total/NA | Sediment | 2540G | |
| 180-112435-6 | SMS0300N JAR B | Total/NA | Sediment | 2540G | |
| 180-112435-1 DU | SMS0100N | Total/NA | Sediment | 2540G | |

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

Baltimore #201

eurofins | Environment Testing America

| Client Information | Sampler: Sharon Drummond | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-63272-12755.2 |
|---|---|---|---|---|
| Client Contact: Mr. Robert Kennedy | Phone: 410.533.7095 | E-Mail: Jill.Colussy@Eurofinset.com | | Page: Page 2 of 2 |
| Company: AECOM | | | | Job #: |
| Address: 250 Apollo Drive | Due Date Requested: | | | |
| City: Chelmsford | TAT Requested (days): Standard | | | |
| State, Zip: MA, 01824 | | | | |
| Phone: | PO #: 126546 | | | |
| Email: robert.kennedy@aecom.com | WO #: 60631088.3 | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | Grain Size (ASTM D 4464 Eurofins Calscience) | TOC Lloyd Kahn | PCB Congeners (EPA 1668C) | PAHs-Drinking pollutant list (EPA 8270D LL) | PCDD/Fs (1378 LL) (EPA 8290A) | TPH - DRO/ORO (EPA 8015D) | TAL Metals (Total) (EPA 6020A/7471A) | Wet Sediment weight | Percent Solids | Rinsed sediment dry weight | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | | | | | | | | |
| SMS0100N | 10/15/20 | 1215 | G | S | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | | | |
| OFS0300N | 10/15/20 | 1300 | G | S | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | |
| SMS0200N | 10/15/20 | 1355 | G | S | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | | | |
| OFS0100N | 10/15/20 | 1400 | G | S | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | |
| SMS0300N | 10/15/20 | 1500 | G | S | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | | | |
| OFS0400N | 10/15/20 | 1515 | G | S | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | |
| SMS0100N-Mat | 10/15/20 | 1215 | G | S1 Mat | | | | | | | | | | | | ✓ | | |
| SMS0200N-Mat | 10/15/20 | 1355 | G | S1 Mat | | | | | | | | | | | | ✓ | | |
| SMS0300N-Mat | 10/15/20 | 1500 | G | S1 Mat | | | | | | | | | | | | ✓ | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

OFS samples: prioritize chemical analysis if not enough volume for grain size analysis.

180-112435 Chain of Custody

**Possible Hazard Identification**
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown ☐ Radiological

Sample Di ☐ Retu — d longer than 1 month)
Special Ins — e For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by: | Date: | Time:

| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|
| | 10/15/20 1724 | AECOM | | 10/16/20 10:41 | ETA Surf |
| | 10/16/20 1700 | ETA-Balt | | 10/17/20 930 | ETA Balt |
| | | | | | |

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-112435-1

**Login Number: 112435**
**List Number: 1**
**Creator: Say, Thomas C**

**List Source: Eurofins TestAmerica, Pittsburgh**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

eurofins | Environment Testing America



# ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-112989-1
Client Project/Site: Pepco Benning Road Facility

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

*Authorized for release by:*
*12/3/2020 9:56:30 AM*

Jill Colussy, Project Manager I
(412)963-2444
Jill.Colussy@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

*PA Lab ID: 02-00416*

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## Job ID: 180-112989-1

**Laboratory: Eurofins TestAmerica, Pittsburgh**

**Narrative**

# CASE NARRATIVE

## Client: AECOM

## Project: Pepco Benning Road Facility

## Report Number: 180-112989-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**

The samples were received on 10/30/2020 8:45 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.7º C and 3.9º C.

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): OFW0100N (180-112989-1) and OFW0200N (180-112989-2). The container labels list the opposite sample collection times as what is on the COC for these two samples. The times were logged in off of the COC.

**SEMIVOLATILES**

The continuing calibration verification (CCV) associated with batch 180-336474 recovered above the upper control limit for Pentachlorophenol. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

**DRO**

Due to the concentration of DRO detected, sample OFW0300N (180-112989-3) was analyzed at a dilution. The reporting limits have been adjusted accordingly.

**PCB CONGENERS**

The following samples went through Gel-Permeation Cleanup procedure, based on EPA method 3640A: OFW0100N (180-112989-1), OFW0200N (180-112989-2), OFW0300N (180-112989-3), OFW0400N (180-112989-4) and OFW0500N (180-112989-5)

Due to the concentration of target compounds detected, sample OFW0100N (180-112989-1) and OFW0300N (180-112989-3) were analyzed at a dilution. The reporting limits have been adjusted accordingly.

Several analytes were detected in method blank MB 140-44772/7-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. .

**METALS**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GENERAL CHEMISTRY**

## Job ID: 180-112989-1 (Continued)

### Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

## Qualifiers

### GC/MS Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

### GC Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

### Dioxin

| Qualifier | Qualifier Description |
|---|---|
| B | Compound was found in the blank and sample. |
| C | The compound co-eluted with other compounds |
| C108 | The compound co-eluted with PCB-108 |
| C110 | The compound co-eluted with PCB-110 |
| C12 | The compound co-eluted with PCB-12 |
| C128 | The compound co-eluted with PCB-128 |
| C129 | The compound co-eluted with PCB-129 |
| C134 | The compound co-eluted with PCB-134 |
| C135 | The compound co-eluted with PCB-135 |
| C139 | The compound co-eluted with PCB-139 |
| C147 | The compound co-eluted with PCB-147 |
| C153 | The compound co-eluted with PCB-153 |
| C156 | The compound co-eluted with PCB-156 |
| C171 | The compound co-eluted with PCB-171 |
| C18 | The compound co-eluted with PCB-18 |
| C180 | The compound co-eluted with PCB-180 |
| C183 | The compound co-eluted with PCB-183 |
| C198 | The compound co-eluted with PCB-198 |
| C20 | The compound co-eluted with PCB-20 |
| C21 | The compound co-eluted with PCB-21 |
| C26 | The compound co-eluted with PCB-26 |
| C40 | The compound co-eluted with PCB-40 |
| C43 | The compound co-eluted with PCB-43 |
| C44 | The compound co-eluted with PCB-44 |
| C45 | The compound co-eluted with PCB-45 |
| C49 | The compound co-eluted with PCB-49 |
| C50 | The compound co-eluted with PCB-50 |
| C59 | The compound co-eluted with PCB-59 |
| C61 | The compound co-eluted with PCB-61 |
| C83 | The compound co-eluted with PCB-83 |
| C85 | The compound co-eluted with PCB-85 |
| C86 | The compound co-eluted with PCB-86 |
| C88 | The compound co-eluted with PCB-88 |
| C90 | The compound co-eluted with PCB-90 |
| C93 | The compound co-eluted with PCB-93 |
| C98 | The compound co-eluted with PCB-98 |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| q | The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference. |

### Metals

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CFU | Colony Forming Unit |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MCL | EPA recommended "Maximum Contaminant Level" |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| MPN | Most Probable Number |
| MQL | Method Quantitation Limit |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| NEG | Negative / Absent |
| POS | Positive / Present |
| PQL | Practical Quantitation Limit |
| PRES | Presumptive |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |
| TNTC | Too Numerous To Count |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-112989-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| Arkansas DEQ | State | 19-033-0 | 06-27-21 |
| California | State | 2891 | 04-30-21 |
| Connecticut | State | PH-0688 | 09-30-20 * |
| Florida | NELAP | E871008 | 06-30-21 |
| Georgia | State | PA 02-00416 | 04-30-21 |
| Illinois | NELAP | 004375 | 06-30-21 |
| Kansas | NELAP | E-10350 | 01-31-21 |
| Kentucky (UST) | State | 162013 | 04-30-21 |
| Kentucky (WW) | State | KY98043 | 12-31-20 |
| Louisiana | NELAP | 04041 | 06-30-21 |
| Maine | State | PA00164 | 03-06-22 |
| Minnesota | NELAP | 042-999-482 | 12-31-20 |
| Nevada | State | PA00164 | 07-31-21 |
| New Hampshire | NELAP | 2030 | 04-05-21 |
| New Jersey | NELAP | PA005 | 06-30-21 |
| New York | NELAP | 11182 | 04-01-21 |
| North Carolina (WW/SW) | State | 434 | 12-31-21 |
| North Dakota | State | R-227 | 04-30-21 |
| Oregon | NELAP | PA-2151 | 02-06-21 |
| Pennsylvania | NELAP | 02-00416 | 04-30-21 |
| Rhode Island | State | LAO00362 | 12-31-20 |
| South Carolina | State | 89014 | 04-30-21 |
| Texas | NELAP | T104704528 | 03-31-21 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | Federal | P-Soil-01 | 06-26-22 |
| USDA | US Federal Programs | P330-16-00211 | 06-26-22 |
| Utah | NELAP | PA001462019-8 | 05-31-21 |
| Virginia | NELAP | 10043 | 09-14-21 |
| West Virginia DEP | State | 142 | 02-01-21 |
| Wisconsin | State | 998027800 | 08-31-21 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-112989-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| California | State | 2927 | 02-23-21 |
| Connecticut | State | PH-0590 | 12-31-21 |
| Florida | NELAP | E87225 | 06-30-21 |
| Georgia | State | 4062 | 02-23-21 |
| Illinois | NELAP | 004498 | 07-31-21 |
| Iowa | State | 421 | 06-01-21 |
| Kansas | NELAP | E-10336 | 04-30-21 |
| Kentucky (UST) | State | 112225 | 02-23-21 |
| Kentucky (WW) | State | KY98016 | 12-31-20 |
| Minnesota | NELAP | OH00048 | 12-31-20 |
| Minnesota (Petrofund) | State | 3506 | 08-01-21 |
| New Jersey | NELAP | OH001 | 06-30-21 |
| New York | NELAP | 10975 | 03-31-21 |
| Ohio VAP | State | CL0024 | 06-05-21 |
| Oregon | NELAP | 4062 | 02-24-21 |
| Pennsylvania | NELAP | 68-00340 | 08-31-21 |
| Texas | NELAP | T104704517-18-10 | 08-31-21 |
| USDA | US Federal Programs | P330-18-00281 | 09-17-21 |
| Virginia | NELAP | 010101 | 09-14-21 |
| Washington | State | C971 | 01-12-21 |
| West Virginia DEP | State | 210 | 12-31-20 |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-112989-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| | AFCEE | N/A | |
| ANAB | Dept. of Defense ELAP | L2311 | 02-13-22 |
| ANAB | Dept. of Energy | L2311.01 | 02-13-22 |
| ANAB | ISO/IEC 17025 | L2311 | 02-13-22 |
| ANAB | ISO/IEC 17025 | L2311 | 02-14-22 |
| Arkansas DEQ | State | 88-0688 | 06-17-21 |
| California | State | 2423 | 06-30-21 |
| Colorado | State | TN00009 | 02-28-21 |
| Connecticut | State | PH-0223 | 09-30-21 |
| Florida | NELAP | E87177 | 07-01-21 |
| Georgia (DW) | State | 906 | 12-11-22 |
| Hawaii | State | NA | 12-11-21 |
| Kansas | NELAP | E-10349 | 11-01-20 * |
| Kentucky (DW) | State | 90101 | 01-01-21 |
| Louisiana | NELAP | LA110001 | 12-31-12 * |
| Louisiana | NELAP | 83979 | 06-30-21 |
| Louisiana (DW) | State | LA019 | 12-31-20 |
| Maryland | State | 277 | 03-31-21 |
| Michigan | State | 9933 | 12-11-22 |
| Nevada | State | TN00009 | 07-31-21 |
| New Hampshire | NELAP | 299919 | 01-17-21 |
| New Jersey | NELAP | TN001 | 07-01-21 |
| New York | NELAP | 10781 | 03-31-21 |
| North Carolina (DW) | State | 21705 | 07-31-21 |
| North Carolina (WW/SW) | State | 64 | 12-31-20 |
| Ohio VAP | State | CL0059 | 06-02-23 |
| Oklahoma | State | 9415 | 08-31-21 |
| Oregon | NELAP | TNI0189 | 01-02-21 |
| Pennsylvania | NELAP | 68-00576 | 12-31-20 |
| Tennessee | State | 02014 | 12-11-22 |
| Texas | NELAP | T104704380-18-12 | 08-31-21 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | US Federal Programs | P330-19-00236 | 08-20-22 |
| Utah | NELAP | TN00009 | 07-31-21 |
| Virginia | NELAP | 460176 | 09-14-21 |
| Washington | State | C593 | 01-19-21 |
| West Virginia (DW) | State | 9955C | 01-01-21 |
| West Virginia DEP | State | 345 | 05-01-21 |
| Wisconsin | State | 998044300 | 08-31-21 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Sample Summary

Client: AECOM
Job ID: 180-112989-1
Project/Site: Pepco Benning Road Facility

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Water | 10/29/20 11:45 | 10/30/20 08:45 | |
| 180-112989-2 | OFW0200N | Water | 10/29/20 11:50 | 10/30/20 08:45 | |
| 180-112989-3 | OFW0300N | Water | 10/29/20 11:35 | 10/30/20 08:45 | |
| 180-112989-4 | OFW0400N | Water | 10/29/20 11:20 | 10/30/20 08:45 | |
| 180-112989-5 | OFW0500N | Water | 10/29/20 11:05 | 10/30/20 08:45 | |

# Method Summary

Client: AECOM
Job ID: 180-112989-1
Project/Site: Pepco Benning Road Facility

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| EPA 8270D LL | Semivolatile Organic Compounds by GC/MS - Low Level | SW846 | TAL PIT |
| 8015D | Diesel Range Organics (DRO) (GC) | SW846 | TAL CAN |
| 1668C | Chlorinated Biphenyl Congeners (HRGC/HRMS) | EPA | TAL KNX |
| EPA 6020A | Metals (ICP/MS) | SW846 | TAL PIT |
| EPA 7470A | Mercury (CVAA) | SW846 | TAL PIT |
| SM 2540D | Solids, Total Suspended (TSS) | SM | TAL PIT |
| 3005A | Preparation, Total Recoverable or Dissolved Metals | SW846 | TAL PIT |
| 3510C LVI | Liquid-Liquid Extraction (Separatory Funnel) LVI | SW846 | TAL CAN |
| 3520C | Liquid-Liquid Extraction (Continuous) | SW846 | TAL PIT |
| 7470A | Preparation, Mercury | SW846 | TAL PIT |
| HRMS-Sepf | Separatory Funnel (Liquid-Liquid) Extraction | EPA | TAL KNX |

**Protocol References:**

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: AECOM
Job ID: 180-112989-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: OFW0100N
**Lab Sample ID: 180-112989-1**
**Date Collected: 10/29/20 11:45**
**Matrix: Water**
**Date Received: 10/30/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3520C | | | 260 mL | 250 uL | 335567 | 11/02/20 11:02 | BJT | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 1 | 1 mL | 1 mL | 336474 | 11/10/20 14:22 | VVP | TAL PIT |
| | Instrument ID: CH733 | | | | | | | | | |
| Total/NA | Prep | 3510C LVI | | | 270 mL | 5 mL | 459194 | 11/04/20 07:54 | BMB | TAL CAN |
| Total/NA | Analysis | 8015D | | 1 | | | 459394 | 11/05/20 14:16 | LKG | TAL CAN |
| | Instrument ID: A2HP14R | | | | | | | | | |
| Total/NA | Prep | HRMS-Sepf | | | 1033.3 mL | 20 uL | 44772 | 11/24/20 12:36 | SMA | TAL KNX |
| Total/NA | Analysis | 1668C | | 10 | | | 44901 | 12/02/20 03:14 | LKM | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 335675 | 11/03/20 08:21 | KHM | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 336676 | 11/10/20 21:43 | RSK | TAL PIT |
| | Instrument ID: A | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 335675 | 11/03/20 08:21 | KHM | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 336907 | 11/12/20 09:37 | RSK | TAL PIT |
| | Instrument ID: A | | | | | | | | | |
| Total/NA | Prep | 7470A | | | 50 mL | 50 mL | 335867 | 11/04/20 09:46 | MM1 | TAL PIT |
| Total/NA | Analysis | EPA 7470A | | 1 | | | 336250 | 11/06/20 14:09 | KEM | TAL PIT |
| | Instrument ID: HGY | | | | | | | | | |
| Total/NA | Analysis | SM 2540D | | 1 | 400 mL | 1000 mL | 335539 | 11/02/20 07:39 | AVS | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: OFW0200N
**Lab Sample ID: 180-112989-2**
**Date Collected: 10/29/20 11:50**
**Matrix: Water**
**Date Received: 10/30/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3520C | | | 260 mL | 250 uL | 335567 | 11/02/20 11:02 | BJT | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 1 | 1 mL | 1 mL | 336474 | 11/10/20 14:47 | VVP | TAL PIT |
| | Instrument ID: CH733 | | | | | | | | | |
| Total/NA | Prep | 3510C LVI | | | 260 mL | 5 mL | 459194 | 11/04/20 07:54 | BMB | TAL CAN |
| Total/NA | Analysis | 8015D | | 1 | | | 459394 | 11/05/20 14:44 | LKG | TAL CAN |
| | Instrument ID: A2HP14R | | | | | | | | | |
| Total/NA | Prep | HRMS-Sepf | | | 1047.4 mL | 20 uL | 44772 | 11/24/20 12:36 | SMA | TAL KNX |
| Total/NA | Analysis | 1668C | | 1 | | | 44901 | 12/02/20 04:16 | LKM | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 335675 | 11/03/20 08:21 | KHM | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 336676 | 11/10/20 21:46 | RSK | TAL PIT |
| | Instrument ID: A | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 335675 | 11/03/20 08:21 | KHM | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 336907 | 11/12/20 09:40 | RSK | TAL PIT |
| | Instrument ID: A | | | | | | | | | |
| Total/NA | Prep | 7470A | | | 50 mL | 50 mL | 335867 | 11/04/20 09:46 | MM1 | TAL PIT |
| Total/NA | Analysis | EPA 7470A | | 1 | | | 336250 | 11/06/20 14:10 | KEM | TAL PIT |
| | Instrument ID: HGY | | | | | | | | | |

# Lab Chronicle

Client: AECOM
Job ID: 180-112989-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: OFW0200N
**Lab Sample ID: 180-112989-2**
**Date Collected: 10/29/20 11:50**
**Matrix: Water**
**Date Received: 10/30/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | SM 2540D | | 1 | 500 mL | 1000 mL | 335539 | 11/02/20 07:39 | AVS | TAL PIT |

## Client Sample ID: OFW0300N
**Lab Sample ID: 180-112989-3**
**Date Collected: 10/29/20 11:35**
**Matrix: Water**
**Date Received: 10/30/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3520C | | | 250 mL | 250 uL | 335567 | 11/02/20 11:02 | BJT | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 1 | 1 mL | 1 mL | 336474 | 11/10/20 15:12 | VVP | TAL PIT |
| | Instrument ID: CH733 | | | | | | | | | |
| Total/NA | Prep | 3510C LVI | | | 260 mL | 5 mL | 459194 | 11/04/20 07:54 | BMB | TAL CAN |
| Total/NA | Analysis | 8015D | | 5 | | | 459606 | 11/06/20 10:25 | LKG | TAL CAN |
| | Instrument ID: A2HP14R | | | | | | | | | |
| Total/NA | Prep | HRMS-Sepf | | | 1047.5 mL | 20 uL | 44772 | 11/24/20 12:36 | SMA | TAL KNX |
| Total/NA | Analysis | 1668C | | 10 | | | 44910 | 12/02/20 11:46 | JMN | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 335675 | 11/03/20 08:21 | KHM | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 336676 | 11/10/20 21:50 | RSK | TAL PIT |
| | Instrument ID: A | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 335675 | 11/03/20 08:21 | KHM | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 336907 | 11/12/20 09:44 | RSK | TAL PIT |
| | Instrument ID: A | | | | | | | | | |
| Total/NA | Prep | 7470A | | | 50 mL | 50 mL | 335867 | 11/04/20 09:46 | MM1 | TAL PIT |
| Total/NA | Analysis | EPA 7470A | | 1 | | | 336250 | 11/06/20 14:11 | KEM | TAL PIT |
| | Instrument ID: HGY | | | | | | | | | |
| Total/NA | Analysis | SM 2540D | | 1 | 150 mL | 1000 mL | 335539 | 11/02/20 07:39 | AVS | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: OFW0400N
**Lab Sample ID: 180-112989-4**
**Date Collected: 10/29/20 11:20**
**Matrix: Water**
**Date Received: 10/30/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3520C | | | 260 mL | 250 uL | 336041 | 11/05/20 12:15 | BJT | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 1 | 1 mL | 1 mL | 336496 | 11/10/20 14:57 | VVP | TAL PIT |
| | Instrument ID: CH732 | | | | | | | | | |
| Total/NA | Prep | 3510C LVI | | | 270 mL | 5 mL | 459194 | 11/04/20 07:54 | BMB | TAL CAN |
| Total/NA | Analysis | 8015D | | 1 | | | 459606 | 11/06/20 10:52 | LKG | TAL CAN |
| | Instrument ID: A2HP14R | | | | | | | | | |
| Total/NA | Prep | HRMS-Sepf | | | 1026.5 mL | 20 uL | 44772 | 11/24/20 12:36 | SMA | TAL KNX |
| Total/NA | Analysis | 1668C | | 1 | | | 44910 | 12/02/20 12:47 | JMN | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 335675 | 11/03/20 08:21 | KHM | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 336676 | 11/10/20 21:53 | RSK | TAL PIT |
| | Instrument ID: A | | | | | | | | | |

# Lab Chronicle

Client: AECOM
Job ID: 180-112989-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: OFW0400N
**Lab Sample ID: 180-112989-4**
**Date Collected: 10/29/20 11:20**
**Matrix: Water**
**Date Received: 10/30/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 335675 | 11/03/20 08:21 | KHM | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 336907 | 11/12/20 09:54 | RSK | TAL PIT |
| | Instrument ID: A | | | | | | | | | |
| Total/NA | Prep | 7470A | | | 50 mL | 50 mL | 335867 | 11/04/20 09:46 | MM1 | TAL PIT |
| Total/NA | Analysis | EPA 7470A | | 1 | | | 336250 | 11/06/20 14:15 | KEM | TAL PIT |
| | Instrument ID: HGY | | | | | | | | | |
| Total/NA | Analysis | SM 2540D | | 1 | 1000 mL | 1000 mL | 335539 | 11/02/20 07:39 | AVS | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: OFW0500N
**Lab Sample ID: 180-112989-5**
**Date Collected: 10/29/20 11:05**
**Matrix: Water**
**Date Received: 10/30/20 08:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3520C | | | 260 mL | 250 uL | 336041 | 11/05/20 12:15 | BJT | TAL PIT |
| Total/NA | Analysis | EPA 8270D LL | | 1 | 1 mL | 1 mL | 336496 | 11/10/20 15:25 | VVP | TAL PIT |
| | Instrument ID: CH732 | | | | | | | | | |
| Total/NA | Prep | 3510C LVI | | | 260 mL | 5 mL | 459194 | 11/04/20 07:54 | BMB | TAL CAN |
| Total/NA | Analysis | 8015D | | 1 | | | 459394 | 11/05/20 16:05 | LKG | TAL CAN |
| | Instrument ID: A2HP14R | | | | | | | | | |
| Total/NA | Prep | HRMS-Sepf | | | 1036.3 mL | 20 uL | 44772 | 11/24/20 12:36 | SMA | TAL KNX |
| Total/NA | Analysis | 1668C | | 1 | | | 44901 | 12/02/20 07:21 | LKM | TAL KNX |
| | Instrument ID: M1D | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 335675 | 11/03/20 08:21 | KHM | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 336676 | 11/10/20 21:57 | RSK | TAL PIT |
| | Instrument ID: A | | | | | | | | | |
| Total Recoverable | Prep | 3005A | | | 50 mL | 50 mL | 335675 | 11/03/20 08:21 | KHM | TAL PIT |
| Total Recoverable | Analysis | EPA 6020A | | 1 | | | 336907 | 11/12/20 09:58 | RSK | TAL PIT |
| | Instrument ID: A | | | | | | | | | |
| Total/NA | Prep | 7470A | | | 50 mL | 50 mL | 335867 | 11/04/20 09:46 | MM1 | TAL PIT |
| Total/NA | Analysis | EPA 7470A | | 1 | | | 336250 | 11/06/20 14:16 | KEM | TAL PIT |
| | Instrument ID: HGY | | | | | | | | | |
| Total/NA | Analysis | SM 2540D | | 1 | 200 mL | 1000 mL | 335539 | 11/02/20 07:39 | AVS | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

**Laboratory References:**

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: AECOM
Job ID: 180-112989-1
Project/Site: Pepco Benning Road Facility

**Analyst References:**

Lab: TAL CAN
- Batch Type: Prep
  - BMB = Brittany Blythe
- Batch Type: Analysis
  - LKG = Lucas Grossman

Lab: TAL KNX
- Batch Type: Prep
  - SMA = Syed Ahmed
- Batch Type: Analysis
  - JMN = Jon Nordquist
  - LKM = Linda McWhirter

Lab: TAL PIT
- Batch Type: Prep
  - BJT = Bill Trout
  - KHM = Kyle Mucroski
  - MM1 = Mary Beth Miller
- Batch Type: Analysis
  - AVS = Abbey Smith
  - KEM = Kimberly Mahoney
  - RSK = Robert Kurtz
  - VVP = Vincent Piccolino

## Client Sample ID: OFW0100N

**Date Collected: 10/29/20 11:45**
**Date Received: 10/30/20 08:45**

## Lab Sample ID: 180-112989-1

**Matrix: Water**

### Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.18 | 0.063 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Acenaphthylene | ND | | 0.18 | 0.063 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Anthracene | ND | | 0.18 | 0.047 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Benzo[a]anthracene | ND | | 0.18 | 0.072 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Benzo[b]fluoranthene | ND | | 0.18 | 0.093 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Benzo[k]fluoranthene | ND | | 0.18 | 0.085 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Benzo[g,h,i]perylene | ND | | 0.18 | 0.066 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Benzo[a]pyrene | ND | | 0.18 | 0.051 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Chrysene | ND | | 0.18 | 0.078 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.18 | 0.069 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Fluoranthene | ND | | 0.18 | 0.058 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Fluorene | ND | | 0.18 | 0.066 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.18 | 0.082 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Naphthalene | ND | | 0.18 | 0.057 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| **Phenanthrene** | **0.066** | **J** | 0.18 | 0.053 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |
| Pyrene | ND | | 0.18 | 0.052 | ug/L | | 11/02/20 11:02 | 11/10/20 14:22 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *50* | | *23 - 105* | *11/02/20 11:02* | *11/10/20 14:22* | *1* |
| *Nitrobenzene-d5 (Surr)* | *53* | | *28 - 111* | *11/02/20 11:02* | *11/10/20 14:22* | *1* |
| *Terphenyl-d14 (Surr)* | *53* | | *20 - 126* | *11/02/20 11:02* | *11/10/20 14:22* | *1* |

### Method: 8015D - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Diesel Range Organics [C10 - C28]** | **2800** | | 460 | 210 | ug/L | | 11/04/20 07:54 | 11/05/20 14:16 | 1 |
| **ORO C24-C40** | **3900** | | 460 | 210 | ug/L | | 11/04/20 07:54 | 11/05/20 14:16 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *77* | | *52 - 121* | *11/04/20 07:54* | *11/05/20 14:16* | *1* |

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.62** | | 0.39 | 0.0025 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| **PCB-2** | **0.035** | **J B q** | 0.39 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| **PCB-3** | **0.096** | **J B q** | 0.39 | 0.0033 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| **PCB-4** | **0.12** | **J B** | 0.58 | 0.035 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-5 | ND | | 0.39 | 0.028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-6 | ND | | 0.39 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-7 | ND | | 0.39 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| **PCB-8** | **0.22** | **J B** | 0.58 | 0.023 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-9 | ND | | 0.39 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-10 | ND | | 0.39 | 0.028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| **PCB-11** | **1.1** | **B** | 0.58 | 0.024 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-12 | ND | C | 0.77 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-13 | ND | C12 | 0.77 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-14 | ND | | 0.39 | 0.021 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| **PCB-15** | **0.13** | **J B** | 0.39 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| **PCB-16** | **0.12** | **J** | 0.39 | 0.0078 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| **PCB-17** | **0.12** | **J B q** | 0.39 | 0.0070 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| **PCB-18** | **0.31** | **J C B** | 0.77 | 0.0062 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |

**Client Sample ID: OFW0100N**
**Date Collected: 10/29/20 11:45**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-1**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | 0.037 | J | 0.39 | 0.0086 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-20 | 0.60 | J C B | 0.77 | 0.0070 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-21 | 0.33 | J C B | 0.77 | 0.0068 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-22 | 0.21 | J B | 0.39 | 0.0071 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-23 | ND | | 0.39 | 0.0071 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-24 | 0.0083 | J q | 0.39 | 0.0059 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-25 | 0.035 | J | 0.39 | 0.0064 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-26 | 0.077 | J C B | 0.77 | 0.0068 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-27 | 0.021 | J q | 0.39 | 0.0051 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-28 | 0.60 | J B C20 | 0.77 | 0.0070 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-29 | 0.077 | J C26 B | 0.77 | 0.0068 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-30 | 0.31 | J C18 B | 0.77 | 0.0062 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-31 | 0.50 | B | 0.39 | 0.0068 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-32 | 0.10 | J B | 0.39 | 0.0049 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-33 | 0.33 | J B C21 | 0.77 | 0.0068 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-34 | ND | | 0.39 | 0.0073 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-35 | 0.022 | J | 0.39 | 0.0071 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-36 | ND | | 0.39 | 0.0069 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-37 | 0.20 | J B q | 0.39 | 0.0071 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-38 | ND | | 0.39 | 0.0074 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-39 | ND | | 0.39 | 0.0066 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-40 | 0.29 | J C q | 1.2 | 0.018 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-41 | 0.29 | J q C40 | 1.2 | 0.018 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-42 | 0.11 | J q | 0.39 | 0.018 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-43 | ND | C | 0.77 | 0.017 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-44 | 0.59 | J C B | 1.2 | 0.016 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-45 | 0.071 | J C q | 0.77 | 0.019 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-46 | ND | | 0.39 | 0.023 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-47 | 0.59 | J B C44 | 1.2 | 0.016 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-48 | 0.11 | J | 0.39 | 0.018 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-49 | 0.31 | J C | 0.77 | 0.015 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-50 | 0.055 | J C | 0.77 | 0.018 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-51 | 0.071 | J C45 q | 0.77 | 0.019 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-52 | 0.75 | B | 0.39 | 0.018 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-53 | 0.055 | J C50 | 0.77 | 0.018 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-54 | ND | | 0.39 | 0.0016 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-55 | 0.018 | J q | 0.39 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-56 | 0.25 | J B | 0.39 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-57 | ND | | 0.39 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-58 | ND | | 0.39 | 0.014 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-59 | 0.052 | J C | 1.2 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-60 | 0.14 | J | 0.39 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-61 | 1.1 | J C B | 1.5 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-62 | 0.052 | J C59 | 1.2 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-63 | 0.020 | J | 0.39 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-64 | 0.24 | J B | 0.39 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-65 | 0.59 | J B C44 | 1.2 | 0.016 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-66 | 0.45 | B | 0.39 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-67 | 0.012 | J q | 0.39 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |

**Client Sample ID: OFW0100N**
**Date Collected: 10/29/20 11:45**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-1**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | ND | | 0.39 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-69 | 0.31 | J C49 | 0.77 | 0.015 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-70 | 1.1 | J C61 B | 1.5 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-71 | 0.29 | J q C40 | 1.2 | 0.018 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-72 | ND | | 0.39 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-73 | ND | C43 | 0.77 | 0.017 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-74 | 1.1 | J C61 B | 1.5 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-75 | 0.052 | J C59 | 1.2 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-76 | 1.1 | J C61 B | 1.5 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-77 | 0.13 | J B q | 0.39 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-78 | ND | | 0.39 | 0.014 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-79 | 0.017 | J q | 0.39 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-80 | ND | | 0.39 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-81 | ND | | 0.39 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-82 | 0.23 | J | 0.39 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-83 | 0.82 | C B | 0.77 | 0.0034 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-84 | 0.31 | J | 0.39 | 0.0038 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-85 | 0.25 | J C B | 1.2 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-86 | 1.1 | J C B q | 2.3 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-87 | 1.1 | J B C86 q | 2.3 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-88 | 0.17 | J C | 0.77 | 0.0034 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-89 | ND | | 0.39 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-90 | 1.8 | C B | 1.2 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-91 | 0.17 | J C88 | 0.77 | 0.0034 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-92 | 0.22 | J | 0.39 | 0.0032 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-93 | 0.0087 | J C q | 0.77 | 0.0032 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-94 | ND | | 0.39 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-95 | 0.87 | B q | 0.39 | 0.0035 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-96 | ND | | 0.39 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-97 | 1.1 | J B C86 q | 2.3 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-98 | 0.020 | J C q | 0.77 | 0.0031 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-99 | 0.82 | C83 B | 0.77 | 0.0034 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-100 | 0.0087 | J C93 q | 0.77 | 0.0032 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-101 | 1.8 | B C90 | 1.2 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-102 | 0.020 | J C98 q | 0.77 | 0.0031 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-103 | ND | | 0.39 | 0.0032 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-104 | ND | | 0.39 | 0.0025 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-105 | 1.2 | B | 0.39 | 0.018 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-106 | ND | | 0.39 | 0.019 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-107 | 0.17 | J | 0.39 | 0.021 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-108 | 0.075 | J C q | 0.77 | 0.020 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-109 | 1.1 | J B C86 q | 2.3 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-110 | 2.5 | C B | 0.77 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-111 | ND | | 0.39 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-112 | 0.017 | J | 0.39 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-113 | 1.8 | B C90 | 1.2 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-114 | 0.051 | J q | 0.39 | 0.019 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-115 | 2.5 | B C110 | 0.77 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-116 | 0.25 | J C85 B | 1.2 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |

**Client Sample ID: OFW0100N**
**Date Collected: 10/29/20 11:45**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-1**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-117 | 0.25 | J C85 B | 1.2 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-118 | 2.5 | B | 0.39 | 0.019 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-119 | 1.1 | J B C86 q | 2.3 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-120 | 0.012 | J q | 0.39 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-121 | ND | | 0.39 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-122 | 0.029 | J q | 0.39 | 0.022 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-123 | 0.022 | J q | 0.39 | 0.018 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-124 | 0.075 | J q C108 | 0.77 | 0.020 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-125 | 1.1 | J B C86 q | 2.3 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-126 | 0.048 | J q | 0.39 | 0.022 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-127 | ND | | 0.39 | 0.019 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-128 | 0.61 | J C | 0.77 | 0.036 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-129 | 3.7 | C B | 1.5 | 0.037 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-130 | 0.17 | J q | 0.39 | 0.049 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-131 | ND | | 0.39 | 0.051 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-132 | 0.91 | | 0.39 | 0.047 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-133 | ND | | 0.39 | 0.046 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-134 | 0.12 | J C | 0.77 | 0.048 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-135 | 0.62 | J C | 0.77 | 0.0034 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-136 | 0.19 | J | 0.39 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-137 | 0.14 | J q | 0.39 | 0.041 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-138 | 3.7 | B C129 | 1.5 | 0.037 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-139 | 0.047 | J C | 0.77 | 0.041 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-140 | 0.047 | J C139 | 0.77 | 0.041 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-141 | 0.59 | | 0.39 | 0.043 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-142 | ND | | 0.39 | 0.046 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-143 | 0.12 | J C134 | 0.77 | 0.048 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-144 | 0.061 | J q | 0.39 | 0.0031 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-145 | ND | | 0.39 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-146 | 0.35 | J q | 0.39 | 0.040 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-147 | 2.2 | C | 0.77 | 0.046 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-148 | ND | | 0.39 | 0.0033 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-149 | 2.2 | C147 | 0.77 | 0.046 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-150 | ND | | 0.39 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-151 | 0.62 | J C135 | 0.77 | 0.0034 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-152 | ND | | 0.39 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-153 | 2.6 | C B | 0.77 | 0.032 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-154 | 0.024 | J | 0.39 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-155 | ND | | 0.39 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-156 | 0.45 | J C | 0.77 | 0.039 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-157 | 0.45 | J C156 | 0.77 | 0.039 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-158 | 0.37 | J | 0.39 | 0.029 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-159 | ND | | 0.39 | 0.031 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-160 | 3.7 | B C129 | 1.5 | 0.037 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-161 | ND | | 0.39 | 0.030 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-162 | ND | | 0.39 | 0.030 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-163 | 3.7 | B C129 | 1.5 | 0.037 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-164 | 0.21 | J | 0.39 | 0.032 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-165 | ND | | 0.39 | 0.035 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |

## Client Sample ID: OFW0100N

**Date Collected: 10/29/20 11:45**
**Date Received: 10/30/20 08:45**

## Lab Sample ID: 180-112989-1

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 0.61 | J C128 | 0.77 | 0.036 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-167 | 0.14 | J q | 0.39 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-168 | 2.6 | B C153 | 0.77 | 0.032 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-169 | ND | | 0.39 | 0.022 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-170 | 0.92 | | 0.39 | 0.0092 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-171 | 0.24 | J C | 0.77 | 0.0088 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-172 | 0.16 | J | 0.39 | 0.0087 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-173 | 0.24 | J C171 | 0.77 | 0.0088 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-174 | 1.0 | | 0.39 | 0.0082 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-175 | 0.027 | J q | 0.39 | 0.0079 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-176 | 0.076 | J | 0.39 | 0.0060 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-177 | 0.47 | | 0.39 | 0.0084 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-178 | 0.21 | J | 0.39 | 0.0086 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-179 | 0.33 | J q | 0.39 | 0.0063 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-180 | 2.6 | C B | 0.77 | 0.0066 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-181 | ND | | 0.39 | 0.0079 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-182 | ND | | 0.39 | 0.0076 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-183 | 0.63 | J C B | 0.77 | 0.0078 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-184 | ND | | 0.39 | 0.0065 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-185 | 0.63 | J B C183 | 0.77 | 0.0078 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-186 | ND | | 0.39 | 0.0063 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-187 | 1.4 | | 0.39 | 0.0074 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-188 | ND | | 0.39 | 0.0056 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-189 | 0.025 | J | 0.39 | 0.015 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-190 | 0.16 | J | 0.39 | 0.0057 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-191 | 0.043 | J | 0.39 | 0.0060 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-192 | ND | | 0.39 | 0.0067 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-193 | 2.6 | C180 B | 0.77 | 0.0066 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-194 | 0.60 | | 0.39 | 0.028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-195 | 0.23 | J | 0.39 | 0.030 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-196 | 0.36 | J | 0.39 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-197 | 0.030 | J | 0.39 | 0.0094 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-198 | 0.90 | C | 0.77 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-199 | 0.90 | C198 | 0.77 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-200 | 0.076 | J | 0.39 | 0.0084 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-201 | 0.086 | J q | 0.39 | 0.0086 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-202 | 0.11 | J q | 0.39 | 0.0096 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-203 | 0.46 | | 0.39 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-204 | ND | | 0.39 | 0.0094 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-205 | ND | | 0.39 | 0.023 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-206 | 0.21 | J q | 0.39 | 0.033 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-207 | ND | | 0.39 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-208 | 0.056 | J | 0.39 | 0.027 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| PCB-209 | 0.053 | J | 0.39 | 0.024 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| Total Monochlorobiphenyls | 0.75 | B q | 0.39 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| Total Dichlorobiphenyls | 1.6 | B q | 0.77 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| Total Trichlorobiphenyls | 2.7 | B q | 0.77 | 0.0068 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| Total Tetrachlorobiphenyls | 4.7 | B q | 1.5 | 0.014 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| Total Pentachlorobiphenyls | 12 | B q | 2.3 | 0.0084 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |

## Client Sample ID: OFW0100N

**Date Collected: 10/29/20 11:45**
**Date Received: 10/30/20 08:45**

## Lab Sample ID: 180-112989-1

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Hexachlorobiphenyls | 14 | B q | 1.5 | 0.028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| Total Heptachlorobiphenyls | 8.3 | B q | 0.77 | 0.0077 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| Total Octachlorobiphenyls | 2.9 | q | 0.77 | 0.015 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| Total Nonachlorobiphenyls | 0.27 | J q | 0.39 | 0.028 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |
| Polychlorinated biphenyls, Total | 47 | B q | 2.3 | 0.018 | ng/L | | 11/24/20 12:36 | 12/02/20 03:14 | 10 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *74* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-3L* | *77* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-4L* | *80* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-15L* | *85* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-19L* | *97* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-37L* | *89* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-54L* | *97* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-77L* | *87* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-81L* | *84* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-104L* | *92* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-105L* | *100* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-114L* | *97* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-118L* | *95* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-123L* | *93* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-126L* | *84* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-155L* | *103* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-156L* | *96* | *C* | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-157L* | *96* | *C156* | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-167L* | *93* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-169L* | *103* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-170L* | *85* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-188L* | *92* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-189L* | *83* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-202L* | *105* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-205L* | *75* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-206L* | *87* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-208L* | *85* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-209L* | *88* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *100* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-111L* | *101* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |
| *PCB-178L* | *104* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 03:14* | *10* |

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 1100 | | 30 | 13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Arsenic | 0.56 | J | 1.0 | 0.31 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Barium | 22 | | 10 | 1.6 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Cadmium | ND | | 1.0 | 0.22 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Calcium | 7000 | | 500 | 130 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Chromium | 3.2 | | 2.0 | 1.5 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Cobalt | 0.70 | | 0.50 | 0.13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112989-1

**Client Sample ID: OFW0100N**
**Date Collected: 10/29/20 11:45**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-1**
**Matrix: Water**

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Copper | 12 | | 2.0 | 0.63 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Iron | 2300 | | 50 | 20 | ug/L | | 11/03/20 08:21 | 11/12/20 09:37 | 1 |
| Silver | ND | | 1.0 | 0.18 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Potassium | 1200 | | 500 | 160 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Magnesium | 1300 | | 500 | 83 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Manganese | 37 | | 5.0 | 0.87 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Sodium | 1500 | | 500 | 350 | ug/L | | 11/03/20 08:21 | 11/12/20 09:37 | 1 |
| Nickel | 2.4 | | 1.0 | 0.34 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Lead | 18 | | 1.0 | 0.13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Antimony | 0.88 | J | 2.0 | 0.38 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Vanadium | 3.8 | | 1.0 | 0.99 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |
| Zinc | 110 | | 5.0 | 3.2 | ug/L | | 11/03/20 08:21 | 11/10/20 21:43 | 1 |

### Method: EPA 7470A - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 11/04/20 09:46 | 11/06/20 14:09 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 83 | | 1.3 | 1.3 | mg/L | | | 11/02/20 07:39 | 1 |

## Client Sample ID: OFW0200N

**Date Collected: 10/29/20 11:50**
**Date Received: 10/30/20 08:45**

## Lab Sample ID: 180-112989-2

**Matrix: Water**

### Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.18 | 0.063 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| Acenaphthylene | ND | | 0.18 | 0.063 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| Anthracene | ND | | 0.18 | 0.047 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| Benzo[a]anthracene | ND | | 0.18 | 0.072 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| **Benzo[b]fluoranthene** | **0.12** | **J** | 0.18 | 0.093 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| Benzo[k]fluoranthene | ND | | 0.18 | 0.085 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| Benzo[g,h,i]perylene | ND | | 0.18 | 0.066 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| Benzo[a]pyrene | ND | | 0.18 | 0.051 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| **Chrysene** | **0.094** | **J** | 0.18 | 0.078 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.18 | 0.069 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| **Fluoranthene** | **0.17** | **J** | 0.18 | 0.058 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| Fluorene | ND | | 0.18 | 0.066 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.18 | 0.082 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| Naphthalene | ND | | 0.18 | 0.057 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| **Phenanthrene** | **0.11** | **J** | 0.18 | 0.053 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |
| **Pyrene** | **0.14** | **J** | 0.18 | 0.052 | ug/L | | 11/02/20 11:02 | 11/10/20 14:47 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *54* | | *23 - 105* | *11/02/20 11:02* | *11/10/20 14:47* | *1* |
| *Nitrobenzene-d5 (Surr)* | *56* | | *28 - 111* | *11/02/20 11:02* | *11/10/20 14:47* | *1* |
| *Terphenyl-d14 (Surr)* | *57* | | *20 - 126* | *11/02/20 11:02* | *11/10/20 14:47* | *1* |

### Method: 8015D - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Diesel Range Organics [C10 - C28]** | **360** | **J** | 480 | 220 | ug/L | | 11/04/20 07:54 | 11/05/20 14:44 | 1 |
| **ORO C24-C40** | **450** | **J** | 480 | 220 | ug/L | | 11/04/20 07:54 | 11/05/20 14:44 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *75* | | *52 - 121* | *11/04/20 07:54* | *11/05/20 14:44* | *1* |

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.035** | **J** | 0.038 | 0.00038 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-2** | **0.0064** | **J B** | 0.038 | 0.00042 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-3** | **0.016** | **J B** | 0.038 | 0.00044 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-4** | **0.17** | **B** | 0.057 | 0.0039 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-5** | **0.0036** | **J q** | 0.038 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-6** | **0.049** | | 0.038 | 0.0025 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-7** | **0.0077** | **J q** | 0.038 | 0.0025 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-8** | **0.19** | **B** | 0.057 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-9** | **0.011** | **J q** | 0.038 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-10** | **0.012** | **J q** | 0.038 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-11** | **0.57** | **B** | 0.057 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-12** | **0.031** | **J C** | 0.076 | 0.0025 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-13** | **0.031** | **J C12** | 0.076 | 0.0025 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-14 | ND | | 0.038 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-15** | **0.18** | **B** | 0.038 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-16** | **0.15** | | 0.038 | 0.00084 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-17** | **0.18** | **B** | 0.038 | 0.00076 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **PCB-18** | **0.38** | **C B** | 0.076 | 0.00067 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112989-1

**Client Sample ID: OFW0200N**
**Date Collected: 10/29/20 11:50**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-2**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | 0.053 | | 0.038 | 0.00093 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-20 | 0.72 | C B | 0.076 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-21 | 0.28 | C B | 0.076 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-22 | 0.22 | B | 0.038 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-23 | ND | | 0.038 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-24 | 0.0065 | J q | 0.038 | 0.00064 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-25 | 0.073 | | 0.038 | 0.0010 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-26 | 0.14 | C B | 0.076 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-27 | 0.036 | J | 0.038 | 0.00055 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-28 | 0.72 | B C20 | 0.076 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-29 | 0.14 | C26 B | 0.076 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-30 | 0.38 | C18 B | 0.076 | 0.00067 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-31 | 0.51 | B | 0.038 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-32 | 0.18 | B | 0.038 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-33 | 0.28 | B C21 | 0.076 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-34 | 0.0017 | J q | 0.038 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-35 | 0.030 | J | 0.038 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-36 | 0.0036 | J | 0.038 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-37 | 0.27 | B | 0.038 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-38 | ND | | 0.038 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-39 | 0.0021 | J | 0.038 | 0.0010 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-40 | 0.40 | C | 0.11 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-41 | 0.40 | C40 | 0.11 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-42 | 0.18 | | 0.038 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-43 | 0.026 | J C | 0.076 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-44 | 0.82 | C B | 0.11 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-45 | 0.18 | C | 0.076 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-46 | 0.049 | | 0.038 | 0.0035 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-47 | 0.82 | B C44 | 0.11 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-48 | 0.096 | | 0.038 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-49 | 0.52 | C | 0.076 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-50 | 0.16 | C | 0.076 | 0.0027 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-51 | 0.18 | C45 | 0.076 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-52 | 1.0 | B | 0.038 | 0.0027 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-53 | 0.16 | C50 | 0.076 | 0.0027 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-54 | 0.0059 | J | 0.038 | 0.00022 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-55 | 0.014 | J | 0.038 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-56 | 0.27 | B | 0.038 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-57 | 0.0057 | J q | 0.038 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-58 | ND | | 0.038 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-59 | 0.064 | J C | 0.11 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-60 | 0.13 | | 0.038 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-61 | 0.97 | C B | 0.15 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-62 | 0.064 | J C59 | 0.11 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-63 | 0.021 | J | 0.038 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-64 | 0.26 | B | 0.038 | 0.0018 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-65 | 0.82 | B C44 | 0.11 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-66 | 0.58 | B | 0.038 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-67 | 0.014 | J q | 0.038 | 0.0018 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |

**Client Sample ID: OFW0200N**
**Date Collected: 10/29/20 11:50**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-2**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | 0.0080 | J | 0.038 | 0.0018 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-69 | 0.52 | C49 | 0.076 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-70 | 0.97 | C61 B | 0.15 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-71 | 0.40 | C40 | 0.11 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-72 | 0.010 | J | 0.038 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-73 | 0.026 | J C43 | 0.076 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-74 | 0.97 | C61 B | 0.15 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-75 | 0.064 | J C59 | 0.11 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-76 | 0.97 | C61 B | 0.15 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-77 | 0.087 | B | 0.038 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-78 | ND | | 0.038 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-79 | 0.0086 | J | 0.038 | 0.0018 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-80 | ND | | 0.038 | 0.0018 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-81 | 0.0033 | J q | 0.038 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-82 | 0.16 | | 0.038 | 0.00040 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-83 | 0.78 | C B | 0.076 | 0.00036 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-84 | 0.37 | | 0.038 | 0.00040 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-85 | 0.25 | C B | 0.11 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-86 | 0.94 | C B | 0.23 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-87 | 0.94 | B C86 | 0.23 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-88 | 0.26 | C | 0.076 | 0.00036 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-89 | 0.010 | J q | 0.038 | 0.00039 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-90 | 1.5 | C B | 0.11 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-91 | 0.26 | C88 | 0.076 | 0.00036 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-92 | 0.31 | | 0.038 | 0.00034 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-93 | 0.047 | J C | 0.076 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-94 | 0.017 | J | 0.038 | 0.00039 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-95 | 1.3 | B | 0.038 | 0.00038 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-96 | 0.014 | J | 0.038 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-97 | 0.94 | B C86 | 0.23 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-98 | 0.043 | J C q | 0.076 | 0.00034 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-99 | 0.78 | C83 B | 0.076 | 0.00036 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-100 | 0.047 | J C93 | 0.076 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-101 | 1.5 | B C90 | 0.11 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-102 | 0.043 | J C98 q | 0.076 | 0.00034 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-103 | 0.020 | J | 0.038 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-104 | 0.0017 | J | 0.038 | 0.00026 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-105 | 0.46 | B | 0.038 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-106 | ND | | 0.038 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-107 | 0.11 | | 0.038 | 0.0025 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-108 | 0.052 | J C | 0.076 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-109 | 0.94 | B C86 | 0.23 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-110 | 1.8 | C B | 0.076 | 0.00025 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-111 | ND | | 0.038 | 0.00024 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-112 | 0.0055 | J q | 0.038 | 0.00026 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-113 | 1.5 | B C90 | 0.11 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-114 | 0.017 | J q | 0.038 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-115 | 1.8 | B C110 | 0.076 | 0.00025 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-116 | 0.25 | C85 B | 0.11 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |

**Client Sample ID: OFW0200N**
**Date Collected: 10/29/20 11:50**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-2**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-117 | 0.25 | C85 B | 0.11 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-118 | 1.2 | B | 0.038 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-119 | 0.94 | B C86 | 0.23 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-120 | 0.0054 | J q | 0.038 | 0.00025 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-121 | 0.0012 | J q | 0.038 | 0.00025 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-122 | 0.014 | J q | 0.038 | 0.0027 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-123 | 0.016 | J q | 0.038 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-124 | 0.052 | J C108 | 0.076 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-125 | 0.94 | B C86 | 0.23 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-126 | 0.0091 | J | 0.038 | 0.0027 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-127 | ND | | 0.038 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-128 | 0.36 | C | 0.076 | 0.0044 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-129 | 3.1 | C B | 0.15 | 0.0046 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-130 | 0.17 | | 0.038 | 0.0060 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-131 | 0.027 | J | 0.038 | 0.0063 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-132 | 0.99 | | 0.038 | 0.0059 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-133 | 0.034 | J q | 0.038 | 0.0057 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-134 | 0.16 | C | 0.076 | 0.0060 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-135 | 1.1 | C | 0.076 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-136 | 0.36 | | 0.038 | 0.00038 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-137 | 0.090 | | 0.038 | 0.0051 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-138 | 3.1 | B C129 | 0.15 | 0.0046 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-139 | 0.032 | J C | 0.076 | 0.0051 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-140 | 0.032 | J C139 | 0.076 | 0.0051 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-141 | 0.70 | | 0.038 | 0.0053 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-142 | ND | | 0.038 | 0.0057 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-143 | 0.16 | C134 | 0.076 | 0.0060 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-144 | 0.13 | | 0.038 | 0.00048 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-145 | 0.0019 | J | 0.038 | 0.00036 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-146 | 0.49 | | 0.038 | 0.0050 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-147 | 3.2 | C | 0.076 | 0.0058 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-148 | 0.0035 | J | 0.038 | 0.00051 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-149 | 3.2 | C147 | 0.076 | 0.0058 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-150 | 0.0059 | J | 0.038 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-151 | 1.1 | C135 | 0.076 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-152 | 0.0024 | J | 0.038 | 0.00037 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-153 | 2.7 | C B | 0.076 | 0.0040 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-154 | 0.028 | J | 0.038 | 0.00041 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-155 | ND | | 0.038 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-156 | 0.22 | C | 0.076 | 0.0048 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-157 | 0.22 | C156 | 0.076 | 0.0048 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-158 | 0.28 | | 0.038 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-159 | 0.029 | J | 0.038 | 0.0038 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-160 | 3.1 | B C129 | 0.15 | 0.0046 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-161 | ND | | 0.038 | 0.0038 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-162 | 0.0084 | J | 0.038 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-163 | 3.1 | B C129 | 0.15 | 0.0046 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-164 | 0.22 | | 0.038 | 0.0040 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-165 | ND | | 0.038 | 0.0043 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |

**Client Sample ID: OFW0200N**
**Date Collected: 10/29/20 11:50**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-2**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 0.36 | C128 | 0.076 | 0.0044 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-167 | 0.10 | | 0.038 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-168 | 2.7 | B C153 | 0.076 | 0.0040 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-169 | 0.0075 | J q | 0.038 | 0.0030 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-170 | 1.1 | | 0.038 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-171 | 0.31 | C | 0.076 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-172 | 0.19 | | 0.038 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-173 | 0.31 | C171 | 0.076 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-174 | 1.2 | | 0.038 | 0.0010 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-175 | 0.042 | | 0.038 | 0.00099 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-176 | 0.14 | | 0.038 | 0.00075 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-177 | 0.63 | | 0.038 | 0.0010 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-178 | 0.23 | | 0.038 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-179 | 0.54 | | 0.038 | 0.00079 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-180 | 2.4 | C B | 0.076 | 0.00083 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-181 | 0.0069 | J | 0.038 | 0.00098 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-182 | 0.0076 | J q | 0.038 | 0.00095 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-183 | 0.75 | C B | 0.076 | 0.00096 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-184 | ND | | 0.038 | 0.00081 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-185 | 0.75 | B C183 | 0.076 | 0.00096 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-186 | ND | | 0.038 | 0.00078 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-187 | 1.4 | | 0.038 | 0.00091 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-188 | 0.0039 | J | 0.038 | 0.00067 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-189 | 0.033 | J | 0.038 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-190 | 0.18 | | 0.038 | 0.00071 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-191 | 0.038 | | 0.038 | 0.00074 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-192 | ND | | 0.038 | 0.00083 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-193 | 2.4 | C180 B | 0.076 | 0.00083 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-194 | 0.62 | | 0.038 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-195 | 0.23 | | 0.038 | 0.0041 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-196 | 0.29 | | 0.038 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-197 | 0.018 | J | 0.038 | 0.00097 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-198 | 0.71 | C | 0.076 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-199 | 0.71 | C198 | 0.076 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-200 | 0.068 | | 0.038 | 0.00086 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-201 | 0.079 | | 0.038 | 0.00088 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-202 | 0.14 | | 0.038 | 0.00098 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-203 | 0.46 | | 0.038 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-204 | ND | | 0.038 | 0.00097 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-205 | 0.026 | J | 0.038 | 0.0031 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-206 | 0.67 | | 0.038 | 0.0043 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-207 | 0.052 | | 0.038 | 0.0031 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-208 | 0.18 | | 0.038 | 0.0032 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| PCB-209 | 0.13 | | 0.038 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| Total Monochlorobiphenyls | 0.057 | B | 0.038 | 0.00041 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| Total Dichlorobiphenyls | 1.2 | B q | 0.076 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| Total Trichlorobiphenyls | 3.2 | B q | 0.076 | 0.00095 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| Total Tetrachlorobiphenyls | 5.9 | B q | 0.15 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| Total Pentachlorobiphenyls | 9.7 | B q | 0.23 | 0.00099 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |

## Client Sample ID: OFW0200N

**Date Collected: 10/29/20 11:50**
**Date Received: 10/30/20 08:45**

## Lab Sample ID: 180-112989-2

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Total Hexachlorobiphenyls** | **15** | **B q** | 0.15 | 0.0035 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **Total Heptachlorobiphenyls** | **9.2** | **B q** | 0.076 | 0.00097 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **Total Octachlorobiphenyls** | **2.6** | | 0.076 | 0.0018 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **Total Nonachlorobiphenyls** | **0.90** | | 0.038 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |
| **Polychlorinated biphenyls, Total** | **48** | **B q** | 0.23 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 04:16 | 1 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *62* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-3L* | *65* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-4L* | *68* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-15L* | *83* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-19L* | *83* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-37L* | *86* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-54L* | *100* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-77L* | *84* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-81L* | *85* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-104L* | *86* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-105L* | *102* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-114L* | *104* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-118L* | *102* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-123L* | *102* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-126L* | *85* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-155L* | *96* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-156L* | *91* | *C* | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-157L* | *91* | *C156* | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-167L* | *89* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-169L* | *89* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-170L* | *89* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-188L* | *109* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-189L* | *90* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-202L* | *115* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-205L* | *82* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-206L* | *92* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-208L* | *95* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-209L* | *96* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *96* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-111L* | *94* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |
| *PCB-178L* | *112* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 04:16* | *1* |

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Aluminum** | **920** | | 30 | 13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| **Arsenic** | **1.4** | | 1.0 | 0.31 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| **Barium** | **14** | | 10 | 1.6 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Cadmium | ND | | 1.0 | 0.22 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| **Calcium** | **5500** | | 500 | 130 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| **Chromium** | **3.9** | | 2.0 | 1.5 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| **Cobalt** | **0.97** | | 0.50 | 0.13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112989-1

**Client Sample ID: OFW0200N**
**Date Collected: 10/29/20 11:50**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-2**
**Matrix: Water**

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Copper | 14 | | 2.0 | 0.63 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Iron | 2300 | | 50 | 20 | ug/L | | 11/03/20 08:21 | 11/12/20 09:40 | 1 |
| Silver | ND | | 1.0 | 0.18 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Potassium | 1100 | | 500 | 160 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Magnesium | 2100 | | 500 | 83 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Manganese | 58 | | 5.0 | 0.87 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Sodium | 2000 | | 500 | 350 | ug/L | | 11/03/20 08:21 | 11/12/20 09:40 | 1 |
| Nickel | 8.7 | | 1.0 | 0.34 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Lead | 21 | | 1.0 | 0.13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Antimony | 1.3 | J | 2.0 | 0.38 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Vanadium | 18 | | 1.0 | 0.99 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |
| Zinc | 100 | | 5.0 | 3.2 | ug/L | | 11/03/20 08:21 | 11/10/20 21:46 | 1 |

### Method: EPA 7470A - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 11/04/20 09:46 | 11/06/20 14:10 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 54 | | 1.0 | 1.0 | mg/L | | | 11/02/20 07:39 | 1 |

**Client Sample ID: OFW0300N**
**Lab Sample ID: 180-112989-3**
**Date Collected: 10/29/20 11:35**
**Matrix: Water**
**Date Received: 10/30/20 08:45**

## Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.19 | 0.065 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| **Acenaphthylene** | **0.096** | **J** | 0.19 | 0.065 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| Anthracene | ND | | 0.19 | 0.049 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| **Benzo[a]anthracene** | **0.12** | **J** | 0.19 | 0.075 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| **Benzo[b]fluoranthene** | **0.16** | **J** | 0.19 | 0.097 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| Benzo[k]fluoranthene | ND | | 0.19 | 0.088 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| **Benzo[g,h,i]perylene** | **0.12** | **J** | 0.19 | 0.069 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| Benzo[a]pyrene | ND | | 0.19 | 0.053 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| **Chrysene** | **0.17** | **J** | 0.19 | 0.081 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.19 | 0.072 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| **Fluoranthene** | **0.31** | | 0.19 | 0.060 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| Fluorene | ND | | 0.19 | 0.069 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.19 | 0.085 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| **Naphthalene** | **0.059** | **J** | 0.19 | 0.059 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| **Phenanthrene** | **0.19** | | 0.19 | 0.055 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |
| **Pyrene** | **0.31** | | 0.19 | 0.054 | ug/L | | 11/02/20 11:02 | 11/10/20 15:12 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *60* | | *23 - 105* | *11/02/20 11:02* | *11/10/20 15:12* | *1* |
| *Nitrobenzene-d5 (Surr)* | *62* | | *28 - 111* | *11/02/20 11:02* | *11/10/20 15:12* | *1* |
| *Terphenyl-d14 (Surr)* | *80* | | *20 - 126* | *11/02/20 11:02* | *11/10/20 15:12* | *1* |

## Method: 8015D - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Diesel Range Organics [C10 - C28]** | **12000** | | 2400 | 1100 | ug/L | | 11/04/20 07:54 | 11/06/20 10:25 | 5 |
| **ORO C24-C40** | **11000** | | 2400 | 1100 | ug/L | | 11/04/20 07:54 | 11/06/20 10:25 | 5 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *72* | | *52 - 121* | *11/04/20 07:54* | *11/06/20 10:25* | *5* |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.19** | **J** | 0.38 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-2** | **0.028** | **J q B** | 0.38 | 0.0031 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-3** | **0.11** | **J B** | 0.38 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-4** | **0.44** | **J q B** | 0.57 | 0.037 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-5 | ND | | 0.38 | 0.030 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-6** | **0.22** | **J** | 0.38 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-7** | **0.035** | **J q** | 0.38 | 0.027 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-8** | **1.2** | **B** | 0.57 | 0.024 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-9** | **0.081** | **J q** | 0.38 | 0.027 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-10 | ND | | 0.38 | 0.029 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-11** | **11** | **B** | 0.57 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-12** | **0.19** | **J q C** | 0.76 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-13** | **0.19** | **J q C12** | 0.76 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-14 | ND | | 0.38 | 0.022 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-15** | **0.65** | **B** | 0.38 | 0.027 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-16** | **0.69** | | 0.38 | 0.0076 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-17** | **0.67** | **B** | 0.38 | 0.0068 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| **PCB-18** | **1.5** | **C B** | 0.76 | 0.0060 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |

**Client Sample ID: OFW0300N**
**Date Collected: 10/29/20 11:35**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-3**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | 0.12 | J | 0.38 | 0.0083 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-20 | 2.4 | C B | 0.76 | 0.0096 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-21 | 1.5 | C B | 0.76 | 0.0094 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-22 | 0.83 | B | 0.38 | 0.0098 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-23 | ND | | 0.38 | 0.0097 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-24 | 0.023 | J q | 0.38 | 0.0057 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-25 | 0.13 | J | 0.38 | 0.0089 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-26 | 0.38 | J C B | 0.76 | 0.0094 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-27 | 0.098 | J | 0.38 | 0.0049 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-28 | 2.4 | C20 B | 0.76 | 0.0096 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-29 | 0.38 | J C26 B | 0.76 | 0.0094 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-30 | 1.5 | C18 B | 0.76 | 0.0060 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-31 | 2.1 | B | 0.38 | 0.0093 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-32 | 0.47 | B | 0.38 | 0.0047 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-33 | 1.5 | C21 B | 0.76 | 0.0094 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-34 | ND | | 0.38 | 0.010 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-35 | 0.098 | J | 0.38 | 0.0098 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-36 | ND | | 0.38 | 0.0095 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-37 | 0.72 | B | 0.38 | 0.0098 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-38 | ND | | 0.38 | 0.010 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-39 | ND | | 0.38 | 0.0091 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-40 | 1.7 | C | 1.1 | 0.035 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-41 | 1.7 | C40 | 1.1 | 0.035 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-42 | 0.72 | | 0.38 | 0.035 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-43 | 0.077 | J C | 0.76 | 0.033 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-44 | 2.8 | C B | 1.1 | 0.031 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-45 | 0.53 | J C | 0.76 | 0.037 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-46 | 0.18 | J | 0.38 | 0.045 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-47 | 2.8 | C44 B | 1.1 | 0.031 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-48 | 0.69 | | 0.38 | 0.035 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-49 | 1.5 | C | 0.76 | 0.029 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-50 | 0.33 | J C | 0.76 | 0.034 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-51 | 0.53 | J C45 | 0.76 | 0.037 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-52 | 3.9 | B | 0.38 | 0.035 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-53 | 0.33 | J C50 | 0.76 | 0.034 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-54 | ND | | 0.38 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-55 | 0.042 | J q | 0.38 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-56 | 1.0 | B | 0.38 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-57 | ND | | 0.38 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-58 | ND | | 0.38 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-59 | 0.23 | J C | 1.1 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-60 | 0.41 | | 0.38 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-61 | 4.1 | C B | 1.5 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-62 | 0.23 | J C59 | 1.1 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-63 | 0.066 | J q | 0.38 | 0.024 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-64 | 1.3 | B | 0.38 | 0.024 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-65 | 2.8 | C44 B | 1.1 | 0.031 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-66 | 2.0 | B | 0.38 | 0.024 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-67 | 0.052 | J q | 0.38 | 0.023 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112989-1

**Client Sample ID: OFW0300N**
**Date Collected: 10/29/20 11:35**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-3**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | ND | | 0.38 | 0.023 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-69 | 1.5 | C49 | 0.76 | 0.029 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-70 | 4.1 | C61 B | 1.5 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-71 | 1.7 | C40 | 1.1 | 0.035 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-72 | ND | | 0.38 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-73 | 0.077 | J C43 | 0.76 | 0.033 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-74 | 4.1 | C61 B | 1.5 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-75 | 0.23 | J C59 | 1.1 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-76 | 4.1 | C61 B | 1.5 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-77 | 0.24 | J B | 0.38 | 0.028 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-78 | ND | | 0.38 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-79 | ND | | 0.38 | 0.023 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-80 | ND | | 0.38 | 0.022 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-81 | ND | | 0.38 | 0.021 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-82 | 0.32 | J | 0.38 | 0.0048 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-83 | 1.2 | C B | 0.76 | 0.0044 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-84 | 0.73 | | 0.38 | 0.0049 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-85 | 0.35 | J C B | 1.1 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-86 | 1.6 | J q C B | 2.3 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-87 | 1.6 | J q C86 B | 2.3 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-88 | 0.31 | J C | 0.76 | 0.0044 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-89 | 0.022 | J q | 0.38 | 0.0047 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-90 | 2.6 | C B | 1.1 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-91 | 0.31 | J C88 | 0.76 | 0.0044 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-92 | 0.38 | q | 0.38 | 0.0041 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-93 | 0.026 | J q C | 0.76 | 0.0042 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-94 | 0.0093 | J q | 0.38 | 0.0047 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-95 | 2.5 | B | 0.38 | 0.0046 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-96 | 0.019 | J q | 0.38 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-97 | 1.6 | J q C86 B | 2.3 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-98 | 0.061 | J q C | 0.76 | 0.0040 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-99 | 1.2 | C83 B | 0.76 | 0.0044 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-100 | 0.026 | J q C93 | 0.76 | 0.0042 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-101 | 2.6 | C90 B | 1.1 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-102 | 0.061 | J q C98 | 0.76 | 0.0040 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-103 | 0.015 | J | 0.38 | 0.0042 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-104 | ND | | 0.38 | 0.0032 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-105 | 1.7 | B | 0.38 | 0.034 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-106 | ND | | 0.38 | 0.035 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-107 | 0.23 | J q | 0.38 | 0.038 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-108 | 0.11 | J q C | 0.76 | 0.036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-109 | 1.6 | J q C86 B | 2.3 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-110 | 3.0 | C B | 0.76 | 0.0030 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-111 | ND | | 0.38 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-112 | 0.011 | J | 0.38 | 0.0031 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-113 | 2.6 | C90 B | 1.1 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-114 | 0.052 | J q | 0.38 | 0.032 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-115 | 3.0 | C110 B | 0.76 | 0.0030 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-116 | 0.35 | J C85 B | 1.1 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |

**Client Sample ID: OFW0300N**
**Date Collected: 10/29/20 11:35**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-3**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-117 | 0.35 | J C85 B | 1.1 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-118 | 3.4 | B | 0.38 | 0.034 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-119 | 1.6 | J q C86 B | 2.3 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-120 | 0.018 | J q | 0.38 | 0.0030 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-121 | ND | | 0.38 | 0.0031 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-122 | ND | | 0.38 | 0.041 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-123 | 0.042 | J q | 0.38 | 0.035 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-124 | 0.11 | J q C108 | 0.76 | 0.036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-125 | 1.6 | J q C86 B | 2.3 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-126 | ND | | 0.38 | 0.038 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-127 | ND | | 0.38 | 0.035 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-128 | 0.60 | J C | 0.76 | 0.064 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-129 | 5.2 | C B | 1.5 | 0.066 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-130 | 0.25 | J q | 0.38 | 0.087 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-131 | ND | | 0.38 | 0.091 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-132 | 1.6 | | 0.38 | 0.085 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-133 | ND | | 0.38 | 0.083 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-134 | 0.19 | J C | 0.76 | 0.086 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-135 | 0.96 | C | 0.76 | 0.0047 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-136 | 0.41 | | 0.38 | 0.0034 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-137 | 0.19 | J | 0.38 | 0.075 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-138 | 5.2 | C129 B | 1.5 | 0.066 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-139 | ND | C | 0.76 | 0.074 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-140 | ND | C139 | 0.76 | 0.074 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-141 | 0.82 | | 0.38 | 0.077 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-142 | ND | | 0.38 | 0.082 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-143 | 0.19 | J C134 | 0.76 | 0.086 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-144 | 0.11 | J | 0.38 | 0.0043 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-145 | ND | | 0.38 | 0.0032 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-146 | 0.59 | | 0.38 | 0.073 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-147 | 4.0 | C | 0.76 | 0.083 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-148 | ND | | 0.38 | 0.0046 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-149 | 4.0 | C147 | 0.76 | 0.083 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-150 | ND | | 0.38 | 0.0031 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-151 | 0.96 | C135 | 0.76 | 0.0047 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-152 | ND | | 0.38 | 0.0033 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-153 | 3.6 | C B | 0.76 | 0.058 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-154 | 0.021 | J | 0.38 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-155 | ND | | 0.38 | 0.0031 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-156 | 0.50 | J C | 0.76 | 0.065 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-157 | 0.50 | J C156 | 0.76 | 0.065 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-158 | 0.45 | | 0.38 | 0.052 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-159 | ND | | 0.38 | 0.055 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-160 | 5.2 | C129 B | 1.5 | 0.066 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-161 | ND | | 0.38 | 0.055 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-162 | ND | | 0.38 | 0.054 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-163 | 5.2 | C129 B | 1.5 | 0.066 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-164 | 0.28 | J | 0.38 | 0.058 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-165 | ND | | 0.38 | 0.062 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |

**Client Sample ID: OFW0300N**
**Date Collected: 10/29/20 11:35**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-3**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 0.60 | J C128 | 0.76 | 0.064 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-167 | 0.15 | J q | 0.38 | 0.046 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-168 | 3.6 | C153 B | 0.76 | 0.058 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-169 | ND | | 0.38 | 0.042 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-170 | 1.1 | | 0.38 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-171 | 0.25 | J C | 0.76 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-172 | 0.14 | J | 0.38 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-173 | 0.25 | J C171 | 0.76 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-174 | 0.96 | q | 0.38 | 0.010 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-175 | 0.032 | J q | 0.38 | 0.0098 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-176 | 0.099 | J | 0.38 | 0.0074 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-177 | 0.49 | | 0.38 | 0.010 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-178 | 0.20 | J | 0.38 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-179 | 0.41 | | 0.38 | 0.0078 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-180 | 2.3 | C B | 0.76 | 0.0082 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-181 | ND | | 0.38 | 0.0097 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-182 | ND | | 0.38 | 0.0094 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-183 | 0.67 | J C B | 0.76 | 0.0096 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-184 | ND | | 0.38 | 0.0080 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-185 | 0.67 | J C183 B | 0.76 | 0.0096 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-186 | ND | | 0.38 | 0.0078 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-187 | 1.1 | | 0.38 | 0.0091 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-188 | ND | | 0.38 | 0.0065 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-189 | 0.044 | J | 0.38 | 0.025 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-190 | 0.19 | J | 0.38 | 0.0071 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-191 | 0.028 | J | 0.38 | 0.0074 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-192 | ND | | 0.38 | 0.0082 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-193 | 2.3 | C180 B | 0.76 | 0.0082 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-194 | 0.56 | | 0.38 | 0.035 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-195 | 0.15 | J q | 0.38 | 0.038 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-196 | 0.25 | J q | 0.38 | 0.010 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-197 | ND | | 0.38 | 0.0079 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-198 | 0.63 | J C | 0.76 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-199 | 0.63 | J C198 | 0.76 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-200 | 0.068 | J | 0.38 | 0.0070 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-201 | 0.064 | J | 0.38 | 0.0072 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-202 | 0.12 | J | 0.38 | 0.0081 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-203 | 0.34 | J q | 0.38 | 0.0093 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-204 | ND | | 0.38 | 0.0079 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-205 | ND | | 0.38 | 0.029 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-206 | 0.37 | J | 0.38 | 0.033 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-207 | ND | | 0.38 | 0.024 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-208 | 0.060 | J q | 0.38 | 0.026 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| PCB-209 | 0.15 | J | 0.38 | 0.019 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| Total Monochlorobiphenyls | 0.33 | J q B | 0.38 | 0.0031 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| Total Dichlorobiphenyls | 14 | q B | 0.76 | 0.027 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| Total Trichlorobiphenyls | 12 | q B | 0.76 | 0.0084 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| Total Tetrachlorobiphenyls | 22 | q B | 1.5 | 0.027 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| Total Pentachlorobiphenyls | 19 | q B | 2.3 | 0.014 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |

## Client Sample ID: OFW0300N

**Date Collected: 10/29/20 11:35**
**Date Received: 10/30/20 08:45**

## Lab Sample ID: 180-112989-3

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Hexachlorobiphenyls | 20 | q B | 1.5 | 0.050 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| Total Heptachlorobiphenyls | 8.0 | q B | 0.76 | 0.0098 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| Total Octachlorobiphenyls | 2.2 | q | 0.76 | 0.015 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| Total Nonachlorobiphenyls | 0.43 | q | 0.38 | 0.028 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |
| Polychlorinated biphenyls, Total | 97 | q B | 2.3 | 0.022 | ng/L | | 11/24/20 12:36 | 12/02/20 11:46 | 10 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *80* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-3L* | *80* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-4L* | *82* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-15L* | *88* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-19L* | *98* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-37L* | *85* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-54L* | *100* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-77L* | *51* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-81L* | *61* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-104L* | *110* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-105L* | *82* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-114L* | *96* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-118L* | *89* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-123L* | *90* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-126L* | *82* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-155L* | *92* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-156L* | *91* | *C* | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-157L* | *91* | *C156* | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-167L* | *88* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-169L* | *96* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-170L* | *84* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-188L* | *100* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-189L* | *84* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-202L* | *99* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-205L* | *75* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-206L* | *85* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-208L* | *73* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-209L* | *92* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *99* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-111L* | *69* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |
| *PCB-178L* | *105* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 11:46* | *10* |

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 6200 | | 30 | 13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Arsenic | 2.6 | | 1.0 | 0.31 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Barium | 150 | | 10 | 1.6 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Beryllium | 0.27 | J | 1.0 | 0.18 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Cadmium | 1.0 | | 1.0 | 0.22 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Calcium | 28000 | | 500 | 130 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Chromium | 17 | | 2.0 | 1.5 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Cobalt | 4.4 | | 0.50 | 0.13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112989-1

**Client Sample ID: OFW0300N**
**Date Collected: 10/29/20 11:35**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-3**
**Matrix: Water**

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Copper | 86 | | 2.0 | 0.63 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Iron | 13000 | | 50 | 20 | ug/L | | 11/03/20 08:21 | 11/12/20 09:44 | 1 |
| Silver | 1.0 | | 1.0 | 0.18 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Potassium | 3100 | | 500 | 160 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Magnesium | 4900 | | 500 | 83 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Manganese | 190 | | 5.0 | 0.87 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Sodium | 3500 | | 500 | 350 | ug/L | | 11/03/20 08:21 | 11/12/20 09:44 | 1 |
| Nickel | 13 | | 1.0 | 0.34 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Lead | 100 | | 1.0 | 0.13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Antimony | 5.4 | | 2.0 | 0.38 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Vanadium | 16 | | 1.0 | 0.99 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |
| Zinc | 650 | | 5.0 | 3.2 | ug/L | | 11/03/20 08:21 | 11/10/20 21:50 | 1 |

### Method: EPA 7470A - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 11/04/20 09:46 | 11/06/20 14:11 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 640 | | 3.3 | 3.3 | mg/L | | | 11/02/20 07:39 | 1 |

## Client Sample ID: OFW0400N

**Date Collected: 10/29/20 11:20**
**Date Received: 10/30/20 08:45**

## Lab Sample ID: 180-112989-4

**Matrix: Water**

### Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.18 | 0.063 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Acenaphthylene | ND | | 0.18 | 0.063 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Anthracene | ND | | 0.18 | 0.047 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Benzo[a]anthracene | ND | | 0.18 | 0.072 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Benzo[b]fluoranthene | ND | | 0.18 | 0.093 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Benzo[k]fluoranthene | ND | | 0.18 | 0.085 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Benzo[g,h,i]perylene | ND | | 0.18 | 0.066 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Benzo[a]pyrene | ND | | 0.18 | 0.051 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Chrysene | ND | | 0.18 | 0.078 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.18 | 0.069 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Fluoranthene | ND | | 0.18 | 0.058 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Fluorene | ND | | 0.18 | 0.066 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.18 | 0.082 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Naphthalene | ND | | 0.18 | 0.057 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Phenanthrene | ND | | 0.18 | 0.053 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |
| Pyrene | ND | | 0.18 | 0.052 | ug/L | | 11/05/20 12:15 | 11/10/20 14:57 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *72* | | *23 - 105* | *11/05/20 12:15* | *11/10/20 14:57* | *1* |
| *Nitrobenzene-d5 (Surr)* | *72* | | *28 - 111* | *11/05/20 12:15* | *11/10/20 14:57* | *1* |
| *Terphenyl-d14 (Surr)* | *60* | | *20 - 126* | *11/05/20 12:15* | *11/10/20 14:57* | *1* |

### Method: 8015D - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics [C10 - C28] | ND | | 460 | 210 | ug/L | | 11/04/20 07:54 | 11/06/20 10:52 | 1 |
| **ORO C24-C40** | **250** | **J** | 460 | 210 | ug/L | | 11/04/20 07:54 | 11/06/20 10:52 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *79* | | *52 - 121* | *11/04/20 07:54* | *11/06/20 10:52* | *1* |

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.0037** | **J q** | 0.039 | 0.00028 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-2** | **0.0021** | **J B q** | 0.039 | 0.00032 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-3** | **0.0033** | **J B** | 0.039 | 0.00034 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-4** | **0.013** | **J B q** | 0.058 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-5 | ND | | 0.039 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-6** | **0.0040** | **J q** | 0.039 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-7 | ND | | 0.039 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-8** | **0.021** | **J B q** | 0.058 | 0.0018 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-9 | ND | | 0.039 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-10 | ND | | 0.039 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-11** | **0.050** | **J B q** | 0.058 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-12 | ND | C | 0.078 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-13 | ND | C12 | 0.078 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-14 | ND | | 0.039 | 0.0017 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-15** | **0.015** | **J B** | 0.039 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-16** | **0.0060** | **J q** | 0.039 | 0.00070 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-17** | **0.0075** | **J B q** | 0.039 | 0.00063 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-18** | **0.017** | **J C B** | 0.078 | 0.00056 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |

**Client Sample ID: OFW0400N**
**Date Collected: 10/29/20 11:20**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-4**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | 0.0018 | J q | 0.039 | 0.00077 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-20 | 0.041 | J C B | 0.078 | 0.00072 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-21 | 0.014 | J C B | 0.078 | 0.00070 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-22 | 0.012 | J B | 0.039 | 0.00074 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-23 | ND | | 0.039 | 0.00073 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-24 | 0.00088 | J | 0.039 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-25 | 0.0017 | J q | 0.039 | 0.00066 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-26 | 0.0045 | J C B q | 0.078 | 0.00071 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-27 | 0.0012 | J q | 0.039 | 0.00046 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-28 | 0.041 | J B C20 | 0.078 | 0.00072 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-29 | 0.0045 | J C26 B q | 0.078 | 0.00071 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-30 | 0.017 | J C18 B | 0.078 | 0.00056 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-31 | 0.026 | J B q | 0.039 | 0.00070 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-32 | 0.0077 | J B | 0.039 | 0.00044 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-33 | 0.014 | J B C21 | 0.078 | 0.00070 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-34 | ND | | 0.039 | 0.00076 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-35 | ND | | 0.039 | 0.00074 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-36 | ND | | 0.039 | 0.00071 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-37 | 0.018 | J B | 0.039 | 0.00073 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-38 | ND | | 0.039 | 0.00076 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-39 | ND | | 0.039 | 0.00068 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-40 | 0.014 | J C | 0.12 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-41 | 0.014 | J C40 | 0.12 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-42 | 0.0073 | J | 0.039 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-43 | ND | C | 0.078 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-44 | 0.031 | J C B | 0.12 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-45 | 0.0049 | J C | 0.078 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-46 | ND | | 0.039 | 0.0016 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-47 | 0.031 | J B C44 | 0.12 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-48 | 0.0041 | J | 0.039 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-49 | 0.018 | J C | 0.078 | 0.0010 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-50 | 0.0040 | J C | 0.078 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-51 | 0.0049 | J C45 | 0.078 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-52 | 0.053 | B | 0.039 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-53 | 0.0040 | J C50 | 0.078 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-54 | ND | | 0.039 | 0.00019 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-55 | ND | | 0.039 | 0.00089 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-56 | 0.017 | J B | 0.039 | 0.00089 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-57 | ND | | 0.039 | 0.00090 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-58 | ND | | 0.039 | 0.00092 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-59 | 0.0031 | J C | 0.12 | 0.00086 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-60 | 0.0091 | J | 0.039 | 0.00091 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-61 | 0.074 | J C B | 0.16 | 0.00085 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-62 | 0.0031 | J C59 | 0.12 | 0.00086 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-63 | ND | | 0.039 | 0.00083 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-64 | 0.021 | J B | 0.039 | 0.00082 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-65 | 0.031 | J B C44 | 0.12 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-66 | 0.035 | J B | 0.039 | 0.00085 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-67 | ND | | 0.039 | 0.00078 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |

## Client Sample ID: OFW0400N

**Date Collected: 10/29/20 11:20**
**Date Received: 10/30/20 08:45**

## Lab Sample ID: 180-112989-4

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | ND | | 0.039 | 0.00080 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-69** | **0.018** | **J C49** | 0.078 | 0.0010 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-70** | **0.074** | **J C61 B** | 0.16 | 0.00085 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-71** | **0.014** | **J C40** | 0.12 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-72 | ND | | 0.039 | 0.00089 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-73 | ND | C43 | 0.078 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-74** | **0.074** | **J C61 B** | 0.16 | 0.00085 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-75** | **0.0031** | **J C59** | 0.12 | 0.00086 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-76** | **0.074** | **J C61 B** | 0.16 | 0.00085 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-77** | **0.0081** | **J B** | 0.039 | 0.00086 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-78 | ND | | 0.039 | 0.00092 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-79 | ND | | 0.039 | 0.00079 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-80 | ND | | 0.039 | 0.00078 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-81 | ND | | 0.039 | 0.00084 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-82** | **0.018** | **J** | 0.039 | 0.00071 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-83** | **0.066** | **J C B q** | 0.078 | 0.00065 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-84** | **0.035** | **J** | 0.039 | 0.00072 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-85** | **0.026** | **J C B** | 0.12 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-86** | **0.098** | **J C B** | 0.23 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-87** | **0.098** | **J B C86** | 0.23 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-88** | **0.017** | **J C** | 0.078 | 0.00064 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-89 | ND | | 0.039 | 0.00070 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-90** | **0.16** | **C B** | 0.12 | 0.00054 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-91** | **0.017** | **J C88** | 0.078 | 0.00064 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-92** | **0.025** | **J** | 0.039 | 0.00061 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-93** | **0.0022** | **J C q** | 0.078 | 0.00062 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-94 | ND | | 0.039 | 0.00070 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-95** | **0.15** | **B** | 0.039 | 0.00067 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-96 | ND | | 0.039 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-97** | **0.098** | **J B C86** | 0.23 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-98** | **0.0029** | **J C q** | 0.078 | 0.00060 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-99** | **0.066** | **J C83 B q** | 0.078 | 0.00065 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-100** | **0.0022** | **J C93 q** | 0.078 | 0.00062 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-101** | **0.16** | **B C90** | 0.12 | 0.00054 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-102** | **0.0029** | **J C98 q** | 0.078 | 0.00060 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-103 | ND | | 0.039 | 0.00062 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-104 | ND | | 0.039 | 0.00047 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-105** | **0.059** | **B** | 0.039 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-106 | ND | | 0.039 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-107** | **0.010** | **J q** | 0.039 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-108** | **0.0063** | **J C q** | 0.078 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-109** | **0.098** | **J B C86** | 0.23 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-110** | **0.27** | **C B** | 0.078 | 0.00045 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-111 | ND | | 0.039 | 0.00043 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-112** | **0.00097** | **J q** | 0.039 | 0.00046 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-113** | **0.16** | **B C90** | 0.12 | 0.00054 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-114** | **0.0017** | **J q** | 0.039 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-115** | **0.27** | **B C110** | 0.078 | 0.00045 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **PCB-116** | **0.026** | **J C85 B** | 0.12 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |

## Client Sample ID: OFW0400N

**Date Collected: 10/29/20 11:20**
**Date Received: 10/30/20 08:45**

## Lab Sample ID: 180-112989-4

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-117 | 0.026 | J C85 B | 0.12 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-118 | 0.14 | B | 0.039 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-119 | 0.098 | J B C86 | 0.23 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-120 | ND | | 0.039 | 0.00044 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-121 | ND | | 0.039 | 0.00045 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-122 | 0.0027 | J | 0.039 | 0.0016 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-123 | 0.0017 | J q | 0.039 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-124 | 0.0063 | J q C108 | 0.078 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-125 | 0.098 | J B C86 | 0.23 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-126 | ND | | 0.039 | 0.0015 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-127 | ND | | 0.039 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-128 | 0.049 | J C | 0.078 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-129 | 0.41 | C B | 0.16 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-130 | 0.023 | J | 0.039 | 0.0031 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-131 | 0.0046 | J q | 0.039 | 0.0032 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-132 | 0.11 | | 0.039 | 0.0030 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-133 | 0.0037 | J | 0.039 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-134 | 0.014 | J C | 0.078 | 0.0030 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-135 | 0.13 | C | 0.078 | 0.00083 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-136 | 0.040 | | 0.039 | 0.00060 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-137 | 0.0096 | J q | 0.039 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-138 | 0.41 | B C129 | 0.16 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-139 | 0.0040 | J C q | 0.078 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-140 | 0.0040 | J C139 q | 0.078 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-141 | 0.087 | | 0.039 | 0.0027 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-142 | ND | | 0.039 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-143 | 0.014 | J C134 | 0.078 | 0.0030 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-144 | 0.013 | J | 0.039 | 0.00075 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-145 | ND | | 0.039 | 0.00057 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-146 | 0.048 | q | 0.039 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-147 | 0.35 | C | 0.078 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-148 | ND | | 0.039 | 0.00080 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-149 | 0.35 | C147 | 0.078 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-150 | ND | | 0.039 | 0.00054 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-151 | 0.13 | C135 | 0.078 | 0.00083 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-152 | ND | | 0.039 | 0.00059 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-153 | 0.30 | C B | 0.078 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-154 | 0.0017 | J q | 0.039 | 0.00065 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-155 | ND | | 0.039 | 0.00055 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-156 | 0.035 | J C | 0.078 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-157 | 0.035 | J C156 | 0.078 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-158 | 0.035 | J q | 0.039 | 0.0018 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-159 | 0.0036 | J q | 0.039 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-160 | 0.41 | B C129 | 0.16 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-161 | ND | | 0.039 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-162 | ND | | 0.039 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-163 | 0.41 | B C129 | 0.16 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-164 | 0.027 | J | 0.039 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-165 | ND | | 0.039 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |

## Client Sample ID: OFW0400N

**Date Collected: 10/29/20 11:20**
**Date Received: 10/30/20 08:45**

## Lab Sample ID: 180-112989-4

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 0.049 | J C128 | 0.078 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-167 | 0.012 | J | 0.039 | 0.0015 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-168 | 0.30 | B C153 | 0.078 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-169 | ND | | 0.039 | 0.0015 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-170 | 0.14 | | 0.039 | 0.0017 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-171 | 0.036 | J C | 0.078 | 0.0016 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-172 | 0.020 | J | 0.039 | 0.0015 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-173 | 0.036 | J C171 | 0.078 | 0.0016 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-174 | 0.14 | | 0.039 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-175 | 0.0047 | J | 0.039 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-176 | 0.014 | J | 0.039 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-177 | 0.072 | | 0.039 | 0.0015 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-178 | 0.023 | J | 0.039 | 0.0015 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-179 | 0.053 | | 0.039 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-180 | 0.30 | C B | 0.078 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-181 | ND | | 0.039 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-182 | ND | | 0.039 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-183 | 0.090 | C B | 0.078 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-184 | ND | | 0.039 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-185 | 0.090 | B C183 | 0.078 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-186 | ND | | 0.039 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-187 | 0.16 | | 0.039 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-188 | ND | | 0.039 | 0.00097 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-189 | ND | | 0.039 | 0.0018 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-190 | 0.020 | J q | 0.039 | 0.0010 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-191 | 0.0060 | J | 0.039 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-192 | ND | | 0.039 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-193 | 0.30 | C180 B | 0.078 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-194 | 0.053 | | 0.039 | 0.0044 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-195 | 0.026 | J | 0.039 | 0.0048 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-196 | 0.029 | J | 0.039 | 0.0015 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-197 | ND | | 0.039 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-198 | 0.061 | J C | 0.078 | 0.0016 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-199 | 0.061 | J C198 | 0.078 | 0.0016 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-200 | 0.0057 | J q | 0.039 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-201 | 0.0075 | J | 0.039 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-202 | 0.0078 | J q | 0.039 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-203 | 0.036 | J | 0.039 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-204 | ND | | 0.039 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-205 | ND | | 0.039 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-206 | 0.020 | J | 0.039 | 0.0032 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-207 | 0.0047 | J | 0.039 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-208 | 0.0043 | J q | 0.039 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| PCB-209 | 0.010 | J q | 0.039 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| Total Monochlorobiphenyls | 0.0091 | J B q | 0.039 | 0.00031 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| Total Dichlorobiphenyls | 0.10 | B q | 0.078 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| Total Trichlorobiphenyls | 0.16 | B q | 0.078 | 0.00067 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| Total Tetrachlorobiphenyls | 0.30 | B | 0.16 | 0.00095 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| Total Pentachlorobiphenyls | 1.1 | B q | 0.23 | 0.00083 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |

## Client Sample ID: OFW0400N

**Date Collected: 10/29/20 11:20**
**Date Received: 10/30/20 08:45**

## Lab Sample ID: 180-112989-4

**Matrix: Water**

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Total Hexachlorobiphenyls** | **1.7** | **B q** | 0.16 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **Total Heptachlorobiphenyls** | **1.1** | **B q** | 0.078 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **Total Octachlorobiphenyls** | **0.23** | **q** | 0.078 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **Total Nonachlorobiphenyls** | **0.029** | **J q** | 0.039 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |
| **Polychlorinated biphenyls, Total** | **4.7** | **B q** | 0.23 | 0.0016 | ng/L | | 11/24/20 12:36 | 12/02/20 12:47 | 1 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *76* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-3L* | *77* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-4L* | *85* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-15L* | *90* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-19L* | *94* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-37L* | *88* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-54L* | *104* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-77L* | *94* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-81L* | *91* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-104L* | *86* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-105L* | *97* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-114L* | *97* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-118L* | *96* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-123L* | *95* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-126L* | *84* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-155L* | *97* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-156L* | *92* | *C* | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-157L* | *92* | *C156* | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-167L* | *93* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-169L* | *94* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-170L* | *92* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-188L* | *101* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-189L* | *112* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-202L* | *116* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-205L* | *89* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-206L* | *109* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-208L* | *118* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-209L* | *109* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *94* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-111L* | *101* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |
| *PCB-178L* | *107* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 12:47* | *1* |

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Aluminum** | **380** | | 30 | 13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| **Arsenic** | **2.9** | | 1.0 | 0.31 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| **Barium** | **10** | | 10 | 1.6 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Cadmium | ND | | 1.0 | 0.22 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| **Calcium** | **9300** | | 500 | 130 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| **Chromium** | **1.8** | **J** | 2.0 | 1.5 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| **Cobalt** | **0.58** | | 0.50 | 0.13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112989-1

**Client Sample ID: OFW0400N**
**Date Collected: 10/29/20 11:20**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-4**
**Matrix: Water**

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Copper | 4.5 | | 2.0 | 0.63 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Iron | 870 | | 50 | 20 | ug/L | | 11/03/20 08:21 | 11/12/20 09:54 | 1 |
| Silver | ND | | 1.0 | 0.18 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Potassium | 3100 | | 500 | 160 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Magnesium | 2300 | | 500 | 83 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Manganese | 16 | | 5.0 | 0.87 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Sodium | 4700 | | 500 | 350 | ug/L | | 11/03/20 08:21 | 11/12/20 09:54 | 1 |
| Nickel | 5.4 | | 1.0 | 0.34 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Lead | 3.6 | | 1.0 | 0.13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Antimony | 0.48 | J | 2.0 | 0.38 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Vanadium | 26 | | 1.0 | 0.99 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |
| Zinc | 39 | | 5.0 | 3.2 | ug/L | | 11/03/20 08:21 | 11/10/20 21:53 | 1 |

### Method: EPA 7470A - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 11/04/20 09:46 | 11/06/20 14:15 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 12 | | 0.50 | 0.50 | mg/L | | | 11/02/20 07:39 | 1 |

## Client Sample ID: OFW0500N

**Date Collected: 10/29/20 11:05**
**Date Received: 10/30/20 08:45**

## Lab Sample ID: 180-112989-5

**Matrix: Water**

### Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.18 | 0.063 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Acenaphthylene | ND | | 0.18 | 0.063 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Anthracene | ND | | 0.18 | 0.047 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Benzo[a]anthracene | ND | | 0.18 | 0.072 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Benzo[b]fluoranthene | ND | | 0.18 | 0.093 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Benzo[k]fluoranthene | ND | | 0.18 | 0.085 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Benzo[g,h,i]perylene | ND | | 0.18 | 0.066 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Benzo[a]pyrene | ND | | 0.18 | 0.051 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Chrysene | ND | | 0.18 | 0.078 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.18 | 0.069 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Fluoranthene | ND | | 0.18 | 0.058 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Fluorene | ND | | 0.18 | 0.066 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.18 | 0.082 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Naphthalene | ND | | 0.18 | 0.057 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| Phenanthrene | ND | | 0.18 | 0.053 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |
| **Pyrene** | **0.053** | **J** | 0.18 | 0.052 | ug/L | | 11/05/20 12:15 | 11/10/20 15:25 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *57* | | *23 - 105* | *11/05/20 12:15* | *11/10/20 15:25* | *1* |
| *Nitrobenzene-d5 (Surr)* | *55* | | *28 - 111* | *11/05/20 12:15* | *11/10/20 15:25* | *1* |
| *Terphenyl-d14 (Surr)* | *55* | | *20 - 126* | *11/05/20 12:15* | *11/10/20 15:25* | *1* |

### Method: 8015D - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Diesel Range Organics [C10 - C28]** | **1200** | | 480 | 220 | ug/L | | 11/04/20 07:54 | 11/05/20 16:05 | 1 |
| **ORO C24-C40** | **2000** | | 480 | 220 | ug/L | | 11/04/20 07:54 | 11/05/20 16:05 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *76* | | *52 - 121* | *11/04/20 07:54* | *11/05/20 16:05* | *1* |

### Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **PCB-1** | **0.023** | **J** | 0.039 | 0.00051 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-2** | **0.0068** | **J q B** | 0.039 | 0.00056 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-3** | **0.015** | **J B** | 0.039 | 0.00058 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-4** | **0.091** | **B** | 0.058 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-5** | **0.0057** | **J q** | 0.039 | 0.0024 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-6** | **0.044** | **q** | 0.039 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-7** | **0.0062** | **J q** | 0.039 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-8** | **0.21** | **B** | 0.058 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-9** | **0.014** | **J q** | 0.039 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-10 | ND | | 0.039 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-11** | **1.4** | **B** | 0.058 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-12** | **0.031** | **J q C** | 0.077 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-13** | **0.031** | **J q C12** | 0.077 | 0.0021 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-14 | ND | | 0.039 | 0.0018 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-15** | **0.13** | **B** | 0.039 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-16** | **0.18** | | 0.039 | 0.00070 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-17** | **0.17** | **B** | 0.039 | 0.00063 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| **PCB-18** | **0.40** | **C B** | 0.077 | 0.00056 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112989-1

**Client Sample ID: OFW0500N**
**Date Collected: 10/29/20 11:05**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-5**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-19 | 0.036 | J | 0.039 | 0.00077 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-20 | 0.63 | C B | 0.077 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-21 | 0.36 | C B | 0.077 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-22 | 0.23 | B | 0.039 | 0.0015 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-23 | ND | | 0.039 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-24 | 0.0060 | J q | 0.039 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-25 | 0.041 | | 0.039 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-26 | 0.10 | C B | 0.077 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-27 | 0.026 | J | 0.039 | 0.00046 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-28 | 0.63 | C20 B | 0.077 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-29 | 0.10 | C26 B | 0.077 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-30 | 0.40 | C18 B | 0.077 | 0.00056 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-31 | 0.56 | B | 0.039 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-32 | 0.12 | B | 0.039 | 0.00044 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-33 | 0.36 | C21 B | 0.077 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-34 | ND | | 0.039 | 0.0015 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-35 | 0.023 | J | 0.039 | 0.0015 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-36 | 0.0030 | J | 0.039 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-37 | 0.19 | B | 0.039 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-38 | ND | | 0.039 | 0.0015 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-39 | 0.0015 | J q | 0.039 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-40 | 0.46 | C | 0.12 | 0.0053 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-41 | 0.46 | C40 | 0.12 | 0.0053 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-42 | 0.20 | | 0.039 | 0.0053 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-43 | 0.027 | J C | 0.077 | 0.0049 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-44 | 0.84 | C B | 0.12 | 0.0046 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-45 | 0.16 | C | 0.077 | 0.0055 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-46 | 0.051 | | 0.039 | 0.0067 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-47 | 0.84 | C44 B | 0.12 | 0.0046 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-48 | 0.17 | | 0.039 | 0.0052 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-49 | 0.46 | C | 0.077 | 0.0043 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-50 | 0.10 | C | 0.077 | 0.0051 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-51 | 0.16 | C45 | 0.077 | 0.0055 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-52 | 1.3 | B | 0.039 | 0.0052 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-53 | 0.10 | C50 | 0.077 | 0.0051 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-54 | 0.0010 | J q | 0.039 | 0.00022 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-55 | 0.013 | J | 0.039 | 0.0038 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-56 | 0.24 | B | 0.039 | 0.0038 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-57 | ND | | 0.039 | 0.0039 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-58 | ND | | 0.039 | 0.0039 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-59 | 0.074 | J C | 0.12 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-60 | 0.12 | | 0.039 | 0.0039 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-61 | 1.1 | C B | 0.15 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-62 | 0.074 | J C59 | 0.12 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-63 | 0.013 | J q | 0.039 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-64 | 0.37 | B | 0.039 | 0.0035 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-65 | 0.84 | C44 B | 0.12 | 0.0046 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-66 | 0.48 | B | 0.039 | 0.0036 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-67 | 0.013 | J q | 0.039 | 0.0034 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |

**Client Sample ID: OFW0500N**
**Date Collected: 10/29/20 11:05**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-5**
**Matrix: Water**

**Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)**

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-68 | 0.0041 | J q | 0.039 | 0.0034 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-69 | 0.46 | C49 | 0.077 | 0.0043 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-70 | 1.1 | C61 B | 0.15 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-71 | 0.46 | C40 | 0.12 | 0.0053 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-72 | 0.0041 | J | 0.039 | 0.0038 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-73 | 0.027 | J C43 | 0.077 | 0.0049 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-74 | 1.1 | C61 B | 0.15 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-75 | 0.074 | J C59 | 0.12 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-76 | 1.1 | C61 B | 0.15 | 0.0037 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-77 | 0.094 | B | 0.039 | 0.0041 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-78 | ND | | 0.039 | 0.0039 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-79 | 0.0092 | J | 0.039 | 0.0034 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-80 | ND | | 0.039 | 0.0033 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-81 | ND | | 0.039 | 0.0033 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-82 | 0.11 | | 0.039 | 0.00047 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-83 | 0.47 | C B | 0.077 | 0.00043 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-84 | 0.27 | | 0.039 | 0.00047 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-85 | 0.15 | C B | 0.12 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-86 | 0.61 | C B | 0.23 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-87 | 0.61 | C86 B | 0.23 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-88 | 0.14 | C | 0.077 | 0.00042 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-89 | 0.0067 | J q | 0.039 | 0.00046 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-90 | 0.96 | C B | 0.12 | 0.00036 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-91 | 0.14 | C88 | 0.077 | 0.00042 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-92 | 0.17 | | 0.039 | 0.00040 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-93 | 0.0086 | J C | 0.077 | 0.00041 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-94 | 0.0033 | J q | 0.039 | 0.00046 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-95 | 1.0 | B | 0.039 | 0.00044 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-96 | 0.0060 | J q | 0.039 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-97 | 0.61 | C86 B | 0.23 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-98 | 0.028 | J C | 0.077 | 0.00039 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-99 | 0.47 | C83 B | 0.077 | 0.00043 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-100 | 0.0086 | J C93 | 0.077 | 0.00041 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-101 | 0.96 | C90 B | 0.12 | 0.00036 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-102 | 0.028 | J C98 | 0.077 | 0.00039 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-103 | 0.0044 | J q | 0.039 | 0.00041 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-104 | ND | | 0.039 | 0.00031 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-105 | 0.48 | B | 0.039 | 0.0063 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-106 | ND | | 0.039 | 0.0058 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-107 | 0.079 | q | 0.039 | 0.0063 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-108 | 0.050 | J C | 0.077 | 0.0060 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-109 | 0.61 | C86 B | 0.23 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-110 | 1.3 | C B | 0.077 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-111 | ND | | 0.039 | 0.00029 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-112 | 0.0017 | J q | 0.039 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-113 | 0.96 | C90 B | 0.12 | 0.00036 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-114 | 0.018 | J | 0.039 | 0.0051 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-115 | 1.3 | C110 B | 0.077 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-116 | 0.15 | C85 B | 0.12 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |

**Client Sample ID: OFW0500N**
**Date Collected: 10/29/20 11:05**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-5**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-117 | 0.15 | C85 B | 0.12 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-118 | 1.1 | B | 0.039 | 0.0050 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-119 | 0.61 | C86 B | 0.23 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-120 | 0.0021 | J q | 0.039 | 0.00029 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-121 | ND | | 0.039 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-122 | 0.017 | J | 0.039 | 0.0067 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-123 | 0.010 | J q | 0.039 | 0.0057 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-124 | 0.050 | J C108 | 0.077 | 0.0060 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-125 | 0.61 | C86 B | 0.23 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-126 | 0.022 | J q | 0.039 | 0.0069 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-127 | ND | | 0.039 | 0.0058 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-128 | 0.37 | C | 0.077 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-129 | 2.8 | C B | 0.15 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-130 | 0.16 | | 0.039 | 0.014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-131 | 0.028 | J | 0.039 | 0.015 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-132 | 0.94 | | 0.039 | 0.014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-133 | 0.028 | J | 0.039 | 0.014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-134 | 0.14 | C | 0.077 | 0.014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-135 | 0.58 | C | 0.077 | 0.00078 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-136 | 0.24 | | 0.039 | 0.00056 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-137 | 0.11 | q | 0.039 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-138 | 2.8 | C129 B | 0.15 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-139 | 0.037 | J C | 0.077 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-140 | 0.037 | J C139 | 0.077 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-141 | 0.48 | | 0.039 | 0.013 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-142 | ND | | 0.039 | 0.014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-143 | 0.14 | C134 | 0.077 | 0.014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-144 | 0.063 | | 0.039 | 0.00070 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-145 | 0.0027 | J | 0.039 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-146 | 0.36 | | 0.039 | 0.012 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-147 | 2.5 | C | 0.077 | 0.014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-148 | ND | | 0.039 | 0.00075 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-149 | 2.5 | C147 | 0.077 | 0.014 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-150 | ND | | 0.039 | 0.00051 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-151 | 0.58 | C135 | 0.077 | 0.00078 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-152 | 0.0012 | J q | 0.039 | 0.00055 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-153 | 2.0 | C B | 0.077 | 0.0095 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-154 | 0.0078 | J q | 0.039 | 0.00061 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-155 | ND | | 0.039 | 0.00051 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-156 | 0.23 | C | 0.077 | 0.010 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-157 | 0.23 | C156 | 0.077 | 0.010 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-158 | 0.27 | | 0.039 | 0.0086 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-159 | ND | | 0.039 | 0.0091 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-160 | 2.8 | C129 B | 0.15 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-161 | ND | | 0.039 | 0.0090 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-162 | 0.0096 | J q | 0.039 | 0.0089 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-163 | 2.8 | C129 B | 0.15 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-164 | 0.17 | | 0.039 | 0.0096 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-165 | ND | | 0.039 | 0.010 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |

**Client Sample ID: OFW0500N**
**Date Collected: 10/29/20 11:05**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-5**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-166 | 0.37 | C128 | 0.077 | 0.011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-167 | 0.074 | | 0.039 | 0.0073 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-168 | 2.0 | C153 B | 0.077 | 0.0095 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-169 | ND | | 0.039 | 0.0080 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-170 | 0.58 | | 0.039 | 0.0015 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-171 | 0.14 | C | 0.077 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-172 | 0.081 | | 0.039 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-173 | 0.14 | C171 | 0.077 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-174 | 0.53 | | 0.039 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-175 | 0.017 | J q | 0.039 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-176 | 0.058 | | 0.039 | 0.00086 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-177 | 0.27 | | 0.039 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-178 | 0.088 | | 0.039 | 0.0012 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-179 | 0.24 | | 0.039 | 0.00091 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-180 | 1.1 | C B | 0.077 | 0.00095 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-181 | ND | | 0.039 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-182 | ND | | 0.039 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-183 | 0.35 | C B | 0.077 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-184 | ND | | 0.039 | 0.00093 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-185 | 0.35 | C183 B | 0.077 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-186 | ND | | 0.039 | 0.00090 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-187 | 0.56 | | 0.039 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-188 | ND | | 0.039 | 0.00074 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-189 | 0.016 | J | 0.039 | 0.0052 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-190 | 0.079 | | 0.039 | 0.00082 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-191 | 0.017 | J | 0.039 | 0.00085 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-192 | ND | | 0.039 | 0.00095 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-193 | 1.1 | C180 B | 0.077 | 0.00095 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-194 | 0.26 | | 0.039 | 0.0084 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-195 | 0.082 | q | 0.039 | 0.0092 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-196 | 0.12 | | 0.039 | 0.0025 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-197 | 0.0062 | J q | 0.039 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-198 | 0.26 | C | 0.077 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-199 | 0.26 | C198 | 0.077 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-200 | 0.018 | J q | 0.039 | 0.0017 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-201 | 0.020 | J q | 0.039 | 0.0018 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-202 | 0.047 | | 0.039 | 0.0020 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-203 | 0.14 | | 0.039 | 0.0023 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-204 | ND | | 0.039 | 0.0019 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-205 | 0.011 | J | 0.039 | 0.0071 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-206 | 0.11 | | 0.039 | 0.0053 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-207 | 0.011 | J | 0.039 | 0.0039 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-208 | 0.023 | J q | 0.039 | 0.0041 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| PCB-209 | 0.024 | J q | 0.039 | 0.0026 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| Total Monochlorobiphenyls | 0.045 | q B | 0.039 | 0.00055 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| Total Dichlorobiphenyls | 1.9 | q B | 0.077 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| Total Trichlorobiphenyls | 3.1 | q B | 0.077 | 0.0011 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| Total Tetrachlorobiphenyls | 6.3 | q B | 0.15 | 0.0041 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| Total Pentachlorobiphenyls | 7.0 | q B | 0.23 | 0.0022 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |

**Client Sample ID: OFW0500N**
**Date Collected: 10/29/20 11:05**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-5**
**Matrix: Water**

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Analyte | Result | Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Hexachlorobiphenyls | 12 | q B | 0.15 | 0.0083 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| Total Heptachlorobiphenyls | 4.1 | q B | 0.077 | 0.0013 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| Total Octachlorobiphenyls | 0.96 | q | 0.077 | 0.0038 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| Total Nonachlorobiphenyls | 0.14 | q | 0.039 | 0.0045 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |
| Polychlorinated biphenyls, Total | 35 | q B | 0.23 | 0.0033 | ng/L | | 11/24/20 12:36 | 12/02/20 07:21 | 1 |

| *Isotope Dilution* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-1L* | *69* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-3L* | *72* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-4L* | *76* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-15L* | *87* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-19L* | *99* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-37L* | *79* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-54L* | *94* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-77L* | *48* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-81L* | *56* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-104L* | *123* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-105L* | *91* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-114L* | *103* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-118L* | *103* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-123L* | *103* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-126L* | *85* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-155L* | *92* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-156L* | *87* | *C* | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-157L* | *87* | *C156* | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-167L* | *88* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-169L* | *87* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-170L* | *91* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-188L* | *116* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-189L* | *86* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-202L* | *114* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-205L* | *78* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-206L* | *85* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-208L* | *82* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-209L* | *97* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *PCB-28L* | *99* | | *5 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-111L* | *76* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |
| *PCB-178L* | *118* | | *10 - 145* | *11/24/20 12:36* | *12/02/20 07:21* | *1* |

## Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 2200 | | 30 | 13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Arsenic | 2.4 | | 1.0 | 0.31 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Barium | 56 | | 10 | 1.6 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Cadmium | ND | | 1.0 | 0.22 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Calcium | 18000 | | 500 | 130 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Chromium | 5.8 | | 2.0 | 1.5 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Cobalt | 1.4 | | 0.50 | 0.13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112989-1

**Client Sample ID: OFW0500N**
**Date Collected: 10/29/20 11:05**
**Date Received: 10/30/20 08:45**

**Lab Sample ID: 180-112989-5**
**Matrix: Water**

### Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Copper | 19 | | 2.0 | 0.63 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Iron | 4200 | | 50 | 20 | ug/L | | 11/03/20 08:21 | 11/12/20 09:58 | 1 |
| Silver | ND | | 1.0 | 0.18 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Potassium | 1700 | | 500 | 160 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Magnesium | 3600 | | 500 | 83 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Manganese | 68 | | 5.0 | 0.87 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Sodium | 2400 | | 500 | 350 | ug/L | | 11/03/20 08:21 | 11/12/20 09:58 | 1 |
| Nickel | 7.2 | | 1.0 | 0.34 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Lead | 14 | | 1.0 | 0.13 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Antimony | 2.0 | | 2.0 | 0.38 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Vanadium | 12 | | 1.0 | 0.99 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |
| Zinc | 100 | | 5.0 | 3.2 | ug/L | | 11/03/20 08:21 | 11/10/20 21:57 | 1 |

### Method: EPA 7470A - Mercury (CVAA)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 11/04/20 09:46 | 11/06/20 14:16 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 180 | | 2.5 | 2.5 | mg/L | | | 11/02/20 07:39 | 1 |

## Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

**Lab Sample ID: MB 180-335567/1-A**
**Matrix: Water**
**Analysis Batch: 336474**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 335567**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.19 | 0.065 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Acenaphthylene | ND | | 0.19 | 0.065 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Anthracene | ND | | 0.19 | 0.049 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Benzo[a]anthracene | ND | | 0.19 | 0.075 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Benzo[b]fluoranthene | ND | | 0.19 | 0.097 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Benzo[k]fluoranthene | ND | | 0.19 | 0.088 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Benzo[g,h,i]perylene | ND | | 0.19 | 0.069 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Benzo[a]pyrene | ND | | 0.19 | 0.053 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Chrysene | ND | | 0.19 | 0.081 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.19 | 0.072 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Fluoranthene | ND | | 0.19 | 0.060 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Fluorene | ND | | 0.19 | 0.069 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.19 | 0.085 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Naphthalene | ND | | 0.19 | 0.059 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Phenanthrene | ND | | 0.19 | 0.055 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |
| Pyrene | ND | | 0.19 | 0.054 | ug/L | | 11/02/20 11:02 | 11/10/20 06:29 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *63* | | *23 - 105* | *11/02/20 11:02* | *11/10/20 06:29* | *1* |
| *Nitrobenzene-d5 (Surr)* | *66* | | *28 - 111* | *11/02/20 11:02* | *11/10/20 06:29* | *1* |
| *Terphenyl-d14 (Surr)* | *63* | | *20 - 126* | *11/02/20 11:02* | *11/10/20 06:29* | *1* |

**Lab Sample ID: LCS 180-335567/2-A**
**Matrix: Water**
**Analysis Batch: 336474**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 335567**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Acenaphthene | 20.0 | 14.0 | | ug/L | | 70 | 50 - 100 |
| Acenaphthylene | 20.0 | 14.0 | | ug/L | | 70 | 51 - 100 |
| Anthracene | 20.0 | 14.5 | | ug/L | | 73 | 53 - 100 |
| Benzo[a]anthracene | 20.0 | 14.5 | | ug/L | | 73 | 51 - 100 |
| Benzo[b]fluoranthene | 20.0 | 13.3 | | ug/L | | 66 | 45 - 100 |
| Benzo[k]fluoranthene | 20.0 | 13.7 | | ug/L | | 69 | 49 - 100 |
| Benzo[g,h,i]perylene | 20.0 | 15.7 | | ug/L | | 78 | 51 - 100 |
| Benzo[a]pyrene | 20.0 | 14.4 | | ug/L | | 72 | 51 - 100 |
| Chrysene | 20.0 | 14.3 | | ug/L | | 72 | 51 - 100 |
| Dibenz(a,h)anthracene | 20.0 | 16.7 | | ug/L | | 84 | 50 - 100 |
| Fluoranthene | 20.0 | 15.7 | | ug/L | | 78 | 54 - 100 |
| Fluorene | 20.0 | 14.7 | | ug/L | | 73 | 53 - 100 |
| Indeno[1,2,3-cd]pyrene | 20.0 | 15.6 | | ug/L | | 78 | 50 - 100 |
| Naphthalene | 20.0 | 13.8 | | ug/L | | 69 | 55 - 100 |
| Phenanthrene | 20.0 | 14.1 | | ug/L | | 71 | 51 - 100 |
| Pyrene | 20.0 | 13.3 | | ug/L | | 66 | 47 - 100 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *2-Fluorobiphenyl* | *65* | | *23 - 105* |
| *Nitrobenzene-d5 (Surr)* | *71* | | *28 - 111* |
| *Terphenyl-d14 (Surr)* | *65* | | *20 - 126* |

## Method: EPA 8270D LL - Semivolatile Organic Compounds by GC/MS - Low Level

**Lab Sample ID: MB 180-336041/1-A**
**Matrix: Water**
**Analysis Batch: 336496**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 336041**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | | 0.19 | 0.065 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Acenaphthylene | ND | | 0.19 | 0.065 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Anthracene | ND | | 0.19 | 0.049 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Benzo[a]anthracene | ND | | 0.19 | 0.075 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Benzo[b]fluoranthene | ND | | 0.19 | 0.097 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Benzo[k]fluoranthene | ND | | 0.19 | 0.088 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Benzo[g,h,i]perylene | ND | | 0.19 | 0.069 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Benzo[a]pyrene | ND | | 0.19 | 0.053 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Chrysene | ND | | 0.19 | 0.081 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Dibenz(a,h)anthracene | ND | | 0.19 | 0.072 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Fluoranthene | ND | | 0.19 | 0.060 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Fluorene | ND | | 0.19 | 0.069 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Indeno[1,2,3-cd]pyrene | ND | | 0.19 | 0.085 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Naphthalene | ND | | 0.19 | 0.059 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Phenanthrene | ND | | 0.19 | 0.055 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |
| Pyrene | ND | | 0.19 | 0.054 | ug/L | | 11/05/20 12:15 | 11/10/20 08:05 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *75* | | *23 - 105* | *11/05/20 12:15* | *11/10/20 08:05* | *1* |
| *Nitrobenzene-d5 (Surr)* | *76* | | *28 - 111* | *11/05/20 12:15* | *11/10/20 08:05* | *1* |
| *Terphenyl-d14 (Surr)* | *73* | | *20 - 126* | *11/05/20 12:15* | *11/10/20 08:05* | *1* |

**Lab Sample ID: LCS 180-336041/2-A**
**Matrix: Water**
**Analysis Batch: 336496**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 336041**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Acenaphthene | 20.0 | 14.8 | | ug/L | | 74 | 50 - 100 |
| Acenaphthylene | 20.0 | 15.6 | | ug/L | | 78 | 51 - 100 |
| Anthracene | 20.0 | 15.8 | | ug/L | | 79 | 53 - 100 |
| Benzo[a]anthracene | 20.0 | 15.9 | | ug/L | | 79 | 51 - 100 |
| Benzo[b]fluoranthene | 20.0 | 15.4 | | ug/L | | 77 | 45 - 100 |
| Benzo[k]fluoranthene | 20.0 | 15.2 | | ug/L | | 76 | 49 - 100 |
| Benzo[g,h,i]perylene | 20.0 | 15.9 | | ug/L | | 79 | 51 - 100 |
| Benzo[a]pyrene | 20.0 | 16.3 | | ug/L | | 81 | 51 - 100 |
| Chrysene | 20.0 | 15.7 | | ug/L | | 78 | 51 - 100 |
| Dibenz(a,h)anthracene | 20.0 | 16.3 | | ug/L | | 82 | 50 - 100 |
| Fluoranthene | 20.0 | 15.8 | | ug/L | | 79 | 54 - 100 |
| Fluorene | 20.0 | 15.3 | | ug/L | | 76 | 53 - 100 |
| Indeno[1,2,3-cd]pyrene | 20.0 | 16.2 | | ug/L | | 81 | 50 - 100 |
| Naphthalene | 20.0 | 15.2 | | ug/L | | 76 | 55 - 100 |
| Phenanthrene | 20.0 | 15.2 | | ug/L | | 76 | 51 - 100 |
| Pyrene | 20.0 | 16.2 | | ug/L | | 81 | 47 - 100 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *2-Fluorobiphenyl* | *77* | | *23 - 105* |
| *Nitrobenzene-d5 (Surr)* | *76* | | *28 - 111* |
| *Terphenyl-d14 (Surr)* | *77* | | *20 - 126* |

## Method: 8015D - Diesel Range Organics (DRO) (GC)

**Lab Sample ID: MB 240-459194/6-A**
**Matrix: Water**
**Analysis Batch: 459394**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 459194**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics [C10 - C28] | ND | | 500 | 230 | ug/L | | 11/04/20 07:54 | 11/05/20 16:32 | 1 |
| ORO C24-C40 | ND | | 500 | 230 | ug/L | | 11/04/20 07:54 | 11/05/20 16:32 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *76* | | *52 - 121* | *11/04/20 07:54* | *11/05/20 16:32* | *1* |

**Lab Sample ID: LCS 240-459194/7-A**
**Matrix: Water**
**Analysis Batch: 459394**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 459194**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics [C10 - C28] | | | 2000 | 1670 | | ug/L | | 84 | 56 - 120 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *79* | | *52 - 121* |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS)

**Lab Sample ID: MB 140-44772/7-A**
**Matrix: Water**
**Analysis Batch: 44889**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 44772**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1 | ND | | 0.040 | 0.00022 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-2 | 0.00218 | J | 0.040 | 0.00025 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-3 | 0.00256 | J | 0.040 | 0.00027 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-4 | 0.00440 | J q | 0.060 | 0.0041 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-5 | ND | | 0.040 | 0.0033 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-6 | ND | | 0.040 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-7 | ND | | 0.040 | 0.0030 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-8 | 0.00548 | J q | 0.060 | 0.0027 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-9 | ND | | 0.040 | 0.0030 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-10 | ND | | 0.040 | 0.0032 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-11 | 0.0272 | J q | 0.060 | 0.0028 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-12 | ND | C | 0.080 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-13 | ND | C12 | 0.080 | 0.0029 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-14 | ND | | 0.040 | 0.0025 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-15 | 0.00532 | J q | 0.040 | 0.0030 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-16 | ND | | 0.040 | 0.00054 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-17 | 0.00133 | J q | 0.040 | 0.00049 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-18 | 0.00242 | J C q | 0.080 | 0.00043 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-19 | ND | | 0.040 | 0.00059 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-20 | 0.00715 | J C | 0.080 | 0.00044 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-21 | 0.00331 | J C | 0.080 | 0.00043 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-22 | 0.00181 | J | 0.040 | 0.00045 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-23 | ND | | 0.040 | 0.00044 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-24 | ND | | 0.040 | 0.00041 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-44772/7-A**
**Matrix: Water**
**Analysis Batch: 44889**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 44772**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-25 | ND | | 0.040 | 0.00040 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-26 | 0.000973 | J C q | 0.080 | 0.00043 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-27 | ND | | 0.040 | 0.00035 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-28 | 0.00715 | J C20 | 0.080 | 0.00044 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-29 | 0.000973 | J C26 q | 0.080 | 0.00043 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-30 | 0.00242 | J C18 q | 0.080 | 0.00043 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-31 | 0.00529 | J | 0.040 | 0.00043 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-32 | 0.00177 | J | 0.040 | 0.00034 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-33 | 0.00331 | J C21 | 0.080 | 0.00043 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-34 | ND | | 0.040 | 0.00046 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-35 | ND | | 0.040 | 0.00045 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-36 | ND | | 0.040 | 0.00043 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-37 | 0.00281 | J q | 0.040 | 0.00044 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-38 | ND | | 0.040 | 0.00046 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-39 | ND | | 0.040 | 0.00041 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-40 | ND | C | 0.12 | 0.00076 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-41 | ND | C40 | 0.12 | 0.00076 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-42 | ND | | 0.040 | 0.00076 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-43 | ND | C | 0.080 | 0.00071 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-44 | 0.00462 | J C q | 0.12 | 0.00067 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-45 | ND | C | 0.080 | 0.00079 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-46 | ND | | 0.040 | 0.00096 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-47 | 0.00462 | J C44 q | 0.12 | 0.00067 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-48 | ND | | 0.040 | 0.00075 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-49 | ND | C | 0.080 | 0.00062 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-50 | ND | C | 0.080 | 0.00073 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-51 | ND | C45 | 0.080 | 0.00079 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-52 | 0.00263 | J q | 0.040 | 0.00075 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-53 | ND | C50 | 0.080 | 0.00073 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-54 | ND | | 0.040 | 0.000090 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-55 | ND | | 0.040 | 0.00055 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-56 | 0.00162 | J q | 0.040 | 0.00055 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-57 | ND | | 0.040 | 0.00056 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-58 | ND | | 0.040 | 0.00057 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-59 | ND | C | 0.12 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-60 | ND | | 0.040 | 0.00056 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-61 | 0.00559 | J C q | 0.16 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-62 | ND | C59 | 0.12 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-63 | ND | | 0.040 | 0.00051 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-64 | 0.00111 | J q | 0.040 | 0.00050 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-65 | 0.00462 | J C44 q | 0.12 | 0.00067 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-66 | 0.00321 | J | 0.040 | 0.00052 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-67 | ND | | 0.040 | 0.00048 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-68 | ND | | 0.040 | 0.00049 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-69 | ND | C49 | 0.080 | 0.00062 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-70 | 0.00559 | J C61 q | 0.16 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-71 | ND | C40 | 0.12 | 0.00076 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-72 | ND | | 0.040 | 0.00055 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-73 | ND | C43 | 0.080 | 0.00071 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-44772/7-A**
**Matrix: Water**
**Analysis Batch: 44889**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 44772**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-74 | 0.00559 | J C61 q | 0.16 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-75 | ND | C59 | 0.12 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-76 | 0.00559 | J C61 q | 0.16 | 0.00053 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-77 | 0.00168 | J | 0.040 | 0.00054 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-78 | ND | | 0.040 | 0.00057 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-79 | ND | | 0.040 | 0.00049 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-80 | ND | | 0.040 | 0.00048 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-81 | ND | | 0.040 | 0.00051 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-82 | ND | | 0.040 | 0.00020 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-83 | 0.00266 | J C | 0.080 | 0.00018 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-84 | ND | | 0.040 | 0.00020 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-85 | 0.000548 | J C q | 0.12 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-86 | 0.00207 | J C q | 0.24 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-87 | 0.00207 | J C86 q | 0.24 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-88 | ND | C | 0.080 | 0.00018 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-89 | ND | | 0.040 | 0.00020 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-90 | 0.00298 | J C q | 0.12 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-91 | ND | C88 | 0.080 | 0.00018 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-92 | ND | | 0.040 | 0.00017 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-93 | ND | C | 0.080 | 0.00017 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-94 | ND | | 0.040 | 0.00020 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-95 | 0.00304 | J | 0.040 | 0.00019 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-96 | ND | | 0.040 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-97 | 0.00207 | J C86 q | 0.24 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-98 | ND | C | 0.080 | 0.00017 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-99 | 0.00266 | J C83 | 0.080 | 0.00018 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-100 | ND | C93 | 0.080 | 0.00017 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-101 | 0.00298 | J C90 q | 0.12 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-102 | ND | C98 | 0.080 | 0.00017 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-103 | ND | | 0.040 | 0.00017 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-104 | ND | | 0.040 | 0.00013 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-105 | 0.00138 | J q | 0.040 | 0.00031 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-106 | ND | | 0.040 | 0.00032 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-107 | ND | | 0.040 | 0.00034 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-108 | ND | C | 0.080 | 0.00033 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-109 | 0.00207 | J C86 q | 0.24 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-110 | 0.00396 | J C | 0.080 | 0.00013 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-111 | ND | | 0.040 | 0.00012 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-112 | ND | | 0.040 | 0.00013 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-113 | 0.00298 | J C90 q | 0.12 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-114 | ND | | 0.040 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-115 | 0.00396 | J C110 | 0.080 | 0.00013 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-116 | 0.000548 | J C85 q | 0.12 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-117 | 0.000548 | J C85 q | 0.12 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-118 | 0.00396 | J q | 0.040 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-119 | 0.00207 | J C86 q | 0.24 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-120 | ND | | 0.040 | 0.00012 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-121 | ND | | 0.040 | 0.00013 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-122 | ND | | 0.040 | 0.00037 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-44772/7-A**
**Matrix: Water**
**Analysis Batch: 44889**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 44772**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-123 | ND | | 0.040 | 0.00033 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-124 | ND | C108 | 0.080 | 0.00033 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-125 | 0.00207 | J C86 q | 0.24 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-126 | ND | | 0.040 | 0.00032 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-127 | ND | | 0.040 | 0.00032 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-128 | ND | C | 0.080 | 0.00036 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-129 | 0.00213 | J C q | 0.16 | 0.00037 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-130 | ND | | 0.040 | 0.00048 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-131 | ND | | 0.040 | 0.00051 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-132 | ND | | 0.040 | 0.00047 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-133 | ND | | 0.040 | 0.00046 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-134 | ND | C | 0.080 | 0.00048 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-135 | ND | C | 0.080 | 0.00017 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-136 | ND | | 0.040 | 0.00012 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-137 | ND | | 0.040 | 0.00041 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-138 | 0.00213 | J C129 q | 0.16 | 0.00037 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-139 | ND | C | 0.080 | 0.00041 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-140 | ND | C139 | 0.080 | 0.00041 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-141 | ND | | 0.040 | 0.00043 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-142 | ND | | 0.040 | 0.00046 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-143 | ND | C134 | 0.080 | 0.00048 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-144 | ND | | 0.040 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-145 | ND | | 0.040 | 0.00011 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-146 | ND | | 0.040 | 0.00040 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-147 | ND | C | 0.080 | 0.00046 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-148 | ND | | 0.040 | 0.00016 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-149 | ND | C147 | 0.080 | 0.00046 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-150 | ND | | 0.040 | 0.00011 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-151 | ND | C135 | 0.080 | 0.00017 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-152 | ND | | 0.040 | 0.00012 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-153 | 0.00211 | J C | 0.080 | 0.00032 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-154 | ND | | 0.040 | 0.00013 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-155 | ND | | 0.040 | 0.00011 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-156 | ND | C | 0.080 | 0.00041 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-157 | ND | C156 | 0.080 | 0.00041 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-158 | ND | | 0.040 | 0.00029 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-159 | ND | | 0.040 | 0.00031 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-160 | 0.00213 | J C129 q | 0.16 | 0.00037 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-161 | ND | | 0.040 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-162 | ND | | 0.040 | 0.00030 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-163 | 0.00213 | J C129 q | 0.16 | 0.00037 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-164 | ND | | 0.040 | 0.00032 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-165 | ND | | 0.040 | 0.00034 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-166 | ND | C128 | 0.080 | 0.00036 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-167 | ND | | 0.040 | 0.00023 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-168 | 0.00211 | J C153 | 0.080 | 0.00032 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-169 | ND | | 0.040 | 0.00022 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-170 | ND | | 0.040 | 0.00021 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-171 | ND | C | 0.080 | 0.00021 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: MB 140-44772/7-A**
**Matrix: Water**
**Analysis Batch: 44889**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 44772**

| Analyte | MB Result | MB Qualifier | RL | EDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-172 | ND | | 0.040 | 0.00021 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-173 | ND | C171 | 0.080 | 0.00021 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-174 | ND | | 0.040 | 0.00020 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-175 | ND | | 0.040 | 0.00019 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-176 | ND | | 0.040 | 0.00014 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-177 | ND | | 0.040 | 0.00020 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-178 | ND | | 0.040 | 0.00021 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-179 | ND | | 0.040 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-180 | 0.00152 | J C q | 0.080 | 0.00016 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-181 | ND | | 0.040 | 0.00019 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-182 | ND | | 0.040 | 0.00018 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-183 | 0.00197 | J C q | 0.080 | 0.00019 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-184 | ND | | 0.040 | 0.00016 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-185 | 0.00197 | J C183 q | 0.080 | 0.00019 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-186 | ND | | 0.040 | 0.00015 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-187 | ND | | 0.040 | 0.00018 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-188 | ND | | 0.040 | 0.00014 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-189 | ND | | 0.040 | 0.00021 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-190 | ND | | 0.040 | 0.00014 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-191 | ND | | 0.040 | 0.00014 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-192 | ND | | 0.040 | 0.00016 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-193 | 0.00152 | J C180 q | 0.080 | 0.00016 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-194 | ND | | 0.040 | 0.00022 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-195 | ND | | 0.040 | 0.00024 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-196 | ND | | 0.040 | 0.000096 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-197 | ND | | 0.040 | 0.000073 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-198 | ND | C | 0.080 | 0.000097 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-199 | ND | C198 | 0.080 | 0.000097 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-200 | ND | | 0.040 | 0.000065 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-201 | ND | | 0.040 | 0.000067 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-202 | ND | | 0.040 | 0.000075 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-203 | ND | | 0.040 | 0.000087 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-204 | ND | | 0.040 | 0.000074 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-205 | ND | | 0.040 | 0.00018 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-206 | ND | | 0.040 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-207 | ND | | 0.040 | 0.00096 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-208 | ND | | 0.040 | 0.00098 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-209 | ND | | 0.040 | 0.00012 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| Total Monochlorobiphenyls | 0.00474 | J | 0.040 | 0.00025 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| Total Dichlorobiphenyls | 0.0424 | J q | 0.080 | 0.0030 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| Total Trichlorobiphenyls | 0.0269 | J q | 0.080 | 0.00044 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| Total Tetrachlorobiphenyls | 0.0205 | J q | 0.16 | 0.00059 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| Total Pentachlorobiphenyls | 0.0206 | J q | 0.24 | 0.00021 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| Total Hexachlorobiphenyls | 0.00424 | J q | 0.16 | 0.00031 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| Total Heptachlorobiphenyls | 0.00349 | J q | 0.080 | 0.00018 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| Total Octachlorobiphenyls | ND | | 0.080 | 0.00024 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| Total Nonachlorobiphenyls | ND | | 0.040 | 0.0014 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| Polychlorinated biphenyls, Total | 0.123 | J q | 0.24 | 0.00072 | ng/L | | 11/24/20 12:36 | 12/01/20 16:54 | 1 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

| Isotope Dilution | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-1L | 64 | | 5 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-3L | 64 | | 5 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-4L | 76 | | 5 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-15L | 78 | | 5 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-19L | 83 | | 5 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-37L | 79 | | 5 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-54L | 92 | | 5 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-77L | 87 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-81L | 85 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-104L | 70 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-105L | 92 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-114L | 89 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-118L | 89 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-123L | 87 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-126L | 86 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-155L | 82 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-156L | 92 | C | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-157L | 92 | C156 | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-167L | 93 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-169L | 99 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-170L | 88 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-188L | 83 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-189L | 81 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-202L | 104 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-205L | 77 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-206L | 90 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-208L | 90 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-209L | 92 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| PCB-28L | 89 | | 5 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-111L | 96 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |
| PCB-178L | 94 | | 10 - 145 | 11/24/20 12:36 | 12/01/20 16:54 | 1 |

**Lab Sample ID: LCS 140-44772/6-A**
**Matrix: Water**
**Analysis Batch: 44889**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 44772**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| PCB-1 | 1.00 | 0.911 | | ng/L | | 91 | 60 - 135 |
| PCB-3 | 1.00 | 0.925 | | ng/L | | 92 | 60 - 135 |
| PCB-4 | 1.00 | 1.13 | | ng/L | | 113 | 60 - 135 |
| PCB-15 | 1.00 | 1.17 | | ng/L | | 117 | 60 - 135 |
| PCB-19 | 1.00 | 1.20 | | ng/L | | 120 | 60 - 135 |
| PCB-37 | 1.00 | 1.09 | | ng/L | | 109 | 60 - 135 |
| PCB-54 | 1.00 | 1.12 | | ng/L | | 112 | 60 - 135 |
| PCB-77 | 1.00 | 1.04 | | ng/L | | 104 | 60 - 135 |
| PCB-81 | 1.00 | 0.997 | | ng/L | | 100 | 60 - 135 |
| PCB-104 | 1.00 | 1.29 | | ng/L | | 129 | 60 - 135 |
| PCB-105 | 1.00 | 1.14 | | ng/L | | 114 | 60 - 135 |
| PCB-114 | 1.00 | 1.24 | | ng/L | | 124 | 60 - 135 |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: LCS 140-44772/6-A**
**Matrix: Water**
**Analysis Batch: 44889**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 44772**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PCB-118 | | | 1.00 | 1.14 | | ng/L | | 114 | 60 - 135 | | |
| PCB-123 | | | 1.00 | 1.20 | | ng/L | | 120 | 60 - 135 | | |
| PCB-126 | | | 1.00 | 1.16 | | ng/L | | 116 | 60 - 135 | | |
| PCB-155 | | | 1.00 | 1.20 | | ng/L | | 120 | 60 - 135 | | |
| PCB-156 | | | 2.00 | 2.25 | C | ng/L | | 112 | 60 - 135 | | |
| PCB-157 | | | 2.00 | 2.25 | C156 | ng/L | | 112 | 60 - 135 | | |
| PCB-167 | | | 1.00 | 1.13 | | ng/L | | 113 | 60 - 135 | | |
| PCB-169 | | | 1.00 | 1.02 | | ng/L | | 102 | 60 - 135 | | |
| PCB-188 | | | 1.00 | 1.10 | | ng/L | | 110 | 60 - 135 | | |
| PCB-189 | | | 1.00 | 1.10 | | ng/L | | 110 | 60 - 135 | | |
| PCB-202 | | | 1.00 | 0.865 | | ng/L | | 86 | 60 - 135 | | |
| PCB-205 | | | 1.00 | 1.08 | | ng/L | | 108 | 60 - 135 | | |
| PCB-206 | | | 1.00 | 0.762 | | ng/L | | 76 | 60 - 135 | | |
| PCB-208 | | | 1.00 | 0.768 | | ng/L | | 77 | 60 - 135 | | |
| PCB-209 | | | 1.00 | 0.682 | | ng/L | | 68 | 60 - 135 | | |

| *Isotope Dilution* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *PCB-1L* | *69* | | *15 - 145* |
| *PCB-3L* | *70* | | *15 - 145* |
| *PCB-4L* | *80* | | *15 - 145* |
| *PCB-15L* | *82* | | *15 - 145* |
| *PCB-19L* | *83* | | *15 - 145* |
| *PCB-37L* | *82* | | *15 - 145* |
| *PCB-54L* | *93* | | *15 - 145* |
| *PCB-77L* | *91* | | *40 - 145* |
| *PCB-81L* | *90* | | *40 - 145* |
| *PCB-104L* | *74* | | *40 - 145* |
| *PCB-105L* | *94* | | *40 - 145* |
| *PCB-114L* | *90* | | *40 - 145* |
| *PCB-118L* | *91* | | *40 - 145* |
| *PCB-123L* | *88* | | *40 - 145* |
| *PCB-126L* | *91* | | *40 - 145* |
| *PCB-155L* | *86* | | *40 - 145* |
| *PCB-156L* | *94* | *C* | *40 - 145* |
| *PCB-157L* | *94* | *C156* | *40 - 145* |
| *PCB-167L* | *95* | | *40 - 145* |
| *PCB-169L* | *100* | | *40 - 145* |
| *PCB-170L* | *90* | | *40 - 145* |
| *PCB-188L* | *86* | | *40 - 145* |
| *PCB-189L* | *85* | | *40 - 145* |
| *PCB-202L* | *105* | | *40 - 145* |
| *PCB-205L* | *79* | | *40 - 145* |
| *PCB-206L* | *92* | | *40 - 145* |
| *PCB-208L* | *92* | | *40 - 145* |
| *PCB-209L* | *98* | | *40 - 145* |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *PCB-28L* | *93* | | *15 - 145* |

## Method: 1668C - Chlorinated Biphenyl Congeners (HRGC/HRMS) (Continued)

**Lab Sample ID: LCS 140-44772/6-A**
**Matrix: Water**
**Analysis Batch: 44889**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 44772**

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| PCB-111L | 99 | | 40 - 145 |
| PCB-178L | 102 | | 40 - 145 |

## Method: EPA 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 180-335675/1-A**
**Matrix: Water**
**Analysis Batch: 336676**

**Client Sample ID: Method Blank**
**Prep Type: Total Recoverable**
**Prep Batch: 335675**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | ND | | 30 | 13 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Arsenic | ND | | 1.0 | 0.31 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Barium | ND | | 10 | 1.6 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Beryllium | ND | | 1.0 | 0.18 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Cadmium | ND | | 1.0 | 0.22 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Calcium | ND | | 500 | 130 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Chromium | ND | | 2.0 | 1.5 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Cobalt | ND | | 0.50 | 0.13 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Copper | ND | | 2.0 | 0.63 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Silver | ND | | 1.0 | 0.18 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Potassium | ND | | 500 | 160 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Magnesium | ND | | 500 | 83 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Manganese | ND | | 5.0 | 0.87 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Nickel | ND | | 1.0 | 0.34 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Lead | ND | | 1.0 | 0.13 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Antimony | ND | | 2.0 | 0.38 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Selenium | ND | | 5.0 | 1.5 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Thallium | ND | | 1.0 | 0.15 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Vanadium | ND | | 1.0 | 0.99 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |
| Zinc | ND | | 5.0 | 3.2 | ug/L | | 11/03/20 08:21 | 11/10/20 18:42 | 1 |

**Lab Sample ID: MB 180-335675/1-A**
**Matrix: Water**
**Analysis Batch: 336907**

**Client Sample ID: Method Blank**
**Prep Type: Total Recoverable**
**Prep Batch: 335675**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Iron | ND | | 50 | 20 | ug/L | | 11/03/20 08:21 | 11/12/20 07:50 | 1 |
| Sodium | ND | | 500 | 350 | ug/L | | 11/03/20 08:21 | 11/12/20 07:50 | 1 |

**Lab Sample ID: LCS 180-335675/2-A**
**Matrix: Water**
**Analysis Batch: 336676**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total Recoverable**
**Prep Batch: 335675**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Aluminum | 5000 | 5090 | | ug/L | | 102 | 80 - 120 |
| Arsenic | 1000 | 998 | | ug/L | | 100 | 80 - 120 |
| Barium | 1000 | 968 | | ug/L | | 97 | 80 - 120 |
| Beryllium | 500 | 494 | | ug/L | | 99 | 80 - 120 |
| Cadmium | 500 | 477 | | ug/L | | 95 | 80 - 120 |

## Method: EPA 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 180-335675/2-A**
**Matrix: Water**
**Analysis Batch: 336676**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total Recoverable**
**Prep Batch: 335675**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Calcium | 25000 | 28600 | | ug/L | | 114 | 80 - 120 |
| Chromium | 500 | 476 | | ug/L | | 95 | 80 - 120 |
| Cobalt | 500 | 486 | | ug/L | | 97 | 80 - 120 |
| Copper | 500 | 476 | | ug/L | | 95 | 80 - 120 |
| Silver | 250 | 249 | | ug/L | | 100 | 80 - 120 |
| Potassium | 25000 | 25000 | | ug/L | | 100 | 80 - 120 |
| Magnesium | 25000 | 25600 | | ug/L | | 102 | 80 - 120 |
| Manganese | 500 | 475 | | ug/L | | 95 | 80 - 120 |
| Nickel | 500 | 473 | | ug/L | | 95 | 80 - 120 |
| Lead | 500 | 494 | | ug/L | | 99 | 80 - 120 |
| Antimony | 250 | 238 | | ug/L | | 95 | 80 - 120 |
| Selenium | 1000 | 978 | | ug/L | | 98 | 80 - 120 |
| Thallium | 1000 | 1040 | | ug/L | | 104 | 80 - 120 |
| Vanadium | 500 | 471 | | ug/L | | 94 | 80 - 120 |
| Zinc | 250 | 252 | | ug/L | | 101 | 80 - 120 |

**Lab Sample ID: LCS 180-335675/2-A**
**Matrix: Water**
**Analysis Batch: 336907**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total Recoverable**
**Prep Batch: 335675**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Iron | 5000 | 5300 | | ug/L | | 106 | 80 - 120 |
| Sodium | 25000 | 26100 | | ug/L | | 104 | 80 - 120 |

## Method: EPA 7470A - Mercury (CVAA)

**Lab Sample ID: MB 180-335867/1-A**
**Matrix: Water**
**Analysis Batch: 336250**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 335867**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.13 | ug/L | | 11/04/20 09:46 | 11/06/20 13:53 | 1 |

**Lab Sample ID: LCS 180-335867/2-A**
**Matrix: Water**
**Analysis Batch: 336250**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 335867**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Mercury | 2.50 | 2.42 | | ug/L | | 97 | 80 - 120 |

## Method: SM 2540D - Solids, Total Suspended (TSS)

**Lab Sample ID: MB 180-335539/2**
**Matrix: Water**
**Analysis Batch: 335539**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | ND | | 0.50 | 0.50 | mg/L | | | 11/02/20 07:39 | 1 |

## Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

**Lab Sample ID: LCS 180-335539/1**
**Matrix: Water**
**Analysis Batch: 335539**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | | | 31.6 | 28.0 | | mg/L | | 89 | 80 - 120 | | |

**Lab Sample ID: 180-112989-2 DU**
**Matrix: Water**
**Analysis Batch: 335539**

**Client Sample ID: OFW0200N**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Suspended Solids | 54 | | | 50.0 | | mg/L | | | | 8 | 10 |

# QC Association Summary

Client: AECOM
Job ID: 180-112989-1
Project/Site: Pepco Benning Road Facility

## GC/MS Semi VOA

### Prep Batch: 335567

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Total/NA | Water | 3520C | |
| 180-112989-2 | OFW0200N | Total/NA | Water | 3520C | |
| 180-112989-3 | OFW0300N | Total/NA | Water | 3520C | |
| MB 180-335567/1-A | Method Blank | Total/NA | Water | 3520C | |
| LCS 180-335567/2-A | Lab Control Sample | Total/NA | Water | 3520C | |

### Prep Batch: 336041

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-4 | OFW0400N | Total/NA | Water | 3520C | |
| 180-112989-5 | OFW0500N | Total/NA | Water | 3520C | |
| MB 180-336041/1-A | Method Blank | Total/NA | Water | 3520C | |
| LCS 180-336041/2-A | Lab Control Sample | Total/NA | Water | 3520C | |

### Analysis Batch: 336474

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Total/NA | Water | EPA 8270D LL | 335567 |
| 180-112989-2 | OFW0200N | Total/NA | Water | EPA 8270D LL | 335567 |
| 180-112989-3 | OFW0300N | Total/NA | Water | EPA 8270D LL | 335567 |
| MB 180-335567/1-A | Method Blank | Total/NA | Water | EPA 8270D LL | 335567 |
| LCS 180-335567/2-A | Lab Control Sample | Total/NA | Water | EPA 8270D LL | 335567 |

### Analysis Batch: 336496

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-4 | OFW0400N | Total/NA | Water | EPA 8270D LL | 336041 |
| 180-112989-5 | OFW0500N | Total/NA | Water | EPA 8270D LL | 336041 |
| MB 180-336041/1-A | Method Blank | Total/NA | Water | EPA 8270D LL | 336041 |
| LCS 180-336041/2-A | Lab Control Sample | Total/NA | Water | EPA 8270D LL | 336041 |

## GC Semi VOA

### Prep Batch: 459194

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Total/NA | Water | 3510C LVI | |
| 180-112989-2 | OFW0200N | Total/NA | Water | 3510C LVI | |
| 180-112989-3 | OFW0300N | Total/NA | Water | 3510C LVI | |
| 180-112989-4 | OFW0400N | Total/NA | Water | 3510C LVI | |
| 180-112989-5 | OFW0500N | Total/NA | Water | 3510C LVI | |
| MB 240-459194/6-A | Method Blank | Total/NA | Water | 3510C LVI | |
| LCS 240-459194/7-A | Lab Control Sample | Total/NA | Water | 3510C LVI | |

### Analysis Batch: 459394

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Total/NA | Water | 8015D | 459194 |
| 180-112989-2 | OFW0200N | Total/NA | Water | 8015D | 459194 |
| 180-112989-5 | OFW0500N | Total/NA | Water | 8015D | 459194 |
| MB 240-459194/6-A | Method Blank | Total/NA | Water | 8015D | 459194 |
| LCS 240-459194/7-A | Lab Control Sample | Total/NA | Water | 8015D | 459194 |

### Analysis Batch: 459606

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-3 | OFW0300N | Total/NA | Water | 8015D | 459194 |

## GC Semi VOA (Continued)

### Analysis Batch: 459606 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-4 | OFW0400N | Total/NA | Water | 8015D | 459194 |

## Specialty Organics

### Prep Batch: 44772

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Total/NA | Water | HRMS-Sepf | |
| 180-112989-2 | OFW0200N | Total/NA | Water | HRMS-Sepf | |
| 180-112989-3 | OFW0300N | Total/NA | Water | HRMS-Sepf | |
| 180-112989-4 | OFW0400N | Total/NA | Water | HRMS-Sepf | |
| 180-112989-5 | OFW0500N | Total/NA | Water | HRMS-Sepf | |
| MB 140-44772/7-A | Method Blank | Total/NA | Water | HRMS-Sepf | |
| LCS 140-44772/6-A | Lab Control Sample | Total/NA | Water | HRMS-Sepf | |

### Analysis Batch: 44889

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| MB 140-44772/7-A | Method Blank | Total/NA | Water | 1668C | 44772 |
| LCS 140-44772/6-A | Lab Control Sample | Total/NA | Water | 1668C | 44772 |

### Analysis Batch: 44901

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Total/NA | Water | 1668C | 44772 |
| 180-112989-2 | OFW0200N | Total/NA | Water | 1668C | 44772 |
| 180-112989-5 | OFW0500N | Total/NA | Water | 1668C | 44772 |

### Analysis Batch: 44910

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-3 | OFW0300N | Total/NA | Water | 1668C | 44772 |
| 180-112989-4 | OFW0400N | Total/NA | Water | 1668C | 44772 |

## Metals

### Prep Batch: 335675

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Total Recoverable | Water | 3005A | |
| 180-112989-2 | OFW0200N | Total Recoverable | Water | 3005A | |
| 180-112989-3 | OFW0300N | Total Recoverable | Water | 3005A | |
| 180-112989-4 | OFW0400N | Total Recoverable | Water | 3005A | |
| 180-112989-5 | OFW0500N | Total Recoverable | Water | 3005A | |
| MB 180-335675/1-A | Method Blank | Total Recoverable | Water | 3005A | |
| LCS 180-335675/2-A | Lab Control Sample | Total Recoverable | Water | 3005A | |

### Prep Batch: 335867

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Total/NA | Water | 7470A | |
| 180-112989-2 | OFW0200N | Total/NA | Water | 7470A | |
| 180-112989-3 | OFW0300N | Total/NA | Water | 7470A | |
| 180-112989-4 | OFW0400N | Total/NA | Water | 7470A | |
| 180-112989-5 | OFW0500N | Total/NA | Water | 7470A | |
| MB 180-335867/1-A | Method Blank | Total/NA | Water | 7470A | |
| LCS 180-335867/2-A | Lab Control Sample | Total/NA | Water | 7470A | |

# QC Association Summary

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112989-1

## Metals

### Analysis Batch: 336250

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Total/NA | Water | EPA 7470A | 335867 |
| 180-112989-2 | OFW0200N | Total/NA | Water | EPA 7470A | 335867 |
| 180-112989-3 | OFW0300N | Total/NA | Water | EPA 7470A | 335867 |
| 180-112989-4 | OFW0400N | Total/NA | Water | EPA 7470A | 335867 |
| 180-112989-5 | OFW0500N | Total/NA | Water | EPA 7470A | 335867 |
| MB 180-335867/1-A | Method Blank | Total/NA | Water | EPA 7470A | 335867 |
| LCS 180-335867/2-A | Lab Control Sample | Total/NA | Water | EPA 7470A | 335867 |

### Analysis Batch: 336676

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Total Recoverable | Water | EPA 6020A | 335675 |
| 180-112989-2 | OFW0200N | Total Recoverable | Water | EPA 6020A | 335675 |
| 180-112989-3 | OFW0300N | Total Recoverable | Water | EPA 6020A | 335675 |
| 180-112989-4 | OFW0400N | Total Recoverable | Water | EPA 6020A | 335675 |
| 180-112989-5 | OFW0500N | Total Recoverable | Water | EPA 6020A | 335675 |
| MB 180-335675/1-A | Method Blank | Total Recoverable | Water | EPA 6020A | 335675 |
| LCS 180-335675/2-A | Lab Control Sample | Total Recoverable | Water | EPA 6020A | 335675 |

### Analysis Batch: 336907

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Total Recoverable | Water | EPA 6020A | 335675 |
| 180-112989-2 | OFW0200N | Total Recoverable | Water | EPA 6020A | 335675 |
| 180-112989-3 | OFW0300N | Total Recoverable | Water | EPA 6020A | 335675 |
| 180-112989-4 | OFW0400N | Total Recoverable | Water | EPA 6020A | 335675 |
| 180-112989-5 | OFW0500N | Total Recoverable | Water | EPA 6020A | 335675 |
| MB 180-335675/1-A | Method Blank | Total Recoverable | Water | EPA 6020A | 335675 |
| LCS 180-335675/2-A | Lab Control Sample | Total Recoverable | Water | EPA 6020A | 335675 |

## General Chemistry

### Analysis Batch: 335539

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112989-1 | OFW0100N | Total/NA | Water | SM 2540D | |
| 180-112989-2 | OFW0200N | Total/NA | Water | SM 2540D | |
| 180-112989-3 | OFW0300N | Total/NA | Water | SM 2540D | |
| 180-112989-4 | OFW0400N | Total/NA | Water | SM 2540D | |
| 180-112989-5 | OFW0500N | Total/NA | Water | SM 2540D | |
| MB 180-335539/2 | Method Blank | Total/NA | Water | SM 2540D | |
| LCS 180-335539/1 | Lab Control Sample | Total/NA | Water | SM 2540D | |
| 180-112989-2 DU | OFW0200N | Total/NA | Water | SM 2540D | |

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

Baltimore #201

eurofins | Environment Testing America

| | | | | |
|---|---|---|---|---|
| **Client Information** | Sampler: QIANG HUANG | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-63831-12848.1 |
| Client Contact: Mr. Robert Kennedy | Phone: 240-374-8920 | E-Mail: Jill.Colussy@Eurofinset.com | | Page: Page 1 of 1 |
| Company: AECOM | | | | Job #: |
| Address: 250 Apollo Drive | Due Date Requested: | | | |
| City: Chelmsford | TAT Requested (days): | | | |
| State, Zip: MA, 01824 | | | | |
| Phone: | PO #: 126546 | | | |
| Email: robert.kennedy@aecom.com | WO #: 60631088.3 | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - pH 4-5 |
| L - EDA | Z - other (specify) |

Other:

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 1668C - PCB Congeners | 8270D-LL PAH by GCMS | 6020A - TAL Metals/7470A-Load | 2540D - Local Method | 8015D-DRO-DRO/ORO | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | | | |
| OFW0100N | 10/29/20 | 1145 | G | W | | | X | X | X | X | X | | |
| OFW0200N | 10/29/20 | 1150 | G | W | | | X | X | X | X | X | | |
| OFW0300N | 10/29/20 | 1135 | G | W | | | X | X | X | X | X | | |
| OFW0400N | 10/29/20 | 1120 | G | W | | | X | X | X | X | X | | |
| OFW0500N | 10/29/20 | 1105 | G | W | | | X | X | X | X | X | | |

180-112989 Chain of Custody

**Possible Hazard Identification**
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

**Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)**
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

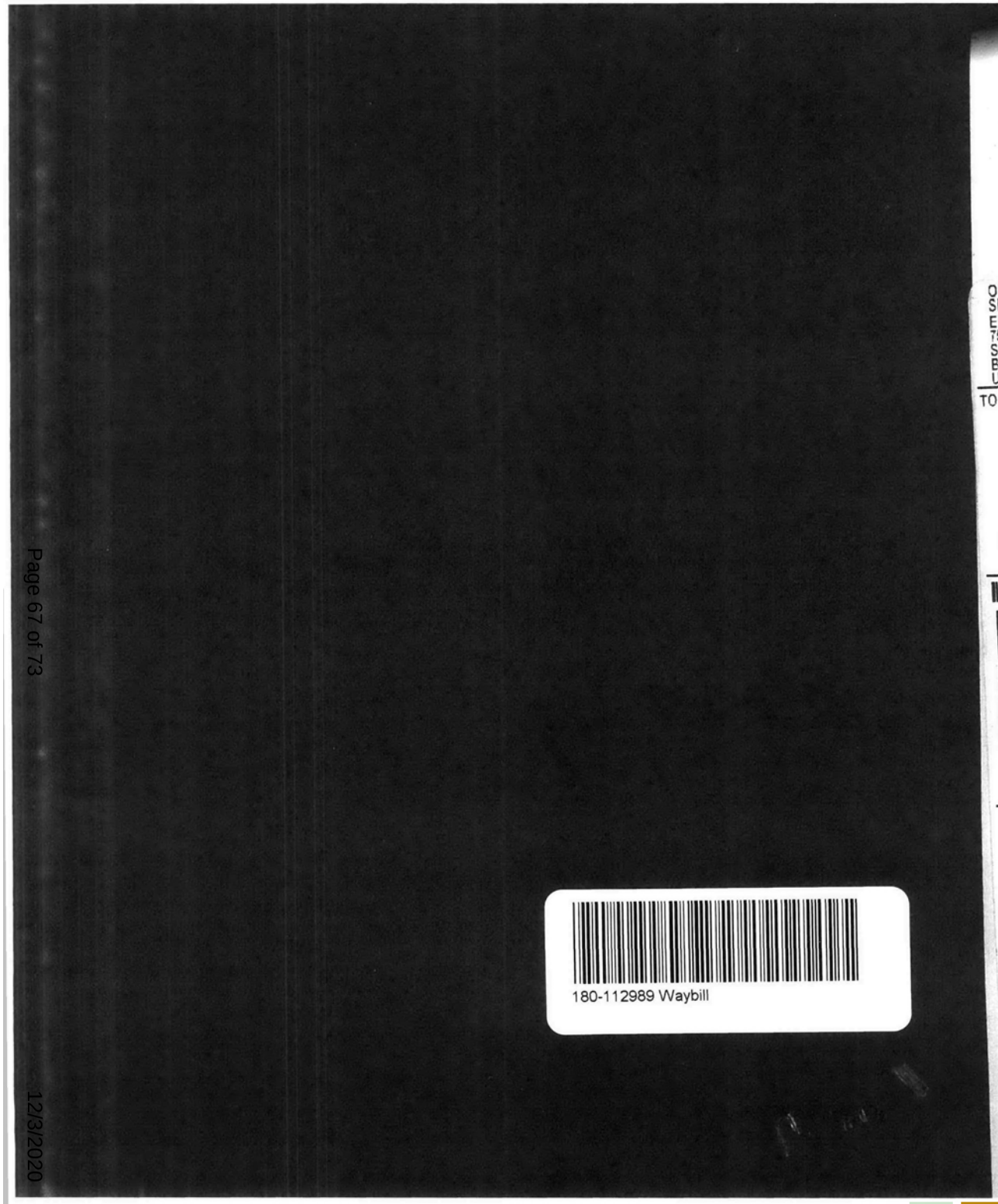
Deliverable Requested: I, II, III, IV, Other (specify)

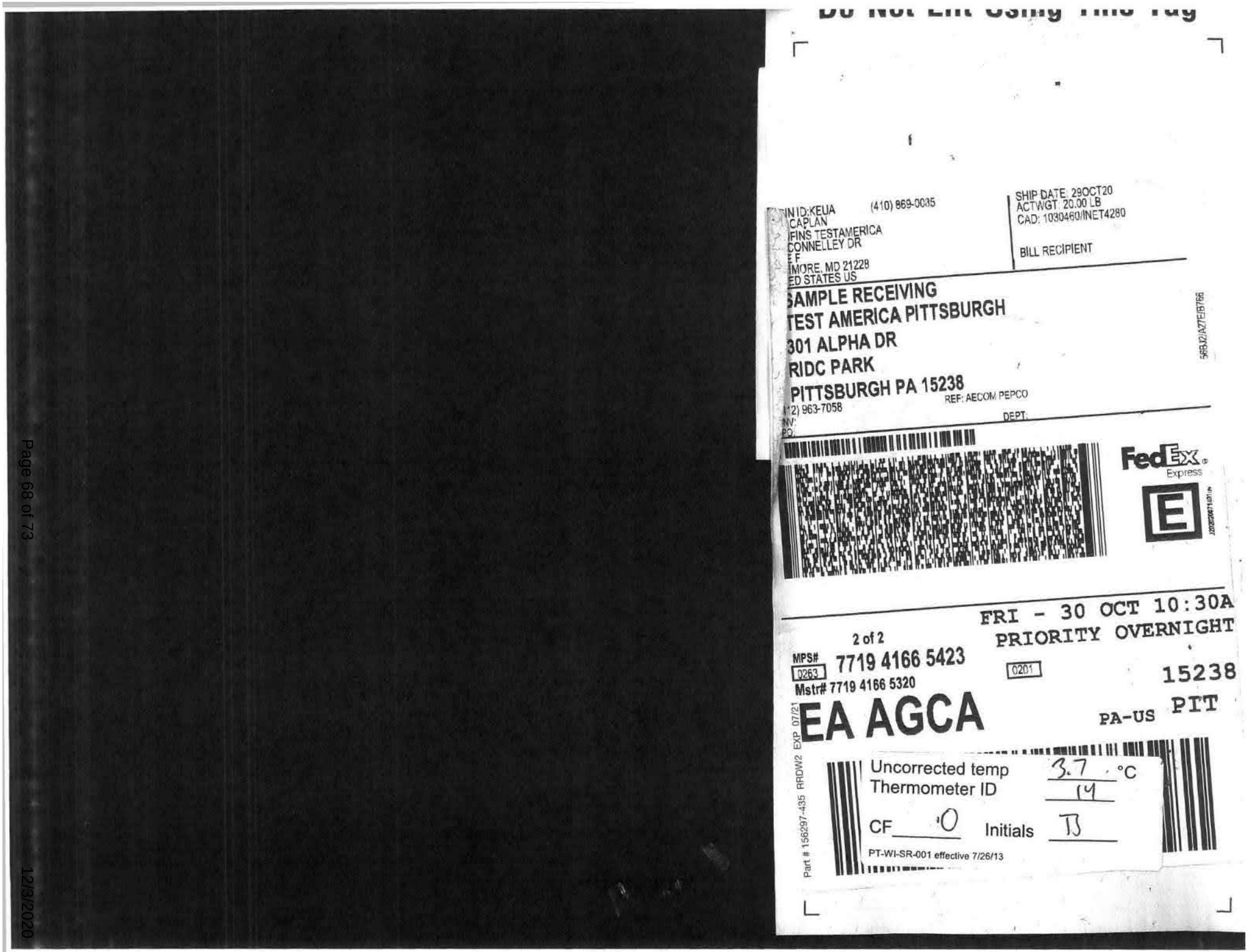
Special Instructions/QC Requirements:

| | | | | | |
|---|---|---|---|---|---|
| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: | | |
| Relinquished by: QIANG HUANG | Date/Time: 10/29/2020 1 1345 | Company | Received by: [signature] | Date/Time: 10/29/20 1350 | Company: ETA Salt |
| Relinquished by: [signature] | Date/Time: 10/29/20 17:00 | Company: ETA Salt | Received by: [signature] | Date/Time: 10/30/20 845 | Company: Eurofins |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019


Do Not Lift Using This Tag
ORIGIN ID:KEUA (410) 869-0085
SETH CAPLAN
EUROFINS TESTAMERICA
7526 CONNELLEY DR
SUITE F
BALTIMORE, MD 21228
UNITED STATES US
SHIP DATE: 29OCT20
ACTWGT: 20.00 LB
CAD: 1030460/INET4280
BILL RECIPIENT
TO SAMPLE RECEIVING
TEST AMERICA PITTSBURGH
301 ALPHA DR
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: AECOM PEPCO
INV:
PO:
DEPT:
FedEx Express
FRI - 30 OCT 10:30A
PRIORITY OVERNIGHT
1 of 2
TRK# 0201 7719 4166 5320
## MASTER ##
15238
EA AGCA
PA-US PIT
Uncorrected temp 3.9 °C
Thermometer ID 14
CF 0 Initials JJ
PT-WI-SR-001 effective 7/26/13
Part # 156297-435 RRDW2 EXP 07/21
180-112989 Waybill


Do Not Ent Using This Tag
IN ID:KEUA (410) 869-0035
CAPLAN
FINS TESTAMERICA
CONNELLEY DR
E F
MORE, MD 21228
ED STATES US
SHIP DATE: 29OCT20
ACTWGT: 20.00 LB
CAD: 1030460/INET4280
BILL RECIPIENT
SAMPLE RECEIVING
TEST AMERICA PITTSBURGH
301 ALPHA DR
RIDC PARK
PITTSBURGH PA 15238
REF: AECOM PEPCO
112) 963-7058
INV:
PO:
DEPT:
568J2/A27E/B766
FedEx Express
FRI - 30 OCT 10:30A
PRIORITY OVERNIGHT
2 of 2
MPS# 0263 7719 4166 5423
Mstr# 7719 4166 5320
0201
15238
EA AGCA
PA-US PIT
Part # 156297-435 RRDW2 EXP 07/21
Uncorrected temp 3.7 °C
Thermometer ID 14
CF 0 Initials TJ
PT-WI-SR-001 effective 7/26/13

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

# Chain of Custody Record

180-112989 Chain of Custody

Eurofins | Environment Testing America

| Client Information (Sub Contract Lab) | Sampler: | Lab PM: Colussy, Jill L | | /153.1 |
|---|---|---|---|---|
| Client Contact: Shipping/Receiving | Phone: | E-Mail: Jill.Colussy@Eurofinset.com | State of Origin: Maryland | Page: Page 1 of 1 |
| Company: TestAmerica Laboratories, Inc. | | Accreditations Required (See note): | | Job #: 180-112989-1 |
| Address: 5815 Middlebrook Pike, , | Due Date Requested: 11/13/2020 | | | |
| City: Knoxville | TAT Requested (days): | | | |
| State, Zip: TN, 37921 | | | | |
| Phone: 865-291-3000(Tel) 865-584-4315(Fax) | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

**Preservation Codes:**

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 1668C/1668_P_Sep PCB Congeners | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | |
| OFW0100N (180-112989-1) | 10/29/20 | 11:45 Eastern | | Water | | | X | 2 | RT: 1.5°C CT: 1.6°C |
| OFW0200N (180-112989-2) | 10/29/20 | 11:50 Eastern | | Water | | | X | 2 | 1 Cooler, Fedex Po |
| OFW0300N (180-112989-3) | 10/29/20 | 11:35 Eastern | | Water | | | X | 2 | Custody seal intact |
| OFW0400N (180-112989-4) | 10/29/20 | 11:20 Eastern | | Water | | | X | 2 | [illegible] 5103 9520 |
| OFW0500N (180-112989-5) | 10/29/20 | 11:05 Eastern | | Water | | | X | 2 | RC-ND |
| | | | | | | | | | KW 10/31/20 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

| ***Possible Hazard Identification*** | ***Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)*** |
|---|---|
| *Unconfirmed* | ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months* |
| Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4 | Special Instructions/QC Requirements: |

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|
| [signature] | 10/30/20 845 | Eurofins | [signature] | 10/31/20 0940 | ETA |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

| Custody Seals Intact: ∆ Yes ∆ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: |
|---|---|---|

Ver: 01/16/2019

Loc: 180
112989

**EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST** **Log In Number:**

| Review Items | Yes | No | NA | If No, what was the problem? |
|---|---|---|---|---|
| 1. Are the shipping containers intact? | / | | | ☐ **Containers, Broken** |
| 2. Were ambient air containers received intact? | | | / | ☐ Checked in lab |
| 3. The coolers/containers custody seal if present, is it intact? | / | | | ☐ Yes<br>☐ NA |
| 4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)<br>Thermometer ID : SC 68<br>Correction factor: + 0.1 | / | | | ☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel**<br>☐ **Cooler Out of Temp, Same Day Receipt** |
| 5. Were all of the sample containers received intact? | / | | | ☐ **Containers, Broken** |
| 6. Were samples received in appropriate containers? | / | | | ☐ **Containers, Improper; Client Contacted; Proceed/Cancel** |
| 7. Do sample container labels match COC? (IDs, Dates, Times) | / | | | ☐ **COC & Samples Do Not Match**<br>☐ **COC Incorrect/Incomplete**<br>☐ **COC Not Received** |
| 8. Were all of the samples listed on the COC received? | / | | | ☐ **Sample Received, Not on COC**<br>☐ **Sample on COC, Not Received** |
| 9. Is the date/time of sample collection noted? | / | | | ☐ **COC; No Date/Time; Client Contacted** |
| 10. Was the sampler identified on the COC? | | | / | ☐ **Sampler Not Listed on COC** |
| 11. Is the client and project name/# identified? | / | | | ☐ **COC Incorrect/Incomplete** |
| 12. Are tests/parameters listed for each sample? | / | | | ☐ **COC No tests on COC** |
| 13. Is the matrix of the samples noted? | / | | | ☐ **COC Incorrect/Incomplete** |
| 14. Was COC relinquished? (Signed/Dated/Timed) | / | | | ☐ **COC Incorrect/Incomplete** |
| 15. Were samples received within holding time? | / | | | ☐ **Holding Time - Receipt** |
| 16. Were samples received with correct chemical preservative (excluding Encore)? | | | / | ☐ **pH Adjusted, pH Included (See box 16A)**<br>☐ **Incorrect Preservative** |
| 17. Were VOA samples received without headspace? | | | / | ☐ **Headspace (VOA only)** |
| 18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668)<br>Chlorine test strip lot number: 8178 2021/01 | / | | | ☐ **Residual Chlorine** |
| 19. For 1613B water samples is pH<9? | | | / | ☐ If no, notify lab to adjust |
| 20. For rad samples was sample activity info. Provided? | | | / | ☐ Project missing info |

**Comments/Actions Taken**

**Labeling Verified by:** **Date:**

**pH test strip lot number:**

| | Box 16A: pH Preservation | Box 18A: Residual Chlorine |
|---|---|---|
| Preservative: | | |
| Lot Number: | | |
| Exp Date: | | |
| Analyst: | | |
| Date: | | |
| Time: | | |

Project #: _____ PM Instructions: _____

Sample Receiving Associate: _____ Date: 10/31/20

QA026R32.doc, 062719

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

29130

# Chain of Custody Record

eurofins | Environment Testing America

| | | | | |
|---|---|---|---|---|
| **Client Information (Sub Contract Lab)** | Sampler: | Lab PM: Colussy, Jill L | Carrier Tracking No(s): | COC No: 180-417154.1 |
| Client Contact: Shipping/Receiving | Phone: | E-Mail: Jill.Colussy@Eurofinset.com | State of Origin: Maryland | Page: Page 1 of 1 |
| Company: TestAmerica Laboratories, Inc. | | Accreditations Required (See note): | | Job #: 180-112989-1 |
| Address: 4101 Shuffel Street NW, , | Due Date Requested: 11/13/2020 | | | |
| City: North Canton | TAT Requested (days): | | | |
| State, Zip: OH, 44720 | | | | |
| Phone: 330-497-9396(Tel) 330-497-0772(Fax) | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: Pepco Benning Road Facility | Project #: 18022565 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - pH 4-5 |
| L - EDA | Z - other (specify) |

Other:

C263

| Sample Identification - Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 8015D_DRO/3510C_LVI DRO/ORO | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | |
| OFW0100N (180-112989-1) | 10/29/20 | 11:45 Eastern | | Water | | | X | 2 | need to link ICVs |
| OFW0200N (180-112989-2) | 10/29/20 | 11:50 Eastern | | Water | | | X | 2 | need to link ICVs |
| OFW0300N (180-112989-3) | 10/29/20 | 11:35 Eastern | | Water | | | X | 2 | need to link ICVs |
| OFW0400N (180-112989-4) | 10/29/20 | 11:20 Eastern | | Water | | | X | 2 | need to link ICVs |
| OFW0500N (180-112989-5) | 10/29/20 | 11:05 Eastern | | Water | | | X | 2 | need to link ICVs |

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

***Possible Hazard Identification***
*Unconfirmed*

***Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)***
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4

Special Instructions/QC Requirements:

| | | | | | |
|---|---|---|---|---|---|
| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: | | |
| Relinquished by: [signature] | Date/Time: 10/30/20 845 | Company: EMA PIN | Received by: [signature] | Date/Time: 10-31-20 930 | Company: Elite |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

**Eurofins TestAmerica Canton Sample Receipt Form/Narrative** **Login # :** _____
**Canton Facility**

Client EA Pittsburgh Site Name _____ Cooler unpacked by:

Cooler Received on 10-3-20 Opened on 11-2-20

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

**Receipt After-hours**: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 1 Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-11 (CF +0.9 °C) Observed Cooler Temp. 2.9 °C Corrected Cooler Temp. 3.8 °C
   IR GUN #IR-12 (CF +0.5°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
    If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC907861
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes No
17. Was a LL Hg or Me Hg trip blank present? _____ Yes No

**Tests that are not checked for pH by Receiving:**
**VOAs**
**Oil and Grease**
**TOC**

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

**18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES** ☐ additional next page

Samples processed by:

**19. SAMPLE CONDITION**

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

**20. SAMPLE PRESERVATION**

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

*WI-NC-099*

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-112989-1

**Login Number: 112989**
**List Number: 1**
**Creator: Say, Thomas C**

**List Source: Eurofins TestAmerica, Pittsburgh**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

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# ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-107648-1
Client Project/Site: Pepco Benning Road Facility

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

*Authorized for release by:*
*7/14/2020 11:41:44 AM*

Jill Colussy, Project Manager I
(412)963-2444
Jill.Colussy@Eurofinset.com

LINKS
Review your project results through TotalAccess
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

*PA Lab ID: 02-00416*

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## Job ID: 180-107648-1

**Laboratory: Eurofins TestAmerica, Pittsburgh**

**Narrative**

### CASE NARRATIVE

### Client: AECOM

### Project: Pepco Benning Road Facility

### Report Number: 180-107648-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**
The samples were received on 06/27/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.7 C.

**PCBS**
Due to the concentration of PCBs detected, the samples were analyzed at a dilution. The reporting limits have been adjusted accordingly.

The samples and the matrix spike duplicate had surrogate Decachlorobiphenyl recover above the control limits. The recoveries of Tetrachloro-m-xylene were within the control limits.

The matrix spike and matrix spike duplicate of sample SED7C-DEW (0-18") (180-107648-1) recovered above the control limits for PCB-1016.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Continuing calibration standard 180-321360/26 recovered below criteria for Tetrachloro-m-xylene on the back column. All PCB results were reported from the front column.

**PERCENT SOLIDS**
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Definitions/Glossary

Client: AECOM
Job ID: 180-107648-1
Project/Site: Pepco Benning Road Facility

## Qualifiers

### GC Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| 4 | MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable. |
| F1 | MS and/or MSD recovery exceeds control limits. |
| X | Surrogate recovery exceeds control limits |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CFU | Colony Forming Unit |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MCL | EPA recommended "Maximum Contaminant Level" |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| MPN | Most Probable Number |
| MQL | Method Quantitation Limit |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| NEG | Negative / Absent |
| POS | Positive / Present |
| PQL | Practical Quantitation Limit |
| PRES | Presumptive |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |
| TNTC | Too Numerous To Count |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-107648-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| Arkansas DEQ | State | 19-033-0 | 06-27-21 |
| California | State | 2891 | 04-30-21 |
| Connecticut | State | PH-0688 | 09-30-20 |
| Florida | NELAP | E871008 | 06-30-21 |
| Georgia | State | PA 02-00416 | 04-30-21 |
| Illinois | NELAP | 004375 | 06-30-21 |
| Kansas | NELAP | E-10350 | 01-31-21 |
| Kentucky (UST) | State | 162013 | 04-30-21 |
| Kentucky (WW) | State | KY98043 | 12-31-20 |
| Louisiana | NELAP | 04041 | 06-30-21 |
| Maine | State | PA00164 | 03-06-22 |
| Minnesota | NELAP | 042-999-482 | 12-31-20 |
| Nevada | State | PA00164 | 07-31-20 |
| New Hampshire | NELAP | 2030 | 04-05-21 |
| New Jersey | NELAP | PA005 | 08-01-20 |
| New York | NELAP | 11182 | 04-01-21 |
| North Carolina (WW/SW) | State | 434 | 01-01-21 |
| North Dakota | State | R-227 | 04-30-21 |
| Oregon | NELAP | PA-2151 | 02-06-21 |
| Pennsylvania | NELAP | 02-00416 | 05-23-21 |
| Rhode Island | State | LAO00362 | 12-31-20 |
| South Carolina | State | 89014 | 04-30-21 |
| Texas | NELAP | T104704528 | 03-31-21 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-20 |
| USDA | Federal | P-Soil-01 | 06-26-22 |
| USDA | US Federal Programs | P330-16-00211 | 06-26-22 |
| Utah | NELAP | PA001462019-8 | 05-31-21 |
| Virginia | NELAP | 10043 | 09-15-20 |
| West Virginia DEP | State | 142 | 02-01-21 |
| Wisconsin | State | 998027800 | 08-31-20 |

# Sample Summary

Client: AECOM
Job ID: 180-107648-1
Project/Site: Pepco Benning Road Facility

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 180-107648-1 | SED7C-DEW (0-18") | Sediment | 06/26/20 09:00 | 06/27/20 09:00 | |
| 180-107648-2 | SED7.5E-DEW (0-18") | Sediment | 06/26/20 09:05 | 06/27/20 09:00 | |

# Method Summary

Client: AECOM
Job ID: 180-107648-1
Project/Site: Pepco Benning Road Facility

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| EPA 8082A | Polychlorinated Biphenyls (PCBs) (GC) | SW846 | TAL PIT |
| PCB | Total PCB Calculation | TAL SOP | TAL PIT |
| 2540G | SM 2540G | SM22 | TAL PIT |
| 3541 | Automated Soxhlet Extraction (Low Level) | SW846 | TAL PIT |
| 3660B | Sulfur Cleanup | SW846 | TAL PIT |
| 3665A | Sulfuric Acid/Permanganate Cleanup | SW846 | TAL PIT |

**Protocol References:**

SM22 = Standard Methods For The Examination Of Water And Wastewater, 22nd Edition

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: AECOM
Job ID: 180-107648-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: SED7C-DEW (0-18")
**Lab Sample ID: 180-107648-1**
**Date Collected: 06/26/20 09:00**
**Matrix: Sediment**
**Date Received: 06/27/20 09:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | PCB | | 1 | | | 321464 | 07/13/20 12:52 | DFE | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| Total/NA | Analysis | 2540G | | 1 | | | 320310 | 07/02/20 07:35 | MM1 | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SED7C-DEW (0-18")
**Lab Sample ID: 180-107648-1**
**Date Collected: 06/26/20 09:00**
**Matrix: Sediment**
**Date Received: 06/27/20 09:00**
**Percent Solids: 55.8**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3541 | | | 30.18 g | 1.0 mL | 321038 | 07/09/20 10:06 | CSC | TAL PIT |
| Total/NA | Cleanup | 3665A | | | 2 mL | 2 mL | 321357 | 07/13/20 04:30 | JMO | TAL PIT |
| Total/NA | Cleanup | 3660B | | | 2 mL | 2 mL | 321358 | 07/13/20 04:31 | JMO | TAL PIT |
| Total/NA | Analysis | EPA 8082A | | 10 | | | 321360 | 07/13/20 10:50 | JMO | TAL PIT |
| | Instrument ID: CHGC8 | | | | | | | | | |

## Client Sample ID: SED7.5E-DEW (0-18")
**Lab Sample ID: 180-107648-2**
**Date Collected: 06/26/20 09:05**
**Matrix: Sediment**
**Date Received: 06/27/20 09:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | PCB | | 1 | | | 321464 | 07/13/20 12:52 | DFE | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| Total/NA | Analysis | 2540G | | 1 | | | 320310 | 07/02/20 07:35 | MM1 | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SED7.5E-DEW (0-18")
**Lab Sample ID: 180-107648-2**
**Date Collected: 06/26/20 09:05**
**Matrix: Sediment**
**Date Received: 06/27/20 09:00**
**Percent Solids: 42.5**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3541 | | | 30.14 g | 1.0 mL | 321038 | 07/09/20 10:06 | CSC | TAL PIT |
| Total/NA | Cleanup | 3665A | | | 2 mL | 2 mL | 321357 | 07/13/20 04:30 | JMO | TAL PIT |
| Total/NA | Cleanup | 3660B | | | 2 mL | 2 mL | 321358 | 07/13/20 04:31 | JMO | TAL PIT |
| Total/NA | Analysis | EPA 8082A | | 10 | | | 321360 | 07/13/20 11:47 | JMO | TAL PIT |
| | Instrument ID: CHGC8 | | | | | | | | | |

**Laboratory References:**

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: AECOM
Job ID: 180-107648-1
Project/Site: Pepco Benning Road Facility

**Analyst References:**

Lab: TAL PIT

- Batch Type: Cleanup
  - JMO = John Oravec
- Batch Type: Prep
  - CSC = Chayce Cockroft
- Batch Type: Analysis
  - DFE = David Eppinger
  - JMO = John Oravec
  - MM1 = Mary Beth Miller

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-107648-1

## Client Sample ID: SED7C-DEW (0-18")

**Date Collected: 06/26/20 09:00**
**Date Received: 06/27/20 09:00**

## Lab Sample ID: 180-107648-1

**Matrix: Sediment**
**Percent Solids: 55.8**

### Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1016 | ND | F1 | 7.4 | 2.4 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 10:50 | 10 |
| PCB-1221 | ND | | 7.4 | 2.6 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 10:50 | 10 |
| PCB-1232 | ND | | 7.4 | 1.8 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 10:50 | 10 |
| PCB-1242 | ND | | 7.4 | 1.1 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 10:50 | 10 |
| **PCB-1248** | **210** | | 7.4 | 1.8 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 10:50 | 10 |
| PCB-1254 | ND | | 7.4 | 2.2 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 10:50 | 10 |
| **PCB-1260** | **360** | | 7.4 | 2.1 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 10:50 | 10 |
| PCB-1262 | ND | | 7.4 | 2.6 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 10:50 | 10 |
| PCB-1268 | ND | | 7.4 | 1.0 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 10:50 | 10 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *137* | | *20 - 150* | *07/09/20 10:06* | *07/13/20 10:50* | *10* |
| *DCB Decachlorobiphenyl (Surr)* | *193* | *X* | *20 - 150* | *07/09/20 10:06* | *07/13/20 10:50* | *10* |
| *Tetrachloro-m-xylene* | *88* | | *20 - 138* | *07/09/20 10:06* | *07/13/20 10:50* | *10* |
| *Tetrachloro-m-xylene* | *87* | | *20 - 138* | *07/09/20 10:06* | *07/13/20 10:50* | *10* |

### Method: PCB - Total PCB Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Polychlorinated biphenyls, Total** | **570** | | 7.4 | 2.6 | ug/Kg | | | 07/13/20 12:52 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Moisture** | **44.2** | | 0.1 | 0.1 | % | | | 07/02/20 07:35 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-107648-1

## Client Sample ID: SED7.5E-DEW (0-18")

**Date Collected: 06/26/20 09:05**
**Date Received: 06/27/20 09:00**

## Lab Sample ID: 180-107648-2

**Matrix: Sediment**
**Percent Solids: 42.5**

### Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1016 | ND | | 9.8 | 3.2 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 11:47 | 10 |
| PCB-1221 | ND | | 9.8 | 3.5 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 11:47 | 10 |
| PCB-1232 | ND | | 9.8 | 2.4 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 11:47 | 10 |
| PCB-1242 | ND | | 9.8 | 1.4 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 11:47 | 10 |
| **PCB-1248** | **630** | | 9.8 | 2.4 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 11:47 | 10 |
| PCB-1254 | ND | | 9.8 | 2.9 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 11:47 | 10 |
| **PCB-1260** | **1500** | | 9.8 | 2.8 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 11:47 | 10 |
| PCB-1262 | ND | | 9.8 | 3.4 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 11:47 | 10 |
| PCB-1268 | ND | | 9.8 | 1.3 | ug/Kg | ☼ | 07/09/20 10:06 | 07/13/20 11:47 | 10 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *155* | *X* | *20 - 150* | *07/09/20 10:06* | *07/13/20 11:47* | *10* |
| *DCB Decachlorobiphenyl (Surr)* | *160* | *X* | *20 - 150* | *07/09/20 10:06* | *07/13/20 11:47* | *10* |
| *Tetrachloro-m-xylene* | *81* | | *20 - 138* | *07/09/20 10:06* | *07/13/20 11:47* | *10* |
| *Tetrachloro-m-xylene* | *83* | | *20 - 138* | *07/09/20 10:06* | *07/13/20 11:47* | *10* |

### Method: PCB - Total PCB Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Polychlorinated biphenyls, Total** | **2100** | | 9.8 | 3.5 | ug/Kg | | | 07/13/20 12:52 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Moisture** | **57.5** | | 0.1 | 0.1 | % | | | 07/02/20 07:35 | 1 |

## Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

**Lab Sample ID: MB 180-321038/1-C**
**Matrix: Sediment**
**Analysis Batch: 321360**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 321038**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1016 | ND | | 0.42 | 0.14 | ug/Kg | | 07/09/20 10:06 | 07/13/20 10:32 | 1 |
| PCB-1221 | ND | | 0.42 | 0.15 | ug/Kg | | 07/09/20 10:06 | 07/13/20 10:32 | 1 |
| PCB-1232 | ND | | 0.42 | 0.10 | ug/Kg | | 07/09/20 10:06 | 07/13/20 10:32 | 1 |
| PCB-1242 | ND | | 0.42 | 0.061 | ug/Kg | | 07/09/20 10:06 | 07/13/20 10:32 | 1 |
| PCB-1248 | ND | | 0.42 | 0.10 | ug/Kg | | 07/09/20 10:06 | 07/13/20 10:32 | 1 |
| PCB-1254 | ND | | 0.42 | 0.13 | ug/Kg | | 07/09/20 10:06 | 07/13/20 10:32 | 1 |
| PCB-1260 | ND | | 0.42 | 0.12 | ug/Kg | | 07/09/20 10:06 | 07/13/20 10:32 | 1 |
| PCB-1262 | ND | | 0.42 | 0.15 | ug/Kg | | 07/09/20 10:06 | 07/13/20 10:32 | 1 |
| PCB-1268 | ND | | 0.42 | 0.056 | ug/Kg | | 07/09/20 10:06 | 07/13/20 10:32 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *96* | | *20 - 150* | *07/09/20 10:06* | *07/13/20 10:32* | *1* |
| *DCB Decachlorobiphenyl (Surr)* | *103* | | *20 - 150* | *07/09/20 10:06* | *07/13/20 10:32* | *1* |
| *Tetrachloro-m-xylene* | *90* | | *20 - 138* | *07/09/20 10:06* | *07/13/20 10:32* | *1* |
| *Tetrachloro-m-xylene* | *87* | | *20 - 138* | *07/09/20 10:06* | *07/13/20 10:32* | *1* |

**Lab Sample ID: LCS 180-321038/2-C**
**Matrix: Sediment**
**Analysis Batch: 321360**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 321038**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| PCB-1016 | 33.3 | 31.2 | | ug/Kg | | 94 | 27 - 117 |
| PCB-1260 | 33.3 | 30.2 | | ug/Kg | | 91 | 29 - 107 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *90* | | *20 - 150* |
| *DCB Decachlorobiphenyl (Surr)* | *98* | | *20 - 150* |
| *Tetrachloro-m-xylene* | *89* | | *20 - 138* |
| *Tetrachloro-m-xylene* | *85* | | *20 - 138* |

**Lab Sample ID: 180-107648-1 MS**
**Matrix: Sediment**
**Analysis Batch: 321360**

**Client Sample ID: SED7C-DEW (0-18")**
**Prep Type: Total/NA**
**Prep Batch: 321038**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1016 | ND | F1 | 59.6 | 196 | F1 | ug/Kg | ☼ | 329 | 27 - 117 |
| PCB-1260 | 360 | | 59.6 | 304 | 4 | ug/Kg | ☼ | -88 | 29 - 107 |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *116* | | *20 - 150* |
| *DCB Decachlorobiphenyl (Surr)* | *147* | | *20 - 150* |
| *Tetrachloro-m-xylene* | *80* | | *20 - 138* |
| *Tetrachloro-m-xylene* | *82* | | *20 - 138* |

## Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

**Lab Sample ID: 180-107648-1 MSD**
**Client Sample ID: SED7C-DEW (0-18")**
**Matrix: Sediment**
**Prep Type: Total/NA**
**Analysis Batch: 321360**
**Prep Batch: 321038**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PCB-1016 | ND | F1 | 59.6 | 241 | F1 | ug/Kg | ☼ | 404 | 27 - 117 | 20 | 40 |
| PCB-1260 | 360 | | 59.6 | 384 | 4 | ug/Kg | ☼ | 46 | 29 - 107 | 23 | 40 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *141* | | *20 - 150* |
| *DCB Decachlorobiphenyl (Surr)* | *159* | *X* | *20 - 150* |
| *Tetrachloro-m-xylene* | *92* | | *20 - 138* |
| *Tetrachloro-m-xylene* | *97* | | *20 - 138* |

## Method: 2540G - SM 2540G

**Lab Sample ID: 180-107648-2 DU**
**Client Sample ID: SED7.5E-DEW (0-18")**
**Matrix: Sediment**
**Prep Type: Total/NA**
**Analysis Batch: 320310**

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 57.5 | | 53.7 | | % | | 7 | 10 |

# QC Association Summary

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-107648-1

## GC Semi VOA

### Prep Batch: 321038

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-107648-1 | SED7C-DEW (0-18") | Total/NA | Sediment | 3541 | |
| 180-107648-2 | SED7.5E-DEW (0-18") | Total/NA | Sediment | 3541 | |
| MB 180-321038/1-C | Method Blank | Total/NA | Sediment | 3541 | |
| LCS 180-321038/2-C | Lab Control Sample | Total/NA | Sediment | 3541 | |
| 180-107648-1 MS | SED7C-DEW (0-18") | Total/NA | Sediment | 3541 | |
| 180-107648-1 MSD | SED7C-DEW (0-18") | Total/NA | Sediment | 3541 | |

### Cleanup Batch: 321357

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-107648-1 | SED7C-DEW (0-18") | Total/NA | Sediment | 3665A | 321038 |
| 180-107648-2 | SED7.5E-DEW (0-18") | Total/NA | Sediment | 3665A | 321038 |
| MB 180-321038/1-C | Method Blank | Total/NA | Sediment | 3665A | 321038 |
| LCS 180-321038/2-C | Lab Control Sample | Total/NA | Sediment | 3665A | 321038 |
| 180-107648-1 MS | SED7C-DEW (0-18") | Total/NA | Sediment | 3665A | 321038 |
| 180-107648-1 MSD | SED7C-DEW (0-18") | Total/NA | Sediment | 3665A | 321038 |

### Cleanup Batch: 321358

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-107648-1 | SED7C-DEW (0-18") | Total/NA | Sediment | 3660B | 321357 |
| 180-107648-2 | SED7.5E-DEW (0-18") | Total/NA | Sediment | 3660B | 321357 |
| MB 180-321038/1-C | Method Blank | Total/NA | Sediment | 3660B | 321357 |
| LCS 180-321038/2-C | Lab Control Sample | Total/NA | Sediment | 3660B | 321357 |
| 180-107648-1 MS | SED7C-DEW (0-18") | Total/NA | Sediment | 3660B | 321357 |
| 180-107648-1 MSD | SED7C-DEW (0-18") | Total/NA | Sediment | 3660B | 321357 |

### Analysis Batch: 321360

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-107648-1 | SED7C-DEW (0-18") | Total/NA | Sediment | EPA 8082A | 321358 |
| 180-107648-2 | SED7.5E-DEW (0-18") | Total/NA | Sediment | EPA 8082A | 321358 |
| MB 180-321038/1-C | Method Blank | Total/NA | Sediment | EPA 8082A | 321358 |
| LCS 180-321038/2-C | Lab Control Sample | Total/NA | Sediment | EPA 8082A | 321358 |
| 180-107648-1 MS | SED7C-DEW (0-18") | Total/NA | Sediment | EPA 8082A | 321358 |
| 180-107648-1 MSD | SED7C-DEW (0-18") | Total/NA | Sediment | EPA 8082A | 321358 |

### Analysis Batch: 321464

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-107648-1 | SED7C-DEW (0-18") | Total/NA | Sediment | PCB | |
| 180-107648-2 | SED7.5E-DEW (0-18") | Total/NA | Sediment | PCB | |

## General Chemistry

### Analysis Batch: 320310

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-107648-1 | SED7C-DEW (0-18") | Total/NA | Sediment | 2540G | |
| 180-107648-2 | SED7.5E-DEW (0-18") | Total/NA | Sediment | 2540G | |
| 180-107648-2 DU | SED7.5E-DEW (0-18") | Total/NA | Sediment | 2540G | |

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

# Chain of Custody Record

eurofins | Environment Testing TestAmerica

**Regulatory Program:** ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

**TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica**

| | | | |
|---|---|---|---|
| | **Project Manager: Kris Carbonneau** | | COC No: |
| **Client Contact** | **Email: kris.carbonneau@aecom.com** | **Site Contact:** | **Date: 6-26-20** | ___1___ of __1___ COCs |
| AECOM | **Tel/Fax:** | **Lab Contact: Jill Colussy** | **Carrier:** | TALS Project #: |
| Address | **Analysis Turnaround Time** | | | Sampler: |
| City/State/Zip | ☐ CALENDAR DAYS ☑ WORKING DAYS | | | **For Lab Use Only:** |
| (xxx) xxx-xxxx Phone | TAT if different from Below _____ | | | Walk-in Client: |
| (xxx) xxx-xxxx FAX | ☑ 2 weeks | | | Lab Sampling: |
| Project Name: Pepco Benning Road TS | ☐ 1 week | | | |
| PO# 60631088 | ☐ 2 days | | | Job / SDG No.: |
| Quote# 18022551 | ☐ 1 day | | | |

| Sample Identification | Sample Date | Sample Time | Sample Type (C=Comp, G=Grab) | Matrix | # of Cont. | Filtered Sample (Y / N) | Perform MS / MSD (Y / N) | PCBs as Aroclors 8082 | PCBs as Congeners 1668C | Sample Specific Notes: |
|---|---|---|---|---|---|---|---|---|---|---|
| SED7C-DEW (0-18") | 6/26/20 | 900 | G | S | 2 | | | X | X | |
| SED7.5E-DEW (0-18") | 6/26/20 | 905 | G | S | 2 | | | X | X | |

180-107648 Chain of Custody

**Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____**

**Possible Hazard Identification:**
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

**Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)**

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

**Special Instructions/QC Requirements & Comments:**

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

| | | | | | |
|---|---|---|---|---|---|
| Relinquished by: | Company: KEMRON | Date/Time: 6/26/20 1100 | Received by: | Company: ETA | Date/Time: ETA 11:00 |
| Relinquished by: | Company: | Date/Time: 6/26/20 | Received by: | Company: ETA PHT | Date/Time: 06/27/2020 0900 |
| Relinquished by: | Company: | Date/Time: | Received in Laboratory by: | Company: | Date/Time: |

Form No. CA-C-WI-002, Rev. 4.33, dated 5/4/2020



180-107648 Waybill

eurofins | Environment Testing TestAmerica

Part # 158469-434 RIT2 EXP 09/20

ORIGIN ID:LIYA (678) 966-9991
GEORGE TAYLOR
EUROFINS TESTAMERICA
6500 MCDONOUGH DRIVE
SUITE C-10
NORCROSS, GA 30093
UNITED STATES US

SHIP DATE: 26JUN20
ACTWGT: 15.95 LB
CAD: 859116/CAFE3313

BILL RECIPIENT

TO SAMPLE RECIEVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DR.
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: KEMRON

FedEx Express

TRK# 0201 1516 9324 1014

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO AGCA

15238
PA-US PIT

Uncorrected temp 2.7/2.7C
Thermometer ID
CF 0 Initials
PT-WI-SR-001 effective 7/26/13

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-107648-1

**Login Number: 107648**
**List Number: 1**
**Creator: DiNardo, Nicholas J**

**List Source: Eurofins TestAmerica, Pittsburgh**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

eurofins | Environment Testing America



# ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-112242-1
Client Project/Site: Pepco Benning Road Facility

For:
AECOM
250 Apollo Drive
Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy

*Authorized for release by:*
*11/5/2020 3:31:14 PM*

Jill Colussy, Project Manager I
(412)963-2444
Jill.Colussy@Eurofinset.com

LINKS
Review your project results through TotalAccess
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

*PA Lab ID: 02-00416*

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## Job ID: 180-112242-1

**Laboratory: Eurofins TestAmerica, Pittsburgh**

**Narrative**

# CASE NARRATIVE

## Client: AECOM

## Project: Pepco Benning Road Facility

## Report Number: 180-112242-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**
The samples were received on 10/14/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.6 C.

**VOLATILES**
The continuing calibration verification (CCV) analyzed in batch 180-334149 was outside the method criteria for the following analyte(s): 2-Butanone and Methyl Tert Butyl Ether. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

**SEMIVOLATILES**
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**PESTICIDES**
Toxaphene recovered below criteria for continuing calibration standard CCVIS 180-334876/43. This is a pattern recognition compound and was not detected in samples.

**PCBS**
Due to the concentration of PCBs detected, sample 0746-009 (180-112242-1) and 0746-10 (180-112242-2) were analyzed at a dilution. The reporting limits have been adjusted accordingly.

**HERBICIDES**
The continuing calibration verification (CCV) associated with batch 180-335001 recovered above the upper control limit for all analytes of interest. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

**METALS**
Mercury was detected in method blank MB 180-334370/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

**GENERAL CHEMISTRY**
The following samples were assumed to contain Sulfide due to nature of sample matrix: 0746-009 (180-112242-1) and 0746-010

## Job ID: 180-112242-1 (Continued)

### Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

(180-112242-2). The sulfide was treated and removed prior to distillation with 200 uL of bismuth nitrate solution.

Samples 0746-009 (180-112242-1), 0746-010 (180-112242-2), (180-112242-A-1 MS) and (180-112242-A-1 MSD) required anti foam for the sulfide distillation.

The matrix spike and matrix spike duplicate of sample 0746-009 (180-112242-1) recovered outside of the control limits for sulfide.

# Definitions/Glossary

Client: AECOM
Job ID: 180-112242-1
Project/Site: Pepco Benning Road Facility

## Qualifiers

### GC/MS Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

### GC Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| p | The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported. |

### Metals

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

### General Chemistry

| Qualifier | Qualifier Description |
|---|---|
| F1 | MS and/or MSD recovery exceeds control limits. |
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CFU | Colony Forming Unit |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MCL | EPA recommended "Maximum Contaminant Level" |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| MPN | Most Probable Number |
| MQL | Method Quantitation Limit |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| NEG | Negative / Absent |
| POS | Positive / Present |
| PQL | Practical Quantitation Limit |
| PRES | Presumptive |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |
| TNTC | Too Numerous To Count |

# Accreditation/Certification Summary

Client: AECOM
Job ID: 180-112242-1
Project/Site: Pepco Benning Road Facility

## Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| Arkansas DEQ | State | 19-033-0 | 06-27-21 |
| California | State | 2891 | 04-30-21 |
| Connecticut | State | PH-0688 | 09-30-20 * |
| Florida | NELAP | E871008 | 06-30-21 |
| Georgia | State | PA 02-00416 | 04-30-21 |
| Illinois | NELAP | 004375 | 06-30-21 |
| Kansas | NELAP | E-10350 | 01-31-21 |
| Kentucky (UST) | State | 162013 | 04-30-21 |
| Kentucky (WW) | State | KY98043 | 12-31-20 |
| Louisiana | NELAP | 04041 | 06-30-21 |
| Maine | State | PA00164 | 03-06-22 |
| Minnesota | NELAP | 042-999-482 | 12-31-20 |
| Nevada | State | PA00164 | 07-31-21 |
| New Hampshire | NELAP | 2030 | 04-05-21 |
| New Jersey | NELAP | PA005 | 06-30-21 |
| New York | NELAP | 11182 | 04-01-21 |
| North Carolina (WW/SW) | State | 434 | 11-01-20 |
| North Dakota | State | R-227 | 04-30-21 |
| Oregon | NELAP | PA-2151 | 02-06-21 |
| Pennsylvania | NELAP | 02-00416 | 04-30-21 |
| Rhode Island | State | LAO00362 | 12-31-20 |
| South Carolina | State | 89014 | 04-30-21 |
| Texas | NELAP | T104704528 | 03-31-21 |
| US Fish & Wildlife | US Federal Programs | 058448 | 07-31-21 |
| USDA | Federal | P-Soil-01 | 06-26-22 |
| USDA | US Federal Programs | P330-16-00211 | 06-26-22 |
| Utah | NELAP | PA001462019-8 | 05-31-21 |
| Virginia | NELAP | 10043 | 09-14-21 |
| West Virginia DEP | State | 142 | 02-01-21 |
| Wisconsin | State | 998027800 | 08-31-21 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Sample Summary

Client: AECOM
Job ID: 180-112242-1
Project/Site: Pepco Benning Road Facility

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | Sediment | 10/13/20 10:00 | 10/14/20 09:30 | |
| 180-112242-2 | 0746-010 | Sediment | 10/13/20 10:05 | 10/14/20 09:30 | |

# Method Summary

Client: AECOM
Job ID: 180-112242-1
Project/Site: Pepco Benning Road Facility

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| EPA 8260C | Volatile Organic Compounds by GC/MS | SW846 | TAL PIT |
| EPA 8270D | Semivolatile Organic Compounds (GC/MS) | SW846 | TAL PIT |
| EPA 8081B | Organochlorine Pesticides (GC) | SW846 | TAL PIT |
| EPA 8082A | Polychlorinated Biphenyls (PCBs) (GC) | SW846 | TAL PIT |
| EPA 8151A | Herbicides (GC) | SW846 | TAL PIT |
| PCB | Total PCB Calculation | TAL SOP | TAL PIT |
| EPA 6010B | Metals (ICP) | SW846 | TAL PIT |
| EPA 7470A | Mercury (CVAA) | SW846 | TAL PIT |
| 2540G | SM 2540G | SM22 | TAL PIT |
| EPA 1020B | Ignitability, Small Scale Closed-Cup Method | SW846 | TAL PIT |
| EPA 9014 | Cyanide | SW846 | TAL PIT |
| EPA 9034 | Sulfide, Acid soluble and Insoluble (Titrimetric) | SW846 | TAL PIT |
| 3010A | Preparation, Total Metals | SW846 | TAL PIT |
| 3510C | Liquid-Liquid Extraction (Separatory Funnel) | SW846 | TAL PIT |
| 3541 | Automated Soxhlet Extraction (Low Level) | SW846 | TAL PIT |
| 3660B | Sulfur Cleanup | SW846 | TAL PIT |
| 3665A | Sulfuric Acid/Permanganate Cleanup | SW846 | TAL PIT |
| 5030C | Purge and Trap | SW846 | TAL PIT |
| 7470A | Preparation, Mercury | SW846 | TAL PIT |
| 8151A | Extraction (Herbicides) | SW846 | TAL PIT |
| 9010C | Cyanide, Distillation | SW846 | TAL PIT |
| 9030B | Sulfide, Distillation (Acid Soluble and Insoluble) | SW846 | TAL PIT |
| EPA 1311 | TCLP Extraction | SW846 | TAL PIT |

**Protocol References:**

SM22 = Standard Methods For The Examination Of Water And Wastewater, 22nd Edition

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

**Laboratory References:**

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: AECOM
Job ID: 180-112242-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: 0746-009
**Date Collected: 10/13/20 10:00**
**Date Received: 10/14/20 09:30**

## Lab Sample ID: 180-112242-1
**Matrix: Sediment**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| TCLP | Leach | EPA 1311 | | | 25.11 g | 500 mL | 334016 | 10/20/20 12:00 | GRN | TAL PIT |
| TCLP | Analysis | EPA 8260C | | 1 | 0.125 mL | 5 mL | 334149 | 10/21/20 12:48 | KLG | TAL PIT |
| | Instrument ID: CHHP9 | | | | | | | | | |
| TCLP | Leach | EPA 1311 | | | 100.17 g | 2000 mL | 334011 | 10/20/20 12:00 | GRN | TAL PIT |
| TCLP | Prep | 3510C | | | 200 mL | 10.0 mL | 334211 | 10/21/20 09:35 | CBY | TAL PIT |
| TCLP | Analysis | EPA 8270D | | 1 | 1 mL | 1 mL | 334310 | 10/22/20 20:29 | VVP | TAL PIT |
| | Instrument ID: CH732 | | | | | | | | | |
| TCLP | Leach | EPA 1311 | | | 100.17 g | 2000 mL | 334011 | 10/20/20 12:00 | GRN | TAL PIT |
| TCLP | Prep | 3510C | | | 100 mL | 40.0 mL | 334210 | 10/21/20 09:20 | CBY | TAL PIT |
| TCLP | Analysis | EPA 8081B | | 1 | | | 334876 | 10/27/20 22:49 | DFE | TAL PIT |
| | Instrument ID: CHGC17 | | | | | | | | | |
| TCLP | Leach | EPA 1311 | | | 100.17 g | 2000 mL | 334011 | 10/20/20 12:00 | GRN | TAL PIT |
| TCLP | Prep | 8151A | | | 100 mL | 10.0 mL | 334218 | 10/21/20 13:00 | CBY | TAL PIT |
| TCLP | Analysis | EPA 8151A | | 20 | | | 335001 | 10/28/20 09:05 | JMO | TAL PIT |
| | Instrument ID: CGC1 | | | | | | | | | |
| Total/NA | Analysis | PCB | | 1 | | | 335216 | 10/22/20 08:20 | SAB | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| TCLP | Leach | EPA 1311 | | | 100.17 g | 2000 mL | 334011 | 10/20/20 12:00 | GRN | TAL PIT |
| TCLP | Prep | 3010A | | | 5 mL | 50 mL | 334406 | 10/22/20 15:35 | TJO | TAL PIT |
| TCLP | Analysis | EPA 6010B | | 1 | | | 334692 | 10/23/20 16:35 | RJG | TAL PIT |
| | Instrument ID: C | | | | | | | | | |
| TCLP | Leach | EPA 1311 | | | 100.17 g | 2000 mL | 334011 | 10/20/20 12:00 | GRN | TAL PIT |
| TCLP | Prep | 7470A | | | 50 mL | 50 mL | 334370 | 10/22/20 13:22 | MM1 | TAL PIT |
| TCLP | Analysis | EPA 7470A | | 1 | | | 335034 | 10/27/20 18:25 | KEM | TAL PIT |
| | Instrument ID: HGY | | | | | | | | | |
| Total/NA | Analysis | 2540G | | 1 | | | 334684 | 10/25/20 15:07 | KPO | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| Total/NA | Analysis | EPA 1020B | | 1 | | | 334348 | 10/22/20 11:46 | AVS | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: 0746-009
**Date Collected: 10/13/20 10:00**
**Date Received: 10/14/20 09:30**

## Lab Sample ID: 180-112242-1
**Matrix: Sediment**
**Percent Solids: 59.4**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3541 | | | 30.4 g | 1.0 mL | 334300 | 10/22/20 08:20 | B1B | TAL PIT |
| Total/NA | Cleanup | 3665A | | | 2 mL | 2 mL | 334523 | 10/23/20 10:31 | KSM | TAL PIT |
| Total/NA | Cleanup | 3660B | | | 2 mL | 2 mL | 334525 | 10/23/20 10:36 | KSM | TAL PIT |
| Total/NA | Analysis | EPA 8082A | | 10 | | | 334490 | 10/24/20 03:50 | JMO | TAL PIT |
| | Instrument ID: CHGC10 | | | | | | | | | |
| Total/NA | Prep | 9010C | | | 0.55 g | 10 mL | 334633 | 10/24/20 12:15 | CMR | TAL PIT |
| Total/NA | Analysis | EPA 9014 | | 1 | | | 334930 | 10/26/20 17:26 | CMR | TAL PIT |
| | Instrument ID: SEAL2 | | | | | | | | | |
| Total/NA | Prep | 9030B | | | 4.99 g | 50 mL | 334074 | 10/20/20 15:00 | CMR | TAL PIT |
| Total/NA | Analysis | EPA 9034 | | 1 | | | 334204 | 10/20/20 17:32 | CMR | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

# Lab Chronicle

Client: AECOM
Job ID: 180-112242-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: 0746-010
**Date Collected: 10/13/20 10:05**
**Date Received: 10/14/20 09:30**

## Lab Sample ID: 180-112242-2
**Matrix: Sediment**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| TCLP | Leach | EPA 1311 | | | 25.25 g | 500 mL | 334016 | 10/20/20 12:00 | GRN | TAL PIT |
| TCLP | Analysis | EPA 8260C | | 1 | 0.125 mL | 5 mL | 334149 | 10/21/20 13:10 | KLG | TAL PIT |
| | Instrument ID: CHHP9 | | | | | | | | | |
| TCLP | Leach | EPA 1311 | | | 100.06 g | 2000 mL | 334011 | 10/20/20 12:00 | GRN | TAL PIT |
| TCLP | Prep | 3510C | | | 200 mL | 10.0 mL | 334211 | 10/21/20 09:35 | CBY | TAL PIT |
| TCLP | Analysis | EPA 8270D | | 1 | 1 mL | 1 mL | 334310 | 10/22/20 20:52 | VVP | TAL PIT |
| | Instrument ID: CH732 | | | | | | | | | |
| TCLP | Leach | EPA 1311 | | | 100.06 g | 2000 mL | 334011 | 10/20/20 12:00 | GRN | TAL PIT |
| TCLP | Prep | 3510C | | | 100 mL | 40.0 mL | 334210 | 10/21/20 09:20 | CBY | TAL PIT |
| TCLP | Analysis | EPA 8081B | | 1 | | | 334876 | 10/27/20 23:05 | DFE | TAL PIT |
| | Instrument ID: CHGC17 | | | | | | | | | |
| TCLP | Leach | EPA 1311 | | | 100.06 g | 2000 mL | 334011 | 10/20/20 12:00 | GRN | TAL PIT |
| TCLP | Prep | 8151A | | | 100 mL | 10.0 mL | 334218 | 10/21/20 13:00 | CBY | TAL PIT |
| TCLP | Analysis | EPA 8151A | | 20 | | | 335001 | 10/28/20 10:48 | JMO | TAL PIT |
| | Instrument ID: CGC1 | | | | | | | | | |
| Total/NA | Analysis | PCB | | 1 | | | 335216 | 10/22/20 08:20 | SAB | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| TCLP | Leach | EPA 1311 | | | 100.06 g | 2000 mL | 334011 | 10/20/20 12:00 | GRN | TAL PIT |
| TCLP | Prep | 3010A | | | 5 mL | 50 mL | 334406 | 10/22/20 15:35 | TJO | TAL PIT |
| TCLP | Analysis | EPA 6010B | | 1 | | | 334692 | 10/23/20 16:40 | RJG | TAL PIT |
| | Instrument ID: C | | | | | | | | | |
| TCLP | Leach | EPA 1311 | | | 100.06 g | 2000 mL | 334011 | 10/20/20 12:00 | GRN | TAL PIT |
| TCLP | Prep | 7470A | | | 50 mL | 50 mL | 334370 | 10/22/20 13:22 | MM1 | TAL PIT |
| TCLP | Analysis | EPA 7470A | | 1 | | | 335034 | 10/27/20 18:26 | KEM | TAL PIT |
| | Instrument ID: HGY | | | | | | | | | |
| Total/NA | Analysis | 2540G | | 1 | | | 334684 | 10/25/20 15:07 | KPO | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |
| Total/NA | Analysis | EPA 1020B | | 1 | | | 334348 | 10/22/20 11:46 | AVS | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: 0746-010
**Date Collected: 10/13/20 10:05**
**Date Received: 10/14/20 09:30**

## Lab Sample ID: 180-112242-2
**Matrix: Sediment**
**Percent Solids: 50.6**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3541 | | | 30.4 g | 1.0 mL | 334300 | 10/22/20 08:20 | B1B | TAL PIT |
| Total/NA | Cleanup | 3665A | | | 2 mL | 2 mL | 334523 | 10/23/20 10:31 | KSM | TAL PIT |
| Total/NA | Cleanup | 3660B | | | 2 mL | 2 mL | 334525 | 10/23/20 10:36 | KSM | TAL PIT |
| Total/NA | Analysis | EPA 8082A | | 10 | | | 334490 | 10/24/20 04:10 | JMO | TAL PIT |
| | Instrument ID: CHGC10 | | | | | | | | | |
| Total/NA | Prep | 9010C | | | 0.49 g | 10 mL | 334633 | 10/24/20 12:15 | CMR | TAL PIT |
| Total/NA | Analysis | EPA 9014 | | 1 | | | 334930 | 10/26/20 17:28 | CMR | TAL PIT |
| | Instrument ID: SEAL2 | | | | | | | | | |
| Total/NA | Prep | 9030B | | | 5.01 g | 50 mL | 334074 | 10/20/20 15:00 | CMR | TAL PIT |
| Total/NA | Analysis | EPA 9034 | | 1 | | | 334204 | 10/20/20 17:37 | CMR | TAL PIT |
| | Instrument ID: NOEQUIP | | | | | | | | | |

# Lab Chronicle

Client: AECOM
Job ID: 180-112242-1
Project/Site: Pepco Benning Road Facility

**Laboratory References:**

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

**Analyst References:**

Lab: TAL PIT

- Batch Type: Leach
  - GRN = Gavin Nicholls
  - KSM = Kiley Miller
- Batch Type: Prep
  - B1B = Bella Ballin
  - CBY = Charles Yushinski
  - CMR = Carl Reagle
  - MM1 = Mary Beth Miller
  - TJO = Tyler Oliver
- Batch Type: Analysis
  - AVS = Abbey Smith
  - CMR = Carl Reagle
  - DFE = David Eppinger
  - JMO = John Oravec
  - KEM = Kimberly Mahoney
  - KLG = Kathy Gordon
  - KPO = Kiera O'Neil
  - RJG = Rob Good
  - SAB = Sharon Bacha
  - VVP = Vincent Piccolino

Client: AECOM
Job ID: 180-112242-1
Project/Site: Pepco Benning Road Facility

**Client Sample ID: 0746-009**
**Lab Sample ID: 180-112242-1**
**Date Collected: 10/13/20 10:00**
**Matrix: Sediment**
**Date Received: 10/14/20 09:30**

## Method: EPA 8260C - Volatile Organic Compounds by GC/MS - TCLP

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dichloroethane | ND | | 0.20 | 0.058 | mg/L | | | 10/21/20 12:48 | 1 |
| 2-Butanone (MEK) | ND | | 0.20 | 0.12 | mg/L | | | 10/21/20 12:48 | 1 |
| Benzene | ND | | 0.20 | 0.079 | mg/L | | | 10/21/20 12:48 | 1 |
| Carbon tetrachloride | ND | | 0.20 | 0.13 | mg/L | | | 10/21/20 12:48 | 1 |
| Chlorobenzene | ND | | 0.20 | 0.063 | mg/L | | | 10/21/20 12:48 | 1 |
| Chloroform | ND | | 0.20 | 0.085 | mg/L | | | 10/21/20 12:48 | 1 |
| Tetrachloroethene | ND | | 0.20 | 0.080 | mg/L | | | 10/21/20 12:48 | 1 |
| Trichloroethene | ND | | 0.20 | 0.060 | mg/L | | | 10/21/20 12:48 | 1 |
| Vinyl chloride | ND | | 0.20 | 0.15 | mg/L | | | 10/21/20 12:48 | 1 |
| 1,1-Dichloroethene | ND | | 0.20 | 0.11 | mg/L | | | 10/21/20 12:48 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *97* | | *53 - 150* | | *10/21/20 12:48* | *1* |
| *4-Bromofluorobenzene (Surr)* | *70* | | *54 - 125* | | *10/21/20 12:48* | *1* |
| *Dibromofluoromethane (Surr)* | *91* | | *55 - 150* | | *10/21/20 12:48* | *1* |
| *Toluene-d8 (Surr)* | *117* | | *63 - 127* | | *10/21/20 12:48* | *1* |

## Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | ND | | 0.050 | 0.0045 | mg/L | | 10/21/20 09:35 | 10/22/20 20:29 | 1 |
| 2,4,5-Trichlorophenol | ND | | 0.050 | 0.0079 | mg/L | | 10/21/20 09:35 | 10/22/20 20:29 | 1 |
| 2,4,6-Trichlorophenol | ND | | 0.050 | 0.0095 | mg/L | | 10/21/20 09:35 | 10/22/20 20:29 | 1 |
| 2,4-Dinitrotoluene | ND | | 0.050 | 0.0079 | mg/L | | 10/21/20 09:35 | 10/22/20 20:29 | 1 |
| 2-Methylphenol | ND | | 0.050 | 0.0040 | mg/L | | 10/21/20 09:35 | 10/22/20 20:29 | 1 |
| Methylphenol, 3 & 4 | ND | | 0.050 | 0.0079 | mg/L | | 10/21/20 09:35 | 10/22/20 20:29 | 1 |
| Hexachlorobenzene | ND | | 0.050 | 0.0055 | mg/L | | 10/21/20 09:35 | 10/22/20 20:29 | 1 |
| Hexachlorobutadiene | ND | | 0.050 | 0.0084 | mg/L | | 10/21/20 09:35 | 10/22/20 20:29 | 1 |
| Hexachloroethane | ND | | 0.050 | 0.0040 | mg/L | | 10/21/20 09:35 | 10/22/20 20:29 | 1 |
| Nitrobenzene | ND | | 0.050 | 0.012 | mg/L | | 10/21/20 09:35 | 10/22/20 20:29 | 1 |
| Pentachlorophenol | ND | | 0.25 | 0.0075 | mg/L | | 10/21/20 09:35 | 10/22/20 20:29 | 1 |
| Pyridine | ND | | 0.10 | 0.0082 | mg/L | | 10/21/20 09:35 | 10/22/20 20:29 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *63* | | *55 - 107* | *10/21/20 09:35* | *10/22/20 20:29* | *1* |
| *2-Fluorophenol (Surr)* | *66* | | *60 - 108* | *10/21/20 09:35* | *10/22/20 20:29* | *1* |
| *2,4,6-Tribromophenol (Surr)* | *74* | | *24 - 113* | *10/21/20 09:35* | *10/22/20 20:29* | *1* |
| *Nitrobenzene-d5 (Surr)* | *66* | | *62 - 115* | *10/21/20 09:35* | *10/22/20 20:29* | *1* |
| *Phenol-d5 (Surr)* | *67* | | *52 - 107* | *10/21/20 09:35* | *10/22/20 20:29* | *1* |
| *Terphenyl-d14 (Surr)* | *64* | | *44 - 116* | *10/21/20 09:35* | *10/22/20 20:29* | *1* |

## Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chlordane (technical) | ND | | 0.0050 | 0.0029 | mg/L | | 10/21/20 09:20 | 10/27/20 22:49 | 1 |
| Endrin | ND | | 0.00050 | 0.000091 | mg/L | | 10/21/20 09:20 | 10/27/20 22:49 | 1 |
| gamma-BHC (Lindane) | ND | | 0.00050 | 0.00012 | mg/L | | 10/21/20 09:20 | 10/27/20 22:49 | 1 |
| Heptachlor | ND | | 0.00050 | 0.00018 | mg/L | | 10/21/20 09:20 | 10/27/20 22:49 | 1 |
| Heptachlor epoxide | ND | | 0.00050 | 0.00014 | mg/L | | 10/21/20 09:20 | 10/27/20 22:49 | 1 |
| Methoxychlor | ND | | 0.00050 | 0.00031 | mg/L | | 10/21/20 09:20 | 10/27/20 22:49 | 1 |
| Toxaphene | ND | | 0.040 | 0.020 | mg/L | | 10/21/20 09:20 | 10/27/20 22:49 | 1 |

## Client Sample ID: 0746-009
**Date Collected: 10/13/20 10:00**
**Date Received: 10/14/20 09:30**

## Lab Sample ID: 180-112242-1
**Matrix: Sediment**

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *91* | | *58 - 115* | *10/21/20 09:20* | *10/27/20 22:49* | *1* |
| *DCB Decachlorobiphenyl (Surr)* | *96* | | *58 - 115* | *10/21/20 09:20* | *10/27/20 22:49* | *1* |
| *Tetrachloro-m-xylene* | *89* | | *43 - 118* | *10/21/20 09:20* | *10/27/20 22:49* | *1* |
| *Tetrachloro-m-xylene* | *89* | | *43 - 118* | *10/21/20 09:20* | *10/27/20 22:49* | *1* |

### Method: EPA 8151A - Herbicides (GC) - TCLP

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 2,4-D | ND | | 0.040 | 0.020 | mg/L | | 10/21/20 13:00 | 10/28/20 09:05 | 20 |
| Silvex (2,4,5-TP) | ND | | 0.010 | 0.0030 | mg/L | | 10/21/20 13:00 | 10/28/20 09:05 | 20 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2,4-Dichlorophenylacetic acid* | *71* | | *23 - 122* | *10/21/20 13:00* | *10/28/20 09:05* | *20* |
| *2,4-Dichlorophenylacetic acid* | *66* | | *23 - 122* | *10/21/20 13:00* | *10/28/20 09:05* | *20* |

### Method: PCB - Total PCB Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Polychlorinated biphenyls, Total** | **440** | | 6.9 | 2.5 | ug/Kg | | | 10/22/20 08:20 | 1 |

### Method: EPA 6010B - Metals (ICP) - TCLP

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | | 0.50 | 0.041 | mg/L | | 10/22/20 15:35 | 10/23/20 16:35 | 1 |
| **Barium** | **0.30** | **J** | 2.0 | 0.026 | mg/L | | 10/22/20 15:35 | 10/23/20 16:35 | 1 |
| Cadmium | ND | | 0.50 | 0.0028 | mg/L | | 10/22/20 15:35 | 10/23/20 16:35 | 1 |
| **Chromium** | **0.019** | **J** | 0.50 | 0.0078 | mg/L | | 10/22/20 15:35 | 10/23/20 16:35 | 1 |
| Lead | ND | | 0.50 | 0.029 | mg/L | | 10/22/20 15:35 | 10/23/20 16:35 | 1 |
| **Selenium** | **0.036** | **J** | 0.50 | 0.036 | mg/L | | 10/22/20 15:35 | 10/23/20 16:35 | 1 |
| Silver | ND | | 0.50 | 0.0085 | mg/L | | 10/22/20 15:35 | 10/23/20 16:35 | 1 |

### Method: EPA 7470A - Mercury (CVAA) - TCLP

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.00020 | 0.00013 | mg/L | | 10/22/20 13:22 | 10/27/20 18:25 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Moisture** | **40.5** | | 0.1 | 0.1 | % | | | 10/25/20 15:07 | 1 |
| **Ignitability** | **>140** | | | | Degrees F | | | 10/22/20 11:46 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112242-1

**Client Sample ID: 0746-009**
**Date Collected: 10/13/20 10:00**
**Date Received: 10/14/20 09:30**

**Lab Sample ID: 180-112242-1**
**Matrix: Sediment**
**Percent Solids: 59.4**

## Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1016 | ND | | 6.9 | 2.2 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 03:50 | 10 |
| PCB-1221 | ND | | 6.9 | 2.5 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 03:50 | 10 |
| PCB-1232 | ND | | 6.9 | 1.7 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 03:50 | 10 |
| PCB-1242 | ND | | 6.9 | 1.0 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 03:50 | 10 |
| **PCB-1248** | **160** | | 6.9 | 1.7 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 03:50 | 10 |
| PCB-1254 | ND | | 6.9 | 2.1 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 03:50 | 10 |
| **PCB-1260** | **280** | | 6.9 | 2.0 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 03:50 | 10 |
| PCB-1262 | ND | | 6.9 | 2.4 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 03:50 | 10 |
| PCB-1268 | ND | | 6.9 | 0.93 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 03:50 | 10 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *84* | *p* | *20 - 150* | *10/22/20 08:20* | *10/24/20 03:50* | *10* |
| *DCB Decachlorobiphenyl (Surr)* | *135* | | *20 - 150* | *10/22/20 08:20* | *10/24/20 03:50* | *10* |
| *Tetrachloro-m-xylene* | *114* | | *20 - 138* | *10/22/20 08:20* | *10/24/20 03:50* | *10* |
| *Tetrachloro-m-xylene* | *102* | | *20 - 138* | *10/22/20 08:20* | *10/24/20 03:50* | *10* |

## General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Cyanide, Total** | **0.62** | | 0.31 | 0.094 | mg/Kg | ☼ | 10/24/20 12:15 | 10/26/20 17:26 | 1 |
| **Sulfide** | **59** | **F1** | 51 | 17 | mg/Kg | ☼ | 10/20/20 15:00 | 10/20/20 17:32 | 1 |

Client: AECOM
Job ID: 180-112242-1
Project/Site: Pepco Benning Road Facility

## Client Sample ID: 0746-010
**Date Collected: 10/13/20 10:05**
**Date Received: 10/14/20 09:30**

## Lab Sample ID: 180-112242-2
**Matrix: Sediment**

### Method: EPA 8260C - Volatile Organic Compounds by GC/MS - TCLP

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dichloroethane | ND | | 0.20 | 0.058 | mg/L | | | 10/21/20 13:10 | 1 |
| 2-Butanone (MEK) | ND | | 0.20 | 0.12 | mg/L | | | 10/21/20 13:10 | 1 |
| Benzene | ND | | 0.20 | 0.079 | mg/L | | | 10/21/20 13:10 | 1 |
| Carbon tetrachloride | ND | | 0.20 | 0.13 | mg/L | | | 10/21/20 13:10 | 1 |
| Chlorobenzene | ND | | 0.20 | 0.063 | mg/L | | | 10/21/20 13:10 | 1 |
| Chloroform | ND | | 0.20 | 0.085 | mg/L | | | 10/21/20 13:10 | 1 |
| Tetrachloroethene | ND | | 0.20 | 0.080 | mg/L | | | 10/21/20 13:10 | 1 |
| Trichloroethene | ND | | 0.20 | 0.060 | mg/L | | | 10/21/20 13:10 | 1 |
| Vinyl chloride | ND | | 0.20 | 0.15 | mg/L | | | 10/21/20 13:10 | 1 |
| 1,1-Dichloroethene | ND | | 0.20 | 0.11 | mg/L | | | 10/21/20 13:10 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *100* | | *53 - 150* | | *10/21/20 13:10* | *1* |
| *4-Bromofluorobenzene (Surr)* | *72* | | *54 - 125* | | *10/21/20 13:10* | *1* |
| *Dibromofluoromethane (Surr)* | *95* | | *55 - 150* | | *10/21/20 13:10* | *1* |
| *Toluene-d8 (Surr)* | *90* | | *63 - 127* | | *10/21/20 13:10* | *1* |

### Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | ND | | 0.050 | 0.0045 | mg/L | | 10/21/20 09:35 | 10/22/20 20:52 | 1 |
| 2,4,5-Trichlorophenol | ND | | 0.050 | 0.0079 | mg/L | | 10/21/20 09:35 | 10/22/20 20:52 | 1 |
| 2,4,6-Trichlorophenol | ND | | 0.050 | 0.0095 | mg/L | | 10/21/20 09:35 | 10/22/20 20:52 | 1 |
| 2,4-Dinitrotoluene | ND | | 0.050 | 0.0079 | mg/L | | 10/21/20 09:35 | 10/22/20 20:52 | 1 |
| 2-Methylphenol | ND | | 0.050 | 0.0040 | mg/L | | 10/21/20 09:35 | 10/22/20 20:52 | 1 |
| Methylphenol, 3 & 4 | ND | | 0.050 | 0.0079 | mg/L | | 10/21/20 09:35 | 10/22/20 20:52 | 1 |
| Hexachlorobenzene | ND | | 0.050 | 0.0055 | mg/L | | 10/21/20 09:35 | 10/22/20 20:52 | 1 |
| Hexachlorobutadiene | ND | | 0.050 | 0.0084 | mg/L | | 10/21/20 09:35 | 10/22/20 20:52 | 1 |
| Hexachloroethane | ND | | 0.050 | 0.0040 | mg/L | | 10/21/20 09:35 | 10/22/20 20:52 | 1 |
| Nitrobenzene | ND | | 0.050 | 0.012 | mg/L | | 10/21/20 09:35 | 10/22/20 20:52 | 1 |
| Pentachlorophenol | ND | | 0.25 | 0.0075 | mg/L | | 10/21/20 09:35 | 10/22/20 20:52 | 1 |
| Pyridine | ND | | 0.10 | 0.0082 | mg/L | | 10/21/20 09:35 | 10/22/20 20:52 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *67* | | *55 - 107* | *10/21/20 09:35* | *10/22/20 20:52* | *1* |
| *2-Fluorophenol (Surr)* | *71* | | *60 - 108* | *10/21/20 09:35* | *10/22/20 20:52* | *1* |
| *2,4,6-Tribromophenol (Surr)* | *78* | | *24 - 113* | *10/21/20 09:35* | *10/22/20 20:52* | *1* |
| *Nitrobenzene-d5 (Surr)* | *69* | | *62 - 115* | *10/21/20 09:35* | *10/22/20 20:52* | *1* |
| *Phenol-d5 (Surr)* | *71* | | *52 - 107* | *10/21/20 09:35* | *10/22/20 20:52* | *1* |
| *Terphenyl-d14 (Surr)* | *68* | | *44 - 116* | *10/21/20 09:35* | *10/22/20 20:52* | *1* |

### Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chlordane (technical) | ND | | 0.0050 | 0.0029 | mg/L | | 10/21/20 09:20 | 10/27/20 23:05 | 1 |
| Endrin | ND | | 0.00050 | 0.000091 | mg/L | | 10/21/20 09:20 | 10/27/20 23:05 | 1 |
| gamma-BHC (Lindane) | ND | | 0.00050 | 0.00012 | mg/L | | 10/21/20 09:20 | 10/27/20 23:05 | 1 |
| Heptachlor | ND | | 0.00050 | 0.00018 | mg/L | | 10/21/20 09:20 | 10/27/20 23:05 | 1 |
| Heptachlor epoxide | ND | | 0.00050 | 0.00014 | mg/L | | 10/21/20 09:20 | 10/27/20 23:05 | 1 |
| Methoxychlor | ND | | 0.00050 | 0.00031 | mg/L | | 10/21/20 09:20 | 10/27/20 23:05 | 1 |
| Toxaphene | ND | | 0.040 | 0.020 | mg/L | | 10/21/20 09:20 | 10/27/20 23:05 | 1 |

## Client Sample ID: 0746-010
**Date Collected: 10/13/20 10:05**
**Date Received: 10/14/20 09:30**

## Lab Sample ID: 180-112242-2
**Matrix: Sediment**

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *92* | | *58 - 115* | *10/21/20 09:20* | *10/27/20 23:05* | *1* |
| *DCB Decachlorobiphenyl (Surr)* | *103* | | *58 - 115* | *10/21/20 09:20* | *10/27/20 23:05* | *1* |
| *Tetrachloro-m-xylene* | *93* | | *43 - 118* | *10/21/20 09:20* | *10/27/20 23:05* | *1* |
| *Tetrachloro-m-xylene* | *93* | | *43 - 118* | *10/21/20 09:20* | *10/27/20 23:05* | *1* |

### Method: EPA 8151A - Herbicides (GC) - TCLP

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 2,4-D | ND | | 0.040 | 0.020 | mg/L | | 10/21/20 13:00 | 10/28/20 10:48 | 20 |
| Silvex (2,4,5-TP) | ND | | 0.010 | 0.0030 | mg/L | | 10/21/20 13:00 | 10/28/20 10:48 | 20 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2,4-Dichlorophenylacetic acid* | *79* | | *23 - 122* | *10/21/20 13:00* | *10/28/20 10:48* | *20* |
| *2,4-Dichlorophenylacetic acid* | *80* | | *23 - 122* | *10/21/20 13:00* | *10/28/20 10:48* | *20* |

### Method: PCB - Total PCB Calculation

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Polychlorinated biphenyls, Total** | **1600** | | 8.1 | 2.9 | ug/Kg | | | 10/22/20 08:20 | 1 |

### Method: EPA 6010B - Metals (ICP) - TCLP

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Arsenic** | **0.057** | **J** | 0.50 | 0.041 | mg/L | | 10/22/20 15:35 | 10/23/20 16:40 | 1 |
| **Barium** | **0.37** | **J** | 2.0 | 0.026 | mg/L | | 10/22/20 15:35 | 10/23/20 16:40 | 1 |
| Cadmium | ND | | 0.50 | 0.0028 | mg/L | | 10/22/20 15:35 | 10/23/20 16:40 | 1 |
| Chromium | ND | | 0.50 | 0.0078 | mg/L | | 10/22/20 15:35 | 10/23/20 16:40 | 1 |
| Lead | ND | | 0.50 | 0.029 | mg/L | | 10/22/20 15:35 | 10/23/20 16:40 | 1 |
| Selenium | ND | | 0.50 | 0.036 | mg/L | | 10/22/20 15:35 | 10/23/20 16:40 | 1 |
| Silver | ND | | 0.50 | 0.0085 | mg/L | | 10/22/20 15:35 | 10/23/20 16:40 | 1 |

### Method: EPA 7470A - Mercury (CVAA) - TCLP

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.00020 | 0.00013 | mg/L | | 10/22/20 13:22 | 10/27/20 18:26 | 1 |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Percent Moisture** | **49.4** | | 0.1 | 0.1 | % | | | 10/25/20 15:07 | 1 |
| **Ignitability** | **>140** | | | | Degrees F | | | 10/22/20 11:46 | 1 |

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112242-1

**Client Sample ID: 0746-010**
**Date Collected: 10/13/20 10:05**
**Date Received: 10/14/20 09:30**

**Lab Sample ID: 180-112242-2**
**Matrix: Sediment**
**Percent Solids: 50.6**

## Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| PCB-1016 | ND | | 8.1 | 2.6 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 04:10 | 10 |
| PCB-1221 | ND | | 8.1 | 2.9 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 04:10 | 10 |
| PCB-1232 | ND | | 8.1 | 2.0 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 04:10 | 10 |
| PCB-1242 | ND | | 8.1 | 1.2 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 04:10 | 10 |
| **PCB-1248** | **440** | | 8.1 | 2.0 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 04:10 | 10 |
| PCB-1254 | ND | | 8.1 | 2.4 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 04:10 | 10 |
| **PCB-1260** | **1200** | | 8.1 | 2.3 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 04:10 | 10 |
| PCB-1262 | ND | | 8.1 | 2.9 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 04:10 | 10 |
| PCB-1268 | ND | | 8.1 | 1.1 | ug/Kg | ☼ | 10/22/20 08:20 | 10/24/20 04:10 | 10 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *110* | | *20 - 150* | *10/22/20 08:20* | *10/24/20 04:10* | *10* |
| *DCB Decachlorobiphenyl (Surr)* | *148* | | *20 - 150* | *10/22/20 08:20* | *10/24/20 04:10* | *10* |
| *Tetrachloro-m-xylene* | *128* | | *20 - 138* | *10/22/20 08:20* | *10/24/20 04:10* | *10* |
| *Tetrachloro-m-xylene* | *118* | | *20 - 138* | *10/22/20 08:20* | *10/24/20 04:10* | *10* |

## General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Cyanide, Total** | **0.47** | | 0.40 | 0.12 | mg/Kg | ☼ | 10/24/20 12:15 | 10/26/20 17:28 | 1 |
| **Sulfide** | **41** | **J** | 59 | 20 | mg/Kg | ☼ | 10/20/20 15:00 | 10/20/20 17:37 | 1 |

## Method: EPA 8260C - Volatile Organic Compounds by GC/MS

**Lab Sample ID: LCS 180-334149/3**
**Matrix: Sediment**
**Analysis Batch: 334149**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| 1,2-Dichloroethane | 0.0100 | 0.00855 | | mg/L | | 86 | 62 - 129 |
| 2-Butanone (MEK) | 0.0100 | 0.00680 | | mg/L | | 68 | 33 - 133 |
| Benzene | 0.0100 | 0.00875 | | mg/L | | 88 | 72 - 118 |
| Carbon tetrachloride | 0.0100 | 0.00912 | | mg/L | | 91 | 69 - 137 |
| Chlorobenzene | 0.0100 | 0.00936 | | mg/L | | 94 | 77 - 122 |
| Chloroform | 0.0100 | 0.00880 | | mg/L | | 88 | 78 - 119 |
| Tetrachloroethene | 0.0100 | 0.00977 | | mg/L | | 98 | 75 - 125 |
| Trichloroethene | 0.0100 | 0.00912 | | mg/L | | 91 | 76 - 120 |
| Vinyl chloride | 0.0100 | 0.00764 | | mg/L | | 76 | 52 - 130 |
| 1,1-Dichloroethene | 0.0100 | 0.00847 | | mg/L | | 85 | 60 - 131 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *86* | | *53 - 150* |
| *4-Bromofluorobenzene (Surr)* | *84* | | *54 - 125* |
| *Dibromofluoromethane (Surr)* | *86* | | *55 - 150* |
| *Toluene-d8 (Surr)* | *93* | | *63 - 127* |

**Lab Sample ID: LB 180-334016/1-A**
**Matrix: Sediment**
**Analysis Batch: 334149**

**Client Sample ID: Method Blank**
**Prep Type: TCLP**

| Analyte | LB Result | LB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dichloroethane | ND | | 0.050 | 0.015 | mg/L | | | 10/21/20 11:44 | 1 |
| 2-Butanone (MEK) | ND | | 0.050 | 0.029 | mg/L | | | 10/21/20 11:44 | 1 |
| Benzene | ND | | 0.050 | 0.020 | mg/L | | | 10/21/20 11:44 | 1 |
| Carbon tetrachloride | ND | | 0.050 | 0.033 | mg/L | | | 10/21/20 11:44 | 1 |
| Chlorobenzene | ND | | 0.050 | 0.016 | mg/L | | | 10/21/20 11:44 | 1 |
| Chloroform | ND | | 0.050 | 0.021 | mg/L | | | 10/21/20 11:44 | 1 |
| Tetrachloroethene | ND | | 0.050 | 0.020 | mg/L | | | 10/21/20 11:44 | 1 |
| Trichloroethene | ND | | 0.050 | 0.015 | mg/L | | | 10/21/20 11:44 | 1 |
| Vinyl chloride | ND | | 0.050 | 0.037 | mg/L | | | 10/21/20 11:44 | 1 |
| 1,1-Dichloroethene | ND | | 0.050 | 0.029 | mg/L | | | 10/21/20 11:44 | 1 |

| *Surrogate* | *LB %Recovery* | *LB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *101* | | *53 - 150* | | *10/21/20 11:44* | *1* |
| *4-Bromofluorobenzene (Surr)* | *86* | | *54 - 125* | | *10/21/20 11:44* | *1* |
| *Dibromofluoromethane (Surr)* | *95* | | *55 - 150* | | *10/21/20 11:44* | *1* |
| *Toluene-d8 (Surr)* | *116* | | *63 - 127* | | *10/21/20 11:44* | *1* |

## Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 180-334211/1-A**
**Matrix: Sediment**
**Analysis Batch: 334310**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 334211**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | ND | | 0.050 | 0.0045 | mg/L | | 10/21/20 09:35 | 10/22/20 10:04 | 1 |
| 2,4,5-Trichlorophenol | ND | | 0.050 | 0.0079 | mg/L | | 10/21/20 09:35 | 10/22/20 10:04 | 1 |

## Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MB 180-334211/1-A**
**Matrix: Sediment**
**Analysis Batch: 334310**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 334211**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 2,4,6-Trichlorophenol | ND | | 0.050 | 0.0095 | mg/L | | 10/21/20 09:35 | 10/22/20 10:04 | 1 |
| 2,4-Dinitrotoluene | ND | | 0.050 | 0.0079 | mg/L | | 10/21/20 09:35 | 10/22/20 10:04 | 1 |
| 2-Methylphenol | ND | | 0.050 | 0.0040 | mg/L | | 10/21/20 09:35 | 10/22/20 10:04 | 1 |
| Methylphenol, 3 & 4 | ND | | 0.050 | 0.0079 | mg/L | | 10/21/20 09:35 | 10/22/20 10:04 | 1 |
| Hexachlorobenzene | ND | | 0.050 | 0.0055 | mg/L | | 10/21/20 09:35 | 10/22/20 10:04 | 1 |
| Hexachlorobutadiene | ND | | 0.050 | 0.0084 | mg/L | | 10/21/20 09:35 | 10/22/20 10:04 | 1 |
| Hexachloroethane | ND | | 0.050 | 0.0040 | mg/L | | 10/21/20 09:35 | 10/22/20 10:04 | 1 |
| Nitrobenzene | ND | | 0.050 | 0.012 | mg/L | | 10/21/20 09:35 | 10/22/20 10:04 | 1 |
| Pentachlorophenol | ND | | 0.25 | 0.0075 | mg/L | | 10/21/20 09:35 | 10/22/20 10:04 | 1 |
| Pyridine | ND | | 0.10 | 0.0082 | mg/L | | 10/21/20 09:35 | 10/22/20 10:04 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *65* | | *55 - 107* | *10/21/20 09:35* | *10/22/20 10:04* | *1* |
| *2-Fluorophenol (Surr)* | *69* | | *60 - 108* | *10/21/20 09:35* | *10/22/20 10:04* | *1* |
| *2,4,6-Tribromophenol (Surr)* | *71* | | *24 - 113* | *10/21/20 09:35* | *10/22/20 10:04* | *1* |
| *Nitrobenzene-d5 (Surr)* | *67* | | *62 - 115* | *10/21/20 09:35* | *10/22/20 10:04* | *1* |
| *Phenol-d5 (Surr)* | *70* | | *52 - 107* | *10/21/20 09:35* | *10/22/20 10:04* | *1* |
| *Terphenyl-d14 (Surr)* | *66* | | *44 - 116* | *10/21/20 09:35* | *10/22/20 10:04* | *1* |

**Lab Sample ID: LCS 180-334211/2-A**
**Matrix: Sediment**
**Analysis Batch: 334310**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 334211**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | 0.250 | 0.184 | | mg/L | | 74 | 60 - 100 |
| 2,4,5-Trichlorophenol | 0.250 | 0.175 | | mg/L | | 70 | 54 - 100 |
| 2,4,6-Trichlorophenol | 0.250 | 0.182 | | mg/L | | 73 | 56 - 100 |
| 2,4-Dinitrotoluene | 0.250 | 0.151 | | mg/L | | 61 | 42 - 100 |
| 2-Methylphenol | 0.250 | 0.191 | | mg/L | | 76 | 60 - 101 |
| Methylphenol, 3 & 4 | 0.500 | 0.395 | | mg/L | | 79 | 62 - 106 |
| Hexachlorobenzene | 0.250 | 0.135 | | mg/L | | 54 | 37 - 100 |
| Hexachlorobutadiene | 0.250 | 0.182 | | mg/L | | 73 | 50 - 103 |
| Hexachloroethane | 0.250 | 0.178 | | mg/L | | 71 | 59 - 104 |
| Nitrobenzene | 0.250 | 0.172 | | mg/L | | 69 | 58 - 113 |
| Pentachlorophenol | 0.250 | 0.153 | J | mg/L | | 61 | 18 - 100 |
| Pyridine | 0.250 | 0.193 | | mg/L | | 77 | 54 - 119 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *2-Fluorobiphenyl* | *70* | | *55 - 107* |
| *2-Fluorophenol (Surr)* | *75* | | *60 - 108* |
| *2,4,6-Tribromophenol (Surr)* | *82* | | *24 - 113* |
| *Nitrobenzene-d5 (Surr)* | *69* | | *62 - 115* |
| *Phenol-d5 (Surr)* | *75* | | *52 - 107* |
| *Terphenyl-d14 (Surr)* | *74* | | *44 - 116* |

## Method: EPA 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCSD 180-334211/3-A**
**Matrix: Sediment**
**Analysis Batch: 334310**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 334211**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | | | 0.250 | 0.188 | | mg/L | | 75 | 60 - 100 | 2 | 15 |
| 2,4,5-Trichlorophenol | | | 0.250 | 0.185 | | mg/L | | 74 | 54 - 100 | 6 | 16 |
| 2,4,6-Trichlorophenol | | | 0.250 | 0.179 | | mg/L | | 71 | 56 - 100 | 2 | 15 |
| 2,4-Dinitrotoluene | | | 0.250 | 0.152 | | mg/L | | 61 | 42 - 100 | 0 | 17 |
| 2-Methylphenol | | | 0.250 | 0.188 | | mg/L | | 75 | 60 - 101 | 1 | 15 |
| Methylphenol, 3 & 4 | | | 0.500 | 0.399 | | mg/L | | 80 | 62 - 106 | 1 | 15 |
| Hexachlorobenzene | | | 0.250 | 0.136 | | mg/L | | 55 | 37 - 100 | 1 | 15 |
| Hexachlorobutadiene | | | 0.250 | 0.182 | | mg/L | | 73 | 50 - 103 | 0 | 15 |
| Hexachloroethane | | | 0.250 | 0.181 | | mg/L | | 73 | 59 - 104 | 2 | 16 |
| Nitrobenzene | | | 0.250 | 0.171 | | mg/L | | 68 | 58 - 113 | 0 | 15 |
| Pentachlorophenol | | | 0.250 | 0.156 | J | mg/L | | 63 | 18 - 100 | 2 | 16 |
| Pyridine | | | 0.250 | 0.200 | | mg/L | | 80 | 54 - 119 | 4 | 16 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *2-Fluorobiphenyl* | *69* | | *55 - 107* |
| *2-Fluorophenol (Surr)* | *74* | | *60 - 108* |
| *2,4,6-Tribromophenol (Surr)* | *84* | | *24 - 113* |
| *Nitrobenzene-d5 (Surr)* | *69* | | *62 - 115* |
| *Phenol-d5 (Surr)* | *76* | | *52 - 107* |
| *Terphenyl-d14 (Surr)* | *74* | | *44 - 116* |

**Lab Sample ID: LB 180-334011/1-C**
**Matrix: Sediment**
**Analysis Batch: 334310**

**Client Sample ID: Method Blank**
**Prep Type: TCLP**
**Prep Batch: 334211**

| Analyte | LB Result | LB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | ND | | 0.050 | 0.0045 | mg/L | | 10/21/20 09:35 | 10/22/20 11:38 | 1 |
| 2,4,5-Trichlorophenol | ND | | 0.050 | 0.0079 | mg/L | | 10/21/20 09:35 | 10/22/20 11:38 | 1 |
| 2,4,6-Trichlorophenol | ND | | 0.050 | 0.0095 | mg/L | | 10/21/20 09:35 | 10/22/20 11:38 | 1 |
| 2,4-Dinitrotoluene | ND | | 0.050 | 0.0079 | mg/L | | 10/21/20 09:35 | 10/22/20 11:38 | 1 |
| 2-Methylphenol | ND | | 0.050 | 0.0040 | mg/L | | 10/21/20 09:35 | 10/22/20 11:38 | 1 |
| Methylphenol, 3 & 4 | ND | | 0.050 | 0.0079 | mg/L | | 10/21/20 09:35 | 10/22/20 11:38 | 1 |
| Hexachlorobenzene | ND | | 0.050 | 0.0055 | mg/L | | 10/21/20 09:35 | 10/22/20 11:38 | 1 |
| Hexachlorobutadiene | ND | | 0.050 | 0.0084 | mg/L | | 10/21/20 09:35 | 10/22/20 11:38 | 1 |
| Hexachloroethane | ND | | 0.050 | 0.0040 | mg/L | | 10/21/20 09:35 | 10/22/20 11:38 | 1 |
| Nitrobenzene | ND | | 0.050 | 0.012 | mg/L | | 10/21/20 09:35 | 10/22/20 11:38 | 1 |
| Pentachlorophenol | ND | | 0.25 | 0.0075 | mg/L | | 10/21/20 09:35 | 10/22/20 11:38 | 1 |
| Pyridine | ND | | 0.10 | 0.0082 | mg/L | | 10/21/20 09:35 | 10/22/20 11:38 | 1 |

| *Surrogate* | *LB %Recovery* | *LB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2-Fluorobiphenyl* | *67* | | *55 - 107* | *10/21/20 09:35* | *10/22/20 11:38* | *1* |
| *2-Fluorophenol (Surr)* | *68* | | *60 - 108* | *10/21/20 09:35* | *10/22/20 11:38* | *1* |
| *2,4,6-Tribromophenol (Surr)* | *73* | | *24 - 113* | *10/21/20 09:35* | *10/22/20 11:38* | *1* |
| *Nitrobenzene-d5 (Surr)* | *68* | | *62 - 115* | *10/21/20 09:35* | *10/22/20 11:38* | *1* |
| *Phenol-d5 (Surr)* | *68* | | *52 - 107* | *10/21/20 09:35* | *10/22/20 11:38* | *1* |
| *Terphenyl-d14 (Surr)* | *69* | | *44 - 116* | *10/21/20 09:35* | *10/22/20 11:38* | *1* |

## Method: EPA 8081B - Organochlorine Pesticides (GC)

**Lab Sample ID: MB 180-334210/1-A**
**Matrix: Sediment**
**Analysis Batch: 334876**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 334210**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chlordane (technical) | ND | | 0.0050 | 0.0029 | mg/L | | 10/21/20 09:20 | 10/27/20 21:46 | 1 |
| Endrin | ND | | 0.00050 | 0.000091 | mg/L | | 10/21/20 09:20 | 10/27/20 21:46 | 1 |
| gamma-BHC (Lindane) | ND | | 0.00050 | 0.00012 | mg/L | | 10/21/20 09:20 | 10/27/20 21:46 | 1 |
| Heptachlor | ND | | 0.00050 | 0.00018 | mg/L | | 10/21/20 09:20 | 10/27/20 21:46 | 1 |
| Heptachlor epoxide | ND | | 0.00050 | 0.00014 | mg/L | | 10/21/20 09:20 | 10/27/20 21:46 | 1 |
| Methoxychlor | ND | | 0.00050 | 0.00031 | mg/L | | 10/21/20 09:20 | 10/27/20 21:46 | 1 |
| Toxaphene | ND | | 0.040 | 0.020 | mg/L | | 10/21/20 09:20 | 10/27/20 21:46 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *83* | | *58 - 115* | *10/21/20 09:20* | *10/27/20 21:46* | *1* |
| *DCB Decachlorobiphenyl (Surr)* | *90* | | *58 - 115* | *10/21/20 09:20* | *10/27/20 21:46* | *1* |
| *Tetrachloro-m-xylene* | *79* | | *43 - 118* | *10/21/20 09:20* | *10/27/20 21:46* | *1* |
| *Tetrachloro-m-xylene* | *77* | | *43 - 118* | *10/21/20 09:20* | *10/27/20 21:46* | *1* |

**Lab Sample ID: LCS 180-334210/2-A**
**Matrix: Sediment**
**Analysis Batch: 334876**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 334210**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Endrin | | | 0.0100 | 0.00840 | | mg/L | | 84 | 37 - 150 | | |
| gamma-BHC (Lindane) | | | 0.0100 | 0.00786 | | mg/L | | 79 | 50 - 137 | | |
| Heptachlor | | | 0.0100 | 0.00798 | | mg/L | | 80 | 49 - 135 | | |
| Heptachlor epoxide | | | 0.0100 | 0.00765 | | mg/L | | 76 | 49 - 133 | | |
| Methoxychlor | | | 0.0100 | 0.00768 | | mg/L | | 77 | 45 - 150 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *89* | | *58 - 115* |
| *DCB Decachlorobiphenyl (Surr)* | *97* | | *58 - 115* |
| *Tetrachloro-m-xylene* | *90* | | *43 - 118* |
| *Tetrachloro-m-xylene* | *85* | | *43 - 118* |

**Lab Sample ID: LCSD 180-334210/3-A**
**Matrix: Sediment**
**Analysis Batch: 334876**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 334210**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Endrin | | | 0.0100 | 0.00862 | | mg/L | | 86 | 37 - 150 | 3 | 15 |
| gamma-BHC (Lindane) | | | 0.0100 | 0.00789 | | mg/L | | 79 | 50 - 137 | 0 | 18 |
| Heptachlor | | | 0.0100 | 0.00808 | | mg/L | | 81 | 49 - 135 | 1 | 22 |
| Heptachlor epoxide | | | 0.0100 | 0.00765 | | mg/L | | 77 | 49 - 133 | 0 | 15 |
| Methoxychlor | | | 0.0100 | 0.00802 | | mg/L | | 80 | 45 - 150 | 4 | 17 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *95* | | *58 - 115* |
| *DCB Decachlorobiphenyl (Surr)* | *96* | | *58 - 115* |
| *Tetrachloro-m-xylene* | *88* | | *43 - 118* |
| *Tetrachloro-m-xylene* | *91* | | *43 - 118* |

## Method: EPA 8081B - Organochlorine Pesticides (GC) (Continued)

**Lab Sample ID: LB 180-334011/1-B**
**Matrix: Sediment**
**Analysis Batch: 334876**

**Client Sample ID: Method Blank**
**Prep Type: TCLP**
**Prep Batch: 334210**

| Analyte | LB Result | LB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chlordane (technical) | ND | | 0.0050 | 0.0029 | mg/L | | 10/21/20 09:20 | 10/27/20 22:33 | 1 |
| Endrin | ND | | 0.00050 | 0.000091 | mg/L | | 10/21/20 09:20 | 10/27/20 22:33 | 1 |
| gamma-BHC (Lindane) | ND | | 0.00050 | 0.00012 | mg/L | | 10/21/20 09:20 | 10/27/20 22:33 | 1 |
| Heptachlor | ND | | 0.00050 | 0.00018 | mg/L | | 10/21/20 09:20 | 10/27/20 22:33 | 1 |
| Heptachlor epoxide | ND | | 0.00050 | 0.00014 | mg/L | | 10/21/20 09:20 | 10/27/20 22:33 | 1 |
| Methoxychlor | ND | | 0.00050 | 0.00031 | mg/L | | 10/21/20 09:20 | 10/27/20 22:33 | 1 |
| Toxaphene | ND | | 0.040 | 0.020 | mg/L | | 10/21/20 09:20 | 10/27/20 22:33 | 1 |

| *Surrogate* | *LB %Recovery* | *LB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *DCB Decachlorobiphenyl (Surr)* | *103* | | *58 - 115* | *10/21/20 09:20* | *10/27/20 22:33* | *1* |
| *DCB Decachlorobiphenyl (Surr)* | *101* | | *58 - 115* | *10/21/20 09:20* | *10/27/20 22:33* | *1* |
| *Tetrachloro-m-xylene* | *96* | | *43 - 118* | *10/21/20 09:20* | *10/27/20 22:33* | *1* |
| *Tetrachloro-m-xylene* | *98* | | *43 - 118* | *10/21/20 09:20* | *10/27/20 22:33* | *1* |

## Method: EPA 8151A - Herbicides (GC)

**Lab Sample ID: MB 180-334218/1-A**
**Matrix: Sediment**
**Analysis Batch: 335001**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 334218**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 2,4-D | ND | | 0.040 | 0.020 | mg/L | | 10/21/20 13:00 | 10/28/20 08:39 | 20 |
| Silvex (2,4,5-TP) | ND | | 0.010 | 0.0030 | mg/L | | 10/21/20 13:00 | 10/28/20 08:39 | 20 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2,4-Dichlorophenylacetic acid* | *79* | | *23 - 122* | *10/21/20 13:00* | *10/28/20 08:39* | *20* |
| *2,4-Dichlorophenylacetic acid* | *69* | | *23 - 122* | *10/21/20 13:00* | *10/28/20 08:39* | *20* |

**Lab Sample ID: LCS 180-334218/2-A**
**Matrix: Sediment**
**Analysis Batch: 335001**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 334218**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,4-D | | | 0.200 | 0.132 | | mg/L | | 66 | 19 - 127 | | |
| Silvex (2,4,5-TP) | | | 0.0500 | 0.0431 | | mg/L | | 86 | 24 - 128 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *2,4-Dichlorophenylacetic acid* | *89* | | *23 - 122* |
| *2,4-Dichlorophenylacetic acid* | *81* | | *23 - 122* |

**Lab Sample ID: LCSD 180-334218/3-A**
**Matrix: Sediment**
**Analysis Batch: 335001**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 334218**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,4-D | | | 0.200 | 0.125 | | mg/L | | 63 | 19 - 127 | 5 | 35 |
| Silvex (2,4,5-TP) | | | 0.0500 | 0.0400 | | mg/L | | 80 | 24 - 128 | 7 | 35 |

## Method: EPA 8151A - Herbicides (GC) (Continued)

**Lab Sample ID: LCSD 180-334218/3-A**
**Matrix: Sediment**
**Analysis Batch: 335001**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 334218**

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *2,4-Dichlorophenylacetic acid* | *81* | | *23 - 122* |
| *2,4-Dichlorophenylacetic acid* | *73* | | *23 - 122* |

**Lab Sample ID: LB 180-334011/1-D**
**Matrix: Sediment**
**Analysis Batch: 335001**

**Client Sample ID: Method Blank**
**Prep Type: TCLP**
**Prep Batch: 334218**

| Analyte | LB Result | LB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 2,4-D | ND | | 0.040 | 0.020 | mg/L | | 10/21/20 13:00 | 10/28/20 11:40 | 20 |
| Silvex (2,4,5-TP) | ND | | 0.010 | 0.0030 | mg/L | | 10/21/20 13:00 | 10/28/20 11:40 | 20 |

| *Surrogate* | *LB %Recovery* | *LB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *2,4-Dichlorophenylacetic acid* | *93* | | *23 - 122* | *10/21/20 13:00* | *10/28/20 11:40* | *20* |
| *2,4-Dichlorophenylacetic acid* | *92* | | *23 - 122* | *10/21/20 13:00* | *10/28/20 11:40* | *20* |

## Method: EPA 6010B - Metals (ICP)

**Lab Sample ID: MB 180-334406/1-A**
**Matrix: Sediment**
**Analysis Batch: 334692**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 334406**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | | 0.50 | 0.041 | mg/L | | 10/22/20 15:35 | 10/23/20 14:34 | 1 |
| Barium | ND | | 2.0 | 0.026 | mg/L | | 10/22/20 15:35 | 10/23/20 14:34 | 1 |
| Cadmium | ND | | 0.50 | 0.0028 | mg/L | | 10/22/20 15:35 | 10/23/20 14:34 | 1 |
| Chromium | ND | | 0.50 | 0.0078 | mg/L | | 10/22/20 15:35 | 10/23/20 14:34 | 1 |
| Lead | ND | | 0.50 | 0.029 | mg/L | | 10/22/20 15:35 | 10/23/20 14:34 | 1 |
| Selenium | ND | | 0.50 | 0.036 | mg/L | | 10/22/20 15:35 | 10/23/20 14:34 | 1 |
| Silver | ND | | 0.50 | 0.0085 | mg/L | | 10/22/20 15:35 | 10/23/20 14:34 | 1 |

**Lab Sample ID: LCS 180-334406/2-A**
**Matrix: Sediment**
**Analysis Batch: 334692**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 334406**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Arsenic | 10.0 | 10.7 | | mg/L | | 107 | 80 - 120 |
| Barium | 10.0 | 10.0 | | mg/L | | 100 | 80 - 120 |
| Cadmium | 5.00 | 5.22 | | mg/L | | 104 | 80 - 120 |
| Chromium | 5.00 | 4.98 | | mg/L | | 100 | 80 - 120 |
| Lead | 5.00 | 5.01 | | mg/L | | 100 | 80 - 120 |
| Selenium | 10.0 | 10.7 | | mg/L | | 107 | 80 - 120 |
| Silver | 2.50 | 2.59 | | mg/L | | 104 | 80 - 120 |

**Lab Sample ID: LB 180-334011/1-F**
**Matrix: Sediment**
**Analysis Batch: 334692**

**Client Sample ID: Method Blank**
**Prep Type: TCLP**
**Prep Batch: 334406**

| Analyte | LB Result | LB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | | 0.50 | 0.041 | mg/L | | 10/22/20 15:35 | 10/23/20 16:26 | 1 |

## Method: EPA 6010B - Metals (ICP) (Continued)

**Lab Sample ID: LB 180-334011/1-F**
**Matrix: Sediment**
**Analysis Batch: 334692**

**Client Sample ID: Method Blank**
**Prep Type: TCLP**
**Prep Batch: 334406**

| Analyte | LB Result | LB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Barium | ND | | 2.0 | 0.026 | mg/L | | 10/22/20 15:35 | 10/23/20 16:26 | 1 |
| Cadmium | ND | | 0.50 | 0.0028 | mg/L | | 10/22/20 15:35 | 10/23/20 16:26 | 1 |
| Chromium | ND | | 0.50 | 0.0078 | mg/L | | 10/22/20 15:35 | 10/23/20 16:26 | 1 |
| Lead | ND | | 0.50 | 0.029 | mg/L | | 10/22/20 15:35 | 10/23/20 16:26 | 1 |
| Selenium | ND | | 0.50 | 0.036 | mg/L | | 10/22/20 15:35 | 10/23/20 16:26 | 1 |
| Silver | ND | | 0.50 | 0.0085 | mg/L | | 10/22/20 15:35 | 10/23/20 16:26 | 1 |

## Method: EPA 7470A - Mercury (CVAA)

**Lab Sample ID: MB 180-334370/1-A**
**Matrix: Sediment**
**Analysis Batch: 335034**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 334370**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.000188 | J | 0.00020 | 0.00013 | mg/L | | 10/22/20 13:22 | 10/27/20 18:21 | 1 |

**Lab Sample ID: LCS 180-334370/2-A**
**Matrix: Sediment**
**Analysis Batch: 335034**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 334370**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Mercury | 0.00250 | 0.00274 | | mg/L | | 109 | 80 - 120 |

**Lab Sample ID: LB 180-334011/1-E**
**Matrix: Sediment**
**Analysis Batch: 335034**

**Client Sample ID: Method Blank**
**Prep Type: TCLP**
**Prep Batch: 334370**

| Analyte | LB Result | LB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.00020 | 0.00013 | mg/L | | 10/22/20 13:22 | 10/27/20 18:23 | 1 |

## Method: EPA 9014 - Cyanide

**Lab Sample ID: MB 180-334633/4-A**
**Matrix: Sediment**
**Analysis Batch: 334930**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 334633**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Cyanide, Total | ND | | 0.50 | 0.15 | mg/Kg | | 10/24/20 12:15 | 10/26/20 17:21 | 1 |

**Lab Sample ID: HLCS 180-334633/2-A**
**Matrix: Sediment**
**Analysis Batch: 334930**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 334633**

| Analyte | Spike Added | HLCS Result | HLCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Cyanide, Total | 0.250 | 0.254 | | mg/Kg | | 101 | 90 - 110 |

## Method: EPA 9014 - Cyanide (Continued)

**Lab Sample ID: LCS 180-334633/3-A**
**Matrix: Sediment**
**Analysis Batch: 334930**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 334633**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Cyanide, Total | 23.1 | 22.9 | | mg/Kg | | 99 | 25 - 150 |

**Lab Sample ID: LLCS 180-334633/1-A**
**Matrix: Sediment**
**Analysis Batch: 334930**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 334633**

| Analyte | Spike Added | LLCS Result | LLCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Cyanide, Total | 0.0500 | 0.0511 | | mg/Kg | | 102 | 90 - 110 |

## Method: EPA 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

**Lab Sample ID: MB 180-334074/1-A**
**Matrix: Sediment**
**Analysis Batch: 334204**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 334074**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Sulfide | ND | | 30 | 10 | mg/Kg | | 10/20/20 15:00 | 10/20/20 17:28 | 1 |

**Lab Sample ID: LCS 180-334074/2-A**
**Matrix: Sediment**
**Analysis Batch: 334204**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 334074**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Sulfide | 121 | 105 | | mg/Kg | | 86 | 85 - 115 |

**Lab Sample ID: 180-112242-1 MS**
**Matrix: Sediment**
**Analysis Batch: 334204**

**Client Sample ID: 0746-009**
**Prep Type: Total/NA**
**Prep Batch: 334074**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Sulfide | 59 | F1 | 204 | 147 | F1 | mg/Kg | ☼ | 43 | 75 - 125 |

**Lab Sample ID: 180-112242-1 MSD**
**Matrix: Sediment**
**Analysis Batch: 334204**

**Client Sample ID: 0746-009**
**Prep Type: Total/NA**
**Prep Batch: 334074**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfide | 59 | F1 | 203 | 156 | F1 | mg/Kg | ☼ | 47 | 75 - 125 | 6 | 20 |

## GC/MS VOA

### Leach Batch: 334016

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | EPA 1311 | |
| 180-112242-2 | 0746-010 | TCLP | Sediment | EPA 1311 | |
| LB 180-334016/1-A | Method Blank | TCLP | Sediment | EPA 1311 | |

### Analysis Batch: 334149

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | EPA 8260C | 334016 |
| 180-112242-2 | 0746-010 | TCLP | Sediment | EPA 8260C | 334016 |
| LB 180-334016/1-A | Method Blank | TCLP | Sediment | EPA 8260C | 334016 |
| LCS 180-334149/3 | Lab Control Sample | Total/NA | Sediment | EPA 8260C | |

## GC/MS Semi VOA

### Leach Batch: 334011

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | EPA 1311 | |
| 180-112242-2 | 0746-010 | TCLP | Sediment | EPA 1311 | |
| LB 180-334011/1-C | Method Blank | TCLP | Sediment | EPA 1311 | |

### Prep Batch: 334211

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | 3510C | 334011 |
| 180-112242-2 | 0746-010 | TCLP | Sediment | 3510C | 334011 |
| LB 180-334011/1-C | Method Blank | TCLP | Sediment | 3510C | 334011 |
| MB 180-334211/1-A | Method Blank | Total/NA | Sediment | 3510C | |
| LCS 180-334211/2-A | Lab Control Sample | Total/NA | Sediment | 3510C | |
| LCSD 180-334211/3-A | Lab Control Sample Dup | Total/NA | Sediment | 3510C | |

### Analysis Batch: 334310

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | EPA 8270D | 334211 |
| 180-112242-2 | 0746-010 | TCLP | Sediment | EPA 8270D | 334211 |
| LB 180-334011/1-C | Method Blank | TCLP | Sediment | EPA 8270D | 334211 |
| MB 180-334211/1-A | Method Blank | Total/NA | Sediment | EPA 8270D | 334211 |
| LCS 180-334211/2-A | Lab Control Sample | Total/NA | Sediment | EPA 8270D | 334211 |
| LCSD 180-334211/3-A | Lab Control Sample Dup | Total/NA | Sediment | EPA 8270D | 334211 |

## GC Semi VOA

### Leach Batch: 334011

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | EPA 1311 | |
| 180-112242-2 | 0746-010 | TCLP | Sediment | EPA 1311 | |
| LB 180-334011/1-B | Method Blank | TCLP | Sediment | EPA 1311 | |
| LB 180-334011/1-D | Method Blank | TCLP | Sediment | EPA 1311 | |

### Prep Batch: 334210

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | 3510C | 334011 |
| 180-112242-2 | 0746-010 | TCLP | Sediment | 3510C | 334011 |
| LB 180-334011/1-B | Method Blank | TCLP | Sediment | 3510C | 334011 |
| MB 180-334210/1-A | Method Blank | Total/NA | Sediment | 3510C | |

## GC Semi VOA (Continued)

### Prep Batch: 334210 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| LCS 180-334210/2-A | Lab Control Sample | Total/NA | Sediment | 3510C | |
| LCSD 180-334210/3-A | Lab Control Sample Dup | Total/NA | Sediment | 3510C | |

### Prep Batch: 334218

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | 8151A | 334011 |
| 180-112242-2 | 0746-010 | TCLP | Sediment | 8151A | 334011 |
| LB 180-334011/1-D | Method Blank | TCLP | Sediment | 8151A | 334011 |
| MB 180-334218/1-A | Method Blank | Total/NA | Sediment | 8151A | |
| LCS 180-334218/2-A | Lab Control Sample | Total/NA | Sediment | 8151A | |
| LCSD 180-334218/3-A | Lab Control Sample Dup | Total/NA | Sediment | 8151A | |

### Prep Batch: 334300

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | Total/NA | Sediment | 3541 | |
| 180-112242-2 | 0746-010 | Total/NA | Sediment | 3541 | |

### Analysis Batch: 334490

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | Total/NA | Sediment | EPA 8082A | 334525 |
| 180-112242-2 | 0746-010 | Total/NA | Sediment | EPA 8082A | 334525 |

### Cleanup Batch: 334523

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | Total/NA | Sediment | 3665A | 334300 |
| 180-112242-2 | 0746-010 | Total/NA | Sediment | 3665A | 334300 |

### Cleanup Batch: 334525

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | Total/NA | Sediment | 3660B | 334523 |
| 180-112242-2 | 0746-010 | Total/NA | Sediment | 3660B | 334523 |

### Analysis Batch: 334876

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | EPA 8081B | 334210 |
| 180-112242-2 | 0746-010 | TCLP | Sediment | EPA 8081B | 334210 |
| LB 180-334011/1-B | Method Blank | TCLP | Sediment | EPA 8081B | 334210 |
| MB 180-334210/1-A | Method Blank | Total/NA | Sediment | EPA 8081B | 334210 |
| LCS 180-334210/2-A | Lab Control Sample | Total/NA | Sediment | EPA 8081B | 334210 |
| LCSD 180-334210/3-A | Lab Control Sample Dup | Total/NA | Sediment | EPA 8081B | 334210 |

### Analysis Batch: 335001

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | EPA 8151A | 334218 |
| 180-112242-2 | 0746-010 | TCLP | Sediment | EPA 8151A | 334218 |
| LB 180-334011/1-D | Method Blank | TCLP | Sediment | EPA 8151A | 334218 |
| MB 180-334218/1-A | Method Blank | Total/NA | Sediment | EPA 8151A | 334218 |
| LCS 180-334218/2-A | Lab Control Sample | Total/NA | Sediment | EPA 8151A | 334218 |
| LCSD 180-334218/3-A | Lab Control Sample Dup | Total/NA | Sediment | EPA 8151A | 334218 |

# QC Association Summary

Client: AECOM
Project/Site: Pepco Benning Road Facility

Job ID: 180-112242-1

## GC Semi VOA

### Analysis Batch: 335216

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | Total/NA | Sediment | PCB | |
| 180-112242-2 | 0746-010 | Total/NA | Sediment | PCB | |

## Metals

### Leach Batch: 334011

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | EPA 1311 | |
| 180-112242-2 | 0746-010 | TCLP | Sediment | EPA 1311 | |
| LB 180-334011/1-E | Method Blank | TCLP | Sediment | EPA 1311 | |
| LB 180-334011/1-F | Method Blank | TCLP | Sediment | EPA 1311 | |

### Prep Batch: 334370

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | 7470A | 334011 |
| 180-112242-2 | 0746-010 | TCLP | Sediment | 7470A | 334011 |
| LB 180-334011/1-E | Method Blank | TCLP | Sediment | 7470A | 334011 |
| MB 180-334370/1-A | Method Blank | Total/NA | Sediment | 7470A | |
| LCS 180-334370/2-A | Lab Control Sample | Total/NA | Sediment | 7470A | |

### Prep Batch: 334406

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | 3010A | 334011 |
| 180-112242-2 | 0746-010 | TCLP | Sediment | 3010A | 334011 |
| LB 180-334011/1-F | Method Blank | TCLP | Sediment | 3010A | 334011 |
| MB 180-334406/1-A | Method Blank | Total/NA | Sediment | 3010A | |
| LCS 180-334406/2-A | Lab Control Sample | Total/NA | Sediment | 3010A | |

### Analysis Batch: 334692

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | EPA 6010B | 334406 |
| 180-112242-2 | 0746-010 | TCLP | Sediment | EPA 6010B | 334406 |
| LB 180-334011/1-F | Method Blank | TCLP | Sediment | EPA 6010B | 334406 |
| MB 180-334406/1-A | Method Blank | Total/NA | Sediment | EPA 6010B | 334406 |
| LCS 180-334406/2-A | Lab Control Sample | Total/NA | Sediment | EPA 6010B | 334406 |

### Analysis Batch: 335034

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | TCLP | Sediment | EPA 7470A | 334370 |
| 180-112242-2 | 0746-010 | TCLP | Sediment | EPA 7470A | 334370 |
| LB 180-334011/1-E | Method Blank | TCLP | Sediment | EPA 7470A | 334370 |
| MB 180-334370/1-A | Method Blank | Total/NA | Sediment | EPA 7470A | 334370 |
| LCS 180-334370/2-A | Lab Control Sample | Total/NA | Sediment | EPA 7470A | 334370 |

## General Chemistry

### Prep Batch: 334074

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | Total/NA | Sediment | 9030B | |
| 180-112242-2 | 0746-010 | Total/NA | Sediment | 9030B | |
| MB 180-334074/1-A | Method Blank | Total/NA | Sediment | 9030B | |
| LCS 180-334074/2-A | Lab Control Sample | Total/NA | Sediment | 9030B | |

## General Chemistry (Continued)

### Prep Batch: 334074 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 MS | 0746-009 | Total/NA | Sediment | 9030B | |
| 180-112242-1 MSD | 0746-009 | Total/NA | Sediment | 9030B | |

### Analysis Batch: 334204

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | Total/NA | Sediment | EPA 9034 | 334074 |
| 180-112242-2 | 0746-010 | Total/NA | Sediment | EPA 9034 | 334074 |
| MB 180-334074/1-A | Method Blank | Total/NA | Sediment | EPA 9034 | 334074 |
| LCS 180-334074/2-A | Lab Control Sample | Total/NA | Sediment | EPA 9034 | 334074 |
| 180-112242-1 MS | 0746-009 | Total/NA | Sediment | EPA 9034 | 334074 |
| 180-112242-1 MSD | 0746-009 | Total/NA | Sediment | EPA 9034 | 334074 |

### Analysis Batch: 334348

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | Total/NA | Sediment | EPA 1020B | |
| 180-112242-2 | 0746-010 | Total/NA | Sediment | EPA 1020B | |

### Prep Batch: 334633

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | Total/NA | Sediment | 9010C | |
| 180-112242-2 | 0746-010 | Total/NA | Sediment | 9010C | |
| MB 180-334633/4-A | Method Blank | Total/NA | Sediment | 9010C | |
| HLCS 180-334633/2-A | Lab Control Sample | Total/NA | Sediment | 9010C | |
| LCS 180-334633/3-A | Lab Control Sample | Total/NA | Sediment | 9010C | |
| LLCS 180-334633/1-A | Lab Control Sample | Total/NA | Sediment | 9010C | |

### Analysis Batch: 334684

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | Total/NA | Sediment | 2540G | |
| 180-112242-2 | 0746-010 | Total/NA | Sediment | 2540G | |

### Analysis Batch: 334930

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 180-112242-1 | 0746-009 | Total/NA | Sediment | EPA 9014 | 334633 |
| 180-112242-2 | 0746-010 | Total/NA | Sediment | EPA 9014 | 334633 |
| MB 180-334633/4-A | Method Blank | Total/NA | Sediment | EPA 9014 | 334633 |
| HLCS 180-334633/2-A | Lab Control Sample | Total/NA | Sediment | EPA 9014 | 334633 |
| LCS 180-334633/3-A | Lab Control Sample | Total/NA | Sediment | EPA 9014 | 334633 |
| LLCS 180-334633/1-A | Lab Control Sample | Total/NA | Sediment | EPA 9014 | 334633 |

**Eurofins TestAmerica, Pittsburgh**
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

# Chain of Custody Record

244-ATLANTA

eurofins Environment Testing TestAmerica

**Regulatory Program:** ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

| Client Contact | Project Manager: Kris Carbonneau | Site Contact: | Date: 10-13-20 | COC No: |
|---|---|---|---|---|
| AECOM | Email: kris.carbonneau@aecom.com | Lab Contact: Jill Colussy | Carrier: | 1 of 1 COCs |
| Address | Tel/Fax: | | | TALS Project #: |
| City/State/Zip | Analysis Turnaround Time | | | Sampler: |
| (xxx) xxx-xxxx Phone | ☐ CALENDAR DAYS ☑ WORKING DAYS | | | For Lab Use Only: |
| (xxx) xxx-xxxx FAX | TAT if different from Below _____ | | | Walk-in Client: |
| Project Name: Pepco Benning Road TS | ☑ 2 weeks | | | Lab Sampling: |
| PO# 60631088 | ☐ 1 week | | | |
| Quote# 18022551 | ☐ 2 days | | | Job / SDG No.: |
| | ☐ 1 day | | | |

| Sample Identification | Sample Date | Sample Time | Sample Type (C=Comp, G=Grab) | Matrix | # of Cont. | Filtered Sample (Y / N) | Perform MS / MSD (Y / N) | TCLP PCBs as Aroclors 8082 | Totals PCBs as Aroclors 8082 | Sample Specific Notes: |
|---|---|---|---|---|---|---|---|---|---|---|
| 0746-009 | 10/13/20 | 1000 | G | S | 4 | | | X | X | |
| 0746-010 | 10/13/20 | 1005 | G | S | 4 | | | X | X | |

180-112242 Chain of Custody

**Preservation Used:** 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

**Possible Hazard Identification:**
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

**Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)**

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

**Special Instructions/QC Requirements & Comments:**

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

| Relinquished by: | Company: | Date/Time: | Received by: | Company: | Date/Time: |
|---|---|---|---|---|---|
| [signature] | KEMRON | 10/13/20 1100 | [signature] | ETA | 10/13/20 11:00 |
| [signature] | ETA | 10/13/20 16:00 | [signature] | ETA II | 10-14-20 9:30 |
| | | | Received in Laboratory by: | Company: | Date/Time: |

Form No. CA-C-WI-002, Rev. 4.33, dated 5/4/2020

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 180-112242-1

**Login Number: 112242**
**List Number: 1**
**Creator: Watson, Debbie**

**List Source: Eurofins TestAmerica, Pittsburgh**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | False | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

An Exelon Company

# Appendix C

# DPW Outfall Monitoring Results

**Table C-1**
**NPDES MSGP Discharge Monitoring and PCB Sampling Results for Outfall 001**
**Benning Road Facility RI/FS Project**
**3200 Benning Road, NE**
**Washington, DC 20019**

| | | LOCATION ID | DPW Outfall 001 | DPW Outfall 001 | | DPW Outfall 001 | | DPW Outfall 001 | | DPW Outfall 001 | | DPW Outfall 001 | | DPW Outfall 001 | | DPW Outfall 001 | | DPW Outfall 001 | | DPW Outfall 001 | | DPW Outfall 001 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SAMPLE ID | BENCHMARK | 17I0391-01 | 17I0391-02 | 18H0647-01 | 18H0647-02 | 18L0946-01 | 18L0946-02 | 19B1120-01 | 19B1120-02 | 19F1450-01 | 19F1450-02 | 19K0640-01 | 19K0640-02 | 20A0476-01 | 20A0476-02 | 20G0965-01 | 20G0965-02 | 20H0585-01 | 20H0585-02 | 20L0296-01 | 20L0296-02 | POD-001 | |
| | | SAMPLE_DATE | NA | 10/9/2017 | 10/9/2017 | 9/17/2018 | 9/17/2018 | 2/21/2019 | 2/21/2019 | 6/24/2019 | 6/24/2019 | 10/30/2019 | 10/30/2019 | 12/29/2019 | 12/29/2019 | 1/12/2020 | 1/12/2020 | 7/30/2020 | 7/30/2020 | 9/9/2020 | 9/9/2020 | 12/4/2020 | 12/4/2020 | 11/30/2020 | |
| ANALYTIC_METHOD | CHEMICAL_NAME | UNITS | | | | | | | | | | | | | | | | | | | | | | | |
| 335.4 | Cyanide, Total | mg/l | 0.022 | <0.0050 | | <0.0050 | | <0.0050 | | <0.0050 | | <0.0050 | | 0.012 | | 0.031 | | | <0.0050 | | <0.0050 | <0.0026 | | | |
| 410.4 | Chemical Oxygen Demand, Total | mg/l | 120 | <50 | 89 | <50 | <50 | 52 | 57 | <50 | <50 | 740 | 360 | 250 | <50 | 160 | 250 | 860 | 5300 | 560 | 850 | 140 | 240 | | |
| SM 4500-NH3 B+C-1 | Ammonia as N | mg/L | 2.14 | <1.0 | | 1.1 | | <1.0 | | 6.2 | | 2.2 | | <1.0 | | <1.0 | | | 4.8 | | 2.8 | <1.0 | | | |
| 245.1 | Mercury | mg/l | 0.0014 | <0.00020 | | <0.00020 | | <0.00020 | | <0.00020 | | <0.00020 | | <0.00020 | | <0.00020 | | | <0.00020 | | <0.00057 | <0.00057 | | | |
| 200.2/200.7 | Antimony | mg/l | NA | 0.046 | | 0.13 | | <0.040 | | <0.040 | | <0.040 | | <0.040 | | <0.040 | | | | | | | | | |
| 200.2/200.7 | Arsenic | mg/l | 0.15 | 0.040 | | 0.022 | | <0.020 | | <0.020 | | <0.020 | | <0.020 | | <0.020 | | | 0.0033* | | <0.0050* | 0.0044* | | | |
| 200.2/200.7 | Cadmium | mg/l | 0.0005 | <0.010 | | <0.010 | | <0.010 | | <0.010 | | <0.010 | | <0.010 | | <0.010 | | | 0.000618* | | <0.00125* | 0.00198* | | | |
| 200.2/200.7 | Calcium | mg/l | NA | 2.8 | 2.7 | 1.6 | 1.6 | 17 | 15 | 67 | 67 | 58 | 58 | 61 | 61 | 38 | 43 | 61.8 | 61.0 | 56.2 | 56.9 | | | | |
| 200.2/200.7 | Lead | mg/l | 0.014 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | <0.020 | 0.044 | 0.046 | 0.0182* | 0.0253* | 0.0177* | 0.0174* | 0.0682* | 0.0806* | | |
| 200.2/200.7 | Magnesium | mg/l | 0.064 | 0.25 | 0.22 | 0.32 | 0.32 | 2.9 | 2.4 | 12 | 12 | 5.0 | 5.1 | 13 | 14 | 6.9 | 6.9 | 6.22 | 6.18 | 5.73 | 5.73 | 6.15** | | | |
| 200.2/200.8 | Magnesium | mg/l | 0.064 | | | | | | | | | | | | | | | | | | 5.36 | | | | |
| 200.2/200.7 | Selenium | mg/l | 0.005 | <0.040 | <0.040 | <0.040 | | <0.040 | | <0.040 | | <0.040 | | <0.040 | | <0.040 | | | <0.0050* | | <0.025* | 0.0014* | | | |
| 200.2/200.7 | Silver | mg/l | 0.0007 | <0.0040 | | <0.0040 | | <0.0040 | | <0.0040 | | <0.0040 | | <0.0040 | | <0.0040 | | | <0.0010* | | <0.0050* | <0.0010* | | | |
| 200.2/200.7 | Aluminum | mg/l | 0.75 | | <0.10 | | <0.10 | | 0.74 | | <0.10 | | 0.64 | | 0.25 | | 2.3 | 0.773* | | 1.19 | | | 1.43* | | |
| 200.2/200.7 | Copper | mg/l | 0.0038 | | <0.020 | | <0.020 | | <0.020 | | <0.020 | | 0.079 | | <0.020 | | 0.054 | 0.0745* | | 0.0588* | | | 0.0522* | | |
| 200.2/200.7 | Iron | mg/l | 1.0 | | 0.2 | | 0.033 | | 1.5 | | 4.4 | | 2.7 | | 6.8 | | 4.7 | 3.43 | 3.34 | 3.54 | | | 9.0 | | |
| 200.2/200.7 | Zinc | mg/l | 0.04 | | 0.039 | | 0.026 | | 0.072 | | 0.024 | | 0.23 | | 0.061 | | 0.39 | 0.456* | | 0.367* | | | 0.333* | | |
| SM 2340 B-11 | Hardness (as CaCO3) for Sector K | mg/l | 8.1 | 8.1 | | 5.3 | | 55 | | 220 | | 170 | | 210 | | 120 | | 180 | | 164 | | | | | |
| SM 2340 B-11 | Hardness (as CaCO3) for Sector N | mg/l | 7.7 | | 7.7 | | 5.2 | | 48 | | 220 | | 170 | | 210 | | 140 | | 178 | | 166 | | | | |
| SM 2540 D-11 | Total Suspended Solids (TSS) | mg/l | 100 | | 26 | | 2.6 | | 12 | | 13 | | 30 | | <20 | | 96 | 70 | | 88 | | | 2600 | | |
| EPA Method 1668C | Total PCB | pg/l | NA | | | | | | | | | | | | | | | | | | | | | 18600*** | |

Notes:
mg/L =milligram per liter
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the indicated reporting  detection limit.
NA = No benchmark value provided for this analyte.
*Analytical method differs. Method 200.2/200.8 was applied.
**Analytical method differs. Method 200.2/6020B was applied.
*** Stormwater sampling conducted by Tetra Tech on November 30, 2020.
Blank cells highlighted in gray indicats sample not analyzed for the parameter/analysis.
Cells highlighted in yellow indicates results exceeding benchmark values.

**Table C-2**
**NPDES MSGP Discharge Monitoring and PCB Sampling Results for Outfall 002**
**Benning Road Facility RI/FS Project**
**3200 Benning Road, NE**
**Washington, DC 20019**

| | | LOCATION ID | DPW Outfall 002 | DPW Outfall 002 | | DPW Outfall 002 | | DPW Outfall 002 | | DPW Outfall 002 | | DPW Outfall 002 | | DPW Outfall 002 | | DPW Outfall 002 | | DPW Outfall 002 | | DPW Outfall 002 | | DPW Outfall 002 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SAMPLE ID | BENCHMARK | 17I0391-03 | 17I0391-04 | 18H0647-03 | 18H0647-04 | 18L0946-03 | 18L0946-04 | 19B1120-03 | 19B1120-04 | 19F1450-03 | 19F1450-04 | 19K0640-03 | 19K0640-04 | 20A0476-03 | 20A0476-04 | 20G0965-03 | 20G0965-04 | 20H0585-03 | 20H0585-04 | 20L0296-03 | 20L0296-04 | POD-002 |
| | | SAMPLE_DATE | NA | 10/9/2017 | 10/9/2017 | 9/17/2018 | 9/17/2018 | 2/21/2019 | 2/21/2019 | 6/24/2019 | 6/24/2019 | 10/30/2019 | 10/30/2019 | 12/29/2019 | 12/29/2019 | 1/12/2020 | 1/12/2020 | 7/30/2020 | 7/30/2020 | 9/9/2020 | 9/9/2020 | 12/4/2020 | 12/4/2020 | 11/30/2020 |
| ANALYTIC_METHOD | CHEMICAL_NAME | UNITS | | | | | | | | | | | | | | | | | | | | | | |
| 335.4 | Cyanide, Total | mg/l | 0.022 | 0.060 | | 0.046 | | 0.011 | | <0.0050 | | <0.0050 | | 0.0057 | | <0.0050 | | | <0.0050 | | <0.0050 | <0.0026 | | |
| 410.4 | Chemical Oxygen Demand, Total | mg/l | 120 | 37000 | 37000 | 12000 | 16000 | 530 | 770 | <50 | <50 | 410 | 730 | 3100 | 3100 | 280 | 280 | 500 | 2600 | 890 | 1000 | 130 | 96 | |
| SM 4500-NH3 B+C-11 | Ammonia as N | mg/L | 2.14 | 28 | | <1.0 | | <1.0 | | 2.5 | | 1.7 | | 9.0 | | <1.0 | | | 19 | | 4.8 | <1.0 | | |
| 245.1 | Mercury | mg/l | 0.0014 | 0.00046 | | 0.00045 | | 0.00030 | | <0.00020 | | <0.00020 | | <0.00020 | | <0.00020 | | | <0.00057 | | <0.00057 | <0.00057 | | |
| 200.2/200.7 | Antimony | mg/l | NA | <0.20 | | <0.20 | | <0.20 | | <0.040 | | <0.040 | | <0.050 | | <0.040 | | | | | | | | |
| 200.2/200.7 | Arsenic | mg/l | 0.15 | <0.10 | | <0.10 | | <0.10 | | <0.020 | | <0.020 | | <0.025 | | <0.020 | | | 0.0139* | | 0.0058* | 0.0031* | | |
| 200.2/200.7 | Cadmium | mg/l | 0.0053 | <0.050 | | <0.050 | | <0.050 | | <0.010 | | <0.010 | | <0.012 | | <0.010 | | | 0.000956* | | <0.00125* | <0.000250* | | |
| 200.2/200.7 | Calcium | mg/l | NA | 1400 | 1500 | 900 | 880 | 31 | 28 | 69 | 69 | 97 | 87 | 120 | 120 | 16 | 15 | 146 | 139 | 160 | 152 | | | |
| 200.2/200.7 | Lead | mg/l | 0.262 | 1.4 | 1.5 | 0.28 | 0.29 | <0.10 | <0.10 | <0.020 | <0.020 | <0.020 | <0.020 | <0.025 | <0.025 | <0.020 | <0.020 | 0.0399* | 0.0384* | 0.0140* | 0.0177* | 0.0042* | 0.0069* | |
| 200.2/200.7 | Magnesium | mg/l | 0.064 | 140 | 160 | 50 | 49 | 4.4 | 3.7 | 15 | 14 | 18 | 16 | 3.7 | 9.6 | 1.4 | 1.4 | 13.2 | 12.5 | 19.4 | 17.8 | 9.36** | | |
| 200.2/200.8 | Magnesium | mg/l | 0.064 | | | | | | | | | | | | | | | | | | 17.0 | | | |
| 200.2/200.7 | Selenium | mg/l | 0.005 | <0.20 | <1.0 | <0.20 | | <0.20 | | <0.040 | | <0.040 | | <0.050 | | <0.040 | | | <0.0050* | | <0.0250* | <0.0014* | | |
| 200.2/200.7 | Silver | mg/l | 0.0183 | <0.020 | | <0.020 | | <0.020 | | <0.0040 | | <0.0040 | | <0.0040 | | <0.0040 | | | <0.0010* | | <0.0050* | <0.0010* | | |
| 200.2/200.7 | Aluminum | mg/l | 0.75 | | 11 | | 9.1 | | 3.5 | | <0.10 | | 0.44 | | 0.87 | | 0.90 | 0.581* | | 0.637 | | | 0.338* | |
| 200.2/200.7 | Copper | mg/l | 0.0332 | | 2.3 | | 0.43 | | 0.16 | | <0.020 | | <0.020 | | 0.23 | | 0.027 | 0.278* | | 0.0605* | | | 0.0145* | |
| 200.2/200.7 | Iron | mg/l | 1.0 | | 180 | | 48 | | 6.1 | | 5.6 | | 5.4 | | 4.1 | | 1.8 | 4.09 | 4.41 | 4.78 | | | 7.4 | |
| 200.2/200.7 | Zinc | mg/l | 0.26 | | 16 | | 7.8 | | 0.33 | | <0.020 | | 0.11 | | 0.52 | | 0.13 | 0.834* | | 0.286* | | | 0.0555* | |
| SM 2340 B-11 | Hardness (as CaCO3) for Sector K | mg/l | 4000 | 4000 | | 2500 | | 96 | | 230 | | 310 | | 300 | | 45 | | 420 | | 480 | | | | |
| SM 2340 B-11 | Hardness (as CaCO3) for Sector N | mg/l | 4300 | | 4300 | | 2400 | | 85 | | 230 | | 280 | | 340 | | 44 | | 398 | | 452 | | | |
| SM 2540 D-11 | Total Suspended Solids (TSS) | mg/l | 100 | | 1200 | | 5000 | | 170 | | 9 | | 46 | | 100 | | 76 | 120 | | 62 | | | 35 | |
| EPA Method 1668C | Total PCB | pg/l | NA | | | | | | | | | | | | | | | | | | | | | 7840*** |

Notes:
mg/L =milligram per liter
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte.
U = The analyte was not detected above the indicated reporting  detection limit.
NA = No benchmark value provided for this analyte.
*Analytical method differs. Method 200.2/200.8 was applied.
**Analytical method differs. Method 200.2/6020B was applied.
*** Stormwater sampling conducted by Tetra Tech on November 30, 2020.
Blank cells highlighted in gray indicats sample not analyzed for the parameter/analysis.
Cells highlighted in yellow indicates results exceeding benchmark values.

The Quarterly Sampling Event for July-September 2017 was conducted for the following site(s):

| Table 3 – Quarterly Sampling Location | | | | |
|---|---|---|---|---|
| **Site #** | **SWP3 Appendix ID** | **Address** | **Outfall Number** | **Flow Conditions** |
| 8 | H | 3200 BENNING ROAD, NE | 001/002 | Good |

SWP3 – Stormwater Pollution Prevention Plan

Relevant site maps can be found in **Section 6.0**.

## Laboratory Results

**TABLE 6 - LAB ANALYSES: SITE #8 -3200 BENNING RD NE OUTFALL 001**
**REPORT NO.: 1710391**

| Sector K Results for Outfall 001 | | |
|---|---|---|
| **Analyte** | **Results** | **Benchmark Monitoring Concentration** |
| Cyanide, Total | ND | 0.022 mg/L |
| Chemical Oxygen Demand, Total | ND | 120 mg/L |
| Ammonia as N | ND | 2.14 mg/L |
| Mercury | ND | 0.0014 mg/L |
| Silver | ND | 0.0007 mg/L |
| Arsenic | 0.040 mg/L | 0.15 mg/L |
| Cadmium | ND | 0.0005 mg/L |
| **Magnesium** | **0.25 mg/L** | **0.064 mg/L** |
| Lead | ND | 0.014 mg/L |
| Selenium | ND | 0.005 mg/L |
| Hardness ($CaCO_3$) | 8.1 mg/L | |
| **Sector N Results for Outfall 001** | | |
| **Analyte** | **Results** | **Benchmark Monitoring Concentrations** |
| Chemical Oxygen Demand, Total | 89 mg/L | 120 mg/L |
| Total Suspended Solids | 26 mg/L | 100 mg/L |
| Aluminum | ND | 0.75 mg/L |
| Copper | ND | 0.0038 mg/L |
| Iron | 0.20 mg/L | 1.0 mg/L |
| Lead | ND | 0.014 mg/L |
| Zinc | 0.039 mg/L | 0.04 mg/L |
| Hardness ($CaCO_3$) | 7.7 mg/L | |

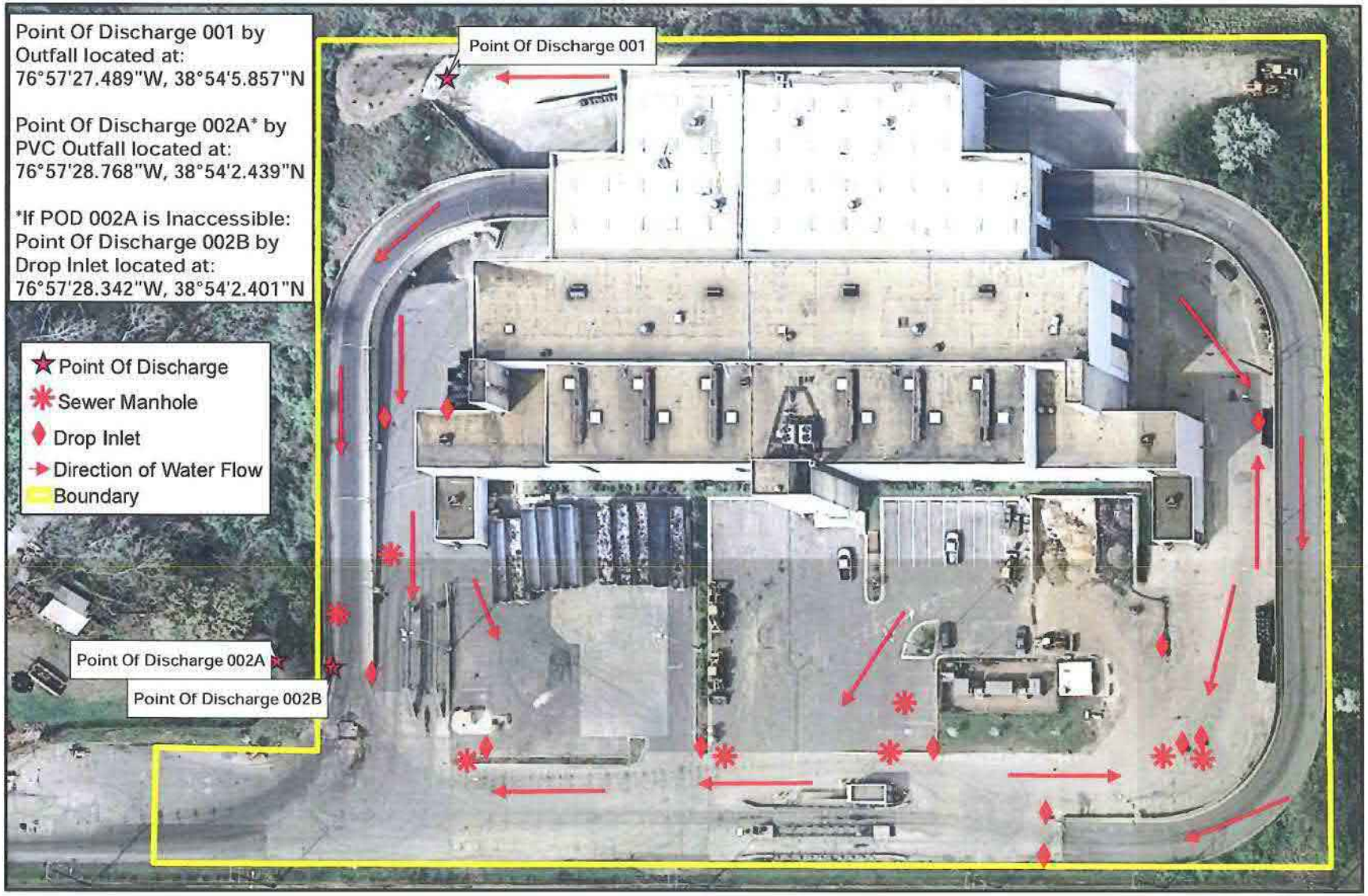
ND – Non Detect

**TABLE 7 - LAB ANALYSES: SITE #8 -3200 BENNING RD NE OUTFALL 002**
**REPORT NO.: 17I0391**

| Sector K Results for Outfall 002 | | |
|---|---|---|
| **Analyte** | **Results** | **Benchmark Monitoring Concentrations** |
| **Cyanide, Total** | **0.060 mg/L** | **0.022 mg/L** |
| **Chemical Oxygen Demand, Total** | **37,000 mg/L** | **120 mg/L** |
| **Ammonia as N** | **28 mg/L** | **2.14 mg/L** |
| Mercury | 0.00046 mg/L | 0.0014 mg/L |
| Silver | ND | 0.0183 mg/L |
| Arsenic | ND | 0.15 mg/L |
| Cadmium | ND | 0.0053 mg/L |
| **Magnesium** | **140 mg/L** | **0.064 mg/L** |
| **Lead** | **1.4 mg/L** | **0.262 mg/L** |
| Selenium | ND | 0.005 mg/L |
| Hardness ($CaCO_3$) | 4,000 mg/L | |
| **Sector N Results for Outfall 002** | | |
| **Analyte** | **Results** | **Benchmark Monitoring Concentrations** |
| **Chemical Oxygen Demand, Total** | **37,000 mg/L** | **120 mg/L** |
| **Total Suspended Solids** | **1,200 mg/L** | **100 mg/L** |
| **Aluminum** | **11 mg/L** | **0.75 mg/L** |
| **Copper** | **2.3 mg/L** | **0.0332 mg/L** |
| **Iron** | **180 mg/L** | **1.0 mg/L** |
| **Lead** | **1.5 mg/L** | **0.262 mg/L** |
| **Zinc** | **16 mg/L** | **0.26 mg/L** |
| Hardness ($CaCO_3$) | 4,300 mg/L | |

ND – Non Detect

Parameters that are above the Benchmark Monitoring Concentration are bolded within their respective tables. Benchmark Monitoring Concentrations are found in the representative subsector of Part 8 "Sector-Specific Requirements for Industrial Activity," of the National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP). As per Part 6.2.1 "Benchmark Monitoring," after collection of 4 quarterly samples, if the average of the 4 monitoring values for any parameter exceeds the benchmark, in accordance with Part 3.2, review the selection, design, installation, and implementation of control measures to determine if modifications are necessary to meet the effluent limits in the permit.




APEX
8854 RIXLEW LANE
MANASSAS, VA 20109
TELEPHONE: (703) 396-6730
FAX: (703) 396-6743

Appendix H
3200 Benning Road NE,
Washington, DC 21002
Benning Road
SWMA Waste/Recycling Facility

0 25 50 100 150 200 Feet

Coordinate System: Lambert Conformal Conic
Central Meridian: 77°0'0"W
1st Std Parallel: 38°18'0"N
2nd Std Parallel: 39°27'0"N
Latitude of Origin: 37°40'0"N

N

Department of Public Works
Washington, DC SWP3 2010
Appendix Update: 7/1/2014
2010 USGS Orthoimage
.16 Meter Resolution

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## COVER LETTER

Andrea Owen Heller
Apex Companies, LLC
8854 Rixlew Lane
Manassas, VA 20109

RE: DC DPW - Site #8

October 18, 2017
Report No.: 17I0391

The report of analyses contains test results for samples received at Microbac Laboratories, Inc., Baltimore Division on 10/09/2017 08:37.

The enclosed results were obtained from and applicable to the sample(s) as received at the laboratory. All sample results are reported on an "as received" basis unless otherwise noted.

All data included in this report has been reviewed and meet the applicable project and certification specific requirements, unless otherwise noted.

This report has been paginated in its entirety and shall not be reproduced except in full, without the written approval of Microbac Laboratories, Inc.

We appreciate the opportunity to service your analytical needs. If you have any questions, please feel free to contact us.

This Data Package contains the following:

- This Cover Page
- Sample Summary
- Test Results
- Certifications/Notes and Definitions
- Cooler Receipt Log
- Chain of Custody

Final report reviewed by: Michael M. Gallion/Project Manager — 10/18/2017 Report issue date

***All samples received in proper condition and results conform to ISO 17025 and TNI NELAC standards unless otherwise noted.***

*If we have not met or exceeded your expectations, please contact Michael M. Gallion/Project Manager at 410-633-1800. You may also contact Trevor Boyce, President at trevor.boyce@microbac.com.* Any complaint about the quality of reported results may be referred to the accrediting authority if such complaints cannot be resolved directly with the customer.

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## CERTIFICATE OF ANALYSIS

| | | |
|---|---|---|
| Apex Companies, LLC | Project: DC DPW - Site #8 | Report: 17I0391 |
| 8854 Rixlew Lane | Project Number: Stormwater | Reported: 10/18/2017 16:05 |
| Manassas, VA 20109 | Project Manager: Andrea Owen Heller | |

### SAMPLE SUMMARY

| Sample ID | Laboratory ID | Matrix | Type | Date Sampled | Date Received |
|---|---|---|---|---|---|
| Site # 8 Sector K (001) | 17I0391-01 | Stormwater | Grab | 10/09/2017 05:30 | 10/09/2017 08:37 |
| Site #8 Sector N (001) | 17I0391-02 | Stormwater | Grab | 10/09/2017 05:30 | 10/09/2017 08:37 |
| Site #8 Sector K (002) | 17I0391-03 | Stormwater | Grab | 10/09/2017 05:00 | 10/09/2017 08:37 |
| Site #8 Sector N (002) | 17I0391-04 | Stormwater | Grab | 10/09/2017 05:00 | 10/09/2017 08:37 |



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

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| 8854 Rixlew Lane | Project Number: Stormwater | Reported: 10/18/2017 16:05 |
| Manassas, VA 20109 | Project Manager: Andrea Owen Heller | |

**Site # 8 Sector K (001)**

**1710391-01 (Stormwater) Sampled: 10/09/2017 05:30; Type: Grab**

| Analyte | Result | Reporting Limit | Units | Limits | Prepared | Analyzed | Analyst | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **Microbac Laboratories, Inc. - Baltimore** | | | | | | | | | |
| **Wet Chemistry** | | | | | | | | | |
| Ammonia as N | ND | 1.0 | mg/L | | 101117 1445 | 101117 1630 | ANC | SM 4500-NH3 B+C-11 | |
| COD, Total | ND | 50 | mg/L | | 101217 0900 | 101217 1342 | LCR | EPA 410.4 | |
| Cyanide, Total | ND | 0.0050 | mg/L | | 101117 1025 | 101117 1442 | SRZ | EPA 335.4 | |
| **Metals, Total by EPA 200 Series Methods** | | | | | | | | | |
| **Antimony** | **0.046** | 0.040 | mg/L | | 101117 1516 | 101217 1656 | APS | EPA 200.7 | |
| **Arsenic** | **0.040** | 0.020 | mg/L | | 101117 1516 | 101217 1656 | APS | EPA 200.7 | |
| Cadmium | ND | 0.010 | mg/L | | 101117 1516 | 101217 1656 | APS | EPA 200.7 | |
| **Calcium** | **2.8** | 0.20 | mg/L | | 101117 1516 | 101217 1656 | APS | EPA 200.7 | |
| **Hardness (as CaCO3)** | **8.1** | 1.3 | mg/L | | 101117 1516 | 101217 1656 | APS | SM 2340 B-11 | |
| Lead | ND | 0.020 | mg/L | | 101117 1516 | 101217 1656 | APS | EPA 200.7 | |
| **Magnesium** | **0.25** | 0.20 | mg/L | | 101117 1516 | 101217 1656 | APS | EPA 200.7 | |
| Selenium | ND | 0.040 | mg/L | | 101117 1516 | 101217 1656 | APS | EPA 200.7 | |
| Silver | ND | 0.0040 | mg/L | | 101117 1516 | 101217 1656 | APS | EPA 200.7 | |
| **Microbac Laboratories, Inc. - Chicagoland** | | | | | | | | | |
| **Metals** | | | | | | | | | |
| Mercury | ND | 0.00020 | mg/L | | 101217 1103 | 101217 1349 | BTM | EPA 245.1 Rev 3.0 | |



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| 8854 Rixlew Lane | Project Number: Stormwater | Reported: 10/18/2017 16:05 |
| Manassas, VA 20109 | Project Manager: Andrea Owen Heller | |

**Site #8 Sector N (001)**

**17I0391-02 (Stormwater) Sampled: 10/09/2017 05:30; Type: Grab**

| Analyte | Result | Reporting Limit | Units | Limits | Prepared | Analyzed | Analyst | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **Microbac Laboratories, Inc. - Baltimore** | | | | | | | | | |
| **Wet Chemistry** | | | | | | | | | |
| **COD, Total** | **89** | 50 | mg/L | | 101217 0900 | 101217 1342 | LCR | EPA 410.4 | |
| **Total Suspended Solids** | **26** | 1.3 | mg/L | | 101117 1300 | 101217 1415 | LCR | SM 2540 D-11 | |
| **Metals, Total by EPA 200 Series Methods** | | | | | | | | | |
| Aluminum | ND | 0.10 | mg/L | | 101117 1516 | 101217 1707 | APS | EPA 200.7 | |
| **Calcium** | **2.7** | 0.20 | mg/L | | 101117 1516 | 101217 1707 | APS | EPA 200.7 | |
| Copper | ND | 0.020 | mg/L | | 101117 1516 | 101217 1707 | APS | EPA 200.7 | |
| **Hardness (as CaCO3)** | **7.7** | 1.3 | mg/L | | 101117 1516 | 101217 1707 | APS | SM 2340 B-11 | |
| **Iron** | **0.20** | 0.020 | mg/L | | 101117 1516 | 101217 1707 | APS | EPA 200.7 | |
| Lead | ND | 0.020 | mg/L | | 101117 1516 | 101217 1707 | APS | EPA 200.7 | |
| **Magnesium** | **0.22** | 0.20 | mg/L | | 101117 1516 | 101217 1707 | APS | EPA 200.7 | |
| Selenium | ND | 0.040 | mg/L | | 101117 1516 | 101217 1707 | APS | EPA 200.7 | |
| **Zinc** | **0.039** | 0.020 | mg/L | | 101117 1516 | 101217 1707 | APS | EPA 200.7 | |



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| 8854 Rixlew Lane | Project Number: Stormwater | Reported: 10/18/2017 16:05 |
| Manassas, VA 20109 | Project Manager: Andrea Owen Heller | |

**Site #8 Sector K (002)**

**17I0391-03 (Stormwater) Sampled: 10/09/2017 05:00; Type: Grab**

| Analyte | Result | Reporting Limit | Units | Limits | Prepared | Analyzed | Analyst | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **Microbac Laboratories, Inc. - Baltimore** | | | | | | | | | |
| **Wet Chemistry** | | | | | | | | | |
| **Ammonia as N** | **28** | 2.0 | mg/L | | 101117 1445 | 101117 1630 | ANC | SM 4500-NH3 B+C-11 | |
| **COD, Total** | **37000** | 2500 | mg/L | | 101217 0900 | 101217 1342 | LCR | EPA 410.4 | |
| **Cyanide, Total** | **0.060** | 0.0050 | mg/L | | 101117 1025 | 101117 1444 | SRZ | EPA 335.4 | |
| **Metals, Total by EPA 200 Series Methods** | | | | | | | | | |
| Antimony | ND | 0.20 | mg/L | | 101117 1516 | 101217 1718 | APS | EPA 200.7 | |
| Arsenic | ND | 0.10 | mg/L | | 101117 1516 | 101217 1718 | APS | EPA 200.7 | |
| Cadmium | ND | 0.050 | mg/L | | 101117 1516 | 101217 1718 | APS | EPA 200.7 | |
| **Calcium** | **1400** | 5.0 | mg/L | | 101117 1516 | 101217 1729 | APS | EPA 200.7 | |
| **Hardness (as CaCO3)** | **4000** | 33 | mg/L | | 101117 1516 | 101217 1729 | APS | SM 2340 B-11 | |
| **Lead** | **1.4** | 0.50 | mg/L | | 101117 1516 | 101217 1729 | APS | EPA 200.7 | |
| **Magnesium** | **140** | 5.0 | mg/L | | 101117 1516 | 101217 1729 | APS | EPA 200.7 | |
| Selenium | ND | 0.20 | mg/L | | 101117 1516 | 101217 1718 | APS | EPA 200.7 | |
| Silver | ND | 0.020 | mg/L | | 101117 1516 | 101217 1718 | APS | EPA 200.7 | |
| **Microbac Laboratories, Inc. - Chicagoland** | | | | | | | | | |
| **Metals** | | | | | | | | | |
| **Mercury** | **0.00046** | 0.00020 | mg/L | | 101217 1103 | 101217 1351 | BTM | EPA 245.1 Rev 3.0 | |



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| 8854 Rixlew Lane | Project Number: Stormwater | Reported: 10/18/2017 16:05 |
| Manassas, VA 20109 | Project Manager: Andrea Owen Heller | |

**Site #8 Sector N (002)**

**17I0391-04 (Stormwater) Sampled: 10/09/2017 05:00; Type: Grab**

| Analyte | Result | Reporting Limit | Units | Limits | Prepared | Analyzed | Analyst | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **Microbac Laboratories, Inc. - Baltimore** | | | | | | | | | |
| **Wet Chemistry** | | | | | | | | | |
| **COD, Total** | **37000** | 2500 | mg/L | | 101217 0900 | 101217 1342 | LCR | EPA 410.4 | |
| **Total Suspended Solids** | **1200** | 67 | mg/L | | 101117 1300 | 101217 1415 | LCR | SM 2540 D-11 | |
| **Metals, Total by EPA 200 Series Methods** | | | | | | | | | |
| **Aluminum** | **11** | 2.5 | mg/L | | 101117 1516 | 101217 1732 | APS | EPA 200.7 | |
| **Calcium** | **1500** | 5.0 | mg/L | | 101117 1516 | 101217 1732 | APS | EPA 200.7 | |
| **Copper** | **2.3** | 0.50 | mg/L | | 101117 1516 | 101217 1732 | APS | EPA 200.7 | |
| **Hardness (as CaCO3)** | **4300** | 33 | mg/L | | 101117 1516 | 101217 1732 | APS | SM 2340 B-11 | |
| **Iron** | **180** | 0.50 | mg/L | | 101117 1516 | 101217 1732 | APS | EPA 200.7 | |
| **Lead** | **1.5** | 0.50 | mg/L | | 101117 1516 | 101217 1732 | APS | EPA 200.7 | |
| **Magnesium** | **160** | 5.0 | mg/L | | 101117 1516 | 101217 1732 | APS | EPA 200.7 | |
| Selenium | ND | 1.0 | mg/L | | 101117 1516 | 101217 1732 | APS | EPA 200.7 | |
| **Zinc** | **16** | 0.50 | mg/L | | 101117 1516 | 101217 1732 | APS | EPA 200.7 | |



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|---|---|---|
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| 8854 Rixlew Lane | Project Number: Stormwater | Reported: 10/18/2017 16:05 |
| Manassas, VA 20109 | Project Manager: Andrea Owen Heller | |

**Project Requested Certification(s):**

Florida - NELAC

***Analyte Certification Exception Summary***

No certification exceptions

All analysis performed were analyzed under the required certification unless otherwise noted in the above summary.



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|---|---|---|
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| 8854 Rixlew Lane | Project Number: Stormwater | Reported: 10/18/2017 16:05 |
| Manassas, VA 20109 | Project Manager: Andrea Owen Heller | |

### Certification List

*Below is a list of certifications maintained by Microbac Laboratories, Inc. All data included in this report has been reviewed for and meets all project specific and quality control requirements of the applicable accreditation, unless otherwise noted. A complete list of individual analytes pursuant to each certification below is available upon request.*

| Code | Description | Certification Number | Expires |
|---|---|---|---|
| **Microbac Laboratories, Inc. - Baltimore** | | | |
| A2LA1 | A2LA (Biology) | 410.02 | 04/30/2019 |
| A2LA2 | A2LA (Environmental) | 410.01 | 04/30/2019 |
| VA-B | Commonwealth of Virginia (NELAC) - Baltimore | 460285 | 03/14/2018 |
| CPSC | CPSC Testing of Childrens Products and Jewelry | 410.01 | 04/30/2019 |
| Pb | Environmental Lead (ELLAP) | 410.01 | 04/30/2019 |
| FL | Florida - NELAC | E871126 | 06/30/2018 |
| MD | State of Maryland (Drinking Water) | 109 | 06/30/2018 |
| WV | West Virginia | 054 | 08/31/2018 |
| **Microbac Laboratories, Inc. - Chicagoland** | | | |
| A2LA-B | A2LA (Biology) | 3045.01 | 09/30/2018 |
| A2LA-C | A2LA (Chemistry) | 3045.02 | 09/30/2018 |
| A2LA_ | A2LA ISO/IEC 17025 Biological Testing (a) | 3045.01 | 09/30/2018 |
| A2LA | A2LA ISO/IEC 17025 Env. DoD Testing (b) | 3045.02 | 09/30/2018 |
| CDC-ELITE | Center of Disease Control Legionella ELITE Membership (c) | | 12/01/2017 |
| ILDPH | Illinois DOPH Micro analysis of drinking water (e) | 1755266 | 12/31/2019 |
| ILEPA | Illinois EPA drinking water, wastewater and solid waste analy | 200064 | 05/31/2018 |
| INSDH | Indiana SDH chemical analysis of drinking water (g) | C-45-03 | 12/31/2019 |
| INDH | Indiana SDH Micro analysis of drinking water (f) | M-45-8 | 12/31/2019 |
| ISBOAH | Indiana State Board of Animal Health for microbiological anal | 18137 | 03/31/2019 |
| KSDOH | Kansas Dept Health & Env. NELAP (i) | E-10397 | 01/31/2018 |
| KYEPP | Kentucky EPPC analysis Underground Storage Tanks (k) | 75 | 01/31/2018 |
| KYDEP | Kentucky Wastewater Laboratory Certification Program (j) | 90147 | 12/31/2017 |
| NYDOH | New York State Department of Health Wadsworth (m) | 12006 | 04/01/2018 |
| NCDEN | North Carolina DENR NPDES effluent, surface water (l) | 597 | 12/31/2017 |
| PADEP | Pennsylvania Department of Environmental Protect (n) | 68-04863 | 07/31/2018 |
| USDAS | USDA Permit To Receive Soil (-) | P330-13-00270 | 10/17/2019 |
| CGL-VA | VA NELAP | 460280 | 06/14/2018 |
| VELAP | Virginia Department of General Services Division of Consolid | 7990 | 06/15/2018 |



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## CERTIFICATE OF ANALYSIS

| | | |
|---|---|---|
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| 8854 Rixlew Lane | Project Number: Stormwater | Reported: 10/18/2017 16:05 |
| Manassas, VA 20109 | Project Manager: Andrea Owen Heller | |

**Microbac Laboratories, Inc. - Richmond**

| | | | |
|---|---|---|---|
| VA-R | Commonwealth of Virginia (NELAC) - Richmond | 460022 | 06/14/2018 |



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|---|---|---|
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| 8854 Rixlew Lane | Project Number: Stormwater | Reported: 10/18/2017 16:05 |
| Manassas, VA 20109 | Project Manager: Andrea Owen Heller | |

## Qualifiers/Notes and Definitions

***General Definitions:***

| | |
|---|---|
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |

***Sample/Sample Receipt Qualifiers and Notes:***

**Microbac Laboratories, Inc. - Baltimore**

| | |
|---|---|
| 17I0391-04 | Sample preserved with Sulfuric Acid to pH <2 upon receipt. |
| 17I0391-04 | Aliquot of sample preserved with Nitric Acid to pH <2 upon receipt. |
| 17I0391-03 | Sample preserved with Sulfuric Acid to pH <2 upon receipt. |
| 17I0391-03 | Aliquot of sample preserved with Nitric Acid to pH <2 upon receipt. |

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## Cooler Receipt Log

**Cooler ID:** Default Cooler **Cooler Temp:** 6.90°C **Work Order:** 17I0391

| | | | |
|---|---|---|---|
| Custody Seals Intact: | Yes | COC/Containers Agree: | Yes |
| Containers Intact: | Yes | Correct Preservation: | Yes |
| Received On Ice: | Yes | Correct Number of Containers Received: | Yes |
| Radiation Scan Acceptable: | Yes | Sufficient Sample Volume for Testing: | Yes |
| COC Present: | Yes | Samples Received in Proper Condition: | Yes |

**Comments:**

MICROBAC
**Microbac Laboratories, Inc., Baltimore Division**
2101 Van Deman Street • Baltimore, MD 21224
Phone: 410-633-1800
Fax: 410-633-655
www.microbac.com

**17I0391**

*Tentatively Scheduled Date 9/7/2017*

Client: **Apex Companies, LLC**
Project: **DC DPW - Site #8**
Project Number: **Stormwater**

**Report To:**
Andrea Owen Heller
8854 Rixlew Lane
Manassas, VA 20109
Phone: (703) 396-6730

**Invoice To:**
Andrea Owen Heller
8854 Rixlew Lane
Manassas, VA 20109
Phone :(703) 396-6730

**TAT 7 days**

## Sample ID: Site # 8 Sector K (001)

**Lab Sample ID:** 17I0391-01
**Matrix:** Stormwater
**Type:** Grab
**Sampled Date & Time:** 10/4 0530

| Analysis | | | Hold |
|---|---|---|---|
| Hg_Total | EPA 245.1 | | 28 |
| M_Ag_ICP | EPA 200.7 | | 180 |
| M_As_ICP | EPA 200.7 | | 180 |
| M_Cd_ICP | EPA 200.7 | | 180 |
| M_Mg_ICP | EPA 200.7 | | 180 |
| M_Pb_ICP | EPA 200.7 | | 180 |
| M_Sb_ICP | EPA 200.7 | | 180 |
| | | A- 500ml Plastic HNO3 to pH <2 | |
| COD_Total_HL | EPA 410.4 | | 28 |
| NH3_Titration | SM 4500-NH3 B+C-11 | | 28 |
| | | B-1000ml Plastic H2SO4 to pH <2 | |
| TP_Total_Seal | EPA 335.4 | | 14 |
| | | P- 250ml Plastic Absorbic then NaOH to pH >12 | |
| | | Total Containers: 3 | |

## Sample ID: Site #8 Sector N (001)

**Lab Sample ID:** 17I0391-02
**Matrix:** Stormwater
**Type:** Grab
**Sampled Date & Time:** 10/4 0530

| Analysis | | | Hold |
|---|---|---|---|
| M_Al_ICP | EPA 200.7 | | 180 |
| M_Cu_ICP | EPA 200.7 | | 180 |
| M_Fe_ICP | EPA 200.7 | | 180 |
| M_Mn_ICP | EPA 200.7 | | 180 |
| M_Zn_ICP | EPA 200.7 | | 180 |
| | | A- 500ml Plastic HNO3 to pH <2 | |
| COD_Total_HL | EPA 410.4 | | 28 |
| | | B-1000ml Plastic H2SO4 to pH <2 | |
| TSS | SM 2540 D-11 | | 7 |
| | | B-1000ml Plastic Neat | |
| | | Total Containers: 3 | |

## Sample ID: Site #8 Sector K (002)

**Lab Sample ID:** 17I0391-03
**Matrix:** Stormwater
**Type:** Grab
**Sampled Date & Time:** 10/4 05:00

| Analysis | Hold |
|---|---|

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www.microbac.com

**17I0391**

Client: **Apex Companies, LLC**
Project: **DC DPW - Site #8**
Project Number: **Stormwater**

*Tentatively Scheduled Date* 9/7/2017

| | | | |
|---|---|---|---|
| Hg_Total | EPA 245.1 | | 28 |
| M_Ag_ICP | EPA 200.7 | | 180 |
| M_As_ICP | EPA 200.7 | | 180 |
| M_Cd_ICP | EPA 200.7 | | 180 |
| M_Mg_ICP | EPA 200.7 | | 180 |
| M_Pb_ICP | EPA 200.7 | | 180 |
| M_Sb_ICP | EPA 200.7 | | 180 |
| | | A- 500ml Plastic HNO3 to pH <2 | |
| COD_Total_HL | EPA 410.4 | | 28 |
| NH3_Titration | SM 4500-NH3 B+C-11 | | 28 |
| | | B-1000ml Plastic H2SO4 to pH <2 | |
| CN_Total_Seal | EPA 335.4 | | 14 |
| | | P- 250ml Plastic Absorbic then NaOH to pH >12 | |
| | | Total Containers: | 3 |

## Sample ID: Site #8 Sector N (002)

**Lab Sample ID:** **17I0391-04**
**Matrix:** Stormwater
**Type:** Grab
**Sampled Date & Time:** 10/4 0500

| Analysis | | | Hold |
|---|---|---|---|
| M_Al_ICP | EPA 200.7 | | 180 |
| M_Cu_ICP | EPA 200.7 | | 180 |
| M_Fe_ICP | EPA 200.7 | | 180 |
| M_Pb_ICP | EPA 200.7 | | 180 |
| M_Zn_ICP | EPA 200.7 | | 180 |
| | | A- 500ml Plastic HNO3 to pH <2 | |
| COD_Total_HL | EPA 410.4 | | 28 |
| | | B-1000ml Plastic H2SO4 to pH <2 | |
| TSS | SM 2540 D-11 | | 7 |
| | | B-1000ml Plastic Neat | |
| | | Total Containers: | 3 |

| | | |
|---|---|---|
| Sampled by: WTWinn | Date/Time: 10/9 2:37 | Received by: |
| Printed Name: Tyler Warren | | Printed Name |
| Relinquished by: | Date/Time: | Received by: |
| Printed Name: | | Printed Name: |
| Relinquished by: | Date/Time: | Received by: |
| Printed Name: | | Printed Name: |

As Received at Laboratory: On Ice: (Yes) No Cooler Temp 10.9°C Total Bottles 12

Notes:

please analyze for hardness and total selenium

# Cooler Receipt Form / Sample Acceptance & Noncompliance Form

Microbac Laboratories, Inc., Baltimore Division
Control # 606-03
Effective Date: 11/30/2016
Page 1 of 1

Number of Coolers Received: 1
Client: Apex
Form Completed By: [illegible]
Shipper: [illegible]

Receipt Date / Time: 10/09/17 0832
Work Order # 17I0391

☐ Microbac ☒ Client ☐ UPS ☐ FedEx
Custody Tape Intact: (YES) / NO / NA
Containers Intact: (YES) / NO
Sample Received on Ice or refrigerated: (YES) / NO / NA
Infrared (IR) Temperature: 6.9 °C

Chain of Custody Present with shipment: (YES) / NO
Sample Bottle IDs agree with COC: YES / NO
Preservation requirements met: YES / NO / Not Checked
Correct Number of Containers / Sample Volume: YES / NO (If No, contact client immediately)
Headspace in container: YES / NO / NA
Type of Sample: Water Soil Wipes Oil Filter Solid Sludge Food Swab Other

***Container Type / Quantity:***

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **A** - ___ | Unpreserved ___ | $H_2SO_4$ 4 | $HNO_3$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid: | If preserved pH <2 ~~NA~~, pH >10 ___ |
| **B** - 2 | Unpreserved 4 | $H_2SO_4$ ___ | $HNO_3$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2 ~~NA~~, pH >10 ___ |
| **C** - ___ | Unpreserved ___ | $H_2SO_4$ ___ | $HNO_3$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ |
| **D** - ___ | Unpreserved ___ | $H_2SO_4$ ___ | $HNO_3$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ |
| **E** - ___ | Unpreserved ___ | $H_2SO_4$ ___ | $HNO_3$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ |
| **H** - ___ | Unpreserved ___ | $H_2SO_4$ ___ | $HNO_3$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ |
| **K** - ___ | Unpreserved ___ | $H_2SO_4$ ___ | $HNO_3$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ |
| **L** - ___ | Unpreserved ___ | $H_2SO_4$ ___ | $HNO_3$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ |
| **M** - ___ | Unpreserved ___ | $H_2SO_4$ ___ | $HNO_3$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ |
| **P** - ___ | Unpreserved ___ | $H_2SO_4$ ___ | $HNO_3$ ___ | HCl ___ | NaOH 2 | NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ~~NA~~ adj |
| **W** - ___ | Unpreserved ___ | $H_2SO_4$ ___ | $HNO_3$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ |
| **V** - ___ | Unpreserved ___ | HCl ___ | HCl / Ascorbic Acid ___ | HCl / NaTHIO **(Checked at time of Analysis)** | | | |
| **F** - ___ | Unpreserved ___ | NaTHIO **(Checked at time of Analysis)** | | | | | |
| **S** - ___ | Unpreserved ___ | NaTHIO **(Checked at time of Analysis)** | | | | | |
| **SN** - ___ | Unpreserved ___ | NaTHIO ___ | NaTHIO/EDTA **(Checked at time of Analysis)** | | | | |
| ___ | Unpreserved ___ | $H_2SO_4$ ___ | $HNO_2$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ |
| ___ | Unpreserved ___ | $H_2SO_4$ ___ | $HNO_3$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ |
| ___ | Unpreserved ___ | $H_2SO_4$ ___ | $HNO_3$ ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ |

**Describe preservation requirements not met:**

*All Acid preserved <2 pH* *NaOH preserved >12 pH* *All others >2 and <10 (usually 4-8)*

Sample ID: 17I0391 - 03/04[A] $H_2SO_4$ $HNO_3$ NaOH 5 mls added to adjust pH, pH must < 2 for each sample
Sample ID: ___ $H_2SO_4$ $HNO_3$ NaOH ___ mls added
Sample ID: 17I0391 - 02[B]/04[B] $H_2SO_4$ $HNO_3$ NaOH 5 mls added to each bottle to adjust pH, pH must < 2.
Sample ID: ___ $H_2SO_4$ $HNO_3$ NaOH ___ mls added

$H_2SO_4$ – Sulfuric Acid, $HNO_3$ – Nitric Acid, NaOH – Sodium Hydroxide, ASC – Ascorbic Acid, NaTHIO – Sodium Thiosulfate

CH Na 10/09/17 0900

Describe Anomalies:
Metals bottles for samples - 01 & -03 split for Hg subout. 10/09/17

Contact information / Summary of Actions:
Date / Time: ___ Contact: ___ Contact By: ___
Comments: ___

**Microbac Laboratories, Inc. - Baltimore**

MICROBAC

17J0554 Dave Bryant
Microbac - BLT
17I0391
10/10/2017

## SUBCONTRACT ORDER
## 17I0391

**SENDING LABORATORY:**

Microbac Laboratories, Inc. - Baltimore
2101 Van Deman Street
Baltimore, MD 21224
Phone: 410.633.1800
Project Manager: Michael M. Gallion

**RECEIVING LABORATORY:**

Microbac - CGL
250 West 84th Drive
Merrillville, IN 46410
Phone: (219) 769-8378

17J0554

**Project Info:**

Project Name: DC DPW - Site #8
Project No: Stormwater

Client: Apex Companies, LLC
Project Type: ENV-WasteWater
Project Location: Maryland (South)

Report TAT: 7
Due: ~~09/18/2017 17:00~~ 10/04/17 10:00

**Sample ID: 17I0391-01** **Matrix: Stormwater** **Sampled: 09/07/2017 00:00**

-01

| Analysis | Method | Analysis Due | Expires |
|---|---|---|---|
| **Hg_Total** Mercury | **EPA 245.1** 0.0002 mg/L | **09/18/2017 16:00** | **10/05/2017 00:00** |

**Sample ID: 17I0391-03** **Matrix: Stormwater** **Sampled: 09/07/2017 00:00**

-02

| Analysis | Method | Analysis Due | Expires |
|---|---|---|---|
| **Hg_Total** Mercury | **EPA 245.1** 0.0002 mg/L | **09/18/2017 16:00** | **10/05/2017 00:00** |

300
300

1.5
01 0.5
1.0 °C

| Released By | Date | Received By | Date |
|---|---|---|---|
| [signature] | 10/09/17 | [signature] | |
| [signature] | | [signature] | 10-10-17/0900 |

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Phone: 410-633-1800
Fax: 410-633-6554
www.microbac.com

**17I0391**

*Tentatively Scheduled Date: 9/7/2017*

Client: **Apex Companies, LLC**
Project: **DC DPW - Site #8**
Project Number: **Stormwater**

**Report To:**
Andrea Owen Heller
8854 Rixlew Lane
Manassas, VA 20109
Phone: (703) 396-6730

**Invoice To:**
Andrea Owen Heller
8854 Rixlew Lane
Manassas, VA 20109
Phone :(703) 396-6730

**TAT 7 days**

## Sample ID: Site # 8 Sector K (001)

**Lab Sample ID:** 17I0391-01
**Matrix:** Stormwater
**Type:** Grab
**Sampled Date & Time:** 10/4 0530

| Analysis | | | Hold |
|---|---|---|---|
| Hg_Total | EPA 245.1 | | 28 |
| M_Ag_ICP | EPA 200.7 | | 180 |
| M_As_ICP | EPA 200.7 | | 180 |
| M_Cd_ICP | EPA 200.7 | | 180 |
| M_Mg_ICP | EPA 200.7 | | 180 |
| M_Pb_ICP | EPA 200.7 | | 180 |
| M_Sb_ICP | EPA 200.7 | | 180 |
| | | A- 500ml Plastic HNO3 to pH <2 | |
| COD_Total_HL | EPA 410.4 | | 28 |
| NH3_Titration | SM 4500-NH3 B+C-11 | | 28 |
| | | B-1000ml Plastic H2SO4 to pH <2 | |
| TP_Total_Seal | EPA 335.4 | | 14 |
| | | P- 250ml Plastic Absorbic then NaOH to pH >12 | |
| | | Total Containers: 3 | |

## Sample ID: Site #8 Sector N (001)

**Lab Sample ID:** 17I0391-02
**Matrix:** Stormwater
**Type:** Grab
**Sampled Date & Time:** 10/4 0530

| Analysis | | | Hold |
|---|---|---|---|
| M_Al_ICP | EPA 200.7 | | 180 |
| M_Cu_ICP | EPA 200.7 | | 180 |
| M_Fe_ICP | EPA 200.7 | | 180 |
| M_Mn_ICP | EPA 200.7 | | 180 |
| M_Zn_ICP | EPA 200.7 | | 180 |
| | | A- 500ml Plastic HNO3 to pH <2 | |
| COD_Total_HL | EPA 410.4 | | 28 |
| | | B-1000ml Plastic H2SO4 to pH <2 | |
| TSS | SM 2540 D-11 | | 7 |
| | | B-1000ml Plastic Neat | |
| | | Total Containers: 3 | |

## Sample ID: Site #8 Sector K (002)

**Lab Sample ID:** 17I0391-03
**Matrix:** Stormwater
**Type:** Grab
**Sampled Date & Time:** 10/4 05:00

| Analysis | Hold |
|---|---|

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2101 Van Deman Street • Baltimore, MD 21224
Phone: 410-633-1800
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www.microbac.com

**17I0391**

Client: **Apex Companies, LLC**
Project: **DC DPW - Site #8**
Project Number: **Stormwater**

*Tentatively Scheduled Date* 9/7/2017

| | | | |
|---|---|---|---|
| Hg_Total | EPA 245.1 | | 28 |
| M_Ag_ICP | EPA 200.7 | | 180 |
| M_As_ICP | EPA 200.7 | | 180 |
| M_Cd_ICP | EPA 200.7 | | 180 |
| M_Mg_ICP | EPA 200.7 | | 180 |
| M_Pb_ICP | EPA 200.7 | | 180 |
| M_Sb_ICP | EPA 200.7 | | 180 |
| | | A- 500ml Plastic HNO3 to pH <2 | |
| COD_Total_HL | EPA 410.4 | | 28 |
| NH3_Titration | SM 4500-NH3 B-C-11 | | 28 |
| | | B-1000ml Plastic H2SO4 to pH <2 | |
| CR_Total_Seal | EPA 335.4 | | 14 |
| | | P- 250ml Plastic Absorbic then NaOH to pH >12 | |
| | | Total Containers: 3 | |

## Sample ID: Site #8 Sector N (002)

**Lab Sample ID:** **17I0391-04**
**Matrix:** Stormwater
**Type:** Grab
**Sampled Date & Time:** 10/9 0500

| Analysis | TAT | | Hold |
|---|---|---|---|
| M_Al_ICP | EPA 200.7 | | 180 |
| M_Cu_ICP | EPA 200.7 | | 180 |
| M_Fe_ICP | EPA 200.7 | | 180 |
| M_Pb_ICP | EPA 200.7 | | 180 |
| M_Zn_ICP | EPA 200.7 | | 180 |
| | | A- 500ml Plastic HNO3 to pH <2 | |
| COD_Total_HL | EPA 410.4 | | 28 |
| | | B-1000ml Plastic H2SO4 to pH <2 | |
| TSS | SM 2540 D-11 | | 7 |
| | | B-1000ml Plastic Neat | |
| | | Total Containers: 3 | |

| | | |
|---|---|---|
| Sampled by: W Winn | Date/Time: 10/9 2137 | Received by: |
| Printed Name: Tyler Warren | | Printed Name: |
| Relinquished by: | Date/Time: | Received by: |
| Printed Name: | | Printed Name: |
| Relinquished by: | Date/Time: | Received by: |
| Printed Name: | | Printed Name: |

As Received at Laboratory: On Ice: (Yes) No Cooler Temp 6.9°C Total Bottles 12

Notes:

please analyze for hardness and total selenium

# Cooler Receipt Form / Sample Acceptance & Noncompliance Form

Microbac Laboratories, Inc., Baltimore Division
Control # 606-03
Effective Date: 11/30/2016
Page 1 of 1

Number of Coolers Received: 1
Client: Apex
Form Completed By: [illegible]
Shipper: [illegible]

Receipt Date / Time: 10/04/17 0837
Work Order # 17I0391

☐ Microbac ☒ Client ☐ UPS ☐ FedEx
Custody Tape Intact: (YES) / NO / NA
Containers Intact: (YES) / NO
Sample Received on Ice or refrigerated: (YES) / NO / NA
Infrared (IR) Temperature: 6.9 °C

Chain of Custody Present with shipment: (YES) / NO
Sample Bottle IDs agree with COC: YES / NO
Preservation requirements met: YES / NO / Not Checked
Correct Number of Containers / Sample Volume: YES / NO (If No, contact client immediately)
Headspace in container: YES / NO / NA
Type of Sample: Water Soil Wipes Oil Filter Solid Sludge Food Swab Other

***Container Type / Quantity:***

A - ___ Unpreserved ___ H2SO4 4 HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid: If preserved pH <2 ok, pH >10___
B - 2 Unpreserved 4 H2SO4 ___ HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2 ok, pH >10___
C - ___ Unpreserved ___ H2SO4 ___ HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
D - ___ Unpreserved ___ H2SO4 ___ HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
E - ___ Unpreserved ___ H2SO4 ___ HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
H - ___ Unpreserved ___ H2SO4 ___ HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
K - ___ Unpreserved ___ H2SO4 ___ HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
L - ___ Unpreserved ___ H2SO4 ___ HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
M- ___ Unpreserved ___ H2SO4 ___ HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
P - ___ Unpreserved ___ H2SO4 ___ HNO3 ___ HCl ___ NaOH 2 NaOH/Ascorbic Acid If preserved pH <2___, pH >10 ok
W- ___ Unpreserved ___ H2SO4 ___ HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
V - ___ Unpreserved ___ HCl ___ HCl / Ascorbic Acid ___ HCl / NaTHIO **(Checked at time of Analysis)**
F - ___ Unpreserved ___ NaTHIO **(Checked at time of Analysis)**
S - ___ Unpreserved ___ NaTHIO **(Checked at time of Analysis)**
SN- ___ Unpreserved ___ NaTHIO ___ NaTHIO/EDTA **(Checked at time of Analysis)**

___ Unpreserved ___ H2SO4 ___ HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
___ Unpreserved ___ H2SO4 ___ HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
___ Unpreserved ___ H2SO4 ___ HNO3 ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___

**Describe preservation requirements not met:**

*All Acid preserved <2 pH* *NaOH preserved >12 pH* *All others >2 and <10 (usually 4-8)*

Sample ID: 17I0391-03/04[B] (H2SO4) HNO3 NaOH 5 mls added to adjust pH, pH now < 2 after each sample
Sample ID: ___ H2SO4 HNO3 NaOH ___ mls added
Sample ID: 17I0391-03[C]/04[B] H2SO4 (HNO3) NaOH 5 mls added to each bottle to adjust pH, pH now < 2
Sample ID: ___ H2SO4 HNO3 NaOH ___ mls added

$H_2SO_4$ – Sulfuric Acid, $HNO_3$ – Nitric Acid, NaOH – Sodium Hydroxide, ASC – Ascorbic Acid, NaTHIO – Sodium Thiosulfate

10/04/17 0900

Describe Anomalies:
Metals bottles for samples -01 & -03 split for Hg subcont. 10/04/17

Contact information / Summary of Actions:
Date / Time: ___ Contact: ___ Contact By: ___
Comments: ___

**Microbac Laboratories, Inc. - Baltimore**

MICROBAC

17J0554 Dave Bryant
Microbac - BLT
17I0391
10/10/2017

## SUBCONTRACT ORDER
## 17I0391

**SENDING LABORATORY:**

Microbac Laboratories, Inc. - Baltimore
2101 Van Deman Street
Baltimore, MD 21224
Phone: 410.633.1800
Project Manager: Michael M. Gallion

**RECEIVING LABORATORY:**

Microbac - CGL
250 West 84th Drive
Merrillville, IN 46410
Phone: (219) 769-8378

17J0554

**Project Info:**

Project Name: DC DPW - Site #8
Project No: Stormwater

Client: Apex Companies, LLC
Project Type: ENV-WasteWater
Project Location: Maryland (South)

Report TAT: 7
Due: 09/18/2017 17:00
10 Emw 10/04/17

**Sample ID: 17I0391-01** **Matrix: Stormwater** **Sampled: 09/07/2017 00:00**

-01

| Analysis | Method | Analysis Due | Expires |
|---|---|---|---|
| **Hg_Total** | **EPA 245.1** | **09/18/2017 16:00** | **10/05/2017 00:00** |
| Mercury | 0.0002 mg/L | | |

**Sample ID: 17I0391-03** **Matrix: Stormwater** **Sampled: 09/07/2017 00:00**

-02

| Analysis | Method | Analysis Due | Expires |
|---|---|---|---|
| **Hg_Total** | **EPA 245.1** | **09/18/2017 16:00** | **10/05/2017 00:00** |
| Mercury | 0.0002 mg/L | | |

300
300

1.5
01 0.5
1.0 e

| Released By | Date | Received By | Date |
|---|---|---|---|
| [signature] | 10/09/17 | [signature] | |
| Released By | Date | Received By | Date |
| | | [signature] | 10-1017/0900 |

Fedex

# NPDES Quarterly Visual Assessment Form

## Assessment

**Name of Facility**
Appendix H - 3200 Benning Rd, NE

**NPDES Tracking No.**
DC0000221

**Outfall Name/Number**
001

**"Substantially Identical Outfall"?**
No

**Substitute Sample?**
Yes

**Person(s)/Title(s) Collecting Sample**
Tyler Warren

**Amount (inches)**
0.56

**Duration (time) between Prior Rainfall and Current Rainfall (must be at least 72 hrs or 3 days)**
792 Hours

Current Rainfall Event

**Start Time of Discharge:**
04:55 AM

**Substitute Sample?**
Yes

**Time Sample Collected (must be within one-hour of start of discharge, or explain)**
05:30 AM

**Time Sample Examined (must be within 30 minutes after sample collected, or explain)**
05:40 AM

**Comments**
Water was clear, no signs of solids.

**Nature of Discharge**
Rainfall

**Previous Storm Ended >72 hours Before Start of Storm?**
Yes

## Parameter

**Color**
None

**Odor**
None

**Clarity**
Clear

**Floating Solids**
No

**Settled Solids**
No

**Suspended Solids**
No

**Foam (gently shake sample)**
No

**Oil Sheen**
None

**Other Obvious Indicators of Stormwater Pollution**
No

**Detail any concerns, additional comments, and any corrective actions taken below**
Water at outfall was clear and free of odor or any signs of pollution.

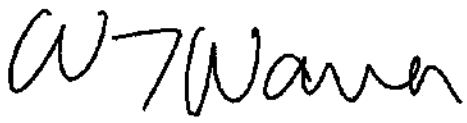
# NPDES Quarterly Visual Assessment Form

**Photos**

| Photo Number | Photo Description | Photo |
|---|---|---|
| 1 | Water flowing out of outfall 001 |  |

# NPDES Quarterly Visual Assessment Form

Person Collecting/Examining Sample:

| Name | Signature | Date Signed |
| --- | --- | --- |
| Tyler Warren |  | 10/09/2017 |

**Certification by Facility Responsible Official (Refer to MSGP Subpart 11 Appendix B for Signatory Requirements)**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| Name | Date Signed | Signature |
| --- | --- | --- |
| Title | | |

# NPDES Quarterly Visual Assessment Form

## Assessment

**Name of Facility**
Appendix H - 3200 Benning Rd, NE

**NPDES Tracking No.**
DC0000221

**Outfall Name/Number**
002

**"Substantially Identical Outfall"?**
No

**Substitute Sample?**
Yes

**Person(s)/Title(s) Collecting Sample**
Tyler Warren

**Amount (inches)**
0.56

**Duration (time) between Prior Rainfall and Current Rainfall (must be at least 72 hrs or 3 days)**
792 Hours

Current Rainfall Event

**Start Time of Discharge:**
04:55 AM

**Substitute Sample?**
Yes

**Time Sample Collected (must be within one-hour of start of discharge, or explain)**
05:00 AM

**Time Sample Examined (must be within 30 minutes after sample collected, or explain)**
05:14 AM

**Comments**
Water was a dark color. Not transparent.

**Nature of Discharge**
Rainfall

**Previous Storm Ended >72 hours Before Start of Storm?**
Yes

## Parameter

**Color**
Other

**If Other, describe:**
Dark grey color.

**Odor**
Musty

**Clarity**
Cloudy

**Floating Solids**
No

**Settled Solids**
No

**Suspended Solids**
No

**Foam (gently shake sample)**
No

**Oil Sheen**
None

**Other Obvious Indicators of Stormwater Pollution**
No

**Detail any concerns, additional comments, and any corrective actions taken below**

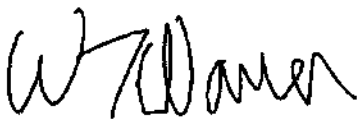
# NPDES Quarterly Visual Assessment Form

**Photos**

| Photo Number | Photo Description | Photo |
|---|---|---|
| 1 | Flow at outfall 002 where sample was collected |  |

# NPDES Quarterly Visual Assessment Form

Person Collecting/Examining Sample:

| Name | Signature | Date Signed |
| --- | --- | --- |
| Tyler Warren |  | 10/09/2017 |

**Certification by Facility Responsible Official (Refer to MSGP Subpart 11 Appendix B for Signatory Requirements)**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| Name | Date Signed | Signature |
| --- | --- | --- |
| Title | | |

# NPDES Quarterly Visual Assessment Form

## Assessment

**Name of Facility**
Appendix H
**NPDES Tracking No.**
DC0000221
**Outfall Name/Number**
002B
**"Substantially Identical Outfall"?**
No
**Substitute Sample?**
No
**Person(s)/Title(s) Collecting Sample**
Andrew Hughey
**Amount (inches)**
0.15

**Duration (time) between Prior Rainfall and Current Rainfall (must be at least 72 hrs or 3 days)**
>72 hrs
Current Rainfall Event
**Start Time of Discharge:**
01:30 PM
**Current Rainfall Amount (inches)**
0.15
**Substitute Sample?**
No
**Time Sample Collected (must be within one-hour of start of discharge, or explain)**
04:50 PM
**Time Sample Examined (must be within 30 minutes after sample collected, or explain)**
04:56 PM

**Comments**
First discharge occurred during quick downpour while I was sampling other sites. Flow had stopped by the time I arrived, so I had to wait for more rain.
**Nature of Discharge**
Rainfall
**If Rainfall, amount (inches)**
.15
**Previous Storm Ended >72 hours Before Start of Storm?**
Yes

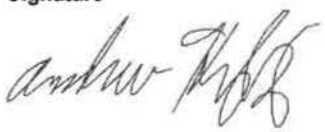
## Parameter

**Color**
Other
**If Other, describe:**
Black
**Odor**
Sour
Other
**Clarity**
Opaque
**Floating Solids**
No
**Settled Solids**
No

**Suspended Solids**
No
**Foam (gently shake sample)**
No
**Oil Sheen**
None
**Other Obvious Indicators of Stormwater Pollution**
No
**Detail any concerns, additional comments, and any corrective actions taken below**
Pollution is due to nearby trash source. Inside outfall drop inlet, a significant amount of sludge from trash runoff has collected.

# NPDES Quarterly Visual Assessment Form

Person Collecting/Examining Sample:

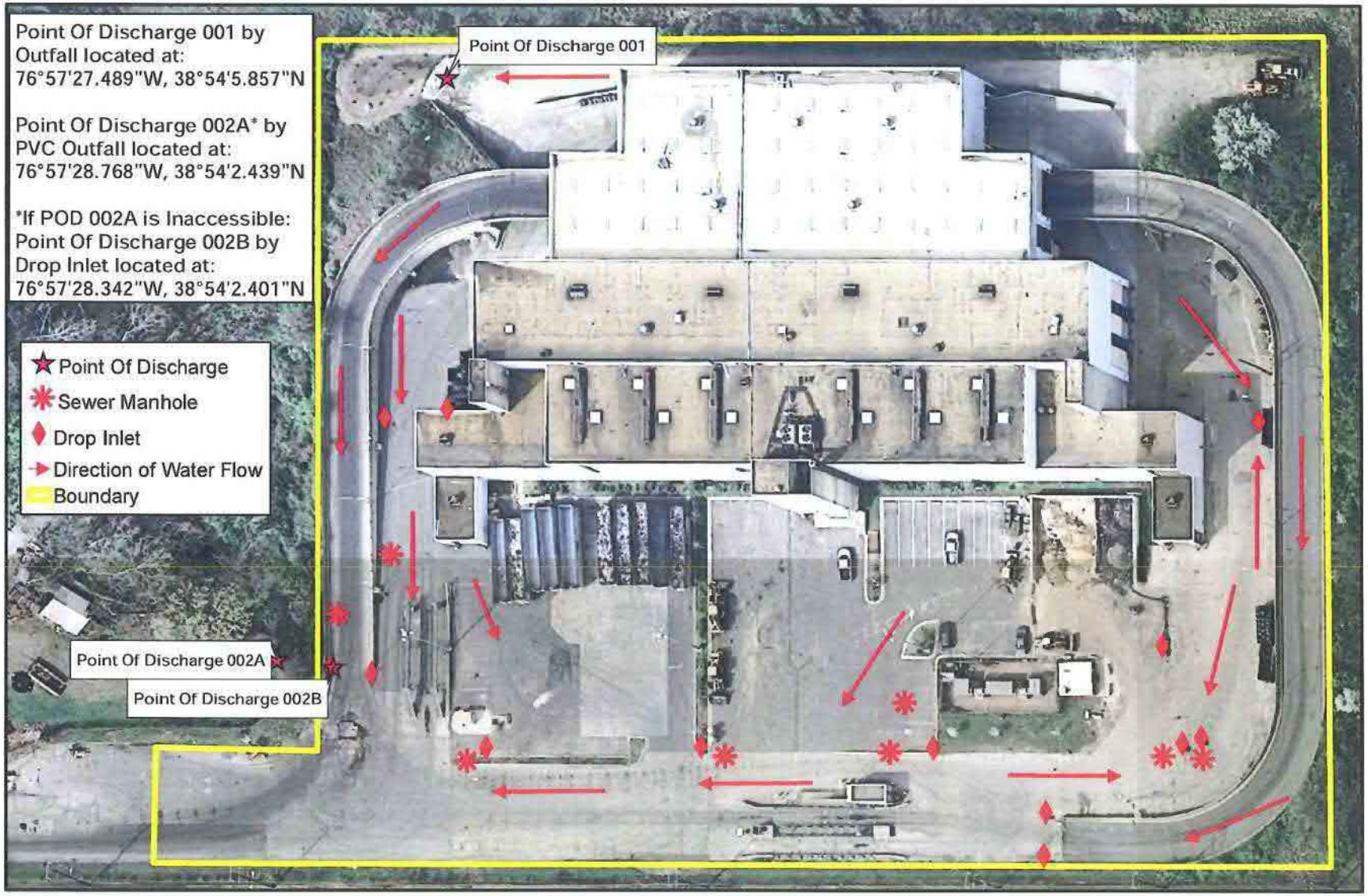
| Name | Signature | Date Signed |
| --- | --- | --- |
| Andrew Hughey |  | 09/17/2018 |

**Certification by Facility Responsible Official (Refer to MSGP Subpart 11 Appendix B for Signatory Requirements)**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| Name | Date Signed | Signature |
| --- | --- | --- |
| | 09/17/2018 | |

**Title**




APEX
8854 RIXLEW LANE
MANASSAS, VA 20109
TELEPHONE: (703) 396-6730
FAX: (703) 396-6743

Appendix H
3200 Benning Road NE,
Washington, DC 21002
Benning Road
SWMA Waste/Recycling Facility

0 25 50 100 150 200 Feet

Coordinate System: Lambert Conformal Conic
Central Meridian: 77°0'0"W
1st Std Parallel: 38°18'0"N
2nd Std Parallel: 39°27'0"N
Latitude of Origin: 37°40'0"N

N

Department of Public Works
Washington, DC SWP3 2010
Appendix Update: 7/1/2014
2010 USGS Orthoimage
.16 Meter Resolution

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# Microbac Laboratories, Inc. - Baltimore

## CERTIFICATE OF ANALYSIS

18H0647

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110

**Project Name: DC DPW - Site #8**

Project / PO Number: N/A
Received: 09/19/2018
Reported: 09/28/2018

**Analytical Testing Parameters**

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Sector K (001) | | |
| **Sample Matrix:** | Stormwater | **Collected By:** | Customer |
| **Lab Sample ID:** | 18H0647-01 | **Collection Date:** | 09/17/2018 17:00 |

| Wet Chemistry | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 335.4** | | | | | | | | |
| Cyanide, Total | <0.0050 | | 0.0050 | mg/L | | 09/24/18 1107 | 09/24/18 1300 | SRZ |
| **Method: EPA 410.4** | | | | | | | | |
| COD, Total | <50 | | 50 | mg/L | | 09/27/18 0830 | 09/27/18 1145 | LCR |
| **Method: SM 4500-NH3 B+C-11** | | | | | | | | |
| Ammonia as N | 1.1 | | 1.0 | mg/L | | 09/24/18 1613 | 09/24/18 1630 | OCT |

| Mercury, Total by EPA 200/7000 Series Methods | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 245.1** | | | | | | | | |
| Mercury | <0.00020 | | 0.00020 | mg/L | | 09/27/18 1000 | 09/27/18 1416 | APS |

| Metals, Total by EPA 200 Series Methods | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.7** | | | | | | | | |
| Antimony | 0.13 | | 0.040 | mg/L | | 09/20/18 1128 | 09/24/18 1644 | APS |
| Arsenic | 0.022 | | 0.020 | mg/L | | 09/20/18 1128 | 09/24/18 1644 | APS |
| Cadmium | <0.010 | | 0.010 | mg/L | | 09/20/18 1128 | 09/24/18 1644 | APS |
| Calcium | 1.6 | | 0.20 | mg/L | | 09/20/18 1128 | 09/24/18 1644 | APS |
| Lead | <0.020 | | 0.020 | mg/L | | 09/20/18 1128 | 09/24/18 1644 | APS |
| Magnesium | 0.32 | | 0.20 | mg/L | | 09/20/18 1128 | 09/24/18 1644 | APS |
| Selenium | <0.040 | | 0.040 | mg/L | | 09/20/18 1128 | 09/24/18 1644 | APS |
| Silver | <0.0040 | | 0.0040 | mg/L | | 09/20/18 1128 | 09/24/18 1644 | APS |
| **Method: SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | 5.3 | | 1.3 | mg/L | | 09/20/18 1128 | 09/24/18 1644 | APS |

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# Microbac Laboratories, Inc. - Baltimore

## CERTIFICATE OF ANALYSIS

## 18H0647

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site #8 Sector N (001) | | |
| **Sample Matrix:** | Stormwater | **Collected By:** | Customer |
| **Lab Sample ID:** | 18H0647-02 | **Collection Date:** | 09/17/2018 17:00 |

| Wet Chemistry | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 410.4** | | | | | | | | |
| COD, Total | <50 | | 50 | mg/L | | 09/27/18 0830 | 09/27/18 1145 | LCR |
| **Method: SM 2540 D-11** | | | | | | | | |
| Total Suspended Solids | 2.6 | | 2.0 | mg/L | | 09/20/18 0730 | 09/21/18 1500 | LCR |

| Metals, Total by EPA 200 Series Methods | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.7** | | | | | | | | |
| Aluminum | <0.10 | | 0.10 | mg/L | | 09/20/18 1128 | 09/24/18 1654 | APS |
| Calcium | 1.6 | | 0.20 | mg/L | | 09/20/18 1128 | 09/24/18 1654 | APS |
| Copper | <0.020 | | 0.020 | mg/L | | 09/20/18 1128 | 09/24/18 1654 | APS |
| Iron | 0.033 | | 0.020 | mg/L | | 09/20/18 1128 | 09/24/18 1654 | APS |
| Lead | <0.020 | | 0.020 | mg/L | | 09/20/18 1128 | 09/24/18 1654 | APS |
| Magnesium | 0.32 | | 0.20 | mg/L | | 09/20/18 1128 | 09/24/18 1654 | APS |
| Zinc | 0.026 | | 0.020 | mg/L | | 09/20/18 1128 | 09/24/18 1654 | APS |
| **Method: SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | 5.2 | | 1.3 | mg/L | | 09/20/18 1128 | 09/24/18 1654 | APS |

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## CERTIFICATE OF ANALYSIS

## 18H0647

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site #8 Sector K (002) | | |
| **Sample Matrix:** | Stormwater | **Collected By:** | Customer |
| **Lab Sample ID:** | 18H0647-03 | **Collection Date:** | 09/17/2018 16:50 |

| Wet Chemistry | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 335.4** | | | | | | | | |
| Cyanide, Total | 0.046 | | 0.0050 | mg/L | | 09/25/18 0836 | 09/25/18 1152 | SRZ |
| **Method: EPA 410.4** | | | | | | | | |
| COD, Total | 12000 | | 500 | mg/L | | 09/27/18 0830 | 09/27/18 1145 | LCR |
| **Method: SM 4500-NH3 B+C-11** | | | | | | | | |
| Ammonia as N | <1.0 | | 1.0 | mg/L | | 09/24/18 1613 | 09/24/18 1630 | OCT |

| Mercury, Total by EPA 200/7000 Series Methods | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 245.1** | | | | | | | | |
| Mercury | 0.00045 | | 0.00020 | mg/L | | 09/27/18 1000 | 09/27/18 1418 | APS |

| Metals, Total by EPA 200 Series Methods | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.7** | | | | | | | | |
| Antimony | <0.20 | | 0.20 | mg/L | | 09/20/18 1128 | 09/24/18 1705 | APS |
| Arsenic | <0.10 | | 0.10 | mg/L | | 09/20/18 1128 | 09/24/18 1705 | APS |
| Cadmium | <0.050 | | 0.050 | mg/L | | 09/20/18 1128 | 09/24/18 1705 | APS |
| Calcium | 900 | | 5.0 | mg/L | | 09/20/18 1128 | 09/24/18 1748 | APS |
| Lead | 0.28 | | 0.10 | mg/L | | 09/20/18 1128 | 09/24/18 1705 | APS |
| Magnesium | 50 | | 5.0 | mg/L | | 09/20/18 1128 | 09/24/18 1748 | APS |
| Selenium | <0.20 | | 0.20 | mg/L | | 09/20/18 1128 | 09/24/18 1705 | APS |
| Silver | <0.020 | | 0.020 | mg/L | | 09/20/18 1128 | 09/24/18 1705 | APS |
| **Method: SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | 2500 | | 33 | mg/L | | 09/20/18 1128 | 09/24/18 1748 | APS |

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## CERTIFICATE OF ANALYSIS

## 18H0647

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site #8 Sector N (002) | | |
| **Sample Matrix:** | Stormwater | **Collected By:** | Customer |
| **Lab Sample ID:** | 18H0647-04 | **Collection Date:** | 09/17/2018 16:50 |

| Wet Chemistry | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 410.4** | | | | | | | | |
| COD, Total | 16000 | | 1200 | mg/L | | 09/27/18 0830 | 09/27/18 1145 | LCR |
| **Method: SM 2540 D-11** | | | | | | | | |
| Total Suspended Solids | 5000 | | 200 | mg/L | | 09/20/18 0730 | 09/21/18 1500 | LCR |

| Metals, Total by EPA 200 Series Methods | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.7** | | | | | | | | |
| Aluminum | 9.1 | | 0.50 | mg/L | | 09/20/18 1128 | 09/24/18 1709 | APS |
| Calcium | 880 | | 5.0 | mg/L | | 09/20/18 1128 | 09/24/18 1752 | APS |
| Copper | 0.43 | | 0.10 | mg/L | | 09/20/18 1128 | 09/24/18 1709 | APS |
| Iron | 48 | | 0.50 | mg/L | | 09/20/18 1128 | 09/24/18 1752 | APS |
| Lead | 0.29 | | 0.10 | mg/L | | 09/20/18 1128 | 09/24/18 1709 | APS |
| Magnesium | 49 | | 5.0 | mg/L | | 09/20/18 1128 | 09/24/18 1752 | APS |
| Zinc | 7.8 | | 0.10 | mg/L | | 09/20/18 1128 | 09/24/18 1709 | APS |
| **Method: SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | 2400 | | 33 | mg/L | | 09/20/18 1128 | 09/24/18 1752 | APS |

*Results in **bold** have exceeded a limit defined for this project. Limits are provided for reference but as regulatory limits change frequently, Microbac Laboratories, Inc. advises the recipient of this report to confirm such limits and units of concentration with the appropriate Federal, state or local authorities before acting on the data.*

**Definitions**

**RL:** Reporting Limit

**Project Requested Certification(s)**

Microbac Laboratories, Inc. - Baltimore
E871126 Florida - NELAC

**Report Comments**

*Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.*

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.*

**Reviewed and Approved By:**



Isang Isang
Client Relations
Reported: 09/28/2018 10:30

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# Microbac Laboratories, Inc. - Baltimore

## Chain of Custody

## 18H0647

**TAT 7 days**

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

Reviewed By: II
Date: 9/20/18

**Project Name: DC DPW - Site #8**

Project / PO Number: N/A
Tenatively Scheduled: 8/8/2018
Field Route ID: Customer Prelogs - Baltimore

---

**Client Sample ID:** Site # 8 Sector K (001)
**Lab Sample ID:** 18H0647-01
**Matrix:** Stormwater
**Type:** Grab

**Sampled Date & Time:** 9/17/18 1700

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| Hg_Total | EPA 245.1 | | 28.00 days |
| M_Ag_ICP | EPA 200.7 | | 180.00 days |
| M_As_ICP | EPA 200.7 | | 180.00 days |
| M_Cd_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Sb_ICP | EPA 200.7 | | 180.00 days |
| M_Se_ICP | EPA 200.7 | | 180.00 days |
| CN_Total_Seal | EPA 335.4 | | 14.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |
| NH3_Titration | SM 4500-NH3 B+C-11 | | 28.00 days |

| Container(s) | Designator |
|---|---|
| P- 250ml Plastic Absorbic then NaOH to pH >12 | A |
| B-1000ml Plastic H2SO4 to pH <2 | B |
| A- 500ml Plastic HNO3 to pH <2 | C |

---

**Client Sample ID:** Site #8 Sector N (001)
**Lab Sample ID:** 18H0647-02
**Matrix:** Stormwater
**Type:** Grab

**Sampled Date & Time:** 9/17/18 1700

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| M_Al_ICP | EPA 200.7 | | 180.00 days |
| M_Cu_ICP | EPA 200.7 | | 180.00 days |
| M_Fe_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Zn_ICP | EPA 200.7 | | 180.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |
| TSS | SM 2540 D-11 | | 7.00 days |

# Microbac Laboratories, Inc. - Baltimore

## Chain of Custody

## 18H0647

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DC DPW - Site #8**

Project / PO Number: N/A
Tenatively Scheduled: 8/8/2018
Field Route ID: Customer Prelogs - Baltimore

| Container(s) | Designator |
|---|---|
| B-1000ml Plastic H2SO4 to pH <2 | A |
| A- 500ml Plastic HNO3 to pH <2 | B |
| B-1000ml Plastic Neat | C |

---

**Client Sample ID:** Site #8 Sector K (002)
**Lab Sample ID:** 18H0647-03
**Matrix:** Stormwater
**Type:** Grab

**Sampled Date & Time:** 9/17/18 1650

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| Hg_Total | EPA 245.1 | | 28.00 days |
| M_Ag_ICP | EPA 200.7 | | 180.00 days |
| M_As_ICP | EPA 200.7 | | 180.00 days |
| M_Cd_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Sb_ICP | EPA 200.7 | | 180.00 days |
| M_Se_ICP | EPA 200.7 | | 180.00 days |
| CN_Total_Seal | EPA 335.4 | | 14.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |
| NH3_Titration | SM 4500-NH3 B+C-11 | | 28.00 days |

| Container(s) | Designator |
|---|---|
| P- 250ml Plastic Absorbic then NaOH to pH >12 | A |
| B-1000ml Plastic H2SO4 to pH <2 | B |
| A- 500ml Plastic HNO3 to pH <2 | C |

---

**Client Sample ID:** Site #8 Sector N (002)
**Lab Sample ID:** 18H0647-04
**Matrix:** Stormwater
**Type:** Grab

**Sampled Date & Time:** 9/17/18 1650

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| M_Al_ICP | EPA 200.7 | | 180.00 days |
| M_Cu_ICP | EPA 200.7 | | 180.00 days |
| M_Fe_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Zn_ICP | EPA 200.7 | | 180.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |

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# Microbac Laboratories, Inc. - Baltimore

## Chain of Custody

# 18H0647

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DC DPW - Site #8**

Project / PO Number: N/A
Tenatively Scheduled: 8/8/2018
Field Route ID: Customer Prelogs - Baltimore

| | | |
|---|---|---|
| TSS | SM 2540 D-11 | 7.00 days |

| Container(s) | Designator |
|---|---|
| B-1000ml Plastic H2SO4 to pH <2 | A |
| A- 500ml Plastic HNO3 to pH <2 | B |
| B-1000ml Plastic Neat | C |

| | | | |
|---|---|---|---|
| Sampled/Relinquished by: | | Date/Time: 9/18/18 1651 | Received by: |
| Printed Name: | | | Printed Name: |
| Relinquished by: | | Date/Time: 9/19/18 11:23 | Received by: |
| Printed Name: | | | Printed Name: |
| Relinquished by: | | Date/Time: 9/19/18 14:25 | Received by: |
| Printed Name: | | | Printed Name: |

*As Received at Laboratory:* On Ice: (Yes) / No Temp 2.3 °C Total Bottles: 12

*Microbac Laboratories may be unable to perform a portion of the requested testing in which case we will subcontract the analysis to an appropriately accredited laboratory. By signing this document you are acknowledging that you have been informed by Microbac that testing could be subcontracted and agree with this arrangement.*

**Notes:**

| **Cooler Receipt Form / Sample Acceptance & Noncompliance Form** | Microbac Laboratories, Inc., Baltimore Division<br>Control # 606-03<br>Effective Date: 11/30/2016<br>Page 1 of 1 |
|---|---|

Number of Coolers Received: 1
Client: Apex
Form Completed By: Tiffany Bock

Receipt Date / Time: 9/19/18 / 14:25
Work Order #

Shipper: ☐ Microbac ☐ Client ☐ UPS ☐ FedEx
Custody Tape Intact: YES / NO / NA
Containers Intact: YES / NO
Sample Received on Ice or refrigerated: YES / NO / NA
Infrared (IR) Temperature: 2.3 °C

Chain of Custody Present with shipment: YES / NO
Sample Bottle IDs agree with COC: YES / NO
Preservation requirements met: YES / NO / Not Checked
Correct Number of Containers / Sample Volume: YES / NO (If No, contact client immediately)
Headspace in container: YES / NO / NA
Type of Sample: Water Soil Wipes Oil Filter Solid Sludge Food Swab Other

***Container Type / Quantity:*** 9 11 TRB 9/19/18

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **A** - ___ | Unpreserved | ___ H2SO4 | 9 HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid: | If preserved pH <2 ___, pH >10 ___ | |
| **B** - 7 | Unpreserved | 8 H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |
| **C** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |
| **D** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |
| **E** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |
| **H** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |
| **K** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |
| **L** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |
| **M** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |
| **P** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | 4 NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |
| **W** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |
| **V** - ___ | Unpreserved | ___ HCl | ___ HCl / Ascorbic Acid | ___ HCl / NaTHIO **(Checked at time of Analysis)** | | | | |
| **F** - ___ | Unpreserved | ___ NaTHIO **(Checked at time of Analysis)** | | | | | | |
| **S** - ___ | Unpreserved | ___ NaTHIO **(Checked at time of Analysis)** | | | | | | |
| **SN** - ___ | Unpreserved | ___ NaTHIO | ___ NaTHIO/EDTA **(Checked at time of Analysis)** | | | | | |
| | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |
| | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |
| | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 ___, pH >10 ___ | |

**Describe preservation requirements not met:**

| *All Acid preserved <2 pH* | *NaOH preserved >12 pH* | *All others >2 and <10 (usually 4-8)* |
|---|---|---|
| Sample ID: _____ | $H_2SO_4$ $HNO_3$ NaOH | _____ mls added |
| Sample ID: _____ | $H_2SO_4$ $HNO_3$ NaOH | _____ mls added |
| Sample ID: _____ | $H_2SO_4$ $HNO_3$ NaOH | _____ mls added |
| Sample ID: _____ | $H_2SO_4$ $HNO_3$ NaOH | _____ mls added |

*$H_2SO_4$ – Sulfuric Acid, $HNO_3$ – Nitric Acid, NaOH – Sodium Hydroxide, ASC – Ascorbic Acid, NaTHIO – Sodium Thiosulfate*

Describe Anomalies:
18H0647-04B, 18H0647-03C, 18H0647-04A, 18H0647-03B
pH was low than 2. Added 3 ml HNO3 to A bottles & 5 mL AS soln to B bottles
Now pH is correct. TRB 9/19/18

**Contact information / Summary of Actions:**

Date / Time: _____ Contact: _____ Contact By: _____
Comments: _____

APEX

## TABLE 6 - LAB ANALYSES: SITE #8 – 3200 BENNING ROAD, NE OUTFALL 001
**REPORT NO.: 18H0647**

| Sector K Results for Outfall 001 | | |
|---|---|---|
| **Analyte** | **Results** | **Benchmark Monitoring Concentration** |
| Cyanide, Total | <0.0050 mg/L | 0.022 mg/L |
| Chemical Oxygen Demand, Total | <50 mg/L | 120 mg/L |
| Ammonia as N | 1.1 mg/L | 2.14 mg/L |
| Mercury | <0.00020 mg/L | 0.0014 mg/L |
| **Silver** | **<0.0040 mg/L** | **0.0007 mg/L** |
| Arsenic | 0.022 mg/L | 0.15 mg/L |
| **Cadmium** | **<0.010 mg/L** | **0.0005 mg/L** |
| Magnesium | 0.32 mg/L | 0.064 mg/L |
| **Lead** | **<0.020 mg/L** | **0.014 mg/L** |
| **Selenium** | **<0.040 mg/L** | **0.005 mg/L** |
| Hardness ($CaCO_3$) | 5.3 mg/L | |
| **Sector N Results for Outfall 001** | | |
| **Analyte** | **Results** | **Benchmark Monitoring Concentration** |
| Chemical Oxygen Demand, Total | <50 mg/L | 120 mg/L |
| Total Suspended Solids | 2.6 mg/L | 100 mg/L |
| Aluminum | <0.10 mg/L | 0.75 mg/L |
| **Copper** | **<0.020 mg/L** | **0.0038 mg/L** |
| Iron | 0.033 mg/L | 1.0 mg/L |
| **Lead** | **<0.020 mg/L** | **0.014 mg/L** |
| Zinc | 0.026 mg/L | 0.04 mg/L |
| Hardness ($CaCO_3$) | 5.2 mg/L | |

ND – Non Detect

* – Result is less than the detection limit

## TABLE 7 - LAB ANALYSES: SITE #8 – 3200 BENNING ROAD, NE OUTFALL 002
**REPORT NO.: 18H0647**

| Sector K Results for Outfall 002 | | |
|---|---|---|
| **Analyte** | **Results** | **Benchmark Monitoring Concentration** |
| Cyanide, Total | 0.046 mg/L | 0.022 mg/L |
| **Chemical Oxygen Demand, Total** | **12,000 mg/L** | **120 mg/L** |
| Ammonia as N | <1.0 mg/L | 2.14 mg/L |
| Mercury | 0.00045 mg/L | 0.0014 mg/L |
| Silver | <0.020 mg/L* | 0.0183 mg/L |
| Arsenic | <0.10 mg/L | 0.15 mg/L |

APEX

## TABLE 6 - LAB ANALYSES: SITE #8 – 3200 BENNING ROAD, NE OUTFALL 001
**REPORT NO.: 18H0647**

| Sector K Results for Outfall 001 | | |
|---|---|---|
| **Analyte** | **Results** | **Benchmark Monitoring Concentration** |
| Cyanide, Total | <0.0050 mg/L | 0.022 mg/L |
| Chemical Oxygen Demand, Total | <50 mg/L | 120 mg/L |
| Ammonia as N | 1.1 mg/L | 2.14 mg/L |
| Mercury | <0.00020 mg/L | 0.0014 mg/L |
| **Silver** | **<0.0040 mg/L** | **0.0007 mg/L** |
| Arsenic | 0.022 mg/L | 0.15 mg/L |
| **Cadmium** | **<0.010 mg/L** | **0.0005 mg/L** |
| Magnesium | 0.32 mg/L | 0.064 mg/L |
| **Lead** | **<0.020 mg/L** | **0.014 mg/L** |
| **Selenium** | **<0.040 mg/L** | **0.005 mg/L** |
| Hardness ($CaCO_3$) | 5.3 mg/L | |
| **Sector N Results for Outfall 001** | | |
| **Analyte** | **Results** | **Benchmark Monitoring Concentration** |
| Chemical Oxygen Demand, Total | <50 mg/L | 120 mg/L |
| Total Suspended Solids | 2.6 mg/L | 100 mg/L |
| Aluminum | <0.10 mg/L | 0.75 mg/L |
| **Copper** | **<0.020 mg/L** | **0.0038 mg/L** |
| Iron | 0.033 mg/L | 1.0 mg/L |
| **Lead** | **<0.020 mg/L** | **0.014 mg/L** |
| Zinc | 0.026 mg/L | 0.04 mg/L |
| Hardness ($CaCO_3$) | 5.2 mg/L | |

ND – Non Detect

* – Result is less than the detection limit

## TABLE 7 - LAB ANALYSES: SITE #8 – 3200 BENNING ROAD, NE OUTFALL 002
**REPORT NO.: 18H0647**

| Sector K Results for Outfall 002 | | |
|---|---|---|
| **Analyte** | **Results** | **Benchmark Monitoring Concentration** |
| Cyanide, Total | 0.046 mg/L | 0.022 mg/L |
| **Chemical Oxygen Demand, Total** | **12,000 mg/L** | **120 mg/L** |
| Ammonia as N | <1.0 mg/L | 2.14 mg/L |
| Mercury | 0.00045 mg/L | 0.0014 mg/L |
| Silver | <0.020 mg/L* | 0.0183 mg/L |
| Arsenic | <0.10 mg/L | 0.15 mg/L |

| | | |
|---|---|---|
| **Cadmium** | **<0.050 mg/L** | **0.0053 mg/L** |
| **Magnesium** | **50 mg/L** | **0.064 mg/L** |
| **Lead** | **0.28 mg/L** | **0.262 mg/L** |
| **Selenium** | **<0.20 mg/L** | **0.005 mg/L** |
| Hardness ($CaCO_3$) | 2,500 mg/L | |
| **Sector N Results for Outfall 002** | | |
| **Analyte** | **Results** | **Benchmark Monitoring Concentration** |
| **Chemical Oxygen Demand, Total** | **16,000 mg/L** | **120 mg/L** |
| **Total Suspended Solids** | **5,000 mg/L** | **100 mg/L** |
| **Aluminum** | **9.1 mg/L** | **0.75 mg/L** |
| **Copper** | **0.43 mg/L** | **0.0332 mg/L** |
| **Iron** | **48 mg/L** | **1.0 mg/L** |
| **Lead** | **0.29 mg/L** | **0.262 mg/L** |
| **Zinc** | **7.8 mg/L** | **0.26 mg/L** |
| Hardness ($CaCO_3$) | 2,400 mg/L | |

ND – Non Detect
* – Result is less than the detection limit

**TABLE 8 - LAB ANALYSES: SITE #9 – 2400 EAST CAPITOL ST SE OUTALL 001**
**REPORT NO.: 18H0648-01**

| **Sector L Results for Outfall 001** | | |
|---|---|---|
| **Analyte** | **Results** | **Benchmark Monitoring Concentrations** |
| **Total Suspended Solids** | **190 mg/L** | **100 mg/L** |
| **Iron** | **4.0 mg/L** | **1.0 mg/L** |

ND – Non Detect
* – Result is less than the detection limit

**TABLE 9 - LAB ANALYSES: SITE #10 - 3865 FORT RENO DR NW OUTFALL 001**
**REPORT NO.: 18H0644-01**

| **Sector L Results for Outfall 001** | | |
|---|---|---|
| **Analyte** | **Results** | **Benchmark Monitoring Concentrations** |
| Total Suspended Solids | 87 mg/L | 100 mg/L |
| **Iron** | **1.7 mg/L** | **1.0 mg/L** |

ND – Non Detect
* – Result is less than the detection limit

# NPDES Quarterly Visual Assessment Form

## Assessment

**Name of Facility**
Appendix H
**NPDES Tracking No.**
DC0000221
**Outfall Name/Number**
001
**"Substantially Identical Outfall"?**
No
**Substitute Sample?**
No
**Person(s)/Title(s) Collecting Sample**
Andrew Hughey
**Amount (inches)**
.15

**Duration (time) between Prior Rainfall and Current Rainfall (must be at least 72 hrs or 3 days)**
>72hrs
Current Rainfall Event
**Start Time of Discharge:**
01:30 PM
**Current Rainfall Amount (inches)**
0.15
**Substitute Sample?**
No
**Time Sample Collected (must be within one-hour of start of discharge, or explain)**
05:00 PM
**Time Sample Examined (must be within 30 minutes after sample collected, or explain)**
05:06 PM

**Comments**
First discharge occurred during a quick downpour, and flow had ceased by the time I arrived. I had to wait for more rain.
**Nature of Discharge**
Rainfall
**If Rainfall, amount (inches)**
0.15
**Previous Storm Ended >72 hours Before Start of Storm?**
Yes

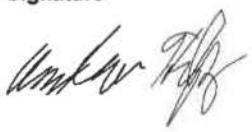
## Parameter

**Color**
None
**Odor**
Petroleum/Gas
**Clarity**
Slightly Cloudy
**Floating Solids**
No
**Settled Solids**
No

**Suspended Solids**
Yes
**If Yes, describe**
Organic material
**Foam (gently shake sample)**
No
**Oil Sheen**
None
**Other Obvious Indicators of Stormwater Pollution**
No
**Detail any concerns, additional comments, and any corrective actions taken below**

# NPDES Quarterly Visual Assessment Form

Person Collecting/Examining Sample:

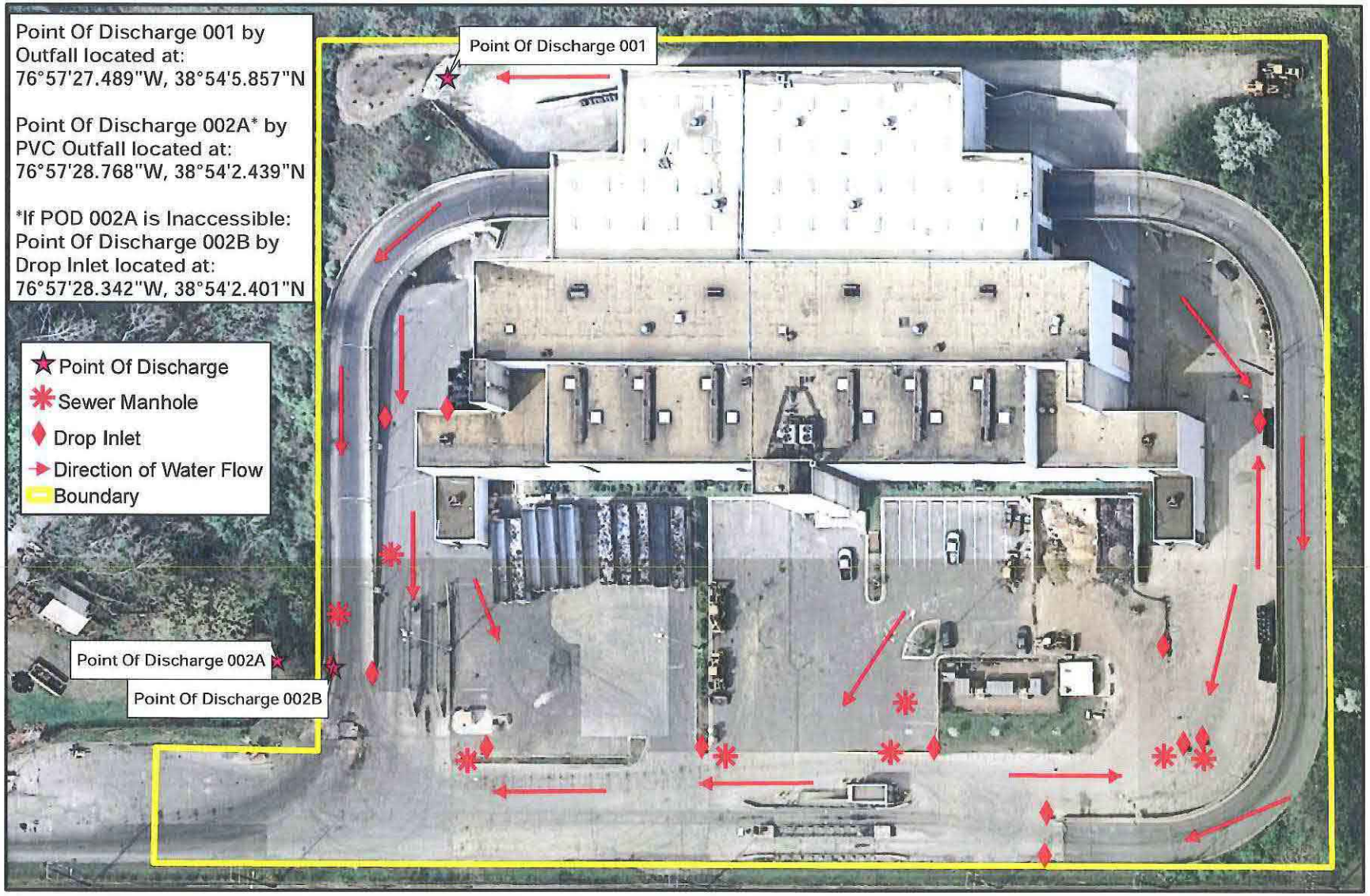
| Name | Signature | Date Signed |
| --- | --- | --- |
| Andrew Hughey |  | 09/17/2018 |

**Certification by Facility Responsible Official (Refer to MSGP Subpart 11 Appendix B for Signatory Requirements)**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| Name | Date Signed | Signature |
| --- | --- | --- |
| | 09/17/2018 | |

**Title**




APEX
8854 RIXLEW LANE
MANASSAS, VA 20109
TELEPHONE: (703) 396-6730
FAX: (703) 396-6743

Appendix H
3200 Benning Road NE,
Washington, DC 21002
Benning Road
SWMA Waste/Recycling Facility

0 25 50 100 150 200 Feet

Coordinate System: Lambert Conformal Conic
Central Meridian: 77°0'0"W
1st Std Parallel: 38°18'0"N
2nd Std Parallel: 39°27'0"N
Latitude of Origin: 37°40'0"N

N

Department of Public Works
Washington, DC SWP3 2010
Appendix Update: 7/1/2014
2010 USGS Orthoimage
.16 Meter Resolution

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# Microbac Laboratories, Inc. - Baltimore

## CERTIFICATE OF ANALYSIS

18L0946

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Received: 02/22/2019
Reported: 03/08/2019

### Analytical Testing Parameters

**Client Sample ID:** Site # 8 Outfall 001 Sector K
**Sample Matrix:** Aqueous
**Lab Sample ID:** 18L0946-01
**Collected By:** Customer
**Collection Date:** 02/21/2019 8:45

| Wet Chemistry | Result | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|
| **Method: EPA 335.4** | | | | | | | |
| Cyanide, Total | <0.0050 | 0.0050 | mg/L | | 02/25/19 1406 | 02/25/19 1601 | SRZ |
| **Method: EPA 410.4** | | | | | | | |
| COD, Total | **52** | 50 | mg/L | | 03/01/19 0927 | 03/04/19 0913 | ENK |
| **Method: SM 4500-NH3 B+C-11** | | | | | | | |
| Ammonia as N | <1.0 | 1.0 | mg/L | | 03/05/19 1214 | 03/05/19 1257 | OCT |

| Mercury, Total by EPA 200/7000 Series Methods | Result | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|
| **Method: EPA 245.1** | | | | | | | |
| Mercury | <0.00020 | 0.00020 | mg/L | | 02/28/19 1310 | 02/28/19 1642 | APS |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.7** | | | | | | | |
| Antimony | <0.040 | 0.040 | mg/L | | 02/25/19 0715 | 02/25/19 1811 | APS |
| Arsenic | <0.020 | 0.020 | mg/L | | 02/25/19 0715 | 02/25/19 1811 | APS |
| Cadmium | <0.010 | 0.010 | mg/L | | 02/25/19 0715 | 02/25/19 1811 | APS |
| Calcium | **17** | 0.20 | mg/L | | 02/25/19 0715 | 02/25/19 1811 | APS |
| Lead | <0.020 | 0.020 | mg/L | | 02/25/19 0715 | 02/25/19 1811 | APS |
| Magnesium | **2.9** | 0.20 | mg/L | | 02/25/19 0715 | 02/25/19 1811 | APS |
| Selenium | <0.040 | 0.040 | mg/L | | 02/25/19 0715 | 02/25/19 1811 | APS |
| Silver | <0.0040 | 0.0040 | mg/L | | 02/25/19 0715 | 02/25/19 1811 | APS |
| **Method: SM 2340 B-11** | | | | | | | |
| Hardness (as CaCO3) | **55** | 1.3 | mg/L | | 02/25/19 0715 | 02/25/19 1811 | APS |

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CERTIFICATE OF ANALYSIS

18L0946

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 001 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 18L0946-02 | **Collection Date:** | 02/21/2019 8:45 |

| Wet Chemistry | Result | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|
| **Method: EPA 410.4** | | | | | | | |
| COD, Total | **57** | 50 | mg/L | | 03/01/19 0927 | 03/04/19 0913 | ENK |
| **Method: SM 2540 D-11** | | | | | | | |
| Total Suspended Solids | **12** | 5.0 | mg/L | | 02/26/19 0904 | 02/27/19 1147 | VAS |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.7** | | | | | | | |
| Aluminum | **0.74** | 0.10 | mg/L | | 02/25/19 0715 | 02/25/19 1815 | APS |
| Calcium | **15** | 0.20 | mg/L | | 02/25/19 0715 | 02/25/19 1815 | APS |
| Copper | <0.020 | 0.020 | mg/L | | 02/25/19 0715 | 02/25/19 1815 | APS |
| Iron | **1.5** | 0.020 | mg/L | | 02/25/19 0715 | 02/25/19 1815 | APS |
| Lead | <0.020 | 0.020 | mg/L | | 02/25/19 0715 | 02/25/19 1815 | APS |
| Magnesium | **2.4** | 0.20 | mg/L | | 02/25/19 0715 | 02/25/19 1815 | APS |
| Zinc | **0.072** | 0.020 | mg/L | | 02/25/19 0715 | 02/25/19 1815 | APS |
| **Method: SM 2340 B-11** | | | | | | | |
| Hardness (as CaCO3) | **48** | 1.3 | mg/L | | 02/25/19 0715 | 02/25/19 1815 | APS |

# CERTIFICATE OF ANALYSIS

## 18L0946

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector K | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 18L0946-03 | **Collection Date:** | 02/21/2019 9:15 |

| Wet Chemistry | Result | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|
| **Method: EPA 335.4** | | | | | | | |
| Cyanide, Total | **0.011** | 0.0050 | mg/L | | 03/04/19 1105 | 03/04/19 1414 | SRZ |
| **Method: EPA 410.4** | | | | | | | |
| COD, Total | **530** | 50 | mg/L | | 03/05/19 0822 | 03/06/19 1125 | ENK |
| **Method: SM 4500-NH3 B+C-11** | | | | | | | |
| Ammonia as N | <1.0 | 1.0 | mg/L | | 03/05/19 1214 | 03/05/19 1257 | OCT |

| Mercury, Total by EPA 200/7000 Series Methods | Result | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|
| **Method: EPA 245.1** | | | | | | | |
| Mercury | **0.00030** | 0.00020 | mg/L | | 02/28/19 1310 | 02/28/19 1649 | APS |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.7** | | | | | | | |
| Antimony | <0.20 | 0.20 | mg/L | | 02/25/19 0715 | 02/25/19 1818 | APS |
| Arsenic | <0.10 | 0.10 | mg/L | | 02/25/19 0715 | 02/25/19 1818 | APS |
| Cadmium | <0.050 | 0.050 | mg/L | | 02/25/19 0715 | 02/25/19 1818 | APS |
| Calcium | **31** | 1.0 | mg/L | | 02/25/19 0715 | 02/25/19 1818 | APS |
| Lead | <0.10 | 0.10 | mg/L | | 02/25/19 0715 | 02/25/19 1818 | APS |
| Magnesium | **4.4** | 1.0 | mg/L | | 02/25/19 0715 | 02/25/19 1818 | APS |
| Selenium | <0.20 | 0.20 | mg/L | | 02/25/19 0715 | 02/25/19 1818 | APS |
| Silver | <0.020 | 0.020 | mg/L | | 02/25/19 0715 | 02/25/19 1818 | APS |
| **Method: SM 2340 B-11** | | | | | | | |
| Hardness (as CaCO3) | **96** | 6.6 | mg/L | | 02/25/19 0715 | 02/25/19 1818 | APS |

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## CERTIFICATE OF ANALYSIS

## 18L0946

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 18L0946-04 | **Collection Date:** | 02/21/2019 9:15 |

| Wet Chemistry | Result | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|
| **Method: EPA 410.4** | | | | | | | |
| COD, Total | **770** | 50 | mg/L | | 03/05/19 0822 | 03/06/19 1125 | ENK |
| **Method: SM 2540 D-11** | | | | | | | |
| Total Suspended Solids | **170** | 40 | mg/L | | 02/26/19 0904 | 02/27/19 1147 | VAS |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.7** | | | | | | | |
| Aluminum | **3.5** | 0.50 | mg/L | | 02/25/19 0715 | 02/25/19 1822 | APS |
| Calcium | **28** | 1.0 | mg/L | | 02/25/19 0715 | 02/25/19 1822 | APS |
| Copper | **0.16** | 0.10 | mg/L | | 02/25/19 0715 | 02/25/19 1822 | APS |
| Iron | **6.1** | 0.10 | mg/L | | 02/25/19 0715 | 02/25/19 1822 | APS |
| Lead | <0.10 | 0.10 | mg/L | | 02/25/19 0715 | 02/25/19 1822 | APS |
| Magnesium | **3.7** | 1.0 | mg/L | | 02/25/19 0715 | 02/25/19 1822 | APS |
| Zinc | **0.33** | 0.10 | mg/L | | 02/25/19 0715 | 02/25/19 1822 | APS |
| **Method: SM 2340 B-11** | | | | | | | |
| Hardness (as CaCO3) | **85** | 6.6 | mg/L | | 02/25/19 0715 | 02/25/19 1822 | APS |

**Definitions**

**RL:** Reporting Limit

**Report Comments**

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.*

**Reviewed and Approved By:**



Jake Mason
Client Relations
Reported: 03/08/2019 12:19

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# Microbac Laboratories, Inc. - Baltimore

## CERTIFICATE OF ANALYSIS

19B1120

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Received: 06/27/2019
Reported: 07/11/2019

### Analytical Testing Parameters

**Client Sample ID:** Site # 8 Outfall 001 Sector K
**Sample Matrix:** Aqueous
**Lab Sample ID:** 19B1120-01
**Collected By:** Customer
**Collection Date:** 06/24/2019 18:15

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 335.4** | | | | | | | | |
| Cyanide, Total | <0.0050 | 0.0050 | mg/L | 1 | | 07/01/19 0809 | 07/01/19 1521 | SRZ |
| **EPA 410.4** | | | | | | | | |
| COD, Total | <50 | 50 | mg/L | 1 | | 06/28/19 1111 | 06/28/19 1311 | DPG |
| **SM 4500-NH3 B+C-11** | | | | | | | | |
| Ammonia as N | **6.2** | 1.0 | mg/L | 1 | | 07/03/19 1453 | 07/03/19 1532 | OCT |

| Mercury, Total by EPA 200/7000 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 245.1** | | | | | | | | |
| Mercury | <0.00020 | 0.00020 | mg/L | 1 | | 07/10/19 1056 | 07/10/19 1556 | APS |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Antimony | <0.040 | 0.040 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1351 | APS |
| Arsenic | <0.020 | 0.020 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1351 | APS |
| Cadmium | <0.010 | 0.010 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1351 | APS |
| Calcium | **67** | 0.20 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1351 | APS |
| Lead | <0.020 | 0.020 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1351 | APS |
| Magnesium | **12** | 0.20 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1351 | APS |
| Selenium | <0.040 | 0.040 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1351 | APS |
| Silver | <0.0040 | 0.0040 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1351 | APS |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **220** | 1.3 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1351 | APS |

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# CERTIFICATE OF ANALYSIS

19B1120

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 001 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 19B1120-02 | **Collection Date:** | 06/24/2019 18:15 |

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 410.4** | | | | | | | | |
| COD, Total | <50 | 50 | mg/L | 1 | | 06/28/19 1111 | 06/28/19 1311 | DPG |
| **SM 2540 D-11** | | | | | | | | |
| Total Suspended Solids | **13** | 5.0 | mg/L | 5 | | 06/28/19 1207 | 07/02/19 0828 | EIP |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Aluminum | <0.10 | 0.10 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1355 | APS |
| Calcium | **67** | 0.20 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1355 | APS |
| Copper | <0.020 | 0.020 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1355 | APS |
| Iron | **4.4** | 0.020 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1355 | APS |
| Lead | <0.020 | 0.020 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1355 | APS |
| Magnesium | **12** | 0.20 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1355 | APS |
| Zinc | **0.024** | 0.020 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1355 | APS |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **220** | 1.3 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1355 | APS |

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# CERTIFICATE OF ANALYSIS

19B1120

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector K | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 19B1120-03 | **Collection Date:** | 06/24/2019 19:00 |

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 335.4** | | | | | | | | |
| Cyanide, Total | <0.0050 | 0.0050 | mg/L | 1 | | 07/03/19 1028 | 07/03/19 1143 | SRZ |
| **EPA 410.4** | | | | | | | | |
| COD, Total | <50 | 50 | mg/L | 1 | | 06/28/19 1111 | 06/28/19 1311 | DPG |
| **SM 4500-NH3 B+C-11** | | | | | | | | |
| Ammonia as N | **2.5** | 1.0 | mg/L | 1 | | 07/03/19 1453 | 07/03/19 1532 | OCT |

| Mercury, Total by EPA 200/7000 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 245.1** | | | | | | | | |
| Mercury | <0.00020 | 0.00020 | mg/L | 1 | | 07/10/19 1056 | 07/10/19 1609 | APS |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Antimony | <0.040 | 0.040 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1358 | APS |
| Arsenic | <0.020 | 0.020 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1358 | APS |
| Cadmium | <0.010 | 0.010 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1358 | APS |
| Calcium | **69** | 0.20 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1358 | APS |
| Lead | <0.020 | 0.020 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1358 | APS |
| Magnesium | **15** | 0.20 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1358 | APS |
| Selenium | <0.040 | 0.040 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1358 | APS |
| Silver | <0.0040 | 0.0040 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1358 | APS |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **230** | 1.3 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1358 | APS |

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# CERTIFICATE OF ANALYSIS

19B1120

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 19B1120-04 | **Collection Date:** | 06/24/2019 19:00 |

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 410.4** | | | | | | | | |
| COD, Total | <50 | 50 | mg/L | 1 | | 06/28/19 1111 | 06/28/19 1311 | DPG |
| **SM 2540 D-11** | | | | | | | | |
| Total Suspended Solids | **9.0** | 5.0 | mg/L | 5 | | 06/28/19 1207 | 07/02/19 0828 | EIP |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Aluminum | <0.10 | 0.10 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1402 | APS |
| Calcium | **69** | 0.20 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1402 | APS |
| Copper | <0.020 | 0.020 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1402 | APS |
| Iron | **5.6** | 0.020 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1402 | APS |
| Lead | <0.020 | 0.020 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1402 | APS |
| Magnesium | **14** | 0.20 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1402 | APS |
| Zinc | <0.020 | 0.020 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1402 | APS |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **230** | 1.3 | mg/L | 1 | | 07/02/19 0927 | 07/09/19 1402 | APS |

**Definitions**

**RL:** Reporting Limit

**Report Comments**

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.*

**Reviewed and Approved By:**



Evelyn Shinas
Customer Relationship Coordinator
Reported: 07/11/2019 11:55

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## CERTIFICATE OF ANALYSIS

19F1450

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Received: 10/30/2019
Reported: 11/12/2019

### Analytical Testing Parameters

**Client Sample ID:** Site # 8 Outfall 001 Sector K
**Sample Matrix:** Aqueous
**Lab Sample ID:** 19F1450-01
**Collected By:** Customer
**Collection Date:** 10/30/2019 19:20

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 335.4** | | | | | | | | |
| Cyanide, Total | <0.0050 | 0.0050 | mg/L | 1 | | 11/11/19 0953 | 11/11/19 1103 | SRZ |
| **EPA 410.4** | | | | | | | | |
| COD, Total | **740** | 250 | mg/L | 1 | | 11/05/19 1054 | 11/06/19 1213 | EIP |
| **SM 4500-NH3 B+C-11** | | | | | | | | |
| Ammonia as N | **2.2** | 1.0 | mg/L | 1 | | 11/07/19 1130 | 11/07/19 1308 | SRZ |

| Mercury, Total by EPA 200/7000 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 245.1** | | | | | | | | |
| Mercury | <0.00020 | 0.00020 | mg/L | 1 | | 11/04/19 0917 | 11/04/19 1356 | LNR |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Antimony | <0.040 | 0.040 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1456 | TCB |
| Arsenic | <0.020 | 0.020 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1456 | TCB |
| Cadmium | <0.010 | 0.010 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1456 | TCB |
| Calcium | **58** | 0.20 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1456 | TCB |
| Lead | <0.020 | 0.020 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1456 | TCB |
| Magnesium | **5.0** | 0.20 | mg/L | 1 | **B14** | 11/04/19 1453 | 11/06/19 1456 | TCB |
| Selenium | <0.040 | 0.040 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1456 | TCB |
| Silver | <0.0040 | 0.0040 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1456 | TCB |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **170** | 1.3 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1456 | TCB |

# CERTIFICATE OF ANALYSIS

## 19F1450

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 001 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 19F1450-02 | **Collection Date:** | 10/30/2019 19:20 |

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 410.4** | | | | | | | | |
| COD, Total | **360** | 50 | mg/L | 1 | | 11/05/19 1054 | 11/06/19 1213 | EIP |
| **SM 2540 D-11** | | | | | | | | |
| Total Suspended Solids | **30** | 20 | mg/L | 20 | | 11/05/19 1636 | 11/06/19 1113 | EIP |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Aluminum | **0.64** | 0.10 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1459 | TCB |
| Calcium | **58** | 0.20 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1459 | TCB |
| Copper | **0.079** | 0.020 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1459 | TCB |
| Iron | **2.7** | 0.020 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1459 | TCB |
| Lead | <0.020 | 0.020 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1459 | TCB |
| Magnesium | **5.1** | 0.20 | mg/L | 1 | **B14** | 11/04/19 1453 | 11/06/19 1459 | TCB |
| Zinc | **0.23** | 0.020 | mg/L | 1 | **B14** | 11/04/19 1453 | 11/06/19 1459 | TCB |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **170** | 1.3 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1459 | TCB |

# CERTIFICATE OF ANALYSIS

## 19F1450

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector K | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 19F1450-03 | **Collection Date:** | 10/30/2019 19:25 |

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 335.4** | | | | | | | | |
| Cyanide, Total | <0.0050 | 0.0050 | mg/L | 1 | | 11/11/19 0953 | 11/11/19 1101 | SRZ |
| **EPA 410.4** | | | | | | | | |
| COD, Total | **410** | 50 | mg/L | 1 | | 11/05/19 1054 | 11/06/19 1213 | EIP |
| **SM 4500-NH3 B+C-11** | | | | | | | | |
| Ammonia as N | **1.7** | 1.0 | mg/L | 1 | | 11/07/19 1130 | 11/07/19 1308 | SRZ |

| Mercury, Total by EPA 200/7000 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 245.1** | | | | | | | | |
| Mercury | <0.00020 | 0.00020 | mg/L | 1 | | 11/04/19 0917 | 11/04/19 1358 | LNR |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Antimony | <0.040 | 0.040 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1503 | TCB |
| Arsenic | <0.020 | 0.020 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1503 | TCB |
| Cadmium | <0.010 | 0.010 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1503 | TCB |
| Calcium | **97** | 0.20 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1503 | TCB |
| Lead | <0.020 | 0.020 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1503 | TCB |
| Magnesium | **18** | 0.20 | mg/L | 1 | **B14** | 11/04/19 1453 | 11/06/19 1503 | TCB |
| Selenium | <0.040 | 0.040 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1503 | TCB |
| Silver | <0.0040 | 0.0040 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1503 | TCB |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **310** | 1.3 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1503 | TCB |

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## CERTIFICATE OF ANALYSIS

19F1450

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 19F1450-04 | **Collection Date:** | 10/30/2019 19:25 |

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 410.4** | | | | | | | | |
| COD, Total | **730** | 50 | mg/L | 1 | | 11/05/19 1054 | 11/06/19 1213 | EIP |
| **SM 2540 D-11** | | | | | | | | |
| Total Suspended Solids | **46** | 12 | mg/L | 13 | | 11/05/19 1636 | 11/06/19 1113 | EIP |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Aluminum | **0.44** | 0.10 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1506 | TCB |
| Calcium | **87** | 0.20 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1506 | TCB |
| Copper | <0.020 | 0.020 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1506 | TCB |
| Iron | **5.4** | 0.020 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1506 | TCB |
| Lead | <0.020 | 0.020 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1506 | TCB |
| Magnesium | **16** | 0.20 | mg/L | 1 | **B14** | 11/04/19 1453 | 11/06/19 1506 | TCB |
| Zinc | **0.11** | 0.020 | mg/L | 1 | **B14** | 11/04/19 1453 | 11/06/19 1506 | TCB |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **280** | 1.3 | mg/L | 1 | | 11/04/19 1453 | 11/06/19 1506 | TCB |

**Definitions**

**B14:** Target analyte detected in method blank >2.2 times the MDL but less than the reporting limit. Concentration found in the samples was 10 times the concentration found in the blank. No impact on data.

**RL:** Reporting Limit

**Report Comments**

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.*

**Reviewed and Approved By:**



Evelyn Shinas
Customer Relationship Coordinator
Reported: 11/12/2019 13:04

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# Microbac Laboratories, Inc. - Baltimore

## Chain of Custody

## 19F1450

**TAT 7 days**

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Tenatively Scheduled: 6/28/2019
Field Route ID:

---

**Client Sample ID:** Site # 8 Outfall 001 Sector K
**Lab Sample ID:** 19F1450-01
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 10/30 1920

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| Hg_Total | EPA 245.1 | | 28.00 days |
| M_Ag_ICP | EPA 200.7 | | 180.00 days |
| M_As_ICP | EPA 200.7 | | 180.00 days |
| M_Cd_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Sb_ICP | EPA 200.7 | | 180.00 days |
| M_Se_ICP | EPA 200.7 | | 180.00 days |
| CN_Total_Seal | EPA 335.4 | | 14.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |
| NH3_Titration | SM 4500-NH3 B+C-11 | | 28.00 days |

| Container(s) | Designator |
|---|---|
| P- 250ml Plastic Absorbic then NaOH to pH >12 | A |
| B-1000ml Plastic H2SO4 to pH <2 | B |
| A- 500ml Plastic HNO3 to pH <2 | C |

---

**Client Sample ID:** Site # 8 Outfall 001 Sector N
**Lab Sample ID:** 19F1450-02
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 10/30 1920

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| M_Al_ICP | EPA 200.7 | | 180.00 days |
| M_Cu_ICP | EPA 200.7 | | 180.00 days |
| M_Fe_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Zn_ICP | EPA 200.7 | | 180.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |
| TSS | SM 2540 D-11 | | 7.00 days |

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**Chain of Custody**

# 19F1450

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Tenatively Scheduled: 6/28/2019
Field Route ID:

| Container(s) | Designator |
|---|---|
| B-1000ml Plastic H2SO4 to pH <2 | A |
| A- 500ml Plastic HNO3 to pH <2 | B |
| H-½ Gallon Plastic Neat | C |

**Client Sample ID:** Site # 8 Outfall 002 Sector K
**Lab Sample ID:** 19F1450-03
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 10/30 1925

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| Hg_Total | EPA 245.1 | | 28.00 days |
| M_Ag_ICP | EPA 200.7 | | 180.00 days |
| M_As_ICP | EPA 200.7 | | 180.00 days |
| M_Cd_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Sb_ICP | EPA 200.7 | | 180.00 days |
| M_Se_ICP | EPA 200.7 | | 180.00 days |
| CN_Total_Seal | EPA 335.4 | | 14.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |
| NH3_Titration | SM 4500-NH3 B+C-11 | | 28.00 days |

| Container(s) | Designator |
|---|---|
| A- 500ml Plastic HNO3 to pH <2 | A |
| B-1000ml Plastic H2SO4 to pH <2 | B |
| P- 250ml Plastic Absorbic then NaOH to pH >12 | C |

**Client Sample ID:** Site # 8 Outfall 002 Sector N
**Lab Sample ID:** 19F1450-04
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 10/30 1925

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| M_Al_ICP | EPA 200.7 | | 180.00 days |
| M_Cu_ICP | EPA 200.7 | | 180.00 days |
| M_Fe_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Zn_ICP | EPA 200.7 | | 180.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |

MICROBAC®

# Microbac Laboratories, Inc. - Baltimore

## Chain of Custody

## 19F1450

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Tenatively Scheduled: 6/28/2019
Field Route ID:

| | | | |
|---|---|---|---|
| TSS | SM 2540 D-11 | | 7.00 days |

Container(s)
B-1000ml Plastic H2SO4 to pH <2
A- 500ml Plastic HNO3 to pH <2
H-½ Gallon Plastic Neat

| Designator |
|---|
| A |
| B |
| C |

| | | |
|---|---|---|
| Sampled/Relinquished by: | Date/Time: 10/30 2130 | Received by: Margaret Mayatt |
| Printed Name: Customer Tyler Warren | | Printed Name: Margaret King |
| Relinquished by: Mayatt | Date/Time: 10/31/19 1150 | Received by: |
| Printed Name: Margaret King | | Printed Name: MLF |
| Relinquished by: | Date/Time: 10/31/19 1525 | Received by: 10/31/19 |
| Printed Name: | | Printed Name: 1525 |

*As Received at Laboratory:* On Ice: Yes / No Temp 3.4 °C Total Containers: 12

*Microbac Laboratories may be unable to perform a portion of the requested testing in which case we will subcontract the analysis to an appropriately accredited laboratory. By signing this document you are acknowledging that you have been informed by Microbac that testing could be subcontracted and agree with this arrangement.*

**Notes:**



Microbac Laboratories, Inc.
2101 Van Deman Street | Baltimore, MD 21224 | 410.633.1800 p | www.microbac.com

| Cooler Receipt Form / Sample Acceptance & Noncompliance Form | Microbac Laboratories, Inc., Baltimore Division<br>Control # 606-03<br>Effective Date: 11/30/2016<br>Page 1 of 1 |
|---|---|

Number of Coolers Received: 1
Client: Apex
Form Completed By: [illegible]

Receipt Date / Time: 10/31/19 1525
Work Order # 19F1445 / 1450 / 19J1054

| | |
|---|---|
| Shipper: | ☒ Microbac ☐ Client ☐ UPS ☐ FedEx |
| Custody Tape Intact: | YES / NO / NA |
| Containers Intact: | YES / NO |
| Sample Received on Ice or refrigerated: | YES / NO / NA<br>Infrared (IR) Temperature: 3.4 °C |
| Chain of Custody Present with shipment: | YES / NO |
| Sample Bottle IDs agree with COC: | YES / NO |
| Preservation requirements met: | YES / NO / Not Checked |
| Correct Number of Containers / Sample Volume: | YES / NO (If No, contact client immediately) |
| Headspace in container: | YES / NO / NA |
| Type of Sample: | Water Soil Wipes Oil Filter Solid Sludge Food Swab Other |

***Container Type / Quantity:***

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A - | ___ Unpreserved | ___ H2SO4 | 6 HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid: | If preserved pH <2___, pH >10___ |
| B - | ___ Unpreserved | 4 H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| C - | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| D - | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| E - | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| H - | 4 Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| K - | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| L - | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| M- | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| P - | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | 2 NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| W- | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |

V - ___ Unpreserved ___ HCl ___ HCl / Ascorbic Acid ___ HCl / NaTHIO **(Checked at time of Analysis)**
F - ___ Unpreserved ___ NaTHIO **(Checked at time of Analysis)**
S - ___ Unpreserved ___ NaTHIO **(Checked at time of Analysis)**
SN- ___ Unpreserved ___ NaTHIO ___ NaTHIO/EDTA **(Checked at time of Analysis)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |

**Describe preservation requirements not met:**

*All Acid preserved <2 pH* *NaOH preserved >12 pH* *All others >2 and <10 (usually 4-8)*

Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added

*$H_2SO_4$ – Sulfuric Acid, $HNO_3$ – Nitric Acid, NaOH – Sodium Hydroxide, ASC – Ascorbic Acid, NaTHIO – Sodium Thiosulfate*

Describe Anomalies:_____

Contact information / Summary of Actions:

Date / Time:_____ Contact:_____ Contact By:_____
Comments:_____

MICROBAC®

# Microbac Laboratories, Inc. - Baltimore

## CERTIFICATE OF ANALYSIS

19K0640

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Received: 12/31/2019
Reported: 01/07/2020

### Analytical Testing Parameters

**Client Sample ID:** Site # 8 Outfall 001 Sector K
**Sample Matrix:** Aqueous
**Lab Sample ID:** 19K0640-01
**Collected By:** Customer
**Collection Date:** 12/29/2019 11:35

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 335.4** | | | | | | | | |
| Cyanide, Total | **0.012** | 0.0050 | mg/L | 1 | | 01/02/20 0931 | 01/02/20 1334 | SRZ |
| **EPA 410.4** | | | | | | | | |
| COD, Total | **250** | 50 | mg/L | 1 | | 01/02/20 1045 | 01/02/20 1259 | EIP |
| **SM 4500-NH3 B+C-11** | | | | | | | | |
| Ammonia as N | <1.0 | 1.0 | mg/L | 1 | | 01/06/20 0940 | 01/06/20 1145 | VAS |

| Mercury, Total by EPA 200/7000 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 245.1** | | | | | | | | |
| Mercury | <0.00020 | 0.00020 | mg/L | 1 | | 01/02/20 0915 | 01/02/20 1403 | LNR |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Antimony | <0.040 | 0.040 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1221 | TCB |
| Arsenic | <0.020 | 0.020 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1221 | TCB |
| Cadmium | <0.010 | 0.010 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1221 | TCB |
| Calcium | **61** | 0.20 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1221 | TCB |
| Lead | <0.020 | 0.020 | mg/L | 1 | **B15** | 01/02/20 1416 | 01/06/20 1221 | TCB |
| Magnesium | **13** | 0.20 | mg/L | 1 | **B10, B12, B14** | 01/02/20 1416 | 01/06/20 1221 | TCB |
| Selenium | <0.040 | 0.040 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1221 | TCB |
| Silver | <0.0040 | 0.0040 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1611 | TCB |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **210** | 1.3 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1221 | TCB |

# CERTIFICATE OF ANALYSIS

19K0640

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 001 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 19K0640-02 | **Collection Date:** | 12/29/2019 11:35 |

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 410.4** | | | | | | | | |
| COD, Total | <50 | 50 | mg/L | 1 | | 01/02/20 1045 | 01/02/20 1259 | EIP |
| **SM 2540 D-11** | | | | | | | | |
| Total Suspended Solids | <20 | 20 | mg/L | 20 | | 01/02/20 0954 | 01/03/20 1126 | DPG |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Aluminum | **0.25** | 0.10 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1232 | TCB |
| Calcium | **61** | 0.20 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1232 | TCB |
| Copper | <0.020 | 0.020 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1232 | TCB |
| Iron | **6.8** | 0.020 | mg/L | 1 | **B10, B14** | 01/02/20 1416 | 01/06/20 1232 | TCB |
| Lead | <0.020 | 0.020 | mg/L | 1 | **B15** | 01/02/20 1416 | 01/06/20 1232 | TCB |
| Magnesium | **14** | 0.20 | mg/L | 1 | **B10, B12, B14** | 01/02/20 1416 | 01/06/20 1232 | TCB |
| Zinc | **0.061** | 0.020 | mg/L | 1 | **B14** | 01/02/20 1416 | 01/06/20 1232 | TCB |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **210** | 1.3 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1232 | TCB |

# CERTIFICATE OF ANALYSIS

19K0640

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector K | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 19K0640-03 | **Collection Date:** | 12/29/2019 11:40 |

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 335.4** | | | | | | | | |
| Cyanide, Total | **0.0057** | 0.0050 | mg/L | 1 | | 01/02/20 0931 | 01/02/20 1332 | SRZ |
| **EPA 410.4** | | | | | | | | |
| COD, Total | **3100** | 250 | mg/L | 1 | | 01/02/20 1045 | 01/02/20 1259 | EIP |
| **SM 4500-NH3 B+C-11** | | | | | | | | |
| Ammonia as N | **9.0** | 1.0 | mg/L | 1 | | 01/06/20 0940 | 01/06/20 1145 | VAS |

| Mercury, Total by EPA 200/7000 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 245.1** | | | | | | | | |
| Mercury | <0.00020 | 0.00020 | mg/L | 1 | | 01/02/20 0915 | 01/02/20 1405 | LNR |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Antimony | <0.050 | 0.050 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1342 | TCB |
| Arsenic | <0.025 | 0.025 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1342 | TCB |
| Cadmium | <0.012 | 0.012 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1342 | TCB |
| Calcium | **120** | 0.25 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1342 | TCB |
| Lead | <0.025 | 0.025 | mg/L | 1 | **B15** | 01/02/20 1416 | 01/06/20 1342 | TCB |
| Magnesium | **3.7** | 0.25 | mg/L | 1 | **B10, B12, B14** | 01/02/20 1416 | 01/06/20 1342 | TCB |
| Selenium | <0.050 | 0.050 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1342 | TCB |
| Silver | <0.0040 | 0.0040 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1621 | TCB |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **300** | 1.7 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1342 | TCB |

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Microbac Laboratories, Inc. - Baltimore

# CERTIFICATE OF ANALYSIS

19K0640

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 19K0640-04 | **Collection Date:** | 12/29/2019 11:40 |

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 410.4** | | | | | | | | |
| COD, Total | **3100** | 250 | mg/L | 1 | | 01/02/20 1045 | 01/02/20 1259 | EIP |
| **SM 2540 D-11** | | | | | | | | |
| Total Suspended Solids | **100** | 25 | mg/L | 25 | | 01/02/20 0954 | 01/03/20 1126 | DPG |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Aluminum | **0.87** | 0.12 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1355 | TCB |
| Calcium | **120** | 0.25 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1355 | TCB |
| Copper | **0.23** | 0.025 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1355 | TCB |
| Iron | **4.1** | 0.025 | mg/L | 1 | **B10, B14** | 01/02/20 1416 | 01/06/20 1355 | TCB |
| Lead | <0.025 | 0.025 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1355 | TCB |
| Magnesium | **9.6** | 0.25 | mg/L | 1 | **B10, B12, B14** | 01/02/20 1416 | 01/06/20 1355 | TCB |
| Zinc | **0.52** | 0.025 | mg/L | 1 | **B14** | 01/02/20 1416 | 01/06/20 1355 | TCB |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **340** | 1.7 | mg/L | 1 | | 01/02/20 1416 | 01/06/20 1355 | TCB |

## Definitions

**B10:** Target analyte detected in continuing calibration blank >2.2 times the MDL but less than the reporting limit. Concentration found in the samples was 10 times the concentration found in the blank. No impact on data.

**B12:** Target analyte detected in initial calibration blank >2.2 times the MDL but less than the reporting limit. Concentration found in the samples was 10 times the concentration found in the blank. No impact on data.

**B14:** Target analyte detected in method blank >2.2 times the MDL but less than the reporting limit. Concentration found in the samples was 10 times the concentration found in the blank. No impact on data.

**B15:** Target analyte detected in method blank >2.2 times the MDL but less than the reporting limit. Sample result was less than the reporting limit. No impact on data.

**mg/L:** Milligrams per Liter

**RL:** Reporting Limit

## Project Requested Certification(s)

Microbac Laboratories, Inc. - Baltimore

460285

E871126

Commonwealth of Virginia (NELAC) - Baltimore

Florida - NELAC

# CERTIFICATE OF ANALYSIS

19K0640

**Report Comments**

*Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.*

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.*

**Reviewed and Approved By:**



Marissa Mamone

Client Relations

Reported: 01/07/2020 16:57

# Microbac Laboratories, Inc. - Baltimore

## Chain of Custody

# 19K0640

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Tenatively Scheduled: 11/13/2019
Field Route ID:

| Container(s) | Designator |
|---|---|
| B-1000ml Plastic H2SO4 to pH <2 | A |
| A- 500ml Plastic HNO3 to pH <2 | B |
| H-½ Gallon Plastic Neat | C |

---

**Client Sample ID:** Site # 8 Outfall 002 Sector K
**Lab Sample ID:** 19K0640-03
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 12/29/19/1140

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| Hg_Total | EPA 245.1 | | 28.00 days |
| M_Ag_ICP | EPA 200.7 | | 180.00 days |
| M_As_ICP | EPA 200.7 | | 180.00 days |
| M_Cd_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Sb_ICP | EPA 200.7 | | 180.00 days |
| M_Se_ICP | EPA 200.7 | | 180.00 days |
| CN_Total_Seal | EPA 335.4 | | 14.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |
| NH3_Titration | SM 4500-NH3 B+C-11 | | 28.00 days |

| Container(s) | Designator |
|---|---|
| A- 500ml Plastic HNO3 to pH <2 | A |
| B-1000ml Plastic H2SO4 to pH <2 | B |
| P- 250ml Plastic Absorbic then NaOH to pH >12 | C |

---

**Client Sample ID:** Site # 8 Outfall 002 Sector N
**Lab Sample ID:** 19K0640-04
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 12/29/19/1140

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| M_Al_ICP | EPA 200.7 | | 180.00 days |
| M_Cu_ICP | EPA 200.7 | | 180.00 days |
| M_Fe_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Zn_ICP | EPA 200.7 | | 180.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |

MICROBAC®

www.microbac.com

# Microbac Laboratories, Inc. - Baltimore

## Chain of Custody

## 19K0640

*TAT 7 days*

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Tenatively Scheduled: 11/13/2019
Field Route ID:

---

**Client Sample ID:** Site # 8 Outfall 001 Sector K
**Lab Sample ID:** 19K0640-01
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 12/29/19 / 11:35

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| Hg_Total | EPA 245.1 | | 28.00 days |
| M_Ag_ICP | EPA 200.7 | | 180.00 days |
| M_As_ICP | EPA 200.7 | | 180.00 days |
| M_Cd_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Sb_ICP | EPA 200.7 | | 180.00 days |
| M_Se_ICP | EPA 200.7 | | 180.00 days |
| CN_Total_Seal | EPA 335.4 | | 14.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |
| NH3_Titration | SM 4500-NH3 B+C-11 | | 28.00 days |

| Container(s) | Designator |
|---|---|
| P-250ml Plastic Absorbic then NaOH to pH >12 | A |
| B-1000ml Plastic H2SO4 to pH <2 | B |
| A- 500ml Plastic HNO3 to pH <2 | C |

---

**Client Sample ID:** Site # 8 Outfall 001 Sector N
**Lab Sample ID:** 19K0640-02
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 12/29/19 / 11:35

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| M_Al_ICP | EPA 200.7 | | 180.00 days |
| M_Cu_ICP | EPA 200.7 | | 180.00 days |
| M_Fe_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Zn_ICP | EPA 200.7 | | 180.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |
| TSS | SM 2540 D-11 | | 7.00 days |

Microbac Laboratories, Inc. - Baltimore

**Chain of Custody**

# 19K0640

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Tenatively Scheduled: 11/13/2019
Field Route ID:

| | | |
|---|---|---|
| TSS | SM 2540 D-11 | 7.00 days |

| Container(s) | Designator |
|---|---|
| B-1000ml Plastic H2SO4 to pH <2 | A |
| A- 500ml Plastic HNO3 to pH <2 | B |
| H-½ Gallon Plastic Neat | C |

| | | |
|---|---|---|
| Sampled/Relinquished by: 12-31-19 | Date/Time: | Received by: 12-31-19 |
| Printed Name: Customer 0900 | | Printed Name: Rick Price 0900 |
| Relinquished by: | Date/Time: 12-31-19 @1059 | Received by: 12-31-19 |
| Printed Name: Ricky Price | | Printed Name: Hailey Woodward 1059 |
| Relinquished by: | Date/Time: | Received by: |
| Printed Name: | | Printed Name: |

*As Received at Laboratory:* On Ice: (Yes / No) Temp 2.9 °C Total Containers: 12

*Microbac Laboratories may be unable to perform a portion of the requested testing in which case we will subcontract the analysis to an appropriately accredited laboratory. By signing this document you are acknowledging that you have been informed by Microbac that testing could be subcontracted and agree with this arrangement.*

**Notes:**

# Cooler Receipt Form / Sample Acceptance & Noncompliance Form

Microbac Laboratories, Inc., Baltimore Division
Control # 606-03
Effective Date: 11/30/2016
Page 1 of 1

Number of Coolers Received: 1
Client: Apex
Form Completed By: Haley

Receipt Date / Time: 12/3/19
Work Order # 19120646

Shipper: ☒ Microbac ☐ Client ☐ UPS ☐ FedEx
Custody Tape Intact: YES / NO / NA
Containers Intact: YES / NO
Sample Received on Ice or refrigerated: YES / NO / NA
Infrared (IR) Temperature: 2.9 °C

Chain of Custody Present with shipment: YES / NO
Sample Bottle IDs agree with COC: YES / NO
Preservation requirements met: YES / NO / Not Checked
Correct Number of Containers / Sample Volume: YES / NO (If No, contact client immediately)
Headspace in container: YES / NO / NA
Type of Sample: Water Soil Wipes Oil Filter Solid Sludge Food Swab Other

***Container Type / Quantity:***

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **A** - ___ | Unpreserved ___ | H2SO4 ___ | HNO3 4 | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid: | If preserved pH <2___, pH >10___ |
| **B** - ___ | Unpreserved 4 | H2SO4 ___ | HNO3 ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **C** - ___ | Unpreserved ___ | H2SO4 ___ | HNO3 ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **D** - ___ | Unpreserved ___ | H2SO4 ___ | HNO3 ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **E** - ___ | Unpreserved ___ | H2SO4 ___ | HNO3 ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **H** - 2 | Unpreserved ___ | H2SO4 ___ | HNO3 ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **K** - ___ | Unpreserved ___ | H2SO4 ___ | HNO3 ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **L** - ___ | Unpreserved ___ | H2SO4 ___ | HNO3 ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **M**- ___ | Unpreserved ___ | H2SO4 ___ | HNO3 ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **P** - ___ | Unpreserved ___ | H2SO4 ___ | HNO3 ___ | HCl 2 | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **W**- ___ | Unpreserved ___ | H2SO4 ___ | HNO3 ___ | HCl ___ | NaOH ___ | NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |

**V** - ___ Unpreserved ___ HCl ___ HCl / Ascorbic Acid ___ HCl / NaTHIO **(Checked at time of Analysis)**
**F** - ___ Unpreserved ___ NaTHIO **(Checked at time of Analysis)**
**S** - ___ Unpreserved ___ NaTHIO **(Checked at time of Analysis)**
**SN**- ___ Unpreserved ___ NaTHIO ___ NaTHIO/EDTA **(Checked at time of Analysis)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |

**Describe preservation requirements not met:**
*All Acid preserved <2 pH* *NaOH preserved >12 pH* *All others >2 and <10 (usually 4-8)*
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
*$H_2SO_4$ – Sulfuric Acid, $HNO_3$ – Nitric Acid, NaOH – Sodium Hydroxide, ASC – Ascorbic Acid, NaTHIO – Sodium Thiosulfate*

Describe Anomalies:_____

Contact information / Summary of Actions:
Date / Time:_____ Contact:_____ Contact By:_____
Comments:_____

MICROBAC®

# Microbac Laboratories, Inc. - Baltimore

## CERTIFICATE OF ANALYSIS

20A0476

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Received: 01/14/2020
Reported: 01/24/2020

### Analytical Testing Parameters

**Client Sample ID:** Site # 8 Outfall 001 Sector K
**Sample Matrix:** Aqueous
**Lab Sample ID:** 20A0476-01
**Collected By:** Customer
**Collection Date:** 01/12/2020 1:15

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 335.4** | | | | | | | | |
| Cyanide, Total | **0.031** | 0.0050 | mg/L | 1 | | 01/15/20 0936 | 01/15/20 1358 | SRZ |
| **EPA 410.4** | | | | | | | | |
| COD, Total | **160** | 50 | mg/L | 1 | | 01/16/20 0849 | 01/16/20 1401 | EIP |
| **SM 4500-NH3 B+C-11** | | | | | | | | |
| Ammonia as N | <1.0 | 1.0 | mg/L | 1 | | 01/16/20 1110 | 01/16/20 1227 | VAS |

| Mercury, Total by EPA 200/7000 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 245.1** | | | | | | | | |
| Mercury | <0.00020 | 0.00020 | mg/L | 1 | | 01/16/20 0917 | 01/16/20 1457 | LNR |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Antimony | <0.040 | 0.040 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1441 | TCB |
| Arsenic | <0.020 | 0.020 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1441 | TCB |
| Cadmium | <0.010 | 0.010 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1441 | TCB |
| Calcium | **38** | 0.20 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1441 | TCB |
| Lead | **0.044** | 0.020 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1441 | TCB |
| Magnesium | **6.9** | 0.20 | mg/L | 1 | **B10, B14** | 01/17/20 0801 | 01/21/20 1441 | TCB |
| Selenium | <0.040 | 0.040 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1441 | TCB |
| Silver | <0.0040 | 0.0040 | mg/L | 1 | | 01/17/20 0801 | 01/22/20 1509 | TCB |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **120** | 1.3 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1441 | TCB |

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# CERTIFICATE OF ANALYSIS

20A0476

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 001 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20A0476-02 | **Collection Date:** | 01/12/2020 1:15 |

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 410.4** | | | | | | | | |
| COD, Total | **250** | 50 | mg/L | 1 | | 01/16/20 0849 | 01/16/20 1401 | EIP |
| **SM 2540 D-11** | | | | | | | | |
| Total Suspended Solids | **96** | 10 | mg/L | 10 | | 01/15/20 1625 | 01/16/20 1045 | DPG |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Aluminum | **2.3** | 0.10 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1445 | TCB |
| Calcium | **43** | 0.20 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1445 | TCB |
| Copper | **0.054** | 0.020 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1445 | TCB |
| Iron | **4.7** | 0.020 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1445 | TCB |
| Lead | **0.046** | 0.020 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1445 | TCB |
| Magnesium | **6.9** | 0.20 | mg/L | 1 | **B10, B14** | 01/17/20 0801 | 01/21/20 1445 | TCB |
| Zinc | **0.39** | 0.020 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1445 | TCB |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **140** | 1.3 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1445 | TCB |

# CERTIFICATE OF ANALYSIS

## 20A0476

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector K | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20A0476-03 | **Collection Date:** | 01/12/2020 1:25 |

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 335.4** | | | | | | | | |
| Cyanide, Total | <0.0050 | 0.0050 | mg/L | 1 | | 01/15/20 0936 | 01/15/20 1412 | SRZ |
| **EPA 410.4** | | | | | | | | |
| COD, Total | **280** | 50 | mg/L | 1 | | 01/16/20 0849 | 01/16/20 1401 | EIP |
| **SM 4500-NH3 B+C-11** | | | | | | | | |
| Ammonia as N | <1.0 | 1.0 | mg/L | 1 | | 01/16/20 1110 | 01/16/20 1227 | VAS |

| Mercury, Total by EPA 200/7000 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 245.1** | | | | | | | | |
| Mercury | <0.00020 | 0.00020 | mg/L | 1 | | 01/16/20 0917 | 01/16/20 1459 | LNR |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Antimony | <0.040 | 0.040 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1519 | TCB |
| Arsenic | <0.020 | 0.020 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1519 | TCB |
| Cadmium | <0.010 | 0.010 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1519 | TCB |
| Calcium | **16** | 0.20 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1519 | TCB |
| Lead | <0.020 | 0.020 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1519 | TCB |
| Magnesium | **1.4** | 0.20 | mg/L | 1 | **B10, B14** | 01/17/20 0801 | 01/21/20 1519 | TCB |
| Selenium | <0.040 | 0.040 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1519 | TCB |
| Silver | <0.0040 | 0.0040 | mg/L | 1 | | 01/17/20 0801 | 01/22/20 1513 | TCB |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **45** | 1.3 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1519 | TCB |

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# Microbac Laboratories, Inc. - Baltimore

## CERTIFICATE OF ANALYSIS

## 20A0476

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20A0476-04 | **Collection Date:** | 01/12/2020 1:25 |

| Wet Chemistry | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 410.4** | | | | | | | | |
| COD, Total | **280** | 50 | mg/L | 1 | | 01/16/20 0849 | 01/16/20 1401 | EIP |
| **SM 2540 D-11** | | | | | | | | |
| Total Suspended Solids | **76** | 10 | mg/L | 10 | | 01/15/20 1625 | 01/16/20 1045 | DPG |

| Metals, Total by EPA 200 Series Methods | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.7** | | | | | | | | |
| Aluminum | **0.90** | 0.10 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1537 | TCB |
| Calcium | **15** | 0.20 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1537 | TCB |
| Copper | **0.027** | 0.020 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1537 | TCB |
| Iron | **1.8** | 0.020 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1537 | TCB |
| Lead | <0.020 | 0.020 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1537 | TCB |
| Magnesium | **1.4** | 0.20 | mg/L | 1 | **B10, B14** | 01/17/20 0801 | 01/21/20 1537 | TCB |
| Zinc | **0.13** | 0.020 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1537 | TCB |
| **SM 2340 B-11** | | | | | | | | |
| Hardness (as CaCO3) | **44** | 1.3 | mg/L | 1 | | 01/17/20 0801 | 01/21/20 1537 | TCB |

### Definitions

**B10:** Target analyte detected in continuing calibration blank >2.2 times the MDL but less than the reporting limit. Concentration found in the samples was 10 times the concentration found in the blank. No impact on data.

**B14:** Target analyte detected in method blank >2.2 times the MDL but less than the reporting limit. Concentration found in the samples was 10 times the concentration found in the blank. No impact on data.

**mg/L:** Milligrams per Liter

**RL:** Reporting Limit

### Project Requested Certification(s)

Microbac Laboratories, Inc. - Baltimore

460285 — Commonwealth of Virginia (NELAC) - Baltimore

E871126 — Florida - NELAC

### Report Comments

*Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.*

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.*

**Reviewed and Approved By:**



Marissa Mamone

Client Relations

Reported: 01/24/2020 12:31

MICROBAC

# Microbac Laboratories, Inc. - Baltimore

## Chain of Custody

## 20A0476

Reviewed By: AL

Date: 1/15/20 TAT 7 days

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project/PO Number: N/A
Tenatively Scheduled: 1/6/2020
Field Route:

---

**Client Sample ID:** Site # 8 Outfall 001 Sector K
**Lab Sample ID:** 20A0476-01
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 1/12/19 / 01:15

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| Hg_Total | EPA 245.1 | | 28.00 days |
| M_Ag_ICP | EPA 200.7 | | 180.00 days |
| M_As_ICP | EPA 200.7 | | 180.00 days |
| M_Cd_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Sb_ICP | EPA 200.7 | | 180.00 days |
| M_Se_ICP | EPA 200.7 | | 180.00 days |
| CN_Total_Seal | EPA 335.4 | | 14.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |
| NH3_Titration | SM 4500-NH3 B+C-11 | | 28.00 days |

| Container(s) | Designator |
|---|---|
| P- 250ml Plastic Absorbic then NaOH to pH >12 | A |
| B-1000ml Plastic H2SO4 to pH <2 | B |
| A- 500ml Plastic HNO3 to pH <2 | C |

---

**Client Sample ID:** Site # 8 Outfall 001 Sector N
**Lab Sample ID:** 20A0476-02
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 1/12/19 / 1:15

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| M_Al_ICP | EPA 200.7 | | 180.00 days |
| M_Cu_ICP | EPA 200.7 | | 180.00 days |
| M_Fe_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Zn_ICP | EPA 200.7 | | 180.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |
| TSS | SM 2540 D-11 | | 7.00 days |

Microbac Laboratories, Inc. - Baltimore

**Chain of Custody**

# 20A0476

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project/PO Number: N/A
Tenatively Scheduled: 1/6/2020
Field Route:

| Container(s) | Designator |
|---|---|
| B-1000ml Plastic H2SO4 to pH <2 | A |
| A- 500ml Plastic HNO3 to pH <2 | B |
| H-½ Gallon Plastic Neat | C |

---

**Client Sample ID:** Site # 8 Outfall 002 Sector K
**Lab Sample ID:** 20A0476-03
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 1/12/19 / 1:25

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| Hg_Total | EPA 245.1 | | 28.00 days |
| M_Ag_ICP | EPA 200.7 | | 180.00 days |
| M_As_ICP | EPA 200.7 | | 180.00 days |
| M_Cd_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Sb_ICP | EPA 200.7 | | 180.00 days |
| M_Se_ICP | EPA 200.7 | | 180.00 days |
| CN_Total_Seal | EPA 335.4 | | 14.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |
| NH3_Titration | SM 4500-NH3 B+C-11 | | 28.00 days |

| Container(s) | Designator |
|---|---|
| A- 500ml Plastic HNO3 to pH <2 | A |
| B-1000ml Plastic H2SO4 to pH <2 | B |
| P- 250ml Plastic Absorbic then NaOH to pH >12 | C |

---

**Client Sample ID:** Site # 8 Outfall 002 Sector N
**Lab Sample ID:** 20A0476-04
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 1/12/19 / 1:25

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | varies | | 180.00 days |
| M_Al_ICP | EPA 200.7 | | 180.00 days |
| M_Cu_ICP | EPA 200.7 | | 180.00 days |
| M_Fe_ICP | EPA 200.7 | | 180.00 days |
| M_Pb_ICP | EPA 200.7 | | 180.00 days |
| M_Zn_ICP | EPA 200.7 | | 180.00 days |
| COD_Total_HL | EPA 410.4 | | 28.00 days |

MICROBAC

# Microbac Laboratories, Inc. - Baltimore

## Chain of Custody

# 20A0476

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project/PO Number: N/A
Tenatively Scheduled: 1/6/2020
Field Route:

| | | 7.00 days |
|---|---|---|
| TSS | SM 2540 D-11 | |

| Container(s) | Designator |
|---|---|
| B-1000ml Plastic H2SO4 to pH <2 | A |
| A- 500ml Plastic HNO3 to pH <2 | B |
| H-½ Gallon Plastic Neat | C |

| | | |
|---|---|---|
| Sampled/Relinquished by: [signature] | Date/Time: 1/14/20 1132hrs | Received by: Roberta Hanna |
| Printed Name: Customer Rick McBride | | Printed Name: Roberta Hanna |
| Relinquished by: Roberta Hanna | Date/Time: 1/14/20 1338 | Received by: [signature] 01/14/20 |
| Printed Name: Roberta Hanna | | Printed Name: [signature] 1338 |
| Relinquished by: | Date/Time: | Received by: |
| Printed Name: | | Printed Name: |

*As Received at Laboratory:* On Ice: (Yes) / No Temp 1.7 °C Total Containers: 12

*Microbac Laboratories may be unable to perform a portion of the requested testing in which case we will subcontract the analysis to an appropriately accredited laboratory. By signing this document you are acknowledging that you have been informed by Microbac that testing could be subcontracted and agree with this arrangement.*

**Notes:**

| Cooler Receipt Form / Sample Acceptance & Noncompliance Form | Microbac Laboratories, Inc., Baltimore Division<br>Control # 606-03<br>Effective Date: 11/30/2016<br>Page 1 of 1 |
|---|---|

Number of Coolers Received: ~~2 AL~~ 2 AL 1/14/20
Client: Apex -
Form Completed By: [illegible]

Receipt Date / Time: 01/14/20 1338 2 1334 AL 1/14/20
Work Order # 20A0475/0476

Shipper: ☒ Microbac ☐ Client ☐ UPS ☐ FedEx
Custody Tape Intact: YES / NO / NA
Containers Intact: YES / NO
Sample Received on Ice or refrigerated: YES / NO / NA
Infrared (IR) Temperature: 0.9 °C 0475 1.7 0476

Chain of Custody Present with shipment: YES / NO
Sample Bottle IDs agree with COC: YES / NO
Preservation requirements met: YES / NO / Not Checked
Correct Number of Containers / Sample Volume: YES / NO (If No, contact client immediately)
Headspace in container: YES / NO / NA
Type of Sample: Water Soil Wipes Oil Filter Solid Sludge Food Swab Other

***Container Type / Quantity:***

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A - | ___ Unpreserved | ___ H2SO4 | 8 HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid: | If preserved pH <2 yes All, pH >10___ |
| B - | ___ Unpreserved | 8 H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 yes, pH >10___ |
| C - | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2 All, pH >10___ |
| D - | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| E - | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| H - | 4 Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| K - | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| L - | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| M- | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| P - | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | 4 NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| W- | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |

V - ___ Unpreserved ___ HCl ___ HCl / Ascorbic Acid ___ HCl / NaTHIO **(Checked at time of Analysis)**
F - ___ Unpreserved ___ NaTHIO **(Checked at time of Analysis)**
S - ___ Unpreserved ___ NaTHIO **(Checked at time of Analysis)**
SN- ___ Unpreserved ___ NaTHIO ___ NaTHIO/EDTA **(Checked at time of Analysis)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |

**Describe preservation requirements not met:**

*All Acid preserved <2 pH* *NaOH preserved >12 pH* *All others >2 and <10 (usually 4-8)*

Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added

*$H_2SO_4$ – Sulfuric Acid, $HNO_3$ – Nitric Acid, NaOH – Sodium Hydroxide, ASC – Ascorbic Acid, NaTHIO – Sodium Thiosulfate*

Describe Anomalies:_____

Contact information / Summary of Actions:

Date / Time:_____ Contact:_____ Contact By:_____
Comments:_____





# District Department of Public Works
# NPDES Stormwater Monitoring
# Visual Assessment and Sampling Report

**Site 8 – 3200 Benning Road, NE**
**July 30, 2020 – Rain Event**

**Prepared for**

District Department of Public Works
1725 15th Street NE, Suite 211
Washington, DC 20002



**Prepared by**

Apex Companies, LLC
9700 Capitol Court, Suite 100
Manassas, VA 20110

**August 26, 2020**



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# 1.0 NARRATIVE REPORT

# 1.0 NARRATIVE REPORT

The National Oceanic and Atmospheric Administration (NOAA) rain gauge located at Reagan National Airport was used to track and document the meteorological conditions for DC area. Descriptions and detailed meteorological data along with numerical data tables for this particular storm water event are provided in **Section 2.0** of this report.

**July 30, 2020 – Rain Event:**
The weather conditions for this event consisted of light rain and temperatures at approximately seventy-eight degrees Fahrenheit. The average wind speed was approximately 8 miles per hour for the duration of this water sampling event.

Sampling began during the evening of July 30, 2020. The meteorological data for this event is summarized in Table 1.

**Table 1 – Stormwater Sampling Characteristics**

| Date | Precipitation (inches) | Duration (hours) | Hours to Previous Rain Event | Gauge Location |
|---|---|---|---|---|
| July 30, 2020 | 0.15 | ~6 | ~216 | National Airport |

The Quarterly Visual Assessment for July-September 2020 was conducted for the following site:

**Table 2 – Quarterly Visual Assessment Locations**

| Site # | SWP3 Appendix ID | Address | Outfall Number | Flow Conditions |
|---|---|---|---|---|
| 8 | H | 3200 BENNING ROAD, NE | 001/002 | Good |

SWP3 – Stormwater Pollution Prevention Plan

The Quarterly Sampling Event for July-September 2020 was conducted for the following site:

**Table 3 – Quarterly Sampling Locations**

| Site # | SWP3 Appendix ID | Address | Outfall Number | Flow Conditions |
|---|---|---|---|---|
| 8 | H | 3200 BENNING ROAD, NE | 001/002 | Good |

SWP3 – Stormwater Pollution Prevention Plan

Completed Quarterly Visual Assessment Forms can be found in **Section 3.0**.

Relevant site maps can be found in **Section 6.0**.

# Laboratory Results

### TABLE 4 - LAB ANALYSES: SITE #8 – 3200 BENNING ROAD, NE OUTFALL 001
**REPORT NO.: 20G0965**

| Sector K Results for Outfall 001 | | |
|---|---|---|
| **Analyte** | **Results** | **Benchmark Monitoring Concentration** |
| Cyanide, Total | <0.0050 mg/L | 0.022 mg/L |
| **Chemical Oxygen Demand, Total** | **5300 mg/L** | **120 mg/L** |
| **Ammonia as N** | **4.8 mg/L** | **2.14 mg/L** |
| Mercury | <0.00020 mg/L | 0.0014 mg/L |
| Silver | <0.0010 mg/L | 0.0065 mg/L |
| Arsenic | 0.0033 mg/L | 0.15 mg/L |
| Cadmium | .000618 mg/L | 0.0029 mg/L |
| **Magnesium** | **6.18 mg/L** | **0.064 mg/L** |
| Lead | 0.0253 mg/L | 0.122 mg/L |
| Selenium | <0.0050 mg/L | 0.005 mg/L |
| Receiving Waterbody Hardness($CaCO_3$)* | 135 mg/L | |
| **Sector N Results for Outfall 001** | | |
| **Analyte** | **Results** | **Benchmark Monitoring Concentration** |
| **Chemical Oxygen Demand, Total** | **860 mg/L** | **120 mg/L** |
| Total Suspended Solids | 70 mg/L | 100 mg/L |
| **Aluminum** | **0.773 mg/L** | **0.75 mg/L** |
| **Copper** | **0.0745 mg/L** | **0.0189 mg/L** |
| **Iron** | **3.43 mg/L** | **1.0 mg/L** |
| Lead | 0.0182 mg/L | 0.122 mg/L |
| **Zinc** | **0.456 mg/L** | **0.16 mg/L** |
| Receiving Waterbody Hardness($CaCO_3$)* | 135 mg/L | |

* – Provided by EPA

ND – Non Detect

## TABLE 5 - LAB ANALYSES: SITE #8 – 3200 BENNING ROAD, NE OUTFALL 002
**REPORT NO.: 20G0965**

| Sector K Results for Outfall 002 | | |
|---|---|---|
| **Analyte** | **Results** | **Benchmark Monitoring Concentration** |
| Cyanide, Total | <0.0050 mg/L | 0.022 mg/L |
| **Chemical Oxygen Demand, Total** | **2600 mg/L** | **120 mg/L** |
| **Ammonia as N** | **19 mg/L** | **2.14 mg/L** |
| Mercury | <0.00057 mg/L | 0.0014 mg/L |
| Silver | <0.0010 mg/L | 0.0065 mg/L |
| Arsenic | 0.0139 mg/L | 0.15 mg/L |
| Cadmium | 0.000956 mg/L | 0.0029 mg/L |
| **Magnesium** | **12.5 mg/L** | **0.064 mg/L** |
| Lead | 0.0384 mg/L | 0.122 mg/L |
| Selenium | <0.0050 mg/L | 0.005 mg/L |
| Receiving Waterbody Hardness($CaCO_3$)* | 135 mg/L | |
| **Sector N Results for Outfall 002** | | |
| **Analyte** | **Results** | **Benchmark Monitoring Concentration** |
| **Chemical Oxygen Demand, Total** | **500 mg/L** | **120 mg/L** |
| Total Suspended Solids | **120 mg/L** | **100 mg/L** |
| Aluminum | 0.581 mg/L | 0.75 mg/L |
| **Copper** | **0.278 mg/L** | **0.0189 mg/L** |
| **Iron** | **4.09 mg/L** | **1.0 mg/L** |
| Lead | 0.0399 mg/L | 0.122 mg/L |
| Zinc | **0.834 mg/L** | **0.16 mg/L** |
| Receiving Waterbody Hardness($CaCO_3$)* | 135 mg/L | |

* – Provided by EPA
ND – Non Detect

Parameters that are above the Benchmark Monitoring Concentration are bolded within their respective tables. Benchmark Monitoring Concentrations are found in the representative subsector of Part 8 "Sector-Specific Requirements for Industrial Activity," of the National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP). As per Part 6.2.1 "Benchmark Monitoring," after collection of 4 quarterly samples, if the average of the 4 monitoring values for any parameter exceeds the benchmark, in accordance with Part 3.2, review the selection, design, installation, and implementation of control measures to determine if modifications are necessary to meet the effluent limits in the permit.

# 2.0 METEOROLOGICAL REPORTING DATA

**These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - http://www.ncdc.noaa.gov.**

## Climatological Report (Daily)

```
000
CDUS41 KLWX 310529
CLIDCA

CLIMATE REPORT
NATIONAL WEATHER SERVICE BALTIMORE MD/WASHINGTON DC
129 AM EDT FRI JUL 31 2020

.....................................

...THE WASHINGTON NATIONAL DC CLIMATE SUMMARY FOR JULY 30 2020...

CLIMATE NORMAL PERIOD: 1981 TO 2010
CLIMATE RECORD PERIOD: 1871 TO 2020
```

| WEATHER ITEM | OBSERVED VALUE | TIME (LST) | RECORD VALUE | YEAR | NORMAL VALUE | DEPARTURE FROM NORMAL | LAST YEAR |
|---|---|---|---|---|---|---|---|
| TEMPERATURE (F) | | | | | | | |
| YESTERDAY | | | | | | | |
| MAXIMUM | 94 | 3:02 PM | 99 | 1953 | 88 | 6 | 95 |
| MINIMUM | 74 | 11:59 PM | 56 | 1914 | 71 | 3 | 76 |
| AVERAGE | 84 | | | | 80 | 4 | 86 |
| PRECIPITATION (IN) | | | | | | | |
| YESTERDAY | 0.15 | | 4.25 | 1878 | 0.12 | 0.03 | 0.00 |
| MONTH TO DATE | 6.44 | | | | 3.61 | 2.83 | 6.48 |
| SINCE JUN 1 | 9.95 | | | | 7.39 | 2.56 | 10.75 |
| SINCE JAN 1 | 27.05 | | | | 23.35 | 3.70 | 28.78 |
| SNOWFALL (IN) | | | | | | | |
| YESTERDAY | 0.0 | | MM | MM | 0.0 | 0.0 | 0.0 |
| MONTH TO DATE | 0.0 | | | | 0.0 | 0.0 | 0.0 |
| SINCE JUN 1 | 0.0 | | | | 0.0 | 0.0 | 0.0 |
| SINCE JUL 1 | 0.0 | | | | 0.0 | 0.0 | 0.0 |

  SNOW DEPTH       0

DEGREE DAYS
 HEATING
  YESTERDAY        0                          0      0        0
  MONTH TO DATE    0                          0      0        0
  SINCE JUN 1      0                          6     -6        0
  SINCE JUL 1      0                          0      0        0

 COOLING
  YESTERDAY       19                         15      4       21
  MONTH TO DATE  582                        445    137      521
  SINCE JUN 1    950                        759    191      869
  SINCE JAN 1   1057                        893    164     1152
.............................................................


WIND (MPH)
  HIGHEST WIND SPEED    29   HIGHEST WIND DIRECTION    SW (240)
  HIGHEST GUST SPEED    41   HIGHEST GUST DIRECTION     W (250)
  AVERAGE WIND SPEED     7.8


SKY COVER
  AVERAGE SKY COVER 0.7


WEATHER CONDITIONS
THE FOLLOWING WEATHER WAS RECORDED YESTERDAY.
  THUNDERSTORM
  HEAVY RAIN
  RAIN
  LIGHT RAIN
  FOG


RELATIVE HUMIDITY (PERCENT)
 HIGHEST    91           7:00 PM
 LOWEST     44          12:00 PM
 AVERAGE    68

.........................................................


THE WASHINGTON NATIONAL DC CLIMATE NORMALS FOR TODAY
                          NORMAL    RECORD    YEAR

```
 MAXIMUM TEMPERATURE (F)   88       103      1954
 MINIMUM TEMPERATURE (F)   71        52      1895


SUNRISE AND SUNSET
JULY 31 2020.....SUNRISE   6:09 AM EDT   SUNSET   8:20 PM EDT
AUGUST  1 2020.....SUNRISE   6:10 AM EDT   SUNSET   8:19 PM EDT


-  INDICATES NEGATIVE NUMBERS.
R  INDICATES RECORD WAS SET OR TIED.
MM INDICATES DATA IS MISSING.
T  INDICATES TRACE AMOUNT.
```

---

The U.S. Naval Observatory (USNO) data is currently unavailable. The links provided are from other US Government sources. When USNO data is returned to service, the links will be updated.

# 3.0 QUARTERLY VISUAL ASSESSMENT FORMS

# NPDES Quarterly Visual Assessment Form

## Assessment

**Name of Facility**
SMWA Waste/Recycling Facility
**NPDES Tracking No.**
DC0000221
**Outfall Name/Number**
001
**"Substantially Identical Outfall"?**
No
**Substitute Sample?**
No
**Person(s)/Title(s) Collecting Sample**
Margaret King
**Amount (inches)**
**.15**

**Duration (time) between Prior Rainfall and Current Rainfall (must be at least 72 hrs or 3 days)**

Current Rainfall Event
**Start Time of Discharge:**
08:00 PM
**Current Rainfall Amount (inches)**
**.1**
**Substitute Sample?**
No
**Time Sample Collected (must be within one-hour of start of discharge, or explain)**
08:30 PM
**Time Sample Examined (must be within 30 minutes after sample collected, or explain)**
09:00 PM

**Comments**

**Nature of Discharge**
Rainfall
**If Rainfall, amount (inches)**
**.15**
**Previous Storm Ended >72 hours Before Start of Storm?**
Yes

## Parameter

**Color**
Other
**If Other, describe:**
Light yellow
**Odor**
Sour
**Clarity**
Slightly Cloudy
**Floating Solids**
No
**Settled Solids**
Yes
**If Yes, describe**
Some sediment

**Suspended Solids**
No
**Foam (gently shake sample)**
No
**Oil Sheen**
None
**Other Obvious Indicators of Stormwater Pollution**
No
**Detail any concerns, additional comments, and any corrective actions taken below**

# NPDES Quarterly Visual Assessment Form

**Photos**

| Photo Number | Photo Description | Photo |
|---|---|---|
| 1 | Sample |  |

# NPDES Quarterly Visual Assessment Form

Person Collecting/Examining Sample:

| Name | Signature | Date Signed |
| --- | --- | --- |
| Margaret King |  | 07/30/2020 |

---

**Certification by Facility Responsible Official (Refer to MSGP Subpart 11 Appendix B for Signatory Requirements)**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| Name | Date Signed | Signature |
| --- | --- | --- |
| Title | | |

---

# NPDES Quarterly Visual Assessment Form

## Assessment

**Name of Facility**
SWMA Waste/Recycling Facility
**NPDES Tracking No.**
Site 8
**Outfall Name/Number**
002
**"Substantially Identical Outfall"?**
No
**Substitute Sample?**
No
**Person(s)/Title(s) Collecting Sample**
Margaret King
**Amount (inches)**
.15

**Duration (time) between Prior Rainfall and Current Rainfall (must be at least 72 hrs or 3 days)**

Current Rainfall Event
**Start Time of Discharge:**
08:00 PM
**Current Rainfall Amount (inches)**
.1
**Substitute Sample?**
No
**Time Sample Collected (must be within one-hour of start of discharge, or explain)**
08:30 PM
**Time Sample Examined (must be within 30 minutes after sample collected, or explain)**
09:00 PM

**Comments**

**Nature of Discharge**
Rainfall
**If Rainfall, amount (inches)**
0.15
**Previous Storm Ended >72 hours Before Start of Storm?**
Yes

## Parameter

**Color**
Other
**If Other, describe:**
Light yellow
**Odor**
Sour
**Clarity**
Slightly Cloudy
**Floating Solids**
No
**Settled Solids**
Yes
**If Yes, describe**
Some sediment

**Suspended Solids**
No
**Foam (gently shake sample)**
No
**Oil Sheen**
None
**Other Obvious Indicators of Stormwater Pollution**
No
**Detail any concerns, additional comments, and any corrective actions taken below**

# NPDES Quarterly Visual Assessment Form

**Photos**

| Photo Number | Photo Description | Photo |
|---|---|---|
| 1 | Sample |  |

# NPDES Quarterly Visual Assessment Form

Person Collecting/Examining Sample:

| Name | Signature | Date Signed |
| --- | --- | --- |
| Margaret King |  | 07/30/2020 |

---

**Certification by Facility Responsible Official (Refer to MSGP Subpart 11 Appendix B for Signatory Requirements)**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| Name | Date Signed | Signature |
| --- | --- | --- |
| Title | | |

---

# 4.0 ANALYTICAL DATA REPORT

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Microbac Laboratories, Inc. - Baltimore

# CERTIFICATE OF ANALYSIS

20G0965

***Revised Report: Amended to fix sample name.***

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Received: 07/31/2020
Reported: 08/25/2020

**Case Narrative**

MMM 8/25/2020 Work order amended to switch Sample ID of Sector K with Sector N per client request due to labeling error in the field.

**Analytical Testing Parameters**

**Client Sample ID:** Site # 8 Outfall 001 Sector N
**Sample Matrix:** Aqueous
**Lab Sample ID:** 20G0965-01
**Collected By:** Customer
**Collection Date:** 07/30/2020 20:30

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 410.4, Rv. 2 (1993)** | | | | | | | | |
| COD, Total | **860** | 50 | mg/L | 1 | | 08/05/20 0958 | 08/06/20 1533 | EIP |
| **SM 2540 D-2011** | | | | | | | | |
| Total Suspended Solids | **70** | 20 | mg/L | 20 | | 08/04/20 1612 | 08/05/20 1014 | EIP |

| Metals Total by ICPMS | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | |
| Aluminum | **0.773** | 0.0050 | mg/L | 1 | **B12** | 08/03/20 0816 | 08/04/20 1745 | GHW |
| Copper | **0.0745** | 0.0010 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1745 | GHW |
| Lead | **0.0182** | 0.0010 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1745 | GHW |
| Zinc | **0.456** | 0.0050 | mg/L | 1 | **B14** | 08/03/20 0816 | 08/04/20 1745 | GHW |

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Calculation** | | | | | | | | |
| Hardness (as CaCO3) | **180** | 0.999 | mg/L | 1 | | 08/07/20 0709 | 08/07/20 2120 | KHL |

| Metals Total by ICP | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.7, Rv. 4.4 (1994)** | | | | | | | | |
| Calcium | **61.8** | 0.400 | mg/L | 1 | | 08/07/20 0709 | 08/07/20 2120 | KHL |
| Iron | **3.43** | 0.0800 | mg/L | 1 | | 08/07/20 0709 | 08/07/20 2120 | KHL |
| Magnesium | **6.22** | 0.400 | mg/L | 1 | | 08/07/20 0709 | 08/07/20 2120 | KHL |

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# CERTIFICATE OF ANALYSIS

## 20G0965

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 001 Sector K | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20G0965-02 | **Collection Date:** | 07/30/2020 20:30 |

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 335.4, Rv. 1 (1993)** | | | | | | | | |
| Cyanide, Total | <0.0050 | 0.0050 | mg/L | 1 | | 08/03/20 1137 | 08/03/20 1449 | SRZ |
| **EPA 410.4, Rv. 2 (1993)** | | | | | | | | |
| COD, Total | **5300** | 250 | mg/L | 1 | | 08/05/20 0958 | 08/06/20 1533 | EIP |
| **SM 4500-NH3 B-2011** | | | | | | | | |
| Ammonia as N | **4.8** | 1.0 | mg/L | 1 | | 08/03/20 0920 | 08/03/20 1145 | VAS |

| Metals Total by CVAA | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 245.1, Rv. 3 (1994)** | | | | | | | | |
| Mercury | <0.00020 | 0.00020 | mg/L | 1 | | 08/05/20 0908 | 08/05/20 1333 | LNR |

| Metals Total by ICPMS | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | |
| Arsenic | **0.0033** | 0.0010 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1749 | GHW |
| Selenium | <0.0050 | 0.0050 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1749 | GHW |
| Silver | <0.0010 | 0.0010 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1749 | GHW |
| Cadmium | **0.000618** | 0.000250 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1749 | GHW |
| Lead | **0.0253** | 0.0010 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1749 | GHW |

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Calculation** | | | | | | | | |
| Hardness (as CaCO3) | **178** | 0.999 | mg/L | 1 | | 08/07/20 0709 | 08/07/20 2124 | KHL |

| Metals Total by ICP | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.7, Rv. 4.4 (1994)** | | | | | | | | |
| Calcium | **61.0** | 0.400 | mg/L | 1 | | 08/07/20 0709 | 08/07/20 2124 | KHL |
| Iron | **3.34** | 0.0800 | mg/L | 1 | | 08/07/20 0709 | 08/07/20 2124 | KHL |
| Magnesium | **6.18** | 0.400 | mg/L | 1 | | 08/07/20 0709 | 08/07/20 2124 | KHL |

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# CERTIFICATE OF ANALYSIS

## 20G0965

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20G0965-03 | **Collection Date:** | 07/30/2020 20:30 |

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 410.4, Rv. 2 (1993)** | | | | | | | | |
| COD, Total | **500** | 50 | mg/L | 1 | | 08/05/20 0958 | 08/06/20 1533 | EIP |
| **SM 2540 D-2011** | | | | | | | | |
| Total Suspended Solids | **120** | 20 | mg/L | 20 | | 08/04/20 1612 | 08/05/20 1014 | EIP |

| Metals Total by ICPMS | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | |
| Aluminum | **0.581** | 0.0050 | mg/L | 1 | **B12** | 08/03/20 0816 | 08/04/20 1752 | GHW |
| Copper | **0.278** | 0.0010 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1752 | GHW |
| Lead | **0.0399** | 0.0010 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1752 | GHW |
| Zinc | **0.834** | 0.0050 | mg/L | 1 | **B14** | 08/03/20 0816 | 08/04/20 1752 | GHW |

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Calculation** | | | | | | | | |
| Hardness (as CaCO3) | **420** | 0.999 | mg/L | 1 | | 08/07/20 0709 | 08/07/20 2127 | KHL |

| Metals Total by ICP | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.7, Rv. 4.4 (1994)** | | | | | | | | |
| Calcium | **146** | 0.400 | mg/L | 1 | | 08/07/20 0709 | 08/07/20 2127 | KHL |
| Iron | **4.09** | 0.0800 | mg/L | 1 | | 08/07/20 0709 | 08/07/20 2127 | KHL |
| Magnesium | **13.2** | 0.400 | mg/L | 1 | | 08/07/20 0709 | 08/07/20 2127 | KHL |

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# CERTIFICATE OF ANALYSIS

## 20G0965

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector K | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20G0965-04 | **Collection Date:** | 07/30/2020 20:30 |

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 335.4, Rv. 1 (1993)** | | | | | | | | |
| Cyanide, Total | <0.0050 | 0.0050 | mg/L | 1 | | 08/03/20 1137 | 08/03/20 1438 | SRZ |
| **EPA 410.4, Rv. 2 (1993)** | | | | | | | | |
| COD, Total | **2600** | 250 | mg/L | 1 | | 08/05/20 0958 | 08/06/20 1533 | EIP |
| **SM 4500-NH3 B-2011** | | | | | | | | |
| Ammonia as N | **19** | 1.0 | mg/L | 1 | | 08/03/20 0920 | 08/03/20 1145 | VAS |

| Metals Total by CVAA | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 245.1, Rv. 3 (1994)** | | | | | | | | |
| Mercury | <0.00057 | 0.00057 | mg/L | 1 | | 08/05/20 0908 | 08/05/20 1335 | LNR |

| Metals Total by ICPMS | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | |
| Arsenic | **0.0139** | 0.0010 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1756 | GHW |
| Selenium | <0.0050 | 0.0050 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1756 | GHW |
| Silver | <0.0010 | 0.0010 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1756 | GHW |
| Cadmium | **0.000956** | 0.000250 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1756 | GHW |
| Lead | **0.0384** | 0.0010 | mg/L | 1 | | 08/03/20 0816 | 08/04/20 1756 | GHW |

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Calculation** | | | | | | | | |
| Hardness (as CaCO3) | **398** | 0.999 | mg/L | 1 | | 08/08/20 0751 | 08/10/20 1719 | LSJ |

| Metals Total by ICP | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.7, Rv. 4.4 (1994)** | | | | | | | | |
| Calcium | **139** | 0.400 | mg/L | 1 | | 08/08/20 0751 | 08/10/20 1719 | LSJ |
| Iron | **4.41** | 0.0800 | mg/L | 1 | | 08/08/20 0751 | 08/10/20 1719 | LSJ |
| Magnesium | **12.5** | 0.400 | mg/L | 1 | | 08/08/20 0751 | 08/10/20 1719 | LSJ |

**Definitions**

| | |
|---|---|
| **B12:** | Target analyte detected in initial calibration blank >2.2 times the MDL but less than the reporting limit. Concentration found in the samples was 10 times the concentration found in the blank. No impact on data. |
| **B14:** | Target analyte detected in method blank >2.2 times the MDL but less than the reporting limit. Concentration found in the samples was 10 times the concentration found in the blank. No impact on data. |
| **mg/L:** | Milligrams per Liter |
| **RL:** | Reporting Limit |

MICROBAC®

Microbac Laboratories, Inc. - Baltimore

# CERTIFICATE OF ANALYSIS

20G0965

**Project Requested Certification(s)**

| | |
|---|---|
| Microbac Laboratories Inc., - Marietta, OH | |
| E87551 | Florida Department of Health |
| Microbac Laboratories, Inc. - Baltimore | |
| 460285 | Commonwealth of Virginia (NELAC) - Baltimore |
| E871126 | Florida - NELAC |

**Report Comments**

*Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.*

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.* ***The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

**Reviewed and Approved By:**



Marissa Mamone
Client Relations
Reported: 08/25/2020 11:39

MICROBAC

# Chain of Custody

## Microbac Laboratories, Inc. - Baltimore

Lab Manager: Evelyn Shinas

20G0965

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project/PO Number: N/A
Tenatively Scheduled: 7/8/2020
Route:

| Container(s) | Designator |
|---|---|
| 250ml-Bottle HDPE-Ascorbic, NaOH | A |
| 500ml-Bottle HDPE-H2SO4 | B |
| 500ml-Bottle HDPE-HNO3 | C |
| ½Gal-Jug LDPE-H2SO4 | D |

**Client Sample ID:** Site # 8 Outfall 002 Sector K
**Lab Sample ID:** 20G0965-03
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 7/30/2020 20:30

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | NA | | 180.00 days |
| COD_Total_HL | EPA 410.4, Rv. 2 (1993) | | 28.00 days |
| TSS | SM 2540 D-2011 | | 7.00 days |
| M_Fe_ICP | EPA 200.7, Rv. 4.4 (1994) | | 180.00 days |
| M_Al_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Cu_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Pb_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Zn_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |

| Container(s) | Designator |
|---|---|
| 500ml-Bottle HDPE-H2SO4 | A |
| 500ml-Bottle HDPE-HNO3 | B |
| 1L-Bottle HDPE | C |

**Client Sample ID:** Site # 8 Outfall 002 Sector N
**Lab Sample ID:** 20G0965-04
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 7/30/2020 20:30

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | NA | | 180.00 days |
| CN_Total_Seal | EPA 335.4, Rv. 1 (1993) | | 14.00 days |
| COD_Total_HL | EPA 410.4, Rv. 2 (1993) | | 28.00 days |
| NH3_Titration | SM 4500-NH3 B-2011 | | 28.00 days |
| Hg_Total | EPA 245.1, Rv. 3 (1994) | | 28.00 days |
| M_Ag_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_As_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Cd_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Mg_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Pb_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |

MICROBAC

# Chain of Custody

## Microbac Laboratories, Inc. - Baltimore

Lab Manager: Evelyn Shinas

20G0965

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project/PO Number: N/A
Tenatively Scheduled: 7/8/2020
Route:

M_Se_ICPMS — EPA 200.8, Rv. 5.4 (1994) — 180.00 days

| Container(s) | Designator |
|---|---|
| 250ml-Bottle HDPE-Ascorbic, NaOH | A |
| 500ml-Bottle HDPE-H2SO4 | B |
| 500ml-Bottle HDPE-HNO3 | C |
| ½Gal-Jug LDPE-H2SO4 | D |

| | | |
|---|---|---|
| Sampled/Relinquished by: Margaret King | Date/Time: 7/30/20 09:30 pm | Received by: Brian Nunez |
| Printed Name: Customer Margaret King | | Printed Name: |
| Relinquished by: Brian Nunez | Date/Time: | Received by: |
| Printed Name: | | Printed Name: Rick McBride |
| Relinquished by: Rick McBride | Date/Time: 7/31/2020 | Received by: R. Price 7/31/2020 |
| Printed Name: Rick McBride | | Printed Name: R. PRICE/MSL 10:32 |

*As Received at Laboratory:* On Ice: (Yes) / No Temp: 3.4 °C Thermometer ID:_____ Total Containers: 14

*Microbac Laboratories may be unable to perform a portion of the requested testing in which case we will subcontract the analysis to an appropriately accredited laboratory. By signing this document you are acknowledging that you have been informed by Microbac that testing could be subcontracted and agree with this arrangement.*

**Notes:**

RELINQUISHED BY: Roger Price Time:
ROBER PRICE DATE: 7/31/2020 (MSL)

7/31/2020 11:50

7/31/2020 15:00

7/31/2020 1520

# Cooler Receipt Form / Sample Acceptance & Noncompliance Form

Microbac Laboratories, Inc., Baltimore Division
Control # 606-03
Effective Date: 11/30/2016
Page 1 of 1

Number of Coolers Received: 1
Client: APEX
Form Completed By: JESSICA

Receipt Date / Time: 7-3(-2020
Work Order # 20G0962, G0965, 0963, A0471

☒ Microbac ☐ Client ☐ UPS ☐ FedEx

Shipper:
Custody Tape Intact: YES / NO / NA
Containers Intact: YES / NO
Sample Received on Ice or refrigerated: YES / NO / NA
Infrared (IR) Temperature: 3.4 °C

Chain of Custody Present with shipment: YES / NO
Sample Bottle IDs agree with COC: YES / NO
Preservation requirements met: YES / NO / Not Checked
Correct Number of Containers / Sample Volume: YES / NO (If No, contact client immediately)
Headspace in container: YES / NO / NA
Type of Sample: Water Soil Wipes Oil Filter Solid Sludge Food Swab Other

***Container Type / Quantity:***

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **A -** | ___ Unpreserved | 4 H2SO4 | 4 HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid: | If preserved pH <2___, pH >10___ |
| **B -** | ___ Unpreserved | 2 H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **C -** | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **D -** | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **E -** | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **H -** | 4 Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **K -** | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **L -** | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **M-** | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **P -** | ___ Unpreserved | ___ H2SO4 2 | HNO3 | ___ HCl | ___ NaOH 2 | NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **W-** | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **V -** | ___ Unpreserved | ___ HCl | ___ HCl / Ascorbic Acid | ___ HCl / NaTHIO **(Checked at time of Analysis)** | | | |
| **F -** | ___ Unpreserved | ___ NaTHIO **(Checked at time of Analysis)** | | | | | |
| **S -** | ___ Unpreserved | ___ NaTHIO **(Checked at time of Analysis)** | | | | | |
| **SN-** | ___ Unpreserved | ___ NaTHIO | ___ NaTHIO/EDTA **(Checked at time of Analysis)** | | | | |
| | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| | ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |

**Describe preservation requirements not met:**

*All Acid preserved <2 pH* *NaOH preserved >12 pH* *All others >2 and <10 (usually 4-8)*

Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added

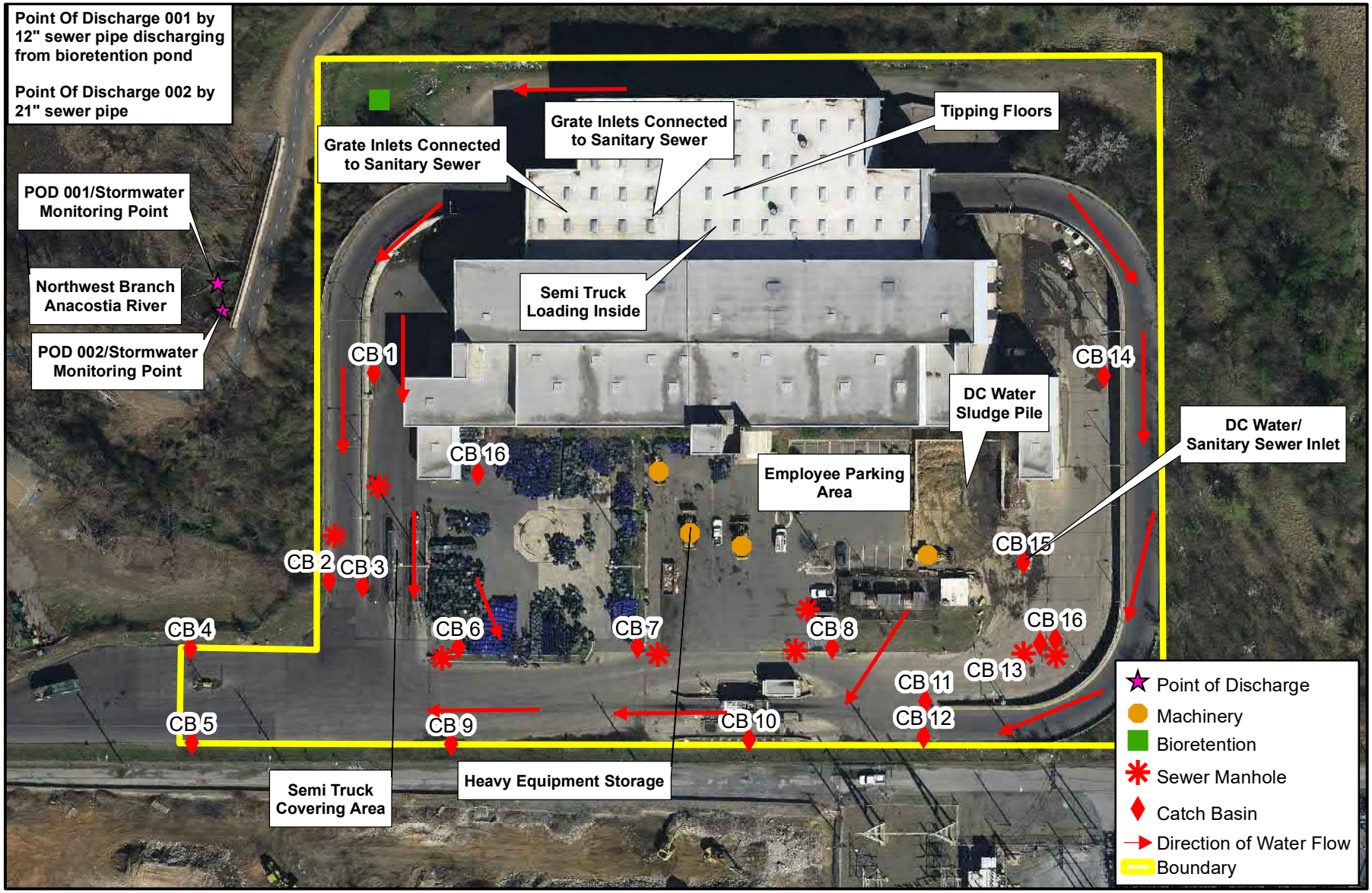
*$H_2SO_4$ – Sulfuric Acid, $HNO_3$ – Nitric Acid, NaOH – Sodium Hydroxide, ASC – Ascorbic Acid, NaTHIO – Sodium Thiosulfate*

Describe Anomalies:_____

Contact information / Summary of Actions:

Date / Time:_____ Contact:_____ Contact By:_____
Comments:_____

# 5.0 RELEVANT SITE MAPS





APEX

Apex Companies, LLC
9700 Capital Court
Suite 100
Manassas, VA 20110
Telephone: (703) 396-6730
Fax: (703) 396-6743


**Figure 2**
**Site 8**
**3200 Benning Road NE, Washington, DC 21002**
**SWMA Waste/Recycling Facility**

0 30 60 120 180 240 Feet

**Coordinate System: Lambert Conformal Conic**
Central Meridian: 77°0'0"W
1st Std Parallel: 38°18'0"N
2nd Std Parallel: 39°27'0"N
Latitude of Origin: 37°40'0"N

N

**Department of Public Works**
**Washington, DC**
**SWPPP 2019**
**Area: 8.45 Acres**
**2017 USGS Orthoimage**
**.16 Meter Resolution**

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# Microbac Laboratories, Inc. - Baltimore

## CERTIFICATE OF ANALYSIS

20H0585

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Received: 09/10/2020
Reported: 09/28/2020

### Analytical Testing Parameters

**Client Sample ID:** Site # 8 Outfall 001 Sector N
**Sample Matrix:** Aqueous
**Lab Sample ID:** 20H0585-01
**Collected By:** Customer
**Collection Date:** 09/09/2020 14:56

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 410.4, Rv. 2 (1993)** | | | | | | | | |
| COD, Total | **560** | 50 | mg/L | 1 | | 09/19/20 0954 | 09/19/20 1340 | EIP |
| **SM 2540 D-2011** | | | | | | | | |
| Total Suspended Solids | **88** | 20 | mg/L | 20 | | 09/11/20 1323 | 09/12/20 0950 | EIP |

| Metals Total by ICPMS | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | |
| Copper | **0.0588** | 0.0050 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1533 | GHW |
| Lead | **0.0177** | 0.0050 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1533 | GHW |
| Zinc | **0.367** | 0.0250 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1533 | GHW |

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Calculation** | | | | | | | | |
| Hardness (as CaCO3) | **164** | 0.999 | mg/L | 1 | | 09/21/20 0555 | 09/21/20 1433 | LSJ |

| Metals Total by ICP | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.7, Rv. 4.4 (1994)** | | | | | | | | |
| Aluminum | **1.19** | 0.160 | mg/L | 1 | | 09/21/20 0555 | 09/21/20 1433 | LSJ |
| Calcium | **56.2** | 0.400 | mg/L | 1 | | 09/21/20 0555 | 09/21/20 1433 | LSJ |
| Iron | **3.54** | 0.0800 | mg/L | 1 | | 09/21/20 0555 | 09/21/20 1433 | LSJ |
| Magnesium | **5.73** | 0.400 | mg/L | 1 | | 09/21/20 0555 | 09/21/20 1433 | LSJ |

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Microbac Laboratories, Inc. - Baltimore

# CERTIFICATE OF ANALYSIS

## 20H0585

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 001 Sector K | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20H0585-02 | **Collection Date:** | 09/09/2020 14:56 |

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 335.4, Rv. 1 (1993)** | | | | | | | | |
| Cyanide, Total | <0.0050 | 0.0050 | mg/L | 1 | | 09/16/20 0843 | 09/16/20 1307 | SRZ |
| **EPA 410.4, Rv. 2 (1993)** | | | | | | | | |
| COD, Total | **850** | 50 | mg/L | 1 | | 09/19/20 0954 | 09/19/20 1340 | EIP |
| **SM 4500-NH3 C-2011** | | | | | | | | |
| Ammonia as N | **2.8** | 1.0 | mg/L | 1 | | 09/14/20 1240 | 09/14/20 1445 | EWP |

| Metals Total by CVAA | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 245.1, Rv. 3 (1994)** | | | | | | | | |
| Mercury | <0.00057 | 0.00057 | mg/L | 1 | | 09/11/20 1006 | 09/11/20 1415 | LNR |

| Metals Total by ICPMS | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | |
| Arsenic | <0.0050 | 0.0050 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1534 | GHW |
| Cadmium | <0.00125 | 0.00125 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1534 | GHW |
| Lead | **0.0174** | 0.0050 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1534 | GHW |
| Magnesium | **5.36** | 0.0250 | mg/L | 5 | **B2** | 09/15/20 0821 | 09/15/20 1534 | GHW |
| Selenium | <0.0250 | 0.0250 | mg/L | 5 | **B11** | 09/15/20 0821 | 09/15/20 1534 | GHW |
| Silver | <0.0050 | 0.0050 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1534 | GHW |

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Calculation** | | | | | | | | |
| Hardness (as CaCO3) | **166** | 0.999 | mg/L | 1 | | 09/23/20 0557 | 09/23/20 1522 | LSJ |

| Metals Total by ICP | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.7, Rv. 4.4 (1994)** | | | | | | | | |
| Calcium | **56.9** | 0.400 | mg/L | 1 | | 09/23/20 0557 | 09/23/20 1522 | LSJ |
| Magnesium | **5.73** | 0.400 | mg/L | 1 | | 09/23/20 0557 | 09/23/20 1522 | LSJ |

MICROBAC®

Microbac Laboratories, Inc. - Baltimore

# CERTIFICATE OF ANALYSIS

20H0585

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20H0585-03 | **Collection Date:** | 09/09/2020 14:42 |

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 410.4, Rv. 2 (1993)** | | | | | | | | |
| COD, Total | **890** | 50 | mg/L | 1 | | 09/19/20 0954 | 09/19/20 1340 | EIP |
| **SM 2540 D-2011** | | | | | | | | |
| Total Suspended Solids | **62** | 20 | mg/L | 20 | | 09/11/20 1323 | 09/12/20 0950 | EIP |

| Metals Total by ICPMS | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | |
| Copper | **0.0605** | 0.0050 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1535 | GHW |
| Lead | **0.0140** | 0.0050 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1535 | GHW |
| Zinc | **0.286** | 0.0250 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1535 | GHW |

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Calculation** | | | | | | | | |
| Hardness (as CaCO3) | **480** | 0.999 | mg/L | 1 | | 09/21/20 0555 | 09/21/20 1436 | LSJ |

| Metals Total by ICP | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.7, Rv. 4.4 (1994)** | | | | | | | | |
| Aluminum | **0.637** | 0.160 | mg/L | 1 | | 09/21/20 0555 | 09/21/20 1436 | LSJ |
| Calcium | **160** | 0.400 | mg/L | 1 | | 09/21/20 0555 | 09/21/20 1436 | LSJ |
| Iron | **4.78** | 0.0800 | mg/L | 1 | | 09/21/20 0555 | 09/21/20 1436 | LSJ |
| Magnesium | **19.4** | 0.400 | mg/L | 1 | | 09/21/20 0555 | 09/21/20 1436 | LSJ |

MICROBAC®

Microbac Laboratories, Inc. - Baltimore

# CERTIFICATE OF ANALYSIS

## 20H0585

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector K | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20H0585-04 | **Collection Date:** | 09/09/2020 14:42 |

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 335.4, Rv. 1 (1993)** | | | | | | | | |
| Cyanide, Total | <0.0050 | 0.0050 | mg/L | 1 | | 09/16/20 0843 | 09/16/20 1309 | SRZ |
| **EPA 410.4, Rv. 2 (1993)** | | | | | | | | |
| COD, Total | **1000** | 50 | mg/L | 1 | | 09/19/20 0954 | 09/19/20 1340 | EIP |
| **SM 4500-NH3 C-2011** | | | | | | | | |
| Ammonia as N | **4.8** | 1.0 | mg/L | 1 | | 09/14/20 1240 | 09/14/20 1445 | EWP |

| Metals Total by CVAA | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 245.1, Rv. 3 (1994)** | | | | | | | | |
| Mercury | <0.00057 | 0.00057 | mg/L | 1 | | 09/11/20 1006 | 09/11/20 1417 | LNR |

| Metals Total by ICPMS | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.2/EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | |
| Arsenic | **0.0058** | 0.0050 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1537 | GHW |
| Cadmium | <0.00125 | 0.00125 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1537 | GHW |
| Lead | **0.0177** | 0.0050 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1537 | GHW |
| Magnesium | **17.0** | 0.0250 | mg/L | 5 | **B2** | 09/15/20 0821 | 09/15/20 1537 | GHW |
| Selenium | <0.0250 | 0.0250 | mg/L | 5 | **B11** | 09/15/20 0821 | 09/15/20 1537 | GHW |
| Silver | <0.0050 | 0.0050 | mg/L | 5 | | 09/15/20 0821 | 09/15/20 1537 | GHW |

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

| Inorganics Total | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Calculation** | | | | | | | | |
| Hardness (as CaCO3) | **452** | 0.999 | mg/L | 1 | | 09/23/20 0557 | 09/23/20 1526 | LSJ |

| Metals Total by ICP | Result | RL | Units | Dilution | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **EPA 200.7, Rv. 4.4 (1994)** | | | | | | | | |
| Calcium | **152** | 0.400 | mg/L | 1 | | 09/23/20 0557 | 09/23/20 1526 | LSJ |
| Magnesium | **17.8** | 0.400 | mg/L | 1 | | 09/23/20 0557 | 09/23/20 1526 | LSJ |

**Definitions**

| | |
|---|---|
| **B11:** | Target analyte detected in continuing calibration blank >2.2 times the MDL but less than the reporting limit. Sample result was less than the reporting limit. No impact on data. |
| **B2:** | Target analyte detected in method blank at or above reporting limit. Concentration found in the samples was 10 times the concentration found in the method blank. |
| **mg/L:** | Milligrams per Liter |
| **RL:** | Reporting Limit |

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Microbac Laboratories, Inc. - Baltimore

# CERTIFICATE OF ANALYSIS

20H0585

**Project Requested Certification(s)**

| | |
|---|---|
| Microbac Laboratories Inc., - Marietta, OH | |
| E87551 | Florida Department of Health |
| Microbac Laboratories, Inc. - Baltimore | |
| 460285 | Commonwealth of Virginia (NELAC) - Baltimore |
| E871126 | Florida - NELAC |

**Report Comments**

*Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.*

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.* ***The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

**Reviewed and Approved By:**

Evelyn Shinas

Customer Relationship Coordinator

Reported: 09/28/2020 17:50

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# Chain of Custody

## Microbac Laboratories, Inc. - Baltimore

Lab Manager: Evelyn Shinas

20H0585

TAT 7 days

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project/PO Number: N/A
Tenatively Scheduled: 8/10/2020
Route:

---

**Client Sample ID:** Site # 8 Outfall 001 Sector ~~X~~ N
**Lab Sample ID:** 20H0585-01
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 14 56

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | NA | | 180.00 days |
| COD_Total_HL | EPA 410.4, Rv. 2 (1993) | | 28.00 days |
| TSS | SM 2540 D-2011 | | 7.00 days |
| M_Fe_ICP | EPA 200.7, Rv. 4.4 (1994) | | 180.00 days |
| M_Al_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Cu_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Pb_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Zn_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |

| Container(s) | Designator |
|---|---|
| 500ml-Bottle HDPE-H2SO4 | A |
| 500ml-Bottle HDPE-HNO3 | B |
| 1L-Bottle HDPE | C |

---

**Client Sample ID:** Site # 8 Outfall 001 Sector ~~N~~ K
**Lab Sample ID:** 20H0585-02
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 14 56

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | NA | | 180.00 days |
| CN_Total_Seal | EPA 335.4, Rv. 1 (1993) | | 14.00 days |
| COD_Total_HL | EPA 410.4, Rv. 2 (1993) | | 28.00 days |
| NH3_Titration | SM 4500-NH3 B-2011 | | 28.00 days |
| Hg_Total | EPA 245.1, Rv. 3 (1994) | | 28.00 days |
| M_Ag_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_As_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Cd_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Mg_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Pb_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Se_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project/PO Number: N/A
Tenatively Scheduled: 8/10/2020
Route:

| Container(s) | Designator |
|---|---|
| 250ml-Bottle HDPE-Ascorbic, NaOH ✓ | A |
| 500ml-Bottle HDPE-H2SO4 ✓ | B |
| 500ml-Bottle HDPE-HNO3 ✓ | C |
| ½Gal-Jug LDPE-H2SO4 | D |

---

**Client Sample ID:** Site # 8 Outfall 002 Sector K N
**Lab Sample ID:** 20H0585-03
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 1947

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | NA | | 180.00 days |
| COD_Total_HL | EPA 410.4, Rv. 2 (1993) | | 28.00 days |
| TSS | SM 2540 D-2011 | | 7.00 days |
| M_Fe_ICP | EPA 200.7, Rv. 4.4 (1994) | | 180.00 days |
| M_Al_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Cu_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Pb_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Zn_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |

| Container(s) | Designator |
|---|---|
| 500ml-Bottle HDPE-H2SO4 ✓ | A |
| 500ml-Bottle HDPE-HNO3 ✓ | B |
| 1L-Bottle HDPE ✓ | C |

---

**Client Sample ID:** Site # 8 Outfall 002 Sector K L
**Lab Sample ID:** 20H0585-04
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 1942

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| Hard_ICP_Calc | NA | | 180.00 days |
| CN_Total_Seal | EPA 335.4, Rv. 1 (1993) | | 14.00 days |
| COD_Total_HL | EPA 410.4, Rv. 2 (1993) | | 28.00 days |
| NH3_Titration | SM 4500-NH3 B-2011 | | 28.00 days |
| Hg_Total | EPA 245.1, Rv. 3 (1994) | | 28.00 days |
| M_Ag_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_As_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Cd_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Mg_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Pb_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |

MICROBAC®

# Chain of Custody

## Microbac Laboratories, Inc. - Baltimore

Lab Manager: Evelyn Shinas

20H0585

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project/PO Number: N/A
Tenatively Scheduled: 8/10/2020
Route:

M_Se_ICPMS — EPA 200.8, Rv. 5.4 (1994) — 180.00 days

| Container(s) | Designator |
|---|---|
| 250ml-Bottle HDPE-Ascorbic, NaOH | A |
| 500ml-Bottle HDPE-H2SO4 | B |
| 500ml-Bottle HDPE-HNO3 | C |
| ½Gal-Jug LDPE-H2SO4 | D |

| | | |
|---|---|---|
| Sampled/Relinquished by: | Date/Time: | Received by: |
| Printed Name: Customer | | Printed Name: |
| Relinquished by: | Date/Time: 9/10/20 0930 | Received by: |
| Printed Name: CAROLYN PITERA | | Printed Name: |
| Relinquished by: | Date/Time: 9/10/20 1245 | Received by: 9/10/20 |
| Printed Name: | | Printed Name: 1515 |

*As Received at Laboratory:* On Ice: (Yes) / No Temp: 23 °C Thermometer ID:_____ Total Containers: 14

*Microbac Laboratories may be unable to perform a portion of the requested testing in which case we will subcontract the analysis to an appropriately accredited laboratory. By signing this document you are acknowledging that you have been informed by Microbac that testing could be subcontracted and agree with this arrangement.*

**Notes:**



Microbac Laboratories, Inc.
**2101 Van Deman Street | Baltimore, MD 21224 | 410.633.1800 p | www.microbac.com**

# Cooler Receipt Form / Sample Acceptance & Noncompliance Form



Number of Coolers Received: 1
Client: Apex Companies
Form Completed By: Kindal Shriver

Receipt Date / Time: 9/10/2020 1519
Work Order # 20H0535

| | |
|---|---|
| Shipper: | ☐ Microbac ☐ Client ☐ UPS ☐ FedEx |
| Custody Tape Intact: | YES / NO / NA |
| Containers Intact: | YES / NO |
| Sample Received on Ice or refrigerated: | YES / NO / NA |
| | Infrared (IR) Temperature: 2.5 °C |
| Chain of Custody Present with shipment: | YES / NO |
| Sample Bottle IDs agree with COC: | YES / NO |
| Preservation requirements met: | YES / NO / Not Checked |
| Correct Number of Containers / Sample Volume: | YES / NO (If No, contact client immediately) |
| Headspace in container: | YES / NO / NA |
| Type of Sample: | Water Soil Wipes Oil Filter Solid Sludge Food Swab Other |

***Container Type / Quantity:***

**A** - ___ Unpreserved ___ $H_2SO_4$ 1 $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid: If preserved pH <2___, pH >10___
**B** - ___ Unpreserved 4 $H_2SO_4$ ___ $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
**C** - ___ Unpreserved ___ $H_2SO_4$ ___ $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
**D** - ___ Unpreserved ___ $H_2SO_4$ ___ $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
**E** - ___ Unpreserved ___ $H_2SO_4$ ___ $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
**H** - 2 Unpreserved ___ $H_2SO_4$ ___ $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
**K** - ___ Unpreserved ___ $H_2SO_4$ ___ $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
**L** - ___ Unpreserved ___ $H_2SO_4$ ___ $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
**M**- ___ Unpreserved ___ $H_2SO_4$ ___ $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
**P** - ___ Unpreserved ___ $H_2SO_4$ ___ $HNO_3$ ___ HCl 2 NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
**W**- ___ Unpreserved ___ $H_2SO_4$ ___ $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
**V** - ___ Unpreserved ___ HCl ___ HCl / Ascorbic Acid ___ HCl / NaTHIO **(Checked at time of Analysis)**
**F** - ___ Unpreserved ___ NaTHIO **(Checked at time of Analysis)**
**S** - ___ Unpreserved ___ NaTHIO **(Checked at time of Analysis)**
**SN**- ___ Unpreserved ___ NaTHIO ___ NaTHIO/EDTA **(Checked at time of Analysis)**

___ Unpreserved ___ $H_2SO_4$ ___ $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
___ Unpreserved ___ $H_2SO_4$ ___ $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___
___ Unpreserved ___ $H_2SO_4$ ___ $HNO_3$ ___ HCl ___ NaOH ___ NaOH/Ascorbic Acid If preserved pH <2___, pH >10___

**Describe preservation requirements not met:**

*All Acid preserved <2 pH* *NaOH preserved >12 pH* *All others >2 and <10 (usually 4-8)*

Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added

*$H_2SO_4$ – Sulfuric Acid, $HNO_3$ – Nitric Acid, NaOH – Sodium Hydroxide, ASC – Ascorbic Acid, NaTHIO – Sodium Thiosulfate*

Describe Anomalies:_____

Contact information / Summary of Actions:

Date / Time:_____ Contact:_____ Contact By:_____
Comments:_____

**Microbac Laboratories, Inc. - Baltimore**

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## SUBCONTRACT ORDER

# 20H0585

**SENDING LABORATORY:**

Microbac Laboratories, Inc. - Baltimore
2101 Van Deman Street
Baltimore, MD 21224
Phone: 410.633.1800
Lab Manager: Evelyn Shinas
Email: evelyn.shinas@microbac.com

**RECEIVING LABORATORY:**

Microbac - OVD
158 Starlite Dr
Marietta, OH 45750
Phone: (800) 373-4071

**Proiect Info:**

Project Name: DPW Site #8
Project No: DPW- Site# 8

Client: Apex Companies, LLC
Project Type: ENV-StormWater
Project Location: Washington, DC

Report TAT: **7**
Due: **09/22/2020 17:00**

**Sample ID: 20H0585-01** **Sampled: 09/09/2020 14:56**
**Matrix: Aqueous** **Sampler: Customer**

| Analysis | Method | Analysis Due | Expires | Network $ |
|---|---|---|---|---|
| **M_Al_ICPMS**<br>Aluminum | **EPA 200.8, Rv. 5.4 (1994)**<br>0.005 mg/L | **09/22/2020 16:00** | **03/08/2021 14:56** | **$ 5.00** |
| **M_Ca_ICP**<br>Calcium | **EPA 200.7, Rv. 4.4 (1994)**<br>0.2 mg/L | **09/22/2020 16:00** | **03/08/2021 14:56** | **$ 10.00** |
| Please include Hardness Calculation! | | | | |
| **M_Fe_ICP**<br>Iron | **EPA 200.7, Rv. 4.4 (1994)**<br>0.2 mg/L | **09/22/2020 16:00** | **03/08/2021 14:56** | **$ 5.00** |
| **M_Mg_ICP**<br>Magnesium | **EPA 200.7, Rv. 4.4 (1994)**<br>0.4 mg/L | **09/22/2020 16:00** | **03/08/2021 14:56** | **$ 10.00** |

Containers Supplied:
B: 500ml-Bottle HDPE-HNO3

**Sample ID: 20H0585-02** **Sampled: 09/09/2020 14:56**
**Matrix: Aqueous** **Sampler: Customer**

| Analysis | Method | Analysis Due | Expires | Network $ |
|---|---|---|---|---|
| **M_Ca_ICP**<br>Calcium | **EPA 200.7, Rv. 4.4 (1994)**<br>0.2 mg/L | **09/22/2020 16:00** | **03/08/2021 14:56** | **$ 10.00** |
| Please include Hardness Calculation! | | | | |
| **M_Mg_ICP**<br>Magnesium | **EPA 200.7, Rv. 4.4 (1994)**<br>0.4 mg/L | **09/22/2020 16:00** | **03/08/2021 14:56** | **$ 10.00** |

**Microbac Laboratories, Inc. - Baltimore**

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## SUBCONTRACT ORDER

# 20H0585

**Sample ID: 20H0585-03** **Sampled: 09/09/2020 14:42**

**Matrix: Aqueous** **Sampler: Customer**

| Analysis | Method | Analysis Due | Expires | Network $ |
|---|---|---|---|---|
| **M_Ca_ICP**<br>Calcium | **EPA 200.7, Rv. 4.4 (1994)**<br>0.2 mg/L | **09/22/2020 16:00** | **03/08/2021 14:42** | **$ 10.00** |
| Please include Hardness Calculation! | | | | |
| **M_Fe_ICP**<br>Iron | **EPA 200.7, Rv. 4.4 (1994)**<br>0.2 mg/L | **09/22/2020 16:00** | **03/08/2021 14:42** | **$ 5.00** |
| **M_Mg_ICP**<br>Magnesium | **EPA 200.7, Rv. 4.4 (1994)**<br>0.4 mg/L | **09/22/2020 16:00** | **03/08/2021 14:42** | **$ 10.00** |

Containers Supplied:
B: 500ml-Bottle HDPE-HNO3

**Sample ID: 20H0585-04** **Sampled: 09/09/2020 14:42**

**Matrix: Aqueous** **Sampler: Customer**

| Analysis | Method | Analysis Due | Expires | Network $ |
|---|---|---|---|---|
| **M_Ca_ICP**<br>Calcium | **EPA 200.7, Rv. 4.4 (1994)**<br>0.2 mg/L | **09/22/2020 16:00** | **03/08/2021 14:42** | **$ 10.00** |
| Please include Hardness Calculation! | | | | |
| **M_Mg_ICP**<br>Magnesium | **EPA 200.7, Rv. 4.4 (1994)**<br>0.4 mg/L | **09/22/2020 16:00** | **03/08/2021 14:42** | **$ 10.00** |

| Released By | Date | Received By | Date |
|---|---|---|---|
| HMed | 09/21/2020 | | |
| Released By | Date | Received By | Date |

Microbac Laboratories, Inc. - Baltimore

# CERTIFICATE OF ANALYSIS

20L0296

Project Description

DPW- Site# 8

For:

Andrea Owen Heller

**Apex Companies, LLC**

9700 Capital Court #100

Manassas, VA 20110



Customer Relationship Coordinator

Evelyn Shinas

Wednesday, January 6, 2021

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc. - Baltimore. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

MICROBAC®

Microbac Laboratories, Inc. - Baltimore

# CERTIFICATE OF ANALYSIS

20L0296

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110

**Project Name: DPW- Site# 8**

Project / PO Number: N/A
Received: 12/08/2020
Reported: 01/06/2021

**Sample Summary Report**

| Sample Name | Laboratory ID | Client Matrix | Sample Type | Sample Begin | Sample Taken | Lab Received |
|---|---|---|---|---|---|---|
| Site # 8 Outfall 001 Sector K | 20L0296-01 | Aqueous | Grab | | 12/04/20 20:02 | 12/08/20 15:57 |
| Site # 8 Outfall 001 Sector N | 20L0296-02 | Aqueous | Grab | | 12/04/20 20:02 | 12/08/20 15:57 |
| Site # 8 Outfall 002 Sector K | 20L0296-03 | Aqueous | Grab | | 12/04/20 20:02 | 12/08/20 15:57 |
| Site # 8 Outfall 002 Sector N | 20L0296-04 | Aqueous | Grab | | 12/04/20 20:02 | 12/08/20 15:57 |

# CERTIFICATE OF ANALYSIS

20L0296

## Analytical Testing Parameters

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 001 Sector K | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20L0296-01 | **Collection Date:** | 12/04/2020 20:02 |

| Inorganics Total | Result | MDL | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| **Method: EPA 335.4, Rv. 1 (1993)** | | | | | | | | | |
| Cyanide, Total | <0.0026 | 0.0026 | 0.0050 | mg/L | 1 | | 12/10/20 0820 | 12/10/20 1025 | SRZ |
| **Method: EPA 410.4, Rv. 2 (1993)** | | | | | | | | | |
| COD, Total | **140** | | 50 | mg/L | 1 | | 12/12/20 1145 | 12/12/20 1436 | EIP |
| **Method: SM 4500-NH3 C-2011** | | | | | | | | | |
| Ammonia as N | <1.0 | | 1.0 | mg/L | 1 | | 12/09/20 1259 | 12/09/20 1446 | JFL |

| Metals Total by CVAA | Result | MDL | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| **Method: EPA 245.1, Rv. 3 (1994)** | | | | | | | | | |
| Mercury | <0.00057 | | 0.00057 | mg/L | 1 | **L2** | 12/10/20 0826 | 12/10/20 1443 | AVF |

| Metals Total by ICPMS | Result | MDL | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | | |
| Arsenic | **0.0044** | | 0.0010 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1353 | GHW |
| Cadmium | **0.00198** | | 0.000250 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1353 | GHW |
| Lead | **0.0682** | | 0.0010 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1353 | GHW |
| Selenium | **0.0014** | 0.0014 | 0.0500 | mg/L | 10 | **B11, J** | 12/10/20 1549 | 12/14/20 1432 | GHW |
| Silver | <0.0010 | | 0.0010 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1353 | GHW |
| **Method: EPA 200.2/EPA 6020B** | | | | | | | | | |
| Magnesium | **6.15** | | 0.0500 | mg/L | 10 | | 12/10/20 1549 | 12/14/20 1432 | GHW |

# CERTIFICATE OF ANALYSIS

## 20L0296

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 001 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20L0296-02 | **Collection Date:** | 12/04/2020 20:02 |

| Inorganics Total | Result | MDL | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| **Method: EPA 410.4, Rv. 2 (1993)** | | | | | | | | | |
| COD, Total | **240** | | 50 | mg/L | 1 | | 12/12/20 1145 | 12/12/20 1436 | EIP |
| **Method: SM 2540 D-2011** | | | | | | | | | |
| Total Suspended Solids | **2600** | | 40 | mg/L | 40 | | 12/10/20 1117 | 12/11/20 1139 | DPG |

| Metals Total by ICP | Result | MDL | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.7, Rv. 4.4 (1994)** | | | | | | | | | |
| Iron | **9.0** | | 0.20 | mg/L | 1 | | 12/10/20 1552 | 12/14/20 1424 | GHW |

| Metals Total by ICPMS | Result | MDL | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | | |
| Aluminum | **1.43** | | 0.0750 | mg/L | 10 | | 12/10/20 1549 | 12/14/20 1433 | GHW |
| Copper | **0.0522** | | 0.0010 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1355 | GHW |
| Lead | **0.0806** | | 0.0010 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1355 | GHW |
| Zinc | **0.333** | | 0.0050 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1355 | GHW |

# CERTIFICATE OF ANALYSIS

## 20L0296

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector K | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20L0296-03 | **Collection Date:** | 12/04/2020 20:02 |

| Inorganics Total | Result | MDL | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| **Method: EPA 335.4, Rv. 1 (1993)** | | | | | | | | | |
| Cyanide, Total | <0.0026 | 0.0026 | 0.0050 | mg/L | 1 | | 12/10/20 0820 | 12/10/20 1024 | SRZ |
| **Method: EPA 410.4, Rv. 2 (1993)** | | | | | | | | | |
| COD, Total | **130** | | 50 | mg/L | 1 | | 12/12/20 1145 | 12/12/20 1436 | EIP |
| **Method: SM 4500-NH3 C-2011** | | | | | | | | | |
| Ammonia as N | <1.0 | | 1.0 | mg/L | 1 | | 12/09/20 1259 | 12/09/20 1446 | JFL |

| Metals Total by CVAA | Result | MDL | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| **Method: EPA 245.1, Rv. 3 (1994)** | | | | | | | | | |
| Mercury | <0.00057 | | 0.00057 | mg/L | 1 | **L2** | 12/10/20 0826 | 12/10/20 1445 | AVF |

| Metals Total by ICPMS | Result | MDL | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | | |
| Arsenic | **0.0031** | | 0.0010 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1356 | GHW |
| Cadmium | <0.000250 | | 0.000250 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1356 | GHW |
| Lead | **0.0042** | | 0.0010 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1356 | GHW |
| Selenium | <0.0014 | 0.0014 | 0.0500 | mg/L | 10 | **B11** | 12/10/20 1549 | 12/14/20 1435 | GHW |
| Silver | <0.0010 | | 0.0010 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1356 | GHW |
| **Method: EPA 200.2/EPA 6020B** | | | | | | | | | |
| Magnesium | **9.36** | | 0.0500 | mg/L | 10 | | 12/10/20 1549 | 12/14/20 1435 | GHW |

# CERTIFICATE OF ANALYSIS

## 20L0296

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Site # 8 Outfall 002 Sector N | | |
| **Sample Matrix:** | Aqueous | **Collected By:** | Customer |
| **Lab Sample ID:** | 20L0296-04 | **Collection Date:** | 12/04/2020 20:02 |

| Inorganics Total | Result | MDL | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| **Method: EPA 410.4, Rv. 2 (1993)** | | | | | | | | | |
| COD, Total | **96** | | 50 | mg/L | 1 | | 12/12/20 1145 | 12/12/20 1436 | EIP |
| **Method: SM 2540 D-2011** | | | | | | | | | |
| Total Suspended Solids | **35** | | 10 | mg/L | 10 | | 12/10/20 1117 | 12/11/20 1139 | DPG |

| Metals Total by ICP | Result | MDL | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.7, Rv. 4.4 (1994)** | | | | | | | | | |
| Iron | **7.4** | | 0.20 | mg/L | 1 | | 12/10/20 1552 | 12/14/20 1344 | GHW |

| Metals Total by ICPMS | Result | MDL | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| **Method: EPA 200.2/EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | | |
| Aluminum | **0.338** | | 0.0750 | mg/L | 10 | | 12/10/20 1549 | 12/14/20 1418 | GHW |
| Copper | **0.0145** | | 0.0010 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1335 | GHW |
| Lead | **0.0069** | | 0.0010 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1335 | GHW |
| Zinc | **0.0555** | | 0.0050 | mg/L | 1 | | 12/10/20 1549 | 12/14/20 1335 | GHW |

**Batch Log Summary**

| Method | Batch | Laboratory ID | Client / Source ID |
|---|---|---|---|
| SM 4500-NH3 C-2011 | 2050160 | 20L0296-03 | Site # 8 Outfall 002 Sector K |
| | | 2050160-MS2 | 20L0823-02 |
| | | 2050160-MS1 | 20L0823-01 |
| | | 2050160-BS1 | |
| | | 2050160-DUP2 | 20L0823-02 |
| | | 2050160-DUP1 | 20L0823-01 |
| | | 2050160-BLK1 | |
| | | 20L0296-01 | Site # 8 Outfall 001 Sector K |

| Method | Batch | Laboratory ID | Client / Source ID |
|---|---|---|---|
| EPA 335.4, Rv. 1 (1993) | 2050212 | 2050212-BLK1 | |
| | | 2050212-BS1 | |
| | | 2050212-DUP1 | 20L0857-01 |
| | | 2050212-MS1 | 20L0857-01 |
| | | 20L0296-03 | Site # 8 Outfall 002 Sector K |
| | | 20L0296-01 | Site # 8 Outfall 001 Sector K |
| | | 2050212-DUP2 | 20L0008-01 |
| | | 2050212-MS2 | 20L0008-01 |

| Method | Batch | Laboratory ID | Client / Source ID |
|---|---|---|---|
| EPA 245.1, Rv. 3 (1994) | 2050213 | 2050213-MRL1 | |
| | | 2050213-BLK1 | |
| | | 2050213-BS1 | |
| | | 2050213-DUP1 | 20K1393-01 |
| | | 2050213-MS1 | 20K1393-01 |
| | | 2050213-MSD1 | 20K1393-01 |
| | | 20L0296-01 | Site # 8 Outfall 001 Sector K |
| | | 20L0296-03 | Site # 8 Outfall 002 Sector K |

| Method | Batch | Laboratory ID | Client / Source ID |
|---|---|---|---|
| SM 2540 D-2011 | 2050215 | 2050215-BS3 | |
| | | 2050215-BS2 | |
| | | 20L0296-02 | Site # 8 Outfall 001 Sector N |
| | | 2050215-BS1 | |
| | | 2050215-BLK1 | |
| | | 2050215-BLK2 | |
| | | 2050215-BLK3 | |
| | | 2050215-DUP1 | 20G2094-01 |
| | | 2050215-DUP2 | 20G2094-03 |
| | | 2050215-DUP3 | 20L0023-03 |

| | | | |
|---|---|---|---|
| SM 2540 D-2011 | 2050215 | 2050215-DUP4 | 20L0153-01 |
| | | 2050215-DUP5 | 20L0154-01 |
| | | 20L0296-04 | Site # 8 Outfall 002 Sector N |

| Method | Batch | Laboratory ID | Client / Source ID |
|---|---|---|---|
| EPA 6020B | 2050269 | 2050269-BLK1 | |
| EPA 200.8, Rv. 5.4 (1994) | | 2050269-BLK1 | |
| EPA 6020B | | 2050269-BS1 | |
| EPA 200.8, Rv. 5.4 (1994) | | 2050269-BS1 | |
| | | 20L0296-04 | Site # 8 Outfall 002 Sector N |
| | | 2050269-DUP1 | 20L0296-04 |
| | | 2050269-MS1 | 20L0296-04 |
| | | 20L0296-01 | Site # 8 Outfall 001 Sector K |
| | | 20L0296-02 | Site # 8 Outfall 001 Sector N |
| | | 20L0296-03 | Site # 8 Outfall 002 Sector K |
| | | 20L0296-04RE1 | Site # 8 Outfall 002 Sector N |
| EPA 6020B | | 2050269-DUP2 | 20L0296-04RE1 |
| EPA 200.8, Rv. 5.4 (1994) | | 2050269-DUP2 | 20L0296-04RE1 |
| | | 2050269-MS2 | 20L0296-04RE1 |
| EPA 6020B | | 2050269-MS2 | 20L0296-04RE1 |
| | | 20L0296-01RE1 | Site # 8 Outfall 001 Sector K |
| EPA 200.8, Rv. 5.4 (1994) | | 20L0296-01RE1 | Site # 8 Outfall 001 Sector K |
| | | 20L0296-02RE1 | Site # 8 Outfall 001 Sector N |
| | | 20L0296-03RE1 | Site # 8 Outfall 002 Sector K |
| EPA 6020B | | 20L0296-03RE1 | Site # 8 Outfall 002 Sector K |

| Method | Batch | Laboratory ID | Client / Source ID |
|---|---|---|---|
| EPA 200.7, Rv. 4.4 (1994) | 2050271 | 2050271-BLK1 | |
| | | 2050271-BS1 | |
| | | 20L0296-04 | Site # 8 Outfall 002 Sector N |
| | | 2050271-DUP1 | 20L0296-04 |
| | | 2050271-MS1 | 20L0296-04 |
| | | 20L0296-02 | Site # 8 Outfall 001 Sector N |

| Method | Batch | Laboratory ID | Client / Source ID |
|---|---|---|---|
| EPA 410.4, Rv. 2 (1993) | 2050417 | 2050417-MS1 | 20K0432-01 |
| | | 20L0296-02 | Site # 8 Outfall 001 Sector N |
| | | 20L0296-01 | Site # 8 Outfall 001 Sector K |
| | | 20L0296-04 | Site # 8 Outfall 002 Sector N |
| | | 20L0296-03 | Site # 8 Outfall 002 Sector K |
| | | 2050417-MS2 | 20L0031-01 |
| | | 2050417-BS1 | |
| | | 2050417-DUP3 | 20L0186-01 |
| | | 2050417-DUP2 | 20L0031-01 |

| | | | |
|---|---|---|---|
| EPA 410.4, Rv. 2 (1993) | 2050417 | 2050417-DUP1 | 20K0432-01 |
| | | 2050417-BLK1 | |
| | | 2050417-MS3 | 20L0186-01 |

**Batch Quality Control Summary: Microbac Laboratories, Inc. - Baltimore**

| Inorganics Total | Result | | RL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2050160 - WetChem_Water_Prep - SM 4500-NH3 C-2011** | | | | | | | | | | | |
| **Blank (2050160-BLK1)** | | | | Prepared & Analyzed: 12/09/2020 | | | | | | | |
| Ammonia as N | <1.0 | | 1.0 | mg/L | | | | | | | |
| **LCS (2050160-BS1)** | | | | Prepared & Analyzed: 12/09/2020 | | | | | | | |
| Ammonia as N | 18.8 | | 1.0 | mg/L | 20 | | 93.8 | 90-110 | | | |
| **Duplicate (2050160-DUP1)** | | **Source: 20L0823-01** | | Prepared & Analyzed: 12/09/2020 | | | | | | | |
| Ammonia as N | <1.0 | | 1.0 | mg/L | | ND | | | | 20 | |
| **Duplicate (2050160-DUP2)** | | **Source: 20L0823-02** | | Prepared & Analyzed: 12/09/2020 | | | | | | | |
| Ammonia as N | <1.0 | | 1.0 | mg/L | | ND | | | | 20 | |
| **Matrix Spike (2050160-MS1)** | | **Source: 20L0823-01** | | Prepared & Analyzed: 12/09/2020 | | | | | | | |
| Ammonia as N | 18.2 | | 1.0 | mg/L | 20 | ND | 91.0 | 80-120 | | | |
| **Matrix Spike (2050160-MS2)** | | **Source: 20L0823-02** | | Prepared & Analyzed: 12/09/2020 | | | | | | | |
| Ammonia as N | 18.8 | | 1.0 | mg/L | 20 | ND | 93.8 | 80-120 | | | |
| **Batch 2050212 - WetChem_Water_Prep - EPA 335.4, Rv. 1 (1993)** | | | | | | | | | | | |
| **Blank (2050212-BLK1)** | | | | Prepared & Analyzed: 12/10/2020 | | | | | | | |
| Cyanide, Total | <0.0026 | 0.0026 | 0.0050 | mg/L | | | | | | | |
| **LCS (2050212-BS1)** | | | | Prepared & Analyzed: 12/10/2020 | | | | | | | |
| Cyanide, Total | 0.107 | 0.0026 | 0.0050 | mg/L | 0.10 | | 107 | 90-110 | | | |
| **Duplicate (2050212-DUP1)** | | **Source: 20L0857-01** | | Prepared & Analyzed: 12/10/2020 | | | | | | | |
| Cyanide, Total | 0.0196 | 0.0026 | 0.0050 | mg/L | | 0.0201 | | | 2.52 | 20 | |
| **Duplicate (2050212-DUP2)** | | **Source: 20L0008-01** | | Prepared & Analyzed: 12/10/2020 | | | | | | | |
| Cyanide, Total | 0.0103 | 0.0026 | 0.0050 | mg/L | | 0.0105 | | | 1.92 | 20 | |
| **Matrix Spike (2050212-MS1)** | | **Source: 20L0857-01** | | Prepared & Analyzed: 12/10/2020 | | | | | | | |
| Cyanide, Total | 0.0558 | 0.0026 | 0.0050 | mg/L | 0.050 | 0.0201 | 71.4 | 90-110 | | | |
| **Matrix Spike (2050212-MS2)** | | **Source: 20L0008-01** | | Prepared & Analyzed: 12/10/2020 | | | | | | | |
| Cyanide, Total | 0.0435 | 0.0026 | 0.0050 | mg/L | 0.050 | 0.0105 | 66.0 | 90-110 | | | |
| **Batch 2050215 - WetChem_Water_Prep - SM 2540 D-2011** | | | | | | | | | | | |
| **Blank (2050215-BLK1)** | | | | Prepared: 12/10/2020 Analyzed: 12/11/2020 | | | | | | | |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | | | | | | |
| **Blank (2050215-BLK2)** | | | | Prepared: 12/10/2020 Analyzed: 12/11/2020 | | | | | | | |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | | | | | | |
| **Blank (2050215-BLK3)** | | | | Prepared: 12/10/2020 Analyzed: 12/11/2020 | | | | | | | |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | | | | | | |
| **LCS (2050215-BS1)** | | | | Prepared: 12/10/2020 Analyzed: 12/11/2020 | | | | | | | |

| Inorganics Total | Result | RL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2050215 - WetChem_Water_Prep - SM 2540 D-2011** | | | | | | | | | | |
| **LCS (2050215-BS1)** | | | Prepared: 12/10/2020 Analyzed: 12/11/2020 | | | | | | | |
| Total Suspended Solids | 94 | 10 | mg/L | 100 | | 94.0 | 90-110 | | | |
| **LCS (2050215-BS2)** | | | Prepared: 12/10/2020 Analyzed: 12/11/2020 | | | | | | | |
| Total Suspended Solids | 97 | 10 | mg/L | 100 | | 97.0 | 90-110 | | | |
| **LCS (2050215-BS3)** | | | Prepared: 12/10/2020 Analyzed: 12/11/2020 | | | | | | | |
| Total Suspended Solids | 90 | 10 | mg/L | 100 | | 90.0 | 90-110 | | | |
| **Duplicate (2050215-DUP1)** | | **Source: 20G2094-01** | Prepared: 12/10/2020 Analyzed: 12/11/2020 | | | | | | | |
| Total Suspended Solids | 71 | 10 | mg/L | | 73 | | | 2.78 | 10 | |
| **Duplicate (2050215-DUP2)** | | **Source: 20G2094-03** | Prepared: 12/10/2020 Analyzed: 12/11/2020 | | | | | | | |
| Total Suspended Solids | 88 | 10 | mg/L | | 91 | | | 3.35 | 10 | |
| **Duplicate (2050215-DUP3)** | | **Source: 20L0023-03** | Prepared: 12/10/2020 Analyzed: 12/11/2020 | | | | | | | |
| Total Suspended Solids | 130 | 20 | mg/L | | 140 | | | 1.48 | 10 | |
| **Duplicate (2050215-DUP4)** | | **Source: 20L0153-01** | Prepared: 12/10/2020 Analyzed: 12/11/2020 | | | | | | | |
| Total Suspended Solids | 240 | 200 | mg/L | | 240 | | | 0.00 | 10 | |
| **Duplicate (2050215-DUP5)** | | **Source: 20L0154-01** | Prepared: 12/10/2020 Analyzed: 12/11/2020 | | | | | | | |
| Total Suspended Solids | 260 | 200 | mg/L | | 260 | | | 0.00 | 10 | |
| **Batch 2050417 - WetChem_Water_Prep - EPA 410.4, Rv. 2 (1993)** | | | | | | | | | | |
| **Blank (2050417-BLK1)** | | | Prepared & Analyzed: 12/12/2020 | | | | | | | |
| COD, Total | <50 | 50 | mg/L | | | | | | | |
| **LCS (2050417-BS1)** | | | Prepared & Analyzed: 12/12/2020 | | | | | | | |
| COD, Total | 999 | 50 | mg/L | 1000 | | 99.8 | 90-110 | | | |
| **Duplicate (2050417-DUP1)** | | **Source: 20K0432-01** | Prepared & Analyzed: 12/12/2020 | | | | | | | |
| COD, Total | 81.8 | 50 | mg/L | | 77.9 | | | 4.88 | 20 | |
| **Duplicate (2050417-DUP2)** | | **Source: 20L0031-01** | Prepared & Analyzed: 12/12/2020 | | | | | | | |
| COD, Total | 143 | 50 | mg/L | | 145 | | | 1.32 | 20 | |
| **Duplicate (2050417-DUP3)** | | **Source: 20L0186-01** | Prepared & Analyzed: 12/12/2020 | | | | | | | |
| COD, Total | <50 | 50 | mg/L | | 40.4 | | | 9.21 | 20 | |
| **Matrix Spike (2050417-MS1)** | | **Source: 20K0432-01** | Prepared & Analyzed: 12/12/2020 | | | | | | | |
| COD, Total | 480 | 50 | mg/L | 400 | 77.9 | 100 | 90-110 | | | |
| **Matrix Spike (2050417-MS2)** | | **Source: 20L0031-01** | Prepared & Analyzed: 12/12/2020 | | | | | | | |
| COD, Total | 541 | 50 | mg/L | 400 | 145 | 99.0 | 90-110 | | | |
| **Matrix Spike (2050417-MS3)** | | **Source: 20L0186-01** | Prepared & Analyzed: 12/12/2020 | | | | | | | |
| COD, Total | 443 | 50 | mg/L | 400 | 40.4 | 100 | 90-110 | | | |

| Metals Total by CVAA | Result | RL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2050213 - Hg_Prep_Water - EPA 245.1, Rv. 3 (1994)** | | | | | | | | | | |
| **Blank (2050213-BLK1)** | | | Prepared & Analyzed: 12/10/2020 | | | | | | | |
| Mercury | <0.00020 | 0.00020 | mg/L | | | | | | | |
| **LCS (2050213-BS1)** | | | Prepared & Analyzed: 12/10/2020 | | | | | | | |

| Metals Total by CVAA | Result | | RL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2050213 - Hg_Prep_Water - EPA 245.1, Rv. 3 (1994)** | | | | | | | | | | | |
| **LCS (2050213-BS1)** | | | | Prepared & Analyzed: 12/10/2020 | | | | | | | |
| Mercury | 0.00248 | | 0.00020 | mg/L | 0.0020 | | 124 | 85-115 | | | |
| **Duplicate (2050213-DUP1)** | **Source: 20K1393-01** | | | Prepared & Analyzed: 12/10/2020 | | | | | | | |
| Mercury | <0.00020 | | 0.00020 | mg/L | | ND | | | | 20 | |
| **Matrix Spike (2050213-MS1)** | **Source: 20K1393-01** | | | Prepared & Analyzed: 12/10/2020 | | | | | | | |
| Mercury | 0.00185 | | 0.00020 | mg/L | 0.0020 | ND | 92.7 | 70-130 | | | |
| **Matrix Spike Dup (2050213-MSD1)** | **Source: 20K1393-01** | | | Prepared & Analyzed: 12/10/2020 | | | | | | | |
| Mercury | 0.00216 | | 0.00020 | mg/L | 0.0020 | ND | 108 | 70-130 | 15.3 | 20 | |

| Metals Total by ICP | Result | | RL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2050271 - EPA 200.2 ICP_W - EPA 200.7, Rv. 4.4 (1994)** | | | | | | | | | | | |
| **Blank (2050271-BLK1)** | | | | Prepared: 12/10/2020 Analyzed: 12/14/2020 | | | | | | | |
| Iron | <0.20 | | 0.20 | mg/L | | | | | | | |
| **LCS (2050271-BS1)** | | | | Prepared: 12/10/2020 Analyzed: 12/14/2020 | | | | | | | |
| Iron | 4.90 | | 0.20 | mg/L | 5.0 | | 98.1 | 85-115 | | | |
| **Duplicate (2050271-DUP1)** | **Source: 20L0296-04** | | | Prepared: 12/10/2020 Analyzed: 12/14/2020 | | | | | | | |
| Iron | 7.28 | | 0.20 | mg/L | | 7.38 | | | 1.28 | 20 | |
| **Matrix Spike (2050271-MS1)** | **Source: 20L0296-04** | | | Prepared: 12/10/2020 Analyzed: 12/14/2020 | | | | | | | |
| Iron | 12.4 | | 0.20 | mg/L | 5.0 | 7.38 | 101 | 75-125 | | | |

| Metals Total by ICPMS | Result | | RL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2050269 - EPA 200.2 ICPMS_W - EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | | | | |
| **Blank (2050269-BLK1)** | | | | Prepared: 12/10/2020 Analyzed: 12/14/2020 | | | | | | | |
| Silver | <0.0010 | | 0.0010 | mg/L | | | | | | | |
| Aluminum | <0.0075 | | 0.0075 | mg/L | | | | | | | |
| Arsenic | <0.0010 | | 0.0010 | mg/L | | | | | | | |
| Cadmium | <0.000250 | | 0.000250 | mg/L | | | | | | | |
| Copper | <0.0010 | | 0.0010 | mg/L | | | | | | | |
| Magnesium | <0.0050 | | 0.0050 | mg/L | | | | | | | |
| Lead | <0.0010 | | 0.0010 | mg/L | | | | | | | |
| Selenium | <0.0001 | 0.0001 | 0.0050 | mg/L | | | | | | | |
| Zinc | <0.0050 | | 0.0050 | mg/L | | | | | | | |
| **LCS (2050269-BS1)** | | | | Prepared: 12/10/2020 Analyzed: 12/14/2020 | | | | | | | |
| Silver | 0.0476 | | 0.0010 | mg/L | 0.0500 | | 95.2 | 85-115 | | | |
| Aluminum | 1.88 | | 0.0075 | mg/L | 2.00 | | 94.2 | 85-115 | | | |
| Arsenic | 0.204 | | 0.0010 | mg/L | 0.200 | | 102 | 85-115 | | | |
| Cadmium | 0.184 | | 0.000250 | mg/L | 0.200 | | 91.8 | 85-115 | | | |
| Copper | 0.197 | | 0.0010 | mg/L | 0.200 | | 98.4 | 85-115 | | | |
| Magnesium | 1.96 | | 0.0050 | mg/L | 2.00 | | 97.9 | 85-115 | | | |
| Lead | 0.202 | | 0.0010 | mg/L | 0.200 | | 101 | 85-115 | | | |

| Metals Total by ICPMS | Result | MDL | RL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2050269 - EPA 200.2 ICPMS_W - EPA 200.8, Rv. 5.4 (1994)** | | | | | | | | | | | |
| **LCS (2050269-BS1)** | | | | | Prepared: 12/10/2020 Analyzed: 12/14/2020 | | | | | | |
| Selenium | 0.201 | 0.0001 | 0.0050 | mg/L | 0.200 | | 100 | 85-115 | | | |
| Zinc | 0.197 | | 0.0050 | mg/L | 0.200 | | 98.3 | 85-115 | | | |
| **Duplicate (2050269-DUP1)** | | **Source: 20L0296-04** | | | Prepared: 12/10/2020 Analyzed: 12/14/2020 | | | | | | |
| Silver | <0.0010 | | 0.0010 | mg/L | | 0.0000474 | | | 14.0 | 20 | |
| Arsenic | 0.00356 | | 0.0010 | mg/L | | 0.00373 | | | 4.65 | 20 | |
| Cadmium | <0.000250 | | 0.000250 | mg/L | | 0.000137 | | | 7.31 | 20 | |
| Copper | 0.0143 | | 0.0010 | mg/L | | 0.0145 | | | 0.940 | 20 | |
| Lead | 0.00688 | | 0.0010 | mg/L | | 0.00690 | | | 0.273 | 20 | |
| Zinc | 0.0552 | | 0.0050 | mg/L | | 0.0555 | | | 0.458 | 20 | |
| **Duplicate (2050269-DUP2)** | | **Source: 20L0296-04RE1** | | | Prepared: 12/10/2020 Analyzed: 12/14/2020 | | | | | | |
| Aluminum | 0.316 | | 0.0750 | mg/L | | 0.338 | | | 6.68 | 20 | |
| Magnesium | 9.00 | | 0.0500 | mg/L | | 9.16 | | | 1.77 | 20 | |
| Selenium | 0.00158 | 0.0014 | 0.0500 | mg/L | | 0.00170 | | | 7.41 | 20 | J |
| **Matrix Spike (2050269-MS1)** | | **Source: 20L0296-04** | | | Prepared: 12/10/2020 Analyzed: 12/14/2020 | | | | | | |
| Silver | 0.0465 | | 0.0010 | mg/L | 0.0500 | 0.0000474 | 92.9 | 70-130 | | | |
| Arsenic | 0.206 | | 0.0010 | mg/L | 0.200 | 0.00373 | 101 | 70-130 | | | |
| Cadmium | 0.187 | | 0.000250 | mg/L | 0.200 | 0.000137 | 93.3 | 70-130 | | | |
| Copper | 0.189 | | 0.0010 | mg/L | 0.200 | 0.0145 | 87.5 | 70-130 | | | |
| Lead | 0.187 | | 0.0010 | mg/L | 0.200 | 0.00690 | 90.3 | 70-130 | | | |
| Zinc | 0.230 | | 0.0050 | mg/L | 0.200 | 0.0555 | 87.2 | 70-130 | | | |
| **Matrix Spike (2050269-MS2)** | | **Source: 20L0296-04RE1** | | | Prepared: 12/10/2020 Analyzed: 12/14/2020 | | | | | | |
| Aluminum | 2.26 | | 0.0750 | mg/L | 2.00 | 0.338 | 96.1 | 70-130 | | | |
| Magnesium | 10.9 | | 0.0500 | mg/L | 2.00 | 9.16 | 88.6 | 70-130 | | | |
| Selenium | 0.199 | 0.0014 | 0.0500 | mg/L | 0.200 | 0.00170 | 98.5 | 70-130 | | | |

### Definitions

**B11:** Target analyte detected in continuing calibration blank >2.2 times the MDL but less than the reporting limit. Sample result was less than the reporting limit. No impact on data.

**DF:** Dilution Factor representing the amount the sample was diluted during analysis and may not represent preparation factors.

**J:** Analyte concentration is greater than the MDL but less than the reporting limit.

**L2:** The LCS recovery was above the laboratory acceptance limits. The target analyte concentration was below the reporting limit. No negative impact on the data.

**MDL:** Minimum Detection Limit

**mg/L:** Milligrams per Liter

**RL:** Reporting Limit

**RPD:** Relative Percent Difference

**V13:** Interferent check recovery was above acceptance limits. The sample(s) did not contain interferences that would affect the sample result.

### Cooler Receipt Log

**Cooler ID:** Default Cooler Temp: 0.6°C

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Microbac Laboratories, Inc. - Baltimore

# CERTIFICATE OF ANALYSIS

20L0296

## Cooler Inspection Checklist

| | | | |
|---|---|---|---|
| Ice Present or not required? | Yes | Shipping containers sealed or not required? | Yes |
| Custody seals intact or not required? | Yes | Chain of Custody (COC) Present? | Yes |
| COC includes customer information? | Yes | Relinquished and received signature on COC? | Yes |
| Sample collector identified on COC? | Yes | Sample type identified on COC? | Yes |
| Correct type of Containers Received | Yes | Correct number of containers listed on COC? | Yes |
| Containers Intact? | Yes | COC includes requested analyses? | Yes |
| Enough sample volume for indicated tests received? | Yes | Sample labels match COC (Name, Date & Time?) | Yes |
| Samples arrived within hold time? | Yes | Correct preservatives on COC or not required? | Yes |
| Chemical preservations checked or not required? | Yes | Preservation checks meet method requirements? | Yes |
| VOA vials have zero headspace, or not recd.? | Yes | | |

## Project Requested Certification(s)

Microbac Laboratories, Inc. - Baltimore

| | |
|---|---|
| 460285 | Commonwealth of Virginia (NELAC) - Baltimore |
| E871126 | Florida - NELAC |

## Report Comments

*Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.*

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.* ***The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

**Reviewed and Approved By:**



Evelyn Shinas

Customer Relationship Coordinator

Reported: 01/06/2021 16:47

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# Chain of Custody

## Microbac Laboratories, Inc. - Baltimore

Lab Manager: Evelyn Shinas

**20L0296**

***TAT 7 days***

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project/PO Number: N/A
Tenatively Scheduled: 12/1/2020
Route:

---

**Client Sample ID:** **Site # 8 Outfall 001 Sector K**
**Lab Sample ID:** **20L0296-01**
**Matrix:** **Aqueous**
**Type:** **Grab**

**Sampled Date & Time:** 12/4/20 20:02

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| CN_Total_Seal | EPA 335.4, Rv. 1 (1993) | | 14.00 days |
| COD_Total_HL | EPA 410.4, Rv. 2 (1993) | | 28.00 days |
| NH3_Titration | SM 4500-NH3 C-2011 | | 28.00 days |
| Hg_Total | EPA 245.1, Rv. 3 (1994) | | 28.00 days |
| M_Ag_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_As_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Cd_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Mg_ICPMS | EPA 6020B | | 180.00 days |
| M_Pb_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Se_ICPMS | EPA 200.8, Rv. 5.4 (1994) | - lab filter | 180.00 days |

| Container(s) | Designator |
|---|---|
| 250ml-Bottle HDPE-Ascorbic, NaOH | A |
| 500ml-Bottle HDPE-H2SO4 | B |
| 500ml-Bottle HDPE-HNO3 | C |
| ½Gal-Jug LDPE-H2SO4 | D |

---

**Client Sample ID:** **Site # 8 Outfall 001 Sector N**
**Lab Sample ID:** **20L0296-02**
**Matrix:** **Aqueous**
**Type:** **Grab**

**Sampled Date & Time:** 12/4/20 20:02

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| COD_Total_HL | EPA 410.4, Rv. 2 (1993) | | 28.00 days |
| TSS | SM 2540 D-2011 | | 7.00 days |
| M_Fe_ICP | EPA 200.7, Rv. 4.4 (1994) | | 180.00 days |
| M_Al_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Cu_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Pb_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Zn_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |

| Container(s) | Designator |
|---|---|
| 500ml-Bottle HDPE-H2SO4 | A |
| 500ml-Bottle HDPE-HNO3 | B |
| 1L-Bottle HDPE | C |

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# Chain of Custody

## Microbac Laboratories, Inc. - Baltimore

Lab Manager: Evelyn Shinas

20L0296

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project/PO Number: N/A
Tenatively Scheduled: 12/1/2020
Route:

---

**Client Sample ID:** Site # 8 Outfall 002 Sector K
**Lab Sample ID:** 20L0296-03
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 12/1/2020 20:02

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| CN_Total_Seal | EPA 335.4, Rv. 1 (1993) | | 14.00 days |
| COD_Total_HL | EPA 410.4, Rv. 2 (1993) | | 28.00 days |
| NH3_Titration | SM 4500-NH3 C-2011 | | 28.00 days |
| Hg_Total | EPA 245.1, Rv. 3 (1994) | | 28.00 days |
| M_Ag_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_As_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Cd_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Mg_ICPMS | EPA 6020B | | 180.00 days |
| M_Pb_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Se_ICPMS | EPA 200.8, Rv. 5.4 (1994) | - lab filter | 180.00 days |

| Container(s) | Designator |
|---|---|
| 250ml-Bottle HDPE-Ascorbic, NaOH | A |
| 500ml-Bottle HDPE-H2SO4 | B |
| 500ml-Bottle HDPE-HNO3 | C |
| ½Gal-Jug LDPE-H2SO4 | D |

---

**Client Sample ID:** Site # 8 Outfall 002 Sector N
**Lab Sample ID:** 20L0296-04
**Matrix:** Aqueous
**Type:** Grab

**Sampled Date & Time:** 12/1/2020 20:02

| Analysis | Method | Field Results/Comments | Hold Time |
|---|---|---|---|
| COD_Total_HL | EPA 410.4, Rv. 2 (1993) | | 28.00 days |
| TSS | SM 2540 D-2011 | | 7.00 days |
| M_Fe_ICP | EPA 200.7, Rv. 4.4 (1994) | | 180.00 days |
| M_Al_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Cu_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Pb_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |
| M_Zn_ICPMS | EPA 200.8, Rv. 5.4 (1994) | | 180.00 days |

| Container(s) | Designator |
|---|---|
| 500ml-Bottle HDPE-H2SO4 | A |
| 500ml-Bottle HDPE-HNO3 | B |
| 1L-Bottle HDPE | C |

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# Chain of Custody

## Microbac Laboratories, Inc. - Baltimore

Lab Manager: Evelyn Shinas

20L0296

**Apex Companies, LLC**

Andrea Owen Heller
9700 Capital Court #100
Manassas, VA 20110
Phone: (703) 396-6730

**Project Name: DPW- Site# 8**

Project/PO Number: N/A
Tenatively Scheduled: 12/1/2020
Route:

| | | |
|---|---|---|
| Sampled/Relinquished by: Kaitlyn Masters | Date/Time: 12/4/20 21:01 | Received by: |
| Printed Name: Customer | | Printed Name: Tyler Warren |
| Relinquished by: | Date/Time: | Received by: Carolyn Pitera |
| Printed Name: Tyler Warren | 12/7/20 0805 | Printed Name: CAROLYN PITERA |
| Relinquished by: Carolyn Pitera | Date/Time: 12/7/20 1241 | Received by: |
| Printed Name: CAROLYN PITERA | | Printed Name: 12/8/20 1557 |

*As Received at Laboratory:* On Ice: (Yes) / No Temp: 0.6 °C Thermometer ID: 1 Total Containers: 14

*Microbac Laboratories may be unable to perform a portion of the requested testing in which case we will subcontract the analysis to an appropriately accredited laboratory. By signing this document you are acknowledging that you have been informed by Microbac that testing could be subcontracted and agree with this arrangement.*

**Notes:**

12/8/20 1545

# Cooler Receipt Form / Sample Acceptance & Noncompliance Form



Number of Coolers Received: 1
Client: Apex Companies
Form Completed By: Kimball

Receipt Date / Time: 12/8/20 1557
Work Order # 20L0296

Shipper: ☑ Microbac ☐ Client ☐ UPS ☐ FedEx
Custody Tape Intact: YES / NO / ~~NA~~
Containers Intact: YES / NO
Sample Received on Ice or refrigerated: YES / NO / NA
Infrared (IR) Temperature: 0.6 °C

Chain of Custody Present with shipment: YES / NO
Sample Bottle IDs agree with COC: YES / NO
Preservation requirements met: YES / NO / Not Checked
Correct Number of Containers / Sample Volume: YES / NO (If No, contact client immediately)
Headspace in container: YES / NO / ~~NA~~
Type of Sample: Water Soil Wipes Oil Filter Solid Sludge Food Swab Other _____

***Container Type / Quantity*:**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **A** - 2 | Unpreserved | 6 H2SO4 | 4 HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid: | If preserved pH <2___, pH >10___ |
| **B** - 2 | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **C** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **D** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **E** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **H** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **K** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **L** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **M**- ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **P** - ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH 2 | NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| **W**- ___ | Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |

**V** - ___ Unpreserved ___ HCl ___ HCl / Ascorbic Acid ___ HCl / NaTHIO **(Checked at time of Analysis)**
**F** - ___ Unpreserved ___ NaTHIO **(Checked at time of Analysis)**
**S** - ___ Unpreserved ___ NaTHIO **(Checked at time of Analysis)**
**SN**- ___ Unpreserved ___NaTHIO ___NaTHIO/EDTA **(Checked at time of Analysis)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |
| ___ Unpreserved | ___ H2SO4 | ___ HNO3 | ___ HCl | ___ NaOH | ___ NaOH/Ascorbic Acid | If preserved pH <2___, pH >10___ |

**Describe preservation requirements not met:**
*All Acid preserved <2 pH* *NaOH preserved >12 pH* *All others >2 and <10 (usually 4-8)*
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
Sample ID:_____ $H_2SO_4$ $HNO_3$ NaOH _____ mls added
*$H_2SO_4$ – Sulfuric Acid, $HNO_3$ – Nitric Acid, NaOH – Sodium Hydroxide, ASC – Ascorbic Acid, NaTHIO – Sodium Thiosulfate*

Describe Anomalies:_____

Contact information / Summary of Actions:
Date / Time:_____ Contact:_____ Contact By:_____
Comments:_____

An Exelon Company

# Appendix D

# In-situ Remediation Treatability Studies for Cove Sediments

# In-situ remediation treatability studies for Cove sediments located in the Benning Road Facility Waterside Investigation Area

## Final Report, April 6, 2021

Louis Cheung and Upal Ghosh
Department of Chemical, Biochemical, and Environmental Engineering
University of Maryland Baltimore County

### 1.0 Introduction

The Potomac Electric Power Company (PEPCO) is performing a Remedial Investigation/ Feasibility Study (RI/FS) at Pepco's Benning Road facility (the Site or the landside investigation area), located at 3400 Benning Road NE, Washington, DC, and a segment of the Anacostia River (the waterside investigation area) adjacent to the Site for impacted sediments at its Benning Road Facility. Historical use of polychlorinated biphenyls (PCBs) has resulted in elevated levels of PCBs found in sediments in a cove of the Anacostia River adjacent to the facility (the Cove), located in the waterside investigation area, that may impact benthic organisms and can potentially serve as a source to the aquatic food web in the water body. As a part of the RI/FS, PEPCO is investigating the use of sorbent amendments to sediments to reduce the bioavailability of PCBs. UMBC is performing a treatability study to assess the effectiveness of treatment amendments in reducing porewater concentrations of PCBs and the bioaccumulation of PCBs in freshwater worms. In addition, the study is performing groundwater seepage measurements to determine seepage velocity in the cove sediments. The work described here is conducted under a contract with AECOM.

### 2.0. Study objectives

The overall objective of the treatability testing is to evaluate the effectiveness of three carbon/treatment amendments in reducing the bioavailability of PCBs in sediment collected from the Cove, an impacted area near the PEPCO Benning Road facility. PCB bioavailability in sediments is being tested using two metrics: 1) freely dissolved concentration of PCBs in sediment porewater measured using passive sampling, and 2) bioaccumulation of PCBs in the freshwater oligochaete (*Lumbriculus variegatus*) based on laboratory bioaccumulation studies. The specific study objectives are to:

1) Evaluate the effect of dose of sorbent amendments on the reduction of porewater PCB concentration in sediments,
2) Compare across three AC amendment types described in Table 1,
3) Compare reduction in freely dissolved PCB concentration against reduction of bioaccumulation in benthic organisms, and
4) Evaluate effect of treatment dose on any negative impacts on organism growth and survival in the bioaccumulation studies.

An extension of the proposal addresses two additional elements in the Treatability Study Work Plan developed by AECOM/PEPCO:

1) Measurement of groundwater seepage velocity at three locations in the Cove, and
2) Measurement of change in groundwater seepage through sediments after amendment with sorbent materials being tested as part of the treatability study (GAC, AquaGate, and SediMite).

## 3.0. Study methods and results

### 3.1. Laboratory treatability study

3.1.1. Sediment selection and collection.

A single composite sediment sample was prepared using sediment samples collected from the top 10 cm at two sampling locations (SED7E and SED7.5E) within the impacted cove area adjacent to the PEPCO Benning Road facility. Sediment sample locations were selected by AECOM based on highest PCB surficial bulk sediment concentration (1,900 micrograms per kilogram [µg/kg] at SED7.5E) and highest dissolved phase PCB pore water concentration (10,000 picograms per liter [pg/L] at SED7E) observed within the Cove; a site map showing these locations is provided in Appendix 1. A total of 30 L of homogenized composited sediment was collected by AECOM for this study. A clean control sediment was prepared using 50% clean sand (Home Depot) and 50% clean sediment collected form Centennial Lake, MD.

3.1.2. Amendment selection and procurement.

The following three amendments listed in the Benning Road Facility Treatability Study Plan were procured by AECOM and provided to UMBC. All three products chosen for testing are readily available in bulk quantities.

1) Granular Activated Carbon from Calgon Corporation (F-300). This coal based activated carbon (20-50 mesh) was recently specified for a large-scale GAC application project for the remediation of Spirit Lake Estuary Site in Duluth Minnesota.
2) SediMite™ made with 50% by weight of activated carbon (80-325 mesh) was procured from the manufacturer for use in the experiments.
3) AquaGate®+PAC made with 10% by weight of a powdered activated carbon (< 325 mesh) was procured from the manufacturer for use in the experiments.

3.1.3. Amendment mixing into sediments.

The sediment sample was first homogenized (Figure 1) prior to collection of triplicate subsamples for the analysis of PCBs and Total Organic Carbon (TOC). Three-liter subsamples of the homogenized sediment were placed in clean containers for mixing with the carbon amendments. The amendments and doses tested are listed in Table 1. Each container with 3L of sediments was treated with an amendment at a dose specified in Table 1. Amendments were mixed well to represent initial mixing, and then allowed to equilibrate for a period of 1 month

prior to porewater and bioaccumulation testing. The mixing conditions tested here will provide an indication of performance of the amendment after natural mixing through bioturbation and other natural processes in the field.



*Figure 1. Homogenization of sediment using a mixing paddle attached to an electric drill.*

*Table 1. Experimental Design for Laboratory Treatability Study*

| **Amendment** | **AC in treated sediment** | **AC in amendment product** | **Dose of Amendment** | **# of replicates** |
|---|---|---|---|---|
| Clean control sediment | 0 | NA | 0 | 3 |
| Untreated Cove sediment | 0 | NA | 0 | 3 |
| Treatment 1: GAC (20-50 mesh) | 1, 3, and 5% | 100% | 1, 3, and 5% | 3 per dose |
| Treatment 2: SediMite with AC (80-325 mesh) | 1, 3, and 5% | 50% | 2, 6, and 10% | 3 per dose |
| Treatment 3: AquaGate with powdered AC | 1, 3, and 5% | 10% | 10, 30, and 50% | 3 per dose |
| **Total samples** | | | | **33** |

3.1.4. PCB measurement in sediment porewater and worms.

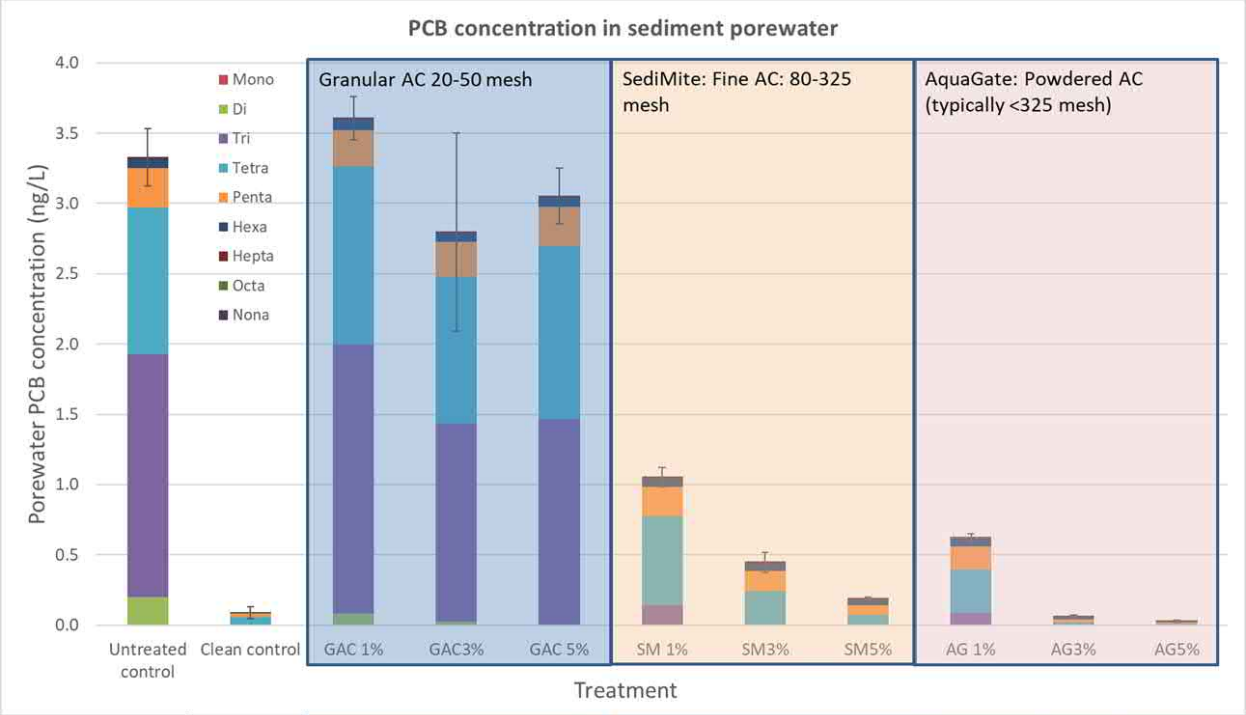
The bioaccumulation and porewater measurements were performed simultaneously in the same exposure chambers as described below. Laboratory bioaccumulation assays were conducted using the freshwater oligochaete *Lumbriculus variegatus* commonly used to perform bioaccumulation assays for freshwater sediments. The laboratory bioaccumulation studies followed methods described in Beckingham and Ghosh (2010) which is based on standard test guidelines (USEPA 2000). The bioaccumulation is designed to evaluate the effectiveness of the selected carbon amendment in reducing biological uptake of PCBs at the base of the benthic food web. Bioaccumulation assessment was conducted in triplicate for each of the control and treated sediments described in Table 1 resulting in a total of 33 exposure chambers. Clean, laboratory

cultured freshwater oligochaetes (*Lumbriculus variegatus)* were obtained from Aquatic Research Organisms, Hampton, New Hampshire. Organisms were exposed to the sediments in 1L glass beakers (1000 g wet sediment and 1.1 g organisms per beaker; 3 replicates per treatment) for 28 days and maintained at 23 ± 1 ◦C in a water bath with a 16 hour light:8 hour dark photoperiod. The bioaccumulation setup in the laboratory is shown in Figure 2. A 0.5 g polyethylene passive sampler was also inserted into each of the exposure chambers to measure the concentration of freely dissolved PCBs in the porewater. At the termination of the experiment, organisms were successfully removed from the sediments and allowed to depurate ingested sediment for 6 hours in a clean beaker containing water. The porewater passive samplers were also recovered from each beaker and stored for further analysis. Analytical methods are described in Appendix 2.



*Figure 2. Photographs of laboratory bioaccumulation study with freshwater oligochaetes. Top: bioaccumulation setup with air tubes supplying sparging air to oxygenate the overlying water; Bottom left & middle: worms being added to the test beakers with sediment; Bottom right: closeup of worms in culture chamber.*

Sediment porewater concentrations. The results of the sediment porewater concentrations are shown in Figure 3 for the different PCB homolog groups as well as the total PCBs. The measured freely dissolved PCB concentration in sediment porewater of the untreated sediment was 3.3 ng/L which is a little higher than the reported range of freely dissolved PCB concentration values in surface water measured close to the site of 0.9 – 2.7 ng/L (Site ARP013 in Ghosh et al. 2020). The granular size AC is barely effective in reducing porewater concentration of PCBs even at a dose of 5% by weight of sediment. Both SediMite and AquaGate are effective in reducing porewater PCB concentrations at all dosing levels with the powdered AC used in AquaGate being the most effective for a given dose. This observation is consistent with previous published results that demonstrated that effectiveness of AC is a strong function of particle size. Both 3% and 5% amendment of AC in the 80-325 mesh (SediMite) and all three doses of powdered form (AquaGate) are able to reduce the PCB porewater concentration below the USEPA ambient water quality criteria value of 0.64 ng/L for $10^{-5}$ incremental cancer risk for human health via fish consumption.




| % Reductions | GAC 1% | GAC3% | GAC 5% | SM 1% | SM3% | SM5% | AG 1% | AG3% | AG5% |
|---|---|---|---|---|---|---|---|---|---|
| Mono | | | | | | | | | |
| Di | 59 | 88 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Tri | -11 | 18 | 15 | 92 | 100 | 100 | 95 | 100 | 100 |
| Tetra | -21 | 0 | -18 | 39 | 77 | 93 | 70 | 99 | 99 |
| Penta | 7 | 12 | 1 | 28 | 49 | 75 | 42 | 91 | 97 |
| Hexa | -13 | 6 | -4 | 3 | 14 | 37 | 22 | 77 | 85 |
| Hepta | -1 | 16 | 7 | 10 | 19 | 28 | 19 | 68 | 84 |
| Octa | 3 | 8 | 1 | 1 | 20 | 8 | -8 | 56 | 54 |
| | | | | | | | | | |
| **TOTAL** | **-8** | **16** | **8** | **68** | **87** | **94** | **81** | **98** | **99** |

*Figure 3. PCB concentration in sediment porewater before and after amendment with activated carbon in different forms and particle sizes. Table in the bottom shows % reductions compared to untreated sediment.*

The particle size effect is most apparent for the more hydrophobic compounds like the hexa and higher homolog groups. These more hydrophobic compounds have slow mass transfer and are therefore more impacted by particle size in short-term experiments as performed in this laboratory treatability study. Previous work also demonstrated a strong particle size effect. As shown in Figure 4, work by Zimmerman et al. (2005) showed for two AC types that reducing particle size greatly enhanced the effectiveness of porewater PCB reduction in the laboratory study.

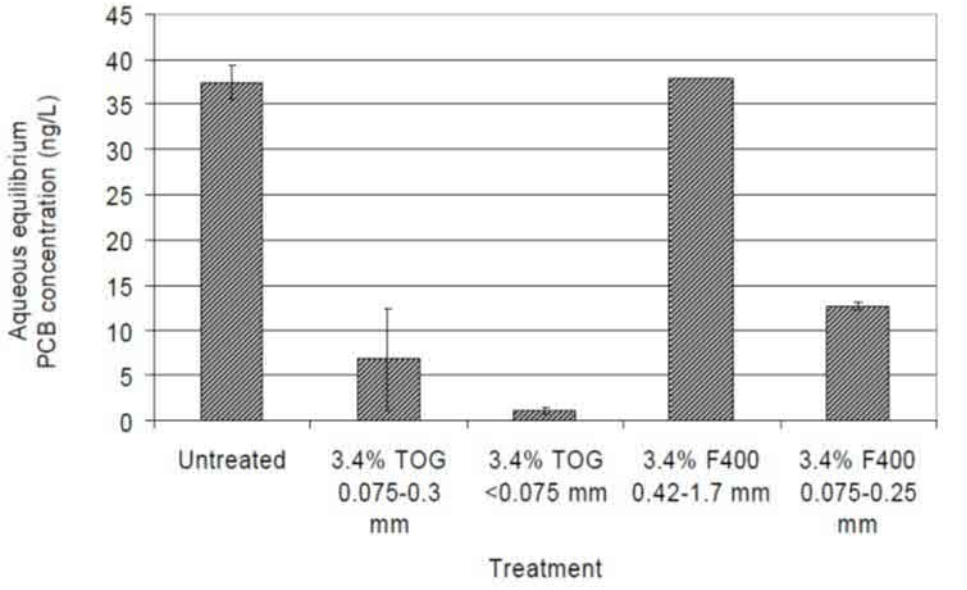
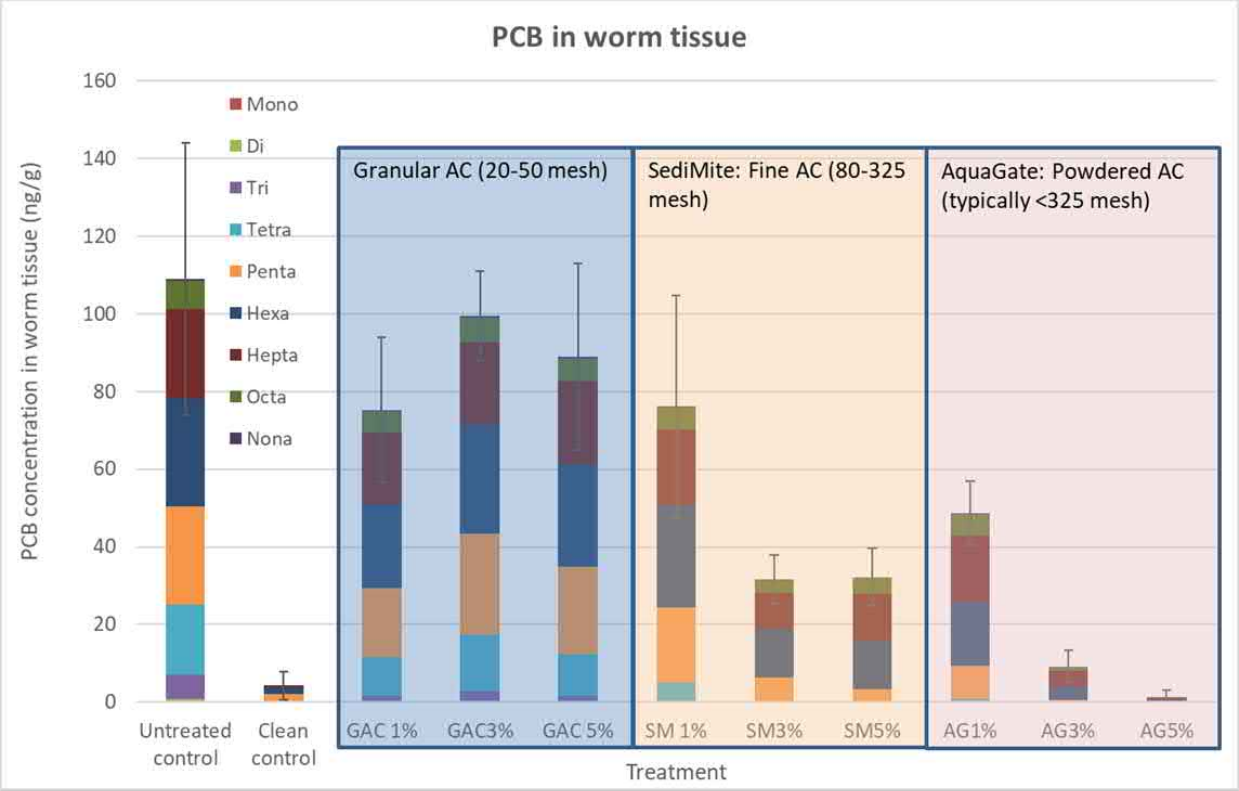



*Figure 4. Results from Zimmerman et al. (2005) showing the effect of particle size of two different types of AC on the reduction of porewater PCB concentration in sediment. TOG and F400 are two types of AC from Calgon Carbon Corporation.*

PCB bioaccumulation in worms. The results of the worm tissue concentrations are shown in Figure 3 for the different PCB homolog groups as well as the total PCBs. PCB concentration in worms exposed to control sediments was very small compared to the uptake in the worms exposed to untreated sediment from the site. Treatment of the sediment with GAC at all three doses showed little change in the biouptake of total PCBs in worms. Among the PCB homolog groups, only di, tri, and tetra chlorobiphenyls showed significant reductions in tissue for the GAC treatments. Little change was observed for the remaining homolog groups. Both SediMite and AquaGate are effective in reducing tissue PCB concentrations at 3% and 5% dosing levels with the powdered AC used in AquaGate being the most effective. The results of PCB bioaccumulation with treatments are consistent with the observation of greater reduction for the lower chlorinated homologs and for the finer sized AC. While, the reduction of PCB uptake for the di, tri, and tetra chlorobiphenyls was 100% for both SediMite and AquaGate amendments of the fine and powdered AC amendments respectively, the powdered AC was more effective for the higher more hydrophobic homologs in the short-term study. As described earlier, this is a reflection of the slow mass transfer of the strongly hydrophobic compounds that require longer

time or finer grained AC for the movement of the molecules from the sediment to the AC particles.

Overall, the bioaccumulation study demonstrates that application of a powdered AC to the study sediments was effective in reducing both porewater PCB concentration and PCB biouptake in worms by more than 90% at a dose of 3% or higher. In the present study the different sized AC were added via different methods of application: as GAC directly or finer sized AC in the form of SediMite or AquaGate+PAC pellets. It is expected that the powdered AC applied via any of these methods of delivery is likely to provide strong reductions in PCB bioavailability in sediments.




| % Reductions | GAC 1% | GAC3% | GAC 5% | SM 1% | SM3% | SM5% | AG1% | AG3% | AG5% |
|---|---|---|---|---|---|---|---|---|---|
| Mono | | | | | | | | | |
| Di | 100 | 100 | 100 | 84 | 100 | 100 | 100 | 100 | 100 |
| Tri | 76 | 56 | 75 | 95 | 100 | 100 | 100 | 100 | 100 |
| Tetra | 44 | 19 | 40 | 75 | 100 | 100 | 96 | 100 | 100 |
| Penta | 30 | -3 | 11 | 23 | 75 | 87 | 66 | 98 | 100 |
| Hexa | 22 | -1 | 7 | 5 | 56 | 55 | 40 | 87 | 98 |
| Hepta | 20 | 7 | 6 | 16 | 60 | 47 | 26 | 82 | 98 |
| Octa | 25 | 17 | 20 | 24 | 52 | 42 | 23 | 85 | 99 |
| Nona | 16 | 8 | 18 | 52 | 100 | 100 | 67 | 100 | 100 |
| | | | | | | | | | |
| **TOTAL** | **31** | **9** | **18** | **30** | **71** | **70** | **55** | **92** | **99** |

*Figure 5. PCB concentration in worm tissue before and after amendment with activated carbon in different forms and particle sizes. Table in the bottom shows % reductions compared to untreated sediment.*

Although these results are based on a short-term laboratory study, longer-term field demonstrations have reported similar reductions after AC amendment. For example, a large field study recently conducted at the Hunters Point Navy Shipyard found 75 to 80% reductions of *in situ* PCB tissue concentration in clams after 8 months and 84–87% after 14 months relative to the reference locations (Yan et al. 2020) for both SediMite and AquaGate applications performed in parallel.

Worm survival and recovery from bioaccumulation study. The main purpose of the bioaccumulation study was to recover worms for chemical analysis of tissue. Thus, it was critical to gently recover the worms without damage so that the worms could stay alive for a 6-hr depuration period post recovery. An exhaustive recovery of all worms from the sediment was not targeted which could have resulted in damage to the worms. Thus, the results presented here are based on worm tissue recovery post bioaccumulation study and should be interpreted with caution to make any growth or survival interpretation. Still, the results presented here can be informative on relative difference in tissue recovery across treatments. As shown in Figure 6, there appears to be a small increase in dry tissue mass in the untreated sediment compared to the dry mass that was added to the beakers (red line). The clean control sediment was sandy with low organic matter and appears to be not very conducive to support the worms and the mass of worms recovered was a factor of 3 lower compared to the untreated control sediment. Worm recovery was good in all three GAC treatments and comparable or higher than the untreated control sediments. Worm recoveries were 86-95% for the three SediMite treatments and 75-114% for the three AquaGate treatments. There appears to be a small impact on worm recovery with decreasing particle size of AC amended. Among the treatments, AquaGate 3% and 5% gave the lowest recoveries, while the 1% GAC treatment gave the highest recovery as shown in Figure 6.

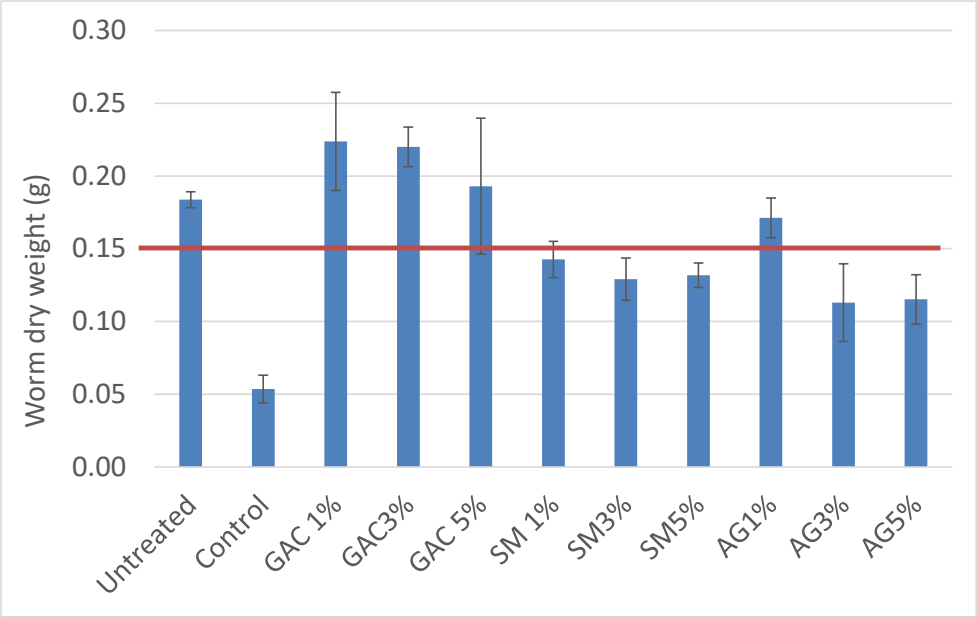



*Figure 6. Recovery of worm dry weight from laboratory bioaccumulation experiment.*

**3.2. Seepage measurements**

Groundwater seepage velocity is a critical parameter that determines the ultimate flux of pollutants from deeper sediments into the overlying water. The exchange between groundwater and surface water can vary greatly among sites and can be both positive (from groundwater to surface) or negative (from surface water to groundwater). In addition, the seepage can also be a function of tidal stage for sites influenced by tidal cycling leading to a phenomenon often called tidal pumping where the flux is positive at low tide and switches to a negative value at high tide. The nature of this groundwater-surface water interaction in the Cove is unknown.

3.2.1. Fabrication of seepage meters. The seepage meters used for this study were based on the design described in USGS (2008) which is an adaptation of the original design by Lee and Cherry (1978). The design as illustrated in Figure 7 was constructed out of 55-gallon plastic drums that were cut in half. The drums were fitted with a vent tube and a tube with a stopcock that was connected with a seepage collection bag. A total of 4 seepage meters were fabricated (3 for deployment in the field and a spare one as backup).

3.2.2. Installation of seepage meters in the field and recording of measurements. The seepage meters were installed in the field with assistance from AECOM field crew (See Figure 8). Based on the available bathymetry data presented in the PEPCO Treatability Study Workplan, all three sampling locations were expected to be under less than 2 ft of water at low tide. Therefore, installation was performed at low tide for easy access to the sediment surface. The open side of the half drum was inserted into the sediment bed leaving about 6" above the sediment surface. The seepage meters were installed at the three proposed locations in the Cove (Attachment 1) as indicated in the PEPCO Treatability Study Work Plan. The meters were allowed to equilibrate

for more than a week in the field before performing measurements. To perform the seepage measurement, a 4L plastic bag was first filled with 1L of water and then attached to the collection tube. The stopcock in the collection tube was opened to allow the flow of water between the collection bag and the drum. After 0.5-1 hr of operation, the stopcock was closed and the collection bag removed. The volume of water remaining in the bag was used to calculate the seepage volume. Two sets of measurements were performed:

1) Multiple measurements during a rising tide cycle on October 18, 2020
2) Multiple measurements during a falling tide cycle on October 28, 2020

The discharge velocity was calculated by dividing the discharge flow rate by the cross-sectional area of the seepage meter drum and are provided in Table 2. As shown in Table 2, the average seepage velocity was -0.26 cm/d during a rising tide and 1.78 cm/d during a falling tide with high variability in replicate measurements. Positive value indicates groundwater seepage out of the sediment, while a negative value indicates infiltration of surface water into the sediment. Thus, during a rising tide, as the hydraulic head in the surface water is increasing, there is a small infiltration into the ground (-0.26 cm/d), while during a falling tide, then the hydraulic head in the surface water is decreasing, there is some seepage of groundwater into the surface.

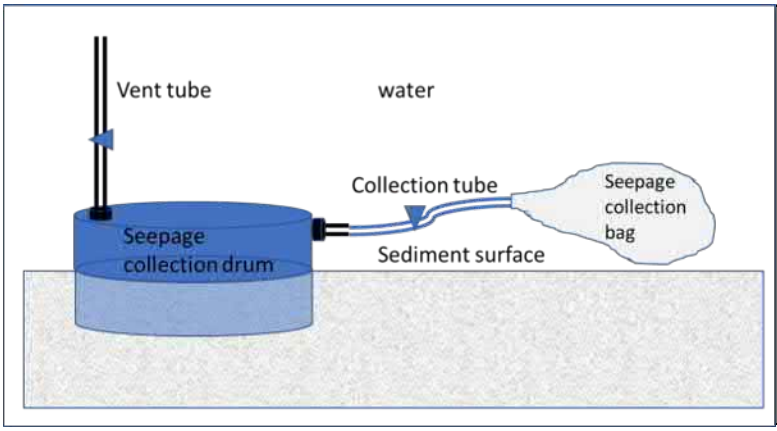



*Figure 7. Schematic of seepage meter to be fabricated at UMBC using a 55 gallon drum following method described in USGS (2008).*



*Figure 8. Images from the field showing seepage meters in the field (top and bottom left), and eight intact cores collected for lab seepage study (bottom right).*

*Table 2. Data collected from field seepage meters*

| 18-Oct | Rising Tide | | | | |
|---|---|---|---|---|---|
| Seepage Meter 1 | | min | Vol | rate (ml/min) | notes |
| 9:13 AM | 10:02 AM | 49 | 0 | 0.00 | |
| 10:02 AM | 10:55 AM | 53 | -100 | -1.89 | |
| | | | | | |
| 12:29 PM | 1:02 PM | 33 | 160 | 4.85 | |
| 1:04 PM | 2:05 PM | 61 | -160 | -2.62 | |
| 2:07 PM | 2:55 PM | 48 | 0 | 0.00 | |
| | | 244 | -100 | -0.41 | |
| | | | | | |
| Seepage Meter 2 | | | | | |
| 10:49 AM | 11:58 AM | 69 | 0 | 0.00 | |
| 12:02 PM | 12:38 PM | 36 | | | vented air |
| 12:42 PM | 2:00 PM | 78 | 20 | 0.26 | |
| 2:02 PM | 2:50 PM | 48 | -20 | -0.42 | |
| | | 231 | 0 | 0.00 | |
| | | | | | |
| Seepage Meter 3 | | | | | |
| 10:55 AM | 12:13 PM | 78 | -275 | -3.53 | |
| 12:15 PM | 1:12 PM | 57 | 0 | 0.00 | |
| 1:14 PM | 2:13 PM | 59 | -40 | -0.68 | |
| 2:15 PM | 3:04 PM | 49 | 60 | 1.22 | |
| | | 243 | -255 | -1.05 | |
| | | | | | |
| **Average of 3 (ml/min)** | | | | **-0.49** | |
| | | | | | |
| Area of drum = | 2721.481 | sqcm | | | |
| | | | | | |
| **Darcy velocity** | **cm/min)** | | | **-0.00017873** | |
| | **cm/d** | | | **-0.26** | |

| 28-Oct | Falling Tide | | | | |
|---|---|---|---|---|---|
| Seepage Meter 1 | | min | Vol | rate | notes |
| 8:04 AM | 8:34 AM | 30 | 300 | 10.00 | |
| 8:42 AM | 9:46 AM | 64 | 100 | 1.56 | |
| 9:48 AM | 10:35 AM | 47 | 200 | 4.26 | |
| 10:38 AM | 11:30 AM | 52 | 128 | 2.46 | |
| | | 193 | 728 | 3.77 | |
| | | | | | |
| | | | | | |
| | | | | | |
| Seepage Meter 2 | | | | | |
| 8:07 AM | 8:40 AM | 33 | 0 | 0.00 | |
| 8:44 AM | 9:50 AM | 54 | 220 | 4.07 | |
| 9:53 AM | 10:45 AM | 52 | 80 | 1.54 | |
| 10:48 AM | 11:07 AM | 19 | 280 | 14.74 | |
| | | 158 | 580 | 3.67 | |
| | | | | | |
| Seepage Meter 3 | | | | | |
| 8:12 AM | 8:47 AM | 35 | 400 | 11.43 | |
| 8:50 AM | 9:57 AM | 67 | 140 | 2.09 | |
| 9:58 AM | 10:50 AM | 52 | | 0.00 | not opene |
| 10:51 | 11:39 AM | 48 | 0 | 0.00 | |
| | | 202 | 540 | 2.67 | |
| | | | | | |
| | | | | **3.37** | |
| | | | | | |
| | | | | | |
| | | | | | |
| **Darcy velocity** | **cm/min)** | | | **0.001239** | |
| | **cm/d** | | | **1.78** | |

3.2.3. Hydraulic conductivity of sediment before and after placement of amendments.

For conditions where groundwater discharge can be an important component of pollutant transport, understanding changes in discharge as a consequence of a remedy can be an important factor in the assessment. Thin layer placement of granular material like sand may not have a major impact on hydraulic conductivity and discharge unless additional compaction takes place due to the weight of the placed material. For amendments containing bentonite clays (AquaGate and SediMite), there is potential for the bentonite component to significantly reduce the hydraulic conductivity of the surface sediments where the amendments are mixed into. Bentonite is a swelling clay and is often used in applications where a reduction in hydraulic conductivity is desired. The reduction of the hydraulic conductivity and resulting groundwater discharge can be beneficial from a remedy perspective if the groundwater is redirected from the treated contaminated sediment layer to the adjacent less contaminated areas. This can reduce the overall flux of groundwater through the contaminated zone in sediments. Intact sediment cores (1 ft depth of surficial sediments) were collected from the Cove near Seepage Meter 2 to perform laboratory measurement of the change in seepage with sediment amendments. The eight cores collected from the Cove for the study are shown in Figure 8.

A simulated discharge flow setup was constructed in the laboratory using intact 2” diameter and 1 ft long cores collected from the field. After consolidation in the laboratory, actual depth of sediment in each core was adjusted to ensure a consistent thickness of sediment in all cores by removing excess material from the top of the cores. The final depth of consolidated sediments in each core was 7.5”. A schematic of the laboratory seepage measurement setup and actual picture of the setup in the laboratory are shown in Figure 9. The hydraulic conductivity system was built

using 2” diameter PVC pipe, 90 degrees elbows, PVC tees, and DWV male adapter. The systems configuration is shown below in Figure 9. Each joint was fixed together using PVC cement. The system was placed inside a large water bath that also acted as the reservoir. The reservoir contained a water pump that fed into the top of the constant head tubes. Holes were drilled at different heights above the sediment line to allow adjustment of the constant head. A small amount of filter fiber was added to the bottom of the intact core followed by a rigid circular mesh. These were secured into place with a DWV male adapter. This was done to ensure the intact core would not fall through into the pipe. A total of eight cores were added to the system (4 on each sides). The intact cores were inverted in water to remove trapped air bubbles then threaded into the base of the hydraulic conductivity system. The pump was activated, and the cores were subjected to the hydraulic gradient until the discharge flow rate remained constant. Once all eight cores were equilibrated, 4 cores were capped while beakers were placed underneath the outlets of the other 4 cores to collect the discharge over a fixed time. The content of the beaker was then transferred into a graduated cylinder to determine the volume. Three trials were conducted for the untreated cores. The pump was deactivated before the amendments (GAC, SediMite, and AquaGate) were added to duplicate cores and allowed to stabilize on top of the sediment for 14 hours for the first set of post amendment measurement, and then for 2 days for the second set of post amendment measurements. The pump was reactivated to allow the system to equilibrate once more. The seepage water was collected using the same procedure described above.

The results of the laboratory seepage measurements are shown in Table 3. The first set of replicate columns had a higher flowrate ranging from 80-310 ml/min before amendments were added to the sediment columns. The flowrates in all three columns were reduced to about half 14 hours after amendment placement. Measurements taken 2 days after amendment placement show similar reductions for SediMite and AquaGate treatments, however, for the GAC treatment, the reduction changed to 33%.

The second set of replicate sediment columns exhibited lower flowrates before amendment and ranged from 5.5 to 22.3 ml/min likely reflecting heterogeneity of the collected samples. The flowrates in all three columns reduced 14 hours after amendment placement and ranged from 25% reduction for the AquaGate treatment, and 73% reduction for the GAC treatment. Two days after amendment placement, the flowrate reductions for SediMite treatment increased from 54% to 69%, and for AquaGate treatment from 25% to 42%.

Overall, the laboratory seepage measurements indicate that the amendments can have an influence in reducing seepage through the native sediments. Reductions in the range of 25 – 78% can be anticipated. The initial hypothesis was that the amendments containing bentonite clay (SediMite and AquaGate) may have a greater influence in reducing seepage. However, the experimental results seem to indicate similar reductions for all three amendments. It is possible that after a longer period of hydration and swelling of the bentonite clay, one may observe further reductions in seepage for the bentonite-clay containing amendments.

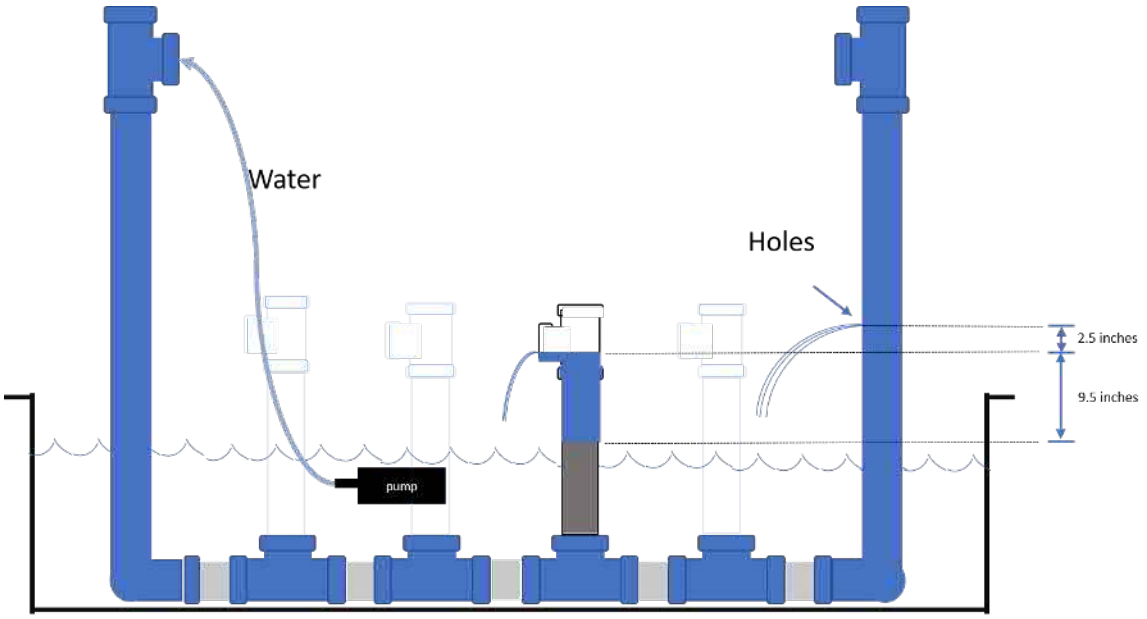





*Figure 9. Laboratory experimental setup to measure change in discharge velocity after placement of amendments.*

*Table 3. Results of laboratory seepage measurement with and without amendments*

| **REPLICATE 1** | **Before Amendment** | | | **14 hr After Amendment** | | | |
|---|---|---|---|---|---|---|---|
| | flow (ml/min) | StdErr | | | flow (ml/min) | StdErr | % reduction |
| **1A** | 80.0 | 0.0 | | **1A (GAC)** | 36.2 | 0.4 | 55% |
| **3A** | 168.3 | 3.1 | | **3A (AG)** | 97.7 | 1.0 | 42% |
| **4A** | 310.0 | 8.2 | | **4A (SM)** | 158.3 | 1.0 | 49% |
| | | | | | | | |
| | | | | **2 days After Amendment** | | | |
| | | | | | flow (ml/min) | StdErr | % reduction |
| | | | | **1A (GAC)** | 54 | 0 | 33% |
| | | | | **3A (AG)** | 88 | 0 | 48% |
| | | | | **4A (SM)** | 142 | 0.71 | 54% |
| | | | | | | | |
| **REPLICATE 2** | **Before Amendment** | | | **14 hr After Amendment** | | | |
| | flow (ml/min) | StdErr | | | flow (ml/min) | StdErr | % reduction |
| **2B** | 5.5 | 0.015 | | **2B (GAC)** | 1.5 | 0.015 | 73% |
| **3B** | 10.5 | 0.015 | | **3B (AG)** | 4.8 | 0.041 | 54% |
| **4B** | 22.3 | 0.041 | | **4B (SM)** | 16.7 | 0.093 | 25% |
| | | | | | | | |
| | | | | **2 days After Amendment** | | | |
| | | | | | flow (ml/min) | StdErr | % reduction |
| | | | | **2B (GAC)** | 1.2 | 0 | 78% |
| | | | | **3B (AG)** | 3.2 | 0.014 | 69% |
| | | | | **4B (SM)** | 13.0 | 0.040 | 42% |

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**Conflict of interest disclosure**: "Dr. Ghosh is a co-inventor of two patents related to the in-situ sorbent amendment technology described in this proposal for which he is entitled to receive royalties upon commercialization. One invention was issued to Stanford University (US Patent # 7,101,115 B2), and the other to the University of Maryland Baltimore County (UMBC) (U.S. Patent No. 7,824,129). In addition, Dr. Ghosh is a partner in a startup company (Sediment Solutions) that has licensed the technologies from Stanford and UMBC and manufacturers the pelletized activated carbon product SediMite™."

**List of Appendices:**

Appendix 1. Treatability Study Sample Locations.

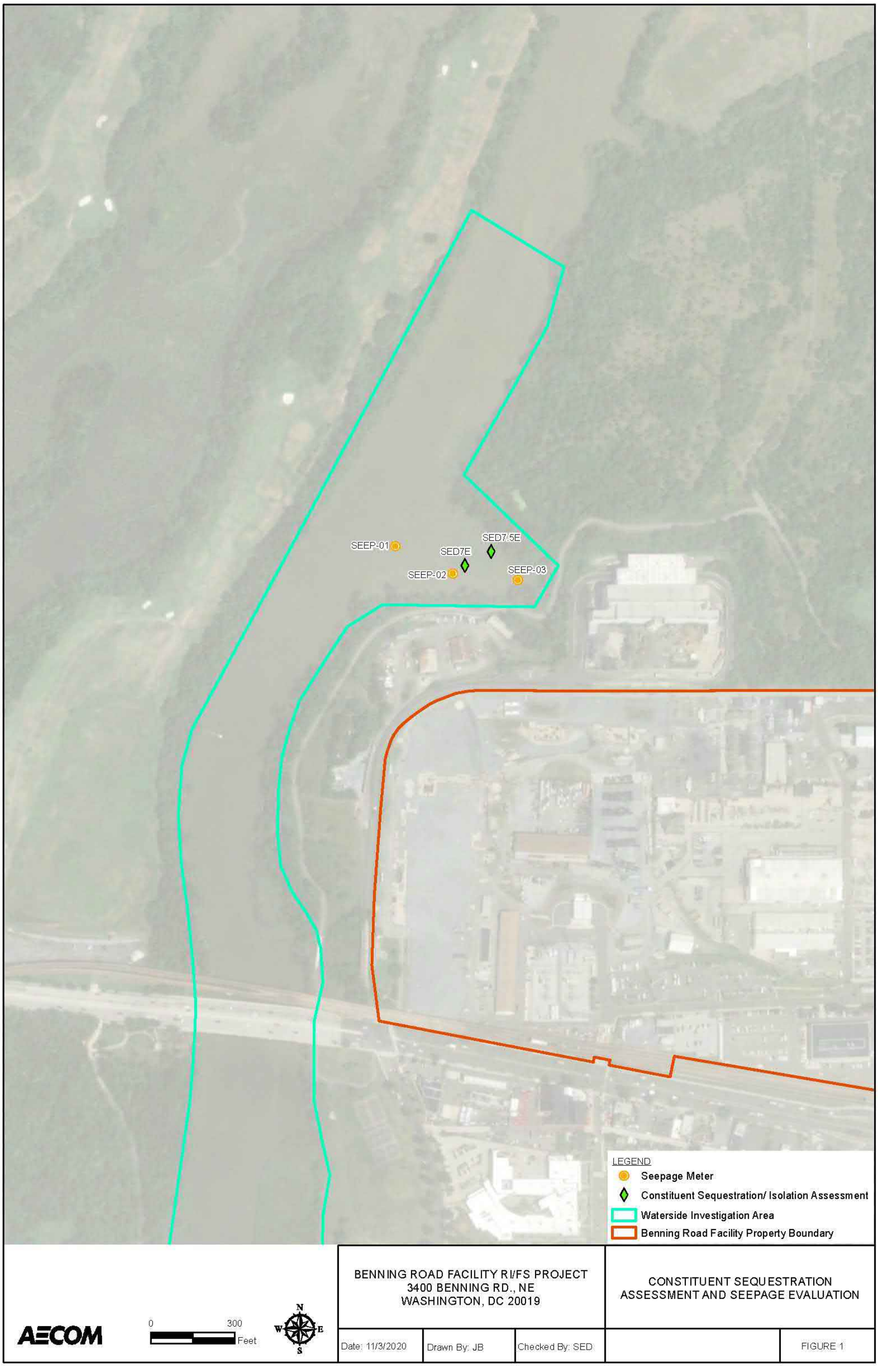
Appendix 2. Analytical Methods.

Appendix 3. Tables of water quality data from 28-day bioaccumulation study. Full range of water quality measurements were performed every 7 days with daily monitoring of temperature and dissolved oxygen.

Appendix 4. PCB homolog concentration in sediment porewater for Figure 3.

Appendix 5. PCB homolog concentration in worm tissue for Figure 5.

**Appendix 1. Treatability Study Sample Locations.**



## Appendix 2. Analytical Methods.

***PCB extraction, cleanup, and analysis.***
Sediment and worm tissue PCBs were extracted following EPA method 3550B using three volumes of 40 mL each of acetone-hexane mixture (1:1) and sonicating the slurry for 6 minutes (pulsing for half minute on and half minute off). Pesticide grade hexane and acetone was used for all extractions. PCB cleanup was based on EPA publication SW-846 (Test Methods for Evaluating Solid Waste, Physical/Chemical Methods) methods 3630C (Silica gel cleanup), 3665A (sulfuric acid cleanup) and 3660B (Sulfur removal with copper). In the silica gel cleanup process, the dried and concentrated extracts are passed through a 3% deactivated silica gel column for the removal of organic interferences and to separate the PCBs. Silica gel (chromatographic grade, 100-200 mesh, Fisher Scientific, Fair Lawn, NJ) is activated by heating at 130°C for 16 hours, then deactivated by gradually adding 3% by weight deionized water and rotating on a roller at approximately 2 rpm overnight. The three standard methods were followed without any modifications.

PCB congener specific analysis was performed using a modified EPA Method 8082. An Agilent gas chromatograph (model 6890) with a fused silica capillary column (HP-5, 60 m x 0.25 mm inner diameter) and an electron capture detector was used for analysis. PCB standards for calibration were obtained from the EPA's National Health and Environmental Effects Research Laboratory in Grosse Ile, Michigan and also from Ultra Scientific. A 4-level PCB calibration table is prepared using a known PCB mixture containing 250 μg/L of Aroclor 1232, 180 μg/L of Aroclor 1248 and 180 μg/L of Aroclor 1262 yielding a total PCB concentration of 610 μg/L. Concentrations of individual PCB congeners in the mixture are obtained from Mullin (1994). Two internal standards are used: PCB 30 (2,4,6-trichlorobiphenyl) and PCB 204 (2,2',3,4,4',5,6,6'-octachloro biphenyl), which are not present in commercial Aroclor mixtures. Using this protocol, 92 PCB congeners or congener groups can be identified and quantified. With this analytical method, there are some coeluting PCB peaks in the analysis. Where this occurs, coeluting peaks are calibrated as sum of congeners.

**Passive sampling of freely dissolved PCBs.** The passive sampling approach followed the recent guidance on passive sampling (USEPA 2017). Passive samplers were prepared using 0.5 g of 25 μm thick polyethylene sheets encased in stainless steel mesh. The samplers were cleaned by solvent extraction followed by the impregnation with four PCB and three PAH performance reference compounds in the laboratory. After retrieval of the passive samplers from the laboratory exposure chambers, they were cleaned using a clean tissue and DI water to remove surface contamination and placed into pre-cleaned 40 mL vials. All samples were stored at 4 °C in closed glass vials until extraction. Extraction of all stored samples were completed within 1 month of generation of the sample. Passive samplers were extracted by dialyzing in hexane as described in Sander et al. (2018). Cleanup and analysis of passive samplers followed methods described in the analytical section above. The presence of different amounts of AC in the treated samples is expected to interfere with the rate of loss of PRC compounds as described in Yan et al. 2020 and confound PRC corrections. Thus, no PRC corrections were performed in this study for the reported porewater concentrations. The final percent reductions of porewater concentrations are not expected to be impacted by PRC corrections as hydrodynamic conditions were maintained the identical in all exposure beakers.

**Other water quality measurements in exposure chambers.** For each exposure chamber, temperature and dissolved oxygen will be measured daily (Oakton® 100 Series DO/ºC meter, Eutech Instruments, Singapore), and additional water quality parameters, including pH (Accumet® model 15 pH meter, Denver Instrument Company, USA), conductivity (Fisherbrand Traceable® Benchtop Conductivity Meter, Calibration Control Company), alkalinity, hardness and ammonia, will be measured weekly (days 0, 7, 14, and 21). Alkalinity, hardness and ammonia will be measured with water quality test kits (Hach Company, Loveland, CO, USA).

**Appendix 3. Tables of water quality data from 28-day bioaccumulation study. Full range of water quality measurements were performed every 7 days with daily monitoring of temperature and dissolved oxygen.**

Day 0

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | 0 | 0 | 300+ | 80-120 | 8.4 | 1252 | 0.5 | 7.95 | X | 23.7 |
| 1% SediMite-B | 0 | 0 | 300+ | 80-120 | 8.4 | 1250 | 0.5 | 8.01 | X | 23.7 |
| 1% SediMite-C | 0 | 0 | 300+ | 80-120 | 8.4 | 1287 | 0.5 | 7.64 | X | 23.7 |
| 3% SediMite-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1292 | 0.5 | 7.96 | X | 23.7 |
| 3% SediMite-B | 0 | 0 | 300+ | 80-120 | 8.2 | 1268 | 0.5 | 7.12 | X | 23.7 |
| 3% SediMite-C | 0 | 0 | 300+ | 80-120 | 8.2 | 1291 | 0.5 | 7.09 | X | 23.7 |
| 5% SediMite-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1289 | 0.5 | 6.8 | X | 23.7 |
| 5% SediMite-B | 0 | 0 | 300+ | 80-120 | 8.2 | 1261 | 0.5 | 6 | X | 23.7 |
| 5% SediMite-C | 0 | 0 | 300+ | 80-120 | 8.2 | 1281 | 0.5 | 6.8 | X | 23.7 |
| 1% GAC-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1278 | 0.5 | 7.32 | X | 23.7 |
| 1% GAC-B | 0 | 0 | 300+ | 80-120 | 8.2 | 1245 | 0.5 | 7.91 | X | 22.3 |
| 1% GAC-C | 0 | 0 | 300+ | 80-120 | 8.2 | 1260 | 0.5 | 7.37 | X | 22.3 |
| 3% GAC-A | 0 | 0 | 300+ | 80-120 | 8 | 1245 | 0.5 | 7.88 | X | 22.3 |
| 3% GAC-B | 0 | 0 | 300+ | 80-120 | 8.2 | 1209 | 0.5 | 7.94 | X | 22.3 |
| 3% GAC-C | 0 | 0 | 300+ | 80-120 | 8 | 1240 | 0.5 | 8.01 | X | 22.3 |
| 5% GAC-A | 0 | 0 | 300+ | 80-120 | 8 | 1226 | 0.5 | 7.64 | X | 22.3 |
| 5% GAC-B | 0 | 0 | 300+ | 80-120 | 8 | 1218 | 0.5 | 7.63 | X | 22.3 |
| 5% GAC-C | 0 | 0 | 300+ | 80-120 | 8 | 1215 | 0.5 | 7.24 | X | 22.3 |
| 1% AquaBlok-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1232 | 0.5 | 7.98 | X | 22.3 |
| 1% AquaBlok-B | 0 | 0 | 300+ | 80-120 | 8 | 1226 | 0.5 | 7.28 | X | 22.2 |
| 1% AquaBlok-C | 0 | 0 | 300+ | 80-120 | 8 | 1255 | 0.5 | 6.09 | X | 22.2 |
| 3% AquaBlok-A | 0 | 0 | 300+ | 80-120 | 8 | 1318 | 0.5 | 7.57 | X | 22.2 |
| 3% AquaBlok-B | 0 | 0 | 300+ | 80-120 | 8.3 | 1334 | 0.5 | 7.72 | X | 22.2 |
| 3% AquaBlok-C | 0 | 0 | 300+ | 80-120 | 8.3 | 1296 | 0.5 | 7.22 | X | 22.2 |
| 5% AquaBlok-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1336 | 0.5 | 7.33 | X | 22.2 |
| 5% AquaBlok-B | 0 | 0 | 300+ | 80-120 | 8.3 | 1334 | 0.5 | 7.05 | X | 22.2 |
| 5% AquaBlok-C | 0 | 0 | 300+ | 80-120 | 8.3 | 1390 | 0.5 | 7.86 | X | 22.2 |
| Untreated-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1266 | 1 | 7.78 | X | 22.2 |
| Untreated-B | 0 | 0 | 300+ | 80-120 | 8.2 | 1262 | 3 | 7.95 | X | 22.2 |
| Untreated-C | 0 | 0 | 300+ | 80-120 | 8.2 | 1232 | 2 | 7.69 | X | 22.2 |
| Control-A | 0 | 0 | 300+ | 80-120 | 7.4 | 1022 | 0.75 | 7.2 | X | 23.7 |
| Control-B | 0 | 0 | 300+ | 80-120 | 7.4 | 1079 | 0.75 | 6.97 | X | 22.3 |
| Control-C | 0 | 0 | 300+ | 80-120 | 7.4 | 1070 | 0.75 | 7.99 | X | 22.2 |

Day 1

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.54 | X | 23.8 |
| 1% SediMite-B | | | | | | | | 7.7 | X | 23.8 |
| 1% SediMite-C | | | | | | | | 7.62 | X | 23.8 |
| 3% SediMite-A | | | | | | | | 7.96 | X | 23.8 |
| 3% SediMite-B | | | | | | | | 7.82 | X | 23.8 |
| 3% SediMite-C | | | | | | | | 6.96 | X | 23.8 |
| 5% SediMite-A | | | | | | | | 7.18 | X | 23.8 |
| 5% SediMite-B | | | | | | | | 7.45 | X | 23.8 |
| 5% SediMite-C | | | | | | | | 6.4 | X | 23.8 |
| 1% GAC-A | | | | | | | | 5.8 | X | 23.8 |
| 1% GAC-B | | | | | | | | 7.65 | X | 23 |
| 1% GAC-C | | | | | | | | 7.13 | X | 23 |
| 3% GAC-A | | | | | | | | 7.21 | X | 23 |
| 3% GAC-B | | | | | | | | 7.52 | X | 23 |
| 3% GAC-C | | | | | | | | 7.54 | X | 23 |
| 5% GAC-A | | | | | | | | 6.6 | X | 23 |
| 5% GAC-B | | | | | | | | 6.16 | X | 23 |
| 5% GAC-C | | | | | | | | 6.8 | X | 23 |
| 1% AquaBlok-A | | | | | | | | 7.17 | X | 23 |
| 1% AquaBlok-B | | | | | | | | 7.13 | X | 23 |
| 1% AquaBlok-C | | | | | | | | 6.3 | X | 22.8 |
| 3% AquaBlok-A | | | | | | | | 7.35 | X | 22.8 |
| 3% AquaBlok-B | | | | | | | | 7.18 | X | 22.8 |
| 3% AquaBlok-C | | | | | | | | 6.41 | X | 22.8 |
| 5% AquaBlok-A | | | | | | | | 6.49 | X | 22.8 |
| 5% AquaBlok-B | | | | | | | | 6.22 | X | 22.8 |
| 5% AquaBlok-C | | | | | | | | 7.28 | X | 22.8 |
| Untreated-A | | | | | | | | 7.57 | X | 22.8 |
| Untreated-B | | | | | | | | 7.47 | X | 22.8 |
| Untreated-C | | | | | | | | 7.37 | X | 22.8 |
| Control-A | | | | | | | | 6.7 | X | 23.8 |
| Control-B | | | | | | | | 6.84 | X | 23 |
| Control-C | | | | | | | | 7.18 | X | 22.8 |

Day 2

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 6.81 | X | 24 |
| 1% SediMite-B | | | | | | | | 6.97 | X | 24 |
| 1% SediMite-C | | | | | | | | 7.26 | X | 24 |
| 3% SediMite-A | | | | | | | | 7.17 | X | 24 |
| 3% SediMite-B | | | | | | | | 6.45 | X | 24 |
| 3% SediMite-C | | | | | | | | 6.63 | X | 24 |
| 5% SediMite-A | | | | | | | | 5.97 | X | 24 |
| 5% SediMite-B | | | | | | | | 6.53 | X | 24 |
| 5% SediMite-C | | | | | | | | 6.6 | X | 24 |
| 1% GAC-A | | | | | | | | 5.87 | X | 24 |
| 1% GAC-B | | | | | | | | 7.13 | X | 23 |
| 1% GAC-C | | | | | | | | 6.49 | X | 23 |
| 3% GAC-A | | | | | | | | 6.53 | X | 23 |
| 3% GAC-B | | | | | | | | 6.83 | X | 23 |
| 3% GAC-C | | | | | | | | 6.93 | X | 23 |
| 5% GAC-A | | | | | | | | 6.55 | X | 23 |
| 5% GAC-B | | | | | | | | 5.47 | X | 23 |
| 5% GAC-C | | | | | | | | 6.08 | X | 23 |
| 1% AquaBlok-A | | | | | | | | 6.31 | X | 23 |
| 1% AquaBlok-B | | | | | | | | 6.3 | X | 23 |
| 1% AquaBlok-C | | | | | | | | 6.23 | X | 22.9 |
| 3% AquaBlok-A | | | | | | | | 6.94 | X | 22.9 |
| 3% AquaBlok-B | | | | | | | | 7.15 | X | 22.9 |
| 3% AquaBlok-C | | | | | | | | 5.42 | X | 22.9 |
| 5% AquaBlok-A | | | | | | | | 6.18 | X | 22.9 |
| 5% AquaBlok-B | | | | | | | | 6.35 | X | 22.9 |
| 5% AquaBlok-C | | | | | | | | 7.05 | X | 22.9 |
| Untreated-A | | | | | | | | 7.05 | X | 22.9 |
| Untreated-B | | | | | | | | 7.07 | X | 22.9 |
| Untreated-C | | | | | | | | 6.94 | X | 22.9 |
| Control-A | | | | | | | | 6.25 | X | 24 |
| Control-B | | | | | | | | 6.3 | X | 23 |
| Control-C | | | | | | | | 6.46 | X | 22.9 |

Day 3

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | 8.2 | | | 7.13 | X | 24.3 |
| 1% SediMite-B | | | | | 8.2 | | | 6.93 | X | 24.3 |
| 1% SediMite-C | | | | | 8.2 | | | 6.99 | X | 24.3 |
| 3% SediMite-A | | | | | 8.2 | | | 7.07 | X | 24.3 |
| 3% SediMite-B | | | | | 8.2 | | | 6.7 | X | 24.3 |
| 3% SediMite-C | | | | | 8.2 | | | 6.36 | X | 24.3 |
| 5% SediMite-A | | | | | 8.2 | | | 5.6 | X | 24.3 |
| 5% SediMite-B | | | | | 8.2 | | | 5.48 | X | 24.3 |
| 5% SediMite-C | | | | | 8.2 | | | 5.82 | X | 24.3 |
| 1% GAC-A | | | | | 8.4 | | | 6.08 | X | 24.3 |
| 1% GAC-B | | | | | 8.2 | | | 7.02 | X | 23.3 |
| 1% GAC-C | | | | | 8.2 | | | 6.25 | X | 23.3 |
| 3% GAC-A | | | | | 8.2 | | | 6.92 | X | 23.3 |
| 3% GAC-B | | | | | 8.2 | | | 6.91 | X | 23.3 |
| 3% GAC-C | | | | | 8.8 | | 0.5 | 6.6 | X | 23.3 |
| 5% GAC-A | | | | | 8 | | | 6.48 | X | 23.3 |
| 5% GAC-B | | | | | 8 | | | 5.93 | X | 23.3 |
| 5% GAC-C | | | | | 8.4 | | | 6.02 | X | 23.3 |
| 1% AquaBlok-A | | | | | 8 | | | 6.4 | X | 23.3 |
| 1% AquaBlok-B | | | | | 8 | | | 5.87 | X | 23.3 |
| 1% AquaBlok-C | | | | | 8.8 | | 0.5 | 6.84 | X | 23 |
| 3% AquaBlok-A | | | | | 8.2 | | | 5.91 | X | 23 |
| 3% AquaBlok-B | | | | | 8.2 | | | 6.57 | X | 23 |
| 3% AquaBlok-C | | | | | 8.2 | | | 6.21 | X | 23 |
| 5% AquaBlok-A | | | | | 8.2 | | | 5.6 | X | 23 |
| 5% AquaBlok-B | | | | | 8.2 | | | 6.38 | X | 23 |
| 5% AquaBlok-C | | | | | 8.2 | | | 6.62 | X | 23 |
| Untreated-A | | | | | 8.2 | | | 6.73 | X | 23 |
| Untreated-B | | | | | 8.2 | | | 6.6 | X | 23 |
| Untreated-C | | | | | 8.2 | | | 6.68 | X | 23 |
| Control-A | | | | | 8.8 | | 0.25 | 6.27 | X | 24.3 |
| Control-B | | | | | 8.2 | | | 6.14 | X | 23.3 |
| Control-C | | | | | 8.2 | | | 6.41 | X | 23 |

Day 4

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | 8 | | | 6.24 | X | 24.2 |
| 1% SediMite-B | | | | | 8.3 | | | 6.42 | X | 24.2 |
| 1% SediMite-C | | | | | 8.2 | | | 6.27 | X | 24.2 |
| 3% SediMite-A | | | | | 8.3 | | | 6.17 | X | 24.2 |
| 3% SediMite-B | | | | | 8.3 | | | 6.15 | X | 24.2 |
| 3% SediMite-C | | | | | 8.3 | | | 6.09 | X | 24.2 |
| 5% SediMite-A | | | | | 8.2 | | | 5.75 | X | 24.2 |
| 5% SediMite-B | | | | | 8.3 | | | 6.19 | X | 24.2 |
| 5% SediMite-C | | | | | 8.2 | | | 5.95 | X | 24.2 |
| 1% GAC-A | | | | | 8 | | | 5.59 | X | 24.2 |
| 1% GAC-B | | | | | 8 | | | 6.37 | X | 23.2 |
| 1% GAC-C | | | | | 8 | | | 6.12 | X | 23.2 |
| 3% GAC-A | | | | | 8.2 | | | 6.19 | X | 23.2 |
| 3% GAC-B | | | | | 8 | | | 6.27 | X | 23.2 |
| 3% GAC-C | | | | | 8 | | | 6.45 | X | 23.2 |
| 5% GAC-A | | | | | 8 | | | 6.12 | X | 23.2 |
| 5% GAC-B | | | | | 8 | | | 5.18 | X | 23.2 |
| 5% GAC-C | | | | | 8 | | | 5.7 | X | 23.2 |
| 1% AquaBlok-A | | | | | 8 | | | 5.96 | X | 23.2 |
| 1% AquaBlok-B | | | | | 8 | | | 6.45 | X | 23.2 |
| 1% AquaBlok-C | | | | | 8 | | | 6.29 | X | 22.9 |
| 3% AquaBlok-A | | | | | 8.2 | | | 6.38 | X | 22.9 |
| 3% AquaBlok-B | | | | | 8 | | | 6.5 | X | 22.9 |
| 3% AquaBlok-C | | | | | 8.3 | | | 6.39 | X | 22.9 |
| 5% AquaBlok-A | | | | | 8.3 | | | 6.15 | X | 22.9 |
| 5% AquaBlok-B | | | | | 8.3 | | | 6.4 | X | 22.9 |
| 5% AquaBlok-C | | | | | 8.3 | | | 6.58 | X | 22.9 |
| Untreated-A | | | | | 8.3 | | | 6.35 | X | 22.9 |
| Untreated-B | | | | | 8.3 | | | 6.26 | X | 22.9 |
| Untreated-C | | | | | 8.4 | | | 6.35 | X | 22.9 |
| Control-A | | | | | 8 | | | 5.84 | X | 24.2 |
| Control-B | | | | | 8 | | | 6.28 | X | 23.2 |
| Control-C | | | | | 8 | | | 6.55 | X | 22.9 |

Day 5

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | 8.2 | | | 8.16 | X | 24 |
| 1% SediMite-B | | | | | 8.2 | | | 8.35 | X | 24 |
| 1% SediMite-C | | | | | 8.2 | | | 8.19 | X | 24 |
| 3% SediMite-A | | | | | 8.2 | | | 8.23 | X | 24 |
| 3% SediMite-B | | | | | 8.2 | | | 8.15 | X | 24 |
| 3% SediMite-C | | | | | 8.2 | | | 7.6 | X | 24 |
| 5% SediMite-A | | | | | 8.2 | | | 7.52 | X | 24 |
| 5% SediMite-B | | | | | 8.2 | | | 7.67 | X | 24 |
| 5% SediMite-C | | | | | 8.2 | | | 7.28 | X | 24 |
| 1% GAC-A | | | | | 7.8 | | | 7.72 | X | 24 |
| 1% GAC-B | | | | | 8 | | | 8.23 | X | 23 |
| 1% GAC-C | | | | | 8 | | | 7.71 | X | 23 |
| 3% GAC-A | | | | | 8 | | | 7.55 | X | 23 |
| 3% GAC-B | | | | | 8 | | | 7.81 | X | 23 |
| 3% GAC-C | | | | | 8 | | | 8.15 | X | 23 |
| 5% GAC-A | | | | | 8 | | | 7.5 | X | 23 |
| 5% GAC-B | | | | | 8 | | | 7.73 | X | 23 |
| 5% GAC-C | | | | | 8 | | | 7.41 | X | 23 |
| 1% AquaBlok-A | | | | | 8 | | | 7.21 | X | 23 |
| 1% AquaBlok-B | | | | | 8 | | | 7.73 | X | 23 |
| 1% AquaBlok-C | | | | | 8 | | | 8 | X | 22.7 |
| 3% AquaBlok-A | | | | | 8 | | | 8.45 | X | 22.7 |
| 3% AquaBlok-B | | | | | 8 | | | 8.25 | X | 22.7 |
| 3% AquaBlok-C | | | | | 8 | | | 7.63 | X | 22.7 |
| 5% AquaBlok-A | | | | | 8.4 | | | 8.23 | X | 22.7 |
| 5% AquaBlok-B | | | | | 8.4 | | | 7.83 | X | 22.7 |
| 5% AquaBlok-C | | | | | 8.4 | | | 8.59 | X | 22.7 |
| Untreated-A | | | | | 8 | | | 8.07 | X | 22.7 |
| Untreated-B | | | | | 8 | | | 7.87 | X | 22.7 |
| Untreated-C | | | | | 8 | | | 7.34 | X | 22.7 |
| Control-A | | | | | 8 | | | 8.16 | X | 24 |
| Control-B | | | | | 8 | | | 7.84 | X | 23 |
| Control-C | | | | | 8 | | | 7.25 | X | 22.7 |

Day 6

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | 8.2 | | | 8.52 | X | 23.8 |
| 1% SediMite-B | | | | | 8.2 | | | 8.75 | X | 23.8 |
| 1% SediMite-C | | | | | 8.2 | | | 8.59 | X | 23.8 |
| 3% SediMite-A | | | | | 8.2 | | | 8.55 | X | 23.8 |
| 3% SediMite-B | | | | | 8.2 | | | 8.32 | X | 23.8 |
| 3% SediMite-C | | | | | 8.2 | | | 7.85 | X | 23.8 |
| 5% SediMite-A | | | | | 8.2 | | | 7.47 | X | 23.8 |
| 5% SediMite-B | | | | | 8.2 | | | 7.99 | X | 23.8 |
| 5% SediMite-C | | | | | 8 | | | 7.62 | X | 23.8 |
| 1% GAC-A | | | | | 8.2 | | | 7.32 | X | 23.8 |
| 1% GAC-B | | | | | | | | 8.45 | X | 22.8 |
| 1% GAC-C | | | | | | | | 8.041 | X | 22.8 |
| 3% GAC-A | | | | | | | | 8.17 | X | 22.8 |
| 3% GAC-B | | | | | | | | 7.89 | X | 22.8 |
| 3% GAC-C | | | | | | | | 8.23 | X | 22.8 |
| 5% GAC-A | | | | | | | | 7.82 | X | 22.8 |
| 5% GAC-B | | | | | | | | 6.71 | X | 22.8 |
| 5% GAC-C | | | | | | | | 7.8 | X | 22.8 |
| 1% AquaBlok-A | | | | | | | | 8.1 | X | 22.8 |
| 1% AquaBlok-B | | | | | | | | 7.34 | X | 22.8 |
| 1% AquaBlok-C | | | | | | | | 7.56 | X | 23 |
| 3% AquaBlok-A | | | | | | | | 8.51 | X | 23 |
| 3% AquaBlok-B | | | | | | | | 8.32 | X | 23 |
| 3% AquaBlok-C | | | | | | | | 7.36 | X | 23 |
| 5% AquaBlok-A | | | | | | | | 8.27 | X | 23 |
| 5% AquaBlok-B | | | | | | | | 7.46 | X | 23 |
| 5% AquaBlok-C | | | | | | | | 7.62 | X | 23 |
| Untreated-A | | | | | | | | 7.36 | X | 23 |
| Untreated-B | | | | | | | | 7.84 | X | 23 |
| Untreated-C | | | | | | | | 7.28 | X | 23 |
| Control-A | | | | | | | | 8.1 | X | 23.8 |
| Control-B | | | | | | | | 7.52 | X | 22.8 |
| Control-C | | | | | | | | 7.04 | X | 23 |

Day 7

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | 0 | 0 | 300+ | 80-120 | | 1011 | 0.25 | 8.2 | X | 24.5 |
| 1% SediMite-B | 0 | 0 | 300+ | 80-120 | | 1008 | 0 | 8.29 | X | 24.5 |
| 1% SediMite-C | 0 | 0 | 300+ | 80-120 | | 1000 | 0 | 8.31 | X | 24.5 |
| 3% SediMite-A | 0 | 0 | 300+ | 80-120 | | 1017 | 0 | 7.95 | X | 24.5 |
| 3% SediMite-B | 0 | 0 | 300+ | 80-120 | | 1024 | 0 | 7.61 | X | 24.5 |
| 3% SediMite-C | 0 | 0 | 300+ | 80-120 | | 1017 | 0 | 7.11 | X | 24.5 |
| 5% SediMite-A | 0 | 0 | 300+ | 80-120 | | 9945 | 0 | 6.78 | X | 24.5 |
| 5% SediMite-B | 0 | 0 | 300+ | 80-120 | | 1005 | 0 | 7.44 | X | 24.5 |
| 5% SediMite-C | 0 | 0 | 300+ | 80-120 | | 1005 | 0 | 7.01 | X | 24.5 |
| 1% GAC-A | 0 | 0 | 300+ | 80-120 | | 942 | 0.5 | 6.61 | X | 24.5 |
| 1% GAC-B | 0 | 0 | 300+ | 80-120 | | 932 | 0.5 | 7.78 | X | 22.8 |
| 1% GAC-C | 0 | 0 | 300+ | 80-120 | | 934 | 0.25 | 7.63 | X | 22.8 |
| 3% GAC-A | 0 | 0 | 300+ | 80-120 | | 922 | 0.5 | 7.3 | X | 22.8 |
| 3% GAC-B | 0 | 0 | 300+ | 80-120 | | 903 | 0.5 | 7.29 | X | 22.8 |
| 3% GAC-C | 0 | 0 | 300+ | 80-120 | | 925 | 0.5 | 7.25 | X | 22.8 |
| 5% GAC-A | 0 | 0 | 300+ | 80-120 | | 921 | 0.5 | 7.34 | X | 22.8 |
| 5% GAC-B | 0 | 0 | 300+ | 80-120 | | 941 | 0.5 | 7.3 | X | 22.8 |
| 5% GAC-C | 0 | 0 | 300+ | 80-120 | | 915 | 0.5 | 7.05 | X | 22.8 |
| 1% AquaBlok-A | 0 | 0 | 300+ | 80-120 | | 957 | 0.25 | 6.874 | X | 22.8 |
| 1% AquaBlok-B | 0 | 0 | 300+ | 80-120 | | 942 | 0.5 | 6.88 | X | 22.8 |
| 1% AquaBlok-C | 0 | 0 | 300+ | 80-120 | | 942 | 0.5 | 7.46 | X | 22.8 |
| 3% AquaBlok-A | 0 | 0 | 300+ | 80-120 | | 978 | 0 | 8.1 | X | 22.8 |
| 3% AquaBlok-B | 0 | 0 | 300+ | 80-120 | | 994 | 0 | 8.12 | X | 22.8 |
| 3% AquaBlok-C | 0 | 0 | 300+ | 80-120 | | 993 | 0 | 7.65 | X | 22.8 |
| 5% AquaBlok-A | 0 | 0 | 300+ | 80-120 | | 984 | 0 | 8.22 | X | 22.8 |
| 5% AquaBlok-B | 0 | 0 | 300+ | 80-120 | | 994 | 0 | 7.64 | X | 22.8 |
| 5% AquaBlok-C | 0 | 0 | 300+ | 80-120 | | 1006 | 0 | 8.11 | X | 22.8 |
| Untreated-A | 0 | 0 | 300+ | 80-120 | | 1014 | 0.25 | 8.18 | X | 22.8 |
| Untreated-B | 0 | 0 | 300+ | 80-120 | | 925 | 0.25 | 7.99 | X | 22.8 |
| Untreated-C | 0 | 0 | 300+ | 80-120 | | 952 | 0.25 | 7.8 | X | 22.8 |
| Control-A | 0 | 0 | 300+ | 80-120 | | 943 | 0.25 | 6.84 | X | 24.5 |
| Control-B | 0 | 0 | 300+ | 80-120 | | 9320 | 0.25 | 7.08 | X | 22.8 |
| Control-C | 0 | 0 | 300+ | 80-120 | | 944 | 0.25 | 6.63 | X | 22.8 |

Day 8

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | 8.4 | | | 8.26 | X | 24.2 |
| 1% SediMite-B | | | | | 8.4 | | | 8.62 | X | 24.2 |
| 1% SediMite-C | | | | | 8.4 | | | 8.55 | X | 24.2 |
| 3% SediMite-A | | | | | 8.4 | | | 7.62 | X | 24.2 |
| 3% SediMite-B | | | | | 8.4 | | | 7.85 | X | 24.2 |
| 3% SediMite-C | | | | | 8.2 | | | 6.68 | X | 24.2 |
| 5% SediMite-A | | | | | 8.2 | | | 6.78 | X | 24.2 |
| 5% SediMite-B | | | | | 8.2 | | | 7.02 | X | 24.2 |
| 5% SediMite-C | | | | | 8.2 | | | 6.8 | X | 24.2 |
| 1% GAC-A | | | | | 8.2 | | | 6.52 | X | 24.2 |
| 1% GAC-B | | | | | 8 | | | 7.69 | X | 22.8 |
| 1% GAC-C | | | | | 8.2 | | | 7.82 | X | 22.8 |
| 3% GAC-A | | | | | 8.2 | | | 7.56 | X | 22.8 |
| 3% GAC-B | | | | | 8.2 | | | 7.83 | X | 22.8 |
| 3% GAC-C | | | | | 8.2 | | | 7.2 | X | 22.8 |
| 5% GAC-A | | | | | 8.2 | | | 7.39 | X | 22.8 |
| 5% GAC-B | | | | | 8.2 | | | 7.47 | X | 22.8 |
| 5% GAC-C | | | | | 8.2 | | | 6.92 | X | 22.8 |
| 1% AquaBlok-A | | | | | 8.2 | | | 7.25 | X | 22.8 |
| 1% AquaBlok-B | | | | | 8.2 | | | 7.11 | X | 22.8 |
| 1% AquaBlok-C | | | | | 8.2 | | | 8.02 | X | 22.7 |
| 3% AquaBlok-A | | | | | 8.4 | | | 8.34 | X | 22.7 |
| 3% AquaBlok-B | | | | | 8.4 | | | 7.17 | X | 22.7 |
| 3% AquaBlok-C | | | | | 8.4 | | | 7.21 | X | 22.7 |
| 5% AquaBlok-A | | | | | 8.4 | | 0 | 7.74 | X | 22.7 |
| 5% AquaBlok-B | | | | | 8.4 | | 0 | 7.95 | X | 22.7 |
| 5% AquaBlok-C | | | | | 8.4 | | 0 | 8 | X | 22.7 |
| Untreated-A | | | | | 8 | | | 7.99 | X | 22.7 |
| Untreated-B | | | | | 8 | | | 7.32 | X | 22.7 |
| Untreated-C | | | | | 8 | | | 7.89 | X | 22.7 |
| Control-A | | | | | 8.2 | | | 7.68 | X | 24.2 |
| Control-B | | | | | 8.4 | | | 6.91 | X | 22.8 |
| Control-C | | | | | 8.4 | | | 7.74 | X | 22.7 |

Day 9

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.4 | X | 24.3 |
| 1% SediMite-B | | | | | | | | 7.55 | X | 24.3 |
| 1% SediMite-C | | | | | | | | 8 | X | 24.3 |
| 3% SediMite-A | | | | | | | | 7.75 | X | 24.3 |
| 3% SediMite-B | | | | | | | | 7.77 | X | 24.3 |
| 3% SediMite-C | | | | | | | | 6.55 | X | 24.3 |
| 5% SediMite-A | | | | | | | | 7.3 | X | 24.3 |
| 5% SediMite-B | | | | | | | | 7.52 | X | 24.3 |
| 5% SediMite-C | | | | | | | | 6.68 | X | 24.3 |
| 1% GAC-A | | | | | | | | 7.02 | X | 24.3 |
| 1% GAC-B | | | | | | | | 7.84 | X | 22.9 |
| 1% GAC-C | | | | | | | | 7.54 | X | 22.9 |
| 3% GAC-A | | | | | | | | 7.69 | X | 22.9 |
| 3% GAC-B | | | | | | | | 7.46 | X | 22.9 |
| 3% GAC-C | | | | | | | | 6.83 | X | 22.9 |
| 5% GAC-A | | | | | | | | 6.85 | X | 22.9 |
| 5% GAC-B | | | | | | | | 7.07 | X | 22.9 |
| 5% GAC-C | | | | | | | | 6.89 | X | 22.9 |
| 1% AquaBlok-A | | | | | | | | 6.88 | X | 22.9 |
| 1% AquaBlok-B | | | | | | | | 7.11 | X | 22.9 |
| 1% AquaBlok-C | | | | | | | | 7.9 | X | 22.3 |
| 3% AquaBlok-A | | | | | | | | 8.08 | X | 22.3 |
| 3% AquaBlok-B | | | | | | | | 7.64 | X | 22.3 |
| 3% AquaBlok-C | | | | | | | | 7.41 | X | 22.3 |
| 5% AquaBlok-A | | | | | | | | 7.26 | X | 22.3 |
| 5% AquaBlok-B | | | | | | | | 7.72 | X | 22.3 |
| 5% AquaBlok-C | | | | | | | | 8.02 | X | 22.3 |
| Untreated-A | | | | | | | | 8 | X | 22.3 |
| Untreated-B | | | | | | | | 8.03 | X | 22.3 |
| Untreated-C | | | | | | | | 7.75 | X | 22.3 |
| Control-A | | | | | | | | 7.55 | X | 24.3 |
| Control-B | | | | | | | | 6.85 | X | 22.9 |
| Control-C | | | | | | | | 7.13 | X | 22.3 |

Day 10

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.4 | X | 24.3 |
| 1% SediMite-B | | | | | | | | 7.55 | X | 24.3 |
| 1% SediMite-C | | | | | | | | 8 | X | 24.3 |
| 3% SediMite-A | | | | | | | | 7.75 | X | 24.3 |
| 3% SediMite-B | | | | | | | | 7.77 | X | 24.3 |
| 3% SediMite-C | | | | | | | | 6.55 | X | 24.3 |
| 5% SediMite-A | | | | | | | | 7.3 | X | 24.3 |
| 5% SediMite-B | | | | | | | | 7.52 | X | 24.3 |
| 5% SediMite-C | | | | | | | | 6.68 | X | 24.3 |
| 1% GAC-A | | | | | | | | 7.02 | X | 24.3 |
| 1% GAC-B | | | | | | | | 7.84 | X | 22.9 |
| 1% GAC-C | | | | | | | | 7.54 | X | 22.9 |
| 3% GAC-A | | | | | | | | 7.69 | X | 22.9 |
| 3% GAC-B | | | | | | | | 7.46 | X | 22.9 |
| 3% GAC-C | | | | | | | | 6.83 | X | 22.9 |
| 5% GAC-A | | | | | | | | 6.85 | X | 22.9 |
| 5% GAC-B | | | | | | | | 7.07 | X | 22.9 |
| 5% GAC-C | | | | | | | | 6.89 | X | 22.9 |
| 1% AquaBlok-A | | | | | | | | 6.88 | X | 22.9 |
| 1% AquaBlok-B | | | | | | | | 7.11 | X | 22.9 |
| 1% AquaBlok-C | | | | | | | | 7.9 | X | 22.3 |
| 3% AquaBlok-A | | | | | | | | 8.08 | X | 22.3 |
| 3% AquaBlok-B | | | | | | | | 7.64 | X | 22.3 |
| 3% AquaBlok-C | | | | | | | | 7.41 | X | 22.3 |
| 5% AquaBlok-A | | | | | | | | 7.26 | X | 22.3 |
| 5% AquaBlok-B | | | | | | | | 7.72 | X | 22.3 |
| 5% AquaBlok-C | | | | | | | | 8.02 | X | 22.3 |
| Untreated-A | | | | | | | | 8 | X | 22.3 |
| Untreated-B | | | | | | | | 8.03 | X | 22.3 |
| Untreated-C | | | | | | | | 7.75 | X | 22.3 |
| Control-A | | | | | | | | 7.55 | X | 24.3 |
| Control-B | | | | | | | | 6.85 | X | 22.9 |
| Control-C | | | | | | | | 7.13 | X | 22.3 |

Day 11

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | 8.4 | | | 7.78 | X | 23.9 |
| 1% SediMite-B | | | | | 8.4 | | | 8.23 | X | 23.9 |
| 1% SediMite-C | | | | | 8.4 | | | 7.95 | X | 23.9 |
| 3% SediMite-A | | | | | 8.4 | | | 7.59 | X | 23.9 |
| 3% SediMite-B | | | | | 8.4 | | | 6.99 | X | 23.9 |
| 3% SediMite-C | | | | | 8.4 | | | 6.79 | X | 23.9 |
| 5% SediMite-A | | | | | 8.4 | | | 7.13 | X | 23.9 |
| 5% SediMite-B | | | | | 8.4 | | | 6.88 | X | 23.9 |
| 5% SediMite-C | | | | | 7.8 | | | 7.42 | X | 23.9 |
| 1% GAC-A | | | | | 8 | | | 7.6 | X | 23.9 |
| 1% GAC-B | | | | | 8 | | | 8.12 | X | 22.9 |
| 1% GAC-C | | | | | 7.8 | | | 7.41 | X | 22.9 |
| 3% GAC-A | | | | | 7.8 | | | 7.43 | X | 22.9 |
| 3% GAC-B | | | | | 8 | | | 7.84 | X | 22.9 |
| 3% GAC-C | | | | | 7.8 | | | 7.44 | X | 22.9 |
| 5% GAC-A | | | | | 7.8 | | | 6.54 | X | 22.9 |
| 5% GAC-B | | | | | 8 | | | 7.07 | X | 22.9 |
| 5% GAC-C | | | | | 8 | | | 7.43 | X | 22.9 |
| 1% AquaBlok-A | | | | | 7.8 | | | 7.51 | X | 22.9 |
| 1% AquaBlok-B | | | | | 8.4 | | | 7.33 | X | 22.9 |
| 1% AquaBlok-C | | | | | 8 | | | 7.41 | X | 22.3 |
| 3% AquaBlok-A | | | | | 8.2 | | | 7.23 | X | 22.3 |
| 3% AquaBlok-B | | | | | 8.4 | | | 7.35 | X | 22.3 |
| 3% AquaBlok-C | | | | | 8.4 | | | 7.63 | X | 22.3 |
| 5% AquaBlok-A | | | | | 8.4 | | | 7.11 | X | 22.3 |
| 5% AquaBlok-B | | | | | 8.4 | | | 7.68 | X | 22.3 |
| 5% AquaBlok-C | | | | | 8.4 | | | 8.03 | X | 22.3 |
| Untreated-A | | | | | 7.8 | | | 8.21 | X | 22.3 |
| Untreated-B | | | | | 8 | | | 7.94 | X | 22.3 |
| Untreated-C | | | | | 7.8 | | | 7.86 | X | 22.3 |
| Control-A | | | | | 8.4 | | | 6.97 | X | 23.9 |
| Control-B | | | | | 8.4 | | | 7.32 | X | 22.9 |
| Control-C | | | | | 8.4 | | | 7.64 | X | 22.3 |

Day 12

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.56 | X | 24.5 |
| 1% SediMite-B | | | | | | | | 7.28 | X | 24.5 |
| 1% SediMite-C | | | | | | | | 7.64 | X | 24.5 |
| 3% SediMite-A | | | | | | | | 7.6 | X | 24.5 |
| 3% SediMite-B | | | | | | | | 6.95 | X | 24.5 |
| 3% SediMite-C | | | | | | | | 6.8 | X | 24.5 |
| 5% SediMite-A | | | | | | | | 6.3 | X | 24.5 |
| 5% SediMite-B | | | | | | | | 7.19 | X | 24.5 |
| 5% SediMite-C | | | | | | | | 7.12 | X | 24.5 |
| 1% GAC-A | | | | | | | | 6.98 | X | 24.5 |
| 1% GAC-B | | | | | | | | 7.72 | X | 22.8 |
| 1% GAC-C | | | | | | | | 7.93 | X | 22.8 |
| 3% GAC-A | | | | | | | | 6.97 | X | 22.8 |
| 3% GAC-B | | | | | | | | 6.28 | X | 22.8 |
| 3% GAC-C | | | | | | | | 7.28 | X | 22.8 |
| 5% GAC-A | | | | | | | | 7.26 | X | 22.8 |
| 5% GAC-B | | | | | | | | 7.19 | X | 22.8 |
| 5% GAC-C | | | | | | | | 7.1 | X | 22.8 |
| 1% AquaBlok-A | | | | | | | | 6.95 | X | 22.8 |
| 1% AquaBlok-B | | | | | | | | 7.62 | X | 22.8 |
| 1% AquaBlok-C | | | | | | | | 6.32 | X | 22.7 |
| 3% AquaBlok-A | | | | | | | | 7.51 | X | 22.7 |
| 3% AquaBlok-B | | | | | | | | 7.8 | X | 22.7 |
| 3% AquaBlok-C | | | | | | | | 7.53 | X | 22.7 |
| 5% AquaBlok-A | | | | | | | | 7.73 | X | 22.7 |
| 5% AquaBlok-B | | | | | | | | 7.07 | X | 22.7 |
| 5% AquaBlok-C | | | | | | | | 7.25 | X | 22.7 |
| Untreated-A | | | | | | | | 7.96 | X | 22.7 |
| Untreated-B | | | | | | | | 7.64 | X | 22.7 |
| Untreated-C | | | | | | | | 7.39 | X | 22.7 |
| Control-A | | | | | | | | 7.41 | X | 24.5 |
| Control-B | | | | | | | | 7.1 | X | 22.8 |
| Control-C | | | | | | | | 7.17 | X | 22.7 |

Day 13

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.25 | X | 24.6 |
| 1% SediMite-B | | | | | | | | 7.08 | X | 24.6 |
| 1% SediMite-C | | | | | | | | 7.25 | X | 24.6 |
| 3% SediMite-A | | | | | | | | 7.24 | X | 24.6 |
| 3% SediMite-B | | | | | | | | 7.1 | X | 24.6 |
| 3% SediMite-C | | | | | | | | 6.85 | X | 24.6 |
| 5% SediMite-A | | | | | | | | 6.66 | X | 24.6 |
| 5% SediMite-B | | | | | | | | 6.12 | X | 24.6 |
| 5% SediMite-C | | | | | | | | 6.46 | X | 24.6 |
| 1% GAC-A | | | | | | | | 6.5 | X | 24.6 |
| 1% GAC-B | | | | | | | | 7.31 | X | 22.8 |
| 1% GAC-C | | | | | | | | 6.99 | X | 22.8 |
| 3% GAC-A | | | | | | | | 7.25 | X | 22.8 |
| 3% GAC-B | | | | | | | | 7.44 | X | 22.8 |
| 3% GAC-C | | | | | | | | 7.03 | X | 22.8 |
| 5% GAC-A | | | | | | | | 7.03 | X | 22.8 |
| 5% GAC-B | | | | | | | | 6.58 | X | 22.8 |
| 5% GAC-C | | | | | | | | 6.39 | X | 22.8 |
| 1% AquaBlok-A | | | | | | | | 6.41 | X | 22.8 |
| 1% AquaBlok-B | | | | | | | | 6.24 | X | 22.8 |
| 1% AquaBlok-C | | | | | | | | 7.03 | X | 22.7 |
| 3% AquaBlok-A | | | | | | | | 7.27 | X | 22.7 |
| 3% AquaBlok-B | | | | | | | | 7.36 | X | 22.7 |
| 3% AquaBlok-C | | | | | | | | 7.59 | X | 22.7 |
| 5% AquaBlok-A | | | | | | | | 7.58 | X | 22.7 |
| 5% AquaBlok-B | | | | | | | | 7.07 | X | 22.7 |
| 5% AquaBlok-C | | | | | | | | 7.12 | X | 22.7 |
| Untreated-A | | | | | | | | 7.36 | X | 22.7 |
| Untreated-B | | | | | | | | 7.53 | X | 22.7 |
| Untreated-C | | | | | | | | 7.63 | X | 22.7 |
| Control-A | | | | | | | | 6.62 | X | 24.6 |
| Control-B | | | | | | | | 6.21 | X | 22.8 |
| Control-C | | | | | | | | 6.53 | X | 22.7 |

Day 14

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | 0 | 0 | 300+ | 80-120 | 8.4 | 1160 | 0.25 | 7.27 | X | 24.5 |
| 1% SediMite-B | 0 | 0 | 300+ | 80-120 | 8.4 | 1179 | 0 | 7.35 | X | 24.5 |
| 1% SediMite-C | 0 | 0 | 300+ | 80-120 | 8.4 | 1171 | 0 | 7.1 | X | 24.5 |
| 3% SediMite-A | 0 | 0 | 300+ | 80-120 | 8.4 | 1143 | 0 | 7.66 | X | 24.5 |
| 3% SediMite-B | 0 | 0 | 300+ | 80-120 | 8.4 | 1146 | 0 | 7.25 | X | 24.5 |
| 3% SediMite-C | 0 | 0 | 300+ | 80-120 | 8.4 | 11560 | 0 | 6.84 | X | 24.5 |
| 5% SediMite-A | 0 | 0 | 300+ | 80-120 | 8.4 | 1096 | 0 | 6.89 | X | 24.5 |
| 5% SediMite-B | 0 | 0 | 300+ | 80-120 | 8.4 | 1089 | 0 | 6.55 | X | 24.5 |
| 5% SediMite-C | 0 | 0 | 300+ | 80-120 | 8.4 | 1152 | 0 | 6.69 | X | 24.5 |
| 1% GAC-A | 0 | 0 | 300+ | 80-120 | 8 | 1071 | 0.25 | 6.5 | X | 24.5 |
| 1% GAC-B | 0 | 0 | 300+ | 80-120 | 8 | 1036 | 0 | 7.01 | X | 22.6 |
| 1% GAC-C | 0 | 0 | 300+ | 80-120 | 8 | 1037 | 0.25 | 7.5 | X | 22.6 |
| 3% GAC-A | 0 | 0 | 300+ | 80-120 | 8 | 1029 | 0.25 | 7.36 | X | 22.6 |
| 3% GAC-B | 0 | 0 | 300+ | 80-120 | 8 | 988 | 0.25 | 7.21 | X | 22.6 |
| 3% GAC-C | 0 | 0 | 300+ | 80-120 | 8 | 1020 | 0.25 | 7.29 | X | 22.6 |
| 5% GAC-A | 0 | 0 | 300+ | 80-120 | 8 | 1004 | 0.25 | 6.88 | X | 22.6 |
| 5% GAC-B | 0 | 0 | 300+ | 80-120 | 8 | 1024 | 0.25 | 6.66 | X | 22.6 |
| 5% GAC-C | 0 | 0 | 300+ | 80-120 | 8 | 1000 | 0.25 | 6.89 | X | 22.6 |
| 1% AquaBlok-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1076 | 0.25 | 6.99 | X | 22.6 |
| 1% AquaBlok-B | 0 | 0 | 300+ | 80-120 | 8.2 | 1056 | 0 | 7.03 | X | 22.6 |
| 1% AquaBlok-C | 0 | 0 | 300+ | 80-120 | 8.2 | 1031 | 0 | 7.5 | X | 22.6 |
| 3% AquaBlok-A | 0 | 0 | 300+ | 80-120 | 8.4 | 1131 | 0 | 8.03 | X | 22.6 |
| 3% AquaBlok-B | 0 | 0 | 300+ | 80-120 | 8.4 | 1153 | 0.25 | 7.11 | X | 22.6 |
| 3% AquaBlok-C | 0 | 0 | 300+ | 80-120 | 8.4 | 1108 | 0 | 7.6 | X | 22.6 |
| 5% AquaBlok-A | 0 | 0 | 300+ | 80-120 | 8.4 | 1117 | 0.25 | 7.3 | X | 22.6 |
| 5% AquaBlok-B | 0 | 0 | 300+ | 80-120 | 8.4 | 1125 | 0 | 7.39 | X | 22.6 |
| 5% AquaBlok-C | 0 | 0 | 300+ | 80-120 | 8.4 | 1169 | 0 | 7.98 | X | 22.6 |
| Untreated-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1010 | 0 | 7.64 | X | 22.6 |
| Untreated-B | 0 | 0 | 300+ | 80-120 | 8.4 | 1024 | 0 | 7.4 | X | 22.6 |
| Untreated-C | 0 | 0 | 300+ | 80-120 | 8.4 | 1023 | 0.25 | 7.82 | X | 22.6 |
| Control-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1080 | 0 | 7.09 | X | 24.5 |
| Control-B | 0 | 0 | 300+ | 80-120 | 8.2 | 1061 | 0 | 6.5 | X | 22.6 |
| Control-C | 0 | 0 | 300+ | 80-120 | 8.4 | 1040 | 0 | 7 | X | 22.6 |

Day 15

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.21 | X | 24.8 |
| 1% SediMite-B | | | | | | | | 7.45 | X | 24.8 |
| 1% SediMite-C | | | | | | | | 7.75 | X | 24.8 |
| 3% SediMite-A | | | | | | | | 7.71 | X | 24.8 |
| 3% SediMite-B | | | | | | | | 6.8 | X | 24.8 |
| 3% SediMite-C | | | | | | | | 7.31 | X | 24.8 |
| 5% SediMite-A | | | | | | | | 6.96 | X | 24.8 |
| 5% SediMite-B | | | | | | | | 6.59 | X | 24.8 |
| 5% SediMite-C | | | | | | | | 6.55 | X | 24.8 |
| 1% GAC-A | | | | | | | | 6.78 | X | 24.8 |
| 1% GAC-B | | | | | | | | 6.46 | X | 23 |
| 1% GAC-C | | | | | | | | 7.27 | X | 23 |
| 3% GAC-A | | | | | | | | 7.14 | X | 23 |
| 3% GAC-B | | | | | | | | 7.35 | X | 23 |
| 3% GAC-C | | | | | | | | 7.21 | X | 23 |
| 5% GAC-A | | | | | | | | 6.88 | X | 23 |
| 5% GAC-B | | | | | | | | 6.98 | X | 23 |
| 5% GAC-C | | | | | | | | 7.23 | X | 23 |
| 1% AquaBlok-A | | | | | | | | 7.33 | X | 23 |
| 1% AquaBlok-B | | | | | | | | 7.33 | X | 23 |
| 1% AquaBlok-C | | | | | | | | 6.54 | X | 23.1 |
| 3% AquaBlok-A | | | | | | | | 7.17 | X | 23.1 |
| 3% AquaBlok-B | | | | | | | | 6.9 | X | 23.1 |
| 3% AquaBlok-C | | | | | | | | 7.38 | X | 23.1 |
| 5% AquaBlok-A | | | | | | | | 6.89 | X | 23.1 |
| 5% AquaBlok-B | | | | | | | | 6.84 | X | 23.1 |
| 5% AquaBlok-C | | | | | | | | 7.55 | X | 23.1 |
| Untreated-A | | | | | | | | 7.62 | X | 23.1 |
| Untreated-B | | | | | | | | 6.58 | X | 23.1 |
| Untreated-C | | | | | | | | 6.99 | X | 23.1 |
| Control-A | | | | | | | | 7.27 | X | 24.8 |
| Control-B | | | | | | | | 7.12 | X | 23 |
| Control-C | | | | | | | | 7.19 | X | 23.1 |

Day 16

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.21 | X | 24.6 |
| 1% SediMite-B | | | | | | | | 7.19 | X | 24.6 |
| 1% SediMite-C | | | | | | | | 7.23 | X | 24.6 |
| 3% SediMite-A | | | | | | | | 7.49 | X | 24.6 |
| 3% SediMite-B | | | | | | | | 6.85 | X | 24.6 |
| 3% SediMite-C | | | | | | | | 6.82 | X | 24.6 |
| 5% SediMite-A | | | | | | | | 6.78 | X | 24.6 |
| 5% SediMite-B | | | | | | | | 7.14 | X | 24.6 |
| 5% SediMite-C | | | | | | | | 7.13 | X | 24.6 |
| 1% GAC-A | | | | | | | | 7.06 | X | 24.6 |
| 1% GAC-B | | | | | | | | 7.19 | X | 23 |
| 1% GAC-C | | | | | | | | 7.26 | X | 23 |
| 3% GAC-A | | | | | | | | 7.31 | X | 23 |
| 3% GAC-B | | | | | | | | 7.29 | X | 23 |
| 3% GAC-C | | | | | | | | 6.87 | X | 23 |
| 5% GAC-A | | | | | | | | 6.78 | X | 23 |
| 5% GAC-B | | | | | | | | 6.91 | X | 23 |
| 5% GAC-C | | | | | | | | 6.52 | X | 23 |
| 1% AquaBlok-A | | | | | | | | 7.23 | X | 23 |
| 1% AquaBlok-B | | | | | | | | 7.07 | X | 23 |
| 1% AquaBlok-C | | | | | | | | 7.15 | X | 23 |
| 3% AquaBlok-A | | | | | | | | 7.53 | X | 23 |
| 3% AquaBlok-B | | | | | | | | 6.89 | X | 23 |
| 3% AquaBlok-C | | | | | | | | 6.94 | X | 23 |
| 5% AquaBlok-A | | | | | | | | 7.23 | X | 23 |
| 5% AquaBlok-B | | | | | | | | 7.2 | X | 23 |
| 5% AquaBlok-C | | | | | | | | 7.29 | X | 23 |
| Untreated-A | | | | | | | | 7.51 | X | 23 |
| Untreated-B | | | | | | | | 7.22 | X | 23 |
| Untreated-C | | | | | | | | 7.31 | X | 23 |
| Control-A | | | | | | | | 6.65 | X | 24.6 |
| Control-B | | | | | | | | 7.1 | X | 23 |
| Control-C | | | | | | | | 7.29 | X | 23 |

Day 17

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.28 | X | 24.9 |
| 1% SediMite-B | | | | | | | | 7.13 | X | 24.9 |
| 1% SediMite-C | | | | | | | | 7.14 | X | 24.9 |
| 3% SediMite-A | | | | | | | | 7.42 | X | 24.9 |
| 3% SediMite-B | | | | | | | | 711 | X | 24.9 |
| 3% SediMite-C | | | | | | | | 6.81 | X | 24.9 |
| 5% SediMite-A | | | | | | | | 6.26 | X | 24.9 |
| 5% SediMite-B | | | | | | | | 6.63 | X | 24.9 |
| 5% SediMite-C | | | | | | | | 6.68 | X | 24.9 |
| 1% GAC-A | | | | | | | | 6.88 | X | 24.9 |
| 1% GAC-B | | | | | | | | 7.35 | X | 23.5 |
| 1% GAC-C | | | | | | | | 7..23 | X | 23.5 |
| 3% GAC-A | | | | | | | | 7.39 | X | 23.5 |
| 3% GAC-B | | | | | | | | 7.35 | X | 23.5 |
| 3% GAC-C | | | | | | | | 7.37 | X | 23.5 |
| 5% GAC-A | | | | | | | | 7.55 | X | 23.5 |
| 5% GAC-B | | | | | | | | 7.43 | X | 23.5 |
| 5% GAC-C | | | | | | | | 6.88 | X | 23.5 |
| 1% AquaBlok-A | | | | | | | | 6.98 | X | 23.5 |
| 1% AquaBlok-B | | | | | | | | 7.3 | X | 23.5 |
| 1% AquaBlok-C | | | | | | | | 7.65 | X | 23.1 |
| 3% AquaBlok-A | | | | | | | | 7.63 | X | 23.1 |
| 3% AquaBlok-B | | | | | | | | 7.64 | X | 23.1 |
| 3% AquaBlok-C | | | | | | | | 7.66 | X | 23.1 |
| 5% AquaBlok-A | | | | | | | | 7.96 | X | 23.1 |
| 5% AquaBlok-B | | | | | | | | 7.2 | X | 23.1 |
| 5% AquaBlok-C | | | | | | | | 7.53 | X | 23.1 |
| Untreated-A | | | | | | | | 7.59 | X | 23.1 |
| Untreated-B | | | | | | | | 7.46 | X | 23.1 |
| Untreated-C | | | | | | | | 7.56 | X | 23.1 |
| Control-A | | | | | | | | 6.23 | X | 24.9 |
| Control-B | | | | | | | | 6.89 | X | 23.5 |
| Control-C | | | | | | | | 6.79 | X | 23.1 |

Day 18

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.95 | X | 24.9 |
| 1% SediMite-B | | | | | | | | 7.56 | X | 24.9 |
| 1% SediMite-C | | | | | | | | 7.61 | X | 24.9 |
| 3% SediMite-A | | | | | | | | 7.86 | X | 24.9 |
| 3% SediMite-B | | | | | | | | 7.57 | X | 24.9 |
| 3% SediMite-C | | | | | | | | 7.79 | X | 24.9 |
| 5% SediMite-A | | | | | | | | 7.19 | X | 24.9 |
| 5% SediMite-B | | | | | | | | 6.75 | X | 24.9 |
| 5% SediMite-C | | | | | | | | 7.06 | X | 24.9 |
| 1% GAC-A | | | | | | | | 6.85 | X | 24.9 |
| 1% GAC-B | | | | | | | | 7.56 | X | 23.8 |
| 1% GAC-C | | | | | | | | 7.46 | X | 23.8 |
| 3% GAC-A | | | | | | | | 7.36 | X | 23.8 |
| 3% GAC-B | | | | | | | | 7.4 | X | 23.8 |
| 3% GAC-C | | | | | | | | 7.6 | X | 23.8 |
| 5% GAC-A | | | | | | | | 7.31 | X | 23.8 |
| 5% GAC-B | | | | | | | | 6.45 | X | 23.8 |
| 5% GAC-C | | | | | | | | 6.86 | X | 23.8 |
| 1% AquaBlok-A | | | | | | | | 7.1 | X | 23.8 |
| 1% AquaBlok-B | | | | | | | | 7.2 | X | 23.8 |
| 1% AquaBlok-C | | | | | | | | 7.46 | X | 23 |
| 3% AquaBlok-A | | | | | | | | 7.54 | X | 23 |
| 3% AquaBlok-B | | | | | | | | 7.32 | X | 23 |
| 3% AquaBlok-C | | | | | | | | 7.2 | X | 23 |
| 5% AquaBlok-A | | | | | | | | 7.14 | X | 23 |
| 5% AquaBlok-B | | | | | | | | 7.19 | X | 23 |
| 5% AquaBlok-C | | | | | | | | 7.61 | X | 23 |
| Untreated-A | | | | | | | | 7.45 | X | 23 |
| Untreated-B | | | | | | | | 7.32 | X | 23 |
| Untreated-C | | | | | | | | 7.26 | X | 23 |
| Control-A | | | | | | | | 6.64 | X | 24.9 |
| Control-B | | | | | | | | 7.12 | X | 23.8 |
| Control-C | | | | | | | | 7.06 | X | 23 |

Day 19

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 6.91 | X | 24.9 |
| 1% SediMite-B | | | | | | | | 7.41 | X | 24.9 |
| 1% SediMite-C | | | | | | | | 7.06 | X | 24.9 |
| 3% SediMite-A | | | | | | | | 7.05 | X | 24.9 |
| 3% SediMite-B | | | | | | | | 6.86 | X | 24.9 |
| 3% SediMite-C | | | | | | | | 6.59 | X | 24.9 |
| 5% SediMite-A | | | | | | | | 6.45 | X | 24.9 |
| 5% SediMite-B | | | | | | | | 6.37 | X | 24.9 |
| 5% SediMite-C | | | | | | | | 7.23 | X | 24.9 |
| 1% GAC-A | | | | | | | | 6.72 | X | 24.9 |
| 1% GAC-B | | | | | | | | 7.39 | X | 23.3 |
| 1% GAC-C | | | | | | | | 7.1 | X | 23.3 |
| 3% GAC-A | | | | | | | | 7.27 | X | 23.3 |
| 3% GAC-B | | | | | | | | 7.03 | X | 23.3 |
| 3% GAC-C | | | | | | | | 7.18 | X | 23.3 |
| 5% GAC-A | | | | | | | | 6.79 | X | 23.3 |
| 5% GAC-B | | | | | | | | 6.78 | X | 23.3 |
| 5% GAC-C | | | | | | | | 6.69 | X | 23.3 |
| 1% AquaBlok-A | | | | | | | | 6.33 | X | 23.3 |
| 1% AquaBlok-B | | | | | | | | 6.99 | X | 23.3 |
| 1% AquaBlok-C | | | | | | | | 6.91 | X | 22.9 |
| 3% AquaBlok-A | | | | | | | | 6.52 | X | 22.9 |
| 3% AquaBlok-B | | | | | | | | 6.92 | X | 22.9 |
| 3% AquaBlok-C | | | | | | | | 7.27 | X | 22.9 |
| 5% AquaBlok-A | | | | | | | | 7.44 | X | 22.9 |
| 5% AquaBlok-B | | | | | | | | 7.33 | X | 22.9 |
| 5% AquaBlok-C | | | | | | | | 7.29 | X | 22.9 |
| Untreated-A | | | | | | | | 7.13 | X | 22.9 |
| Untreated-B | | | | | | | | 7.42 | X | 22.9 |
| Untreated-C | | | | | | | | 7.03 | X | 22.9 |
| Control-A | | | | | | | | 7.12 | X | 24.9 |
| Control-B | | | | | | | | 6.89 | X | 23.3 |
| Control-C | | | | | | | | 7.2 | X | 22.9 |

Day 20

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.81 | X | 24.9 |
| 1% SediMite-B | | | | | | | | 7.84 | X | 24.9 |
| 1% SediMite-C | | | | | | | | 8.23 | X | 24.9 |
| 3% SediMite-A | | | | | | | | 8.02 | X | 24.9 |
| 3% SediMite-B | | | | | | | | 7.76 | X | 24.9 |
| 3% SediMite-C | | | | | | | | 7.48 | X | 24.9 |
| 5% SediMite-A | | | | | | | | 7.43 | X | 24.9 |
| 5% SediMite-B | | | | | | | | 6.83 | X | 24.9 |
| 5% SediMite-C | | | | | | | | 7.23 | X | 24.9 |
| 1% GAC-A | | | | | | | | 7.51 | X | 24.9 |
| 1% GAC-B | | | | | | | | 7.91 | X | 23.3 |
| 1% GAC-C | | | | | | | | 7.89 | X | 23.3 |
| 3% GAC-A | | | | | | | | 6.65 | X | 23.3 |
| 3% GAC-B | | | | | | | | 8.19 | X | 23.3 |
| 3% GAC-C | | | | | | | | 7.91 | X | 23.3 |
| 5% GAC-A | | | | | | | | 8.09 | X | 23.3 |
| 5% GAC-B | | | | | | | | 7.79 | X | 23.3 |
| 5% GAC-C | | | | | | | | 7.62 | X | 23.3 |
| 1% AquaBlok-A | | | | | | | | 7.63 | X | 23.3 |
| 1% AquaBlok-B | | | | | | | | 7.71 | X | 23.3 |
| 1% AquaBlok-C | | | | | | | | 7.56 | X | 22.9 |
| 3% AquaBlok-A | | | | | | | | 7.92 | X | 22.9 |
| 3% AquaBlok-B | | | | | | | | 8.23 | X | 22.9 |
| 3% AquaBlok-C | | | | | | | | 7.87 | X | 22.9 |
| 5% AquaBlok-A | | | | | | | | 8.57 | X | 22.9 |
| 5% AquaBlok-B | | | | | | | | 7.31 | X | 22.9 |
| 5% AquaBlok-C | | | | | | | | 8.25 | X | 22.9 |
| Untreated-A | | | | | | | | 8.3 | X | 22.9 |
| Untreated-B | | | | | | | | 7.52 | X | 22.9 |
| Untreated-C | | | | | | | | 7.93 | X | 22.9 |
| Control-A | | | | | | | | 7.15 | X | 24.9 |
| Control-B | | | | | | | | 7.39 | X | 23.3 |
| Control-C | | | | | | | | 8.22 | X | 22.9 |

Day 21

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | 0 | 0 | 300+ | 80-120 | 8.2 | 774 | 0 | 7.33 | X | 24.9 |
| 1% SediMite-B | 0 | 0 | 300+ | 80-120 | 8.4 | 813 | 0 | 7.79 | X | 24.9 |
| 1% SediMite-C | 0 | 0 | 300+ | 80-120 | 8.2 | 812 | 0 | 7.95 | X | 24.9 |
| 3% SediMite-A | 0 | 0 | 300+ | 80-120 | 8.4 | 782 | 0 | 7.33 | X | 24.9 |
| 3% SediMite-B | 0 | 0 | 300+ | 80-120 | 8.4 | 868 | 0 | 6.69 | X | 24.9 |
| 3% SediMite-C | 0 | 0 | 300+ | 80-120 | 8.4 | 790 | 0 | 8.02 | X | 24.9 |
| 5% SediMite-A | 0 | 0 | 300+ | 80-120 | 8.4 | 821 | 0 | 7.88 | X | 24.9 |
| 5% SediMite-B | 0 | 0 | 300+ | 80-120 | 8.4 | 778 | 0 | 7.06 | X | 24.9 |
| 5% SediMite-C | 0 | 0 | 300+ | 80-120 | 8.2 | 762 | 0 | 7.36 | X | 24.9 |
| 1% GAC-A | 0 | 0 | 300+ | 80-120 | 8 | 734 | 0 | 7.3 | X | 24.9 |
| 1% GAC-B | 0 | 0 | 300+ | 80-120 | 8.2 | 640 | 0 | 7.07 | X | 23.3 |
| 1% GAC-C | 0 | 0 | 300+ | 80-120 | 8.2 | 659 | 0 | 7.22 | X | 23.3 |
| 3% GAC-A | 0 | 0 | 300+ | 80-120 | 8 | 700 | 0 | 7.52 | X | 23.3 |
| 3% GAC-B | 0 | 0 | 300+ | 80-120 | 8.2 | 650 | 0 | 7.08 | X | 23.3 |
| 3% GAC-C | 0 | 0 | 300+ | 80-120 | 8 | 667 | 0 | 7.62 | X | 23.3 |
| 5% GAC-A | 0 | 0 | 300+ | 80-120 | 8 | 651 | 0 | 7.13 | X | 23.3 |
| 5% GAC-B | 0 | 0 | 300+ | 80-120 | 8.4 | 675 | 0 | 7.08 | X | 23.3 |
| 5% GAC-C | 0 | 0 | 300+ | 80-120 | 8.2 | 652 | 0 | 7.36 | X | 23.3 |
| 1% AquaBlok-A | 0 | 0 | 300+ | 80-120 | 8.2 | 674 | 0 | 7.41 | X | 23.3 |
| 1% AquaBlok-B | 0 | 0 | 300+ | 80-120 | 8.2 | 685 | 0 | 7.67 | X | 23.3 |
| 1% AquaBlok-C | 0 | 0 | 300+ | 80-120 | 8.2 | 6770 | 0 | 7.74 | X | 22.9 |
| 3% AquaBlok-A | 0 | 0 | 300+ | 80-120 | 8.4 | 752 | 0 | 7.24 | X | 22.9 |
| 3% AquaBlok-B | 0 | 0 | 300+ | 80-120 | 8.4 | 788 | 0 | 7.01 | X | 22.9 |
| 3% AquaBlok-C | 0 | 0 | 300+ | 80-120 | 8.4 | 785 | 0 | 7.27 | X | 22.9 |
| 5% AquaBlok-A | 0 | 0 | 300+ | 80-120 | 8.4 | 820 | 0 | 6.71 | X | 22.9 |
| 5% AquaBlok-B | 0 | 0 | 300+ | 80-120 | 8.4 | 798 | 0 | 7.52 | X | 22.9 |
| 5% AquaBlok-C | 0 | 0 | 300+ | 80-120 | 8.4 | 784 | 0 | 7.21 | X | 22.9 |
| Untreated-A | 0 | 0 | 300+ | 80-120 | 8 | 738 | 0 | 7.38 | X | 22.9 |
| Untreated-B | 0 | 0 | 300+ | 80-120 | 8.2 | 721 | 0 | 6.98 | X | 22.9 |
| Untreated-C | 0 | 0 | 300+ | 80-120 | 8 | 717 | 0 | 7.84 | X | 22.9 |
| Control-A | 0 | 0 | 300+ | 80-120 | 8.2 | 747 | 0.25 | 7.89 | X | 24.9 |
| Control-B | 0 | 0 | 300+ | 80-120 | 8.2 | 710 | 0 | 7.94 | X | 23.3 |
| Control-C | 0 | 0 | 300+ | 80-120 | 8.2 | 688 | 0 | 7.7 | X | 22.9 |

Day 22

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.8 | X | 24.8 |
| 1% SediMite-B | | | | | | | | 8.1 | X | 24.8 |
| 1% SediMite-C | | | | | | | | 8.09 | X | 24.8 |
| 3% SediMite-A | | | | | | | | 7.45 | X | 24.8 |
| 3% SediMite-B | | | | | | | | 7.88 | X | 24.8 |
| 3% SediMite-C | | | | | | | | 7.86 | X | 24.8 |
| 5% SediMite-A | | | | | | | | 7.03 | X | 24.8 |
| 5% SediMite-B | | | | | | | | 7.73 | X | 24.8 |
| 5% SediMite-C | | | | | | | | 7.24 | X | 24.8 |
| 1% GAC-A | | | | | | | | 7.53 | X | 24.8 |
| 1% GAC-B | | | | | | | | 7.28 | X | 23.8 |
| 1% GAC-C | | | | | | | | 7.16 | X | 23.8 |
| 3% GAC-A | | | | | | | | 7 | X | 23.8 |
| 3% GAC-B | | | | | | | | 7.23 | X | 23.8 |
| 3% GAC-C | | | | | | | | 7.06 | X | 23.8 |
| 5% GAC-A | | | | | | | | 7.91 | X | 23.8 |
| 5% GAC-B | | | | | | | | 8.05 | X | 23.8 |
| 5% GAC-C | | | | | | | | 7.83 | X | 23.8 |
| 1% AquaBlok-A | | | | | | | | 7.85 | X | 23.8 |
| 1% AquaBlok-B | | | | | | | | 7.88 | X | 23.8 |
| 1% AquaBlok-C | | | | | | | | 7.59 | X | 22.9 |
| 3% AquaBlok-A | | | | | | | | 7.93 | X | 22.9 |
| 3% AquaBlok-B | | | | | | | | 8 | X | 22.9 |
| 3% AquaBlok-C | | | | | | | | 7.23 | X | 22.9 |
| 5% AquaBlok-A | | | | | | | | 8.23 | X | 22.9 |
| 5% AquaBlok-B | | | | | | | | 87.45 | X | 22.9 |
| 5% AquaBlok-C | | | | | | | | 7.84 | X | 22.9 |
| Untreated-A | | | | | | | | 8.37 | X | 22.9 |
| Untreated-B | | | | | | | | 7.69 | X | 22.9 |
| Untreated-C | | | | | | | | 7.91 | X | 22.9 |
| Control-A | | | | | | | | 7.56 | X | 24.8 |
| Control-B | | | | | | | | 7.82 | X | 23.8 |
| Control-C | | | | | | | | 7.71 | X | 22.9 |

Day 23

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.96 | X | 24.8 |
| 1% SediMite-B | | | | | | | | 8.1 | X | 24.8 |
| 1% SediMite-C | | | | | | | | 8.05 | X | 24.8 |
| 3% SediMite-A | | | | | | | | 7.48 | X | 24.8 |
| 3% SediMite-B | | | | | | | | 7.9 | X | 24.8 |
| 3% SediMite-C | | | | | | | | 7.58 | X | 24.8 |
| 5% SediMite-A | | | | | | | | 7.84 | X | 24.8 |
| 5% SediMite-B | | | | | | | | 7.2 | X | 24.8 |
| 5% SediMite-C | | | | | | | | 7.79 | X | 24.8 |
| 1% GAC-A | | | | | | | | 7.89 | X | 24.8 |
| 1% GAC-B | | | | | | | | 7.99 | X | 23.6 |
| 1% GAC-C | | | | | | | | 7.24 | X | 23.6 |
| 3% GAC-A | | | | | | | | 7.18 | X | 23.6 |
| 3% GAC-B | | | | | | | | 7.39 | X | 23.6 |
| 3% GAC-C | | | | | | | | 7.37 | X | 23.6 |
| 5% GAC-A | | | | | | | | 7.66 | X | 23.6 |
| 5% GAC-B | | | | | | | | 7.14 | X | 23.6 |
| 5% GAC-C | | | | | | | | 7.48 | X | 23.6 |
| 1% AquaBlok-A | | | | | | | | 7.53 | X | 23.6 |
| 1% AquaBlok-B | | | | | | | | 7.25 | X | 23.6 |
| 1% AquaBlok-C | | | | | | | | 8 | X | 22.9 |
| 3% AquaBlok-A | | | | | | | | 8.2 | X | 22.9 |
| 3% AquaBlok-B | | | | | | | | 7.89 | X | 22.9 |
| 3% AquaBlok-C | | | | | | | | 7.19 | X | 22.9 |
| 5% AquaBlok-A | | | | | | | | 7.82 | X | 22.9 |
| 5% AquaBlok-B | | | | | | | | 7.63 | X | 22.9 |
| 5% AquaBlok-C | | | | | | | | 8.24 | X | 22.9 |
| Untreated-A | | | | | | | | 7.4 | X | 22.9 |
| Untreated-B | | | | | | | | 7.68 | X | 22.9 |
| Untreated-C | | | | | | | | 7.5 | X | 22.9 |
| Control-A | | | | | | | | 7.54 | X | 24.8 |
| Control-B | | | | | | | | 7.98 | X | 23.6 |
| Control-C | | | | | | | | 7.48 | X | 22.9 |

Day 24

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.82 | X | 24.8 |
| 1% SediMite-B | | | | | | | | 7.75 | X | 24.8 |
| 1% SediMite-C | | | | | | | | 7.69 | X | 24.8 |
| 3% SediMite-A | | | | | | | | 7.51 | X | 24.8 |
| 3% SediMite-B | | | | | | | | 7.43 | X | 24.8 |
| 3% SediMite-C | | | | | | | | 7.58 | X | 24.8 |
| 5% SediMite-A | | | | | | | | 7.48 | X | 24.8 |
| 5% SediMite-B | | | | | | | | 7.79 | X | 24.8 |
| 5% SediMite-C | | | | | | | | 7.26 | X | 24.8 |
| 1% GAC-A | | | | | | | | 7.42 | X | 24.8 |
| 1% GAC-B | | | | | | | | 7.62 | X | 23.6 |
| 1% GAC-C | | | | | | | | 7.58 | X | 23.6 |
| 3% GAC-A | | | | | | | | 7.99 | X | 23.6 |
| 3% GAC-B | | | | | | | | 7.77 | X | 23.6 |
| 3% GAC-C | | | | | | | | 7.92 | X | 23.6 |
| 5% GAC-A | | | | | | | | 8.28 | X | 23.6 |
| 5% GAC-B | | | | | | | | 7.92 | X | 23.6 |
| 5% GAC-C | | | | | | | | 7.56 | X | 23.6 |
| 1% AquaBlok-A | | | | | | | | 7.65 | X | 23.6 |
| 1% AquaBlok-B | | | | | | | | 7.7 | X | 23.6 |
| 1% AquaBlok-C | | | | | | | | 7.36 | X | 22.9 |
| 3% AquaBlok-A | | | | | | | | 7.7 | X | 22.9 |
| 3% AquaBlok-B | | | | | | | | 7.34 | X | 22.9 |
| 3% AquaBlok-C | | | | | | | | 7.58 | X | 22.9 |
| 5% AquaBlok-A | | | | | | | | 7.93 | X | 22.9 |
| 5% AquaBlok-B | | | | | | | | 8.11 | X | 22.9 |
| 5% AquaBlok-C | | | | | | | | 7.29 | X | 22.9 |
| Untreated-A | | | | | | | | 7.96 | X | 22.9 |
| Untreated-B | | | | | | | | 7.09 | X | 22.9 |
| Untreated-C | | | | | | | | 7.59 | X | 22.9 |
| Control-A | | | | | | | | 7.62 | X | 24.8 |
| Control-B | | | | | | | | 7.68 | X | 23.6 |
| Control-C | | | | | | | | 7.61 | X | 22.9 |

Day 25

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.98 | X | 24.8 |
| 1% SediMite-B | | | | | | | | 7.99 | X | 24.8 |
| 1% SediMite-C | | | | | | | | 7.77 | X | 24.8 |
| 3% SediMite-A | | | | | | | | 8 | X | 24.8 |
| 3% SediMite-B | | | | | | | | 7 | X | 24.8 |
| 3% SediMite-C | | | | | | | | 7.13 | X | 24.8 |
| 5% SediMite-A | | | | | | | | 6.87 | X | 24.8 |
| 5% SediMite-B | | | | | | | | 7.27 | X | 24.8 |
| 5% SediMite-C | | | | | | | | 7.54 | X | 24.8 |
| 1% GAC-A | | | | | | | | 7.87 | X | 24.8 |
| 1% GAC-B | | | | | | | | 7.23 | X | 23.8 |
| 1% GAC-C | | | | | | | | 8.01 | X | 23.8 |
| 3% GAC-A | | | | | | | | 7.8 | X | 23.8 |
| 3% GAC-B | | | | | | | | 7.77 | X | 23.8 |
| 3% GAC-C | | | | | | | | 7.39 | X | 23.8 |
| 5% GAC-A | | | | | | | | 7.59 | X | 23.8 |
| 5% GAC-B | | | | | | | | 7.4 | X | 23.8 |
| 5% GAC-C | | | | | | | | 7.67 | X | 23.8 |
| 1% AquaBlok-A | | | | | | | | 7.42 | X | 23.8 |
| 1% AquaBlok-B | | | | | | | | 7.43 | X | 23.8 |
| 1% AquaBlok-C | | | | | | | | 7.58 | X | 23 |
| 3% AquaBlok-A | | | | | | | | 7.88 | X | 23 |
| 3% AquaBlok-B | | | | | | | | 7.68 | X | 23 |
| 3% AquaBlok-C | | | | | | | | 7.48 | X | 23 |
| 5% AquaBlok-A | | | | | | | | 7.44 | X | 23 |
| 5% AquaBlok-B | | | | | | | | 7.26 | X | 23 |
| 5% AquaBlok-C | | | | | | | | 7.69 | X | 23 |
| Untreated-A | | | | | | | | 7.79 | X | 23 |
| Untreated-B | | | | | | | | 8.06 | X | 23 |
| Untreated-C | | | | | | | | 7.67 | X | 23 |
| Control-A | | | | | | | | 7.66 | X | 24.8 |
| Control-B | | | | | | | | 7.63 | X | 23.8 |
| Control-C | | | | | | | | 7.554 | X | 23 |

Day 26

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 8.43 | X | 24.8 |
| 1% SediMite-B | | | | | | | | 7.99 | X | 24.8 |
| 1% SediMite-C | | | | | | | | 8.05 | X | 24.8 |
| 3% SediMite-A | | | | | | | | 7.85 | X | 24.8 |
| 3% SediMite-B | | | | | | | | 7.96 | X | 24.8 |
| 3% SediMite-C | | | | | | | | 7.31 | X | 24.8 |
| 5% SediMite-A | | | | | | | | 7.65 | X | 24.8 |
| 5% SediMite-B | | | | | | | | 7.99 | X | 24.8 |
| 5% SediMite-C | | | | | | | | 7.85 | X | 24.8 |
| 1% GAC-A | | | | | | | | 8.02 | X | 24.8 |
| 1% GAC-B | | | | | | | | 7.52 | X | 24.8 |
| 1% GAC-C | | | | | | | | 7.23 | X | 24.8 |
| 3% GAC-A | | | | | | | | 7.89 | X | 24.8 |
| 3% GAC-B | | | | | | | | 8.2 | X | 24.8 |
| 3% GAC-C | | | | | | | | 7.76 | X | 24.8 |
| 5% GAC-A | | | | | | | | 7.93 | X | 24.8 |
| 5% GAC-B | | | | | | | | 7.78 | X | 24.8 |
| 5% GAC-C | | | | | | | | 7.72 | X | 24.8 |
| 1% AquaBlok-A | | | | | | | | 7.71 | X | 24.8 |
| 1% AquaBlok-B | | | | | | | | 7.52 | X | 24.8 |
| 1% AquaBlok-C | | | | | | | | 7.67 | X | 22.9 |
| 3% AquaBlok-A | | | | | | | | 8.11 | X | 22.9 |
| 3% AquaBlok-B | | | | | | | | 8.18 | X | 22.9 |
| 3% AquaBlok-C | | | | | | | | 7.73 | X | 22.9 |
| 5% AquaBlok-A | | | | | | | | 8.07 | X | 22.9 |
| 5% AquaBlok-B | | | | | | | | 7.68 | X | 22.9 |
| 5% AquaBlok-C | | | | | | | | 7.45 | X | 22.9 |
| Untreated-A | | | | | | | | 7.64 | X | 22.9 |
| Untreated-B | | | | | | | | 7.88 | X | 22.9 |
| Untreated-C | | | | | | | | 8.02 | X | 22.9 |
| Control-A | | | | | | | | 7.55 | X | 24.8 |
| Control-B | | | | | | | | 8.08 | X | 24.8 |
| Control-C | | | | | | | | 7.96 | X | 22.9 |

Day 27

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | | | | | | | | 7.6 | X | 24.9 |
| 1% SediMite-B | | | | | | | | 7.84 | X | 24.9 |
| 1% SediMite-C | | | | | | | | 7.25 | X | 24.9 |
| 3% SediMite-A | | | | | | | | 7.44 | X | 24.9 |
| 3% SediMite-B | | | | | | | | 6.89 | X | 24.9 |
| 3% SediMite-C | | | | | | | | 7.27 | X | 24.9 |
| 5% SediMite-A | | | | | | | | 7.02 | X | 24.9 |
| 5% SediMite-B | | | | | | | | 7.81 | X | 24.9 |
| 5% SediMite-C | | | | | | | | 7.25 | X | 24.9 |
| 1% GAC-A | | | | | | | | 6.89 | X | 24.9 |
| 1% GAC-B | | | | | | | | 7.85 | X | 23.8 |
| 1% GAC-C | | | | | | | | 7.82 | X | 23.8 |
| 3% GAC-A | | | | | | | | 7.34 | X | 23.8 |
| 3% GAC-B | | | | | | | | 7.98 | X | 23.8 |
| 3% GAC-C | | | | | | | | 7.67 | X | 23.8 |
| 5% GAC-A | | | | | | | | 7.78 | X | 23.8 |
| 5% GAC-B | | | | | | | | 7.62 | X | 23.8 |
| 5% GAC-C | | | | | | | | 7.58 | X | 23.8 |
| 1% AquaBlok-A | | | | | | | | 7.63 | X | 23.8 |
| 1% AquaBlok-B | | | | | | | | 7.32 | X | 23.8 |
| 1% AquaBlok-C | | | | | | | | 7.69 | X | 22.9 |
| 3% AquaBlok-A | | | | | | | | 7.83 | X | 22.9 |
| 3% AquaBlok-B | | | | | | | | 7.36 | X | 22.9 |
| 3% AquaBlok-C | | | | | | | | 7.36 | X | 22.9 |
| 5% AquaBlok-A | | | | | | | | 7.95 | X | 22.9 |
| 5% AquaBlok-B | | | | | | | | 7.77 | X | 22.9 |
| 5% AquaBlok-C | | | | | | | | 7.98 | X | 22.9 |
| Untreated-A | | | | | | | | 7.9 | X | 22.9 |
| Untreated-B | | | | | | | | 7.71 | X | 22.9 |
| Untreated-C | | | | | | | | 8.03 | X | 22.9 |
| Control-A | | | | | | | | 7.5 | X | 24.9 |
| Control-B | | | | | | | | 7.52 | X | 23.8 |
| Control-C | | | | | | | | 7.42 | X | 22.9 |

Day 28

| Sediment | Total Chlorine | Free Chlorine | Total Hardness | Total Alkalinity | pH | Conductivity | $NH_4^+$ PPM | DO | Water Exchange | Temperature (Celsius) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1% SediMite-A | 0 | 0 | 300+ | 80-120 | 8.4 | 1138 | 0 | 7.51 | | 24.8 |
| 1% SediMite-B | 0 | 0 | 300+ | 80-120 | 8.2 | 1156 | 0 | 7.654 | | 24.8 |
| 1% SediMite-C | 0 | 0 | 300+ | 80-120 | 8.4 | 1142 | 0 | 7.91 | | 24.8 |
| 3% SediMite-A | 0 | 0 | 300+ | 80-120 | 8.4 | 1106 | 0 | 7.99 | | 24.8 |
| 3% SediMite-B | 0 | 0 | 300+ | 80-120 | 8.4 | 1132 | 0 | 7.68 | | 24.8 |
| 3% SediMite-C | 0 | 0 | 300+ | 80-120 | 8.4 | 1137 | 0 | 7.48 | | 24.8 |
| 5% SediMite-A | 0 | 0 | 300+ | 80-120 | 8.8 | 1082 | 0 | 7.75 | | 24.8 |
| 5% SediMite-B | 0 | 0 | 300+ | 80-120 | 8.4 | 1105 | 0 | 7.7 | | 24.8 |
| 5% SediMite-C | 0 | 0 | 300+ | 80-120 | 8.4 | 1109 | 0 | 7.49 | | 24.8 |
| 1% GAC-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1102 | 0 | 6.82 | | 24.8 |
| 1% GAC-B | 0 | 0 | 300+ | 80-120 | 8.2 | 1079 | 0 | 7.69 | | 23.9 |
| 1% GAC-C | 0 | 0 | 300+ | 80-120 | 8.2 | 1073 | 0 | 7.9 | | 23.9 |
| 3% GAC-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1055 | 0 | 7.99 | | 23.9 |
| 3% GAC-B | 0 | 0 | 300+ | 80-120 | 8.2 | 1072 | 0 | 7.92 | | 23.9 |
| 3% GAC-C | 0 | 0 | 300+ | 80-120 | 8.2 | 1069 | 0 | 7.54 | | 23.9 |
| 5% GAC-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1059 | 0 | 7.63 | | 23.9 |
| 5% GAC-B | 0 | 0 | 300+ | 80-120 | 8.2 | 1052 | 0 | 7.85 | | 23.9 |
| 5% GAC-C | 0 | 0 | 300+ | 80-120 | 8 | 1062 | 0 | 7.43 | | 23.9 |
| 1% AquaBlok-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1093 | 0 | 7.12 | | 23.9 |
| 1% AquaBlok-B | 0 | 0 | 300+ | 80-120 | 8 | 1080 | 0 | 6.99 | | 23.9 |
| 1% AquaBlok-C | 0 | 0 | 300+ | 80-120 | 8.2 | 1050 | 0 | 7.23 | | 22.6 |
| 3% AquaBlok-A | 0 | 0 | 300+ | 80-120 | 8.4 | 1092 | 0 | 7.59 | | 22.6 |
| 3% AquaBlok-B | 0 | 0 | 300+ | 80-120 | 8.4 | 1081 | 0 | 7.62 | | 22.6 |
| 3% AquaBlok-C | 0 | 0 | 300+ | 80-120 | 8.4 | 1083 | 0 | 7.87 | | 22.6 |
| 5% AquaBlok-A | 0 | 0 | 300+ | 80-120 | 8 | 1103 | 0 | 7.49 | | 22.6 |
| 5% AquaBlok-B | 0 | 0 | 300+ | 80-120 | 8.4 | 1104 | 0 | 7.76 | | 22.6 |
| 5% AquaBlok-C | 0 | 0 | 300+ | 80-120 | 8.2 | 1129 | 0 | 7.83 | | 22.6 |
| Untreated-A | 0 | 0 | 300+ | 80-120 | 8.8 | 1051 | 0 | 7.95 | | 22.6 |
| Untreated-B | 0 | 0 | 300+ | 80-120 | 8.2 | 1050 | 0 | 8.02 | | 22.6 |
| Untreated-C | 0 | 0 | 300+ | 80-120 | 8.2 | 1045 | 0 | 7.36 | | 22.6 |
| Control-A | 0 | 0 | 300+ | 80-120 | 8.2 | 1091 | 0 | 7.23 | | 24.8 |
| Control-B | 0 | 0 | 300+ | 80-120 | 8 | 1065 | 0 | 7.67 | | 23.9 |
| Control-C | 0 | 0 | 300+ | 80-120 | 8.2 | 1060 | 0 | 7.69 | | 22.6 |

## Appendix 4. PCB homolog concentration in sediment porewater for Figure 3.

PCB homolog concentration in sediment porewater (ng/L)

| | Untreated con | Clean control | GAC 1% | GAC3% | GAC 5% | SM 1% | SM3% | SM5% | AG 1% | AG3% | AG5% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| Mono | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Di | 0.199 | 0.000 | 0.081 | 0.024 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Tri | 1.726 | 0.006 | 1.917 | 1.410 | 1.463 | 0.142 | 0.003 | 0.001 | 0.088 | 0.003 | 0.001 |
| Tetra | 1.044 | 0.048 | 1.263 | 1.043 | 1.232 | 0.635 | 0.237 | 0.072 | 0.310 | 0.015 | 0.006 |
| Penta | 0.283 | 0.030 | 0.263 | 0.250 | 0.281 | 0.204 | 0.145 | 0.071 | 0.165 | 0.024 | 0.010 |
| Hexa | 0.063 | 0.003 | 0.071 | 0.059 | 0.066 | 0.061 | 0.054 | 0.040 | 0.049 | 0.014 | 0.009 |
| Hepta | 0.011 | 0.000 | 0.011 | 0.009 | 0.010 | 0.010 | 0.009 | 0.008 | 0.009 | 0.003 | 0.002 |
| Octa | 0.001 | 0.000 | 0.000 | 0.000 | 0.001 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 |
| Nona | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Deca | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | | | | | | | | |
| TOTAL | 3.33 | 0.09 | 3.61 | 2.80 | 3.05 | 1.05 | 0.45 | 0.19 | 0.62 | 0.06 | 0.03 |

PCB concentration in sediment porewater standard deviations

| | Untreated | Control | GAC 1% | GAC3% | GAC 5% | SM 1% | SM3% | SM5% | AB 1% | AB3% | AB5% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| Mono | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Di | 0.12 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tri | 0.22 | 0.01 | 0.08 | 0.36 | 0.08 | 0.02 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 |
| Tetra | 0.12 | 0.03 | 0.07 | 0.24 | 0.10 | 0.02 | 0.04 | 0.01 | 0.07 | 0.01 | 0.01 |
| Penta | 0.04 | 0.01 | 0.04 | 0.06 | 0.02 | 0.04 | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 |
| Hexa | 0.01 | 0.00 | 0.01 | 0.02 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 |
| Hepta | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Octa | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Nona | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Deca | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | | | | | | | | |
| TOTAL | 0.20 | 0.04 | 0.16 | 0.70 | 0.20 | 0.07 | 0.07 | 0.01 | 0.03 | 0.01 | 0.01 |

## Appendix 5. PCB homolog concentration in worm tissue for Figure 5.

PCB concentration in worm tissue (ng/g)

| | Untreated c | Clean control | GAC 1% | GAC3% | GAC 5% | SM 1% | SM3% | SM5% | AG1% | AG3% | AG5% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| Mono | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Di | 0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tri | 6.24 | 0.00 | 1.49 | 2.76 | 1.59 | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tetra | 18.01 | 0.26 | 10.11 | 14.61 | 10.80 | 4.56 | 0.00 | 0.00 | 0.71 | 0.00 | 0.00 |
| Penta | 25.28 | 1.81 | 17.68 | 25.95 | 22.54 | 19.48 | 6.36 | 3.41 | 8.51 | 0.54 | 0.08 |
| Hexa | 27.95 | 1.83 | 21.70 | 28.18 | 26.13 | 26.57 | 12.42 | 12.47 | 16.66 | 3.51 | 0.46 |
| Hepta | 22.88 | 0.38 | 18.35 | 21.36 | 21.59 | 19.23 | 9.21 | 12.06 | 16.94 | 4.03 | 0.53 |
| Octa | 7.45 | 0.00 | 5.56 | 6.21 | 5.94 | 5.62 | 3.57 | 4.28 | 5.70 | 1.12 | 0.10 |
| Nona | 0.45 | 0.00 | 0.37 | 0.41 | 0.37 | 0.22 | 0.00 | 0.00 | 0.15 | 0.00 | 0.00 |
| Deca | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | | | | | | | | |
| TOTAL | 109.05 | 4.28 | 75.27 | 99.48 | 88.96 | 76.10 | 31.56 | 32.23 | 48.66 | 9.19 | 1.18 |

PCB concentration in worm tissue standard deviations

| | Untreated | Control | GAC 1% | GAC3% | GAC 5% | SM 1% | SM3% | SM5% | AB 1% | AB3% | AB5% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| Mono | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Di | 1.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tri | 3.79 | 0.00 | 0.62 | 1.04 | 1.19 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tetra | 5.63 | 0.44 | 3.10 | 1.99 | 3.18 | 3.42 | 0.00 | 0.00 | 1.22 | 0.00 | 0.00 |
| Penta | 7.54 | 1.46 | 4.72 | 3.03 | 4.89 | 7.14 | 0.78 | 1.00 | 2.48 | 0.50 | 0.15 |
| Hexa | 8.81 | 1.64 | 5.49 | 2.70 | 7.10 | 10.16 | 2.74 | 3.16 | 2.60 | 1.26 | 0.80 |
| Hepta | 7.88 | 0.54 | 4.57 | 1.97 | 6.10 | 7.69 | 2.27 | 2.23 | 1.59 | 1.80 | 0.82 |
| Octa | 0.84 | 0.00 | 1.01 | 0.90 | 1.71 | 1.38 | 0.71 | 1.07 | 0.77 | 0.81 | 0.17 |
| Nona | 0.27 | 0.00 | 0.05 | 0.08 | 0.32 | 0.21 | 0.00 | 0.00 | 0.25 | 0.00 | 0.00 |
| Deca | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | | | | | | | | | |
| TOTAL | 35.08 | 3.64 | 18.61 | 11.44 | 24.12 | 28.77 | 6.23 | 7.34 | 8.22 | 4.24 | 1.94 |

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# Appendix E

# Macroinvertebrate Community Survey Results

# Report on Hester-Dendy Samples for Macroinvertebrates in The Anacostia River Pepco Benning Road Facility, July-August 2020

## Introduction

This reports presents the results of a macroinvertebrate community study conducted in June and July 2020 to determine baseline conditions in the approximately 4.2-acre cove of the Anacostia River, which is located just north of the Site beyond the National Park Service (NPS) Kenilworth Maintenance Yard property (the Cove). This macroinvertebrate community study described herein were conducted as part of the Treatability Study of the Cove to evaluate potential remedial alternatives for sediments in the Waterside Investigation Area.

This macroinvertebrate community study used artificial substrates (i.e., Hester Dendy samplers) deployed in a similar manner as described in the ARSP RI Report (Tetra Tech, 2019). Comparisons are made to the ARSP macroinvertebrate data collected using Hester-Dendy samplers in 2016.

A macroinvertebrate community survey was conducted in 2017 for the Baseline Ecological Risk Assessment (BERA), which was conducted on behalf of the Potomac Electric Power Company and Pepco Energy Services, Inc. (collectively "Pepco") as part of a Remedial Investigation/Feasibility Study (RI/FS) for Pepco's Benning Road facility (AECOM 2020). For the 2017 survey, co-located sediment grab samples were collected for synoptic analyses of benthic macroinvertebrate community, sediment bulk chemistry, and toxicity testing for evaluation in the Waterside Investigation Area BERA. The 2020 community survey data reported herein are also compared to the 2017 community survey data.

## Methods

Hester-Dendy (HD) samplers (Hester and Dendy 1962) were placed at four sites near the Pepco Benning Road facility on the Anacostia River on 16 June 2020. At each site the HD was attached to a concrete block and set on the river bottom. The sites were marked with either a float and line or garden stake.

During an inspection on 14 July 2020 it was determined that two of the original sites (HD-2 and HD-3) would have to be moved due to exposure during very low tides (Figure 1). Coordinates for the final four sites are in Table 1. HD-01 and HD-04 were placed on 16 June 2020 and retrieved on 29 July 2020. HD-02a and HD-03a were placed on 16 July 2020 and retrieved 27 August 2020.

The Hester-Dendy samplers consisted of 14, 75 mm square masonite plates alternating with 25 mm nylon discs (Wildco, Buffalo, New York) for a total sample area of 0.1575 $m^2$. Spacing between plates ranged from 3 mm to 12 mm. All samples were placed in labeled plastic bags, and preserved in 70% ethanol for later laboratory analysis. In Normandeau's biological laboratory the HD's were cleaned and the contents sieved through a 500 µm mesh screen, and the macroinvertebrates sorted, counted and identified to the lowest practical taxonomic level.

Cluster analysis was used to evaluate the similarity among the stations. The analysis groups stations based on similarity of taxa composition and abundance (number of individuals), and graphically provides the results as a dendrogram. Average linkage algorithm and Euclidean distance similarity were used. The analysis was conducted with the statistical package R version 3.6.2 (2019-12-12) (The R Foundation for Statistical Computing at: https://www.r-project.org/foundation/).

**Results and Discussion**

A total of 1,030 individuals representing 36 taxa were collected at the four HD stations in July-August 2020 (Table 2). The number of taxa identified per station ranged from 7 at HD01 and HD02a to 20 at HD04. Abundance ranged from 226 individuals (1,435 individuals/$m^2$) at HD04 to 287 (1,822 individuals/$m^2$) at HD01.

The most abundant taxa from the HD samplers were similar to those found in the Anacostia River and other tidal freshwater systems within Chesapeake Bay (Diaz 1989, 1994, Dauer 1993, McGee et al. 2009, Tetra Tech 2019, Normandeau 2020). Tubificid oligochaetes were the dominant faunal group being 59% of all individuals collected. Chironomid insect larvae and gastropod snails were second and third being 16% and 14% of the fauna, respectively. The other 11% of the fauna was spread over six other major taxons (Table 3). Oligochaetes and chironomids each were represented by six species and snails by six genera (only three could be identified to species).

Cluster analysis (average linkage and Euclidian distance) showed that HD02a and HD03a, located in the Anacostia River, were the most similar of the four stations. Stations HD02a and HD03a were moved from their original locations and sampled a month after HD01 and HD04. Station HD04, located in the cove area next to the Pepco Benning Road facility (Figure 1) was the least similar of the four stations. Station HD01 was in-between, but more similar to HD04. What separated HD04 from the other stations was the high number of the naiad *Dero nivea* and low total number of taxa. Stations HD02a and HD03a grouped together primarily on the higher number of total taxa (Table 2).

Hester-Dendy samplers provide qualitative estimates of community composition based on colonization of species to the sampler's substrate geometry. Given the high levels of turbidity and eurytopic nature of tidal freshwater fauna, the major taxa collected for the ARSP in 2016 and for this study in 2020 were similar (Table 4). Total abundance per HD sampler in 2016 was about twice what it was in 2020. This was due primarily to the dominance of chironomid dipteran larvae in 2016 that were over 50% of all individuals (Tetra Tech 2019). In 2020, tubificid oligochaetes were dominant being almost 60% of all individuals.

The taxonomic resolution of the 2017 Ponar samples collected for the Pepco BERA was the same for this study in 2020 based on HD samples and could be qualitatively compared. The total number of taxa collected by HD in 2020 was basically the same as

the number collected by petite Ponar grab in 2017 within the Pepco Benning Road facility study area (Normandeau 2020). The 2017 Ponar samples found a total of 35 taxa with about 43% shared with the 36 taxa in the 2020 HD samples (Table 5). Between the two sampling years (2017 and 2020) there were a total of 55 taxa collected.

The HD samples in both 2016 and 2020 had a high proportion of epifauna taxa. These were primarily amphipods and gastropods (snails) which contributed about 40% of all individuals in 2016 and about 20% in 2020 (Table 4). Epifauna spend most of their time on the sediment surface and are the primary trophic resource for freshwater fishes found in the tidal freshwater Anacostia River (Murdy and Musick 2013). Stomach contents analysis of centrarchids fishes (pumpkinseed, bluegill, and redbreast sunfish) found they foraged primarily on gastropods, chironomid larvae, and other soft-bodied invertebrates (Tetra Tech, 2019). The cyprinids and fundulids (eastern silvery minnow, mummichog, and banded killifish) foraged predominately on chironomid larvae and other soft-bodied invertebrates (Tetra Tech 2019).

The major taxon composition of macroinvertebrates in the Anacostia River matches the major taxon composition from fish stomach content analysis (Table 4). This points to the broad forage base of the fishes and the important role of macroinvertebrates in trophic transfer up the aquatic food web in the tidal freshwater Anacostia River within the Pepco Benning Road facility study area.

**Conclusions**

Macroinvertebrates that colonized the Hester-Dendy (HD) samplers in 2020 were similar to the taxa found in the 2016 HD samples for the ARSP and also to grab samples from the 2017 Pepco BERA with about 43% of the taxa in common. The principal taxa were oligochaete worms followed by chironomid midge larvae, which are generally tolerant of sediment instability and organic pollutants.

Overall, the macroinvertebrate studies between 2016 and 2020 found the benthos of the tidal freshwater Anacostia River within the Pepco Benning Road facility study area to be typical of tidal freshwater systems with in Chesapeake Bay, which are well adapted to high levels of turbidity and soft unstable substrates, and dominated by oligochaetes and chironomid insect larvae.

Macroinvertebrates in the Anacostia River are an important forage base for fishes and contribute to trophic transfer up the aquatic food web in the tidal freshwater Anacostia River within the Pepco Benning Road facility study area.

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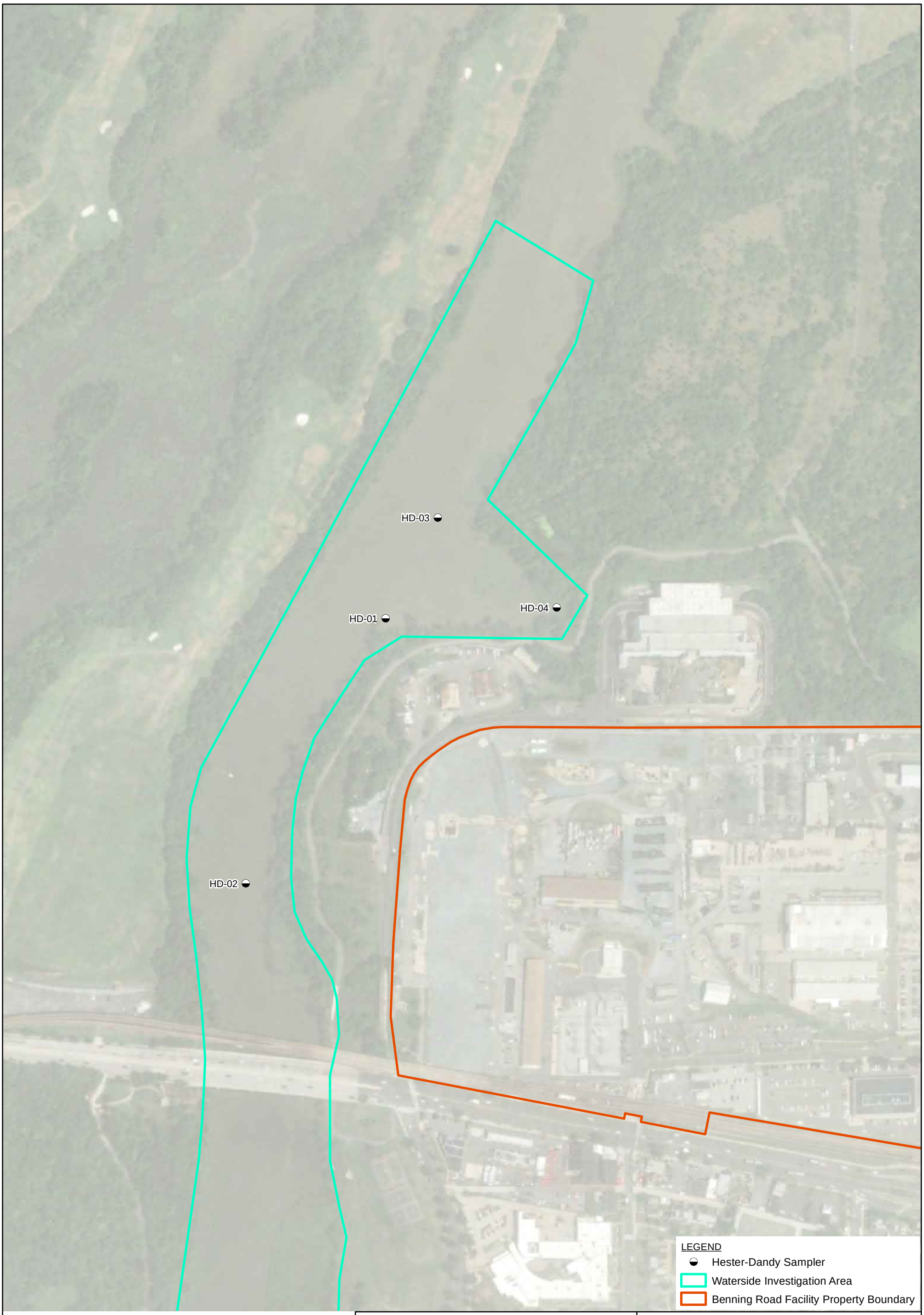


AECOM

0 300 Feet

N W E S

BENNING ROAD FACILITY RI/FS PROJECT
3400 BENNING RD., NE
WASHINGTON, DC 20019

LOCATION OF HESTER-DENDY SAMPLERS FOR MACROINVERTEBRATE SURVEY

| Date: 11/3/2020 | Drawn By: JB | Checked By: SED | | FIGURE 1 |
|---|---|---|---|---|

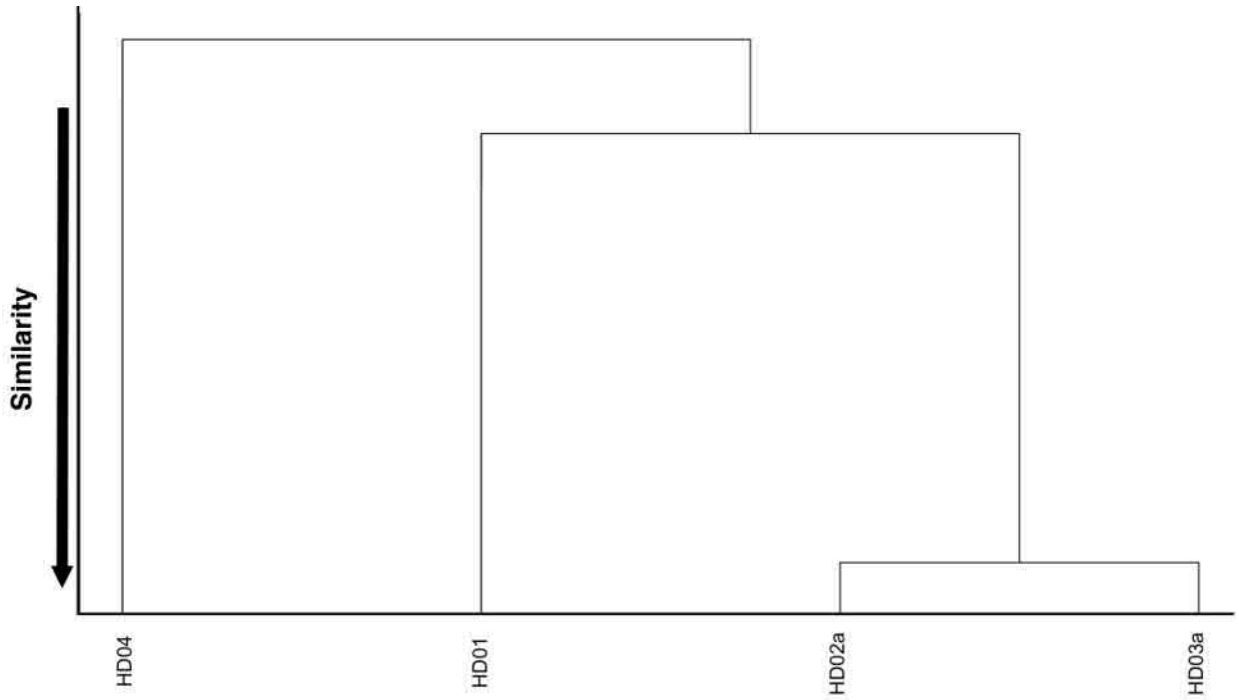


Figure 2. Dendrogram of macroinvertebrate assemblages at the four HD stations on the Anacostia River within the Pepco Benning Road facility study area, July-August 2020. Cluster analysis used average linkage and Euclidian distance.

Table 1. Location of HD samplers. Coordinate system used is US State Plane 1983/ NAD 83/Maryland 1900/ US survey Feet.

| LOCATION ID | Northing | Easting |
|---|---|---|
| HD 01 | 449652.467 | 1323597.122 |
| HD-02a | 448752.357 | 1323121.862 |
| HD-03a | 449995.067 | 1323773.862 |
| HD-04 | 449689.557 | 1324177.982 |

Table 2. Total number of organisms collected at the four HD sample stations in the Anacostia River within the Pepco Benning Road facility study area, July-August 2020.

| Taxon | Common Name | HD 01 | HD 02a | HD 03a | HD 04 | All Stations |
|---|---|---|---|---|---|---|
| Nematoda | round worms | | 2 | | 1 | 3 |
| Tricladida | | | | | | |
| Planariidae | | | | | | |
| *Dugesia tigrina* | flat worm | | | 40 | | 40 |
| Tubificida | | | | | | |
| Naididae | | | | | | |
| *Dero nivea* | naiad worm | 7 | | | 197 | 204 |
| *Dero* sp. | naiad worm | | | 12 | | 12 |
| *Haemonais waldvogeli* | naiad worm | | | 8 | | 8 |
| Tubificinae | | | | | | |
| *Aulodrilus limnobius* | tube worm | | | 12 | | 12 |
| *Branchiura sowerbyi* | tube worm | | 8 | | | 8 |
| *Limnodrilus* sp. | tube worm | | 242 | 92 | | 334 |
| *Limnodrilus cervix* | tube worm | | 22 | | | 22 |
| *Limnodrilus hoffmeisteri* | tube worm | | | 12 | | 12 |
| Hirudinida | | | | | | |
| Erpobdellidae | | | | | | |
| *Erpobdella punctata* | leech | | | 1 | | 1 |
| Glossophoniidae | leech | | | 1 | | 1 |
| *Helobdella elongata* | leech | | 1 | | | 1 |
| Bivalvia | | | | | | |
| Pisidiidae | | | | | | |
| *Pisidium casertanum* | pill clam | | 1 | | | 1 |
| Sphaeridae | | | | | | |
| *Musculium transversum* | fingernail clam | | | 1 | | 1 |
| Gastropoda | | | | | | |
| Amnicolidae | | | | | | |
| *Amnicola* sp. | dusky snail | 1 | | | | 1 |
| Planorbidae | | | | | | |
| *Micromenetus dilatatus* | orb snail | | | | 5 | 5 |
| Physidae | | | | | | |
| *Physella* sp. | pouch snail | 1 | | | 8 | 9 |
| Planorbidae | | | | | | |
| *Micromenetus dilatatus* | orb snail | | | 3 | | 3 |
| Viviparidae | | | | | | |
| *Cipangopaludina japonica* | mystery snail | 119 | | 3 | | 122 |

Table 2 (Continued.)

| Taxon | Common Name | HD 01 | HD 02a | HD 03a | HD 04 | All Stations |
|---|---|---|---|---|---|---|
| Amphipoda | | | | | | |
| Gammaridae | | | | | | |
| *Gammarus fasciatus* | side swimmer | 48 | 1 | 7 | | 56 |
| Isopoda | | | | | | |
| Asellidae | | | | | | |
| *Caecidotea* sp. | water slater | | 1 | 1 | | 2 |
| Odonata | | | | | | |
| Coenagrionidae | | | | | | |
| *Argia* sp. | damselfly | | | 1 | | 1 |
| *Enallagma* sp. | damselfly | 1 | 1 | | | 2 |
| Coleoptera | | | | | | |
| Haliplidae | | | | | | |
| *Peltodytes* sp. | crawling beetle | | | | 1 | 1 |
| Elmidae | | | | | | |
| *Ancyronyx variegatus* | riffle beetle | | 1 | | | 1 |
| *Stenelmis crenata* gr. | riffle beetle | | | 2 | | 2 |
| Diptera | | | | | | |
| Chironomidae | | | | | | |
| Chironomini | midge | | 1 | | | 1 |
| *Chironomus decorus* gr. | midge | | | | 8 | 8 |
| *Dicrotendipes* sp. | midge | | 1 | 7 | | 8 |
| *Dicrotendipes simpsoni* | midge | 110 | | 7 | 12 | 129 |
| *Orthocladius annectens* | midge | | 2 | | | 2 |
| *Polypedilum halterale* gr. | midge | | | 8 | | 8 |
| *Polypedilum scalaenum* gr. | midge | | | 7 | | 7 |
| *Sublettea coffmani* | midge | | 1 | | | 1 |
| *Thienemannimyia* gr. | midge | | | 1 | | 1 |
| Number of Taxa | | 7 | 7 | 14 | 20 | 36 |
| Number of Individuals | | 287 | 232 | 285 | 226 | 1,030 |
| Density (no./m2) | | 1,822 | 1,473 | 1,810 | 1,435 | |

Table 3. Percent contribution of major taxa summed for the four HD sample stations in the Anacostia River within the Pepco Benning Road facility study area, July-August 2020.

| Major Taxon | Common Name | Total Number | % of Total |
|---|---|---|---|
| Tricladida | Flat Worms | 40 | 3.9 |
| Tubificida | True Worms | 612 | 59.4 |
| Hirudinida | Leeches | 3 | 0.3 |
| Bivalvia | Clams | 2 | 0.2 |
| Gastropoda | Snails | 140 | 13.6 |
| Amphipoda & Isopoda | Crustaceans | 58 | 5.6 |
| Insects (Chironomids) | Midges | 165 | 16.0 |
| Insects (not Chironomids) | | 7 | 0.7 |

Table 4. Comparison of macroinvertebrate major taxons collected by Hester-Dendy samplers in 2016 (Tetra Tech 2019) and 2020 (This Study) in the Anacostia River within the Pepco Benning Road facility study area. Major fish forage groups are marked with *

| | 2020 | | | 2016 | | |
|---|---|---|---|---|---|---|
| Major Taxon | 4 Station Total | Per Station Total | Percent Total | 9 Station Total | Per Station Total | Percent Total |
| Tricladida | 40 | 10.0 | 3.9 | 0 | 0.0 | 0.0 |
| Hirudinida | 3 | 0.8 | 0.3 | 40 | 4.4 | 0.7 |
| Tubificida* | 612 | 153.0 | 59.6 | 99 | 11.0 | 1.8 |
| Bivalvia | 2 | 0.5 | 0.2 | 5 | 0.6 | 0.1 |
| Gastropoda* | 140 | 35.0 | 13.6 | 1,222 | 135.8 | 22.0 |
| Isopoda* | 2 | 0.5 | 0.2 | 49 | 5.4 | 0.9 |
| Amphipoda* | 56 | 14.0 | 5.5 | 1,040 | 115.6 | 18.7 |
| Decapoda | 0 | 0.0 | 0.0 | 1 | 0.1 | 0.0 |
| Coleoptera | 4 | 1.0 | 0.4 | 7 | 0.8 | 0.1 |
| Diptera* | 165 | 41.3 | 16.1 | 3,033 | 337.0 | 54.5 |
| Ephemeroptera | 0 | 0.0 | 0.0 | 33 | 3.7 | 0.6 |
| Odonata | 3 | 0.8 | 0.3 | 2 | 0.2 | 0.0 |
| Trichoptera | 0 | 0.0 | 0.0 | 32 | 3.6 | 0.6 |
| Total Average per Station | | 257 | | | 618 | |

Table 5. Taxa present at the 20 grab stations in 2017 (Normandeau 2020) and 4 HD stations in 2020 (This Study) in the Anacostia River within the Pepco Benning Road facility study area.

| Taxon | Common Name | 2017 | 2020 |
|---|---|---|---|
| Nematoda | round worms | x | x |
| Tricladida | | | |
| Planariidae | flat worms | | |
| Dugesia tigrina | | x | x |
| Megadrili | earth worms | x | |
| Tubificida | aquatic worms | | |
| Enchytraeidae | | x | |
| Naididae | | | |
| Dero nivea | | | x |
| Dero sp. | | x | x |
| Haemonais waldvogeli | | | x |
| Tubificinae | | | |
| Aulodrilus pigueti | | x | |
| Aulodrilus limnobius | | x | x |
| Branchiura sowerbyi | | x | x |
| Ilyodrilus templetoni | | x | |
| Limnodrilus sp. | | x | x |
| Limnodrilus claparedeianus | | x | |
| Limnodrilus cervix | | | x |
| Limnodrilus hoffmeisteri | | x | x |
| Limnodrilus udekemianus | | x | |
| Quistadrilus multisetosus | | x | |
| Hirudinida | leechs | | |
| Erpobdellidae | | | |
| Erpobdella punctata | | x | x |
| Glossophoniidae | | | x |
| Helobdella elongata | | x | x |
| Helobdella stagnalis | | x | |
| Batracobdella phalera | | x | |
| Bivalvia | clams | | |
| Corbiculidae | | | |
| Corbicula fluminea | | x | |
| Pisidiidae | | | |
| Pisidium sp. | | x | |
| Pisidium casertanum | | | x |
| Sphaeridae | | | |
| Musculium transversum | | | x |
| Gastropoda | snails | | |
| Amnicolidae | | | |
| Amnicola sp. | | | x |
| Planorbidae | | | |
| Micromenetus dilatatus | | | x |
| Physidae | | | |
| Physella sp. | | | x |
| Planorbidae | | | |
| Micromenetus dilatatus | | | x |
| Viviparidae | | | |
| Cipangopaludina japonica | | x | x |
| Amphipoda | side swimmers | | |
| Gammaridae | | | |
| Gammarus fasciatus | | x | x |
| Isopoda | water slaters | | |
| Asellidae | | | |
| Caecidotea sp. | | x | x |
| Odonata | damselflies | | |
| Coenagrionidae | | | |
| Argia sp. | | | x |
| Enallagma sp. | | | x |
| Coleoptera | beetles | | |
| Haliplidae | | | |
| Peltodytes sp. | | | x |
| Elmidae | | | |
| Ancyronyx variegatus | | | x |
| Stenelmis crenata gr. | | | x |
| Diptera | flies | | |
| Cecidomyiidae | | x | |
| Ceratoponidae | | | |
| Ceratopogon sp. | | x | |
| Bezzia/Palpomyia | | x | |
| Chironomidae | | | |
| Chironomini | | | x |
| Chironomus decorus gr. | | x | x |
| Cladopelma sp. | | x | |
| Cryptochironomus fulvus gr. | | x | |
| Dicrotendipes sp. | | | x |
| Dicrotendipes simpsoni | | | x |
| Orthocladius annectens | | x | x |
| Phaenopsectra obediens gr. | | x | |
| Polypedilum flavum | | x | |
| Polypedilum halterale gr. | | x | x |
| Polypedilum scalaenum gr. | | | x |
| Procladius sp. | | x | |
| Sublettea coffmani | | | x |
| Tanypus neopunctipennis | | x | |
| Thienemannimyia gr. | | | x |

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# Appendix F

# Anacostia River Native and Amended Sediment Erodibility Study

# ANACOSTIA RIVER NATIVE AND AMENDED SEDIMENT ERODIBILITY STUDY

# Pepco Benning Road Power Plant
# Washington, DC

*Prepared for*

AECOM

*Prepared by*

integral consulting inc.

200 Washington Street
Suite 201
Santa Cruz, CA 95060

November 2020

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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| GAC | granular activated carbon |
| Integral | Integral Consulting Inc. |
| LISST | laser *in situ* scattering and transmissometry |
| SEDflume | sediment-erosion-at-depth flume |

# EXECUTIVE SUMMARY

Contaminated sediment mobilization and redistribution may be mitigated using an amendment of activated carbon applied to the sediment surface. The effectiveness of the amendment is in part regulated by the changes in critical shear stress for erosion and subsequent erosion rates of the mixture of native and amendment material. The introduction of activated carbon for contaminant sequestration can be achieved using a variety of products, including SediMite™ and AquaGate®+PAC, or emplacing a sand cap containing a percentage of granular activated carbon (GAC). A SEDflume study was conducted to measure erosion rates at a range of applied shear stresses, determine critical shear stresses for erosion, and quantify physical properties of native sediment and sediment treated with three amendment materials. Quantifying the response of the bed to erosive forces in the presence and absence of the potential amendments can support design decisions regarding site response and help identify an appropriate mitigation solution.

This report provides a summary of the SEDflume analysis conducted on the native and amended sediment cores. A field campaign conducted in June 2020 resulted in the collection of 20 sediment samples for treating, testing, and archiving. Samples were safely shipped to Integral's SEDflume laboratory in Santa Cruz, California, where they were treated with a range of amendment alternatives or securely stored for the possibility of supplemental testing. Laboratory measurements of erosion rates at applied shear stresses, ranging from 0.1 to 12.8 Pa, were used to determine the critical shear stress for erosion at multiple depth intervals within each sediment core. The critical shear stress for erosion governs the threshold at which sediment may become mobilized from the sediment bed. Coefficients relating shear stress and erosion rate based on a power law regression are also provided. Additional data of grain size distributions via laser diffraction and bulk density measurements at each test interval were collected to characterize the physical characteristics of the sediment bed. Observations during testing note the presence of biota such as bivalves and invertebrate worms, which can mix sediment by burrowing and transport the amendment material into the sediment bed.

# 1 INTRODUCTION TO SEDFLUME

Analysis of sediment erosion properties using SEDflume can provide quantitative information on sediment bed characteristics. The sediment bed is governed by a complex and dynamically linked relationship between biologic activity, hydrodynamic forcing, and the physical and chemical makeup of the bed. SEDflume provides measurements of erosion rates to inform how the bedded sediment responds to controlled, measurable hydrodynamic flow. This section outlines collection efforts at the site, an overview of SEDflume setup and processing procedures, and methods used for determining the critical shear stresses for erosion. Supplemental information regarding physical characteristic analyses including particle size distribution and bulk density is also provided.

## 1.1 SAMPLE COLLECTION

A field campaign to collect 20 sediment cores for SEDflume analysis was conducted from June 1 to 4, 2020. Locations and approximate depths of each sampling location are provided in Appendix A, Sampling Locations. Collection took place with the support of Normandeau Associates staff, and the work was overseen by AECOM personnel. Sample collection consisted of retrieving five cores each from two locations in Anacostia River cove and two cores each from five locations at the river channel outside the cove. Cores were collected from every location except for R6-03SF, which is located in the mid-channel. The sediment was too stiff for core collection so an alternate site, SED9.5BSF, was chosen. The collection of cores in the cove required light hammering due to the clay layer underlying the sandy silt observed near the surface at SED7DSF and the presence of coarse sandy gravel with wood and leaf debris at SED7ESF. The cores located near the bank of the river were generally hand pushed whereas the cores closer to the center of the channel required light hammering from a posthole hammer. Collected samples were securely packaged and shipped from the Pepco Benning Facility to the Santa Cruz laboratory on May 20, 2020 and delivered on June 1, 2020. A summary table of collection times, sampling locations, and number of attempts for a successful recovery is provided in Table 1.

Table 1. Sample collection summary.

| Sample ID | Date | Time (EST) | Lat. | Long. | Attempts |
|---|---|---|---|---|---|
| R6-03SF-A | 6/2/2020 | 11:00 | 38.9010 | -76.9614 | 13 |
| R6-03SF-B | 6/2/2020 | 12:45 | 38.9010 | -76.9614 | |
| SED5CSF-A | 6/1/2020 | 15:55 | 38.9005 | -76.9613 | 2 |
| SED5CSF-B | 6/1/2020 | 16:22 | 38.9005 | -76.9613 | 3 |
| SED6C/RC-04SF-A | 6/2/2020 | 9:52 | 38.9011 | -76.9607 | 1 |
| SED6C/RC-04SF-B | 6/2/2020 | 10:26 | 38.9011 | -76.9607 | 1 |

| Sample ID | Date | Time (EST) | Lat. | Long. | Attempts |
|---|---|---|---|---|---|
| SED7BSF-A | 6/2/2020 | 12:55 | 38.9019 | -76.9602 | 2 |
| SED7BSF-B | 6/2/2020 | 14:01 | 38.9019 | -76.9602 | 2 |
| SED7DSF-A | 6/2/2020 | 17:15 | 38.9017 | -76.9597 | 4 |
| SED7DSF-B | 6/3/2020 | 17:30 | 38.9017 | -76.9597 | 1 |
| SED7DSF-C | 6/3/2020 | 17:54 | 38.9017 | -76.9597 | 1 |
| SED7DSF-D | 6/3/2020 | 18:12 | 38.9017 | -76.9597 | 1 |
| SED7DSF-E | 6/3/2020 | 18:40 | 38.9017 | -76.9597 | 1 |
| SED7ESF-A | 6/3/2020 | 8:46 | 38.9015 | -76.9592 | 1 |
| SED7ESF-B | 6/3/2020 | 9:30 | 38.9015 | -76.9592 | 2 |
| SED7ESF-C | 6/4/2020 | 8:25 | 38.9015 | -76.9592 | 1 |
| SED7ESF-D | 6/4/2020 | 8:53 | 38.9015 | -76.9592 | 1 |
| SED7ESF-E | 6/4/2020 | 9:27 | 38.9015 | -76.9592 | 1 |
| SED8CSF-A | 6/2/2020 | 15:05 | 38.9025 | -76.9597 | 3 |
| SED8CSF-B | 6/2/2020 | 15:40 | 38.9025 | -76.9597 | 1 |
| SED9.5BSF-A | 6/3/2020 | 15:55 | 38.9040 | -76.9591 | 1 |
| SED9.5BSF-B | 6/3/2020 | 16:29 | 38.9040 | -76.9591 | 2 |

## 1.2 EXPERIMENTAL PROCEDURES

Detailed descriptions of SEDflume analysis and its application are given in McNeil et al. (1996), Jepsen et al. (1997), and Roberts et al. (1998). The following sections supplement those reports with a general description of the SEDflume analysis procedures used in this study. Supplemental analyses of grain size distribution using laser diffraction (ISO Standard 13-320), water content (ASTM Method D2216-05), and bulk density (ASTM Method D2216-10; Håkanson and Jansson 1983), and loss on ignition (ASTM Method D7348-13) were also implemented at the beginning of each depth interval to quantify physical sediment characteristics.

A subset of samples was identified and treated with three different activated carbon treatments. The use of commercially available products of AquaGate®+PAC, SediMite™, and an appropriate mixture of non-cohesive aggregate and activated carbon. A summary of application procedures for each amendment type is outlined in Section 1.3.

### 1.2.1 SEDflume Setup

A SEDflume is essentially a straight flume with an open bottom section through which a rectangular, cross-sectional core barrel containing sediment can be inserted (Figure 1). The main components of the flume are the water tank, pump, inlet flow converter (which establishes uniform, fully developed, turbulent flow), the main duct, test section, hydraulic jack, and the core barrel containing sediment (Figure 2). The core barrel, test section, flow inlet section, and

flow exit section are made of transparent acrylic so that the sediment–water interactions can be observed visually. The core barrel has a rectangular cross section, 10 by 15 cm, and a length of 60 cm.

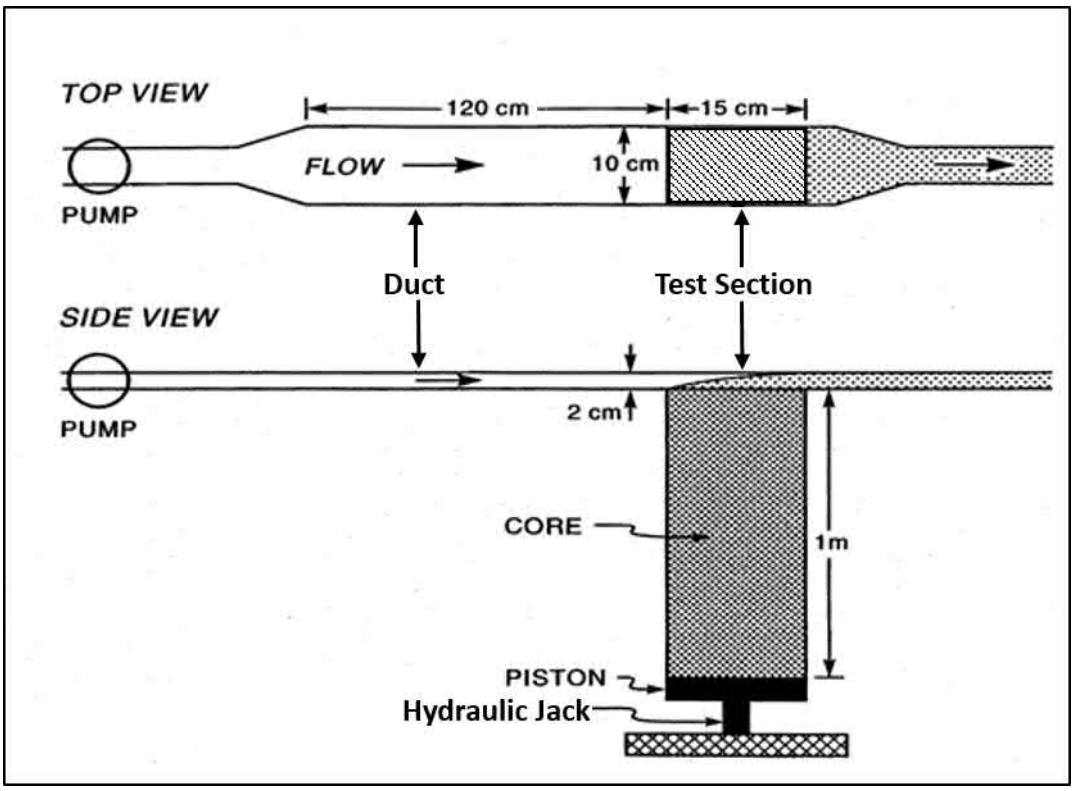


Figure 1. Schematic of SEDflume setup showing top and side views.

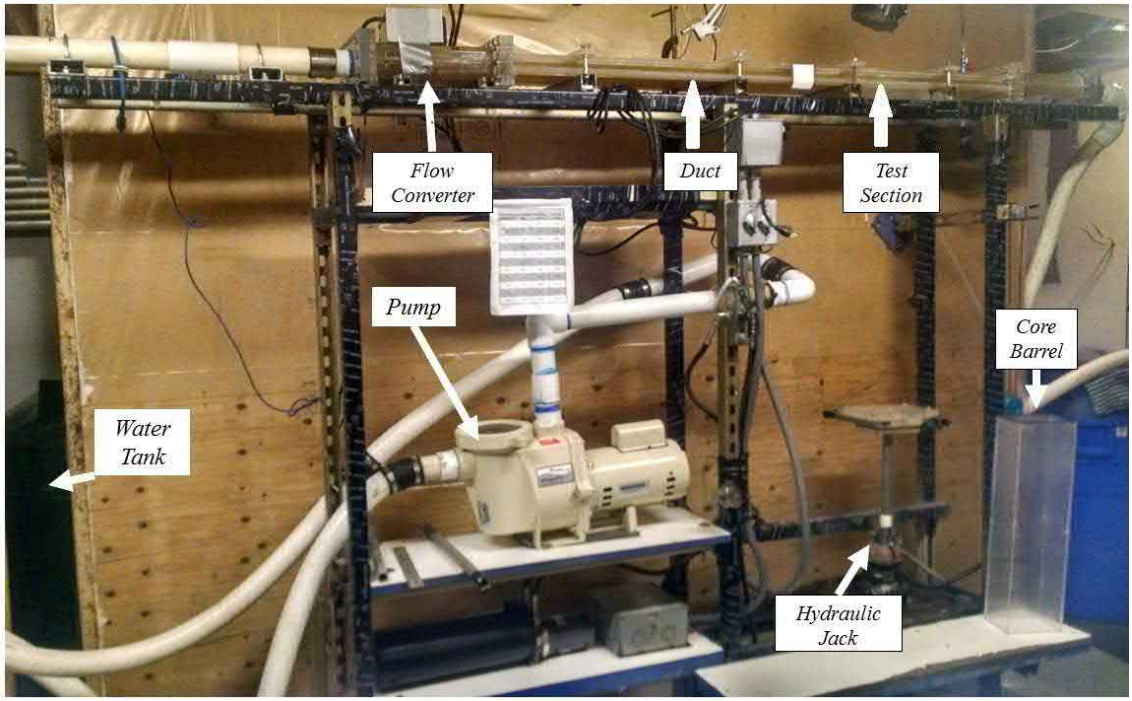


Figure 2. SEDflume in Integral's laboratory, Santa Cruz, California.

Water is pumped from a 300-gallon storage tank into a 5-cm-diameter pipe and then through the flow converter into the main duct. The duct is rectangular, 2 cm in height, 10 cm in width, and 120 cm in length; it connects to the test section, which has the same cross-sectional area (2 by 10 cm) and is 15 cm long. The flow converter changes the shape of the cross section from circular to rectangular while maintaining a constant cross-sectional area. A ball valve regulates the amount of water entering the flume so that the flow rates can be carefully controlled. The flume also has a small valve immediately downstream from the test section that opens to the atmosphere, preventing a pressure vacuum from forming and enhancing erosion.

At the start of each test, a core barrel and the sediment it contains are inserted into the bottom of the test section. The sediment surface is aligned with the bottom of the SEDflume channel. When fully enclosed, water is forced through the duct and test section over the surface of the sediment. The shear stress produced by the flow and imparted on the particles causes sediment erosion. As the sediment on the surface of the core erodes, the remaining sediment in the core barrel is slowly moved upward so that the sediment–water interface remains level with the bottom of the flume.

An operator moves the sediment upward using a hydraulically controlled piston that is inside the core barrel. The jack is driven by a release of pressure that is regulated with a switch and valve system. In this manner, the sediment can be raised and made level with the bottom of the test section. The movement of the hydraulic jack can be controlled for measurable increments as small as 0.5 mm.

### 1.2.2 Measurements of Sediment Erosion Rate

At the start of each core analysis, an initial reference measurement is made of the starting core length. The flume is then operated at a specific flow rate corresponding to a particular shear stress, and sediment is eroded (McNeil et al. 1996; Jepsen et al. 1997). As erosion proceeds, the core is raised if needed to keep the core's surface level with the bottom of the flume. This process is continued until either 10 minutes has elapsed or the core has been raised roughly 2 cm. The erosion rate for the applied shear stress is then calculated as:

$$E = \frac{\Delta z}{T} \qquad [1]$$

Where:

$E$ = erosion rate
$\Delta z$ = distance that sediment is raised during a particular measurement period
$T$ = measurement time interval

Because material is eroded and the core structure is broken down, repetitive erosion measurements at a given depth are not possible. The following procedures were performed for all Anacostia River cores to best determine the erosion rate at several different shear stresses and depths using only one core:

1. The core was inserted into the bottom of the SEDflume test section.
2. The total length of sediment in the core barrel was measured and recorded.
3. Two 5 g (approximately) subsamples of sediment from the core surface were collected using a clean spoon to be used in particle size distribution and bulk density measurements. Sediment sampling was constrained to the downstream (relative to the SEDflume flow direction) end of the sediment surface, to minimize potential scour effects.
4. Shear stresses (from low to high) were applied to the core's surface, and sediment erosion was measured (if it occurred; 0.5 mm of erosion in 10 minutes was considered quantifiable). Applied shear stresses started at 0.1 Pa and were sequentially doubled until a given shear stress caused approximately 2 cm of erosion in 20 seconds, or a maximum of 5 cm was eroded in a given interval (defined as a continuous succession of increasing shear stress cycles where erosion is measured). Each shear stress cycle was applied for a minimum of 20 seconds and a maximum of 10 minutes. To the extent possible, no more than 2 cm of sediment was allowed to erode at a single shear stress.
5. Once the threshold—2 cm of erosion in 20 seconds, or a maximum of 5 cm of erosion in a single interval—was met, a new depth interval was started and the testing process of

Steps 3 and 4 were repeated.[1] Depth intervals are defined as a set of applied shears with an associated set of aliquots for physical parameter testing. Also, if the sediment composition changed noticeably in appearance or erosion properties, the depth interval was stopped, sediment subsamples were collected, and a new depth interval was started (Step 4).

6. Where practicable, at least three and up to five depth intervals were tested per core.

#### 1.2.2.1 Determination of Critical Shear Stress

The critical shear stress of a sediment bed, $\tau_{cr}$, is the applied shear stress at which sediment motion is initiated. In this study, it is operationally defined as the shear stress required to produce 0.001 mm of erosion in 1 second. This represents an erosion rate of $10^{-4}$ cm/s, or roughly 1 mm of erosion in 15 minutes.[2]

Because it is difficult to measure $\tau_{cr}$ exactly at the $10^{-4}$ cm/s threshold, erosion was instead measured over a range of shear stresses designed to bracket the initiation of erosion threshold. The highest applied shear stress where erosion *did not occur* is defined by $\tau_{no}$, and $\tau_{first}$ is the lowest applied shear stress where erosion *did occur*.

Using the measured erosion rate data in each depth interval, a power law regression analysis (described below) was employed to determine the shear stress ($\tau_{power}$) required to cause $10^{-4}$ cm/s of erosion. Assimilating the bracketed shear stress values ($\tau_0$ and $\tau_1$) and $\tau_{power}$, the critical shear stress of each interval was then chosen according to the following criteria (where $\tau_{no}$ and $\tau_{first}$ are determined directly from the SEDflume measurements):

- If $\tau_{no} \leq \tau_{power} \leq \tau_{first}$, then $\tau_{power}$ was the selected critical shear stress, $\tau_{cr}$, for the interval.
- If $\tau_{no} \geq \tau_{power}$, then $\tau_{no}$ was the selected critical shear stress for the interval.
- If $\tau_{power} \geq \tau_{first}$, then $\tau_{first}$ was the selected critical shear stress for the interval.
- If $r^2 < r^2_{thresh}$, then $\tau_{linear}$ was selected as the critical shear stress for the interval.

The $\tau_{cr}$ criteria allowed for selection of critical shear stresses using the power law results where the regression analysis was in agreement with measured erosion rate data.

[1] If a particular shear stress did not cause any observable erosion over a 10-minute period for consecutive depth intervals (e.g., less than 0.5 mm eroded in 10 minutes), that shear stress was removed from subsequent testing cycles; higher shear stresses were added, as appropriate, to attempt to measure at least three erosion rates.

[2] Though other definitions of critical shear stress erosion rate thresholds can be argued (and considered valid), the value of $10^{-4}$ cm/s threshold is used here for consistency with previous SEDflume efforts and to keep testing times to a practical duration.

#### 1.2.2.2 Power Law Regression

Following the methods of Roberts et al. (1998), the erosion rates for sediment can be approximated by the power law regression:

$$E = A\tau^n\rho^m \quad [2]$$

Where:

| | | |
|---|---|---|
| $E$ | = | erosion rate (cm/s) |
| $\tau$ | = | bed shear stress (Pa) |
| $\rho$ | = | sediment bulk density (g/cm$^3$) |
| $A$, $n$, and $m$ | = | constants that depend on sediment characteristics |

The equation used in the present analysis is an abbreviated variation of Equation 2:

$$E = A\tau^n \quad [3]$$

where the constant $A$ is a function of the sediment bulk density and other difficult properties to measure, such as sediment geochemistry and biological influences. The variation of erosion rate with density typically cannot be determined for field sediment because of natural variation in other sediment properties (e.g., mineralogy, particle size, and electrochemical forces). Therefore, the density term from the equation above, for a particular interval of approximately constant density, is incorporated into the constant $A$.

For each depth interval, the measured erosion rates ($E$) and applied shear stresses ($\tau$) were used to determine the $A$ and $n$ constants that provide a best-fit power law curve to the data for that interval. Good regression fits of these parameters, where they existed, were then used to estimate the critical shear stress for the respective intervals. A coefficient of determination ($r^2$) of 0.70 was used as a threshold criterion for acceptance.[3]

### 1.2.3 Measurement of Sediment Bulk Properties

In addition to the measurement of erosion rates during the analysis, sediment subsamples were periodically collected at depth to determine the water content, particle size distribution, and loss on ignition of the sediment in each core. Water content and loss on ignition values are incorporated into the determination of wet and dry bulk densities. Subsamples were collected

[3]The coefficient of determination, $r^2$, is a function of Pearson's $r$, which is a measure of the linear dependence (correlation) between two variables. Pearson's $r$ can be positive or negative, and is a value between –1 and +1. The more common usage of the correlation coefficient is to square Pearson's $r$, $r^2$, and report that value.

from the undisturbed core surface (prior to analysis) as well as the sediment surface at the beginning of each subsequent depth interval. Samples were weighed, dried, and reweighed to determine the mass of water. Samples were then subjected to sufficient heat to ignite the organic material to determine loss on ignition.

Wet bulk density was determined by first measuring the wet and dry weight of the collected sample to determine the water content (*W)* as described in Håkanson and Jansson (1983):

$$W = \frac{M_w - M_d}{M_w} * 100\% \qquad [4]$$

Where:

| | | |
|---|---|---|
| $W$ | = | water content |
| $M_w$ | = | wet weight of sample |
| $M_d$ | = | dry weight of sample |

For the determination of wet bulk density, water content in this formulation have value from 0 to 1. Wet bulk densities were then determined using the method described by Håkanson and Jansson (1983):

$$\rho_{wet} = \frac{(100 * \rho_s)}{100 + (W + IG)(\rho_s - 1)} \qquad [5]$$

Where

| | | |
|---|---|---|
| $\rho_w$ | = | density of water (assumed 1 g/cm$^3$) |
| $\rho_s$ | = | density of sediment particle (assumed 2.65 g/cm$^3$) |
| IG | = | % loss on ignition based on wet weight (ASTM Method D7348-13) |

Dry bulk densities are based on the moisture content (*MC*) defined by ASTM D2216-05 as

$$MC = \frac{M_w - M_d}{M_d} \qquad [6]$$

This formulation represents the ratio of water to solids. Using the moisture content value, dry bulk densities were calculated using the following relationship:

$$\rho_{dry} = \frac{\rho_{wet}}{1 + MC} \quad [7]$$

Particle size distributions were determined using laser diffraction analysis at Integral's laboratory in Santa Cruz, California. Sediment samples were screened with a 2,000-µm sieve to remove large pieces of organic material, dispersed in water, and inserted into a Beckman Coulter LS 13-320 laser diffraction analyzer. Each sample was analyzed in three 1-minute intervals, and the results of the three analyses were averaged automatically by the instrument. The Beckman Coulter LS 13-320 measures volumetric distribution of particles from 0.4 to 2,000 µm. Caution should be taken when comparing directly to more narrowly ranged instruments such as a laser *in situ* scattering and transmissometry (LISST) instrument or traditional mass-based sieve and hydrometer studies. A LISST measures aggregated particles in the natural environment and has detection ranges different from that of the desktop instrument. Use of the Beckman Coulter involves the disaggregation of particles so any direct comparison must consider these factors.

The relationships used to determine sediment bulk properties are summarized in Table 2.

Table 2. Parameters measured and computed during the SEDflume analysis

| Measurement | Definition | Units | Detection Limit | Internal Consistency |
|---|---|---|---|---|
| Water Content | $W = \frac{M_w - M_d}{M_w}$ | Dimensionless | 0.001 g in sample weight ranging from 1 to 50 g | 0 < W < 1 |
| Moisture Content | $MC = \frac{M_w - M_d}{M_d}$ | Dimensionless | 0.001 g in sample weight ranging from 1 to 50 g | |
| Wet Bulk Density | $\rho_{wet} = \frac{(100 * \rho_s)}{100 + (W + IG)(\rho_s - 1)}$ | g/cm$^3$ | 0.001 g in sample weight ranging from 1 to 50 g | $\rho_w < \rho_{wet} < 2.6\ \rho_w$ |
| Dry Bulk Density | $\rho_{dry} = \frac{\rho_{wet}}{1 + MC}$ | g/cm$^3$ | 0.001 g in sample weight ranging from 1 to 50 g | $\rho_w < \rho_{dry} < \rho_{wet}$ |
| Particle size distribution below 2,000 µm | Distribution of particle sizes by volume percentage using laser diffraction | µm | Method specific | 1 µm < grain size < 2,000 µm |

Notes:
$M_w$ = wet weight of sample
$M_d$ = dry weight of sample

ρw = density of water (assumed 1 g/cm$^3$)
ρs = density of sediment particle (assumed 2.65 g/cm$^3$)

## 1.2.4 Intra- and Intercore Comparisons

A potentially useful method of comparing sediment characteristics at a specific site is to compute intracore and intercore erosion rates. This method provides a means to quantify the erosion rates within each core (intracore) as well as the general erosion rates of the cores across the site (intercore).

### 1.2.4.1 Intracore Erosion Rate Ratios

Once the power law regression *A* and *n* coefficients for each depth interval within an individual core were known, the *interval-average* erosion rate for the core was determined using Equation 3 and the logarithmic average of the range of shear stresses tested in the SEDflume analysis.[4] C*ore-average* erosion rates were then computed by:

1. Log-averaging the *A* coefficient values from each depth interval within a core to arrive at an average *A* coefficient for the entire core
2. Arithmetically averaging the *n* coefficient values from each depth interval within a core to arrive at an average *n* coefficient for the entire core
3. Solving for the core-average erosion rate following Equation 3 and using the log-average of the range of shear stresses applied to the depth interval (1.13 Pa).

An intracore erosion-rate-ratio was then defined by dividing the interval-average erosion rate by the core-average erosion rate, providing a quantitative estimation of the relative erosion susceptibility of each depth interval. This method highlights the core intervals that are more or less susceptible to erosion within a particular core, and may indicate layering within a core.

### 1.2.4.2 Intercore Erosion Rate Ratios

Two additional ratios were computed to evaluate large-scale spatial erosion susceptibility. An intercore erosion rate ratio was computed by comparing the individual core-average erosion rate with a site-wide average erosion rate. The site-wide average erosion rate was computed by:

1. Log-averaging the core-average *A* coefficient values from each core to arrive at an average *A* coefficient for the entire site

[4]The shear stress values averaged were 0.1, 0.2, 0.4, 0.8, 1.6, 3.2, 6.4, and 12.8 Pa. The logarithmic average of these, used to compute erosion rate ratios, was 1.13 Pa.

2. Arithmetically averaging the core-average *n* coefficient values in each core to arrive at an average *n* coefficient for the entire site
3. Solving for the site-wide average erosion rate following Equation 3 and using the log-average of the range of shear stresses (1.13 Pa).

The intercore erosion rate ratio computed in this manner provided a qualitative estimate of the erosion susceptibility of each core (as a whole) relative to other cores in the site, potentially indicating spatial locations that are more or less susceptible to erosion than other locations.

## 1.3 APPLICATION OF AMENDMENT MATERIAL

Three types of amendment defined by the design team were constructed in the laboratory and applied to the native material. Five sediment cores were collected at SED7DSF and SED7ESF, labeled A through E to reduce any variation within native material during comparison. Each Sample A was set aside for archiving and supplemental testing. Samples SED7DSF-B and SED7ESF-B were analyzed without any amendment as a control sample. Samples C, D, and E were treated with SediMite™, AquaGate®+PAC, and a sand cap media+GAC, respectively (Figure 3). SediMite™ consists of uniformly sized pellets containing carbon. AquaGate®+PAC is applied as a white aggregate coated with powdered active carbon. Both SediMite™ and AquaGate®+PAC were supplied by their respective manufacturer to specifications provided by the design team. When placed in water both products result in a viscous slurry that can be mixed and transported.

The concentration of carbon in the SediMite™ and AquaGate®+PAC amendments was varied between the two sites by altering the thickness of the initial material placement. Thicknesses of each amendment layer were computed to achieve a desired 25 percent overplacement of carbon to the 10 x 15 cm exposed sediment surface. To simulate the long-term effects of biotic activity and mixing, the amendment material was mixed into the top 1 in. (2.5 cm) of native sediment. The thickness of mixed layer was determined from sediment profile imagery survey results indicating a 2.5 cm bioactive zone (R.J. Diaz & Daughters 2017).

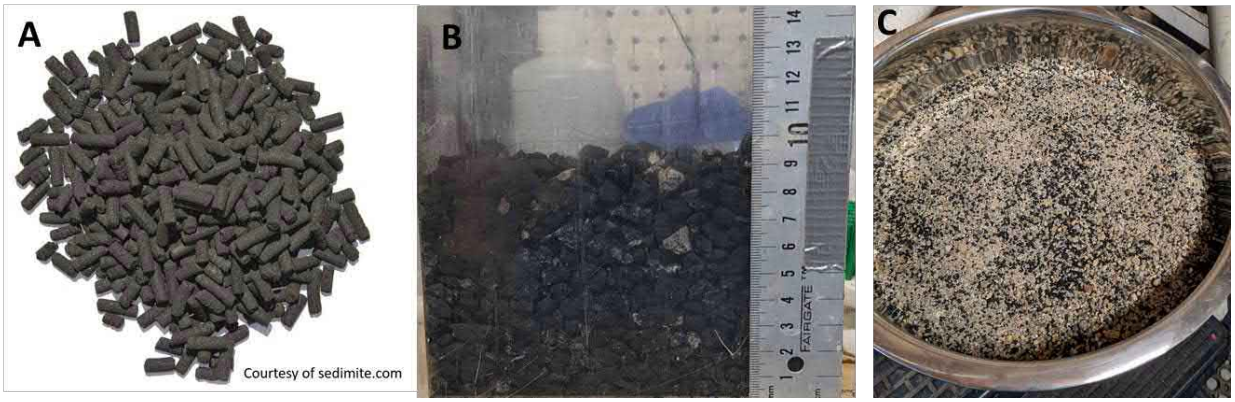


Figure 3. A) Sedimite™ B) Aquagate®+PAC C) Sand+GAC prior to application to sediment surface.

Table 3. Amendment applications to selected Anacostia River cove samples.

| Sampling Location | Sample Designation | Amendment Types | Concentration of Activated Carbon | Thickness (cm) |
|---|---|---|---|---|
| SED7DSF | A | Kept in Reserve | N/A | N/A |
| | B | None | N/A | N/A |
| | C | SediMite™ | 3% carbon | 0.9 |
| | D | AquaGate®+PAC | 5% carbon | 8.7 |
| | E | Sand/Cap Media+GAC | 5% GAC | 15.2 |
| SED7ESF | A | Kept in Reserve | N/A | N/A |
| | B | None | N/A | N/A |
| | C | SediMite™ | 5% carbon | 1.1 |
| | D | AquaGate®+PAC | 3% carbon | 3.9 |
| | E | Sand/Cap Media+GAC | 5% GAC | 15.2 |

Application of the amendments followed suggested guidelines agreed upon by team members from AECOM and the University of Maryland, Baltimore County. To develop and apply the correct amendment material thickness of SediMite™ and AquaGate®+PAC to the C and D samples (Figure 4, Figure 5), the following steps were taken:

1. Mock the amendment layer thickness in an empty core barrel to ensure the proper amount of material is applied to the sediment surface.

2. Transfer correct volume to beaker for pouring into sediment core.
3. Pour the amendment material in even sweeping motions across the surface. All cores were stored with at least 15 cm of water and treatments were applied while the water was present.

   Note: the AquaGate®+PAC and SediMite™ material causes the water to go cloudy, highlighting the importance of step 1.
4. Allow the material to settle until the interface between amendment and water is visible.
5. If required, measure and mark 2.5 cm (1 in.) below the amendment to sediment interface. Using a stirring instrument, mix the sediment and amendment material to the desired depth. The water will turn cloudy so the technician must be careful to mix the whole area to the desired depth.
6. Allow to settle for 28 days.

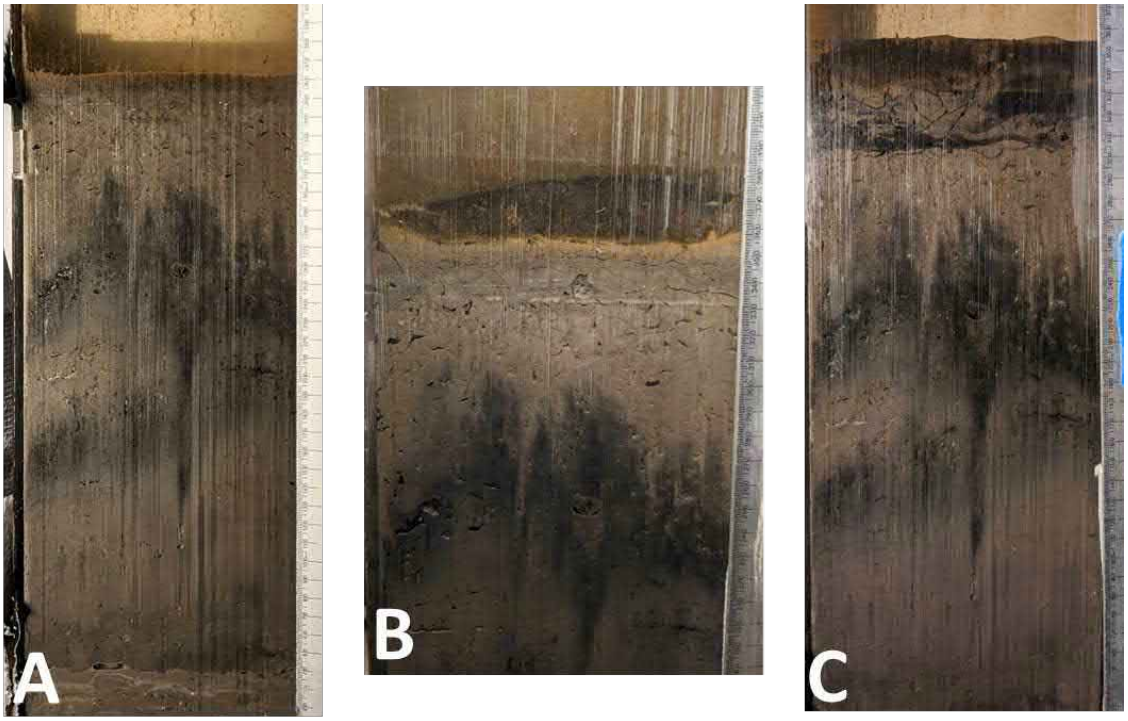


Figure 4. A) Sample SED7DSF-C prior to amendment application. B) Application of 0.86 cm (0.34 in.) SediMite™ amendment. C) Sample after mixing amendment material into upper 2.5 cm (1 in.) and settling for 28 days.

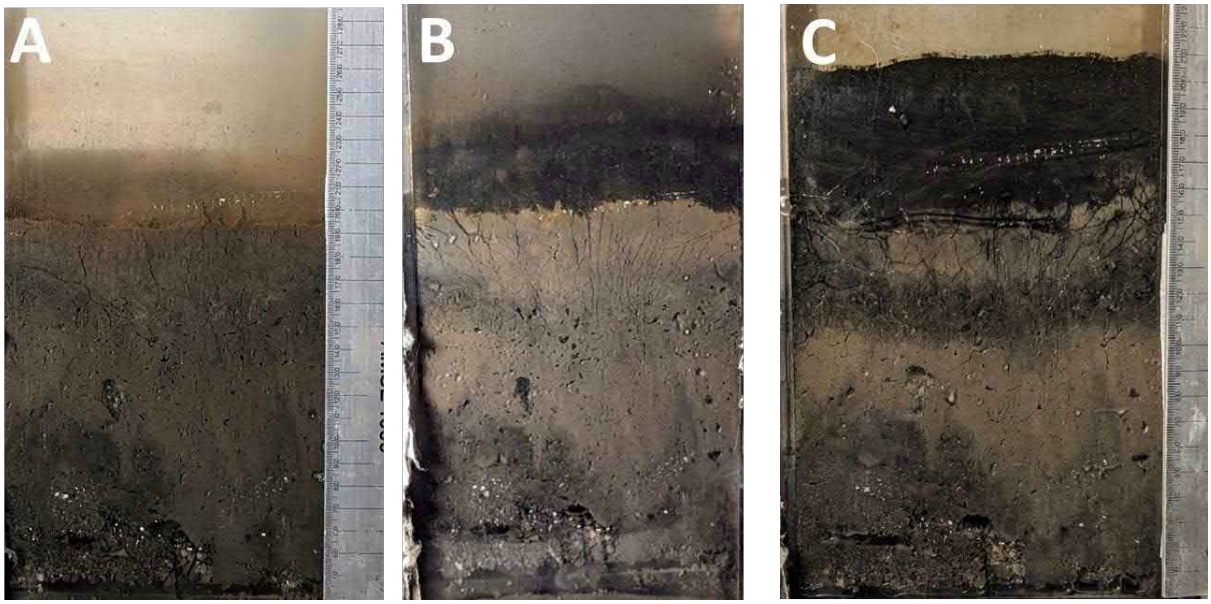


Figure 5. A) SED7ESF-D prior to amendment application. B) Application of 4.04 cm (1.55 in.) AquaGate®+PAC amendment. C) Sample after mixing into upper 2.5 cm (1 in.) and settling for 28 days.

When the 6-in. sand cap was placed on Samples SED7DSF-E and SED7ESF-E, the following steps were used to determine a 5 percent by weight contribution (Figure 6). The aggregate material was sourced from a local construction supply company, GraniteRock, which met requested design specifications outlined in Appendix C. Unlike the SediMite™ and AquaGate®+PAC amendments, the sand+ GAC was not mixed into the bioactive zone of bedded sediment.

1. Determine mass of 6 in. of sand.
2. Calculate 5 percent of that mass.
3. Remove 5 percent of sand.
4. Add GAC to achieve original weight of 6 in. of sand.

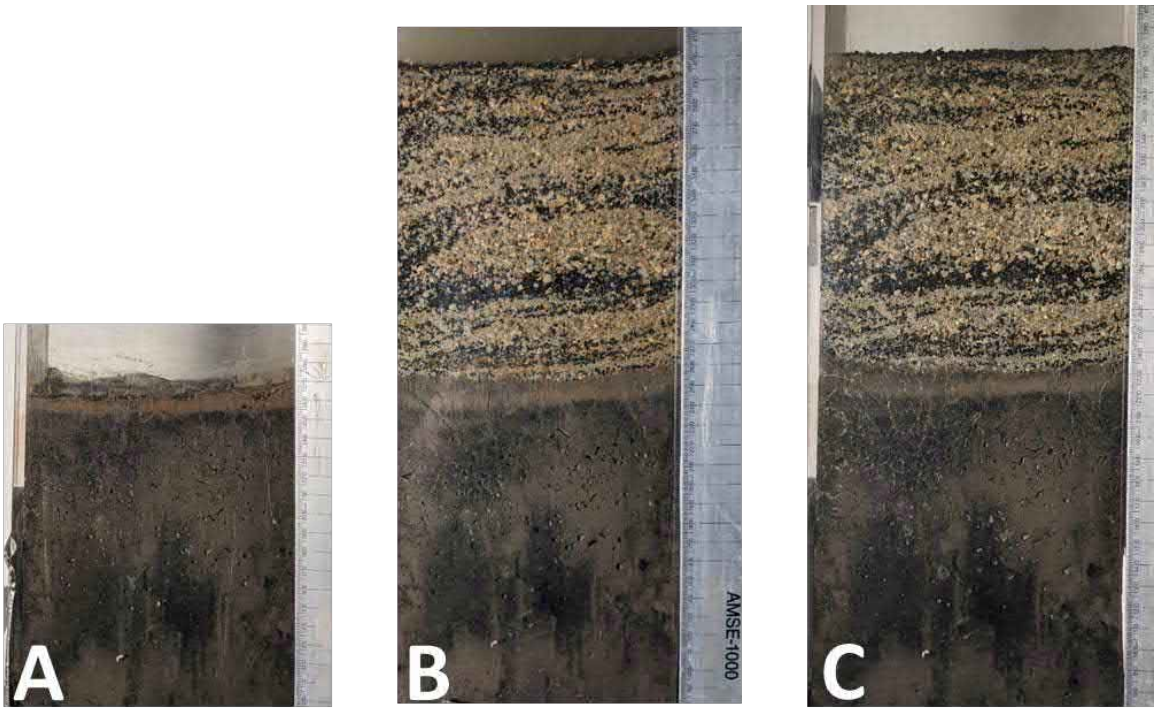


Figure 6. A) Sample SED7ESF-E prior to application of amendment. B) Placement of Sand+GAC amendment. C) Sample after settling for 28 days.

# 2 RESULTS

This section of the report contains both qualitative and quantitative findings from the SEDflume analysis. Results are presented on a core-by-core basis. Appendix B contains additional grain size statistics and distribution plots for each interval in each core. Raw data from the grain size analysis can be provided upon request.

Results are presented both graphically and in tabular form. Erosion rates at applied shear stresses are presented with depths adjacent to an image of the core. The indication of no erosion measured refers to the thin dotted line at $10^{-5}$ cm/s. As described in the previous sections, values of $10^{-4}$ cm/s are defined as the erosion rate related to minimum measurable critical shear stress. Tables of the derived constants $A$ and $n$ are provided with the $r^2$ value. Mean values are also presented over the entire core. The coefficient $A$ is log-averaged because of the order of magnitude variations that can occur within its values, while $n$ is arithmetically averaged because its range is narrow. Values of $n$ typically range from 1 to 4, and values outside of this range may also indicate a spurious data fit.

A table of particle sizes, wet and dry bulk densities, loss on ignition, greatest applied shear with no erosion measured, first applied shear with erosion measured, and power law derived critical shear is also presented. The power law-derived critical shear was determined using the $A$ and $n$ values from tables also provided for each sample. A column labeled "Final Critical Shear" provides the recommended value based on the criteria outlined in Section 1.2.2.1.

Qualitative descriptions of the type of erosion are included when necessary to highlight changing processes. Erosion of the core surface generally occurs via individual particles becoming suspended, aggregated clumps of sediment (clump erosion) breaking off causing an uneven surface, or sheets of material peeling off the sediment bed. Noncohesive materials such as sands, in the absence of any organic matter acting as a "glue," will erode as individual particles. Fine-grained sediment such as silts and clays can bind together and will move together under an applied shear. Cracks and uneven sedimentation may cause this bonded sediment to move together as clumps. Sediment deposited cyclically may deposit in uniform layers and can erode as thin sheets.

## 2.1 SED5CSF

### 2.1.1 SED5CSF-A

A 30 cm length of sediment was collected from SED5CSF located south of the river cove. SED5CSF-A is archived in the Santa Cruz SEDflume laboratory if supplemental testing is required.



Figure 7. Photograph of Sample SED5CSF-A.

### 2.1.2 SED5CSF-B

SED5CSF-B was collected in the Anacostia River south of the river cove. The 27.5 cm of recovered material consisted of brown clayey silt in the upper 11 cm and contained worm burrows and evidence of bioturbation (Figure 8). Unconsolidated sediment at the surface had an orange hue. Sediment 11 cm below the surface included pockets of dark gray and black silt with less evidence of biologic activity. A 2 cm layer of cavities and plant detritus was contained in brown silt 20 cm below the surface.

Analysis included the application of shear stresses ranging from 0.1 to 6.4 Pa in four test intervals (Figure 8). Erosion occurred in multiple forms ranging from individual grains moving

in bedload to clouds of suspended particles. As depth increased, erosion processes transitioned to more clumps and pieces of the surface 1–2 mm in diameter eroding unevenly across the surface. At the surface, an exposed bivalve approximately 1 cm in diameter attempted to bury itself and more worms and their burrow structures were exposed throughout the upper 12 cm. Erosion rates generally decreased with depth resulting in the upper half of the analyzed sample being more erodible than the third and fourth test intervals located 7.8 to 17 cm below the surface (Figure 9).

Wet and dry bulk densities generally increased with depth while grain size distributions were primarily silt with varying proportions of clay and fine sand (Figure 10, Table 4). The fifth data point of physical parameters was taken at the end of the fourth interval. Critical shear stresses determined from the erosion rate data ranged from 0.18 Pa at the surface to 0.68 Pa in the fourth test interval (Table 4). Power law regression parameters presented in Table 5 can be used to relate erosion rate with applied shear stress and values fall within expected ranges for cohesive material.

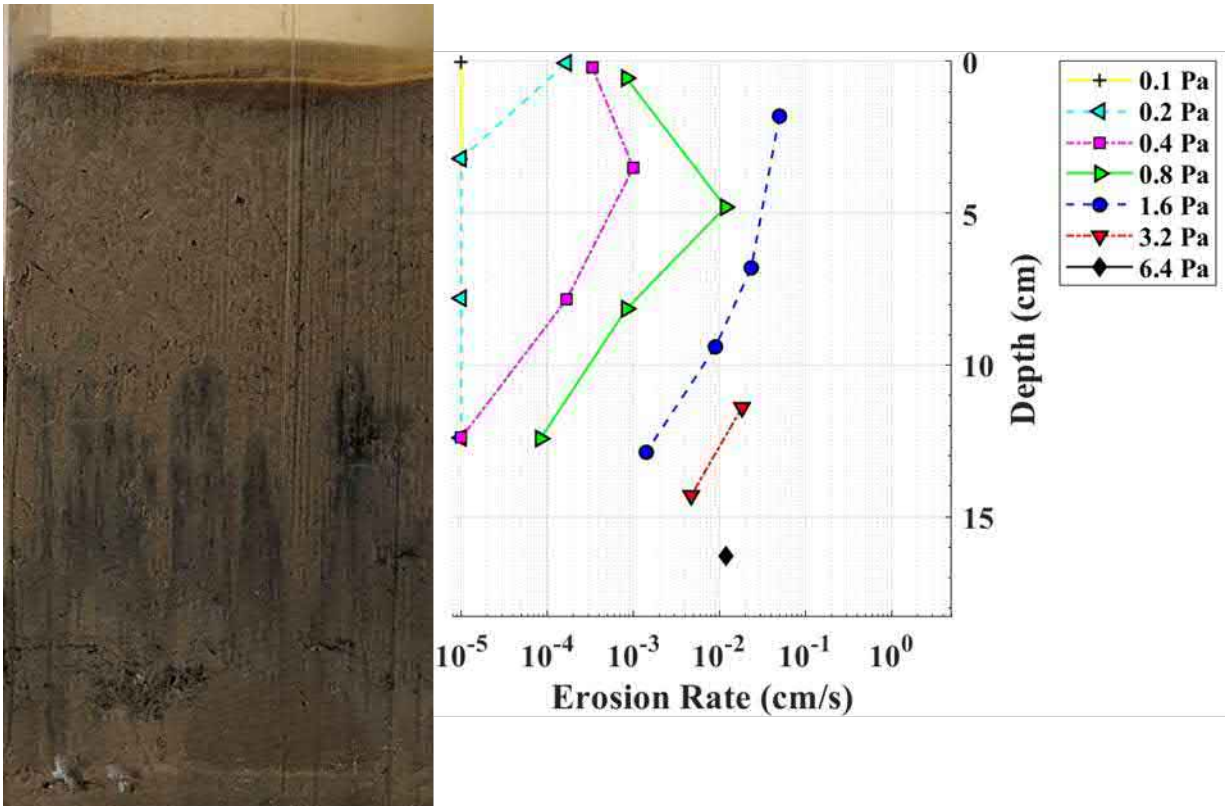


Figure 8. Photograph of Sample SED5CSF-B with applied shear and measured erosion rates with depth.

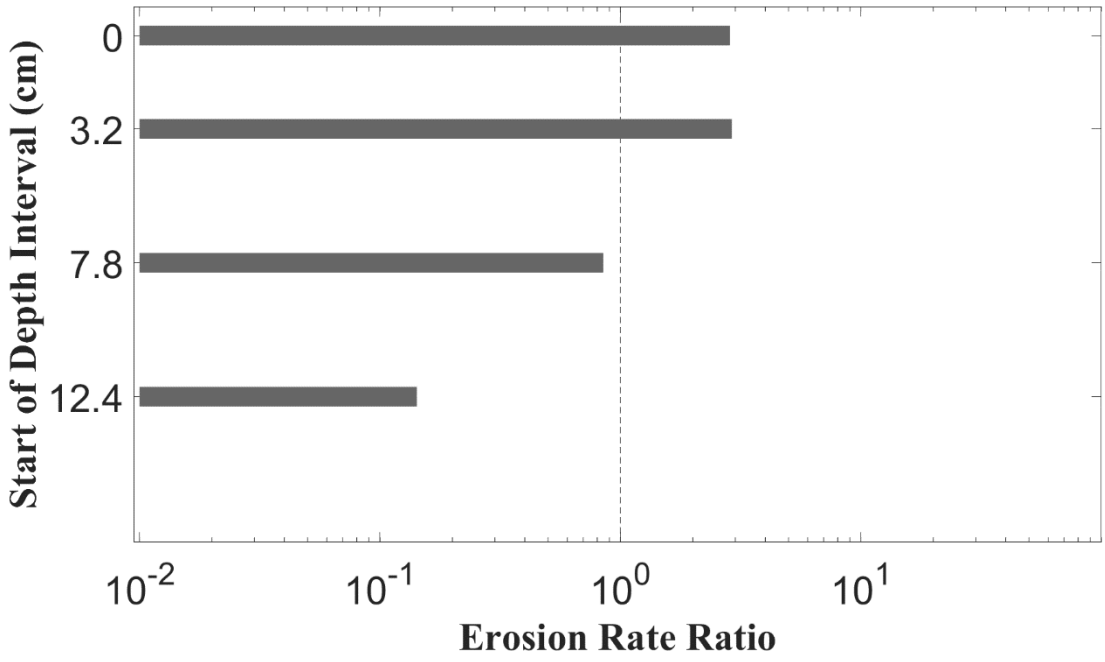


Figure 9. Intracore erosion rate ratios in SED5CSF-B.

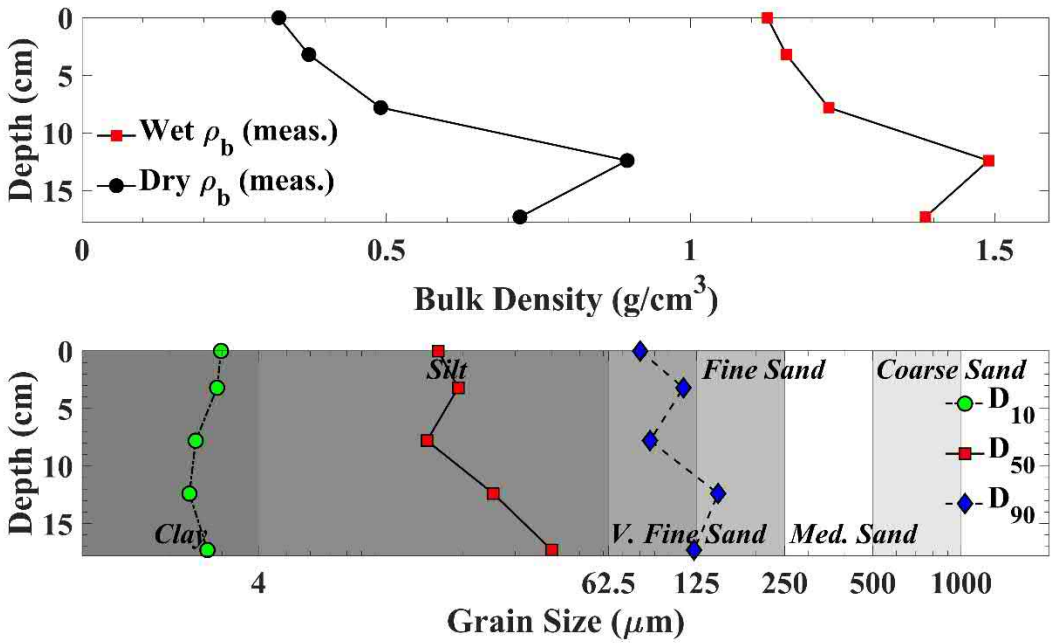


Figure 10. Bulk properties of SED5CSF-B.

Table 4. Physical parameters and derived critical shear stresses for SED5CSF-B.

| Sample Depth (cm) | Median Grain Size (µm) | Wet Bulk Density ($g/cm^3$) | Dry Bulk Density ($g/cm^3$) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 16.42 | 1.13 | 0.32 | 10.7% | 0.10 | 0.20 | 0.16 | 0.19 | 0.19 |
| 3.2 | 19.21 | 1.16 | 0.37 | 10.3% | 0.20 | 0.40 | 0.23 | 0.20 | 0.20 |
| 7.8 | 15.02 | 1.23 | 0.49 | 10.2% | 0.20 | 0.40 | 0.32 | 0.31 | 0.31 |
| 12.4 | 25.31 | 1.49 | 0.90 | 7.3% | 0.40 | 0.80 | 0.80 | 0.68 | 0.68 |
| 17.3 | 40.06 | 1.39 | 0.72 | 7.2% | --- | --- | --- | --- | --- |
| Mean | 23.20 | 1.28 | 0.56 | 9.1% | 0.23 | 0.45 | 0.38 | 0.35 | 0.35 |

Table 5. Power law fit parameters for SED5CSF-B.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 2.8 | 2.17E-05 | 2.39 | 0.85 |
| 2 | 3.2 | 7.8 | 1.45E-05 | 2.87 | 0.94 |
| 3 | 7.8 | 12.4 | 6.40E-06 | 2.40 | 0.98 |
| 4 | 12.4 | 17.3 | 1.15E-06 | 2.32 | 0.93 |

## 2.2 SED6C/RC-04SF

### 2.2.1 SED6C/RC-04SF-A

A 30 cm sample of sediment was collected from SED6C/RC-04SF located downstream of the river cove. SED6C/RC-04SF-A is archived in the Santa Cruz SEDflume laboratory in case supplemental testing is required.



Figure 11. Photograph of Sample SED6C/RC-04SF-A.

### 2.2.2 SED6C/RC-04SF-B

A 30.5 cm sample of sediment was collected at SED6C/RC-04SF-B located downriver from the cove (Figure 12). Unconsolidated, "fluffy" orange material peppered the olive gray sediment. The sample contained evidence of bivalves and invertebrate burrows in the upper 7 cm. The bivalve shown in Figure 13 was removed from the initial sediment surface prior to application of any shear stresses. Other specimens of similar size and shape were observed in samples throughout the site. Intermixed with the olive gray silt were pockets of leaves, twigs, and woody material. A single finger bandage was also discovered 25 cm from the surface during testing.

Five shear stress test intervals were conducted on SED6C/RC-04SF-B with applied stresses ranging from 0.1 to 6.4 Pa. The resulting erosion rates varied with depth (Figure 12). Intracore erosion rates indicate a reduction in erodibility 10 cm from the surface that coincides with analyst observations of less invertebrate and bivalve activity (Figure 14). Erosion occurred in multiple forms ranging from loose particles steadily suspending and eroding away to pieces of the surface 1–2 mm breaking away.

Critical shear stresses ranged from 0.11 Pa at the surface to a maximum of 0.57 Pa in the third interval 10 cm below. The down-core pattern of computed critical shear stresses corresponds to an increase of bulk density and decrease in loss on ignition values (Figure 15, Table 6). Grain size distributions indicate predominantly silt with a consistent presence of fine sand. The fifth interval was stopped prior to a third measurable erosion rate due to leakage through the organic laden material. The lack of a third measured shear stress meant that a power law regression was not appropriate and the analysis defaulted to a linear value for critical shear stress noted in Table 6 and Table 7. Coefficients relating shear stress and erosion rates for each interval are presented in Table 7 and fall within the typical range of values for cohesive material.

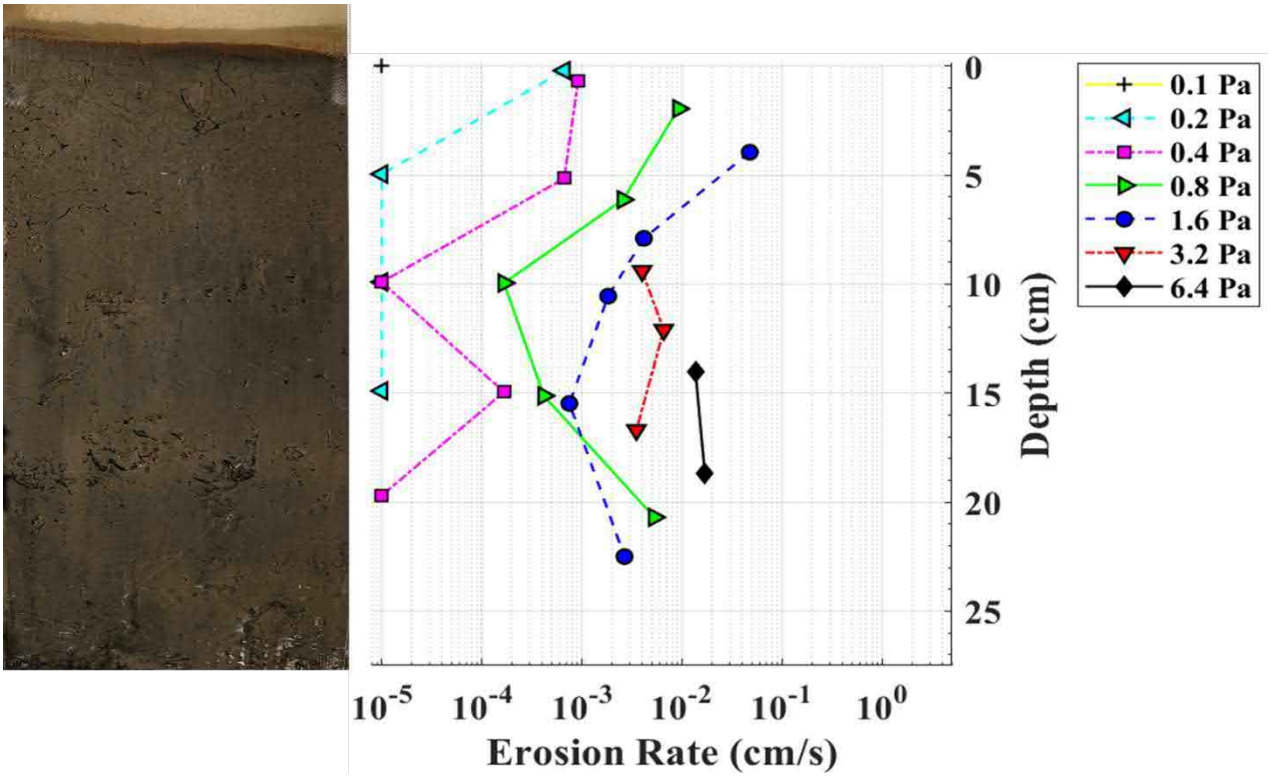


Figure 12. Photograph of Sample SED6C/RC-04SF-B with applied shear and measured erosion rates with depth.



Figure 13. Bivalve removed from surface of SED6C/RC-04SF-B. Scale is in centimeters.

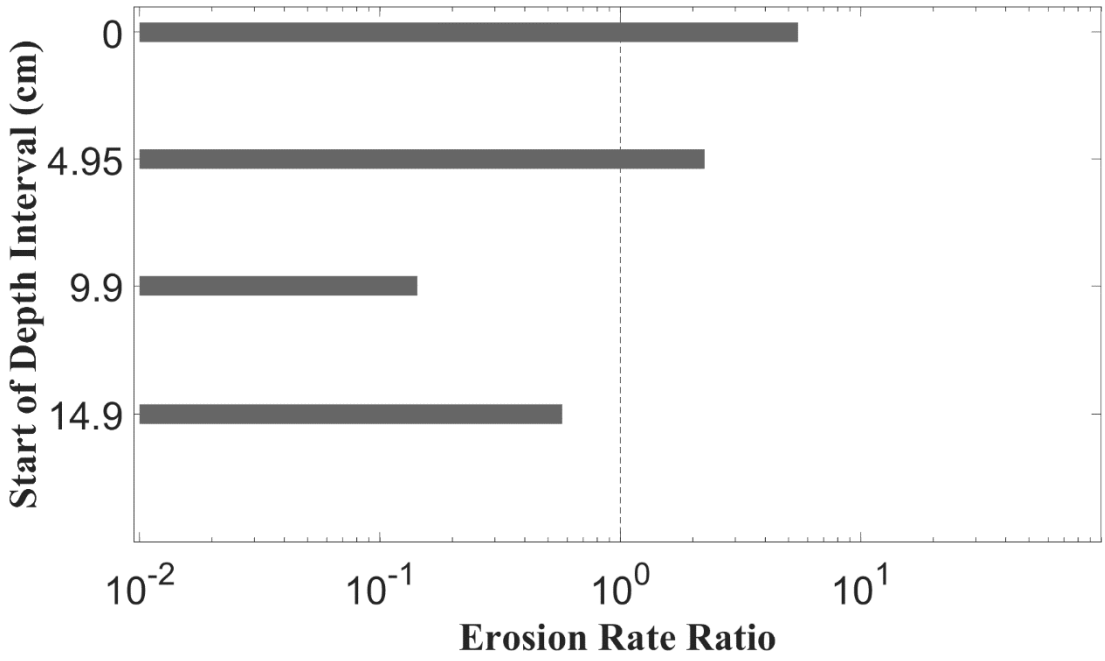


Figure 14. Intracore erosion rate ratios in SED6C/RC-04SF-B.

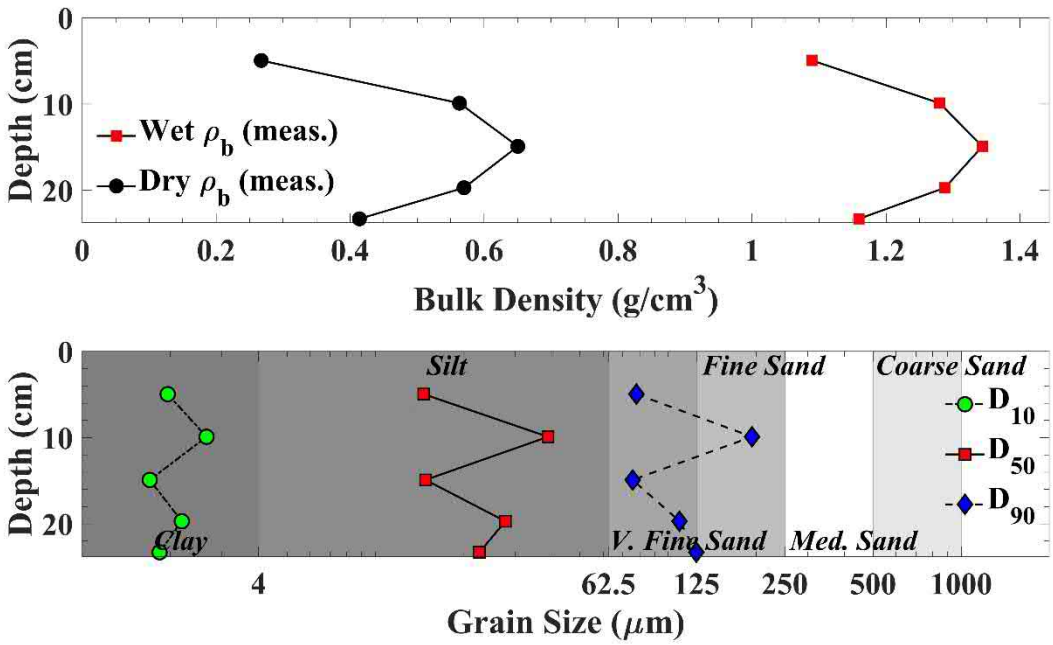


Figure 15. Bulk properties of SED6C/RC-04SF-B.

Table 6. Physical parameters and derived critical shear stresses for SED6C/RC-04SF-B.

| Sample Depth (cm) | Median Grain Size (µm) | Wet Bulk Density (g/cm$^3$) | Dry Bulk Density (g/cm$^3$) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 5.0 | 14.65 | 1.09 | 0.27 | 11.3% | 0.10 | 0.20 | 0.12 | 0.11 | 0.11 |
| 9.9 | 38.90 | 1.28 | 0.56 | 8.9% | 0.20 | 0.40 | 0.23 | 0.13 | 0.20 |
| 14.9 | 14.86 | 1.34 | 0.65 | 7.3% | 0.40 | 0.80 | 0.64 | 0.57 | 0.57 |
| 19.7 | 27.82 | 1.29 | 0.57 | 8.4% | 0.20 | 0.40 | 0.32 | 0.33 | 0.33 |
| 23.3 | 22.70 | 1.16 | 0.41 | 13.6% | 0.40 | 0.80 | 0.41 | --- | 0.41 |
| Mean | 23.79 | 1.23 | 0.49 | 9.9% | 0.26 | 0.52 | 0.34 | 0.29 | 0.32 |

Table 7. Power law fit parameters for SED6C/RC-04SF-B.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 5.0 | 7.62E-05 | 2.27 | 0.96 |
| 2 | 5.0 | 9.9 | 7.01E-05 | 1.36 | 0.81 |
| 3 | 9.9 | 14.9 | 2.08E-06 | 2.23 | 0.96 |
| 4 | 14.9 | 19.7 | 1.43E-05 | 1.62 | 0.98 |
| 5 | 19.7 | 23.3 | --- | --- | 0.59 |

## 2.3 SED7BSF

### 2.3.1 SED7BSF-A

A 20 cm sediment core was collected at SED7BSF. SED7BSF-A is archived in the Santa Cruz SEDflume laboratory in case supplemental testing is required.

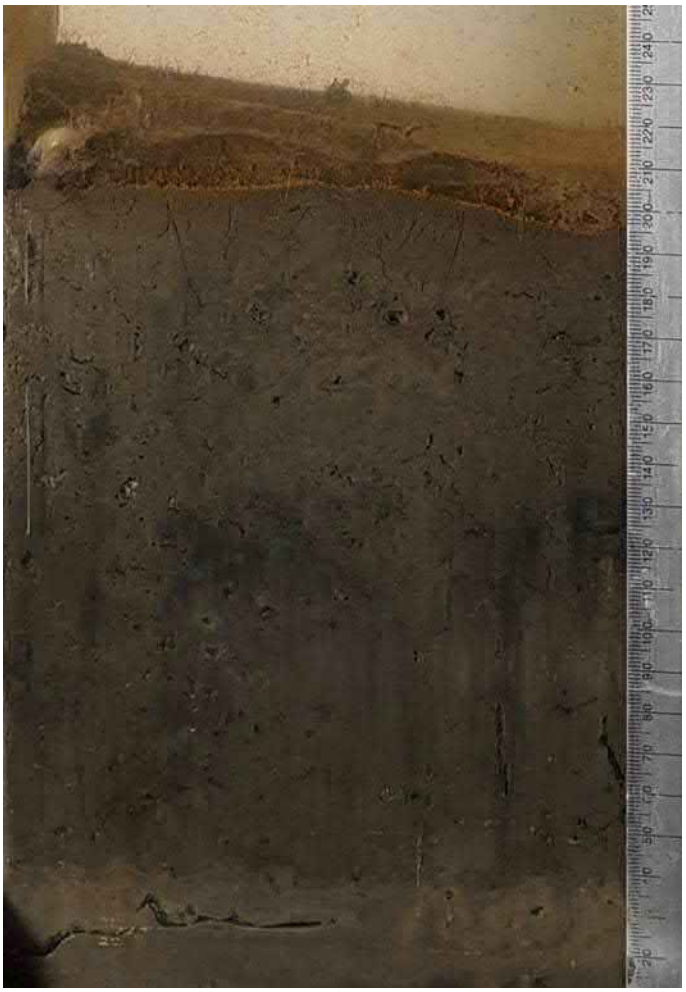

Figure 16. Photograph of Sample SED7BSF-A.

### 2.3.2 SED7BSF-B

Sample SED7BSF-B was collected to the west of the river cove in line with the two inner cove sample locations SED7DSF and SED7ESF. Sampling resulted in the recovery of 18 cm of silt (Figure 17). During collection, it was noted that the collected material rested atop a firmer layer of bedded material that resisted penetration. Sediment consisted of brown, unconsolidated silt

at the surface overlying mottled darker and lighter areas of brown and gray silt. The surface contained clusters of bivalves (Figure 18) and invertebrate worm burrows extending 3–5 cm from the initial surface. Below the noted region of invertebrate burrows, the sediment had a homogeneous texture and color.

Shear stresses ranging from 0.1 to 12.8 Pa were applied to the upper 11 cm in two test intervals (Figure 17). Erodibility decreased in the second interval relative to the surface (Figure 19). Erosion nucleated around the biotic structures and leaves interspersed throughout the sample and ranged from individual grains to clumps breaking away from the surface. Often smaller particles eroded first, leading to a larger piece 1–2 mm in diameter fracturing from the surface.

Derived critical shear stress increased with depth and corresponded to an increase in density (Figure 20, Table 8). Coefficients to relate erosion rate and shear stress via a power law regression are presented in Table 9. Values of $r^2$ indicate a good relationship between the two variables, and the coefficients A and n fall within expected values for cohesive sediment.

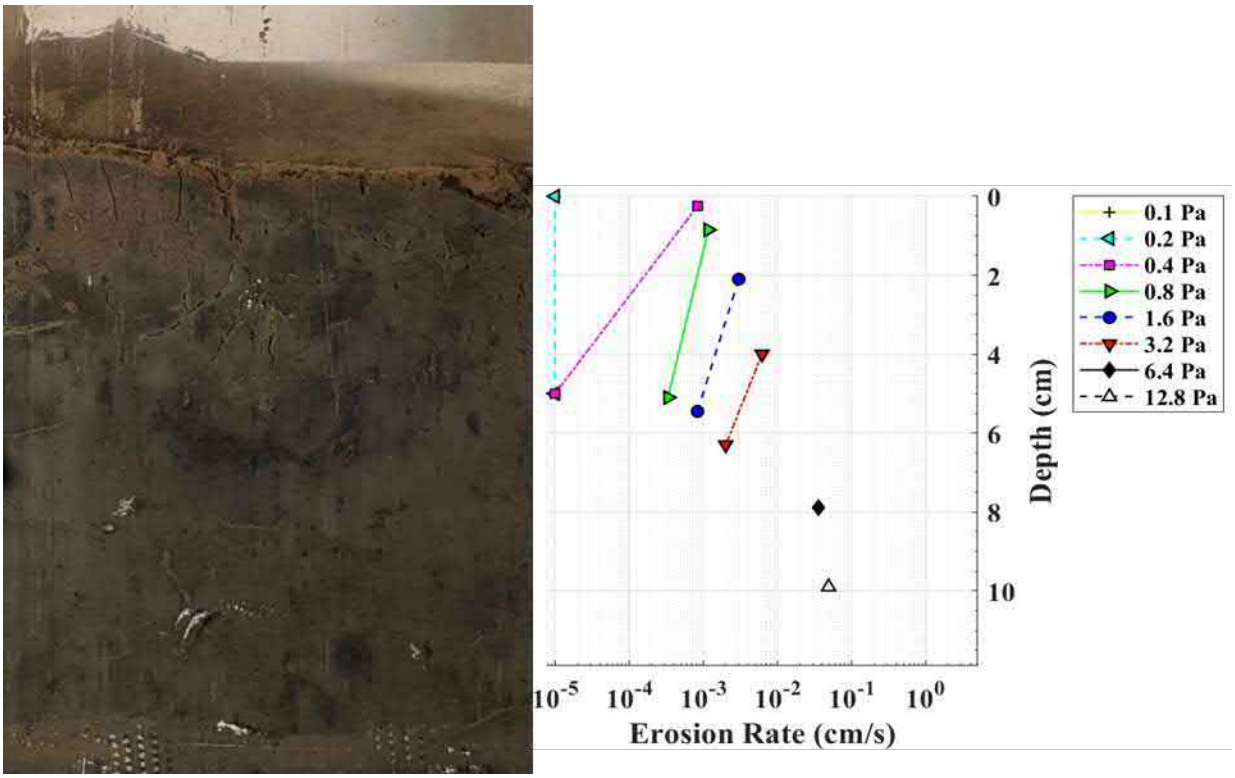


Figure 17. Photograph of Sample SED7BSF-B with applied shear and measured erosion rates with depth.




Figure 18. Two bivalves uncovered in SED7BSF-B.

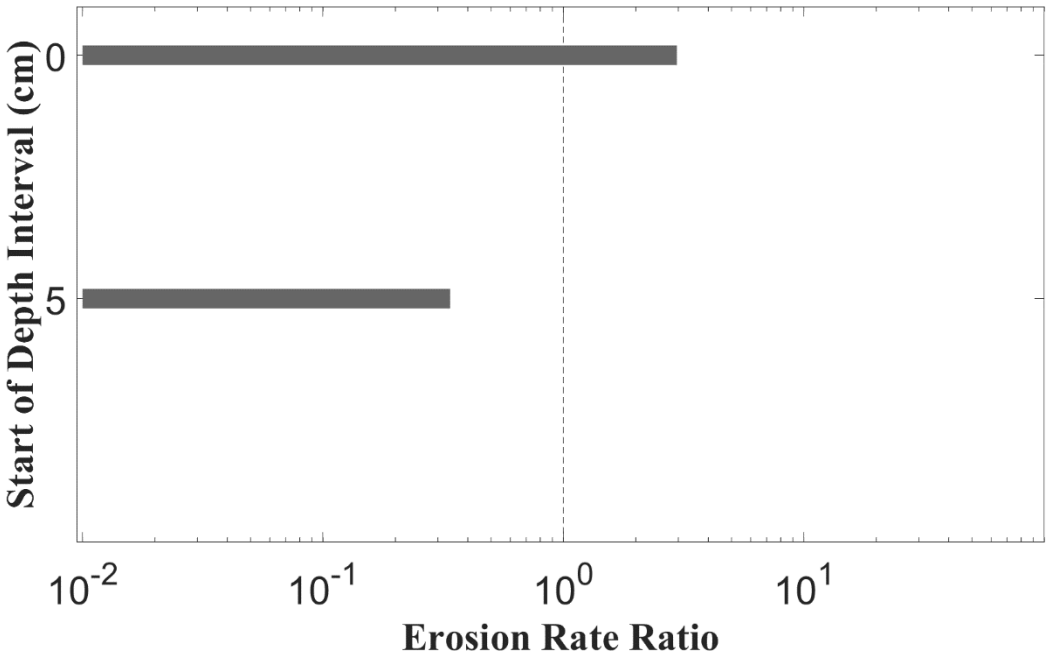


Figure 19. Intracore erosion rate ratios in SED7BSF-B.

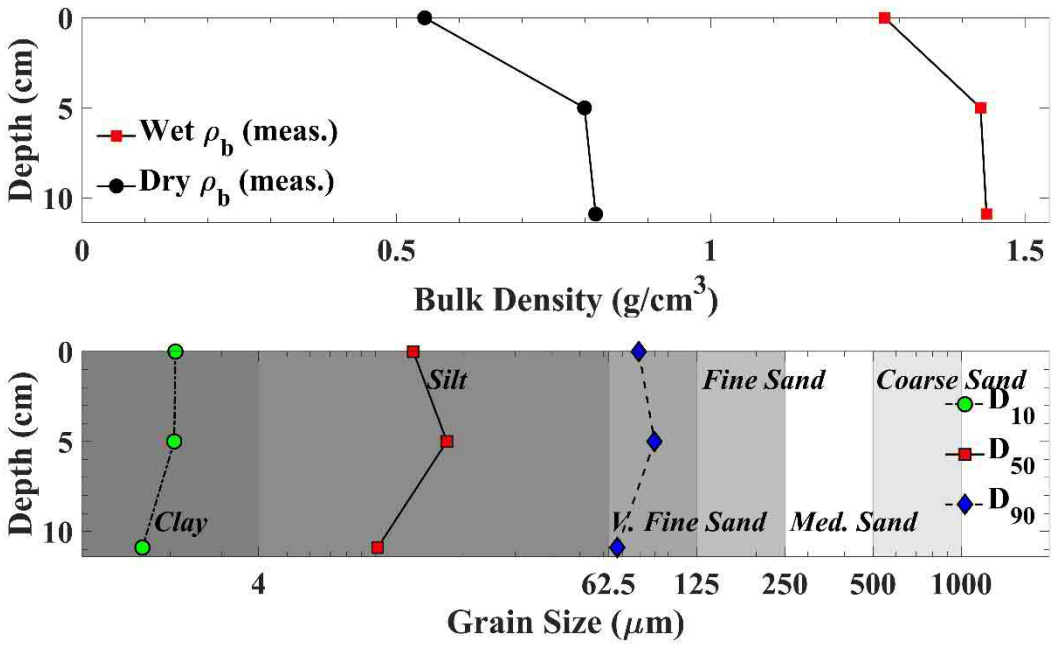


Figure 20. Bulk properties of SED7BSF-B

Table 8. Physical parameters and derived critical shear stresses for SED7BSF-B.

| Sample Depth (cm) | Median Grain Size (µm) | Wet Bulk Density (g/cm$^3$) | Dry Bulk Density (g/cm$^3$) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 13.49 | 1.28 | 0.54 | 7.9% | 0.20 | 0.40 | 0.23 | 0.15 | 0.20 |
| 5.0 | 17.56 | 1.43 | 0.80 | 7.7% | 0.40 | 0.80 | 0.52 | 0.51 | 0.51 |
| 10.9 | 10.20 | 1.44 | 0.82 | 7.8% | --- | --- | --- | --- | --- |
| Mean | 13.75 | 1.38 | 0.72 | 7.8% | 0.30 | 0.60 | 0.38 | 0.33 | 0.36 |

Table 9. Power law fit parameters for SED7BSF-B.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 5.0 | 5.72E-05 | 1.41 | 0.90 |
| 2 | 5.0 | 10.9 | 3.88E-06 | 2.00 | 0.96 |

## 2.4 SED7DSF

Samples from SED7DSF, located in the fore of the river cove were used to compare the erodibility of native bedded sediment (Sample B) with sediment treated with three amendment types (Samples C, D, E). Sample A is securely stored in the event additional testing is requested.

### 2.4.1 SED7DSF-A

SED7DSF-A, consisting of 19 cm of sediment, is archived in the Santa Cruz SEDflume laboratory in case supplemental testing is required.

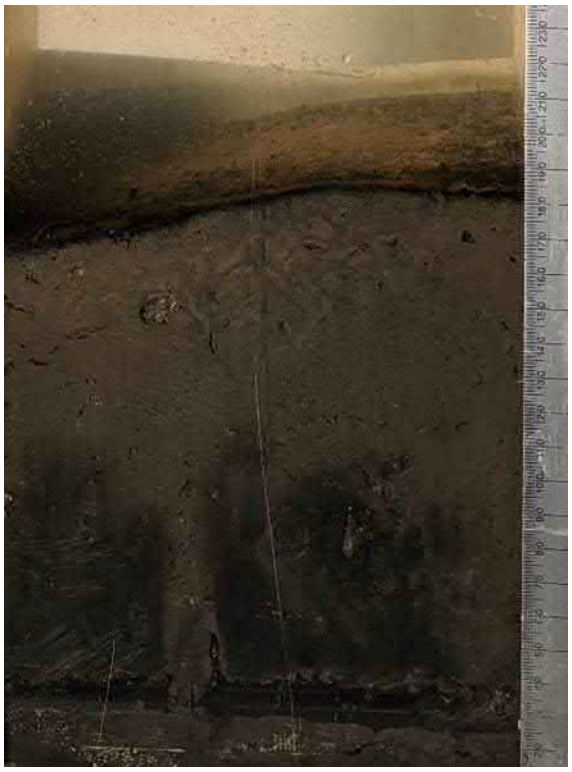

Figure 21. Photograph of Sample SED7DSF-A.

### 2.4.2 SED7DSF-B

Sample SED7DSF-B was collected in the river cove collocated with four other samples. SED7DSF-B acted as the control for comparison with three samples treated with amendments. The upper 10 cm of brown sediment contained leaves and twigs as well as biota including the two bivalves removed from the surface (Figure 22, Figure 23). Larvae or small worms were observed floating in the waters above the sediment surface prior to analysis. Darker brown sediment with black streaks extended from 10 to 20 cm below the surface along with a smoother visual texture.

Shear stresses ranging from 0.1 to 6.4 Pa were applied in four intervals to the top 20 cm of sediment. Erosion rates varied with depth and generally became less erodible as depth increased (Figure 24). Derived critical shear stresses generally increased with depth and coincided with an increase in density (Table 10, Figure 25). Erosion occurred in multiple forms including streams of individual grains, clumps 1–2 mm in diameter, and thin sheets of sediment intermittently dislodging. Interspersed leaves, twigs, and sticks alternated between protecting underlying sediment and causing sections of the surface to break free as the pieces of macro-organic matter were swept away. Coefficients relating shear stress and erosion rate using a power law regression indicate good agreement between measurements and fall within expected ranges (Table 11).

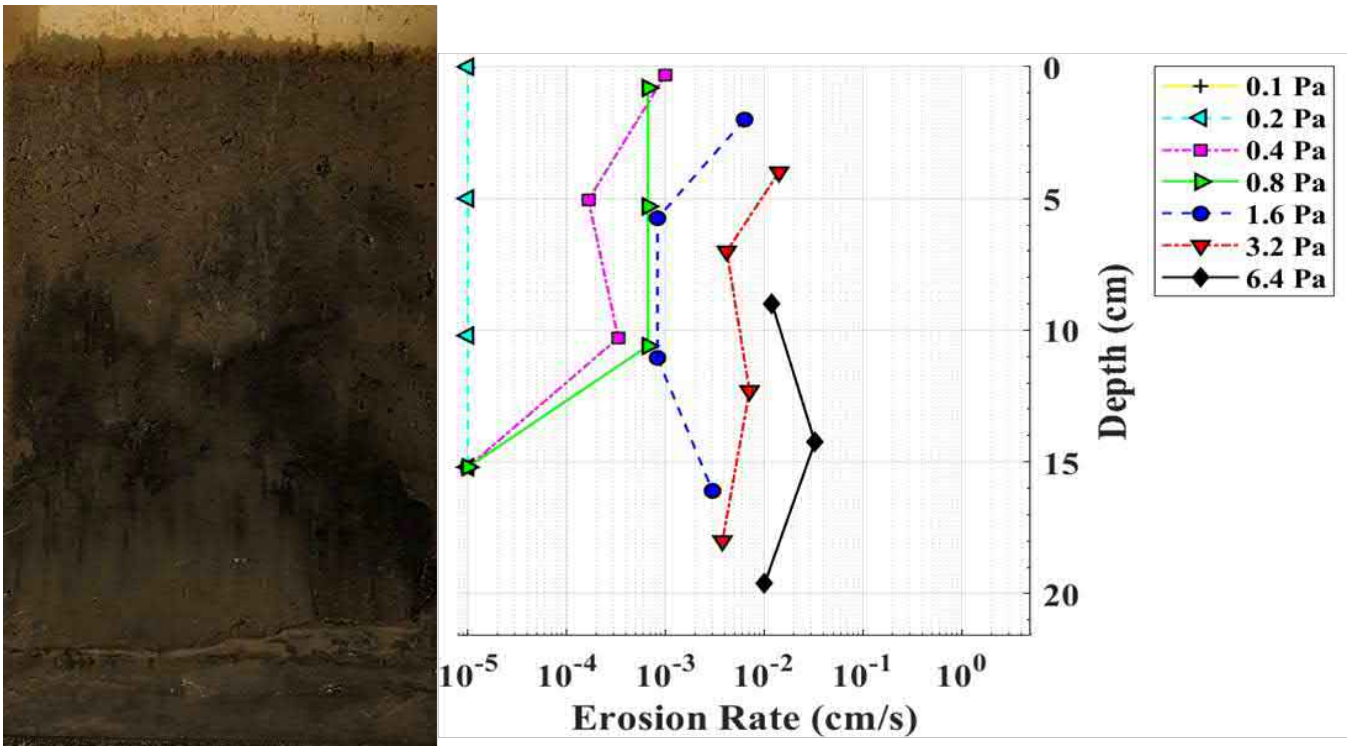


Figure 22. Photograph of sample SED7DSF-B with applied shear and measured erosion rates with depth.



Figure 23. Two bivalves removed from the surface of SED7DSF-B.

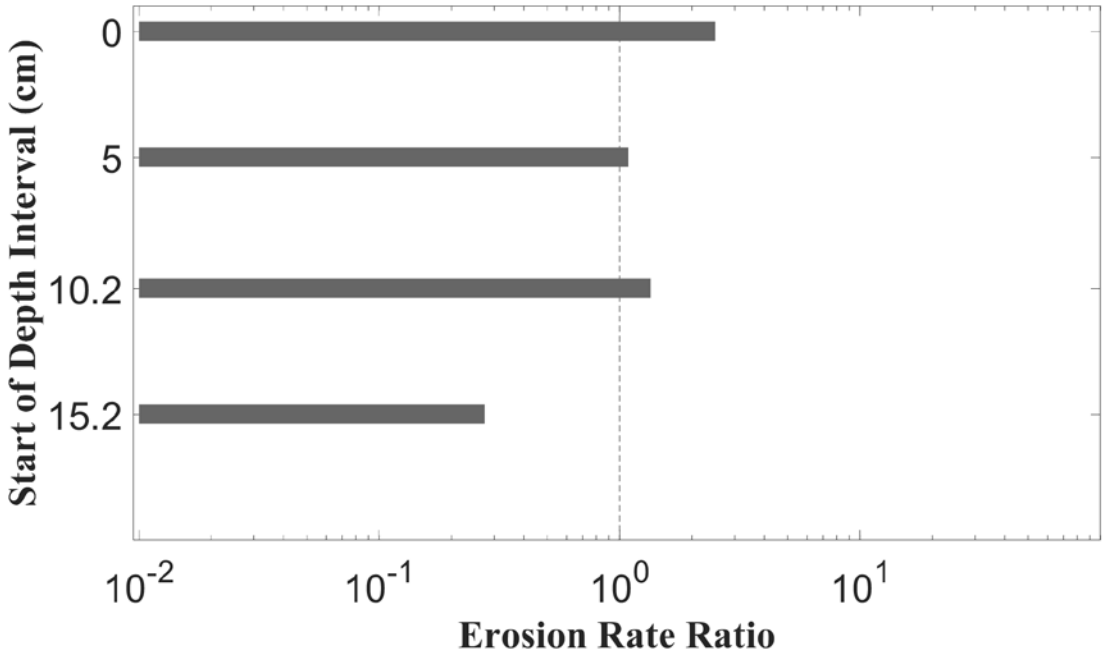


Figure 24. Intracore erosion rate ratios in SED7DSF-B.

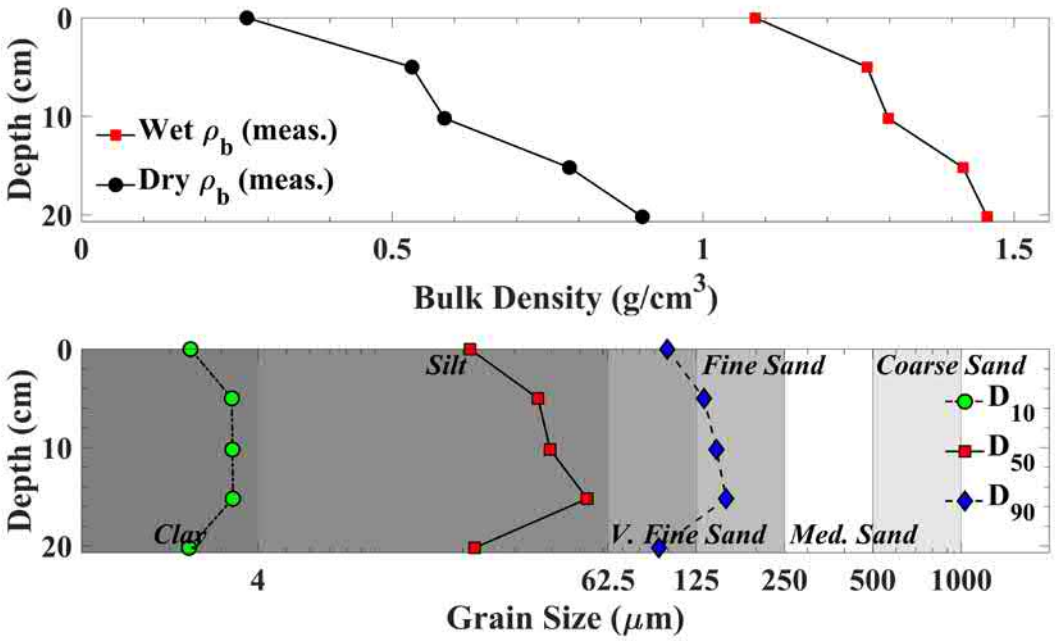


Figure 25. Bulk properties of SED7DSF-B.

Table 10. Physical parameters and derived critical shear stresses for SED7DSF-B.

| Sample Depth (cm) | Median Grain Size (µm) | Wet Bulk Density (g/cm$^3$) | Dry Bulk Density (g/cm$^3$) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 21.16 | 1.08 | 0.27 | 12.1% | 0.20 | 0.40 | 0.23 | 0.18 | 0.20 |
| 5.0 | 36.07 | 1.26 | 0.53 | 8.5% | 0.20 | 0.40 | 0.32 | 0.30 | 0.30 |
| 10.2 | 39.70 | 1.30 | 0.58 | 8.2% | 0.20 | 0.40 | 0.26 | 0.26 | 0.26 |
| 15.2 | 53.08 | 1.42 | 0.78 | 8.0% | 0.80 | 1.60 | 0.83 | 0.55 | 0.80 |
| 20.2 | 21.91 | 1.46 | 0.90 | 11.6% | --- | --- | --- | --- | --- |
| Mean | 34.38 | 1.30 | 0.61 | 9.7% | 0.35 | 0.70 | 0.41 | 0.32 | 0.39 |

Table 11. Power law fit parameters for SED7DSF-B.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 5.0 | 3.55E-05 | 1.75 | 0.89 |
| 2 | 5.0 | 10.0 | 1.87E-05 | 1.54 | 0.98 |
| 3 | 10.2 | 15.2 | 2.06E-05 | 1.67 | 0.94 |
| 4 | 15.2 | 20.2 | 2.99E-06 | 2.05 | 0.81 |

### 2.4.3 SED7DSF-C

SED7DSF-C was collected in the river cove and treated with a 0.9 cm thick layer of SediMite™. The SediMite™ material was mixed in the upper 2.5 cm of native material and allowed to settle and consolidate for 28 days (Figure 26). Prior to mixing, the sediment had characteristics similar to SED7DSC-B. Biotic activity, especially worm burrows and feeding voids, in the upper 10 cm appeared to continue after the addition of cap material (Figure 27). A layer of dark material, possibly activated carbon from the SediMite™, was observed 5 cm from the equilibrated sediment surface and beyond the depth of intentionally mixed material during the amendment application phase. The distinct feature may be a result of biotic activity drawing the SediMite™ material into the burrow network.

Five shear stress intervals were analyzed within the upper 25 cm of SED7DSF-C. The first shear stress analysis was on the mixture of SediMite™ and native material. Subsequent analyses were on sediment undisturbed by the amendment application process. The mixed surface layer had a watery, sleek composition with some sediment and dark glossy material present. No evidence of biotic disturbance was present at the water to sediment interface. Shear stresses from 0.1 to 12.8 Pa were applied to the core (Figure 26). The low-density material on the surface resulted in relatively high erodibility but as density increased, erodibility decreased in SED7DSF-C (Figure 28, Figure 29). The material at the surface exposed to the first shear stresses appeared to be primarily SediMite™ that separated from the mixed sediment. The low-density material eroded evenly across the surface in a steady stream and its removal exposed invertebrate activity throughout the underlying mixed system. Further erosion occurred in multiple modes with individual grains eroding away in streams followed by larger pieces and clumps of sediment eroding across the surface. Invertebrates were observed in the upper 10 cm and leaves, sticks, and twigs were scattered throughout Intervals 3 through 5.

Critical shear stresses increased with depth coincident with an increase in bulk density. Native material was composed primarily of silt with some portions of persistent fine and medium sand and clay throughout the core (Table 12). Coefficients relating shear stress and erosion rate using

a power law regression indicate good agreement between measurements and fall within expected ranges (Table 13).

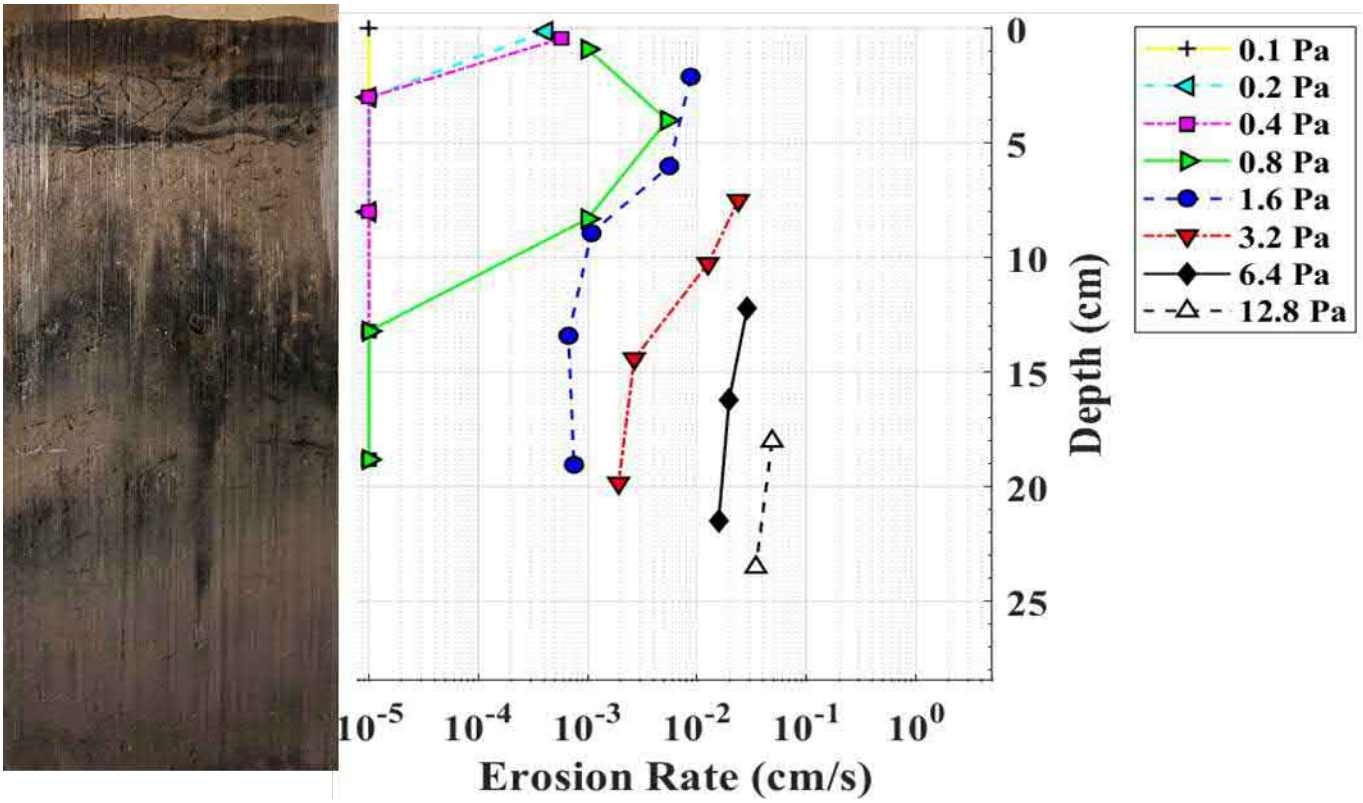


Figure 26. Photograph of Sample SED7DSF-C with applied shear and measured erosion rates with depth.



Figure 27. Evidence of continued biotic activity after application of amendment to SED7DSF-C. Left: Sample prior to mixing and 28-day consolidation. Right: SED7DSF-C after 28 days.

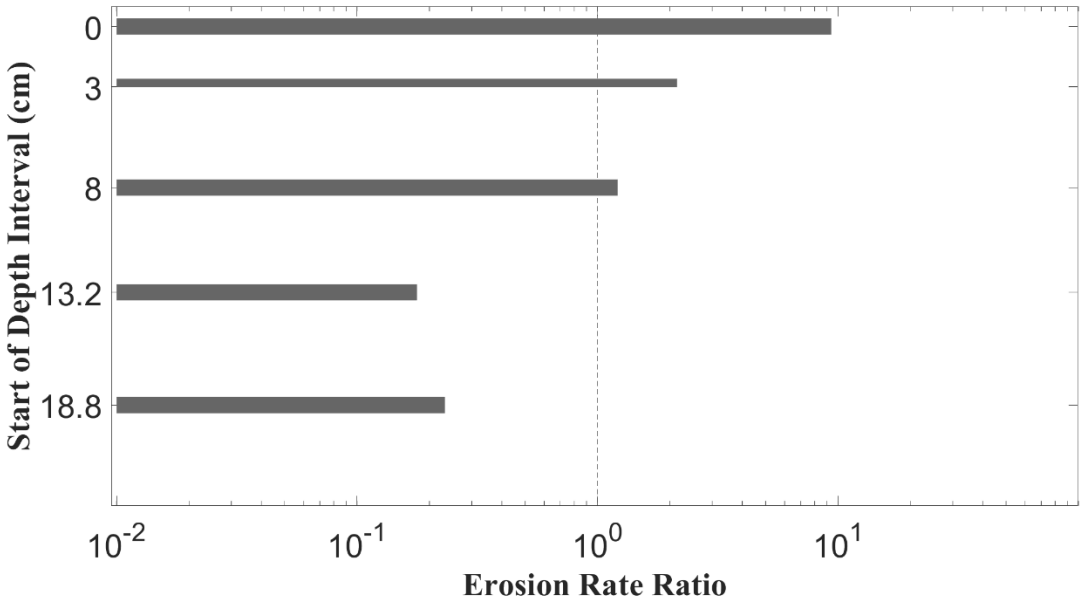


Figure 28. Intracore erosion rate ratios in SED7DSF-C.

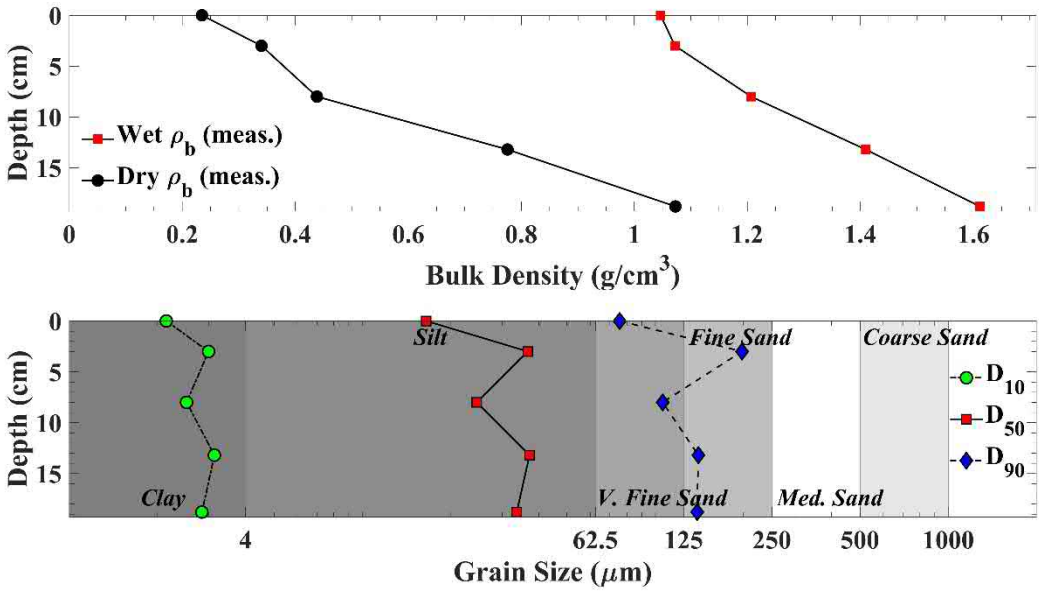


Figure 29. Bulk properties of SED7DSF-C.

Table 12. Physical parameters and derived critical shear stresses for SED7DSF-C.

| Sample Depth (cm) | Median Grain Size (µm) | Wet Bulk Density (g/cm³) | Dry Bulk Density (g/cm³) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 16.53 | 1.05 | 0.23 | 15.3% | 0.10 | 0.20 | 0.13 | 0.11 | 0.11 |
| 3.0 | 36.73 | 1.07 | 0.34 | 20.9% | 0.40 | 0.80 | 0.41 | 0.28 | 0.40 |
| 8.0 | 24.59 | 1.21 | 0.44 | 8.8% | 0.40 | 0.80 | 0.45 | 0.37 | 0.40 |
| 13.2 | 37.25 | 1.41 | 0.78 | 8.4% | 0.80 | 1.60 | 0.92 | 0.80 | 0.80 |
| 18.8 | 33.67 | 1.61 | 1.07 | 5.6% | 0.80 | 1.60 | 0.91 | 0.77 | 0.80 |
| Mean | 29.75 | 1.27 | 0.57 | 11.8% | 0.50 | 1.00 | 0.56 | 0.47 | 0.50 |

Table 13. Power law fit parameters for SED7DSF-C.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 3.0 | 8.23E-05 | 1.52 | 0.90 |
| 2 | 3.0 | 8.0 | 8.63E-06 | 2.39 | 0.81 |
| 3 | 8.0 | 13.2 | 6.58E-06 | 2.06 | 0.94 |
| 4 | 13.2 | 18.8 | 7.38E-07 | 2.36 | 0.98 |
| 5 | 18.8 | 24.5 | 1.11E-06 | 2.20 | 0.97 |

### 2.4.4 SED7DSF-D

SED7DSF-D was amended with 8.7 cm of AquaGate®+PAC material. The AquaGate®+PAC consists of a white aggregate coated with particulate activated carbon that decouples from the aggregate when submerged in water (Figure 30). The interface between the amendment and top 2.5 cm of native material was mixed as described in Section 1.3. The volume of AquaGate®+PAC meant that a significant portion was not mixed with sediment and resulted in two noted layers of amendment material. The first consisted of a low density, watery clay (almost gelatin-like in consistency and texture) overlying a second layer of carbon, delivery aggregate, and native material. Evidence of continued biotic activity is noted in the native sediment underlying the mixed layer, as many burrows and structures are notably black (Figure 31).

Six shear stress intervals were analyzed utilizing forces from 0.1 to 12.8 Pa. The first interval of predominantly watery suspended carbon particles eroded at lower shear stresses than the underlying material due to the lack of sediment or aggregate. Intervals 2 and 3 contained varying proportions of sediment, aggregate, and activated carbon. Erosion rates and overall erodibility oscillated as depth increased, a trend mimicked by the bulk density and particle size distributions (Figure 32, Figure 33). Erosion of the combined carbon and sediment occurred as pieces of disturbed sediment and carbon were suspended and eroded followed by the aggregate material dislodging at higher shear stresses. Once the mixed amendment and native material were removed in Intervals 2 and 3, the underlying native material eroded as individual grains and pieces of the sediment surface. Invertebrate disturbance in Interval 4 allowed larger pieces to break free and erode away during processing. The sediment in Intervals 5 and 6 contained leaves, twigs, and gas pockets possibly due to the decay of organic material.

As described above, the surface interval comprised a gelatinous consolidation of carbon particles, jiggling during analysis until all the material was eroded away. This may have led to poor power law correlation between erosion rates and applied shear stress in that interval resulting in the selection of the linearly interpolated critical shear stress value of 0.22 Pa. Despite the change in material type in the predominantly amendment material in Interval 2 and 3 and

native sediment in Intervals 4 through 6, critical shear stresses held relatively steady around 0.8 Pa (Table 14). Coefficients relating shear stress and erosion rate using a power law regression indicate good agreement between measurements and values fall within expected ranges for all but the surface interval (Table 15).

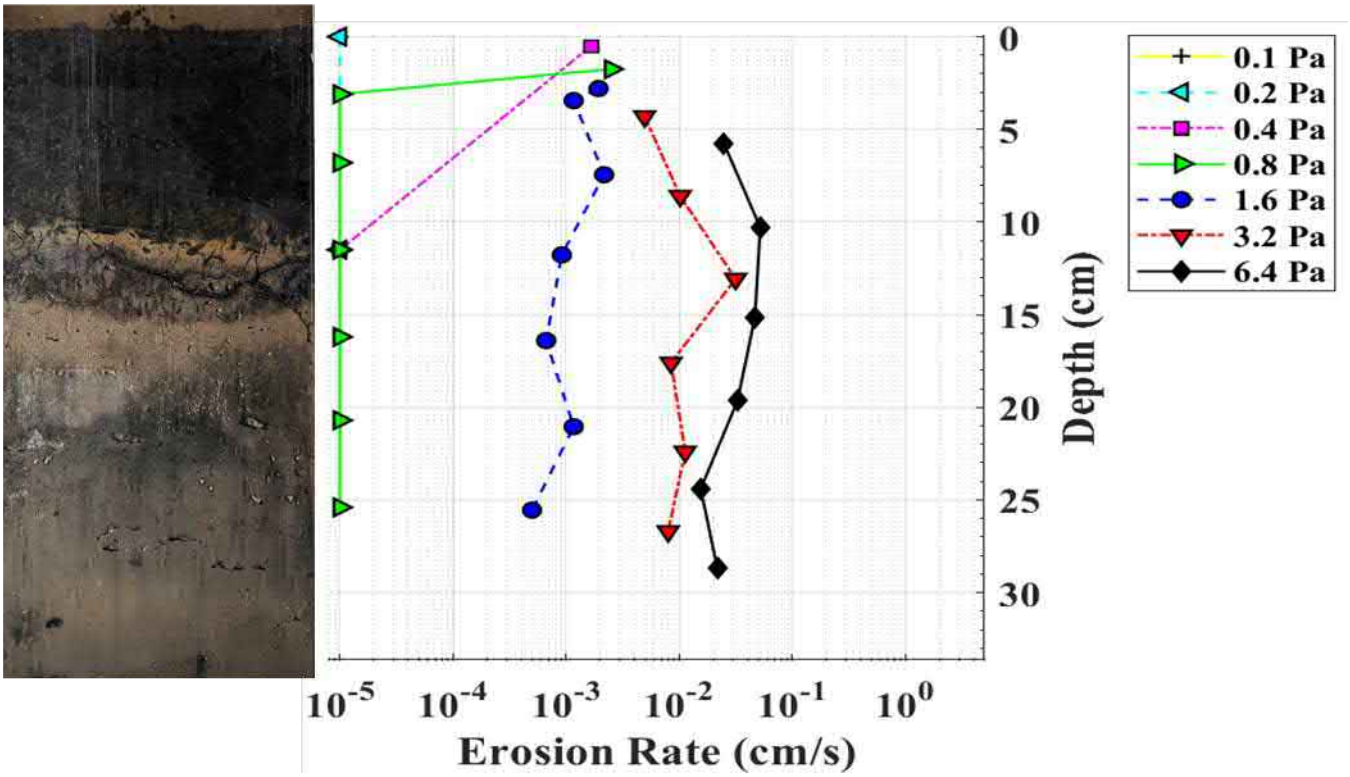


Figure 30. Photograph of Sample SED7DSF-D with applied shear and measured erosion rates with depth.




Figure 31. Invertebrate in burrow observed in SED7DSF-D.

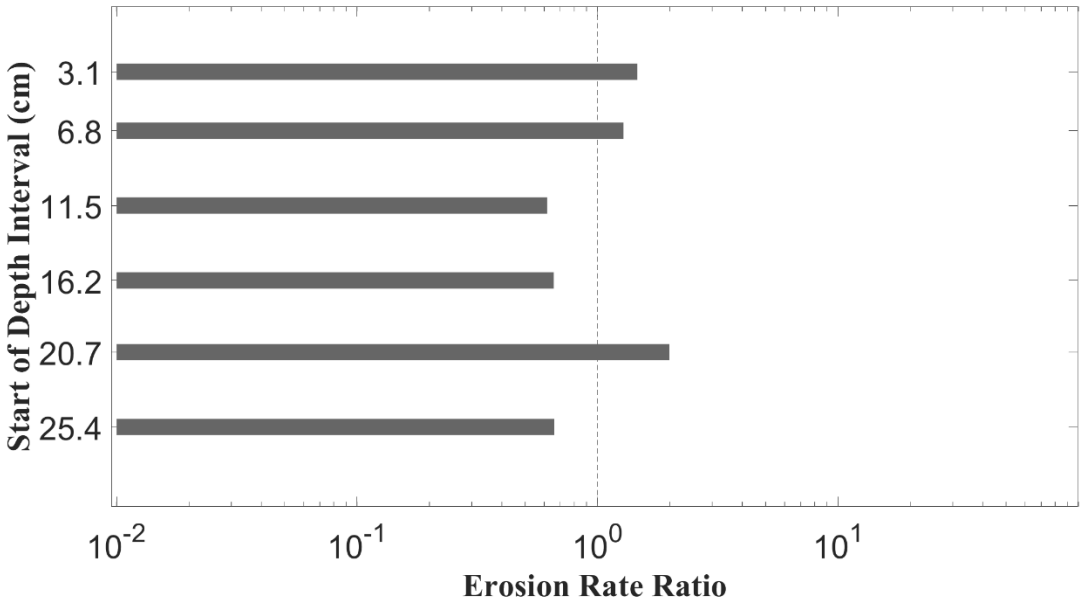


Figure 32. Intracore erosion rate ratios in SED7DSF-D.

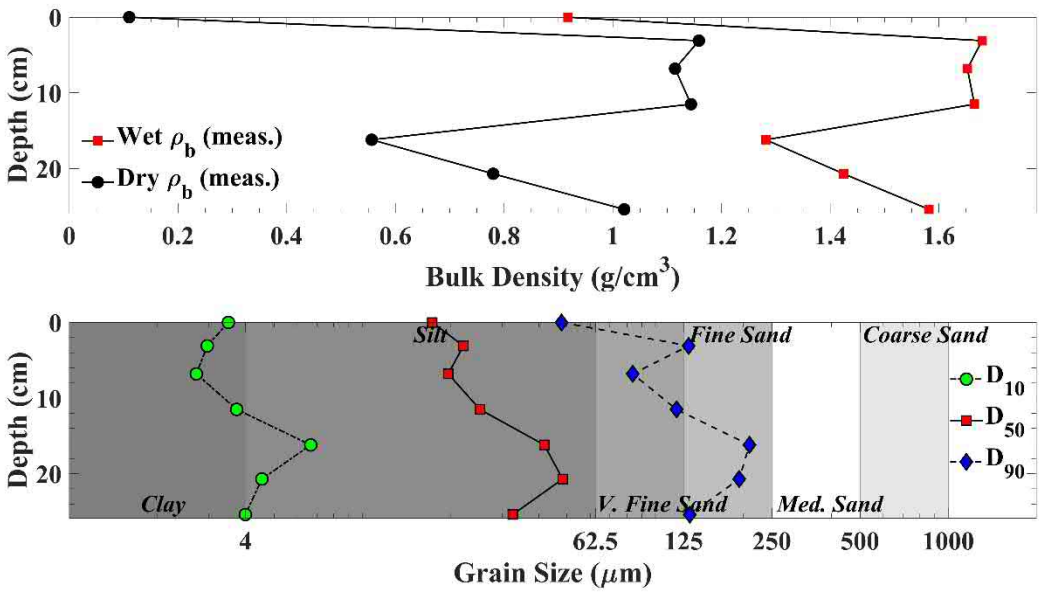


Figure 33. Bulk properties of SED7DSF-D.

Table 14. Physical parameters and derived critical shear stresses for SED7DSF-D.

| Sample Depth (cm) | Median Grain Size (µm) | Wet Bulk Density (g/cm$^3$) | Dry Bulk Density (g/cm$^3$) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 17.34 | 0.92 | 0.11 | 26.5% | 0.20 | 0.40 | 0.22 | --- | 0.22 |
| 3.1 | 22.14 | 1.68 | 1.16 | 4.0% | 0.80 | 1.60 | 0.87 | 0.76 | 0.80 |
| 6.8 | 19.66 | 1.65 | 1.11 | 4.1% | 0.80 | 1.60 | 0.84 | 0.71 | 0.80 |
| 11.5 | 25.22 | 1.67 | 1.14 | 4.5% | 0.80 | 1.60 | 0.89 | 0.80 | 0.80 |
| 16.2 | 41.83 | 1.28 | 0.56 | 8.2% | 0.80 | 1.60 | 0.92 | 0.87 | 0.87 |
| 20.7 | 48.30 | 1.42 | 0.78 | 6.9% | 0.80 | 1.60 | 0.87 | 0.71 | 0.80 |
| 25.4 | 32.64 | 1.58 | 1.02 | 5.5% | 0.80 | 1.60 | 0.96 | 0.90 | 0.90 |
| Mean | 29.59 | 1.46 | 0.84 | 8.5% | 0.71 | 1.43 | 0.80 | 0.79 | 0.74 |

Table 15. Power law fit parameters for SED7DSF-D.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 3.1 | --- | --- | 0.60 |
| 2 | 3.1 | 6.8 | 4.27E-07 | 2.68 | 0.98 |
| 3 | 6.8 | 11.5 | 2.86E-07 | 2.98 | 0.96 |
| 4 | 11.5 | 16.2 | 1.03E-07 | 3.31 | 0.92 |
| 5 | 16.2 | 20.7 | 1.39E-07 | 3.05 | 0.98 |
| 6 | 20.7 | 25.4 | 6.33E-07 | 2.59 | 0.91 |
| 7 | 25.4 | 29.7 | 1.52E-07 | 2.95 | 0.97 |

### 2.4.5 SED7DSF-E

The third amendment material, sand+5% GAC was applied to the surface of SED7DSF-E and the core was allowed to consolidate over 28 days. No manual mixing was administered to the sand and native material interface. The sand and GAC were mixed prior to application and then poured onto the sediment. The horizontal streaking of dark material within the sand cap, seen in Figure 34, is the GAC that differentially settled during placement. At the interface between native sediment and sand, a 1–2 mm layer of darkened sediment formed and evidence of invertebrate activity extended into the sand cap (Figure 35).

Six shear stress intervals were analyzed on SED7DSF-E with applied stresses ranging from 0.1 to 12.8 Pa. The first three intervals were solely within the sand cap media and the second three addressed the native sediment. The non-cohesive sand behaved consistently in Intervals 1–3 and was more erodible than the underlying native material (Figure 36). Of particular note was the behavior of the fourth interval that started at the interface between cap and native sediment. Measured erosion did not start until 1.6 Pa, which was a dramatic difference from the overlying sand and Sample SED7DSF-B. The native material appeared to have solidified or hardened forming a sort of crust and embedded within was aggregate that had been pressed into the surface from the overlying sand cap (Figure 37).

The sand eroded as individual grains in bedload at lower shear stresses and in suspended streams of particles at higher shears. The material in the fourth interval eroded in pieces and sheets of the surface possibly due to the hardening observed. After the "crust" eroded, sediment broke apart in pieces and resulted in an uneven surface. Voids possibly from decaying matter or feeding pockets from invertebrates were also present, which exacerbated the uneven erosion. The native material consisted predominantly of silt and had a lower density than the sand cap (Figure 38). Critical shear stresses were constant within the sand cap but increased in the native cohesive material by an order of magnitude (Table 16). The median particle sizes reported in Table 16 for Intervals 1, 2, and 3 are of the fraction less than 2,000 μm. A full breakdown of grain size distributions of the cap material can be found in Appendix C, which contains the sand aggregate specifications. Coefficients relating shear stress and erosion rate using a power law regression indicate good agreement between measurements and computed values fall within expected ranges (Table 17).

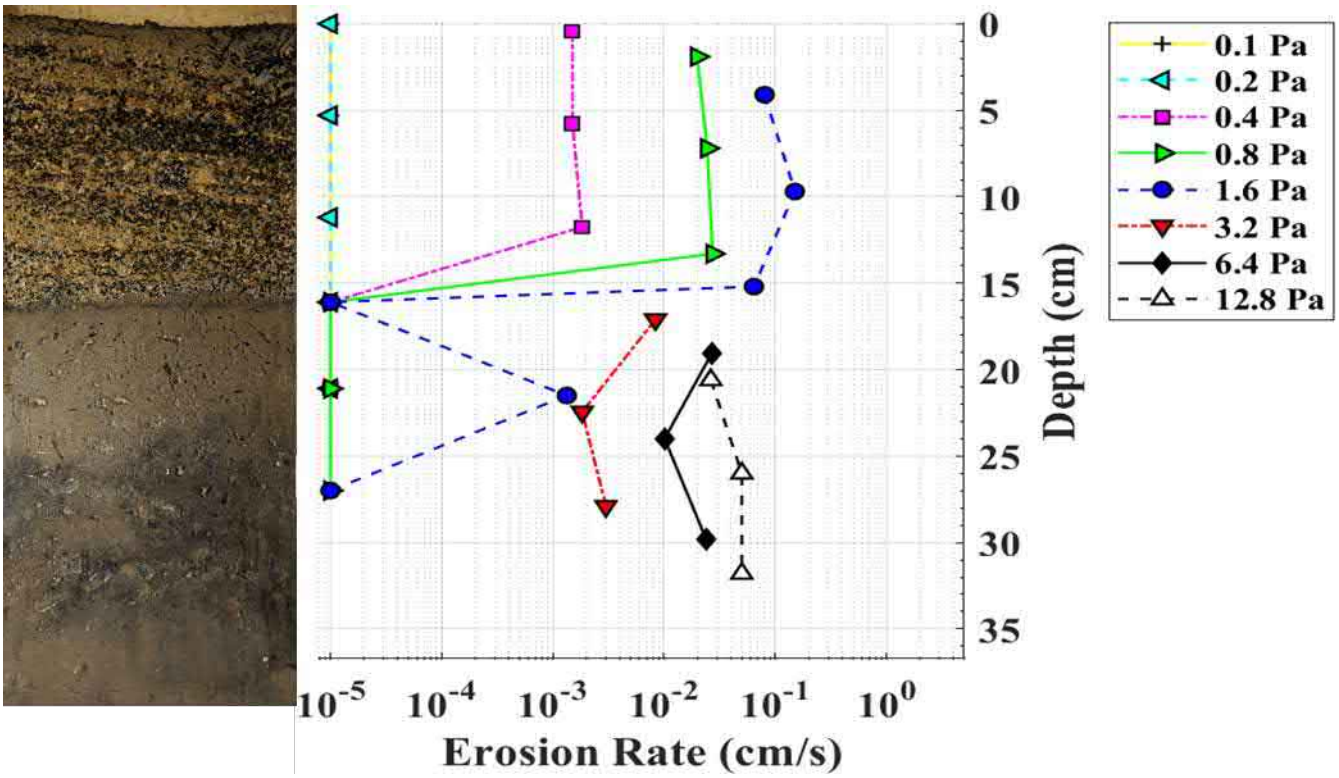


Figure 34. Photograph of Sample SED7DSF-E with applied shear and measured erosion rates with depth.



Figure 35. Possible invertebrate activity extending from sediment surface into sand cap in SED7DSF-E 6 hours after sand placement.

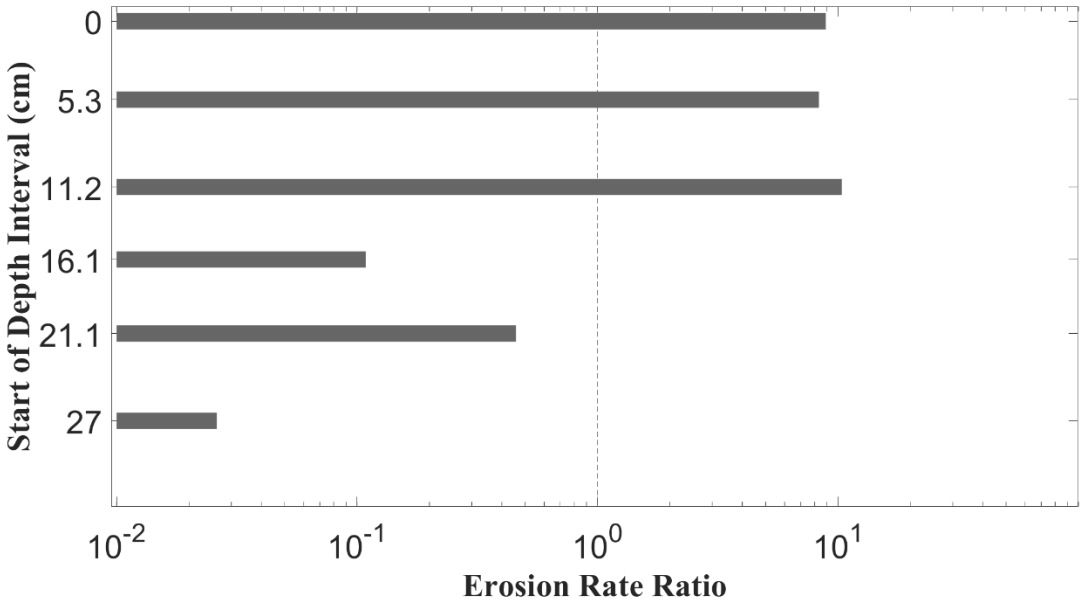


Figure 36. Intracore erosion rate ratios in SED7DSF-E.



Figure 37. Native sediment in SED7DSF-E with embedded sand cap material.

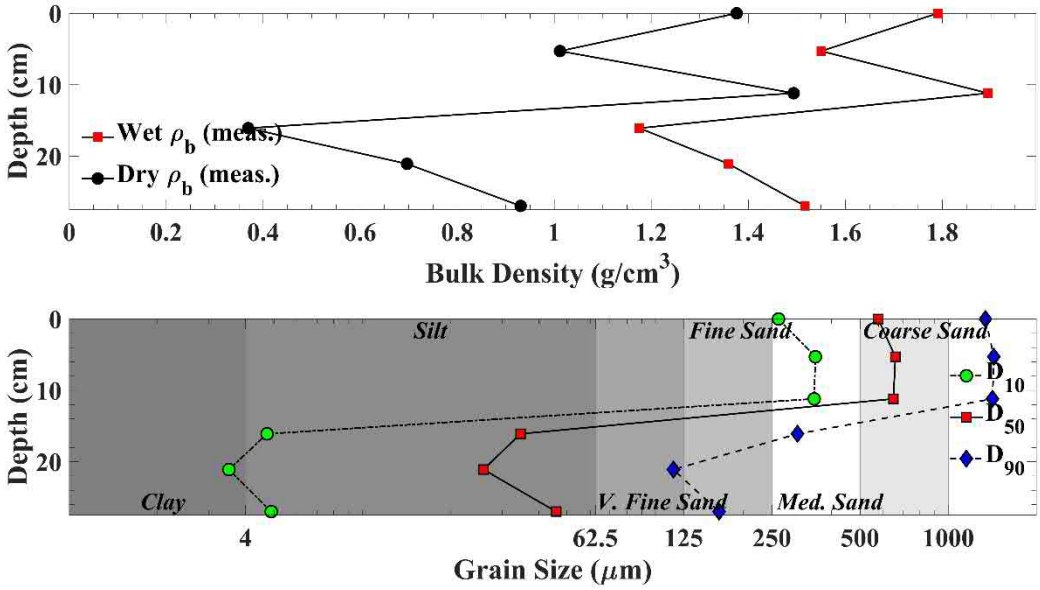


Figure 38. Bulk properties of SED7DSF-E.

Table 16. Physical parameters and derived critical shear stresses for SED7DSF-E.

| Sample Depth (cm) | Median Grain Size (μm) | Wet Bulk Density (g/cm$^3$) | Dry Bulk Density (g/cm$^3$) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 576.50 | 1.79 | 1.38 | 5.9% | 0.20 | 0.40 | 0.22 | 0.20 | 0.20 |
| 5.3 | 660.10 | 1.55 | 1.01 | 8.2% | 0.20 | 0.40 | 0.22 | 0.20 | 0.20 |
| 11.2 | 649.90 | 1.89 | 1.49 | 3.1% | 0.20 | 0.40 | 0.22 | 0.19 | 0.20 |
| 16.1 | 34.69 | 1.18 | 0.37 | 7.4% | 1.60 | 3.20 | 1.62 | 1.01 | 1.60 |
| 21.1 | 25.93 | 1.36 | 0.70 | 8.8% | 0.80 | 1.60 | 0.86 | 0.70 | 0.80 |
| 27.0 | 45.92 | 1.52 | 0.93 | 6.6% | 1.60 | 3.20 | 1.66 | 1.31 | 1.60 |
| Mean | 332.17 | 1.55 | 0.98 | 6.7% | 0.77 | 1.53 | 0.80 | 0.60 | 0.77 |

Note: : Grain size values in first three intervals reflect the fraction of sand less than 2,000 μm.

Table 17. Power law fit parameters for SED7DSF-E.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 5.3 | 1.02E-05 | 3.39 | 0.97 |
| 2 | 5.3 | 11.2 | 7.16E-06 | 3.71 | 0.99 |
| 3 | 11.2 | 16.1 | 1.28E-05 | 3.30 | 0.94 |
| 4 | 16.1 | 21.1 | 2.55E-07 | 2.59 | 0.75 |
| 5 | 21.1 | 27.0 | 1.62E-06 | 2.12 | 0.95 |
| 6 | 27.0 | 32.8 | 4.13E-08 | 3.03 | 0.92 |

## 2.5 SED7ESF

Five samples were collected from SED7ESF, located in the intertidal river cove. Sample A was set aside for archiving. Sample B was tested without any amendment treatment. Samples C, D, and E were treated with amendment material and then tested for erodibility properties using SEDflume.

### 2.5.1 SED7ESF-A

SED7ESF-A is archived in the Santa Cruz SEDflume laboratory if supplemental testing is required.



Figure 39. Photograph of Sample SED7ESF-A.

### 2.5.2 SED7ESF-B

SED7ESD-B was collected in an intertidal area of the river cove along with four other collocated samples. A heterogeneous mixture of light brown and grey silt contained evidence of biotic activity, leaves, twigs, and sticks (Figure 40). Pink and white worms up to 1 cm in length were observed on the surface and in the upper 2 cm of sediment with tubes and voids extending up to 6 cm into the core.

Shear stresses ranging from 0.1 to 3.2 Pa were applied to SED7ESF-B in four test intervals. Sediment eroded in clumps and pieces around worm structures in the upper 6 cm. As pieces broke away, clouds of particles also eroded in episodic bursts. The presence of worm structures fractured the sediment and erosion occurred unevenly across the surface. Deeper into the

sediment bed, bulk density and particle size distribution increased while the relative erodibility decreased (Figure 41, Figure 42). The silty material gave way to sandier less cohesive material 12 cm from the surface, which also included leaves and twigs that modified the erosion process by alternately sheltering and carrying away sediment as the leaves broke away. Critical shear stresses increased with depth and ranged from 0.12 to 0.4 Pa (Table 18). Coefficients relating shear stress and erosion rate using a power law regression indicate good agreement between measurements, and values for final critical shear stress were chosen based on the criteria outlined in Section 1.2.2.1 (Table 19).

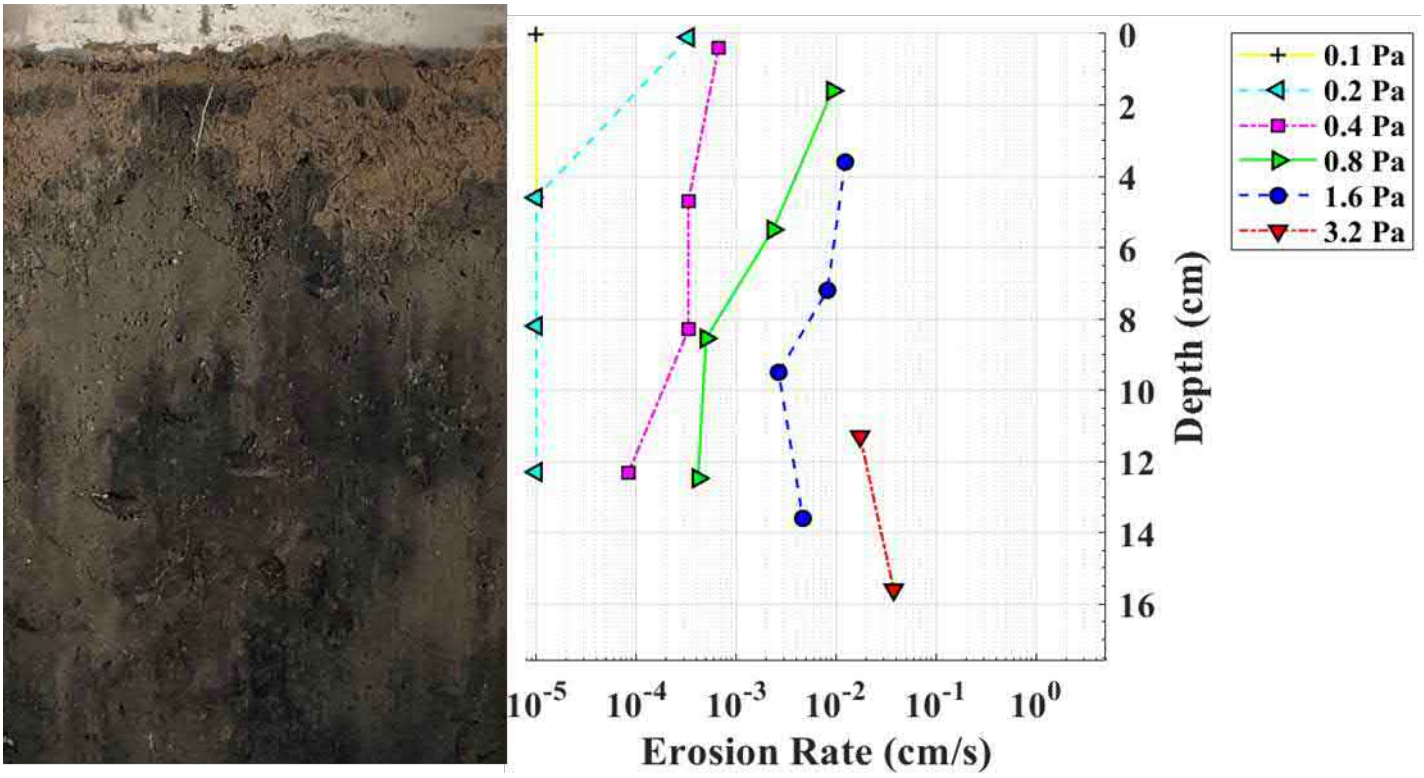


Figure 40. Photograph of Sample SED7ESF-B with applied shear and measured erosion rates with depth.

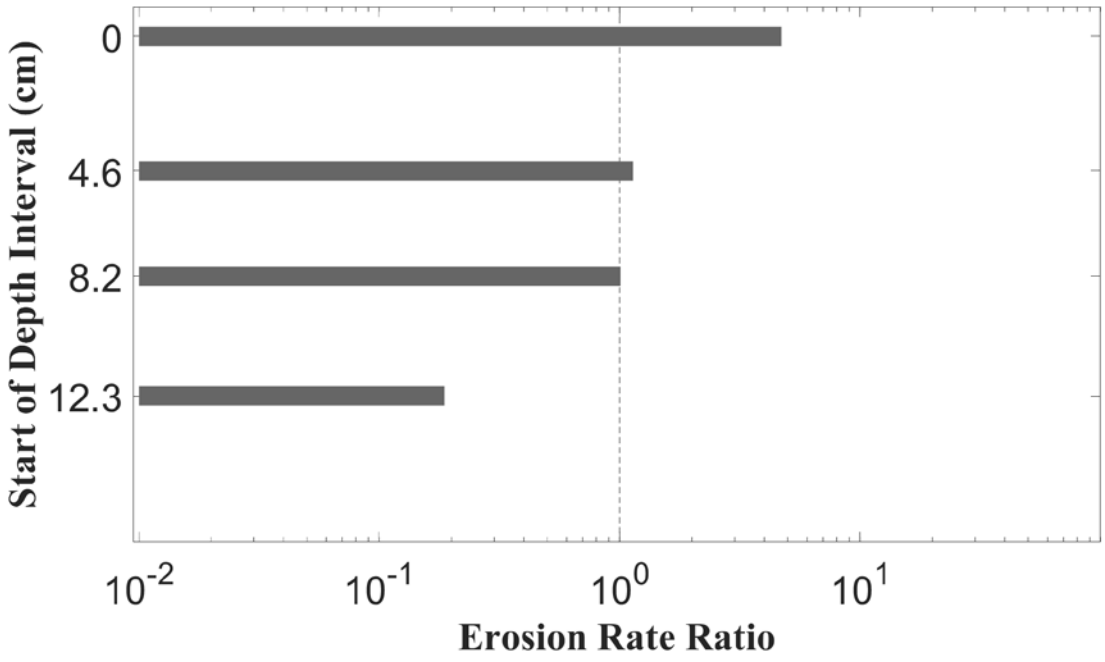


Figure 41. Intracore erosion rate ratios in SED7ESF-B.

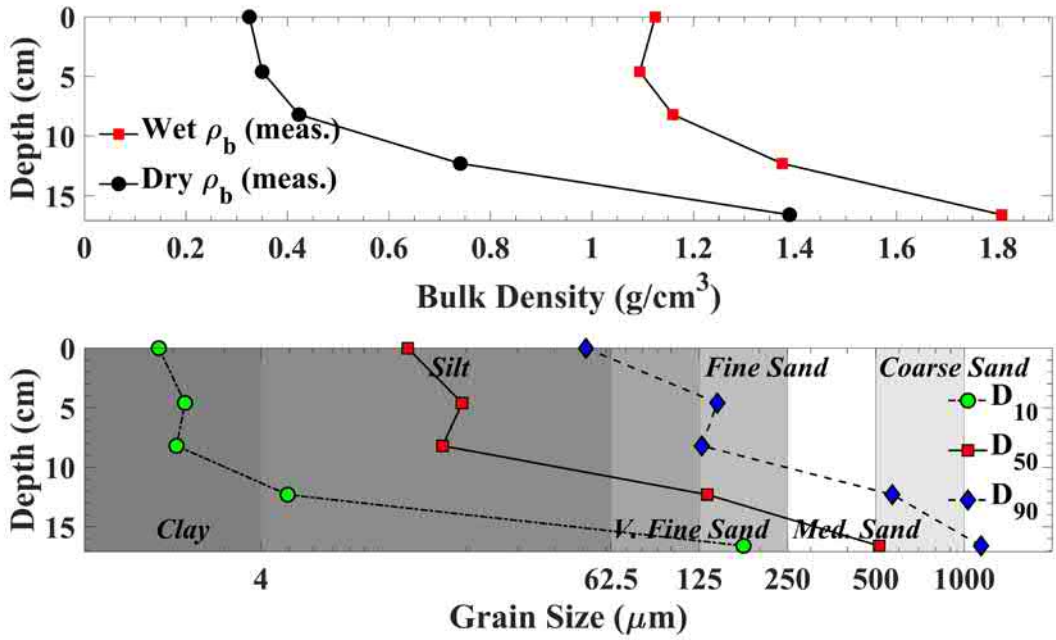


Figure 42. Bulk properties of SED7ESF-B.

Table 18. Physical parameters and derived critical shear stresses for SED7ESF-B.

| Sample Depth (cm) | Median Grain Size (µm) | Wet Bulk Density (g/cm$^3$) | Dry Bulk Density (g/cm$^3$) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 12.66 | 1.12 | 0.33 | 11.1% | 0.10 | 0.20 | 0.13 | 0.12 | 0.12 |
| 4.6 | 19.42 | 1.09 | 0.35 | 18.2% | 0.20 | 0.40 | 0.26 | 0.25 | 0.25 |
| 8.2 | 16.66 | 1.16 | 0.42 | 14.4% | 0.20 | 0.40 | 0.26 | 0.26 | 0.26 |
| 12.3 | 133.20 | 1.37 | 0.74 | 10.1% | 0.20 | 0.40 | 0.40 | 0.45 | 0.40 |
| 16.6 | 513.40 | 1.81 | 1.39 | 5.2% | --- | --- | --- | --- | --- |
| Mean | 139.07 | 1.31 | 0.65 | 11.8% | 0.18 | 0.35 | 0.26 | 0.27 | 0.26 |

Table 19. Power law fit parameters for SED7ESF-B.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 4.6 | 6.63E-05 | 2.01 | 0.94 |
| 2 | 4.6 | 8.2 | 1.08E-05 | 2.45 | 0.99 |
| 3 | 8.2 | 12.3 | 1.53E-05 | 1.94 | 0.96 |
| 4 | 12.3 | 16.6 | 1.10E-06 | 3.00 | 0.99 |

### 2.5.3 SED7ESF-C

A 1.03 cm thick layer of SediMite™ was integrated into the top 2.5 cm of native material from SED7ESF-C. The 15 cm of brown silt contained evidence of invertebrate burrows and voids and pockets of leaves. After mixing, the upper 2 cm were darker than the underlying sediment and appeared to be modified by invertebrate activity during the 28-day consolidation period (Figure 43). Two shear stress intervals were analyzed over the top 7 cm. Sediment below the 7 cm mark was porous due to a significant portion of organic matter causing the core to leak and testing to stop.

The low density, dark material at the surface seemed to be predominantly SediMite™ but resisted erosion at shear stresses less than 0.4 Pa and had a gelatinous texture. The erosion rates and derived critical shear stresses were relatively uniform between the two intervals (Figure 48). The mixture of SediMite™ and native material extended into the top 2.5 cm but varied in proportion as depth increased. The gradual change was noted in a supplemental particle size and bulk density sample at 1.7 cm to highlight the progression down-core

(Figure 49, Table 20). Derived critical shear stresses resulting from a power law regression were uniform at 0.5 for the two intervals despite changes in density and particle size distribution (Table 20). The coefficients relating shear stress and erosion rate fall within typical ranges for cohesive sediment and suggest a good fit between measurements based on $r^2$ values of 0.99 and 0.98 (Table 21).

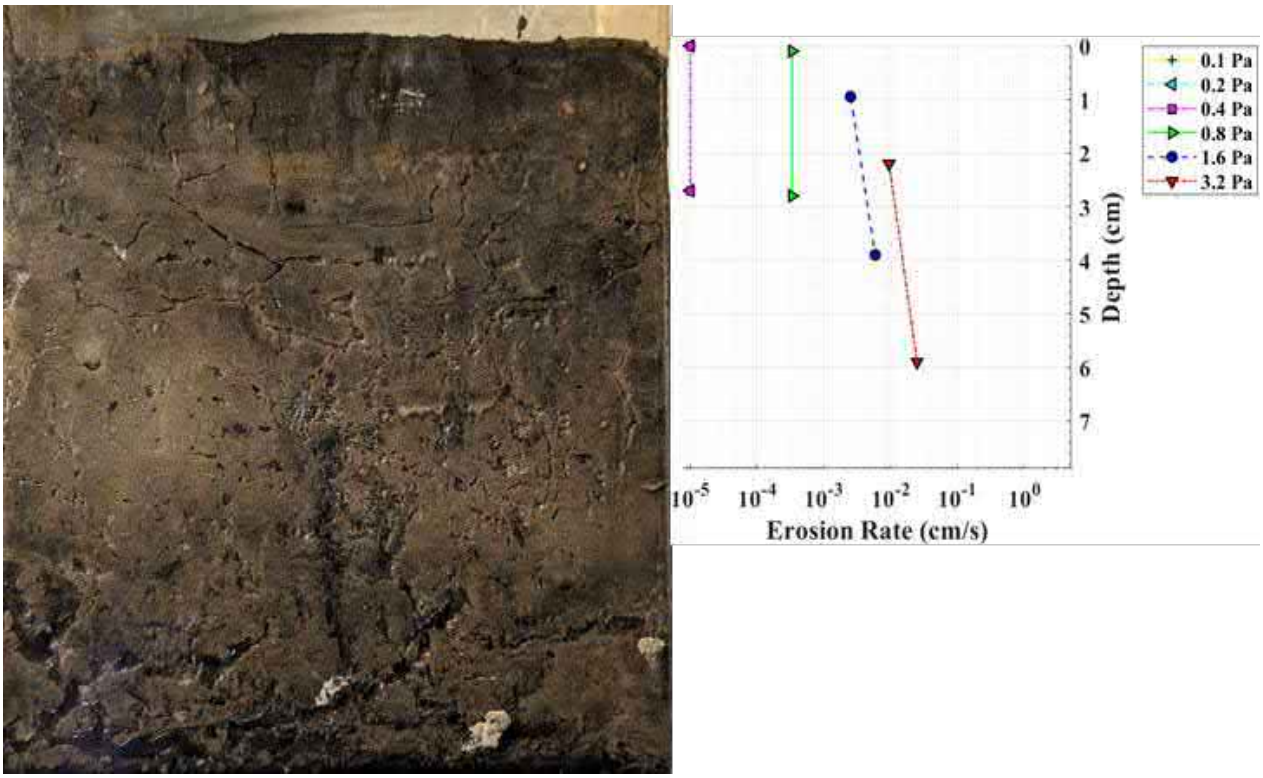


Figure 43. Photograph of Sample SED7ESF-C with applied shear and measured erosion rates with depth.

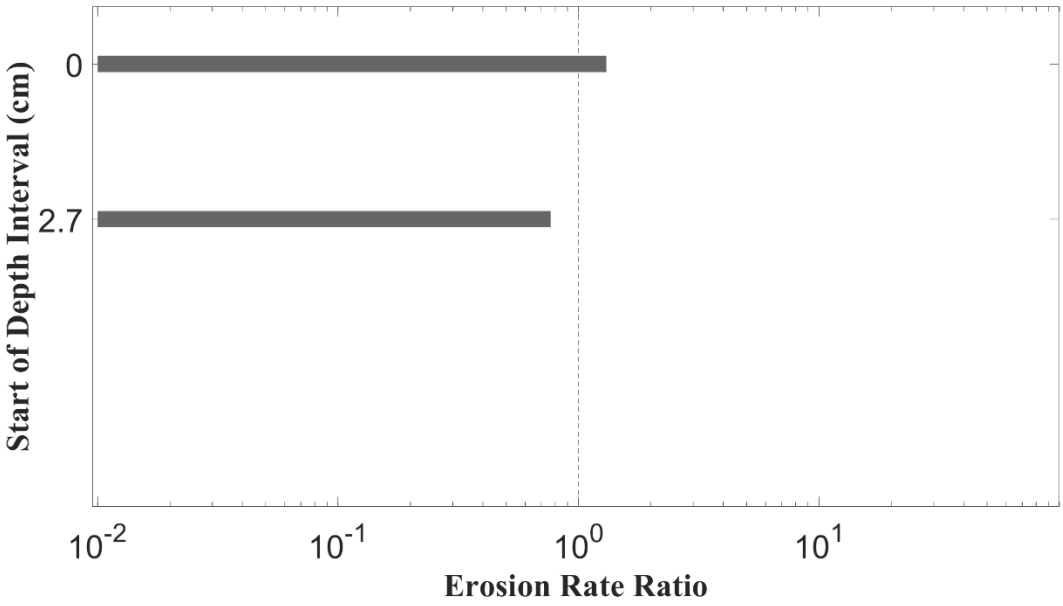


Figure 44. Intracore erosion rate ratios in SED7ESF-C.

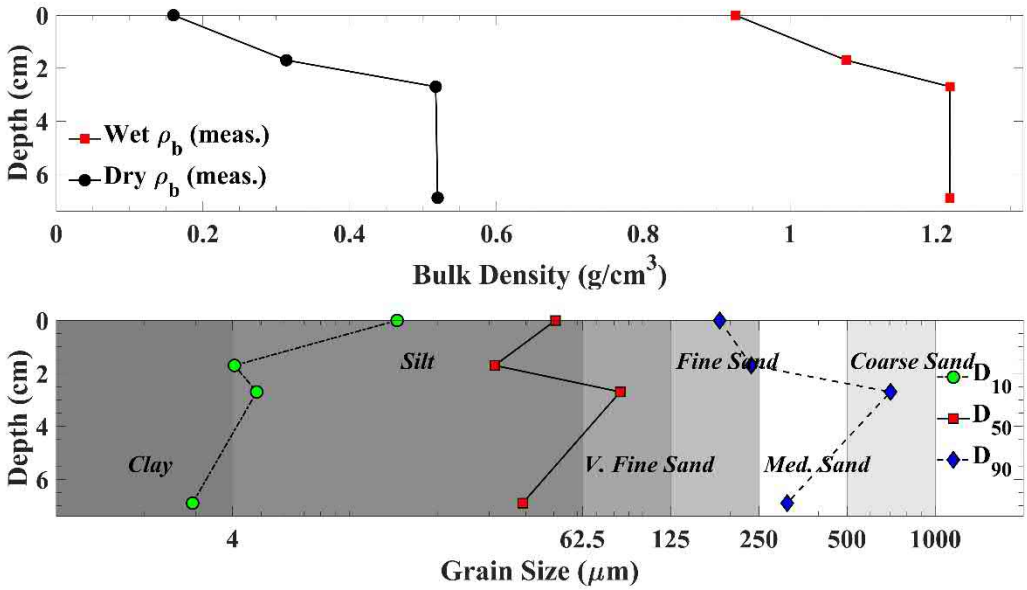


Figure 45. Bulk properties of SED7ESF-C.

Table 20. Physical parameters and derived critical shear stresses for SED7ESF-C.

| Sample Depth (cm) | Median Grain Size (µm) | Wet Bulk Density (g/cm$^3$) | Dry Bulk Density (g/cm$^3$) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 50.56 | 0.93 | 0.16 | 30.2% | 0.40 | 0.80 | 0.52 | 0.50 | 0.50 |
| 1.7 | 31.38 | 1.08 | 0.31 | 17.7% | --- | --- | --- | --- | --- |
| 2.7 | 84.11 | 1.22 | 0.52 | 13.7% | 0.40 | 0.80 | 0.52 | 0.51 | 0.51 |
| 6.9 | 39.09 | 1.22 | 0.52 | 14.0% | --- | --- | --- | --- | --- |
| Mean | 51.29 | 1.11 | 0.38 | 18.9% | 0.40 | 0.80 | 0.52 | 0.51 | 0.51 |

Table 21. Power law fit parameters for SED7ESF-C.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 2.7 | 1.70E-06 | 2.53 | 0.99 |
| 2 | 2.7 | 6.9 | 5.76E-07 | 3.15 | 0.98 |

### 2.5.4 SED7ESF-D

AquaGate®+PAC was applied to SED7ESF-D as a 3.9 cm thick layer and then mixed with the upper 2.5 cm of native material. The sample was collected from the intertidal river cove along with four other samples from SED7ESF. The surface consisted of low density, watery carbon material. Subsequent to mixing to integrate the amendment material with the native sediment, the proportions resulted in the upper 2.1 cm to be predominantly AquaGate®+PAC and the second interval to be a more even mixture of amendment and native material (Figure 46, Figure 47). Sediment in the subsequent Intervals 3 and 4 was native material and showed evidence of biotic activity. A band of darkened sediment 8 to 10 cm from the surface could be evidence of biotic transport of activated carbon from the overlying amendment.

The first shear stress interval contained a watery, gelatinous, carbon laden, low-density clay and eroded at the lowest applied shear stress (0.1 Pa). The low-density carbon and water mixture jiggled as it eroded in a steady stream from the surface. The second interval containing carbon, white delivery aggregate, and native sediment started eroding at higher shears than the overlying layer. The native material below the amended surface layers eroded as clumps and pieces of the surface broke free in episodic events around the invertebrate-disturbed sediment. The change in composition with depth appeared to influence the erodibility of the sediment

(Figure 48). Derived critical shear stresses based on power law regressions increased with depth and the coefficients relating erosion rate and shear stress fall within expected ranges (Table 22, Table 23)

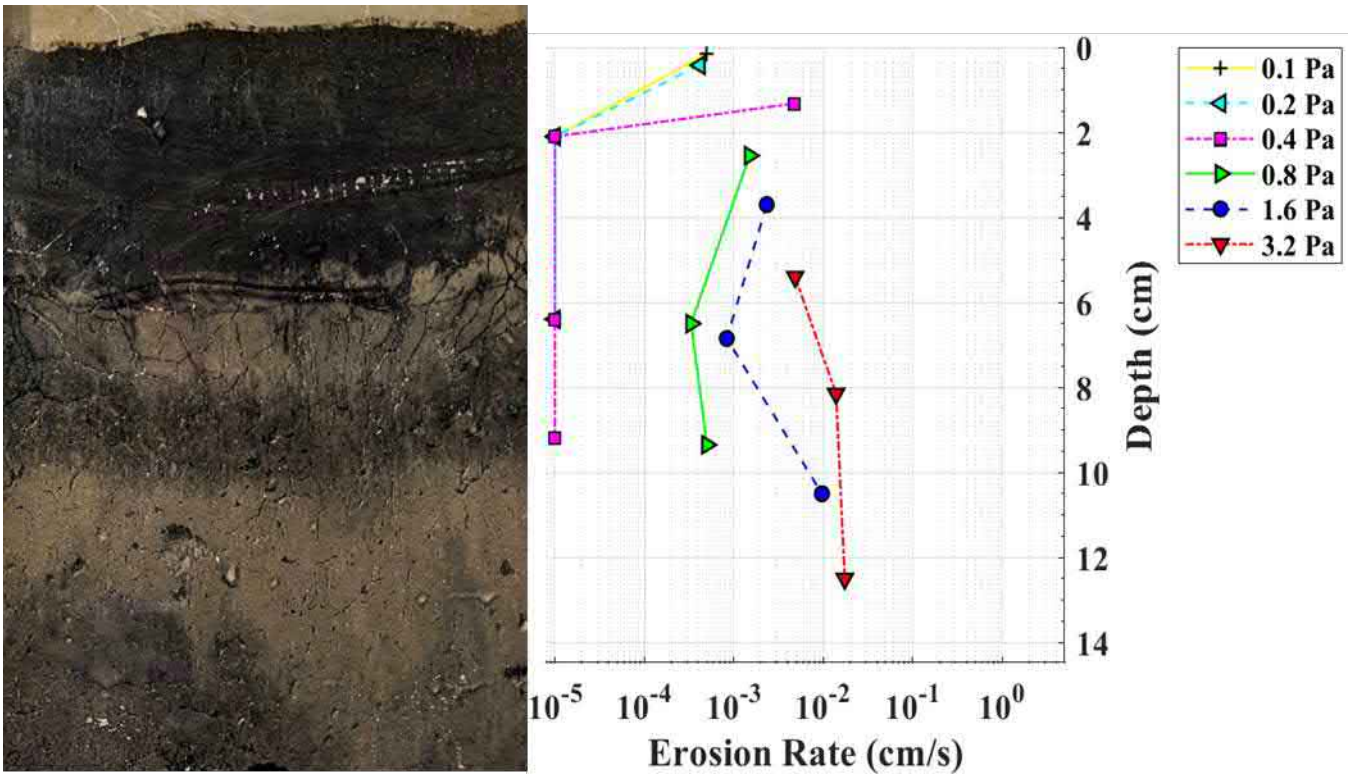


Figure 46. Photograph of Sample SED7ESF-D with applied shear and measured erosion rates with depth.



Figure 47. Sediment surface in second interval with mix of amendment and native material.

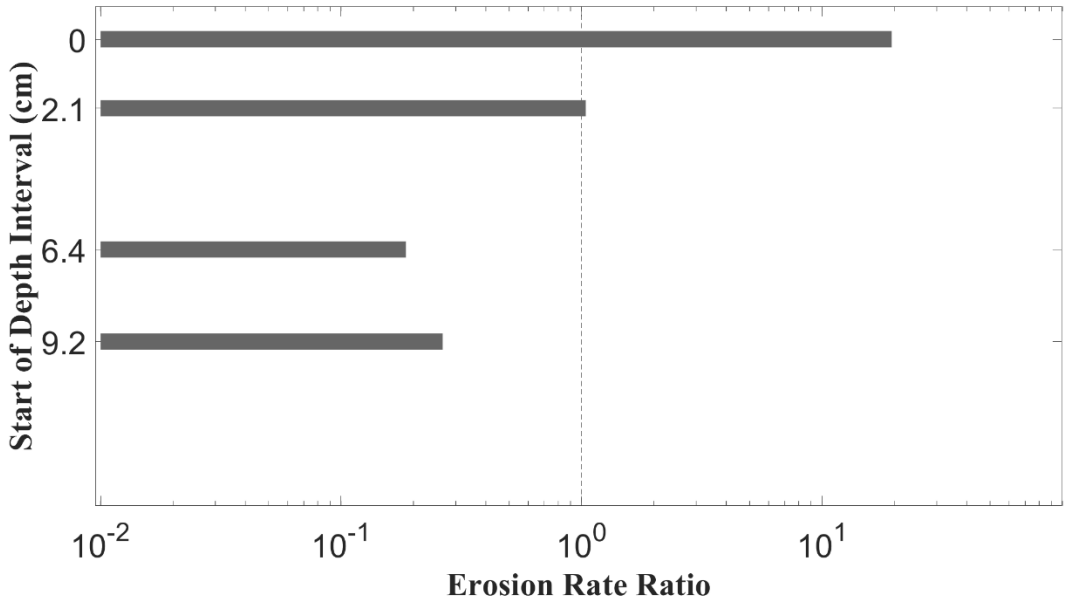


Figure 48. Intracore erosion rate ratios in SED7ESF-D.

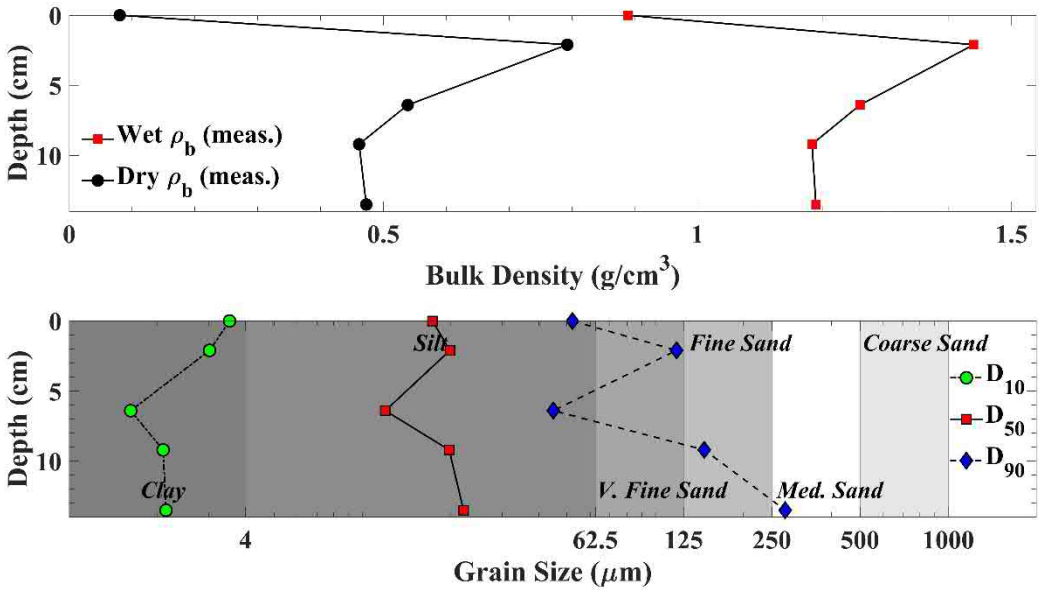


Figure 49. Bulk properties of SED7ESF-D.

Table 22. Physical parameters and derived critical shear stresses for SED7ESF-D.

| Sample Depth (cm) | Median Grain Size (µm) | Wet Bulk Density (g/cm$^3$) | Dry Bulk Density (g/cm$^3$) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 17.36 | 0.89 | 0.08 | 29.1% | 0.05 | 0.10 | 0.06 | 0.06 | 0.06 |
| 2.1 | 19.92 | 1.44 | 0.79 | 6.0% | 0.40 | 0.80 | 0.43 | 0.29 | 0.40 |
| 6.4 | 11.99 | 1.26 | 0.54 | 9.8% | 0.40 | 0.80 | 0.52 | 0.54 | 0.54 |
| 9.2 | 19.80 | 1.18 | 0.46 | 14.2% | 0.40 | 0.80 | 0.48 | 0.44 | 0.44 |
| 13.5 | 22.18 | 1.19 | 0.47 | 14.3% | --- | --- | --- | --- | --- |
| Mean | 18.25 | 1.19 | 0.47 | 14.7% | 0.31 | 0.63 | 0.37 | 0.33 | 0.36 |

Table 23. Power law fit parameters for SED7ESF-D.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 2.1 | 2.79E-04 | 1.77 | 0.85 |
| 2 | 2.1 | 6.4 | 1.48E-05 | 1.78 | 0.83 |
| 3 | 6.4 | 9.2 | 1.30E-06 | 2.57 | 0.95 |
| 4 | 9.2 | 13.5 | 1.42E-06 | 2.87 | 0.94 |

### 2.5.5 SED7ESF-E

A 15.2 cm thick layer of sand+5% GAC was placed over the native sediment collected from the intertidal river cove at Station SED7ESF (Figure 50). The grey native silt contained evidence of biotic activity. The 2 cm of native material underlying the placed sand was a lighter gray than the rest of the bedded sediment. Patches of dark grey extend 10 to 25 cm from the interface and the upper 10 cm of native material contained voids and invertebrate structures.

The non-cohesive sand cap eroded consistently across the first three intervals (Figure 50). At the interface between cap and native material approximately 15 cm from the cap surface, sand aggregate was embedded into the surrounding silt. The sediment was resistive to sampling and appeared hardened relative to the unamended sediment sample tested in SED7ESF-B. The sand cap material in Intervals 1–3 was more erodible than the native sediment in Intervals 4–6 (Figure 51). Derived critical shear stresses were an order of magnitude larger in the native material than the amendment and followed an inverse relationship with density and particle size (Figure 52, Table 24).

The fourth interval, starting at the interface where cap met native material, eroded in sheets and pieces of the surface as though a crust had formed. The material below eroded in episodic events as clumps of sediment broke free around the invertebrate tubes. The sediment 25 to 40 cm below the surface contained leaves and twigs that alternately shielded and promoted erosion events. The presence of sandier sediment 35 to 40 cm from the amendment surface resulted in more consistent, steady erosion throughout the interval as streams of sediment were suspended and eroded away. Coefficients relating shear stress and erosion rate using a power law regression indicate good agreement between measurements, and computed values fall within expected ranges (Table 25).

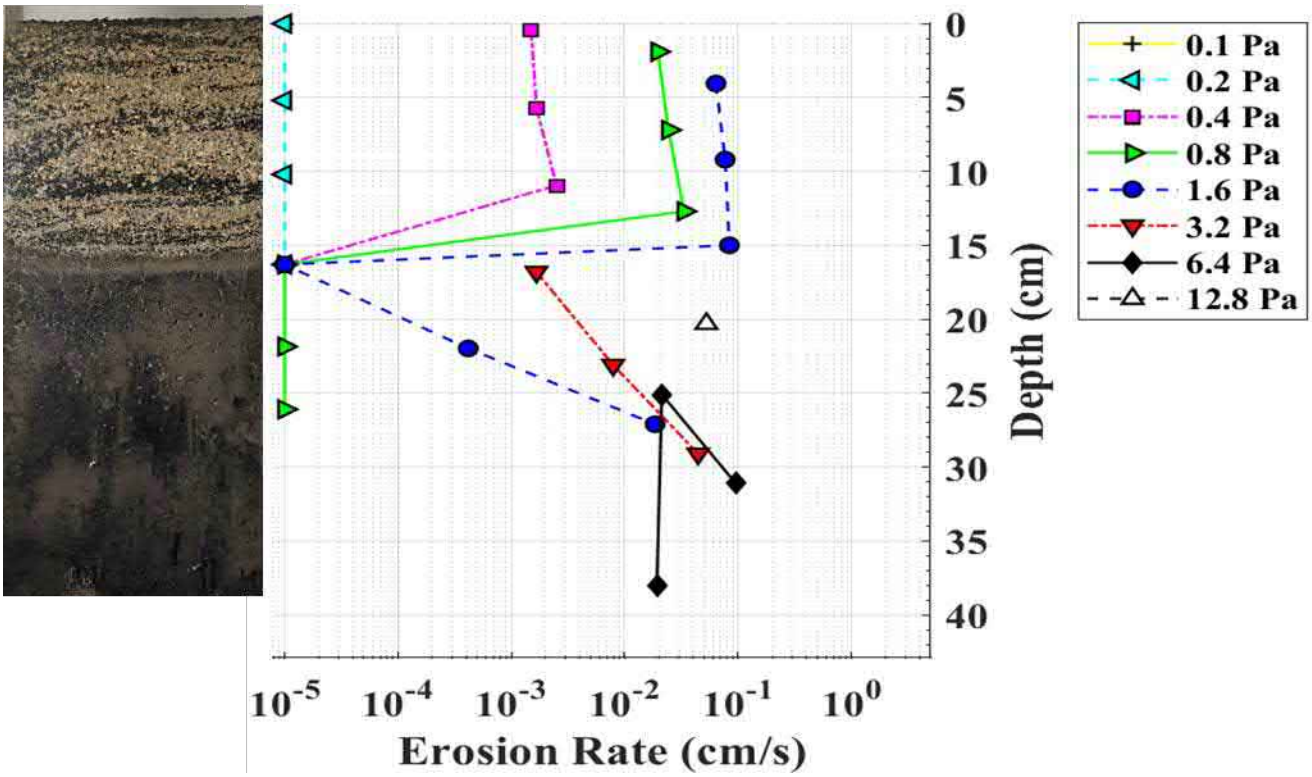


Figure 50. Photograph of Sample SED7ESF-E with applied shear and measured erosion rates with depth.

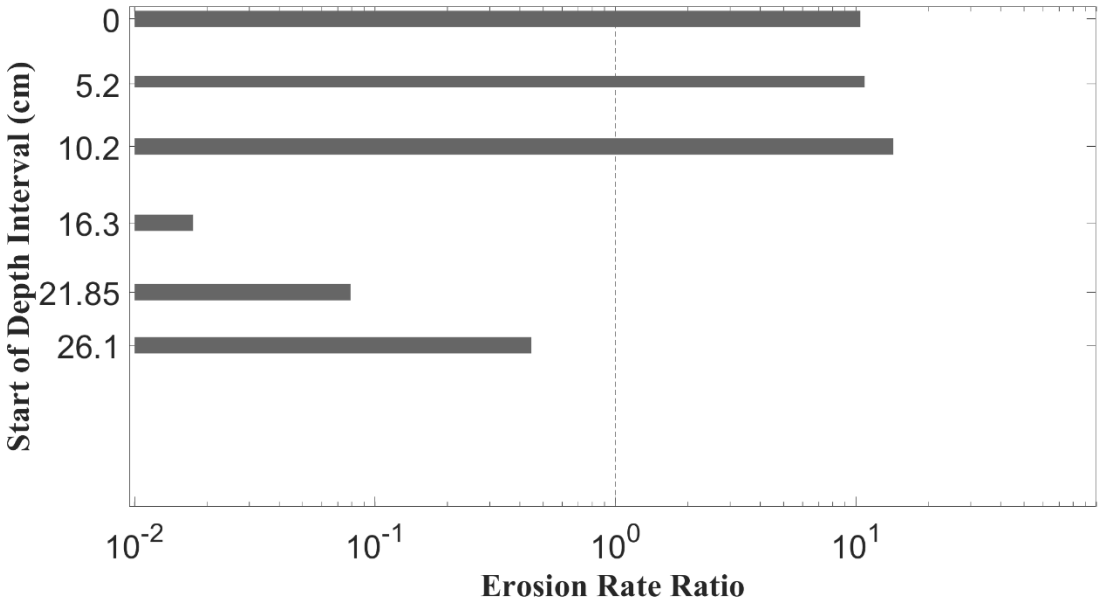


Figure 51. Intracore erosion rate ratios in SED7ESF-E.

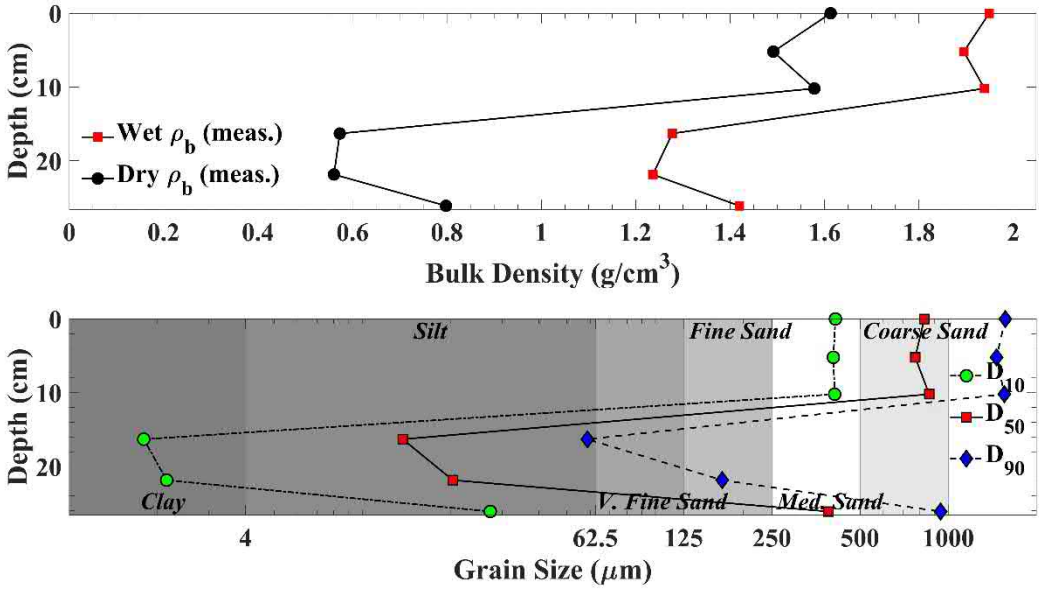


Figure 52. Bulk properties of SED7ESF-E.

Table 24. Physical parameters and derived critical shear stresses for SED7ESF-E.

| Sample Depth (cm) | Median Grain Size (µm) | Wet Bulk Density (g/cm³) | Dry Bulk Density (g/cm³) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 828.50 | 1.95 | 1.61 | 4.6% | 0.20 | 0.40 | 0.22 | 0.19 | 0.20 |
| 5.2 | 771.20 | 1.89 | 1.49 | 2.9% | 0.20 | 0.40 | 0.22 | 0.19 | 0.20 |
| 10.2 | 861.10 | 1.94 | 1.58 | 3.6% | 0.20 | 0.40 | 0.21 | 0.18 | 0.20 |
| 16.3 | 13.75 | 1.28 | 0.57 | 10.0% | 1.60 | 3.20 | 1.70 | 1.46 | 1.60 |
| 21.9 | 20.38 | 1.24 | 0.56 | 14.7% | 0.80 | 1.60 | 1.00 | 0.95 | 0.95 |
| 26.1 | 389.90 | 1.42 | 0.80 | 8.8% | 0.80 | 1.60 | 0.81 | 0.53 | 0.80 |
| Mean | 480.81 | 1.62 | 1.10 | 7.4% | 0.63 | 1.27 | 0.69 | 0.58 | 0.66 |

Table 25. Power law fit parameters for SED7ESF-E.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 5.2 | 1.15E-05 | 3.29 | 0.96 |
| 2 | 5.2 | 10.2 | 1.10E-05 | 3.38 | 0.96 |
| 3 | 10.2 | 16.3 | 1.50E-05 | 3.35 | 0.94 |
| 4 | 16.3 | 21.3 | 2.21E-08 | 3.14 | 0.96 |
| 5 | 21.9 | 26.1 | 1.11E-07 | 3.02 | 0.96 |
| 6 | 26.1 | 32.1 | 5.80E-07 | 3.10 | 0.79 |

## 2.6 SED8CSF

### 2.6.1 SED8CSF-A

A 37 cm sample of sediment from the Anacostia River was collected at SED8CSF. SED8CSF-A is archived in the Santa Cruz SEDflume laboratory in case supplemental testing is required.



Figure 53. Photograph of Sample SED8CSF-A.

## 2.6.2 SED8CSF-B

SED8CSF-B is located just upstream from the river cove. During sampling, 30 cm of grey silty sediment was collected. Bivalves and evidence of worm tubes on the surface were noted in the upper 2–3 cm along with a dark black layer 2–3 mm thick (Figure 54). During analysis, pockets of sandy sediment intermixed into the gray silty material were noted in the upper 12 cm. Sediment 12 cm below the surface and further into the core was grainy and clumped in texture and eroded unevenly. Interspersed plant material was also present.

Shear stresses ranging from 0.1 to 12.8 Pa, were applied to the core in five test intervals and produced varying erosion rates with depth (Figure 54, Figure 55). The least erodible material was observed in the fourth interval 14 cm below the surface. Critical shear stresses ranged from 0.12 to 1.26 Pa and increased as bulk density increased and median particle size (D50) decreased (Table 26, Figure 56). Relative increases in erodibility and a lower critical shear in Interval 5 than in Interval 4 could be associated with the presence of leaves and sticks and a change in grain size distribution. After the surface material eroded in individual grains and streams of particles, larger clumps with fissures and cracks were exposed and the material eroded unevenly in sporadic events. Coefficients relating shear stress and erosion rate by a power law regression presented in Table 27.

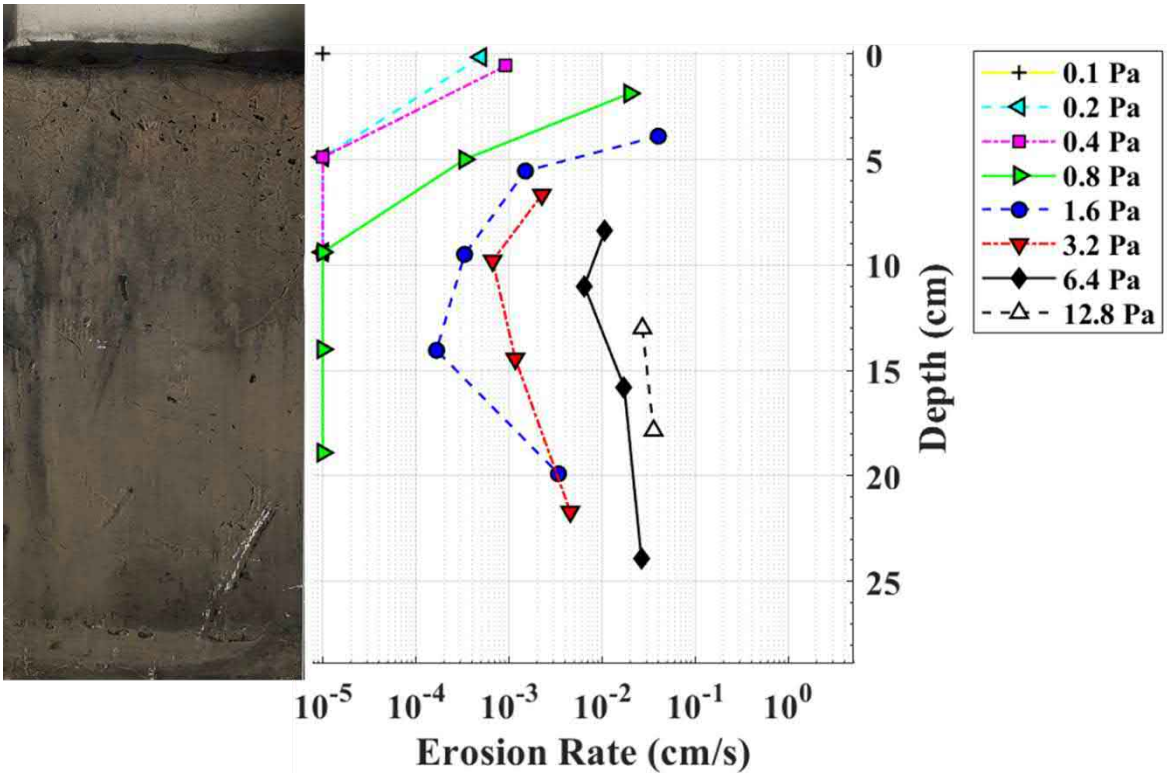


Figure 54. Photograph of Sample SED8CSF-B with applied shear and measured erosion rates with depth.

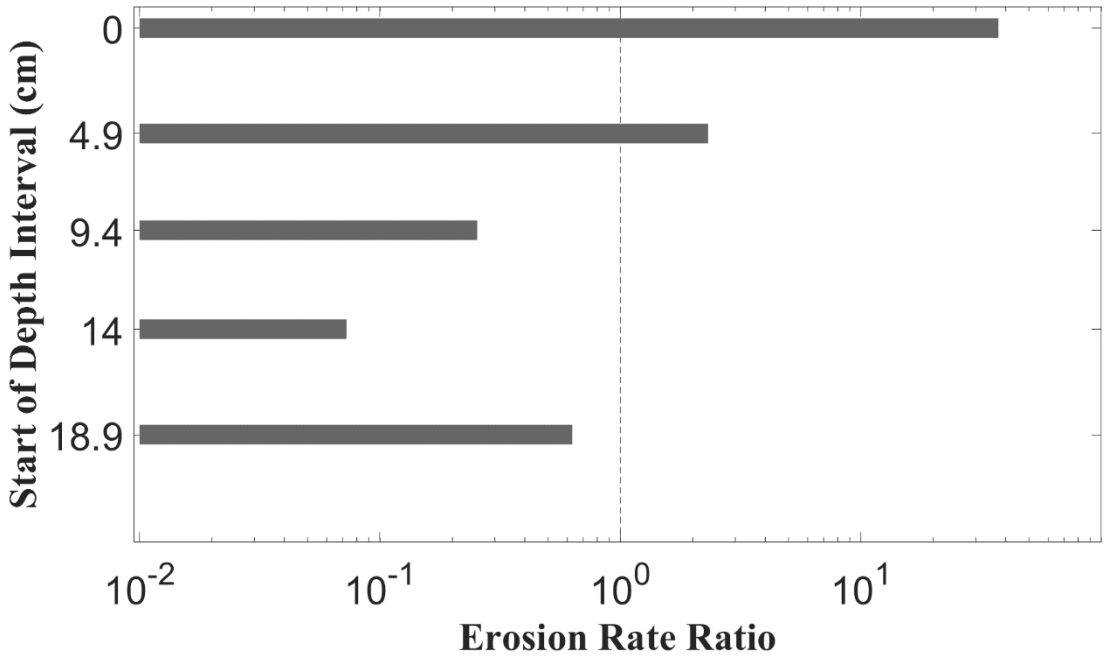


Figure 55. Intracore erosion rate ratios in SED8CSF-B.

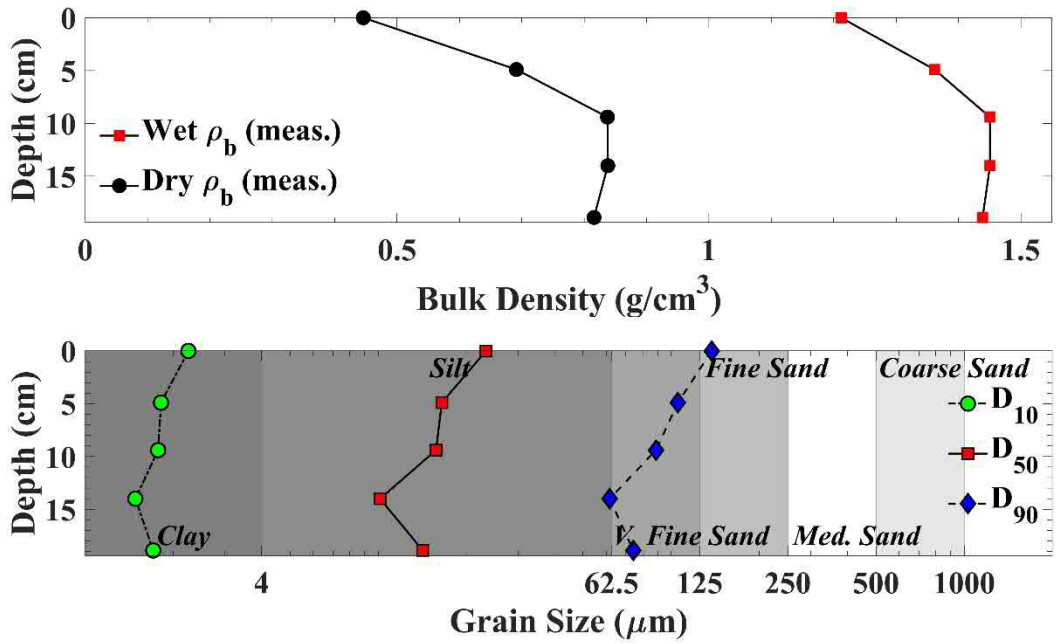


Figure 56. Bulk properties of SED8CSF-B.

Table 26. Physical parameters and derived critical shear stresses for SED8CSF-B.

| Sample Depth (cm) | Median Grain Size (µm) | Wet Bulk Density ($g/cm^3$) | Dry Bulk Density ($g/cm^3$) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 23.34 | 1.21 | 0.45 | 8.7% | 0.10 | 0.20 | 0.12 | 0.12 | 0.12 |
| 4.9 | 16.49 | 1.36 | 0.69 | 8.1% | 0.40 | 0.80 | 0.52 | 0.44 | 0.44 |
| 9.4 | 15.76 | 1.45 | 0.84 | 7.8% | 0.80 | 1.60 | 1.04 | 1.05 | 1.05 |
| 14 | 10.15 | 1.45 | 0.84 | 7.9% | 0.80 | 1.60 | 1.28 | 1.26 | 1.26 |
| 18.9 | 14.20 | 1.44 | 0.82 | 7.7% | 0.80 | 1.60 | 0.83 | 0.62 | 0.80 |
| Mean | 15.99 | 1.38 | 0.73 | 8.0% | 0.58 | 1.16 | 0.76 | 0.70 | 0.73 |

Table 27. Power law fit parameters for SED8CSF-B.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 4.9 | 6.92E-05 | 2.38 | 0.95 |
| 2 | 4.9 | 9.4 | 7.60E-06 | 1.74 | 0.97 |
| 3 | 9.4 | 14.0 | 5.47E-07 | 2.21 | 0.98 |
| 4 | 14.4 | 18.9 | 9.85E-08 | 2.73 | 0.97 |
| 5 | 18.9 | 24.9 | 1.07E-06 | 2.48 | 0.88 |

## 2.7 SED9.5BSF

### 2.7.1 SED9.5BSF-A

A 19 cm sample of sediment was collected upstream from the river cove in the navigation channel region of the Anacostia River. SED9.5BSF-A is archived in the Santa Cruz SEDflume laboratory in case supplemental testing is required.



Figure 57. Photograph of Sample SED9.5BSF-A.

## 2.7.2 SED9.5BSF-B

Sample SED9.5BSF-B was collected upstream from the river cove in the navigation channel. A 25 cm core of grey sandy silt was collected (Figure 58). A layer of unconsolidated orangey floc material peppered the surface. The surface included evidence of biotic activity and a cluster of bivalve shells was noted 14 cm below the surface.

Erodibility analysis included three shear stress intervals with shear stresses ranging from 0.1 to 3.2 Pa. Erosion rates remained steady with depth possibly due to the presence of sandy material and the observed porous nature of the sediment (Figure 59). Surface sediment had a lower density and median grain size than the underlying sediment (Figure 60). The derived critical shear stress in the first interval was lower (0.17 Pa) than the underlying more homogeneous material (0.2 Pa) (Table 28). Coefficients relating the relating shear stress and erosion rate through a power law regression indicate a good fit between measurements and fall within expected ranges (Table 29).

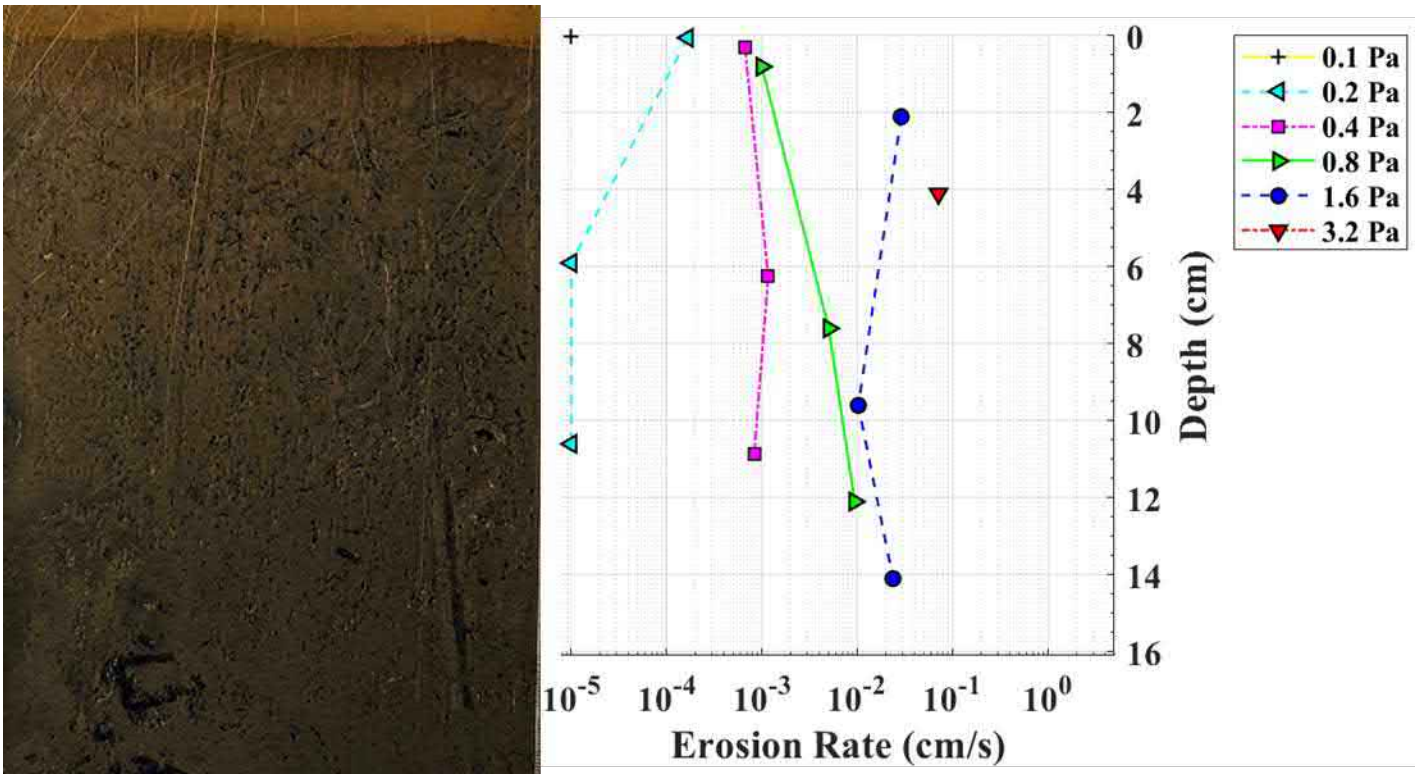


Figure 58. Photograph of Sample SED9.5BSF-B with applied shear and measured erosion rates with depth.

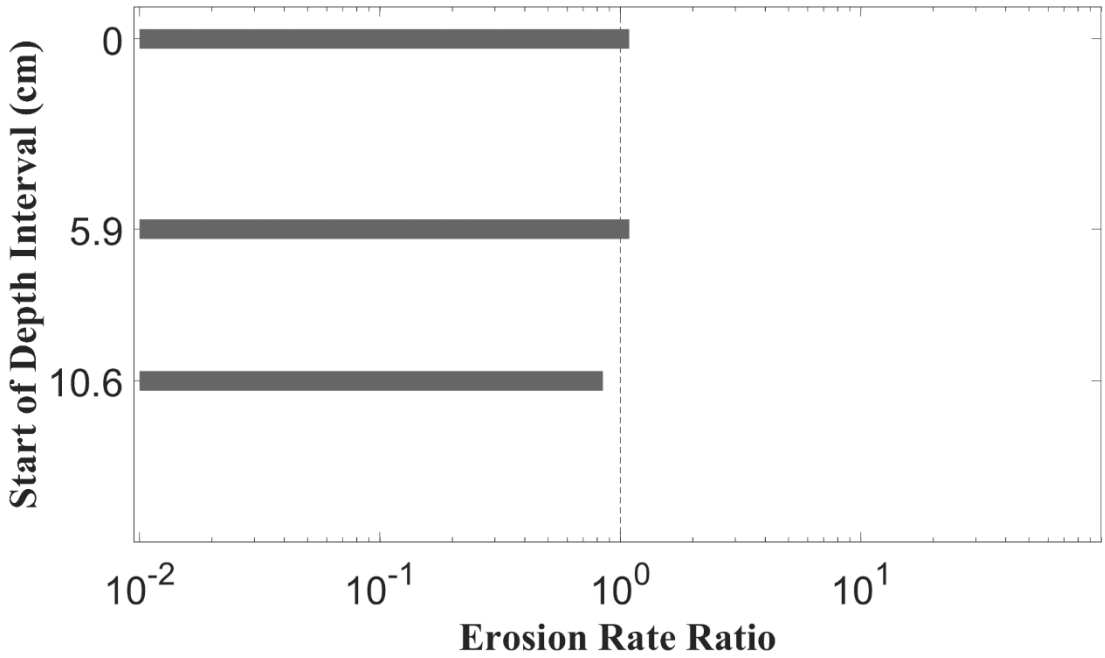


Figure 59. Intracore erosion rate ratios in SED9.5BSF-B.

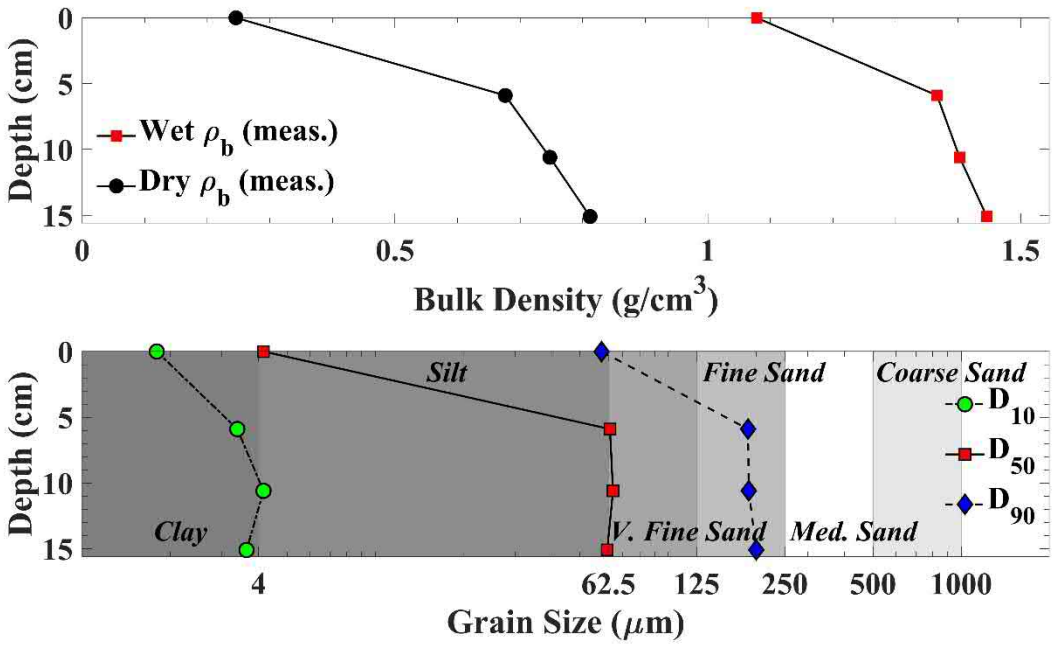


Figure 60. Bulk properties of SED9.5BSF-B.

Table 28. Physical parameters and derived critical shear stresses for SED9.5BSF-B.

| Sample Depth (cm) | Median Grain Size (µm) | Wet Bulk Density (g/cm$^3$) | Dry Bulk Density (g/cm$^3$) | Loss on Ignition (%) | Tau_no (Pa) | Tau_first (Pa) | Tau Crit Linear (Pa) | Tau Crit Power (Pa) | Tau Crit Final (Pa) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 4.16 | 1.08 | 0.25 | 11.2% | 0.10 | 0.20 | 0.16 | 0.17 | 0.17 |
| 5.9 | 63.28 | 1.37 | 0.68 | 6.4% | 0.20 | 0.40 | 0.22 | 0.17 | 0.20 |
| 10.6 | 64.82 | 1.40 | 0.75 | 7.2% | 0.20 | 0.40 | 0.23 | 0.20 | 0.20 |
| 15.1 | 61.95 | 1.45 | 0.81 | 6.6% | --- | --- | --- | --- | --- |
| Mean | 48.55 | 1.33 | 0.62 | 7.9% | 0.17 | 0.33 | 0.20 | 0.18 | 0.19 |

Table 29. Power law fit parameters for SED9.5BSF-B.

| Interval | Depth Start (cm) | Depth Finish (cm) | A | n | $r^2$ |
|---|---|---|---|---|---|
| 1 | 0.0 | 5.1 | 2.94E-05 | 2.24 | 0.95 |
| 2 | 5.9 | 10.6 | 2.81E-05 | 2.29 | 0.92 |
| 3 | 10.6 | 15.1 | 1.30E-05 | 2.87 | 0.96 |

# 3 AMENDMENT COMPARISON

Results from this SEDflume study allow for a comparison between amendments and with native sediment response to erosive forces. The following comparative figures are designed to highlight similarities in amended sediment characteristics and show differences from the native unaltered material. Critical shear stresses, median particle sizes, and bulk density trends are presented relative to depth. The horizontal dotted line at zero in each panel represents the approximate depth of the amended sediment.

The observations of unamended and amended sediment reflect changes in the erodibility properties due to the addition of SediMite™, AquaGate®+PAC, or sand+GAC. Unamended Samples SED7DSF-B and SED7ESF-B contained similar bedded sediment (Figure 62 and Figure 63, first panels), and the computed critical shear stress magnitudes aligned with depth (Figure 61, first panel). This consistency in unamended samples suggests that observed differences in Samples C, D, and E are related to the application of amendment material.

The influence of amendment material is shown to be consistent between the two sites with some variations being attributed to differences in amendment thickness. The SediMite™ required the thinnest layer of material, 0.9 and 1.1 cm for SED7DSF-C and SED7ESF-C, respectively. Resulting densities did not vary significantly from that of unamended sediment (Figure 63, panels 2 and 1); however, particle size distribution at the surface increased in both samples (Figure 62). The increase in grain size appears to have had a limited influence on computed critical shear stress.

Because significantly more AquaGate®+PAC was required than SediMite™, more weight was applied to the underlying sediment during the consolidation phase. In both AquaGate®+PAC samples, the surface layer contained the gelatin-like low-density material that eroded relatively easily and had a low critical shear stress (Figure 63, panel 3). The underlying layers where the amendment aggregate, clay and carbon material, and native sediment mixed required more force to erode, and this trend extended into the native material below. The overall lower critical shear stresses in SED7ESF-D relative to SED7DSF-D could be due to the doubled amount of amendment material present pressing down on the native material and increasing the measured density.

The application of sand+GAC appeared to have the same effect on both cove samples with an increase in shear stress at the interface of sand and native material due to the crust-like formation of sediment observed in both samples. Like the AquaGate®+PAC sample SED7DSF-D, the weight of the amendment appeared to consolidate the underlying sediment, increasing the density, and ultimately increasing the critical shear stress. A key difference between the sand cap and other amendments is the lack of carbon penetration into the underlying sediment that was observed in the SediMite™ and AquaGate®+PAC samples (Figure 27, Figure 31). Despite evidence of preliminary biotic activity at the interface

(Figure 35), no darkening of the native material was observed and the overall biotic disturbance seen in the other amended samples was muted.

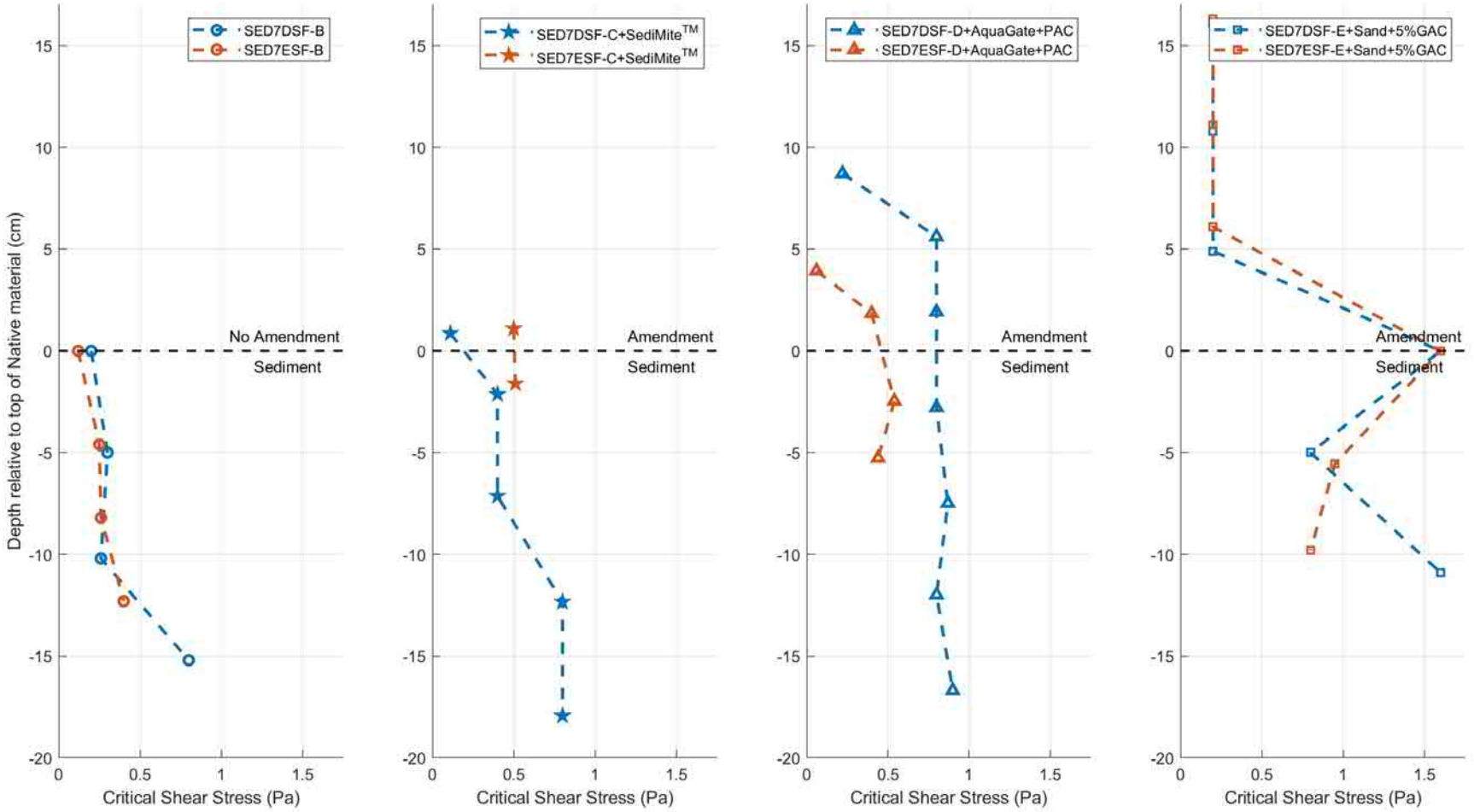


Figure 61. Critical shear stresses in unamended and amended sediment. Left to right: Unamended sediment, SediMite amendment, AquaGate+PAC amendment, sand+GAC amendment.

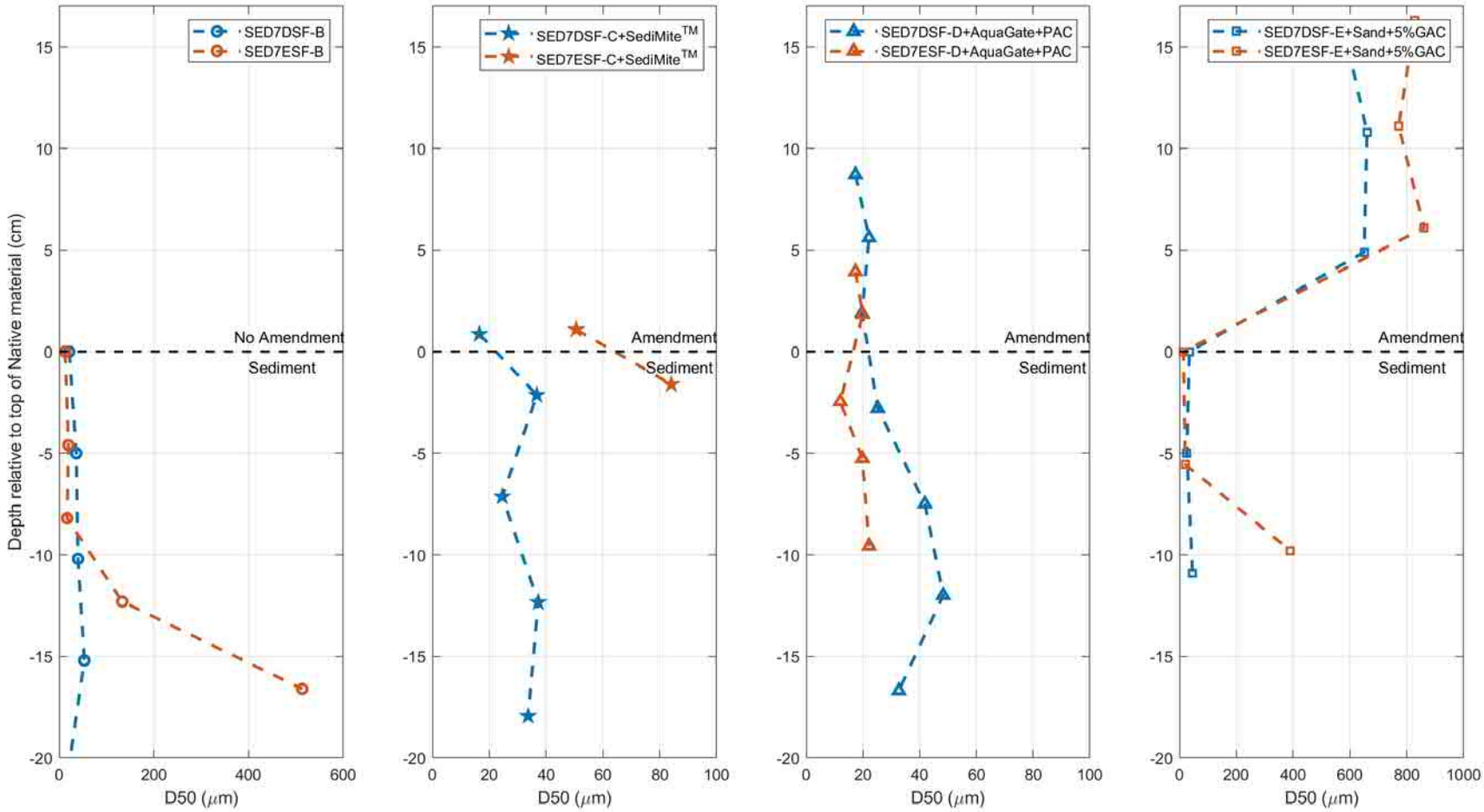


Figure 62. Median particle size (D50) in unamended and amended sediment. Left to right: Unamended sediment, SediMite amendment, AquaGate+PAC amendment, sand+GAC amendment.

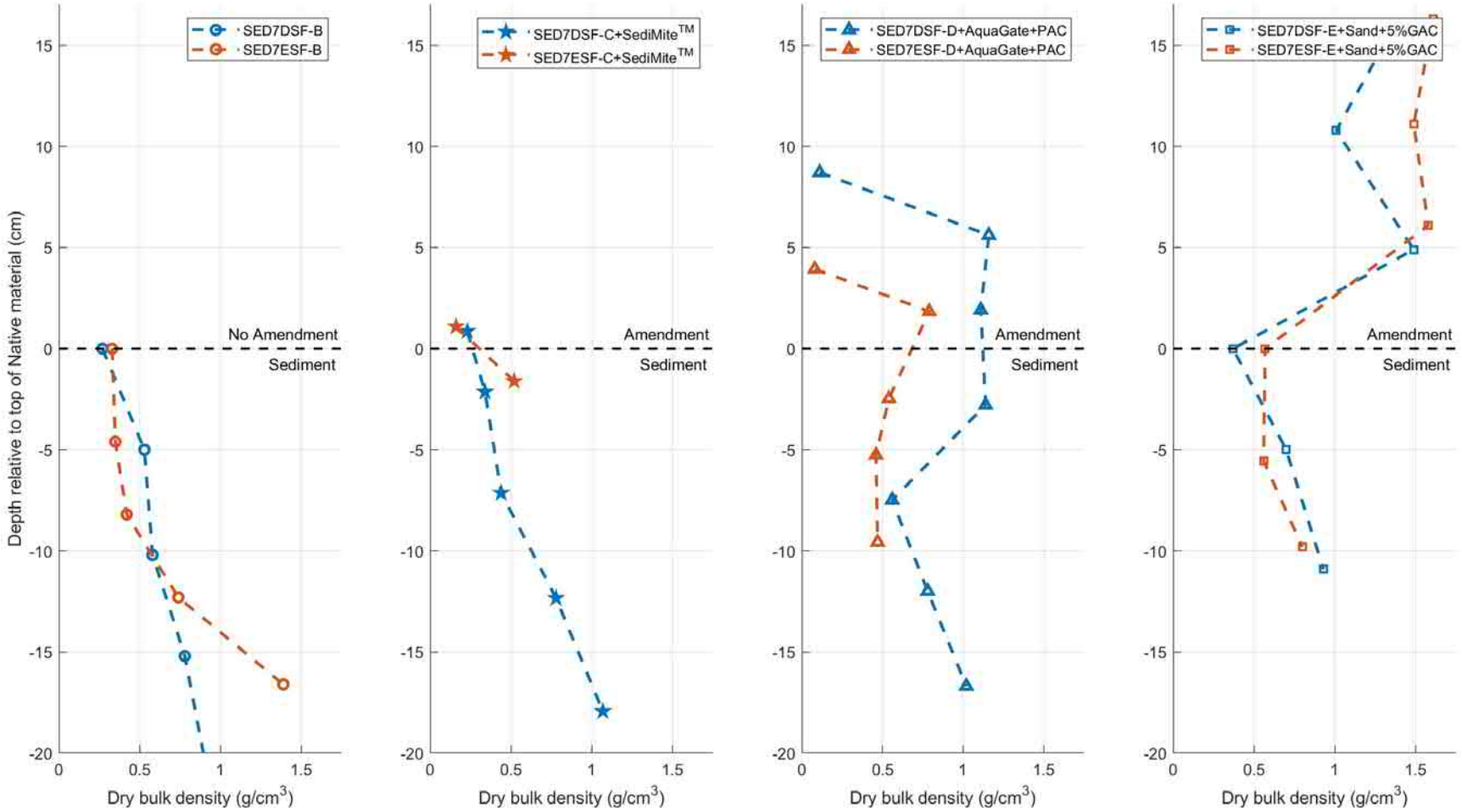


Figure 63. Dry bulk density in unamended and amended sediment. Left to right: Unamended sediment, SediMite amendment, AquaGate+PAC amendment, sand+GAC amendment.

# 4 CONCLUSIONS

The SEDflume study conducted on samples from the Anacostia River resulted in the determination of erodibility parameters from seven unamended sediment samples and six amended sediment cores. Application of amendment material was intended to mimic biotic activity that could mix the amendment material into the native sediment to deliver the desired carbon load to the system. The manual mixing into the bioactive zone was exacerbated in some cases by natural biotic activity that extended the presence of carbon into the sediment bed.

Computed critical shear stresses were greater in the amended and underlying native material than in the unamended, collocated samples. The presence and abundance of biota, either active such as worms or passive such as pockets of leaves, seemed to have an impact on the erodibility of surrounding sediment. Observed erosion processes transitioned from streams of individual grains in unconsolidated material to clumps and pieces in deeper sediment.

Samples with likewise amendments behaved similarly to one another but different from the baseline samples that went untreated. Both the AquaGate®+PAC and SediMite™ appear to have delivered the carbon load to the surface sediment. The quantity of AquaGate®+PAC resulted in some differential settling and formation of a low-density layer of pure amendment that was removed easily during testing. The thinner application of SediMite™ meant it was more easily mixed into the native material but appeared to have less influence on erodibility parameters. The sand+GAC had a strong influence on underlying sediment due to the overall weight of material but lacked the penetration of carbon observed in other amended samples.

It is recommended that the data presented here be analyzed in conjunction with other data regarding environmental forces, chemical sequestration needs, and overall site dynamics to determine which amendment will best meet project goals.

# 5 REFERENCES

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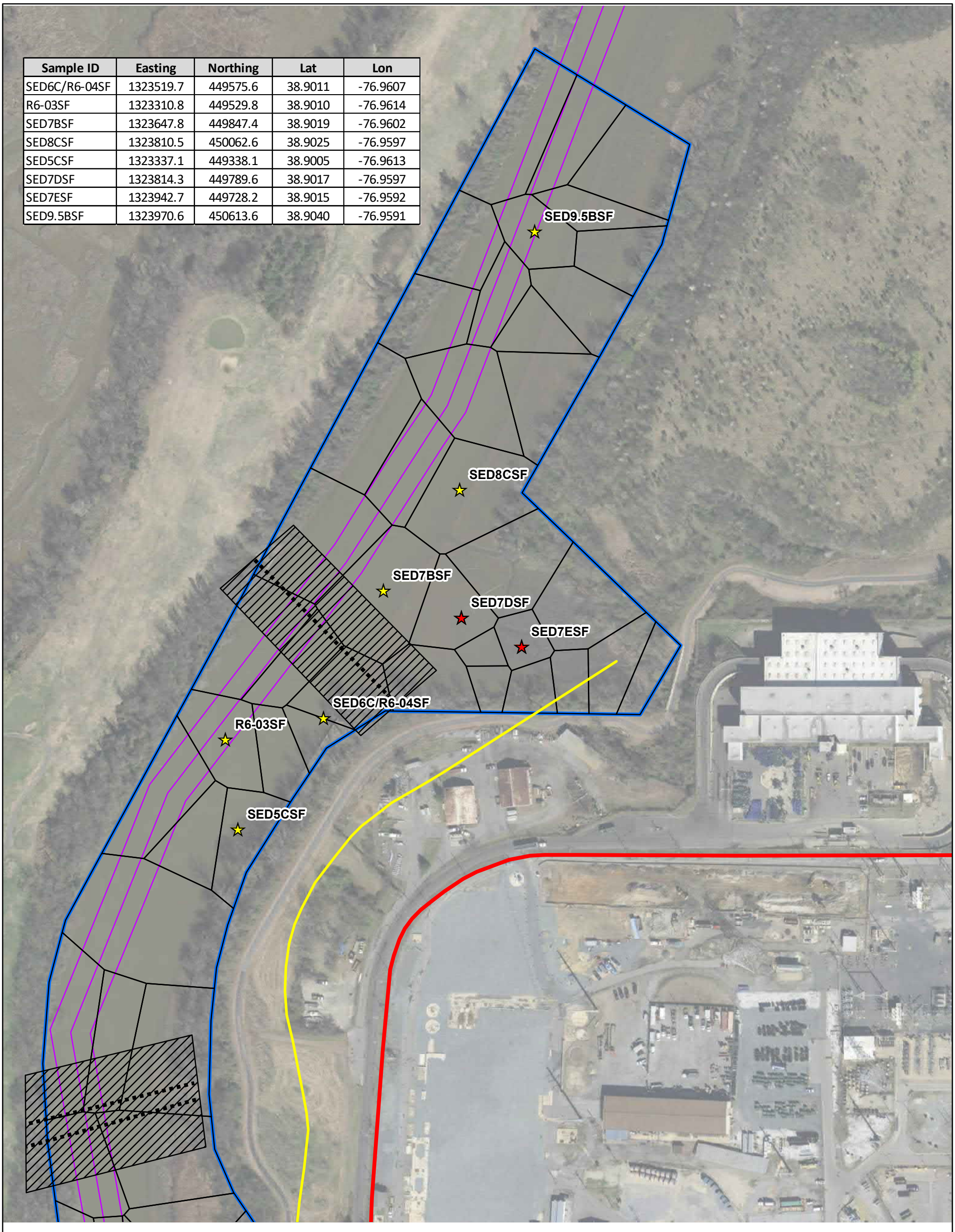
# Appendix A

# Sampling Locations

| Sample ID | Easting | Northing | Lat | Lon |
|---|---|---|---|---|
| SED6C/R6-04SF | 1323519.7 | 449575.6 | 38.9011 | -76.9607 |
| R6-03SF | 1323310.8 | 449529.8 | 38.9010 | -76.9614 |
| SED7BSF | 1323647.8 | 449847.4 | 38.9019 | -76.9602 |
| SED8CSF | 1323810.5 | 450062.6 | 38.9025 | -76.9597 |
| SED5CSF | 1323337.1 | 449338.1 | 38.9005 | -76.9613 |
| SED7DSF | 1323814.3 | 449789.6 | 38.9017 | -76.9597 |
| SED7ESF | 1323942.7 | 449728.2 | 38.9015 | -76.9592 |
| SED9.5BSF | 1323970.6 | 450613.6 | 38.9040 | -76.9591 |




LEGEND

- SF Sample Locations (5 cores)
- SF Sample Locations (2 cores)
- Sewer
- Utility Crossing
- Navigation Channel
- Benning Road Facility Property Boundary
- Waterside Investigation Area

AECOM

0 400 Feet

BENNING ROAD FACILITY RI/FS PROJECT
3400 BENNING RD., NE
WASHINGTON, DC 20019

SEDFLUME LOCATIONS

Date: 6/3/2020 | Drawn By: DCB | Checked By: RD | FIGURE 1

# Appendix B

# Particle Size Distributions

# (Data Files Available Upon Request)

# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED5CSF-B-01

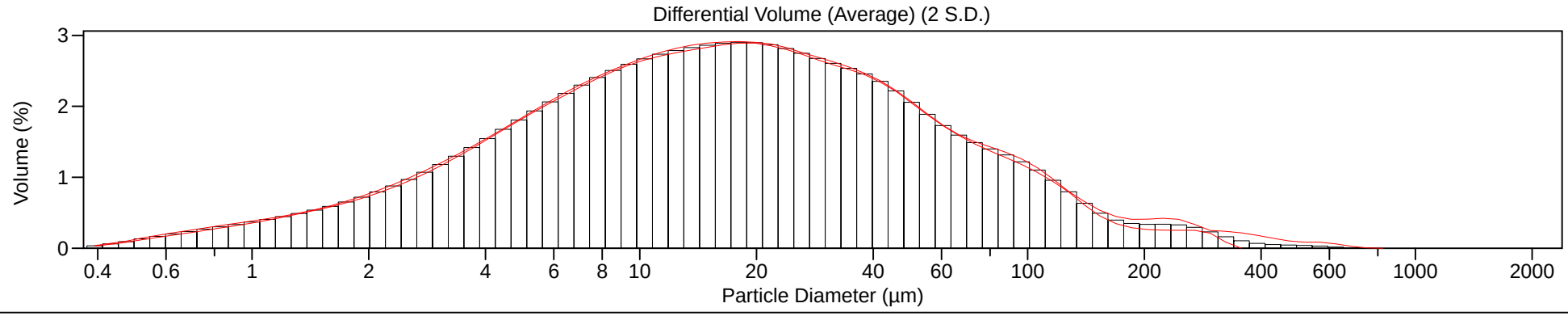
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_5_CSF-b_01__001.$av |
| | SED_5_CSF-b_01__001.$av |
| File ID: | SED_5_CSF-b_01 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_5_CSF-b_01__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 15.81 µm | S.D.: | 3.561 |
| Median: | 16.42 µm | Variance: | 12.68 |
| Mean/Median ratio: | 0.963 | Skewness: | -0.142 Left skewed |
| Mode: | 18.00 µm | Kurtosis: | -0.199 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.978 µm | 6.799 µm | 16.42 µm | 38.42 µm | 80.32 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED5CSF-B-02

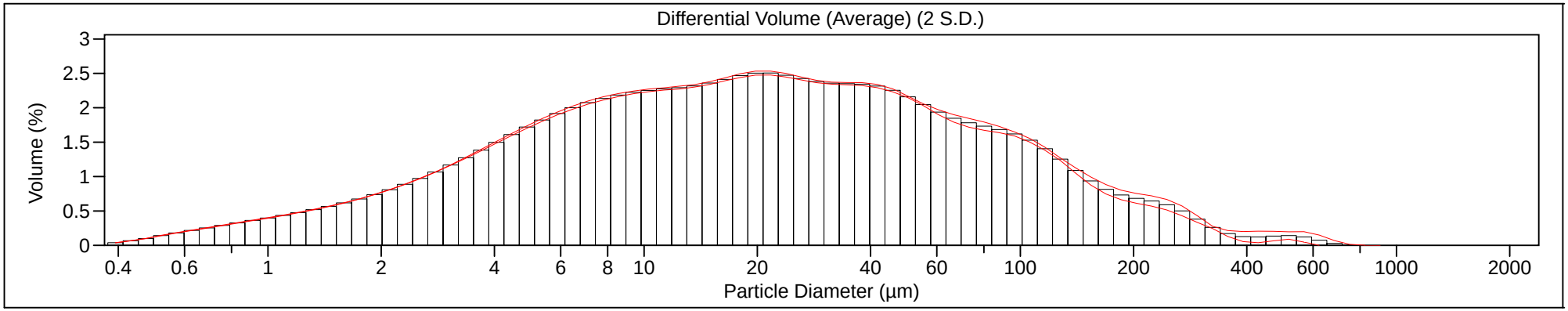
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_5_CSF-b_02__001.$av |
| | SED_5_CSF-b_02__001.$av |
| File ID: | SED_5_CSF-b_02 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_5_CSF-b_02__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 18.45 µm | S.D.: | 4.056 |
| Median: | 19.21 µm | Variance: | 16.45 |
| Mean/Median ratio: | 0.961 | Skewness: | -0.132 Left skewed |
| Mode: | 21.70 µm | Kurtosis: | -0.438 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.887 µm | 6.910 µm | 19.21 µm | 51.32 µm | 112.7 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED5CSF-B-03

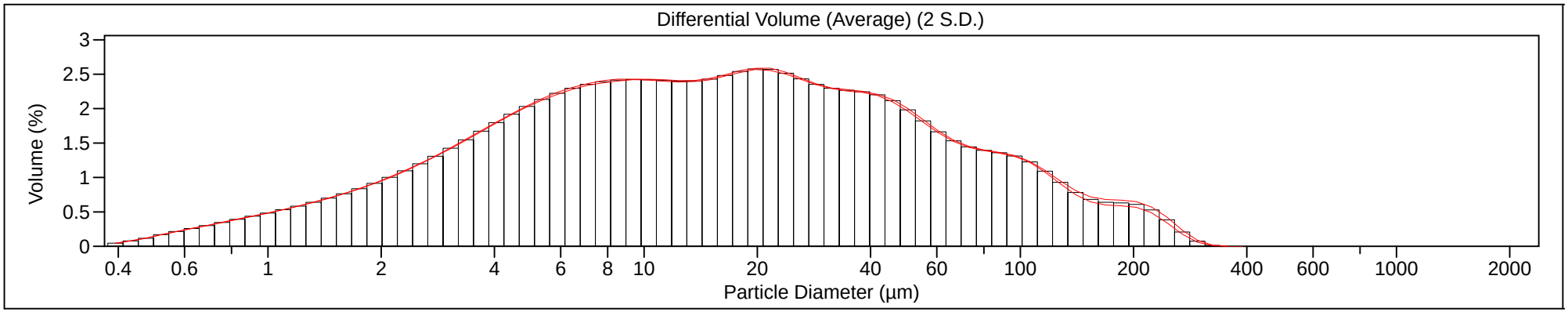
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_5_CSF-b_03__001.$av |
| | SED_5_CSF-b_03__001.$av |
| File ID: | SED_5_CSF-b_03 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_5_CSF-b_03__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 14.55 µm | S.D.: | 3.833 |
| Median: | 15.02 µm | Variance: | 14.69 |
| Mean/Median ratio: | 0.968 | Skewness: | -0.121 Left skewed |
| Mode: | 19.76 µm | Kurtosis: | -0.528 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.441 µm | 5.625 µm | 15.02 µm | 39.18 µm | 86.71 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED5CSF-B-04

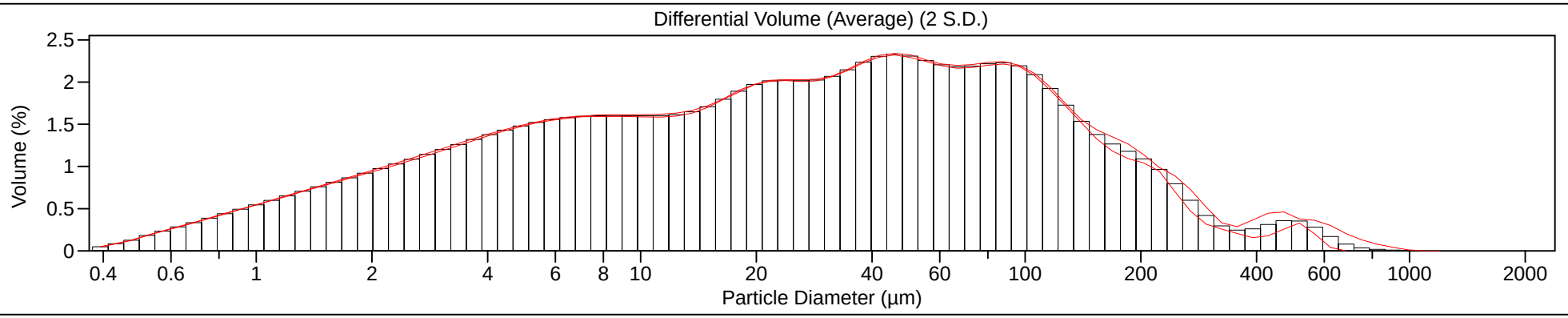
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_5_CSF-b_04__001.$av |
| | SED_5_CSF-b_04__001.$av |
| File ID: | SED_5_CSF-b_04 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_5_CSF-b_04__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 21.50 µm | S.D.: | 4.815 |
| Median: | 25.31 µm | Variance: | 23.18 |
| Mean/Median ratio: | 0.849 | Skewness: | -0.255 Left skewed |
| Mode: | 45.76 µm | Kurtosis: | -0.682 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.323 µm | 6.595 µm | 25.31 µm | 73.42 µm | 148.1 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED5CSF-B-05

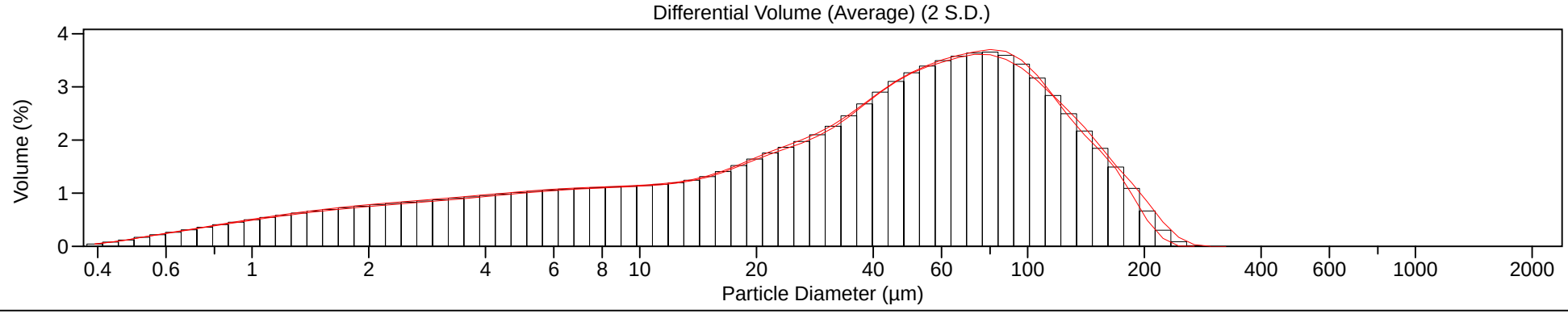
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_5_CSF-b_05__001.$av |
| | SED_5_CSF-b_05__001.$av |
| File ID: | SED_5_CSF-b_05 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_5_CSF-b_05__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 26.38 µm | S.D.: | 4.222 |
| Median: | 40.06 µm | Variance: | 17.83 |
| Mean/Median ratio: | 0.658 | Skewness: | -0.829 Left skewed |
| Mode: | 80.07 µm | Kurtosis: | -0.224 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.676 µm | 10.59 µm | 40.06 µm | 80.19 µm | 122.6 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED6C/R604SF-B-01

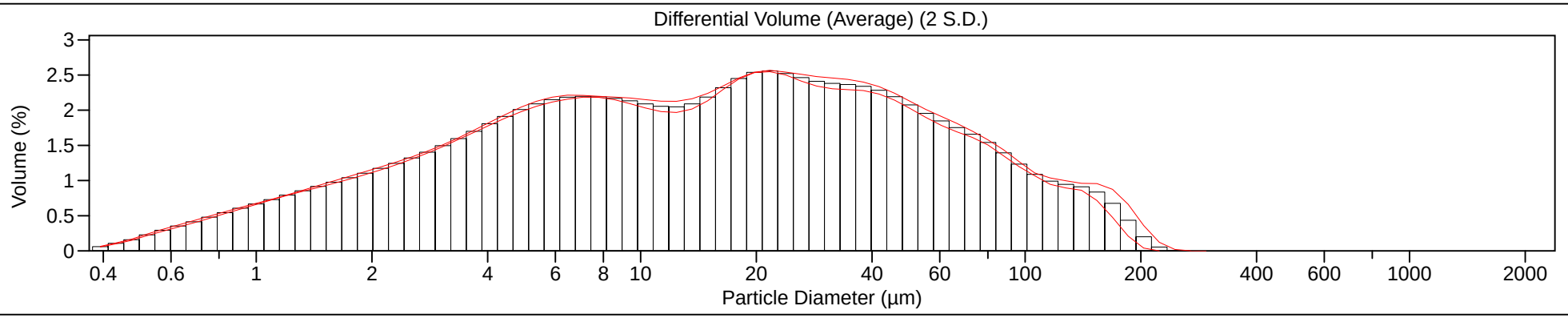
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_6CR6-04SF-b_01__001.$av |
| | SED_6CR6-04SF-b_01__001.$av |
| File ID: | SED_6C/R6-04SF-b_01 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_6CR6-04SF-b_01__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 13.24 µm | S.D.: | 3.949 |
| Median: | 14.65 µm | Variance: | 15.59 |
| Mean/Median ratio: | 0.904 | Skewness: | -0.219 Left skewed |
| Mode: | 21.70 µm | Kurtosis: | -0.693 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.959 µm | 4.888 µm | 14.65 µm | 38.39 µm | 77.96 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED6C/R604SF-B-02

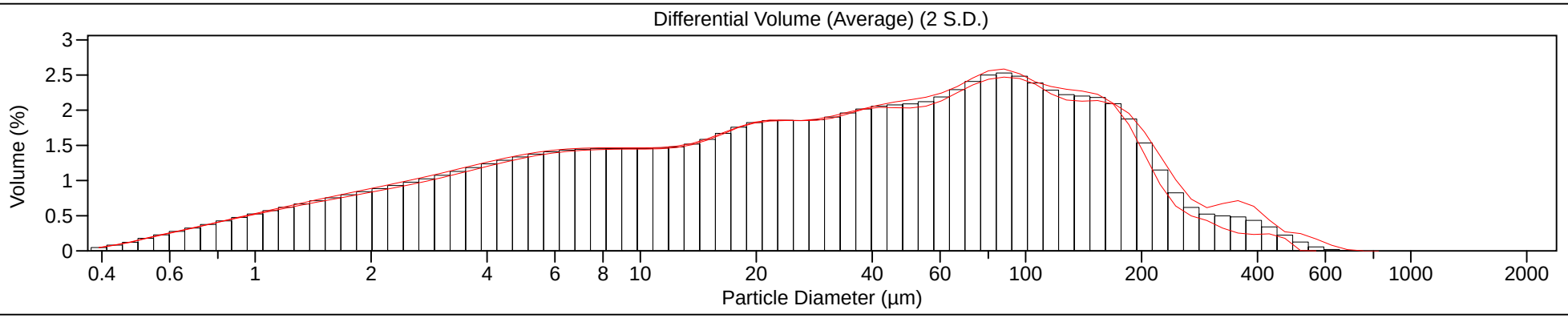
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\#2 SED6CR6-04SF-b_02__001.$av |
| | #2 SED6CR6-04SF-b_02__001.$av |
| File ID: | SED6C/R6-04SF-b_02 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) #2 SED6CR6-04SF-b_02__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 24.84 µm | S.D.: | 4.897 |
| Median: | 31.16 µm | Variance: | 23.98 |
| Mean/Median ratio: | 0.797 | Skewness: | -0.405 Left skewed |
| Mode: | 87.90 µm | Kurtosis: | -0.719 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.462 µm | 7.545 µm | 31.16 µm | 90.68 µm | 167.2 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED6C/R604SF-B-03

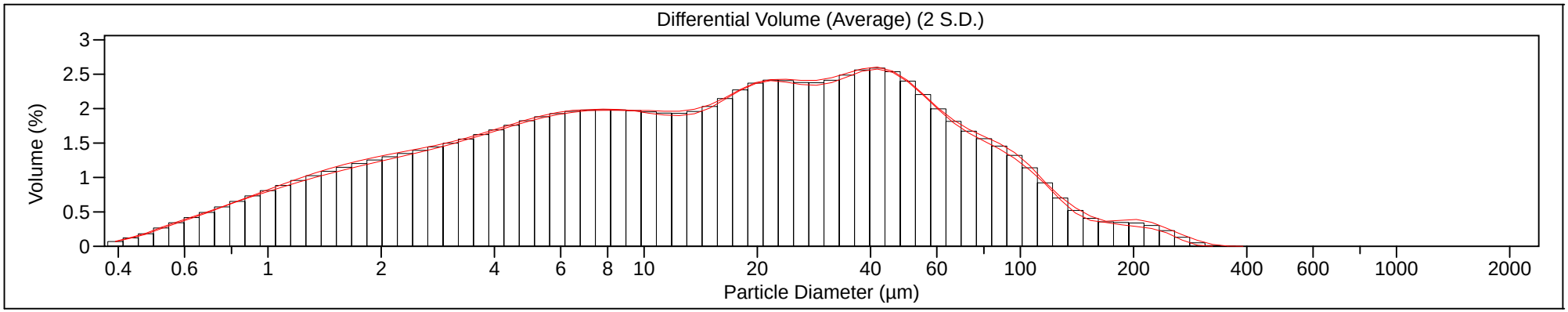
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_6CR6-04SF-b_03__001.$av |
| | SED_6CR6-04SF-b_03__001.$av |
| File ID: | SED6C/R6-04SF-b_03 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_6CR6-04SF-b_03__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 12.89 µm | S.D.: | 4.133 |
| Median: | 14.86 µm | Variance: | 17.08 |
| Mean/Median ratio: | 0.867 | Skewness: | -0.240 Left skewed |
| Mode: | 41.68 µm | Kurtosis: | -0.763 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.701 µm | 4.458 µm | 14.86 µm | 39.80 µm | 75.61 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED6C/R604SF-B-04

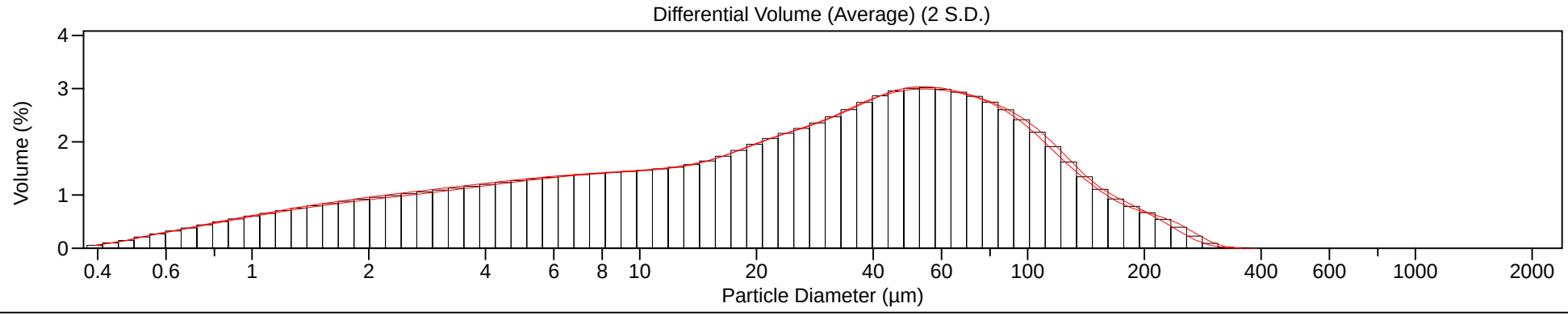
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_6CR6-04SF-b_04__001.$av |
| | SED_6CR6-04SF-b_04__001.$av |
| File ID: | SED6C/R6-04SF-b_04 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_6CR6-04SF-b_04__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 20.29 µm | S.D.: | 4.342 |
| Median: | 27.82 µm | Variance: | 18.85 |
| Mean/Median ratio: | 0.729 | Skewness: | -0.556 Left skewed |
| Mode: | 55.14 µm | Kurtosis: | -0.574 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.188 µm | 7.110 µm | 27.82 µm | 64.21 µm | 109.4 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED6C/R604SF-B-05

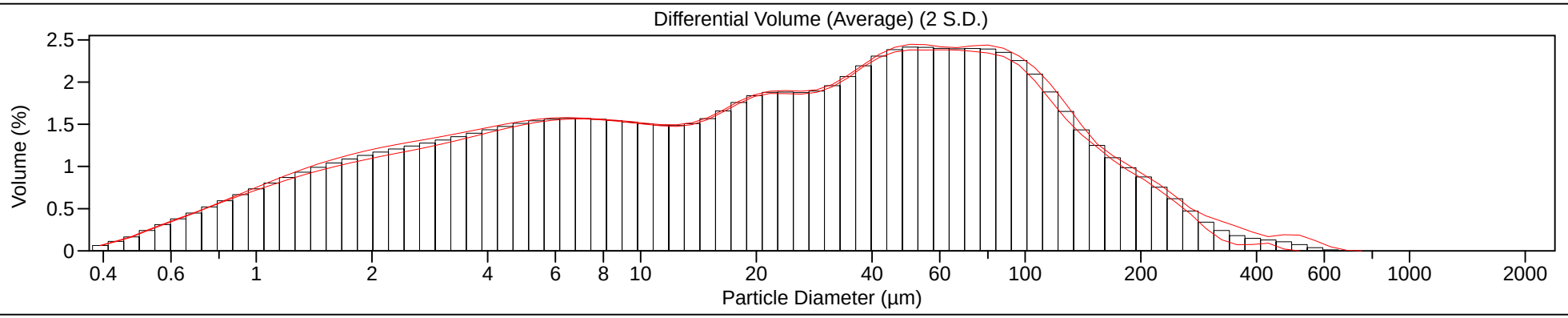
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_6CR6-04SF-b_05__001.$av |
| | SED_6CR6-04SF-b_05__001.$av |
| File ID: | SED6C/R6-04SF-b_05 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_6CR6-04SF-b_05__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 18.29 µm | S.D.: | 4.882 |
| Median: | 22.70 µm | Variance: | 23.83 |
| Mean/Median ratio: | 0.806 | Skewness: | -0.302 Left skewed |
| Mode: | 50.23 µm | Kurtosis: | -0.856 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.838 µm | 5.282 µm | 22.70 µm | 66.50 µm | 124.9 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7BSF-B-01

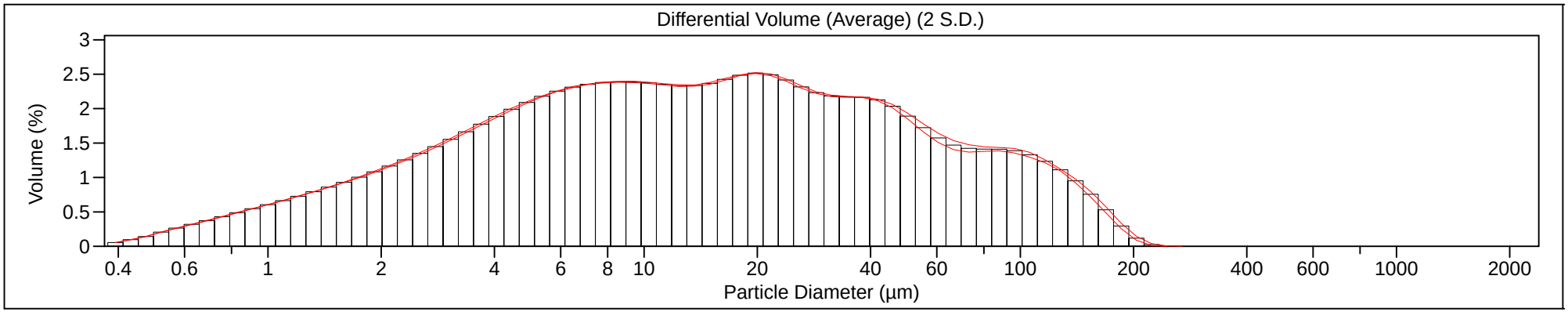
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_7_BSF-b_01__002.$av |
| | SED_7_BSF-b_01__002.$av |
| File ID: | SED_7_BSF-b_01 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_7_BSF-b_01__002.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 12.95 µm | S.D.: | 3.839 |
| Median: | 13.49 µm | Variance: | 14.74 |
| Mean/Median ratio: | 0.960 | Skewness: | -0.161 Left skewed |
| Mode: | 19.76 µm | Kurtosis: | -0.659 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.081 µm | 4.945 µm | 13.49 µm | 36.21 µm | 79.43 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7BSF-B-02

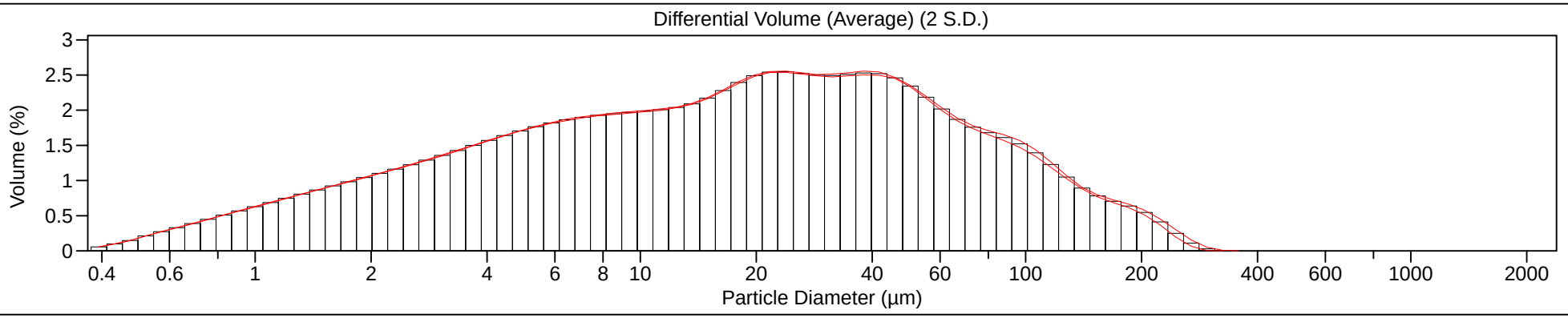
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_7_BSF-b_02__001.$av |
| | SED_7_BSF-b_02__001.$av |
| File ID: | SED_7_BSF-b_02 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_7_BSF-b_02__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 15.17 µm | S.D.: | 4.078 |
| Median: | 17.56 µm | Variance: | 16.63 |
| Mean/Median ratio: | 0.864 | Skewness: | -0.285 Left skewed |
| Mode: | 23.82 µm | Kurtosis: | -0.651 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.062 µm | 5.479 µm | 17.56 µm | 44.51 µm | 89.87 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7BSF-B-03

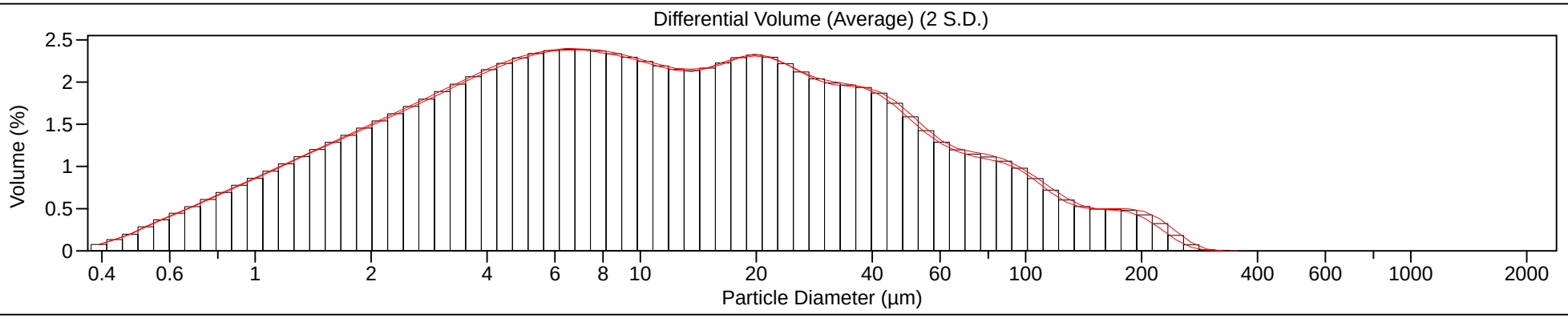
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_7_BSF-b_03__001.$av |
| | SED_7_BSF-b_03__001.$av |
| File ID: | SED_7_BSF-b_03 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_7_BSF-b_03__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 10.38 µm | S.D.: | 4.022 |
| Median: | 10.20 µm | Variance: | 16.17 |
| Mean/Median ratio: | 1.017 | Skewness: | 0.016 Right skewed |
| Mode: | 6.453 µm | Kurtosis: | -0.688 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.606 µm | 3.701 µm | 10.20 µm | 29.41 µm | 67.00 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7DSF-B-01

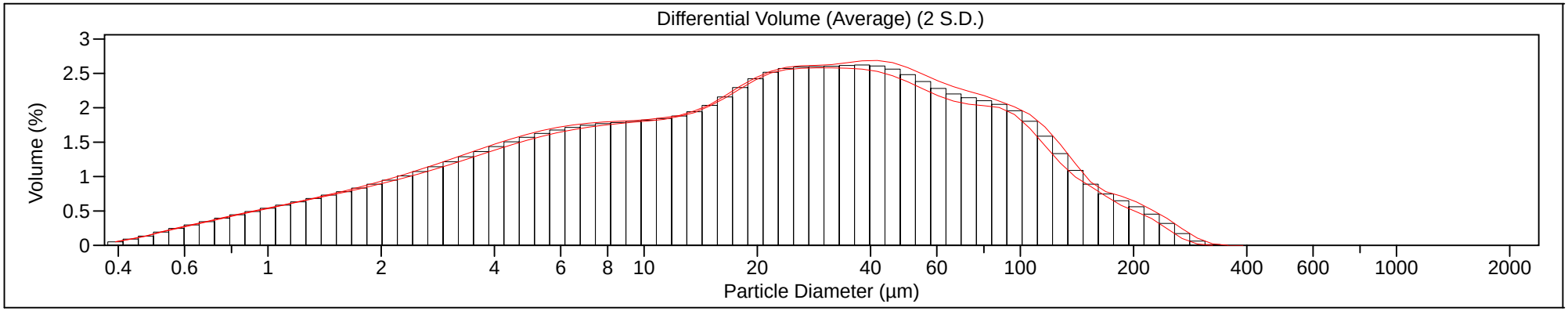
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_7_DSF-b_01__001.$av |
| | SED_7_DSF-b_01__001.$av |
| File ID: | SED_7_DSF-b_01 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_7_DSF-b_01__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 17.60 µm | S.D.: | 4.075 |
| Median: | 21.16 µm | Variance: | 16.61 |
| Mean/Median ratio: | 0.832 | Skewness: | -0.390 Left skewed |
| Mode: | 37.97 µm | Kurtosis: | -0.582 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.355 µm | 6.434 µm | 21.16 µm | 52.25 µm | 99.62 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7DSF-B-02

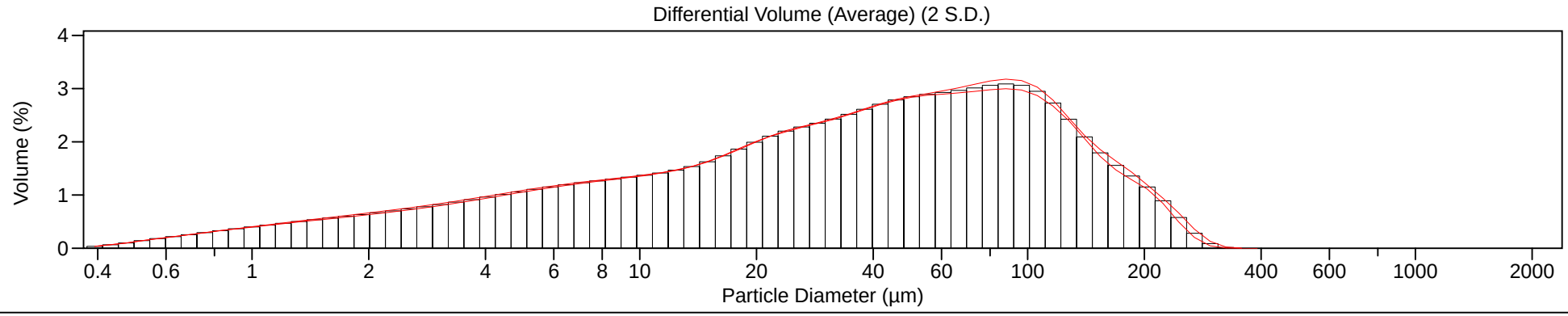
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_7_DSF-b_02__001.$av |
| | SED_7_DSF-b_02__001.$av |
| File ID: | SED_7_DSF-b_02 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_7_DSF-b_02__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 27.04 µm | S.D.: | 4.090 |
| Median: | 36.07 µm | Variance: | 16.73 |
| Mean/Median ratio: | 0.750 | Skewness: | -0.706 Left skewed |
| Mode: | 87.90 µm | Kurtosis: | -0.224 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 3.261 µm | 11.06 µm | 36.07 µm | 81.59 µm | 132.8 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7DSF-B-03

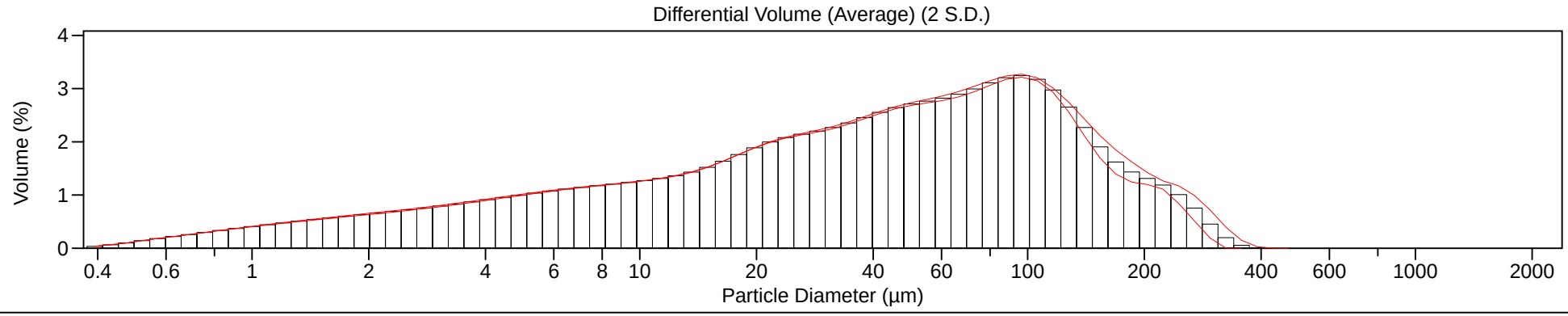
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_7_DSF-b_03__001.$av |
| | SED_7_DSF-b_03__001.$av |
| File ID: | SED_7_DSF-b_03 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_7_DSF-b_03__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 29.26 µm | S.D.: | 4.242 |
| Median: | 39.70 µm | Variance: | 17.99 |
| Mean/Median ratio: | 0.737 | Skewness: | -0.716 Left skewed |
| Mode: | 96.49 µm | Kurtosis: | -0.216 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 3.274 µm | 11.87 µm | 39.70 µm | 90.18 µm | 146.5 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7DSF-B-04

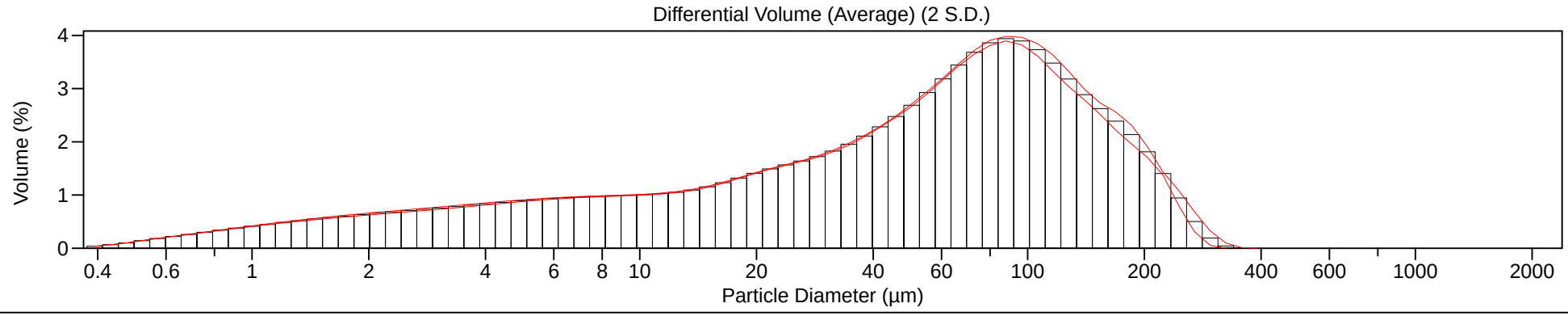
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_7_DSF-b_04__001.$av |
| | SED_7_DSF-b_04__001.$av |
| File ID: | SED_7_DSF-b_04 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_7_DSF-b_04__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 33.91 µm | S.D.: | 4.333 |
| Median: | 53.08 µm | Variance: | 18.78 |
| Mean/Median ratio: | 0.639 | Skewness: | -0.912 Left skewed |
| Mode: | 87.90 µm | Kurtosis: | -0.030 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 3.285 µm | 14.41 µm | 53.08 µm | 102.0 µm | 158.0 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7DSF-B-05

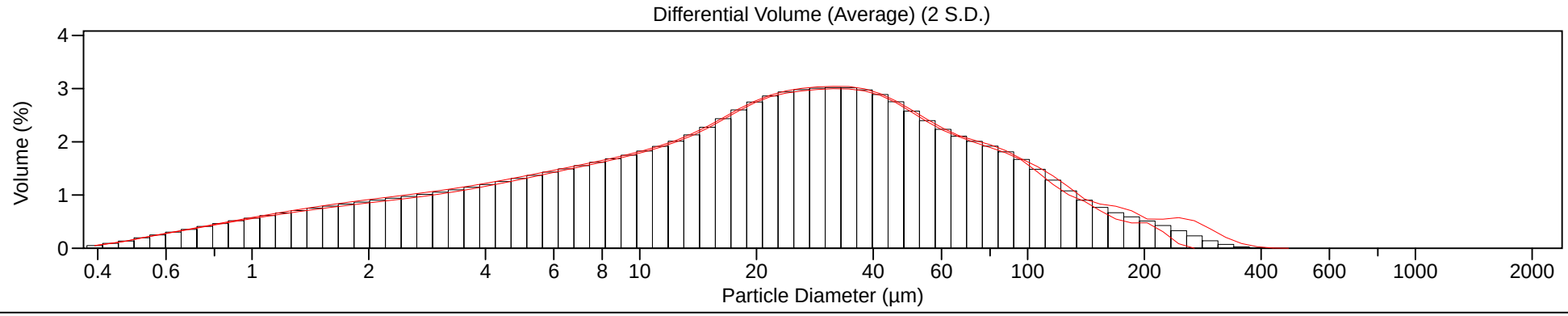
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_7_DSF-b_05__001.$av |
| | SED_7_DSF-b_05__001.$av |
| File ID: | SED_7_DSF-b_05 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_7_DSF-b_05__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 17.84 µm | S.D.: | 3.953 |
| Median: | 21.91 µm | Variance: | 15.63 |
| Mean/Median ratio: | 0.814 | Skewness: | -0.467 Left skewed |
| Mode: | 31.51 µm | Kurtosis: | -0.374 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.328 µm | 7.287 µm | 21.91 µm | 48.41 µm | 93.16 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7ESF-B-01

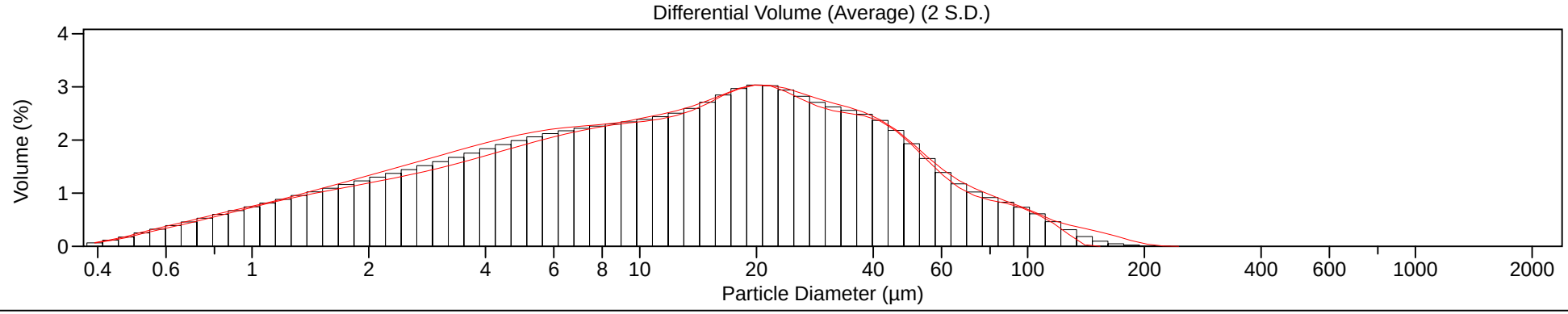
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_7_ESF-b_01__001.$av |
| | SED_7_ESF-b_01__001.$av |
| File ID: | SED_7_ESF-b_01 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_7_ESF-b_01__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 10.93 µm | S.D.: | 3.530 |
| Median: | 12.66 µm | Variance: | 12.46 |
| Mean/Median ratio: | 0.864 | Skewness: | -0.326 Left skewed |
| Mode: | 19.76 µm | Kurtosis: | -0.599 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.794 µm | 4.458 µm | 12.66 µm | 28.72 µm | 51.37 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7ESF-B-02

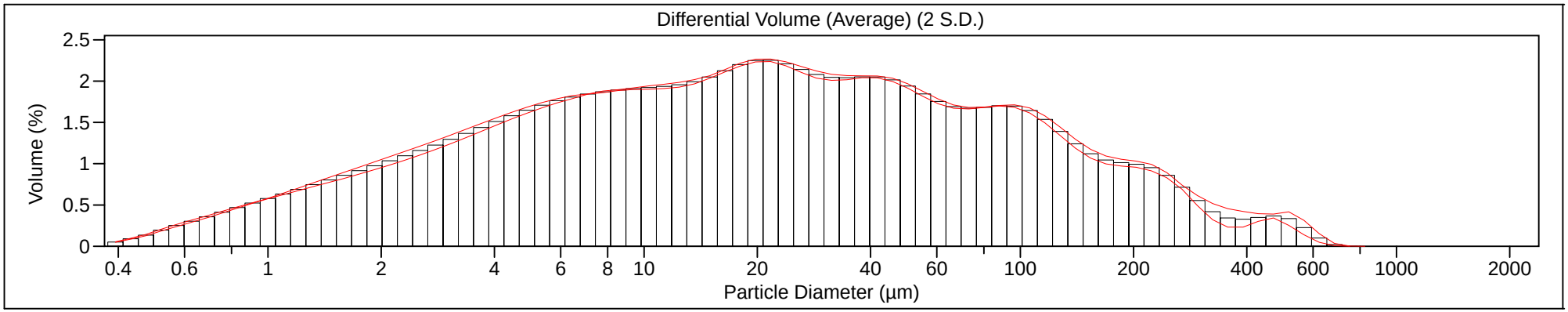
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_7_ESF-b_02__002.$av |
| | SED_7_ESF-b_02__002.$av |
| File ID: | SED_7_ESF-b_02 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_7_ESF-b_02__002.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 18.56 µm | S.D.: | 4.764 |
| Median: | 19.42 µm | Variance: | 22.69 |
| Mean/Median ratio: | 0.956 | Skewness: | -0.091 Left skewed |
| Mode: | 21.70 µm | Kurtosis: | -0.669 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.202 µm | 5.904 µm | 19.42 µm | 60.21 µm | 144.1 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7ESF-B-03

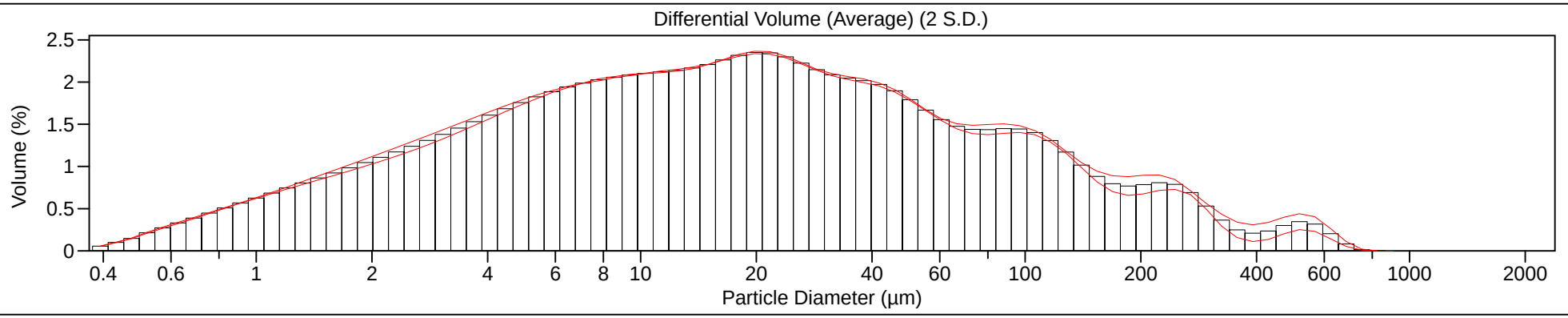
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_7_ESF-b_03__001.$av |
| | SED_7_ESF-b_03__001.$av |
| File ID: | SED_7_ESF-b_03 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_7_ESF-b_03__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 16.42 µm | S.D.: | 4.677 |
| Median: | 16.66 µm | Variance: | 21.87 |
| Mean/Median ratio: | 0.986 | Skewness: | 0.0083 Right skewed |
| Mode: | 19.76 µm | Kurtosis: | -0.573 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.062 µm | 5.396 µm | 16.66 µm | 49.32 µm | 127.5 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7ESF-B-04

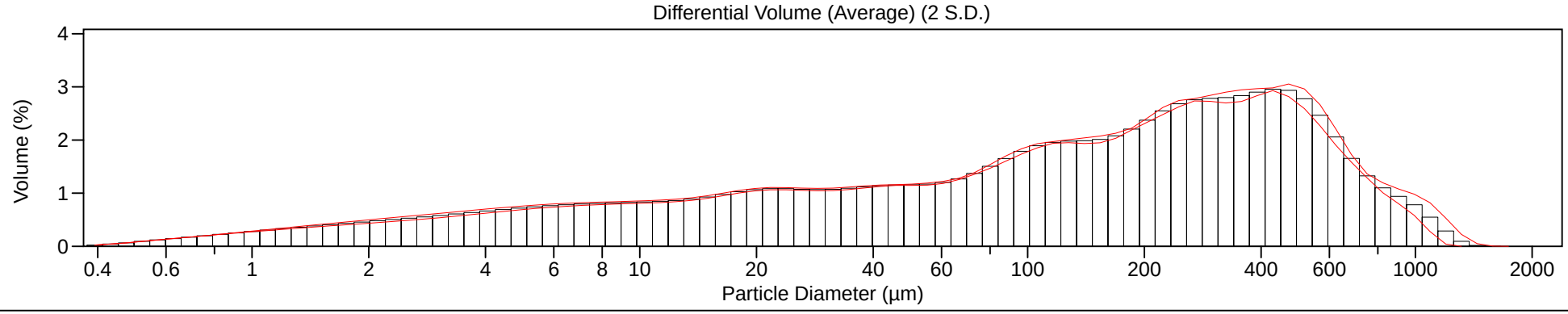
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_7_ESF-b_04__001.$av |
| | SED_7_ESF-b_04__001.$av |
| File ID: | SED_7_ESF-b_04 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_7_ESF-b_04__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 81.75 µm | S.D.: | 6.111 |
| Median: | 133.2 µm | Variance: | 37.34 |
| Mean/Median ratio: | 0.614 | Skewness: | -0.775 Left skewed |
| Mode: | 429.2 µm | Kurtosis: | -0.320 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 4.934 µm | 24.10 µm | 133.2 µm | 347.9 µm | 569.4 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED7ESF-B-05

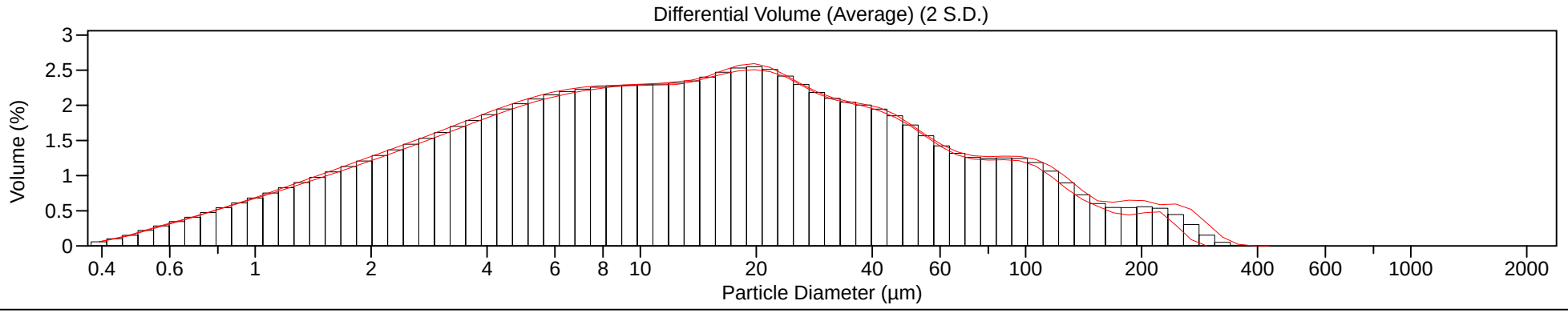
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\#2-SED_7_ESF-b_05__001.$av |
| | #2-SED_7_ESF-b_05__001.$av |
| File ID: | #2-SED_7_ESF-b_05 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) #2-SED_7_ESF-b_05__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 12.74 µm | S.D.: | 4.074 |
| Median: | 13.15 µm | Variance: | 16.59 |
| Mean/Median ratio: | 0.968 | Skewness: | -0.048 Left skewed |
| Mode: | 19.76 µm | Kurtosis: | -0.622 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.902 µm | 4.597 µm | 13.15 µm | 35.38 µm | 84.69 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED8CSF-B-01

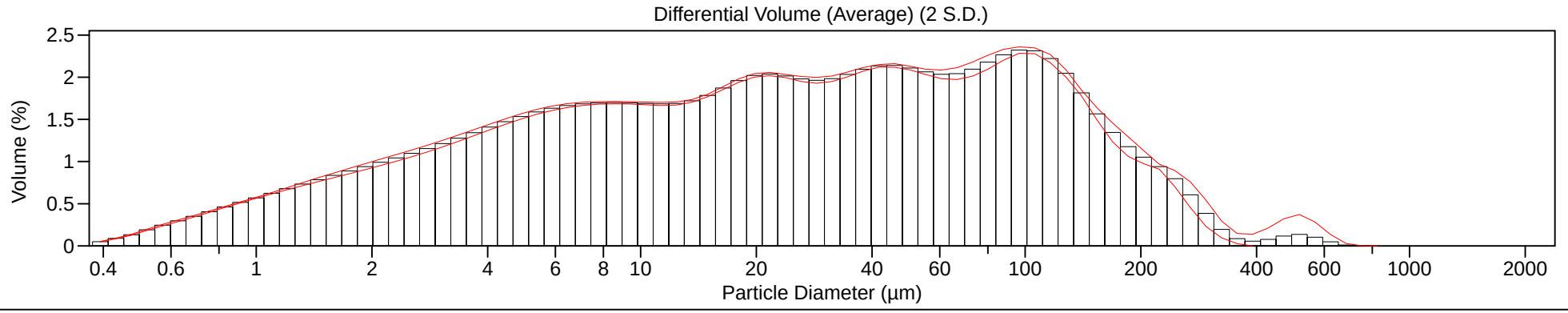
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_8_CSF-b_01__001.$av |
| | SED_8_CSF-b_01__001.$av |
| File ID: | SED_8_CSF-b_01 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_8_CSF-b_01__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 20.24 µm | S.D.: | 4.695 |
| Median: | 23.34 µm | Variance: | 22.04 |
| Mean/Median ratio: | 0.867 | Skewness: | -0.295 Left skewed |
| Mode: | 96.49 µm | Kurtosis: | -0.766 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.251 µm | 6.320 µm | 23.34 µm | 72.74 µm | 137.5 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED8CSF-B-02

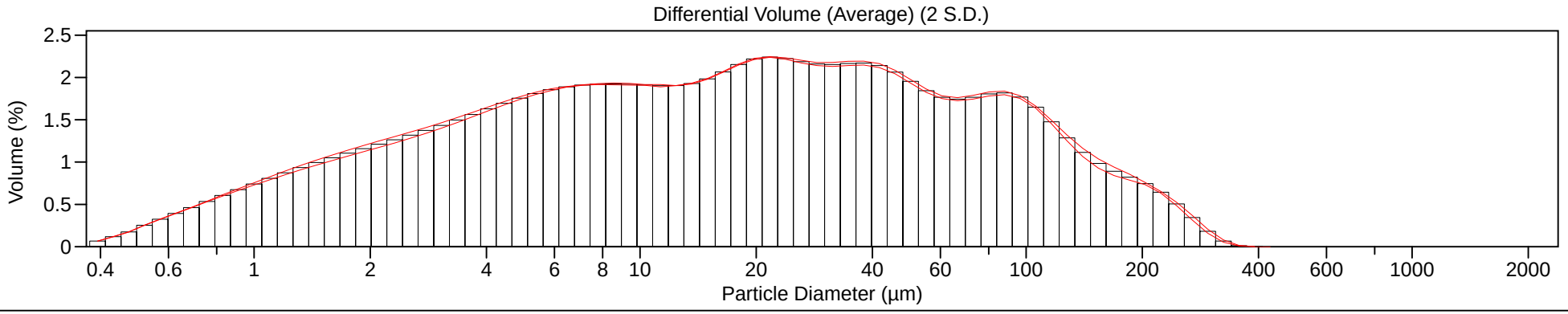
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_8_CSF-b_02__001.$av |
| | SED_8_CSF-b_02__001.$av |
| File ID: | SED_8_CSF-b_02 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_8_CSF-b_02__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 14.93 µm | S.D.: | 4.487 |
| Median: | 16.49 µm | Variance: | 20.13 |
| Mean/Median ratio: | 0.905 | Skewness: | -0.183 Left skewed |
| Mode: | 21.70 µm | Kurtosis: | -0.801 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.815 µm | 4.849 µm | 16.49 µm | 48.39 µm | 105.4 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED8CSF-B-03

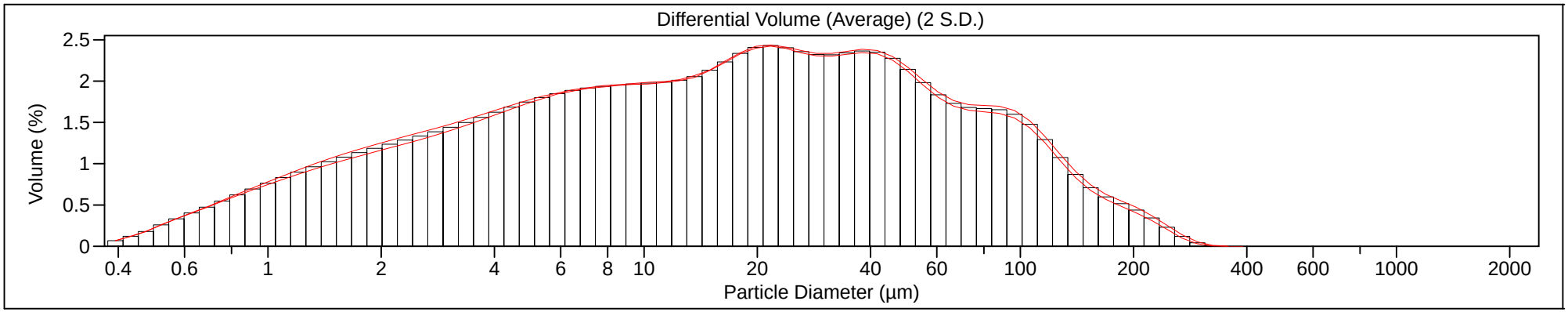
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_8_CSF-b_03__001.$av |
| | SED_8_CSF-b_03__001.$av |
| File ID: | SED_8_CSF-b_03 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_8_CSF-b_03__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 13.82 µm | S.D.: | 4.231 |
| Median: | 15.76 µm | Variance: | 17.90 |
| Mean/Median ratio: | 0.877 | Skewness: | -0.234 Left skewed |
| Mode: | 21.70 µm | Kurtosis: | -0.753 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.774 µm | 4.750 µm | 15.76 µm | 42.49 µm | 88.73 µm |



# Beckman Coulter LS Particle Size Analyzer

integral consulting inc.

9 Jul 2020

## SED8CSF-B-04

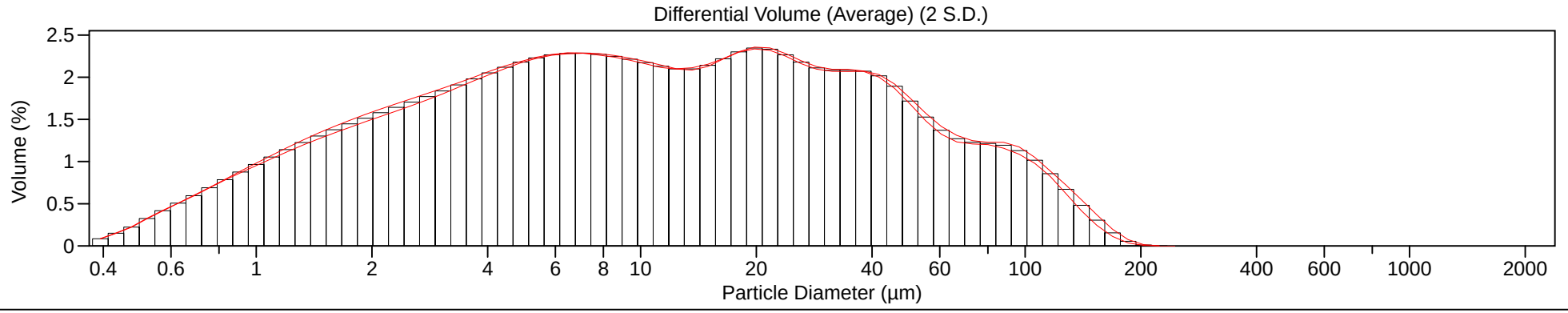
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_8_CSF-b_04__001.$av |
| | SED_8_CSF-b_04__001.$av |
| File ID: | SED_8_CSF-b_04 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_8_CSF-b_04__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 9.901 µm | S.D.: | 3.961 |
| Median: | 10.15 µm | Variance: | 15.69 |
| Mean/Median ratio: | 0.976 | Skewness: | -0.094 Left skewed |
| Mode: | 19.76 µm | Kurtosis: | -0.828 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.484 µm | 3.498 µm | 10.15 µm | 29.25 µm | 61.73 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED8CSF-B-05

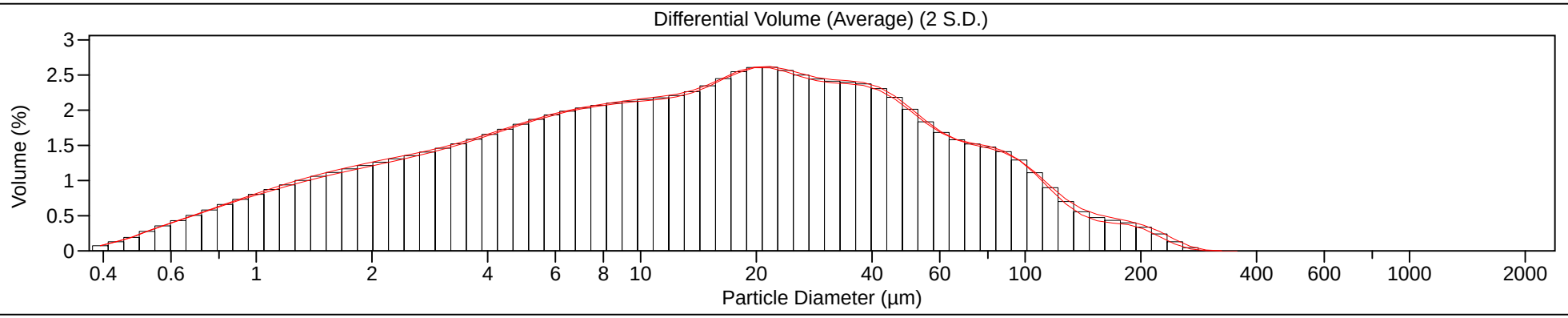
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_8_CSF-b_05__001.$av |
| | SED_8_CSF-b_05__001.$av |
| File ID: | SED_8_CSF-b_05 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_8_CSF-b_05__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 12.51 µm | S.D.: | 4.030 |
| Median: | 14.20 µm | Variance: | 16.24 |
| Mean/Median ratio: | 0.881 | Skewness: | -0.234 Left skewed |
| Mode: | 21.70 µm | Kurtosis: | -0.685 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.707 µm | 4.562 µm | 14.20 µm | 36.26 µm | 74.26 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED9.5BSF-B-01

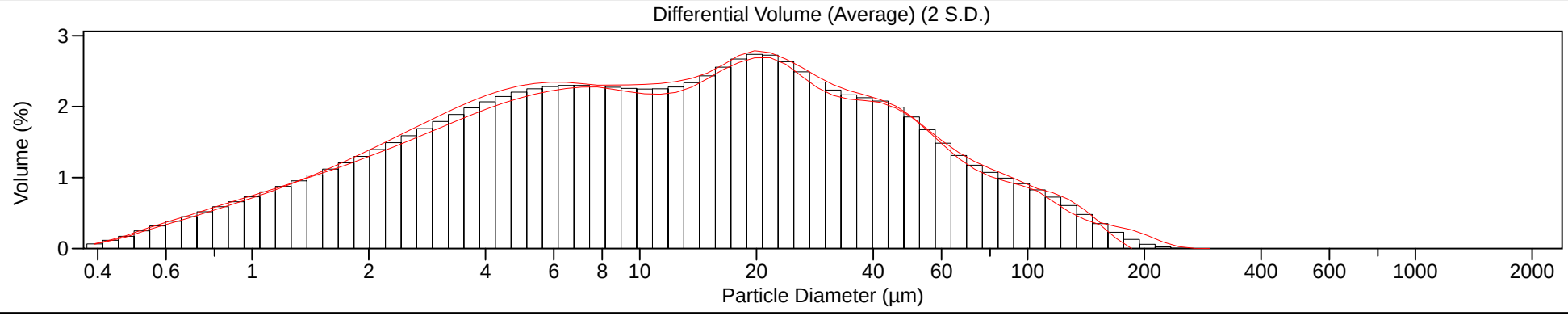
| | |
|---|---|
| **File name:** | **C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_9.5_BSF-b_01__001.$av** |
| | **SED_9.5_BSF-b_01__001.$av** |
| **File ID:** | **SED_9.5_BSF-b_01** |
| **Optical model:** | **Fraunhofer.rf780z** |

Volume Statistics (Geometric) SED_9.5_BSF-b_01__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 10.91 µm | S.D.: | 3.718 |
| Median: | 11.71 µm | Variance: | 13.82 |
| Mean/Median ratio: | 0.931 | Skewness: | -0.160 Left skewed |
| Mode: | 19.76 µm | Kurtosis: | -0.677 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.797 µm | 4.157 µm | 11.71 µm | 29.53 µm | 59.27 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED9.5BSF-B-02

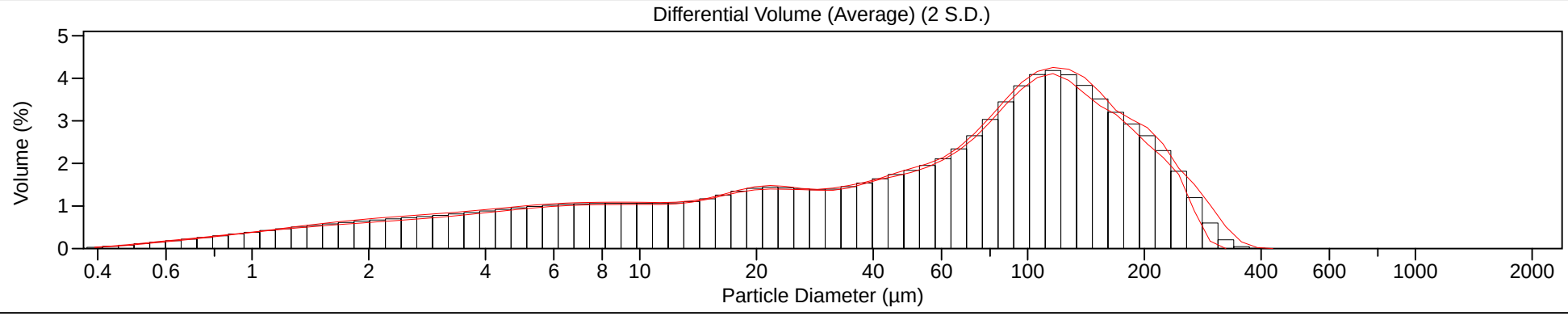
| | |
|---|---|
| **File name:** | **C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_9.5_BSF-b_02__001.$av** |
| | **SED_9.5_BSF-b_02__001.$av** |
| **File ID:** | **SED_9.5_BSF-b_02** |
| **Optical model:** | **Fraunhofer.rf780z** |

Volume Statistics (Geometric) SED_9.5_BSF-b_02__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 37.73 µm | S.D.: | 4.637 |
| Median: | 63.28 µm | Variance: | 21.51 |
| Mean/Median ratio: | 0.596 | Skewness: | -0.840 Left skewed |
| Mode: | 116.3 µm | Kurtosis: | -0.290 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 3.384 µm | 13.64 µm | 63.28 µm | 125.9 µm | 187.3 µm |



# Beckman Coulter LS Particle Size Analyzer

25 Aug 2020

## SED9.5BSF-B-03

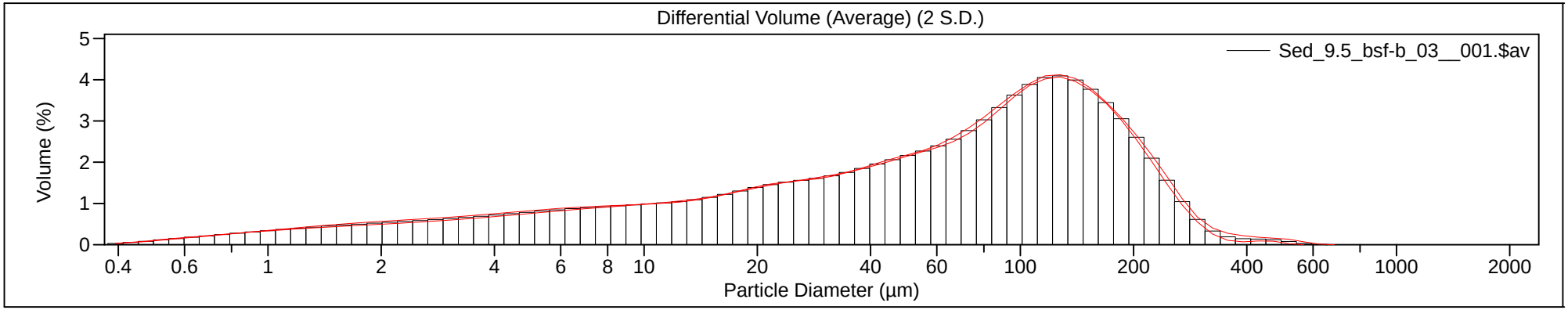
| | |
|---|---|
| **File name:** | **C:\Users\smcwilliams74\Desktop\projects\C3070_AECOM_Capping_Study_washington_DC\Processing\PSD\C3070 PSD raw data\Sed_9.5_bsf-b_03__001.$av** |
| | **Sed_9.5_bsf-b_03__001.$av** |
| **File ID:** | **SED_9.5_BSF-b_03** |
| **Optical model:** | **Fraunhofer.rf780z** |

Volume Statistics (Geometric) Sed_9.5_bsf-b_03__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 41.62 µm | S.D.: | 4.368 |
| Median: | 64.82 µm | Variance: | 19.08 |
| Mean/Median ratio: | 0.642 | Skewness: | -0.944 Left skewed |
| Mode: | 127.7 µm | Kurtosis: | 0.109 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 4.159 µm | 17.88 µm | 64.82 µm | 128.6 µm | 188.4 µm |



# Beckman Coulter LS Particle Size Analyzer

9 Jul 2020

## SED9.5BSF-B-04

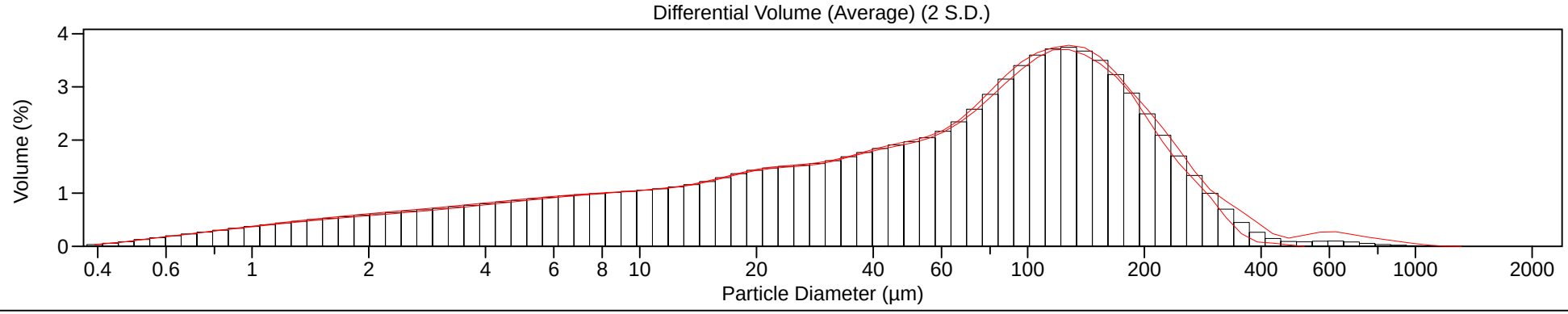
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\C3070 PSD\SED_9.5_BSF-b_04__001.$av |
| | SED_9.5_BSF-b_04__001.$av |
| File ID: | SED_9.5_BSF-b_04 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) SED_9.5_BSF-b_04__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 39.78 µm | S.D.: | 4.661 |
| Median: | 61.95 µm | Variance: | 21.73 |
| Mean/Median ratio: | 0.642 | Skewness: | -0.811 Left skewed |
| Mode: | 127.7 µm | Kurtosis: | -0.168 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 3.639 µm | 15.17 µm | 61.95 µm | 130.7 µm | 200.0 µm |



# Beckman Coulter LS Particle Size Analyzer

## SEd7DSF-C-01

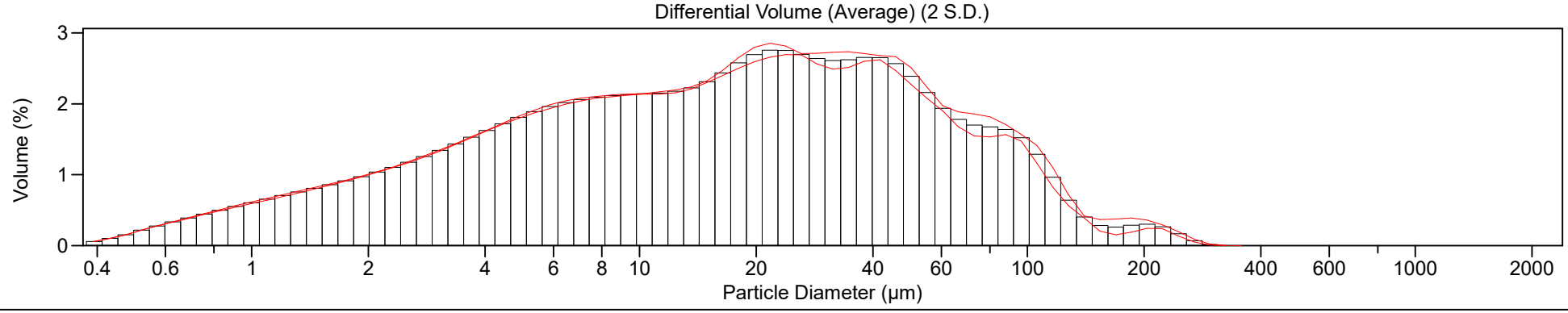
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-c1__001.$av<br>Sed-7dsf-c1__001.$av |
| File ID: | SED-7DSF-c1 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-c1__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 14.22 µm | S.D.: | 3.805 |
| Median: | 16.53 µm | Variance: | 14.48 |
| Mean/Median ratio: | 0.860 | Skewness: | -0.335 Left skewed |
| Mode: | 21.70 µm | Kurtosis: | -0.549 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.144 µm | 5.552 µm | 16.53 µm | 39.74 µm | 75.58 µm |



integral consulting inc.

# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-C-02

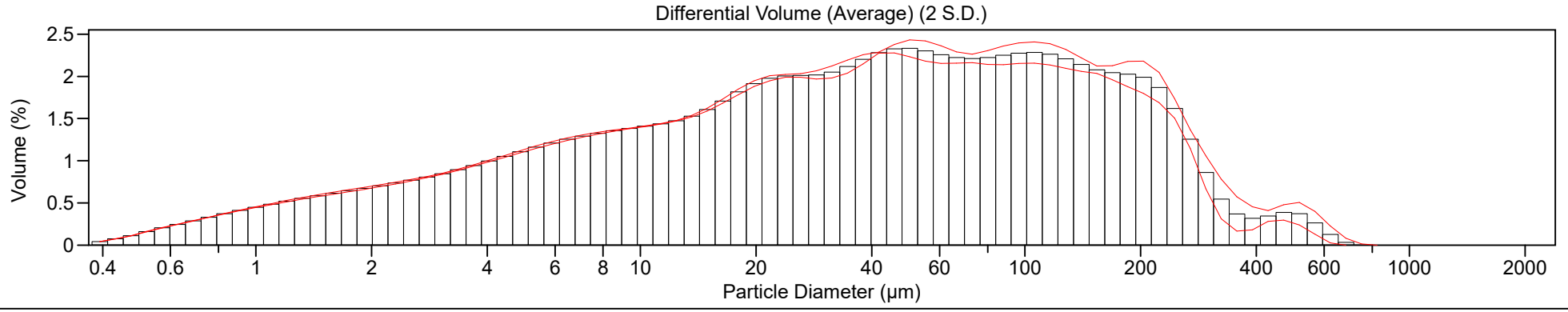
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-c2__001.$av |
| | Sed-7dsf-c2__001.$av |
| File ID: | SED-7DSF-c2 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-c2__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 29.58 µm | S.D.: | 4.810 |
| Median: | 36.73 µm | Variance: | 23.14 |
| Mean/Median ratio: | 0.805 | Skewness: | -0.472 Left skewed |
| Mode: | 50.23 µm | Kurtosis: | -0.508 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.989 µm | 10.08 µm | 36.73 µm | 102.9 µm | 197.8 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SEd7DSF-C-03

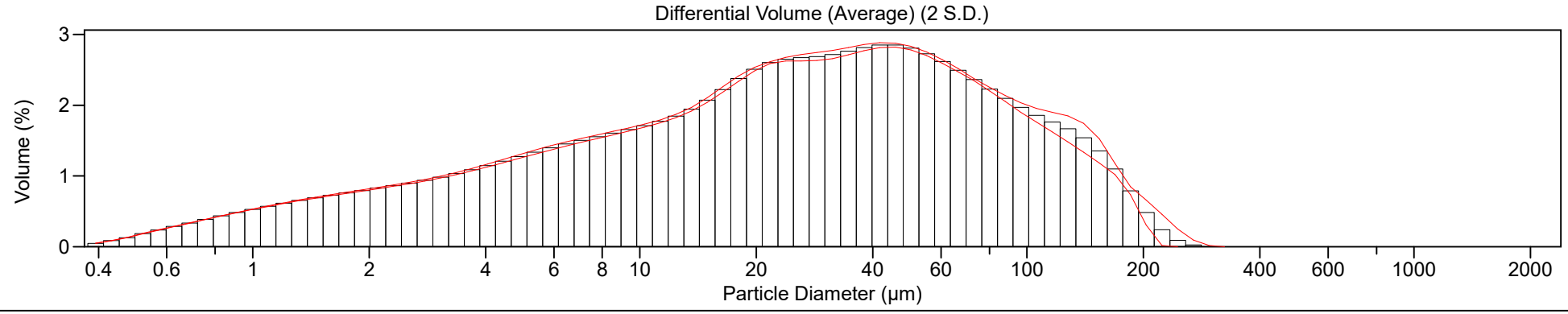
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-c3__001.$av<br>Sed-7dsf-c3__001.$av |
| File ID: | SED-7DSF-c3 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-c3__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 19.78 µm | S.D.: | 4.007 |
| Median: | 24.59 µm | Variance: | 16.06 |
| Mean/Median ratio: | 0.805 | Skewness: | -0.548 Left skewed |
| Mode: | 45.76 µm | Kurtosis: | -0.404 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.515 µm | 7.926 µm | 24.59 µm | 57.16 µm | 106.0 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-C-04

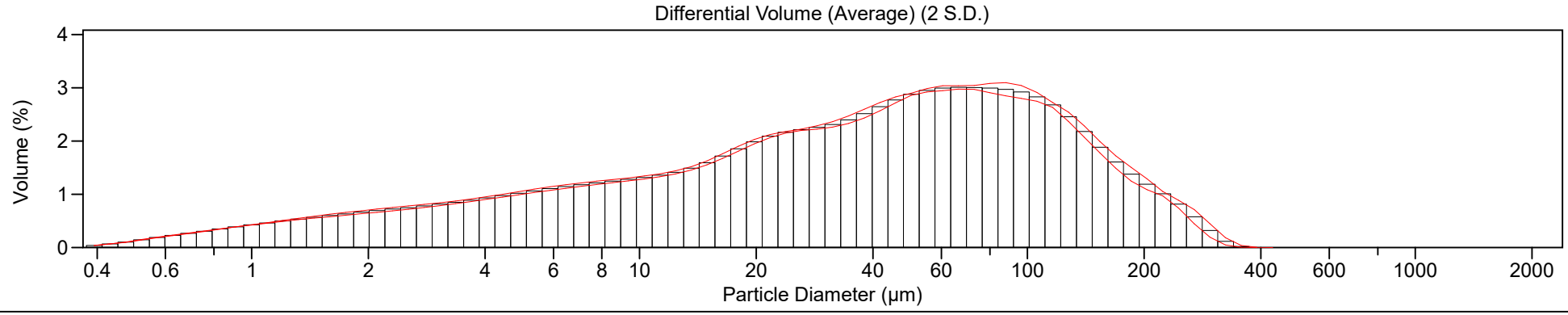
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-c4__001.$av |
| | Sed-7dsf-c4__001.$av |
| File ID: | SED-7DSF-c4 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-c4__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 27.61 µm | S.D.: | 4.204 |
| Median: | 37.25 µm | Variance: | 17.67 |
| Mean/Median ratio: | 0.741 | Skewness: | -0.697 Left skewed |
| Mode: | 66.45 µm | Kurtosis: | -0.242 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 3.129 µm | 11.21 µm | 37.25 µm | 83.79 µm | 140.3 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-C-05

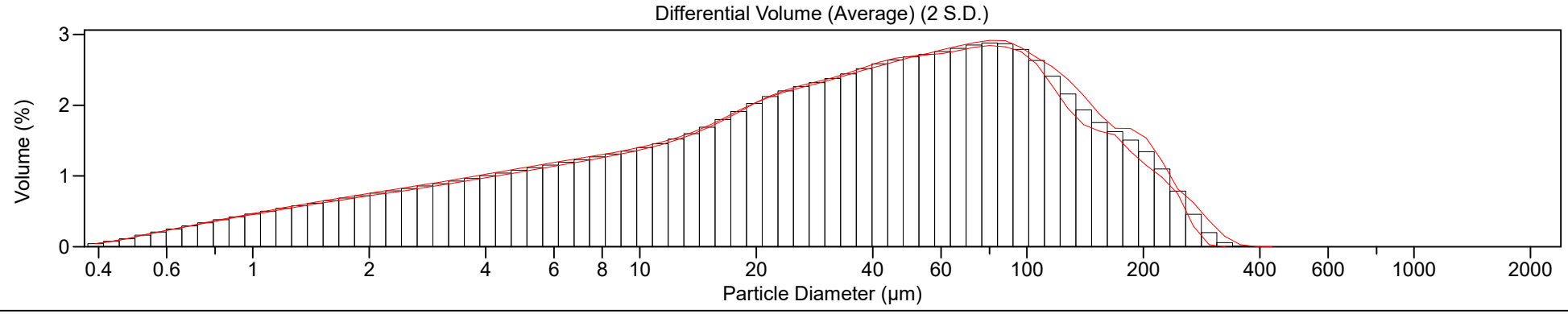
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-c5__001.$av |
| | Sed-7dsf-c5__001.$av |
| File ID: | SED-7DSF-c5 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-c5__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 25.62 µm | S.D.: | 4.291 |
| Median: | 33.67 µm | Variance: | 18.41 |
| Mean/Median ratio: | 0.761 | Skewness: | -0.630 Left skewed |
| Mode: | 80.07 µm | Kurtosis: | -0.368 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.837 µm | 9.946 µm | 33.67 µm | 80.32 µm | 139.0 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-D-01

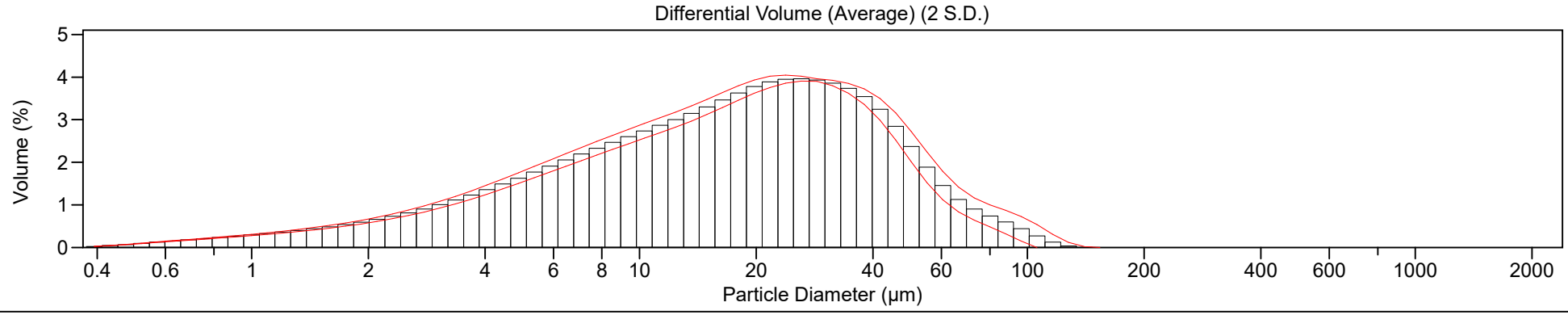
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-d1__001.$av<br>Sed-7dsf-d1__001.$av |
| File ID: | SED-7DSF-d1 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-d1__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 14.69 µm | S.D.: | 2.812 |
| Median: | 17.34 µm | Variance: | 7.908 |
| Mean/Median ratio: | 0.847 | Skewness: | -0.687 Left skewed |
| Mode: | 26.15 µm | Kurtosis: | 0.188 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 3.493 µm | 7.816 µm | 17.34 µm | 31.75 µm | 47.89 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-D-02

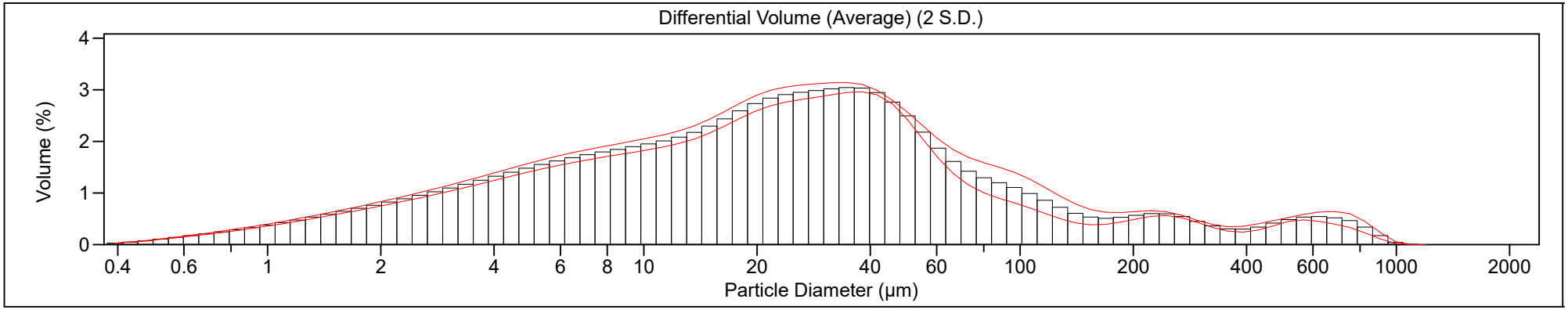
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-d2__001.$av<br>Sed-7dsf-d2__001.$av |
| File ID: | SED-7DSF-d2 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-d2__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 20.77 µm | S.D.: | 4.360 |
| Median: | 22.14 µm | Variance: | 19.01 |
| Mean/Median ratio: | 0.938 | Skewness: | 0.097 Right skewed |
| Mode: | 34.59 µm | Kurtosis: | -0.031 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.958 µm | 7.753 µm | 22.14 µm | 48.92 µm | 130.0 µm |



# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-D-03

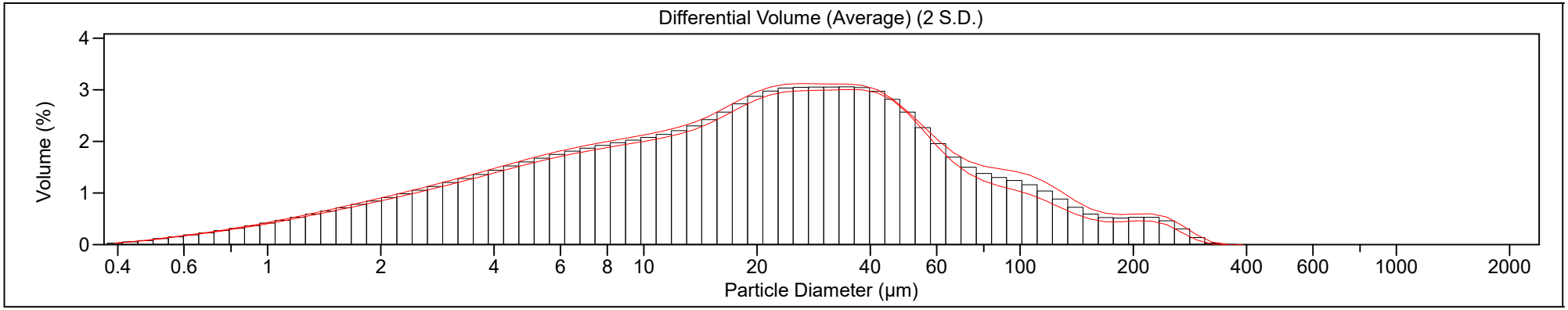
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-d3__001.$av<br>Sed-7dsf-d3__001.$av |
| File ID: | SED-7DSF-d3 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-d3__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 16.89 µm | S.D.: | 3.667 |
| Median: | 19.66 µm | Variance: | 13.45 |
| Mean/Median ratio: | 0.859 | Skewness: | -0.313 Left skewed |
| Mode: | 34.59 µm | Kurtosis: | -0.369 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.716 µm | 6.930 µm | 19.66 µm | 42.54 µm | 83.75 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-D-04

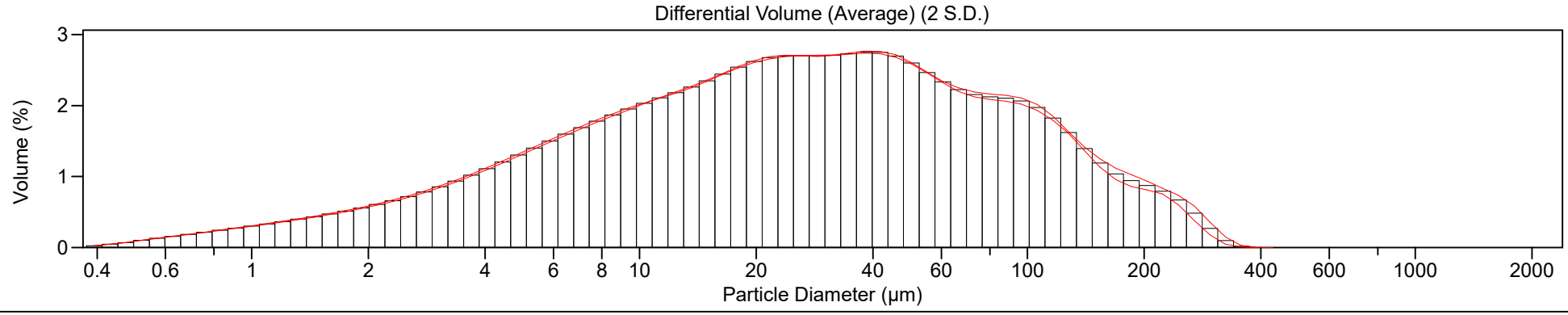
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-d4__001.$av<br>Sed-7dsf-d4__001.$av |
| File ID: | SED-7DSF-d4 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-d4__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 22.63 µm | S.D.: | 3.736 |
| Median: | 25.22 µm | Variance: | 13.96 |
| Mean/Median ratio: | 0.897 | Skewness: | -0.400 Left skewed |
| Mode: | 37.97 µm | Kurtosis: | -0.296 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 3.728 µm | 9.458 µm | 25.22 µm | 60.65 µm | 118.2 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-D-05

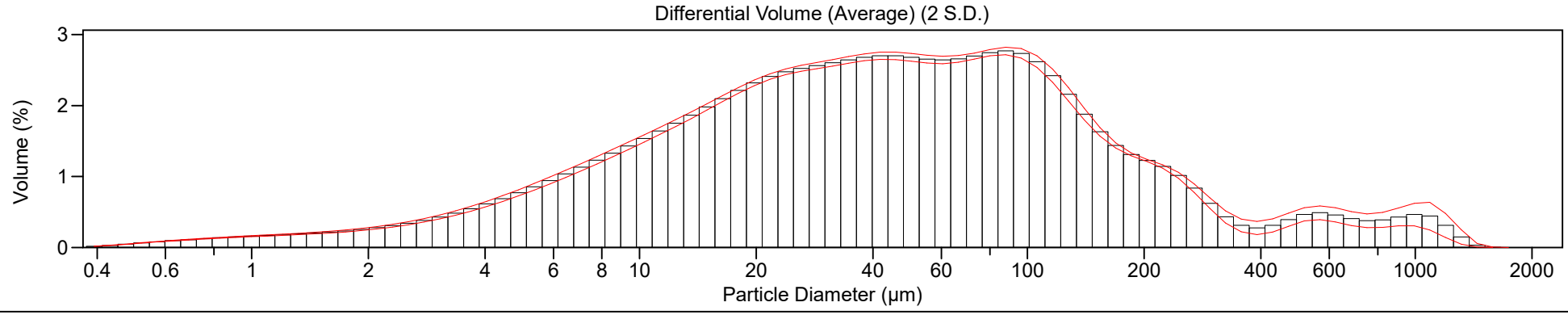
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-d5__001.$av |
| | Sed-7dsf-d5__001.$av |
| File ID: | SED-7DSF-d5 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-d5__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 39.62 µm | S.D.: | 4.047 |
| Median: | 41.83 µm | Variance: | 16.37 |
| Mean/Median ratio: | 0.947 | Skewness: | -0.164 Left skewed |
| Mode: | 87.90 µm | Kurtosis: | 0.199 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 6.670 µm | 16.34 µm | 41.83 µm | 99.29 µm | 209.6 µm |



# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-D-06

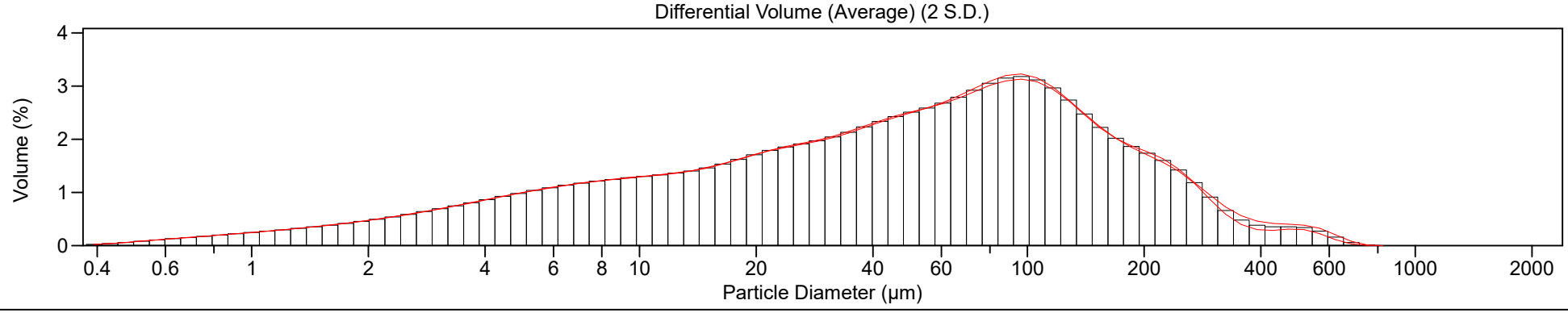
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-d6__001.$av<br>Sed-7dsf-d6__001.$av |
| File ID: | SED-7DSF-d6 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-d6__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 36.90 µm | S.D.: | 4.222 |
| Median: | 48.30 µm | Variance: | 17.82 |
| Mean/Median ratio: | 0.764 | Skewness: | -0.610 Left skewed |
| Mode: | 96.49 µm | Kurtosis: | -0.196 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 4.544 µm | 14.46 µm | 48.30 µm | 108.5 µm | 193.5 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-D-07

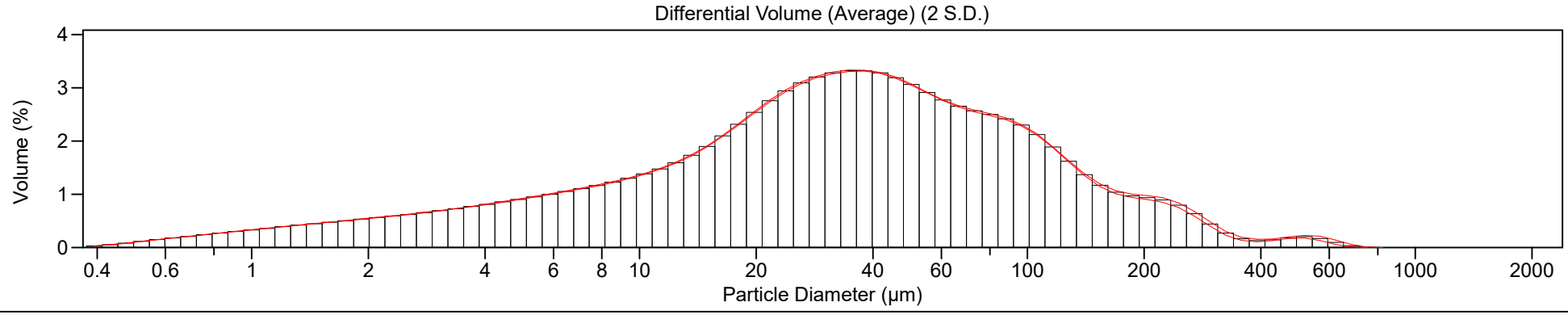
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-d7__001.$av<br>Sed-7dsf-d7__001.$av |
| File ID: | SED-7DSF-d7 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-d7__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 27.58 µm | S.D.: | 3.831 |
| Median: | 32.64 µm | Variance: | 14.68 |
| Mean/Median ratio: | 0.845 | Skewness: | -0.582 Left skewed |
| Mode: | 37.97 µm | Kurtosis: | 0.157 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 3.992 µm | 13.31 µm | 32.64 µm | 69.84 µm | 131.3 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-E-01

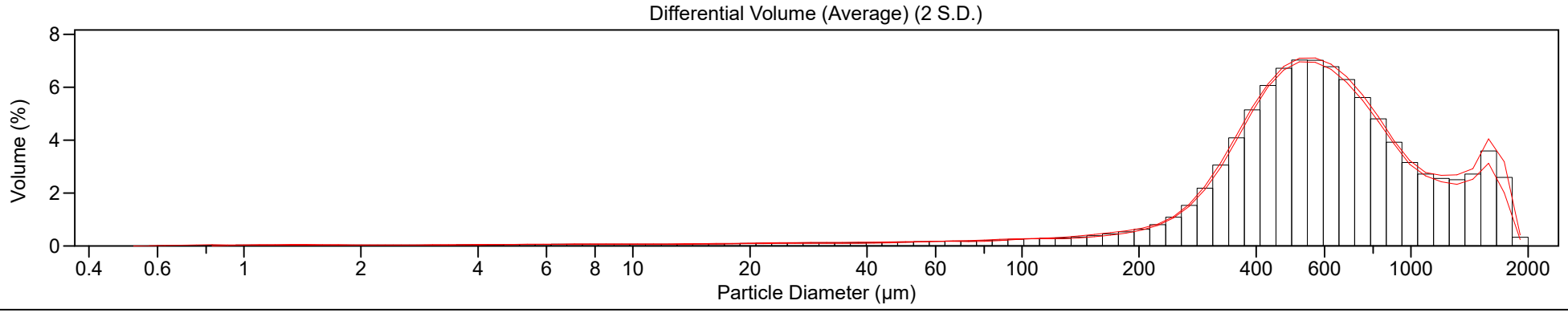
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-e1__001.$av<br>Sed-7dsf-e1__001.$av |
| File ID: | SED-7DSF-e1 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-e1__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 521.1 µm | S.D.: | 2.551 |
| Median: | 576.5 µm | Variance: | 6.506 |
| Mean/Median ratio: | 0.904 | Skewness: | -2.852 Left skewed |
| Mode: | 517.2 µm | Kurtosis: | 12.73 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 263.5 µm | 405.4 µm | 576.5 µm | 849.3 µm | 1340 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-E-02

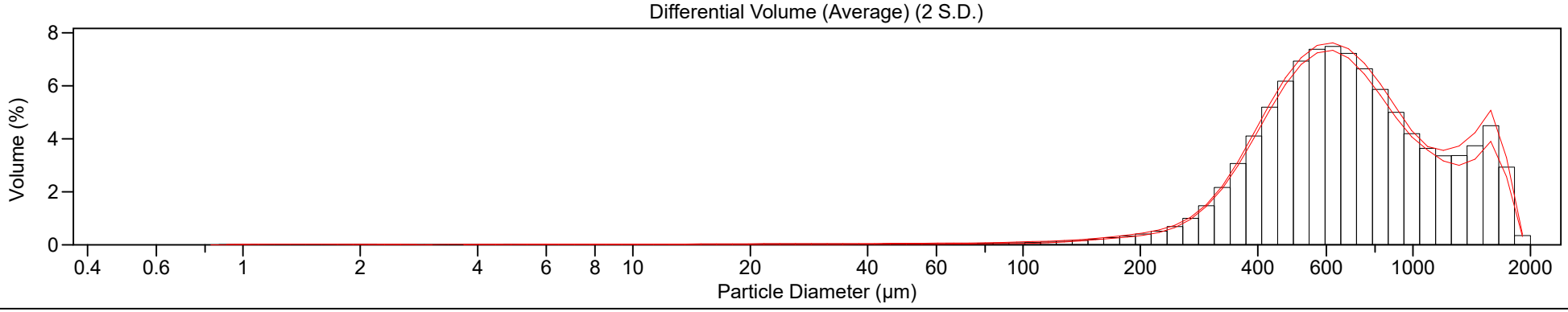
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-e2__001.$av<br>Sed-7dsf-e2__001.$av |
| File ID: | SED-7DSF-e2 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-e2__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 649.1 µm | S.D.: | 1.972 |
| Median: | 660.1 µm | Variance: | 3.887 |
| Mean/Median ratio: | 0.983 | Skewness: | -2.889 Left skewed |
| Mode: | 623.3 µm | Kurtosis: | 19.93 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 352.1 µm | 476.5 µm | 660.1 µm | 972.0 µm | 1432 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-E-03

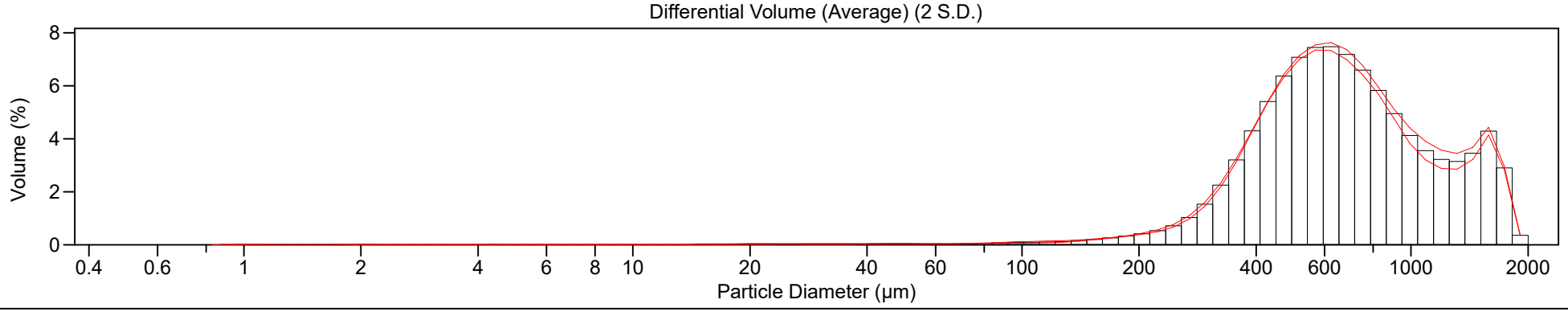
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-e3__001.$av<br>Sed-7dsf-e3__001.$av |
| File ID: | SED-7DSF-e3 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-e3__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 639.0 µm | S.D.: | 1.987 |
| Median: | 649.9 µm | Variance: | 3.950 |
| Mean/Median ratio: | 0.983 | Skewness: | -2.977 Left skewed |
| Mode: | 623.3 µm | Kurtosis: | 20.56 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 348.8 µm | 470.1 µm | 649.9 µm | 949.6 µm | 1416 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-E-04

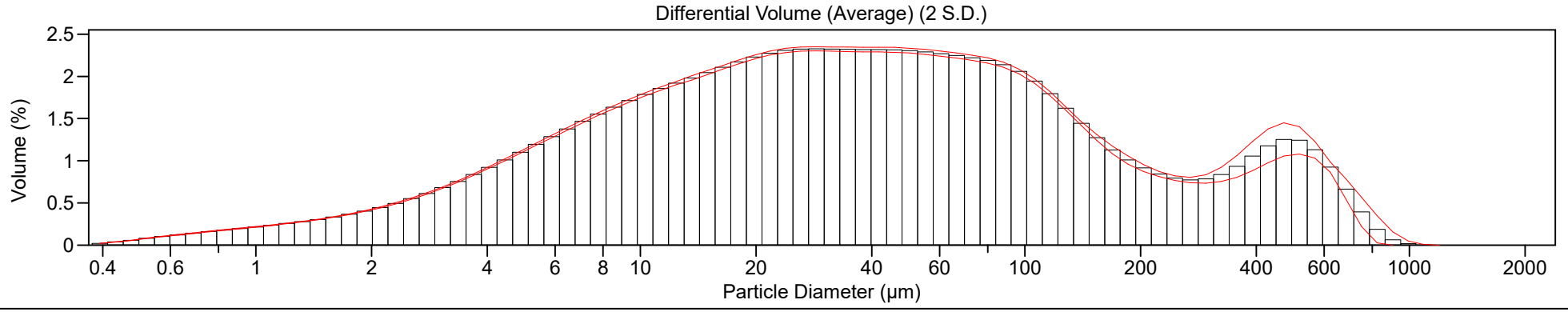
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-e4__001.$av<br>Sed-7dsf-e4__001.$av |
| File ID: | SED-7DSF-e4 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-e4__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 34.37 µm | S.D.: | 4.626 |
| Median: | 34.69 µm | Variance: | 21.40 |
| Mean/Median ratio: | 0.991 | Skewness: | -0.098 Left skewed |
| Mode: | 28.70 µm | Kurtosis: | -0.395 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 4.733 µm | 11.96 µm | 34.69 µm | 97.68 µm | 305.8 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-E-05

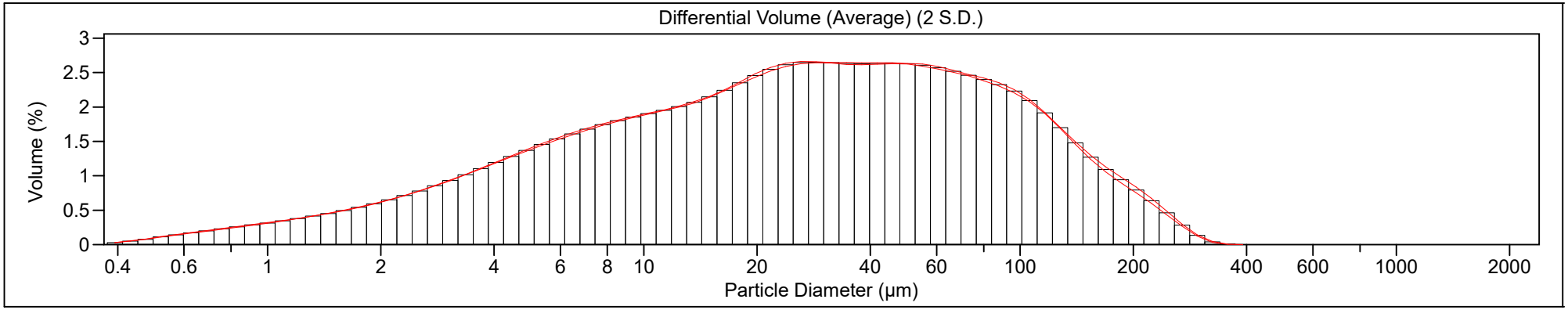
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-e5__001.$av<br>Sed-7dsf-e5__001.$av |
| File ID: | SED-7DSF-e5 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-e5__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 22.42 µm | S.D.: | 3.787 |
| Median: | 25.93 µm | Variance: | 14.34 |
| Mean/Median ratio: | 0.865 | Skewness: | -0.451 Left skewed |
| Mode: | 28.70 µm | Kurtosis: | -0.368 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 3.508 µm | 9.035 µm | 25.93 µm | 62.95 µm | 115.3 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7DSF-E-06

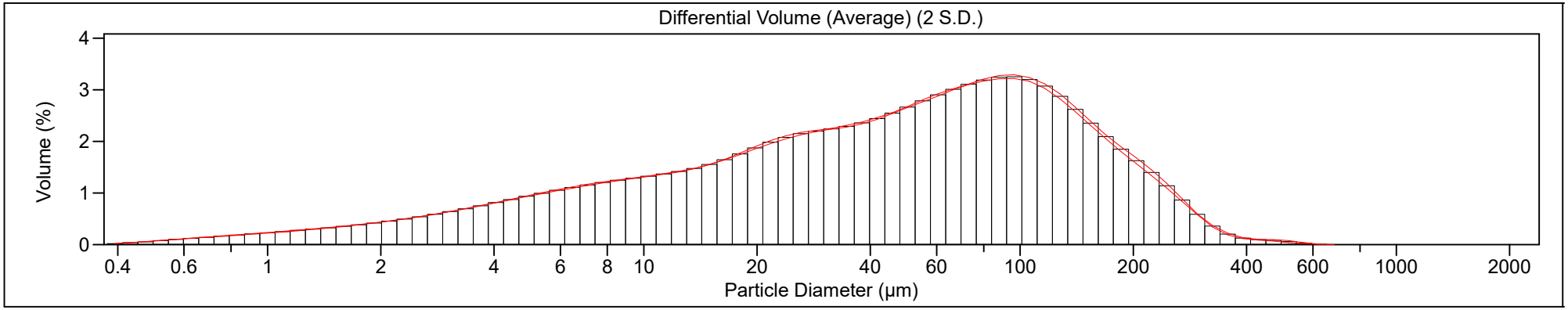
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7dsf-e6__001.$av<br>Sed-7dsf-e6__001.$av |
| File ID: | SED-7DSF-e6 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7dsf-e6__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 35.26 µm | S.D.: | 3.894 |
| Median: | 45.92 µm | Variance: | 15.17 |
| Mean/Median ratio: | 0.768 | Skewness: | -0.707 Left skewed |
| Mode: | 96.49 µm | Kurtosis: | -0.048 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 4.892 µm | 15.09 µm | 45.92 µm | 100.1 µm | 165.1 µm |



# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-C-01

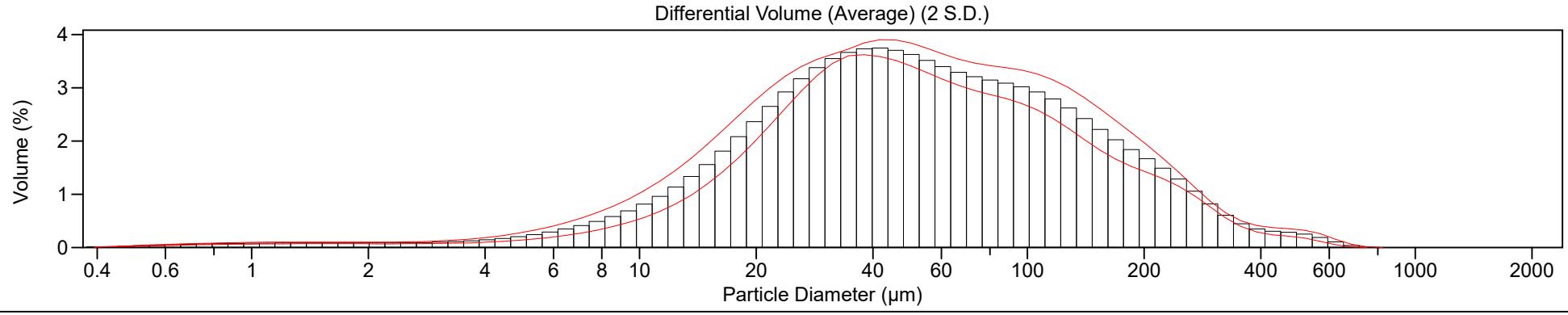
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-c1__001.$av<br>Sed-7esf-c1__001.$av |
| File ID: | SED-7ESF-c1 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-c1__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 49.77 µm | S.D.: | 2.857 |
| Median: | 50.56 µm | Variance: | 8.163 |
| Mean/Median ratio: | 0.984 | Skewness: | -0.586 Left skewed |
| Mode: | 41.68 µm | Kurtosis: | 1.306 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 14.57 µm | 26.47 µm | 50.56 µm | 103.6 µm | 183.9 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-C-01b

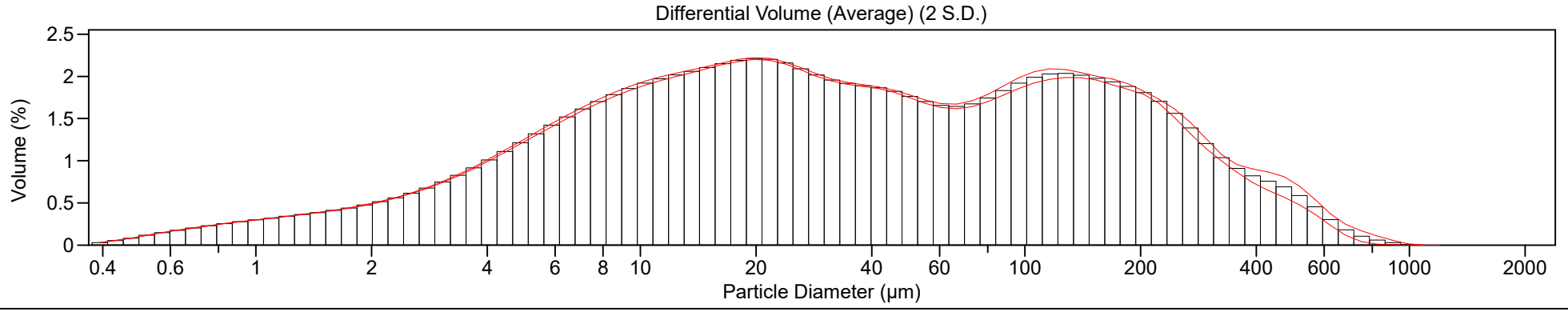
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-c1b__001.$av<br>Sed-7esf-c1b__001.$av |
| File ID: | SED-7ESF-c1b |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-c1b__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 31.40 µm | S.D.: | 4.765 |
| Median: | 31.38 µm | Variance: | 22.71 |
| Mean/Median ratio: | 1.001 | Skewness: | -0.224 Left skewed |
| Mode: | 19.76 µm | Kurtosis: | -0.600 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 4.059 µm | 10.30 µm | 31.38 µm | 113.6 µm | 235.7 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-C-02

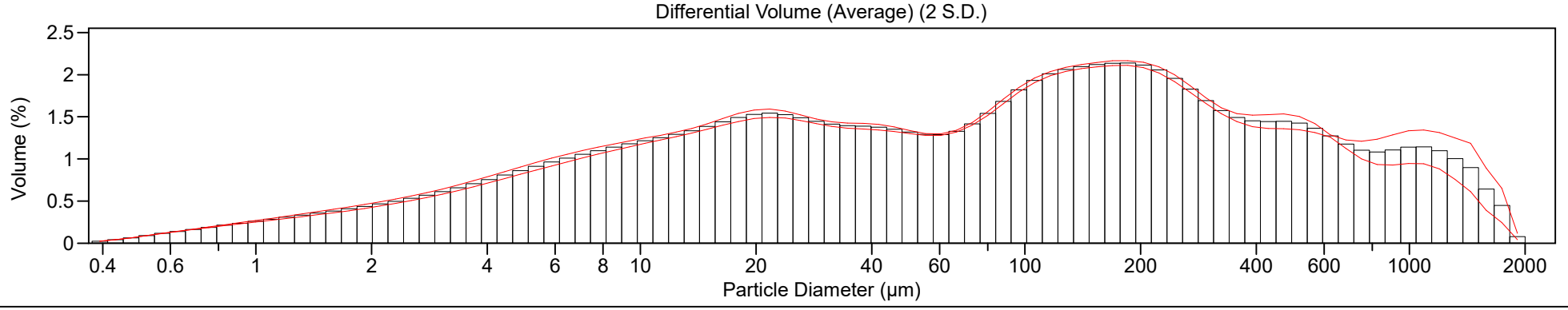
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-c2__001.$av<br>Sed-7esf-c2__001.$av |
| File ID: | SED-7ESF-c2 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-c2__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 64.80 µm | S.D.: | 6.446 |
| Median: | 84.11 µm | Variance: | 41.55 |
| Mean/Median ratio: | 0.770 | Skewness: | -0.334 Left skewed |
| Mode: | 185.4 µm | Kurtosis: | -0.672 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 4.831 µm | 16.32 µm | 84.11 µm | 269.6 µm | 703.4 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-C-03

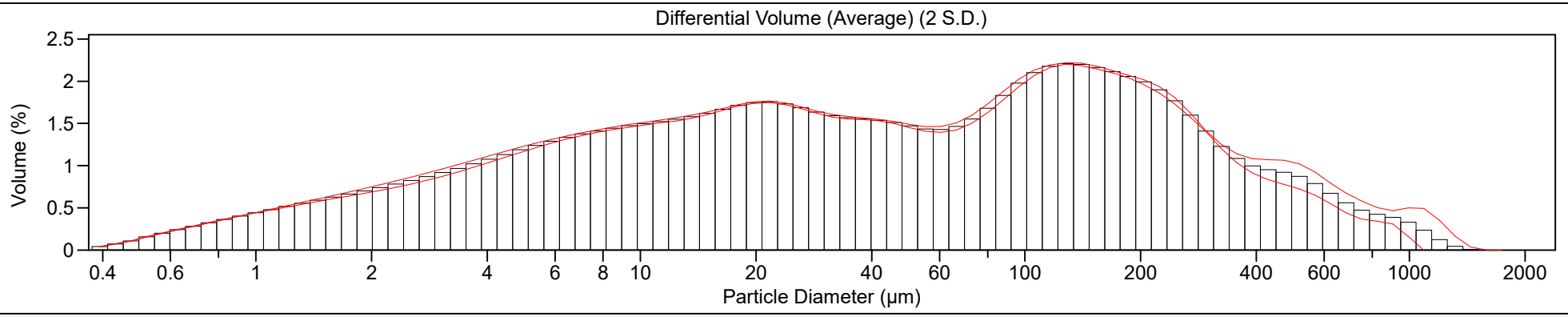
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-c3__001.$av<br>Sed-7esf-c3__001.$av |
| File ID: | SED-7ESF-c3 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-c3__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 34.96 µm | S.D.: | 5.882 |
| Median: | 39.09 µm | Variance: | 34.60 |
| Mean/Median ratio: | 0.894 | Skewness: | -0.261 Left skewed |
| Mode: | 127.7 µm | Kurtosis: | -0.775 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.920 µm | 9.299 µm | 39.09 µm | 147.6 µm | 312.4 µm |



# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-D-01

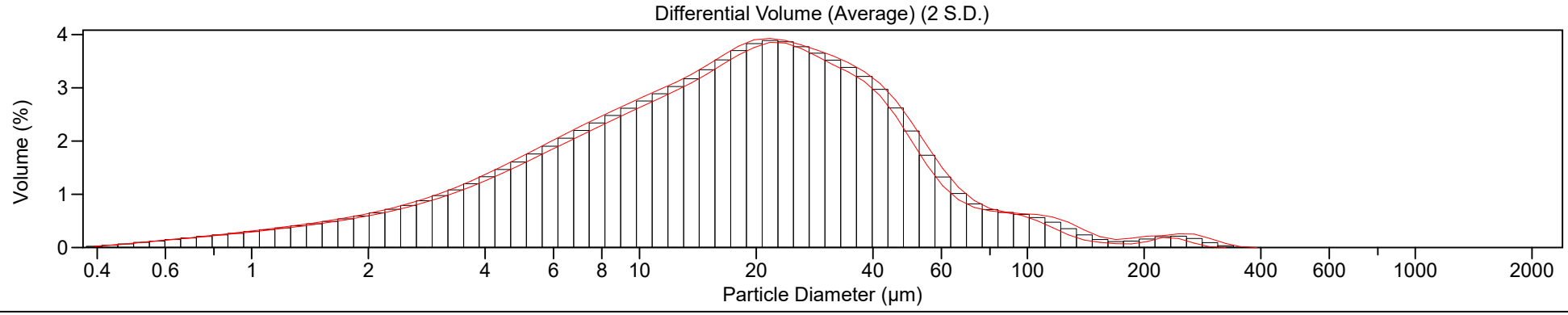
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-d1__002.$av<br>Sed-7esf-d1__002.$av |
| File ID: | SED-7ESF-d1 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-d1__002.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 15.29 µm | S.D.: | 2.973 |
| Median: | 17.36 µm | Variance: | 8.841 |
| Mean/Median ratio: | 0.881 | Skewness: | -0.422 Left skewed |
| Mode: | 21.70 µm | Kurtosis: | 0.278 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 3.526 µm | 7.893 µm | 17.36 µm | 32.31 µm | 52.16 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-D-02

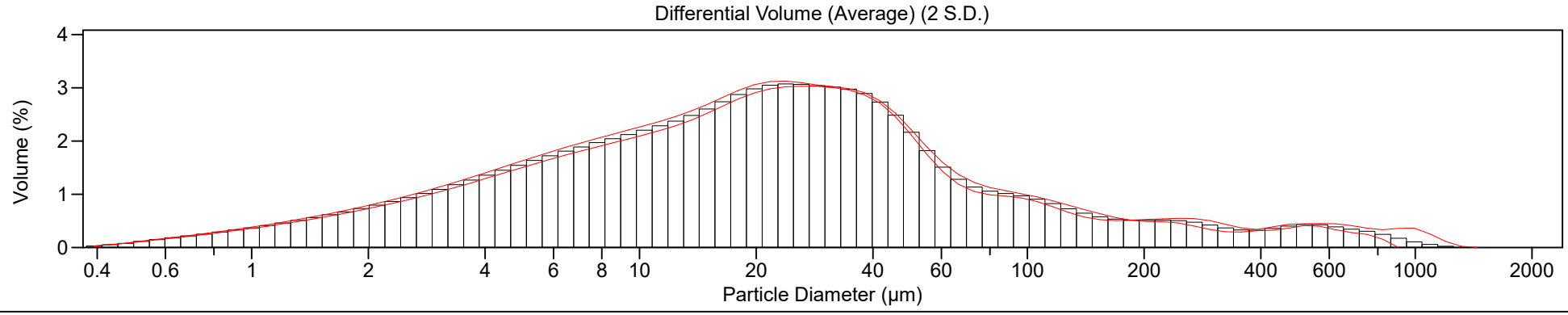
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-d2__002.$av<br>Sed-7esf-d2__002.$av |
| File ID: | SED-7ESF-d2 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-d2__002.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 19.30 µm | S.D.: | 4.198 |
| Median: | 19.92 µm | Variance: | 17.62 |
| Mean/Median ratio: | 0.969 | Skewness: | 0.157 Right skewed |
| Mode: | 23.82 µm | Kurtosis: | 0.113 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 3.013 µm | 7.570 µm | 19.92 µm | 43.53 µm | 118.3 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-D-03

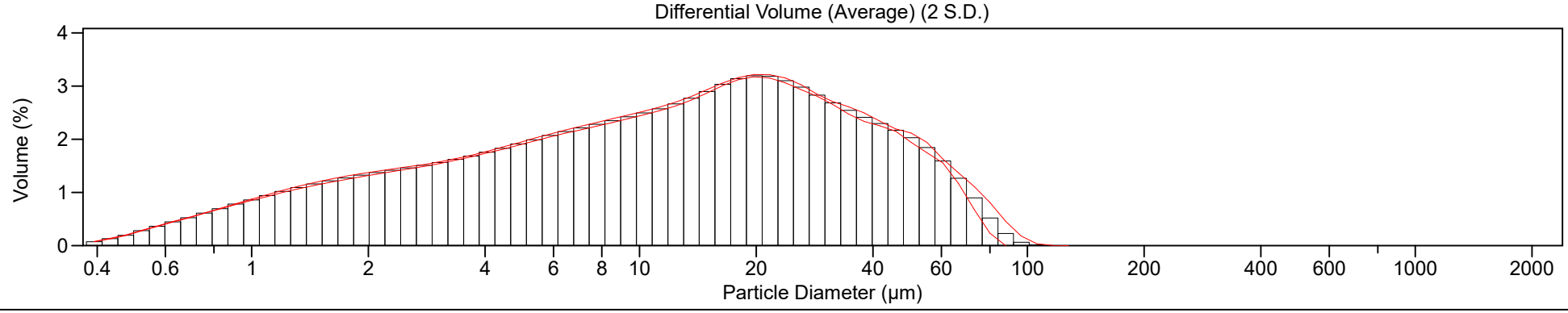
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-d3__001.$av<br>Sed-7esf-d3__001.$av |
| File ID: | SED-7ESF-d3 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-d3__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 9.948 µm | S.D.: | 3.405 |
| Median: | 11.99 µm | Variance: | 11.59 |
| Mean/Median ratio: | 0.830 | Skewness: | -0.439 Left skewed |
| Mode: | 19.76 µm | Kurtosis: | -0.654 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.621 µm | 4.162 µm | 11.99 µm | 26.07 µm | 44.89 µm |



integral consulting inc.

# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-D-04

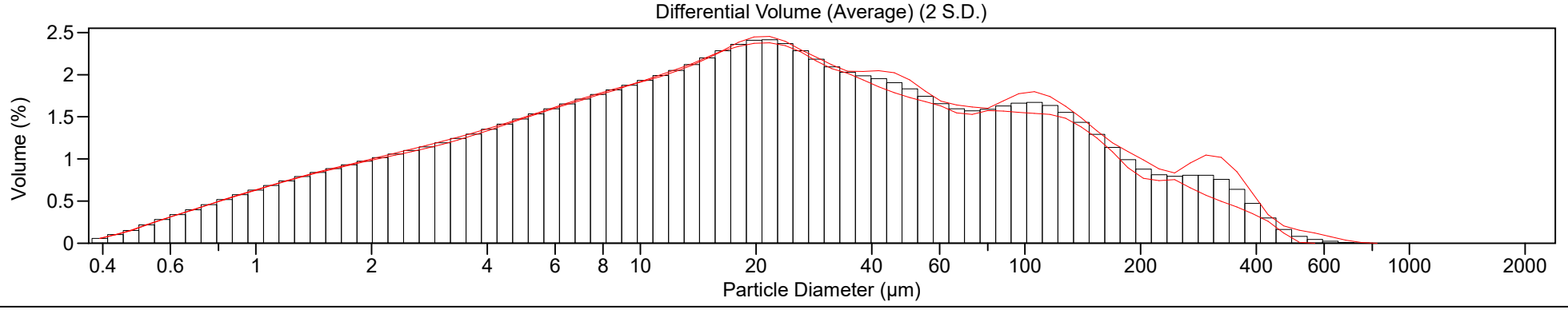
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-d4__001.$av<br>Sed-7esf-d4__001.$av |
| File ID: | SED-7ESF-d4 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-d4__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 18.75 µm | S.D.: | 4.796 |
| Median: | 19.80 µm | Variance: | 23.00 |
| Mean/Median ratio: | 0.947 | Skewness: | -0.145 Left skewed |
| Mode: | 21.70 µm | Kurtosis: | -0.668 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.091 µm | 6.158 µm | 19.80 µm | 61.26 µm | 147.1 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-D-05

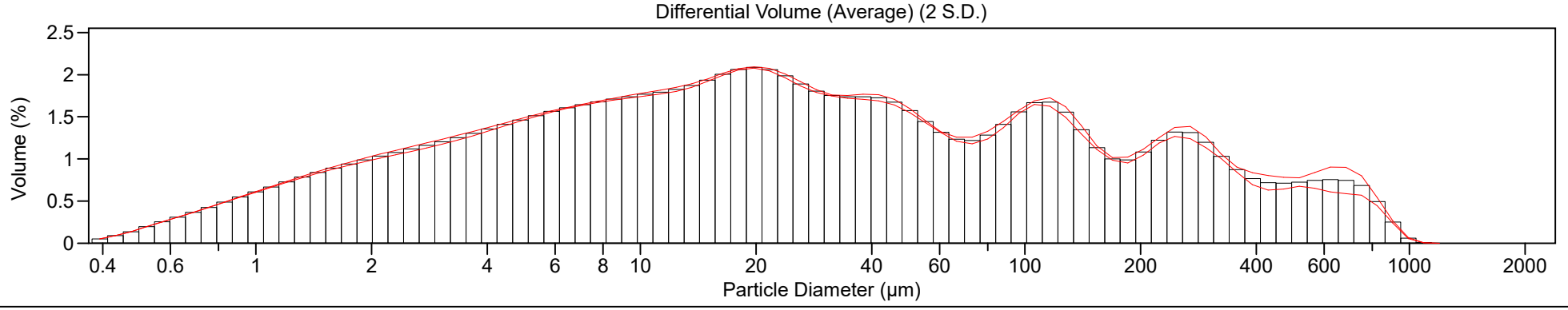
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-d5__002.$av<br>Sed-7esf-d5__002.$av |
| File ID: | SED-7ESF-d5 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-d5__002.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 23.53 µm | S.D.: | 5.927 |
| Median: | 22.18 µm | Variance: | 35.13 |
| Mean/Median ratio: | 1.061 | Skewness: | 0.022 Right skewed |
| Mode: | 19.76 µm | Kurtosis: | -0.794 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.140 µm | 6.243 µm | 22.18 µm | 95.80 µm | 277.8 µm |



# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-E-01

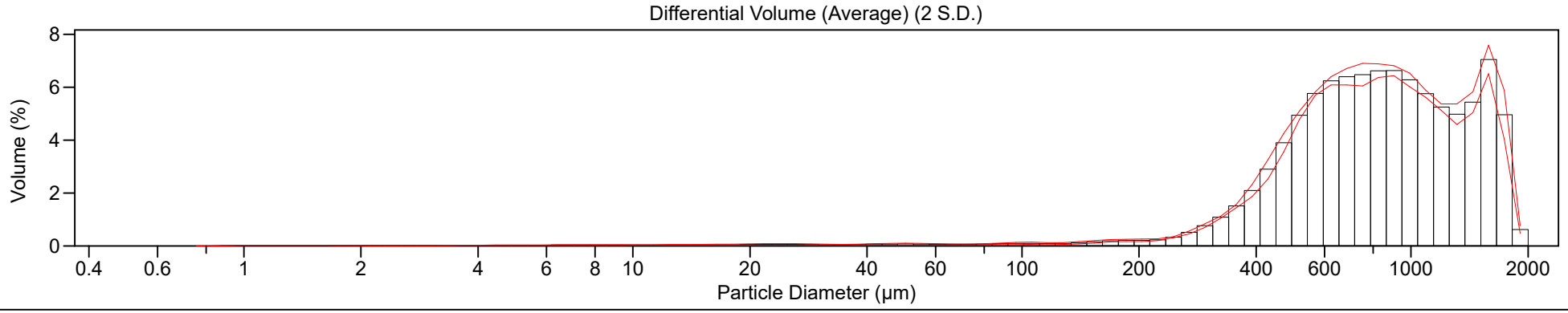
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-e1__001.$av<br>Sed-7esf-e1__001.$av |
| File ID: | SED-7ESF-e1 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-e1__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 757.2 µm | S.D.: | 2.149 |
| Median: | 828.5 µm | Variance: | 4.617 |
| Mean/Median ratio: | 0.914 | Skewness: | -3.502 Left skewed |
| Mode: | 1584 µm | Kurtosis: | 20.47 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 412.1 µm | 573.6 µm | 828.5 µm | 1213 µm | 1567 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-E-02

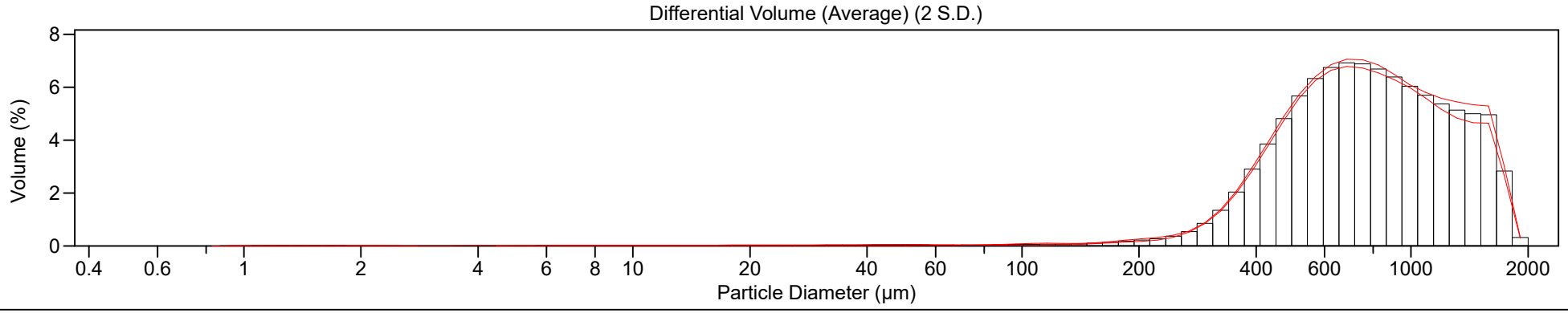
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-e2__001.$av<br>Sed-7esf-e2__001.$av |
| File ID: | SED-7ESF-e2 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-e2__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 738.5 µm | S.D.: | 1.892 |
| Median: | 771.2 µm | Variance: | 3.581 |
| Mean/Median ratio: | 0.958 | Skewness: | -3.275 Left skewed |
| Mode: | 684.2 µm | Kurtosis: | 24.05 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 405.4 µm | 544.6 µm | 771.2 µm | 1118 µm | 1461 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-E-03

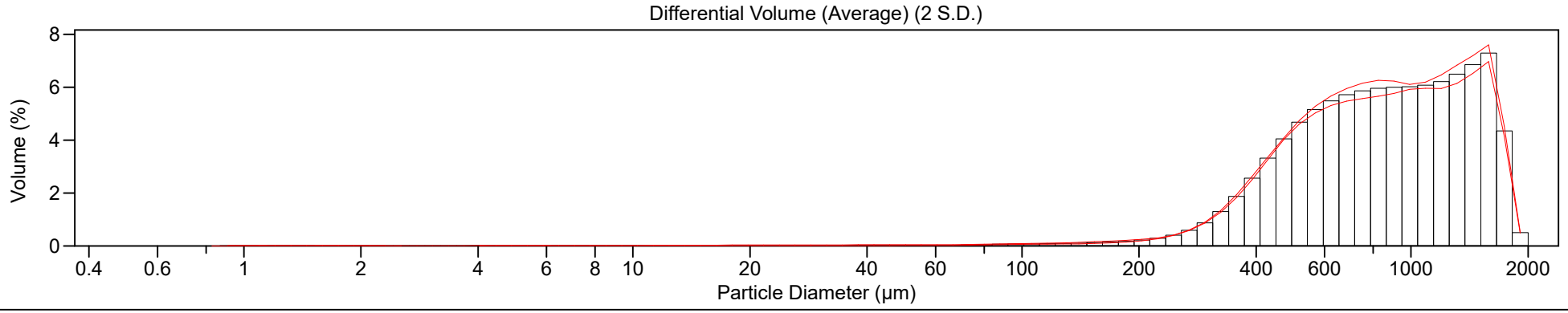
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-e3__001.$av<br>Sed-7esf-e3__001.$av |
| File ID: | SED-7ESF-e3 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-e3__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 796.3 µm | S.D.: | 1.916 |
| Median: | 861.1 µm | Variance: | 3.670 |
| Mean/Median ratio: | 0.925 | Skewness: | -3.008 Left skewed |
| Mode: | 1584 µm | Kurtosis: | 20.66 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 409.7 µm | 572.3 µm | 861.1 µm | 1264 µm | 1555 µm |



# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-E-04

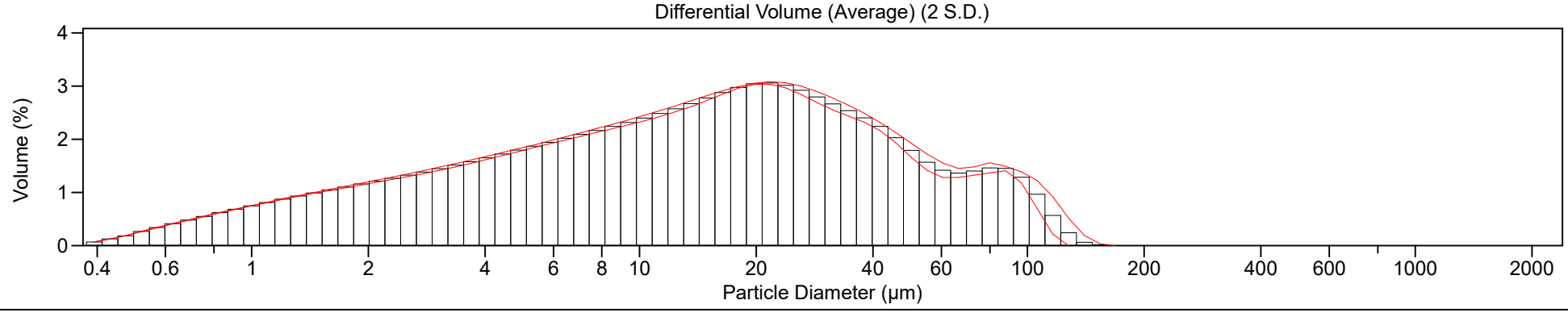
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-e4__001.$av<br>Sed-7esf-e4__001.$av |
| File ID: | SED-7ESF-e4 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-e4__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 11.67 µm | S.D.: | 3.614 |
| Median: | 13.75 µm | Variance: | 13.06 |
| Mean/Median ratio: | 0.849 | Skewness: | -0.376 Left skewed |
| Mode: | 21.70 µm | Kurtosis: | -0.578 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 1.796 µm | 4.782 µm | 13.75 µm | 30.59 µm | 58.70 µm |



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# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-E-05

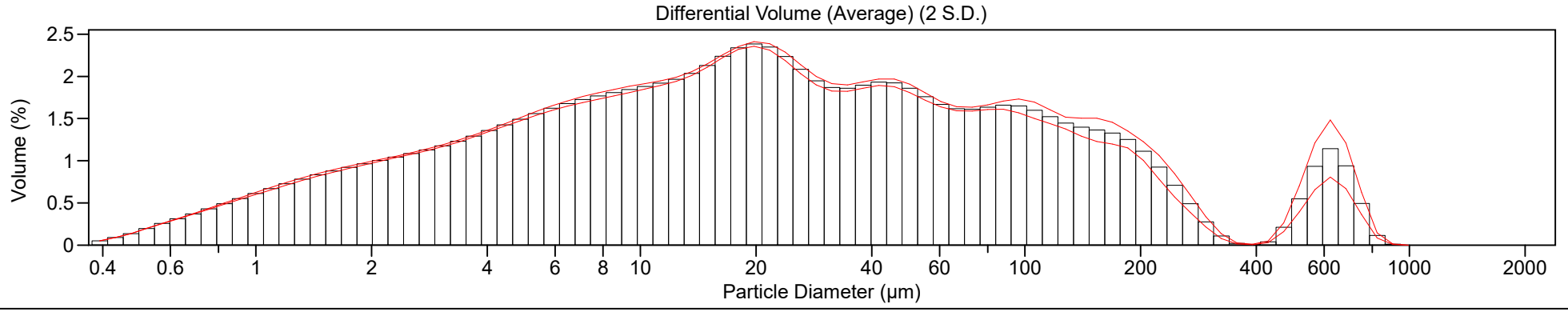
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-e5__002.$av<br>Sed-7esf-e5__002.$av |
| File ID: | SED-7ESF-e5 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-e5__002.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 20.34 µm | S.D.: | 5.194 |
| Median: | 20.38 µm | Variance: | 26.98 |
| Mean/Median ratio: | 0.998 | Skewness: | 0.0080 Right skewed |
| Mode: | 19.76 µm | Kurtosis: | -0.550 Platykurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 2.150 µm | 6.262 µm | 20.38 µm | 67.95 µm | 169.2 µm |



integral consulting inc.

# Beckman Coulter LS Particle Size Analyzer

## SED7ESF-E-06

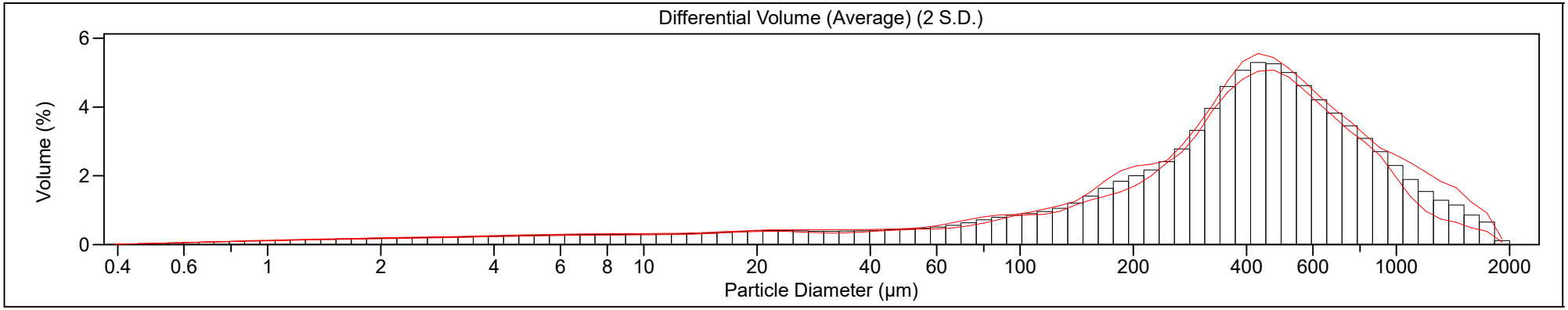
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Sed-7esf-e6__001.$av<br>Sed-7esf-e6__001.$av |
| File ID: | SED-7ESF-e6 |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Sed-7esf-e6__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 250.2 µm | S.D.: | 4.501 |
| Median: | 389.9 µm | Variance: | 20.25 |
| Mean/Median ratio: | 0.642 | Skewness: | -1.767 Left skewed |
| Mode: | 429.2 µm | Kurtosis: | 3.024 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 27.35 µm | 180.7 µm | 389.9 µm | 623.6 µm | 942.3 µm |



# Beckman Coulter LS Particle Size Analyzer

25 Aug 2020

## Beckman Coulter Control Samples

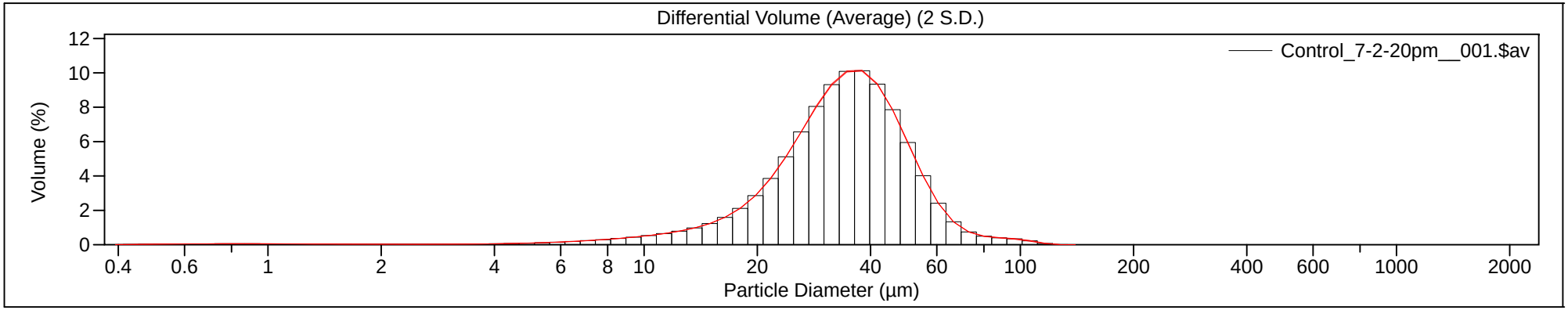
| | |
|---|---|
| **File name:** | **C:\Users\smcwilliams74\Desktop\projects\C3070_AECOM_Capping_Study_washington_DC\Processing\PSD\C3070 PSD raw data\Control_7-2-20pm__001.$av** |
| | **Control_7-2-20pm__001.$av** |
| **File ID:** | **control_7/2/20pm** |
| **Optical model:** | **Fraunhofer.rf780z** |

Volume Statistics (Geometric) Control_7-2-20pm__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 31.52 µm | S.D.: | 1.736 |
| Median: | 34.10 µm | Variance: | 3.015 |
| Mean/Median ratio: | 0.924 | Skewness: | -2.545 Left skewed |
| Mode: | 37.97 µm | Kurtosis: | 13.23 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 18.20 µm | 25.82 µm | 34.10 µm | 43.19 µm | 52.69 µm |



# Beckman Coulter LS Particle Size Analyzer

25 Aug 2020

## Beckman Coulter Control Samples

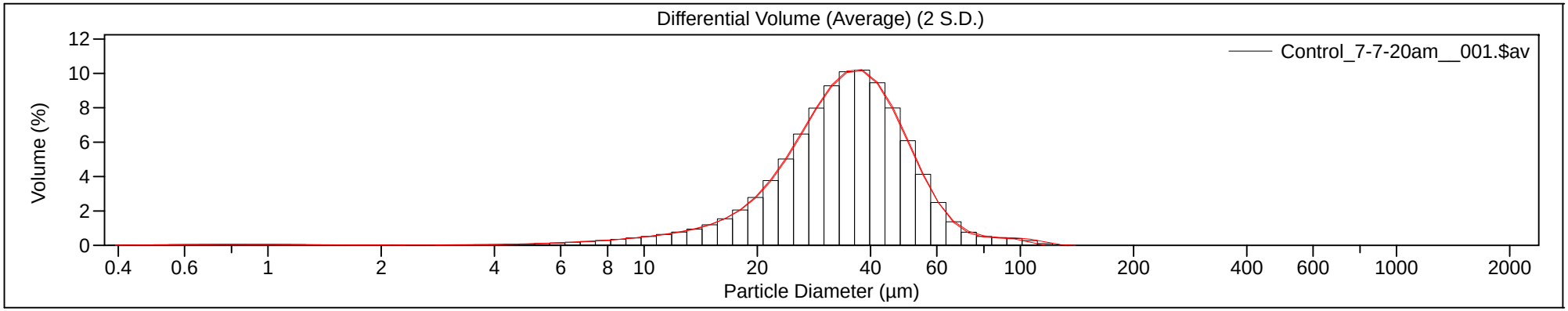
| | |
|---|---|
| File name: | C:\Users\smcwilliams74\Desktop\projects\C3070_AECOM_Capping_Study_washington_DC\Processing\PSD\C3070 PSD raw data\Control_7-7-20am__001.$a |
| | Control_7-7-20am__001.$av |
| File ID: | control_7-7-20am |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Control_7-7-20am__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 31.97 µm | S.D.: | 1.717 |
| Median: | 34.40 µm | Variance: | 2.948 |
| Mean/Median ratio: | 0.930 | Skewness: | -2.488 Left skewed |
| Mode: | 37.97 µm | Kurtosis: | 13.46 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 18.56 µm | 26.11 µm | 34.40 µm | 43.50 µm | 53.28 µm |



# Beckman Coulter LS Particle Size Analyzer

25 Aug 2020

## Beckman Coulter Control Samples

| | |
|---|---|
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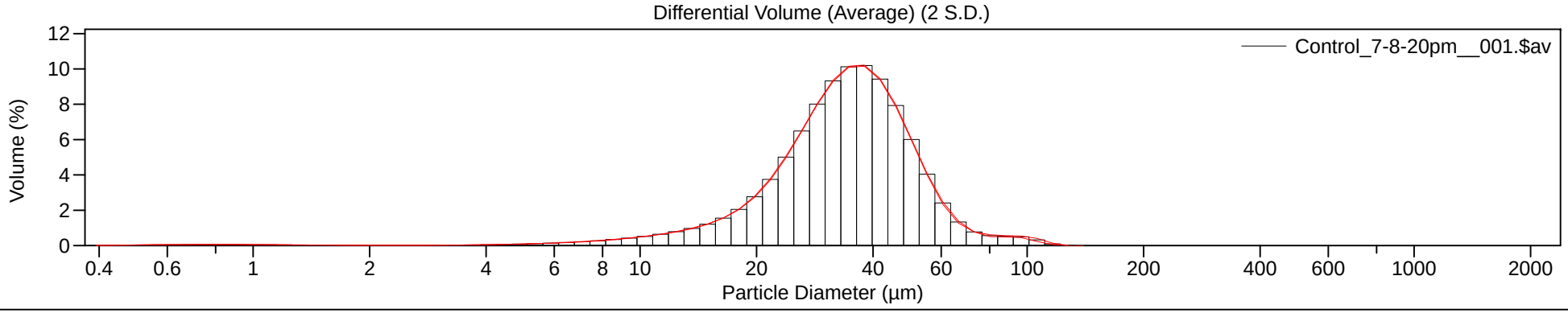
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Control_7-8-20pm__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 31.96 µm | S.D.: | 1.727 |
| Median: | 34.36 µm | Variance: | 2.981 |
| Mean/Median ratio: | 0.930 | Skewness: | -2.512 Left skewed |
| Mode: | 37.97 µm | Kurtosis: | 13.70 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 18.52 µm | 26.10 µm | 34.36 µm | 43.47 µm | 53.35 µm |



integral consulting inc.

# Beckman Coulter LS Particle Size Analyzer

## Anacostia Particle Size

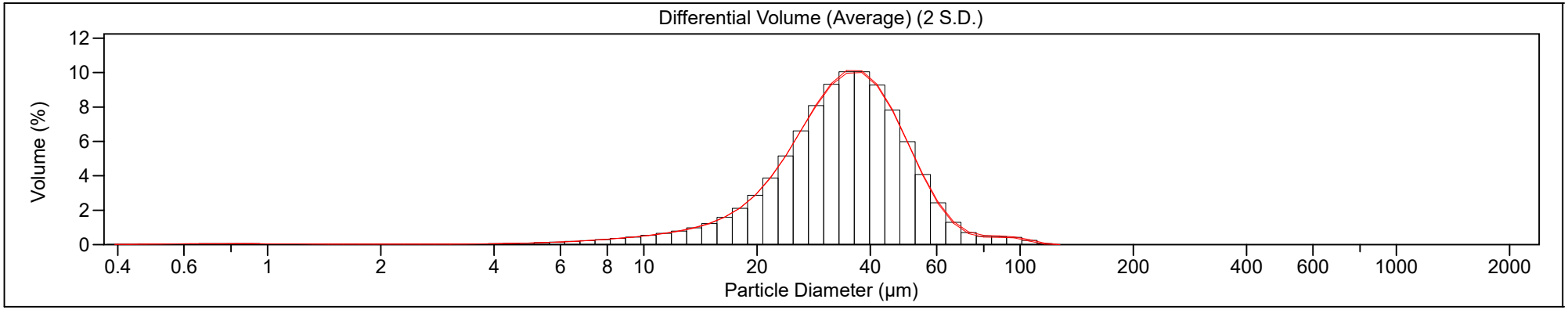
| | |
|---|---|
| File name: | \\pfs1w\C2000-C3999\C3070_Anacostia_AECOM\Data\Amendment_samples_data\PSD_C3070_amendment_data\PSD_C3070\Control_08-03-20___001.$av Control_08-03-20___001.$av |
| File ID: | control_08-03-20_pm |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Control_08-03-20___001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 31.62 µm | S.D.: | 1.727 |
| Median: | 34.09 µm | Variance: | 2.983 |
| Mean/Median ratio: | 0.927 | Skewness: | -2.491 Left skewed |
| Mode: | 37.97 µm | Kurtosis: | 13.13 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 18.28 µm | 25.83 µm | 34.09 µm | 43.25 µm | 52.87 µm |



integral consulting inc.

# Beckman Coulter LS Particle Size Analyzer

## Anacostia Particle Size

| | |
|---|---|
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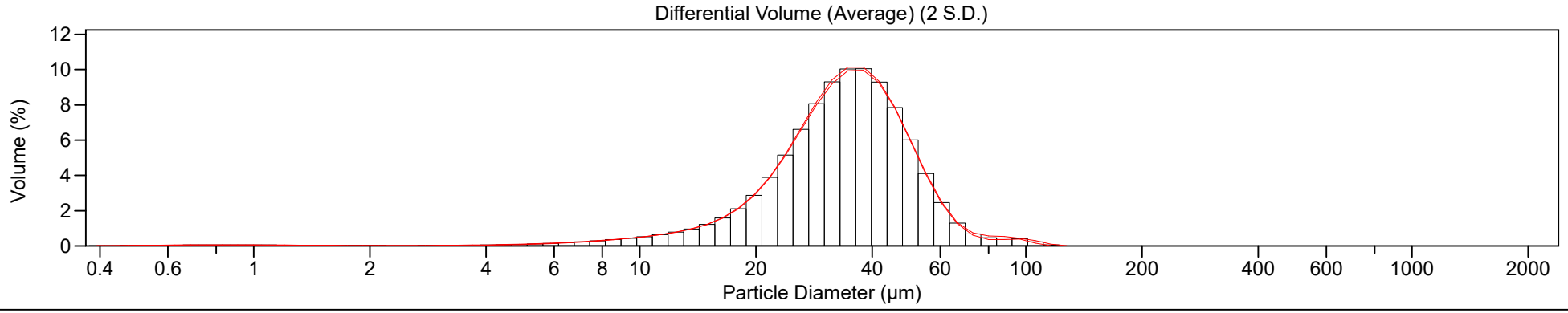
| File ID: | control_08-03-2020_am |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Control_08-03-202__001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 31.58 µm | S.D.: | 1.735 |
| Median: | 34.10 µm | Variance: | 3.009 |
| Mean/Median ratio: | 0.926 | Skewness: | -2.552 Left skewed |
| Mode: | 37.97 µm | Kurtosis: | 13.43 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 18.28 µm | 25.83 µm | 34.10 µm | 43.26 µm | 52.84 µm |



integral consulting inc.

# Beckman Coulter LS Particle Size Analyzer

## Anacostia Particle Size

| | |
|---|---|
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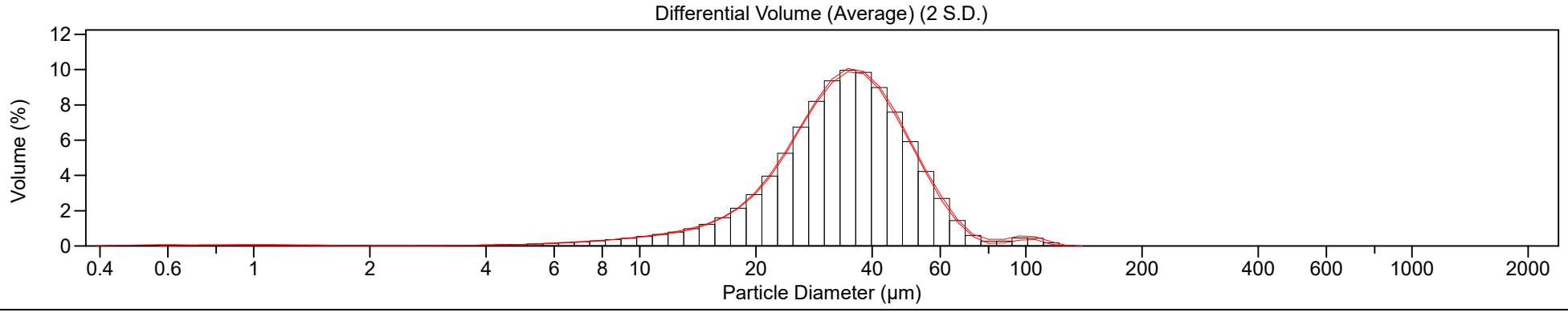
| File ID: | control_08-04-20_am |
| Optical model: | Fraunhofer.rf780z |

Volume Statistics (Geometric) Control_08-04-20___001.$av

Calculations from 0.375 µm to 2000 µm

| | | | |
|---|---|---|---|
| Volume: | 100% | | |
| Mean: | 31.64 µm | S.D.: | 1.721 |
| Median: | 33.93 µm | Variance: | 2.960 |
| Mean/Median ratio: | 0.932 | Skewness: | -2.345 Left skewed |
| Mode: | 34.59 µm | Kurtosis: | 12.24 Leptokurtic |

| <10% | <25% | <50% | <75% | <90% |
|---|---|---|---|---|
| 18.28 µm | 25.73 µm | 33.93 µm | 43.26 µm | 53.32 µm |



# Appendix C

# Sand Media Specifications

Graniterock
350 Technology Drive; Watsonville, CA 95076

Baldrige Award Winner
Research-Technical Services Ph. (831) 768-2100
Sales Ph. (831) 768-2380

## Quail Hollow Material Certification
## Felton, CA

**Product: Oly No.2 Sand (#203)** **Date: June 26, 2020**

**Contractor: Integral Corporation**

**Project: SEDflume Study**

Graniterock conducts regular sampling and testing of its materials, in accordance with ASTM or other applicable standards. The results listed below are average results derived from these tests. Based on the testing conducted, Graniterock certifies that the material identified on this certificate typically has the following physical properties.

### Gradation *ASTM C 136*: Cumulative Percent Passing

| Sieve Size | Quail Hollow Oly No.2 Sand |
|---|---|
| #4 (4.75 mm) | 100 |
| #8 (2.36 mm) | 97 |
| #16 (1.18 mm) | 79 |
| #30 (600 µm) | 35 |
| #50 (300 µm) | 10 |
| #100(150 µm) | 2 |
| #200( 75 µm) | 1.2 |

| | |
|---|---|
| Sand Equivalent *CT 217*: | 78 |
| Durability *CT 229*: | 76 |
| Organic Impurities *CT 213*: | Satisfactory |
| Specific Gravity *CT 207*: | 2.56 |
| Absorption *CT 207*: | 0.6% |

Submitted by:

Greg Wilkinson

Research Technical Services

**Sand Specification**

**Ref Maryland DOT, STANDARD SPECIFICATIONS for CONSTRUCTION and MATERIALS, July 2019.**

**Ref from 901 AGGREGATES - Table 901A, grading requirements for Fine Aggregate — Portland Cement, Concrete, Underdrain, And Pneumatic Mortar**

| U.S Standard Sieve Size | Percent by Weight Passing |
|---|---|
| 3/8 –inch | 100 |
| No. 4 | 95 - 100 |
| No. 16 | 45 - 85 |
| No. 50 | 5 - 30 |
| No. 100 | 0 - 10 |

**Ref from 920.01.05 (1) for Sand.**
Sand shall be washed silica sand that conforms to ASTM C-33 or AASHTO M-6 with less than 1 percent by weight of any combination of diabase, greystone, calcareous, or dolomitic sand.

Additional: Furnish sand that is free of organic material and lumps or balls of clay.

Note - ASTM C-33 or AASHTO M-6 are both for fine aggregates for cement. You can delete these references if ok to be less specific in terms of specifications.

pepco®

An Exelon Company

# Appendix G

# KEMRON Dewatering Study Report

# PEPCO BENNING ROAD
# TREATABILITY STUDY
# FINAL REPORT

KEMRON PROJECT #: SH0746

**February 10, 2021**

**Prepared for:**

AECOM

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410-379-6900 (Phone)

**Prepared by:**

KEMRON
ENVIRONMENTAL SERVICES

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Written By:

Tomecia Bradley

Tomecia Bradley, CHMM
Program Manager

Reviewed By:

Mark Clark
Senior Technologist

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**2.0 MATERIAL RECEIPT AND CHARACTERIZATION ..... 1**
**3.0 EXPERIMENTAL MIXTURE EVALUATIONS ..... 3**
**4.0 SOLIDIFICATION / STABILIZATION EVALUATIONS ..... 6**
**5.0 CONCLUSIONS ..... 8**

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Table 2 – Experimental Mixtures Observations
Table 3 – Solidification-Stabilization Evaluations

Appendix A – Physical Properties Testing Data Sheets
Appendix B – Experimental Mixture Evaluations Photographic Log
Appendix C – Solidification/Stabilization Evaluations Mixture Development Sheets
Appendix D – Paint Filter Testing Data Sheets

## 1.0 INTRODUCTION

KEMRON Environmental Services, Inc. (KEMRON) is pleased to present AECOM with this report for the solidification study performed on materials from the Pepco Benning Road Site (the site) located in Washington, D.C. The purpose of the study was to physically and chemically characterize the site materials and appropriate additives to reduce free liquids so that the site materials passed paint filter testing, was visually soil-like in consistency, and exhibited approximately six (6) pounds per square inch (psi) compressive strength. This report will describe the protocol used during testing of the site materials as well as the results of testing performed. This study was performed in general accordance with KEMRON's standard operation procedures and subsequent telephone and electronic mail conversations between KEMRON and AECOM.

## 2.0 MATERIAL RECEIPT AND CHARACTERIZATION

On June 10, 2020 and July 20, 2020 KEMRON received the following samples from the site:

- SED7C-DEW (0-18")
- SED7.5C-DEW (0-18")
- SEC7C-GTX (1)

Immediately following sample receipt, all materials were logged into KEMRON's sample tracking database and placed in secure, refrigerated storage maintained at a temperature of 4 degrees Celsius ($^{o}$C).

Prior to testing, any free liquid was decanted from the surface of the as-received samples and each material was thoroughly homogenized to ensure uniform materials for testing. KEMRON performed the following physical properties testing on the homogenized samples:

| **Parameter** | **Method** |
|---|---|
| Moisture Content | ASTM D2216 |
| Grain Size Distribution w/Hydrometer | ASTM D422 |
| USCS Classification | ASTM D2487 |
| Bulk Unit Weight | ASTM D7263 |
| Paint Filter | EPA Method 9095 |

Results of the as-received characterization testing are presented in **Table 1**. Copies of the physical properties testing data sheets are included in **Appendix A**. Note that all analytical testing was directly subcontracted and managed by AECOM.

Review of the data in **Table 1** shows that all three site materials are classified as silts with sand. The results also indicate that the SED7C-DEW (0-18") material exhibited a bulk unit weight of 93.3 pounds per cubic foot (pcf), a moisture content of 78.79% and passed the paint filter test. The SED7.5C-DEW (0-18") material exhibited a bulk unit weight of 84.5 pounds per cubic foot (pcf), a moisture content of 114.58% and failed the paint filter test. The SED7C-GTX material exhibited a bulk unit weight of 94.8 pounds per cubic foot (pcf), a moisture content of 73.05% and failed the paint filter test.

(1) This sample was run for physical parameters only. The information was needed due to a shipping sample issue which resulted in generating a second sample for dewatering testing performed by others

**AECOM**
**PEPCO BENNING ROAD TS**
**KEMRON PROJECT No. SH0746**

**TABLE 1**

**Untreated Material Characterization**

| Testing Parameter | Test Method | Unit | Untreated Material | | |
|---|---|---|---|---|---|
| | | | SED7C-DEW | SED7.5E-DEW (0-18') | SED7C-GTX |
| Particle Size Distribution | ASTM D422 | | | | |
| Gravel | | % | 0.1 | 0.7 | 0.5 |
| Sand | | % | 18.5 | 16.0 | 22.7 |
| Silt | | % | 66.3 | 68.4 | 61.9 |
| Clay | | % | 15.1 | 14.9 | 14.9 |
| Sample Description [1] | ASTM D2487 | | Brown silt with sand | Grayish Brown silt with sand | Dark Olive Gray silt with sand |
| Sample Classification [2] | ASTM D2487 | | ML | ML | ML |
| Moisture Content | ASTM D2216 | | | | |
| Average ASTM Moisture Content | | % | 78.79 | 114.58 | 73.05 |
| Average Percent Solids | | % | 55.93 | 46.62 | 57.79 |
| Unit Weight | ASTM D7263 | | | | |
| Average Bulk Unit Weight | | pcf | 93.3 | 84.5 | 94.8 |
| Paint Filter | EPA Method 9095 | | PASS | FAIL | FAIL |

Notes:
(1)Sample color determined by the Munsell Soil Color Charts.
(2) Sample classification based on the Unified Classification System.
%= Percent
pcf = Pounds per cubic foot

In addition to physical properties testing, aliquots of the SED7C-DEW (0-18") and SED7.5C-DEW (0-18") materials were submitted to Eurofins Test America in Pittsburgh, PA for Total Polychlorinated Biphenyls (PCBs) as Aroclors by EPA Method 8082 and Total PCBs as Congeners by EPA Method 1668C. Note that the results for PCB analyses were sent to and furnished by AECOM.

## 3.0 EXPERIMENTAL MIXTURE EVALUATIONS

The primary applications of solidification / stabilization include 1) treatment of liquids and sludge for land disposal, 2) remediation of contaminated sites containing organic and inorganic contaminants, and 3) solidification of materials, which are physically unstable. To perform solidification treatment, common binding reagents or proprietary reagents are added to the untreated waste materials. Common binding agents may include materials like Portland cement, blast furnace slag, cement, or lime kiln dusts, fly ash and organophillic clays. For this project, Type I Portland cement, Lime Kiln Dust (LKD), Calciment™ and Zapzorb were selected for evaluation.

KEMRON prepared a total of 19 experimental mixtures utilizing the SED7.5C-DEW (0-18") site material and three experimental mixtures utilizing the SED7C-DEW (0-18") site material. These mixtures were prepared as small cup mixes in order to evaluate the potential effect that the additives may have on the site material, and to potentially identify appropriate addition rates capable of reducing free moisture without consuming large amounts of the site soils. The mixture design formulations are presented in **Table 2**. The mixtures were developed by placing an aliquot of the site material into a stainless-steel bowl. The reagent was added dry to the site material and blended by hand until visually homogeneous. Immediately following mixture development, the mixtures were placed and tamped into cylindrical molds for curing. Note that all reagent addition rates are calculated on a by-weight basis according to the amount of site material being treated. For example, for a mixture developed with the site material at a 2% Portland cement addition rate, 2 grams of Type I Portland cement was added dry to every 100 grams of the site material.

Physical observations of each mixture were recorded while mixing. Pocket Penetrometer testing was performed on each mixture after 24 hours and 4 days of curing. The physical observations and results of the pocket penetrometer testing is presented in **Table 2**. The results in **Table 2** indicates that none of the mixtures exhibited strength gain after 4 days of curing. The results also indicate that only the mixtures that utilized Zapzorb were observed to be soil like after mixing. The other mixtures were observed to be wet and had the consistency of pudding or soft serve ice cream.

Based on the results of the initial experimental mixtures, AECOM requested that KEMRON prepare mixtures EXP-014, EXP-015 and EXP-016 using a two-step process. KEMRON was also instructed to prepare three new mixtures utilizing the SED7.5C-DEW (0-18") site material, also using a two-step process. The mixtures utilized Zapzorb and Type I Portland cement and were prepared following previously mentioned protocols. The two-step process consisted of mixing the Type I Portland cement with the site material first and then adding the Zapzorb after one hour of curing. The mixture design formulations are presented in **Table 2**. Physical observations were recorded for each mixture while mixing and pocket penetrometer testing was performed after 24 hours, 4 days and 14 days of curing.

The results in **Table 2** indicate that the mixture utilizing addition rates of 0.5% Zapzorb and 3% Type I Portland cement exhibited a pocket penetrometer results of 0.25 tons per square foot

(tsf) after 14 days of curing. The results also indicate that the mixtures utilizing Zapzorb at addition rates of 0.5 and 1.0% combined with Type I Portland cement at a 15% addition rate, and the use of Type I Portland cement alone at a 15% addition rate exhibited a pocket penetrometer results of 0.5 tsf after 24 hours of curing.

Photographic Documentation of each phase of testing is included in **Appendix B**.

**AECOM**
**PEPCO BENNING ROAD TS**
**SH0746**

**Table 2**

**Experimental Mixtures Observations**

| KEMRON Sample No. | Untreated Material | Reagent Type | Reagent Addition % by Wet Soil Wt. | Pocket Penetrometer (TSF) 24 hour | Pocket Penetrometer (TSF) 4 Day | Pocket Penetrometer (TSF) 14 Day | VOC Monitoring (ppm) 24 hour | Observations (after mixing) | Observations (after 24 hours of curing) |
|---|---|---|---|---|---|---|---|---|---|
| EXP-001 | SED7.5E-DEW (0-18') | Type I Portland Cement | 2 | 0 | 0 | | 3.1 | Wet; Like pudding | Moist; Like thick pudding |
| EXP-002 | SED7.5E-DEW (0-18') | Type I Portland Cement | 4 | 0 | 0 | | 7.2 | Wet; Like pudding | Slightly moist; Like soft clay |
| EXP-003 | SED7.5E-DEW (0-18') | Type I Portland Cement | 8 | 0 | 0 | | 5.4 | Wet; Like pudding | Slightly moist; Like stiff clay |
| EXP-004 | SED7.5E-DEW (0-18') | Lime Kiln Dust | 5 | 0 | 0 | | 5.8 | Wet; Like pudding | Moist; Like thick pudding |
| EXP-005 | SED7.5E-DEW (0-18') | Lime Kiln Dust | 7.5 | 0 | 0 | | 3.8 | Wet; Like soft serve ice cream | Moist; Like thick pudding |
| EXP-006 | SED7.5E-DEW (0-18') | Lime Kiln Dust | 15 | 0 | 0 | | 4.4 | Wet; Like soft serve ice cream | Slightly moist; Like soft clay |
| EXP-007 | SED7.5E-DEW (0-18') | ZapZorb | 0.5 | 0 | 0 | | 3.2 | Moist; Like soil | Slightly moist; Like soil |
| EXP-008 | SED7.5E-DEW (0-18') | ZapZorb | 1.5 | 0 | 0 | | 3.0 | Moist; Like soil | Slightly moist; Like soil |
| EXP-009 | SED7.5E-DEW (0-18') | ZapZorb | 3 | 0 | 0 | | 2.8 | Moist; Like soil | Dry; Like soil |
| EXP-010 | SED7.5E-DEW (0-18') | Calciment | 2 | 0 | 0 | | 1.7 | Wet; Like pudding | Moist; Like pudding |
| EXP-011 | SED7.5E-DEW (0-18') | LKD/Type I Portland Cement | 0.25 | 0 | 0 | | 1.5 | Wet; Like soft serve ice cream | Moist; Like soft serve ice cream |
| EXP-012 | SED7.5E-DEW (0-18') | LKD/Type I Portland Cement | 5 / 2 | 0 | 0 | | | Wet; Like pudding | Moist; like soft clay |
| EXP-013 | SED7.5E-DEW (0-18') | LKD/Type I Portland Cement | 10 / 4 | 0 | 0 | | | Wet; Like thick oatmeal | Moist; like soft clay |
| EXP-014 | SED7.5E-DEW (0-18') | ZapZorb/Type I Portland Cement | 0.5 / 3 | 0 | 0 | | | Moist; Like soil | Moist; Like soil |
| EXP-015 | SED7.5E-DEW (0-18') | ZapZorb/Type I Portland Cement | 1 / 3 | 0 | 0 | | | Moist; Like soil | Moist; Like soil |
| EXP-016 | SED7.5E-DEW (0-18') | ZapZorb/Type I Portland Cement | 0.5 / 5 | 0 | 0 | | | Moist; Like soil | Moist; Like soft clay |
| EXP-017 | SED7.5E-DEW (0-18') | Calciment | 5 | 0 | 0 | | | Wet; Like pudding | Wet; Like pudding |
| EXP-018 | SED7.5E-DEW (0-18') | Calciment | 7.5 | 0 | 0 | | | Wet; Like pudding | Wet; Like pudding |
| EXP-019 | SED7.5E-DEW (0-18') | Calciment | 10 | 0 | 0 | | | Wet; Like pudding | Wet; Like pudding |
| EXP-014 (2 step) | SED7.5E-DEW (0-18') | ZapZorb/Type I Portland Cement | 0.5 / 3 | 0 | 0.25 | 0.25 | | Moist; Like soil | Moist; Like soil |
| EXP-015 (2 step) | SED7.5E-DEW (0-18') | ZapZorb/Type I Portland Cement | 1 / 3 | 0 | 0 | 0 | | Moist; Like soil | Moist; Like soil |
| EXP-016 (2 step) | SED7.5E-DEW (0-18') | ZapZorb/Type I Portland Cement | 0.5 / 5 | 0 | 0 | 0 | | Moist; Like soil | Moist; Like soft clay |
| EXP-020 (2 step) | SED7C-DEW | ZapZorb/Type I Portland Cement | 0.5 / 3 | 0 | | | | Slightly Moist; Like soil, pass p.f | somewhat dry, like soil, pass p.f |
| EXP-021 (2 step) | SED7C-DEW | ZapZorb/Type I Portland Cement | 1 / 3 | 0 | | | | Slightly Moist; Like soil, pass p.f | somewhat dry, like soil, pass p.f |
| EXP-022 (2 step) | SED7C-DEW | ZapZorb/Type I Portland Cement | 0.5 / 5 | 0 | | | | Slightly Moist; Like soil, pass p.f | somewhat dry, clay like, pass p.f |
| EXP-023 (2 step) | SED7.5E-DEW (0-18') | ZapZorb/Type I Portland Cement | 0.5 / 15 | 0.5 | | | | Moist: like soil, fail p.f | |
| EXP-024 (2 step) | SED7.5E-DEW (0-18') | ZapZorb/Type I Portland Cement | 1 / 15 | 0.5 | | | | Moist, like soil, pass p.f | |
| EXP-025 (2 step) | SED7.5E-DEW (0-18') | Type I Portland Cement | 15 | 0.5 | | | | Wet: Clay like, fail p.f | |

## 4.0 SOLIDIFICATION / STABILIZATION EVALUATIONS

Based on the results of the experimental mixture evaluations, KEMRON prepared a total of ten (10) solidification mixtures including five (5) mixtures using the SED7C-DEW (0-18") material and five (5) mixtures using the SED7.5C-DEW (0-18") material. The mixture design formulations are presented in **Table 3** and bench top mixture development sheets are included in **Appendix C**. The mixtures were developed using previously mentioned protocols. Mixtures utilizing a combination of Zapzorb and Type I Portland cement were prepared using the two-step process previously outlined.

Off-gas monitoring was measured for each mixture with a Minirae 3000 photoionization detector (PID) with an 11.8 electron volt (eV) lamp. The off gas was measured while mixing and after one hour of curing. The off-gas monitoring testing results are presented in **Table 3**. Table 3 indicates that the highest VOC off-gas measured was 4.5 ppm.

To evaluate the potential setting characteristics of each mixture, pocket penetrometer testing was performed after 1, 3, 5 and 7 days of curing, and shows that several of the mixtures exhibited some degree of strength gain. Specifically, the mixtures utilizing a 15% Type I Portland cement addition resulted in penetrometer strengths in excess of 4.5 tsf after three (3) days of curing. Additionally, the SED7C-DEW site soil treated with the two-step mixing of Zapzorb and Type I PC at addition rates of 0.5 and 10%, and 10% Type I Portland cement alone exhibited penetrometer strengths of 4.0 and 3.5 tsf respectively. These mixtures when applied to the SED7.5E-DEW site material did not exhibit the same strength gain with pocket penetrometer results of 2.75 tsf for each treated material at the 7-day cure time. The results of pocket penetrometer testing are included in **Table 3**.

At the 7-day cure interval, each solidified material was subjected to Paint Filter testing by EPA Method 9095. The results of the paint filter testing are also presented in **Table 3** and show that all the treated materials passed paint filter. Complete data sheets are included in **Appendix D**.

Based on the results of solidification/stabilization evaluations, KEMRON was instructed to submit mixtures 0746-009 and 0746-010 to Test America in Pittsburgh, PA for Total Polychlorinated Biphenyls (PCBs) as Aroclors by EPA Method 8082 and TCLP PCBs as Aroclors by EPA Method 1311/8082. KEMRON was not provided the analytical results of the treated materials.

**AECOM**
**PEPCO BENNING ROAD TS**
**KEMRON PROJECT No. SH0746**

**TABLE 3**

**Reagent Drying Evaluations**
**Mixture Designs, VOC Monitoring, Pocket Penotrometer and Paint Filter Testing**

| KEMRON Sample Number | Untreated Material Type | Reagent Type | Reagent Addition % by Wet Soil wt. | VOC Monitoring (ppm) | | Pocket Penetrometer (tsf) | | | | Cure Day | Paint Filter Testing |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | At Mixing | 1 hour | 1 Day | 3 Day | 5 Day | 7 Day | | Pass/Fail |
| 0746-001 | SED7C-DEW | Zapzorb | 0.5 | 0.0 | 0.2 | 0.00 | 0.00 | 0.00 | 0.00 | 7 | Pass |
| 0746-002 (2 step) | SED7C-DEW | Zapzorb/Type I Portland Cement | 0.5/10.0 | 0.7 | 0.7 | 1.00 | 2.50 | 3.50 | 4.00 | 7 | Pass |
| 0746-003 | SED7C-DEW | Type I Portland Cement | 10.0 | 0.2 | 2.0 | 0.50 | 2.00 | 3.00 | 3.50 | 7 | Pass |
| 0746-004 | SED7C-DEW | Type I Portland Cement | 15.0 | 1.4 | 1.6 | 2.00 | >4.5 | >4.5 | >4.5 | 7 | Pass |
| 0746-005 | SED7.5E-DEW | Zapzorb | 0.5 | 0.4 | 0.2 | 0.00 | 0.00 | 0.00 | 0.00 | 7 | Pass |
| 0746-006 (2 step) | SED7.5E-DEW | Zapzorb/Type I Portland Cement | 0.5/10.0 | 0.0 | 0.5 | 1.50 | 1.50 | 1.75 | 2.75 | 7 | Pass |
| 0746-007 | SED7.5E-DEW | Type I Portland Cement | 10.0 | 0.0 | 0.6 | 1.00 | 2.00 | 2.50 | 2.75 | 7 | Pass |
| 0746-008 | SED7.5E-DEW | Type I Portland Cement | 15.0 | 0.0 | 0.7 | 2.50 | >4.5 | >4.5 | >4.5 | 7 | Pass |
| 0746-009 | SED7C-DEW | Type I Portland Cement | 7.0 | 0.8 | 4.5 | 0.00 | 0.25 | 0.25 | 0.25 | 7 | Pass |
| 0746-010 (2 step) | SED7.5E-DEW | Zapzorb/Type I Portland Cement | 0.5/5 | 0.1 | 4.4 | 0.00 | 0.00 | 0.00 | 0.25 | 7 | Pass |

Notes:
% = Percent
Wt= Weight

## 5.0 CONCLUSIONS

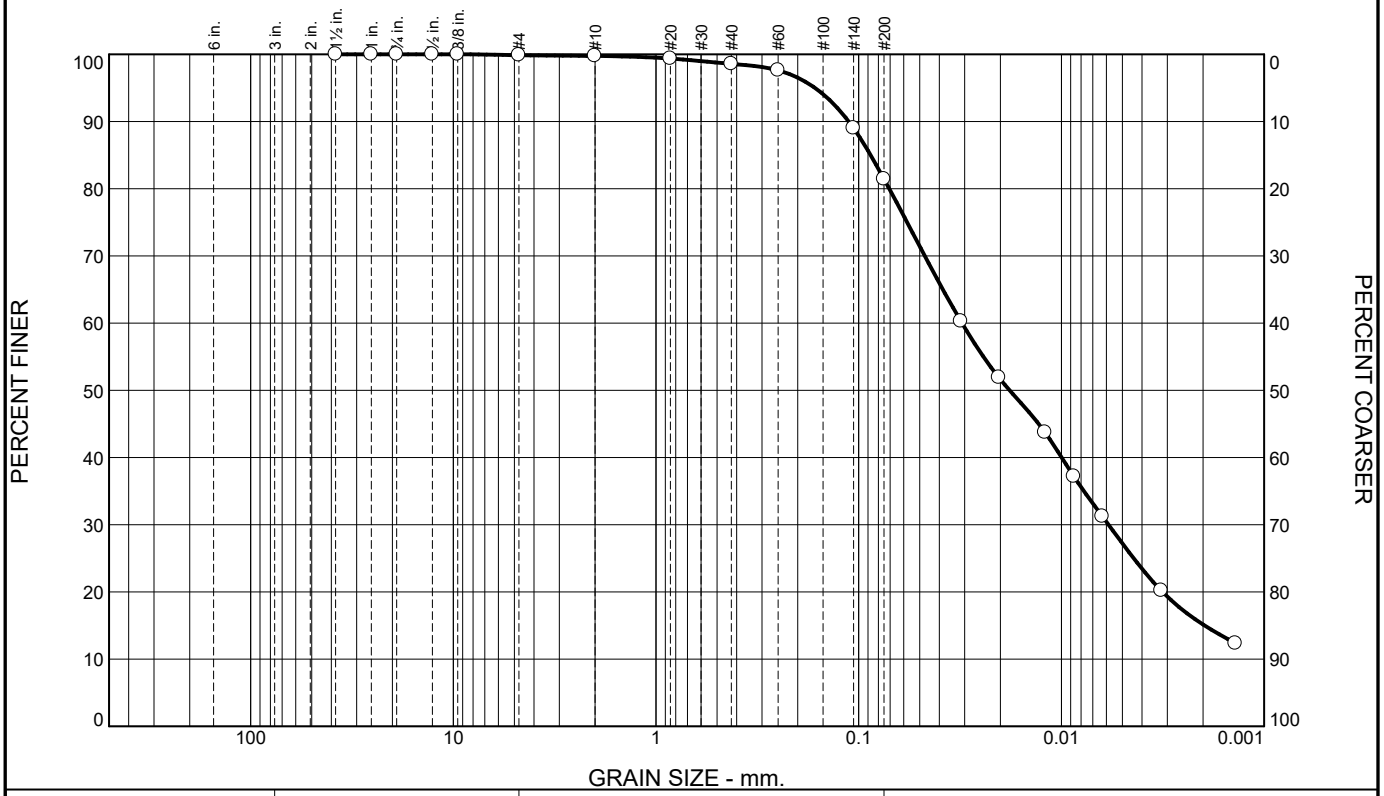
KEMRON conducted solidification treatment applications to evaluate potential reagents to improve the physical characteristics of the site materials. Initially, experimental mixtures were prepared with the SED7C-DEW (0-18") and SED7.5C-DEW (0-18") site materials, to evaluate various reagents at various addition rates. The reagents included Type I Portland cement, Zapzorb, Calciment™ and Lime Kiln Dust. The results indicated that mixtures utilizing Zapzorb and Type I Portland cement exhibited more of a soil like material and the most strength gain.

Solidification evaluations were then conducted on the site materials and included Type I Portland cement and Zapzorb, which were individually added dry to the site materials. The results of testing conducted on the site materials treated with Type I Portland cement showed that a 15% addition rate of dry Portland cement exhibited the highest pocket penetrometer results of greater than 4.5 tsf after 7 days of curing. The results also showed that all solidification mixtures passed paint filter testing.

This report should be reviewed in its entirety including all attachments prior to making decisions concerning a remedial approach. This study is intended to suggest what will occur in the field but does not guarantee the same results.

# Appendix A:
# Physical Properties Testing Data Sheets

# Particle Size Distribution Report




| % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.1 | 0.1 | 1.2 | 17.2 | 66.3 | 15.1 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---|---|---|---|
| 1.5 | 100.0 | | |
| 1.0 | 100.0 | | |
| 0.75 | 100.0 | | |
| 0.5 | 100.0 | | |
| 0.375 | 100.0 | | |
| #4 | 99.9 | | |
| #10 | 99.8 | | |
| #20 | 99.4 | | |
| #40 | 98.6 | | |
| #60 | 97.6 | | |
| #140 | 89.0 | | |
| #200 | 81.4 | | |
| 0.0313 mm. | 60.3 | | |
| 0.0203 mm. | 51.9 | | |
| 0.0120 mm. | 43.7 | | |
| 0.0087 mm. | 37.2 | | |
| 0.0063 mm. | 31.2 | | |
| 0.0032 mm. | 20.2 | | |
| 0.0014 mm. | 12.3 | | |

* (no specification provided)

**Soil Description**

Brown silt with sand

**Atterberg Limits**

PL= LL= PI=

**Coefficients**

$D_{90}$= 0.1121 $D_{85}$= 0.0874 $D_{60}$= 0.0309
$D_{50}$= 0.0180 $D_{30}$= 0.0059 $D_{15}$= 0.0020
$D_{10}$= $C_u$= $C_c$=

**Classification**

USCS= ML AASHTO= A-4(0)

**Remarks**

**Sample Number:** SED7C-DEW

**Date:** 06/23/20

**KEMRON Environmental Services Inc.**
**Atlanta, Georgia**

**Client:** AECOM
**Project:** Pepco Benning Road TS
**Project No:** SH0746 **Figure** E119

**Tested By:** FA **Checked By:** TNB

# MOISTURE CONTENT DETERMINATION

**REPORT FORM**
**ASTM D 2216**

| | |
|---|---|
| PROJECT: | Pepco Benning Road TS |
| PROJECT No.: | SH0746 |
| SAMPLE No.: | SED7C-DEW |
| TESTING DATE: | 06/22/20 |
| TESTED BY: | FA |
| TRACKING CODE: | E119 |

| MOISTURE CONTENT (Dry & Wet Basis) | | | | | | |
|---|---|---|---|---|---|---|
| 1. MOISTURE TIN NO. | A | | B | | C | |
| 2. WT MOISTURE TIN (tare weight) | 1.2791 | g | 1.2657 | g | 1.2697 | g |
| 3. WT WET SOIL + TARE | 18.8431 | g | 16.9404 | g | 18.0554 | g |
| 4. WT DRY SOIL + TARE | 11.1047 | g | 10.0616 | g | 10.6256 | g |
| 5. WT WATER, Ww | 7.7384 | g | 6.8788 | g | 7.4298 | g |
| 6. WT DRY SOIL, Ws | 9.8256 | g | 8.7959 | g | 9.3559 | g |
| 7. ASTM MOISTURE CONTENT | 78.76 | % | 78.20 | % | 79.41 | % |
| 8. PERCENT SOLIDS | 55.94 | % | 56.12 | % | 55.74 | % |
| 9. AVERAGE ASTM MOISTURE CONTENT | 78.79 | % | | | | |
| 10. AVERAGE PERCENT SOLIDS | 55.93 | % | | | | |

# UNIT WEIGHT DETERMINATION

**DATA SHEET**
**ASTM D7263**

| | |
|---|---|
| PROJECT: | Pepco Benning Road TS |
| PROJECT No.: | SH0746 |
| SAMPLE No.: | SED7C-DEW |
| TESTING DATE: | 06/22/20 |
| TESTED BY: | FA |
| TRACKING CODE: | E119 |

| UNIT WEIGHT (DENSITY) | | | | | | |
|---|---|---|---|---|---|---|
| 1. SAMPLE NO. | A | | B | | C | |
| 2. WT OF MOLD (tare weight) | 18.17 | g | 18.16 | g | 18.17 | g |
| 3. WT OF MOLD + SOIL | 326.09 | g | 325.91 | g | 325.46 | g |
| 4. WT OF WET SOIL, W | 307.92 | g | 307.75 | g | 307.29 | g |
| 5. DIAMETER OF SPECIMEN, D | 2.00 | in | 2.00 | in | 2.00 | in |
| 6. HEIGHT OF SPECIMEN, H | 4.00 | in | 4.00 | in | 4.00 | in |
| 7. VOLUME OF SPECIMEN | 12.57 | $in^3$ | 12.57 | $in^3$ | 12.57 | $in^3$ |
| 8. BULK UNIT WEIGHT | 93.3 | pcf | 93.3 | pcf | 93.2 | pcf |
| 9. BULK SPECIFIC GRAVITY | 1.5 | | 1.5 | | 1.5 | |
| 10. AVERAGE BULK UNIT WEIGHT | 93.3 | pcf | | | | |
| 11. AVERAGE BULK SPECIFIC GRAVITY | 1.5 | | | | | |

# PAINT FILTER TEST

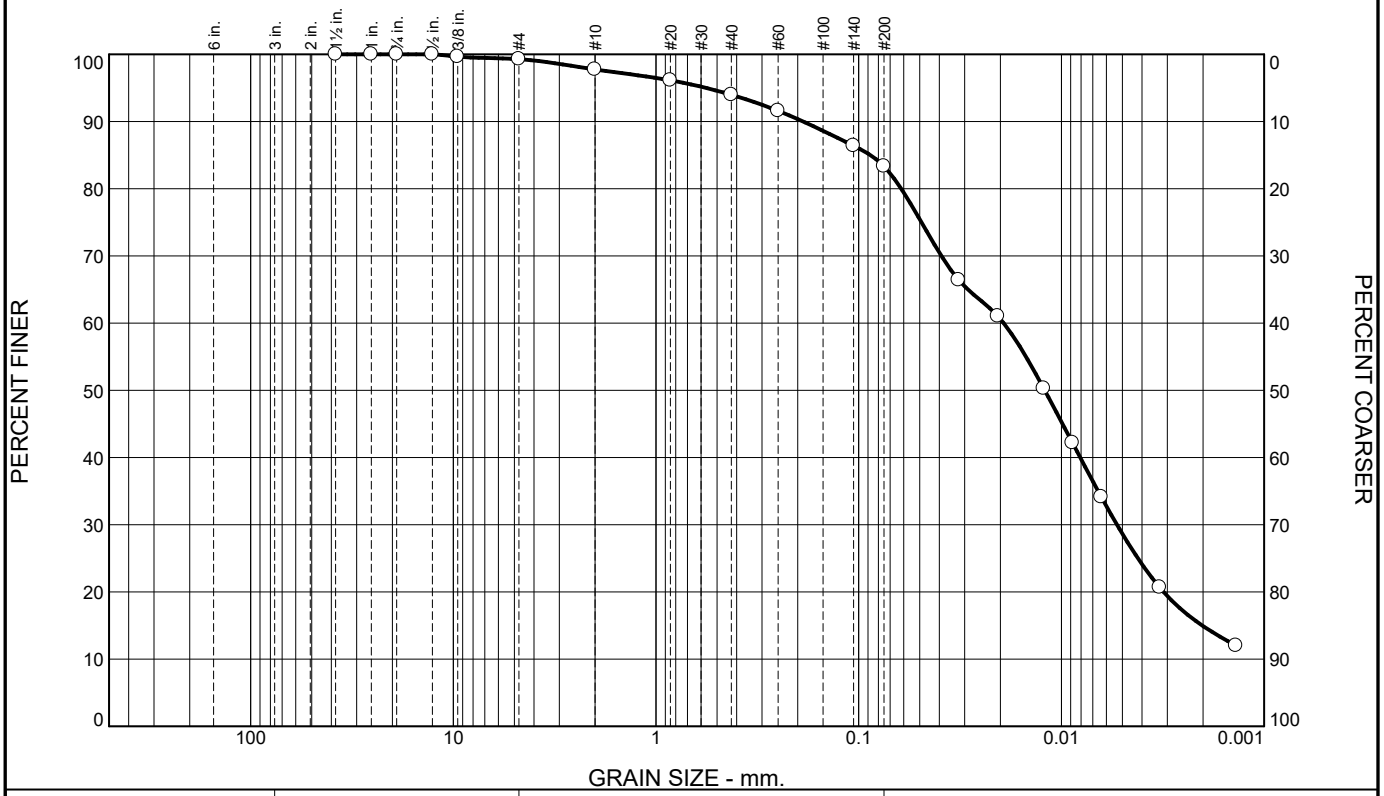
**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 6/22/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | FA |
| SAMPLE No.: | SED7C-DEW (0-18") | TRACKING CODE: | E119 |
| TESTING METHOD: | EPA Method 9095 | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.00 | **g** |
| **RESULTS (PASS / FAIL) *** | PASS | |

* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

# Particle Size Distribution Report




| % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.7 | 1.6 | 3.7 | 10.7 | 68.4 | 14.9 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---|---|---|---|
| 1.5 | 100.0 | | |
| 1.0 | 100.0 | | |
| 0.75 | 100.0 | | |
| 0.5 | 100.0 | | |
| 0.375 | 99.7 | | |
| #4 | 99.3 | | |
| #10 | 97.7 | | |
| #20 | 96.1 | | |
| #40 | 94.0 | | |
| #60 | 91.6 | | |
| #140 | 86.4 | | |
| #200 | 83.3 | | |
| 0.0321 mm. | 66.4 | | |
| 0.0206 mm. | 61.0 | | |
| 0.0122 mm. | 50.3 | | |
| 0.0088 mm. | 42.2 | | |
| 0.0064 mm. | 34.1 | | |
| 0.0033 mm. | 20.7 | | |
| 0.0014 mm. | 12.0 | | |

* (no specification provided)

**Soil Description**

Grayish Brown silt with sand

**Atterberg Limits**

PL= LL= PI=

**Coefficients**

$D_{90}$= 0.1885 $D_{85}$= 0.0875 $D_{60}$= 0.0193
$D_{50}$= 0.0121 $D_{30}$= 0.0053 $D_{15}$= 0.0020
$D_{10}$= $C_u$= $C_c$=

**Classification**

USCS= ML AASHTO=

**Remarks**

**Sample Number:** SED7.5E-DEW (0-18")

**Date:** 6/16/20

**KEMRON Environmental Services Inc.**
**Atlanta, Georgia**

**Client:** AECOM
**Project:** Pepco Benning Road TS
**Project No:** SH0746 **Figure** E120

**Tested By:** JBA **Checked By:** TBA

# MOISTURE CONTENT DETERMINATION

**REPORT FORM**
**ASTM D 2216**

| | |
|---|---|
| PROJECT: | Pepco Benning Road TS |
| PROJECT No.: | SH0746 |
| SAMPLE No.: | SED7.5E-DEW (0-18") |
| TESTING DATE: | 06/12/20 |
| TESTED BY: | FA |
| TRACKING CODE: | E120 |

| MOISTURE CONTENT (Dry & Wet Basis) | | | | | |
|---|---|---|---|---|---|
| 1. MOISTURE TIN NO. | A | | B | | C | |
| 2. WT MOISTURE TIN (tare weight) | 1.2787 | g | 1.2789 | g | 1.2824 | g |
| 3. WT WET SOIL + TARE | 15.6715 | g | 15.0745 | g | 16.1449 | g |
| 4. WT DRY SOIL + TARE | 7.8233 | g | 7.7771 | g | 8.3091 | g |
| 5. WT WATER, Ww | 7.8482 | g | 7.2974 | g | 7.8358 | g |
| 6. WT DRY SOIL, Ws | 6.5446 | g | 6.4982 | g | 7.0267 | g |
| 7. ASTM MOISTURE CONTENT | 119.92 | % | 112.30 | % | 111.51 | % |
| 8. PERCENT SOLIDS | 45.47 | % | 47.10 | % | 47.28 | % |
| 9. AVERAGE ASTM MOISTURE CONTENT | 114.58 | % | | | | |
| 10. AVERAGE PERCENT SOLIDS | 46.62 | % | | | | |

# UNIT WEIGHT DETERMINATION

**DATA SHEET**
**ASTM D7263**

| | |
|---|---|
| PROJECT: | Pepco Benning Road TS |
| PROJECT No.: | SH0746 |
| SAMPLE No.: | SED7.5E-DEW (0-18") |
| TESTING DATE: | 06/12/20 |
| TESTED BY: | FA |
| TRACKING CODE: | E120 |

| UNIT WEIGHT (DENSITY) | | | | | | |
|---|---|---|---|---|---|---|
| 1. SAMPLE NO. | A | | B | | C | |
| 2. WT OF MOLD (tare weight) | 18.16 | g | 18.16 | g | 18.14 | g |
| 3. WT OF MOLD + SOIL | 296.61 | g | 297.02 | g | 297.13 | g |
| 4. WT OF WET SOIL, W | 278.45 | g | 278.86 | g | 278.99 | g |
| 5. DIAMETER OF SPECIMEN, D | 2.00 | in | 2.00 | in | 2.00 | in |
| 6. HEIGHT OF SPECIMEN, H | 4.00 | in | 4.00 | in | 4.00 | in |
| 7. VOLUME OF SPECIMEN | 12.57 | $in^3$ | 12.57 | $in^3$ | 12.57 | $in^3$ |
| 8. BULK UNIT WEIGHT | 84.4 | pcf | 84.5 | pcf | 84.6 | pcf |
| 9. BULK SPECIFIC GRAVITY | 1.4 | | 1.4 | | 1.4 | |
| 10. AVERAGE BULK UNIT WEIGHT | 84.5 | pcf | | | | |
| 11. AVERAGE BULK SPECIFIC GRAVITY | 1.4 | | | | | |

# PAINT FILTER TEST

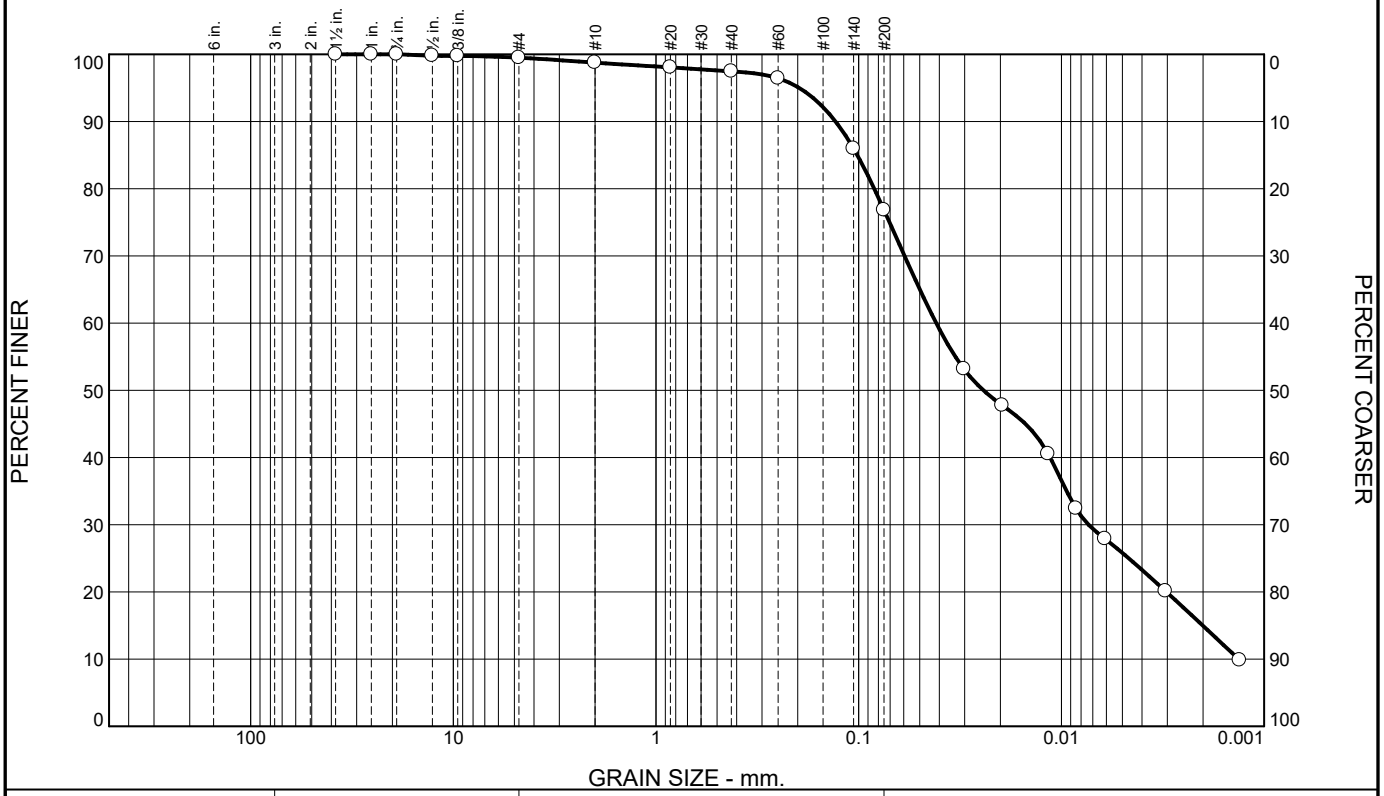
**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 6/18/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | fa |
| SAMPLE No.: | SED7.5E-DEW (0-18") | TRACKING CODE: | E120 |
| TESTING METHOD: | EPA Method 9095 | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.05 | **g** |
| **RESULTS (PASS / FAIL) *** | FAIL | |

* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

# Particle Size Distribution Report




| % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 0.0 | 0.5 | 0.7 | 1.3 | 20.7 | 61.9 | 14.9 |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---|---|---|---|
| 1.5 | 100.0 | | |
| 1.0 | 100.0 | | |
| 0.75 | 100.0 | | |
| 0.5 | 99.8 | | |
| 0.375 | 99.7 | | |
| #4 | 99.5 | | |
| #10 | 98.8 | | |
| #20 | 98.0 | | |
| #40 | 97.5 | | |
| #60 | 96.4 | | |
| #140 | 86.0 | | |
| #200 | 76.8 | | |
| 0.0303 mm. | 53.2 | | |
| 0.0196 mm. | 47.8 | | |
| 0.0116 mm. | 40.5 | | |
| 0.0085 mm. | 32.4 | | |
| 0.0061 mm. | 27.9 | | |
| 0.0031 mm. | 20.1 | | |
| 0.0013 mm. | 9.8 | | |

* (no specification provided)

**Soil Description**

Silt with Sand Dark Olive Gray

**Atterberg Limits**

PL= LL= PI=

**Coefficients**

$D_{90}$= 0.1301 $D_{85}$= 0.1017 $D_{60}$= 0.0415
$D_{50}$= 0.0243 $D_{30}$= 0.0074 $D_{15}$= 0.0020
$D_{10}$= 0.0013 $C_u$= 31.05 $C_c$= 0.98

**Classification**

USCS= ML AASHTO= A-4(0)

**Remarks**

**Sample Number:** SED7C-GTX

**Date:** 7/27/20

**KEMRON Environmental Services Inc.**
**Atlanta, Georgia**

**Client:** AECOM
**Project:** Pepco Benning Road TS
**Project No:** SH0746 **Figure** E121

**Tested By:** JBA **Checked By:** TNB

# MOISTURE CONTENT DETERMINATION

**REPORT FORM**
**ASTM D 2216**

| | |
|---|---|
| PROJECT: | Pepco Benning Road TS |
| PROJECT No.: | SH0746 |
| SAMPLE No.: | SED7C-GTX |
| TESTING DATE: | 07/21/20 |
| TESTED BY: | JBA |
| TRACKING CODE: | E121 |

| MOISTURE CONTENT (Dry & Wet Basis) | | | | | |
|---|---|---|---|---|---|
| 1. MOISTURE TIN NO. | A | | B | | C | |
| 2. WT MOISTURE TIN (tare weight) | 1.2705 | g | 1.2630 | g | 1.2732 | g |
| 3. WT WET SOIL + TARE | 26.6225 | g | 19.0322 | g | 21.6825 | g |
| 4. WT DRY SOIL + TARE | 15.8789 | g | 11.6048 | g | 13.0166 | g |
| 5. WT WATER, Ww | 10.7436 | g | 7.4274 | g | 8.6659 | g |
| 6. WT DRY SOIL, Ws | 14.6084 | g | 10.3418 | g | 11.7434 | g |
| 7. ASTM MOISTURE CONTENT | 73.54 | % | 71.82 | % | 73.79 | % |
| 8. PERCENT SOLIDS | 57.62 | % | 58.20 | % | 57.54 | % |
| 9. AVERAGE ASTM MOISTURE CONTENT | 73.05 | % | | | | |
| 10. AVERAGE PERCENT SOLIDS | 57.79 | % | | | | |

# UNIT WEIGHT DETERMINATION

**DATA SHEET**
**ASTM D7263**

| | |
|---|---|
| PROJECT: | Pepco Benning Road TS |
| PROJECT No.: | SH0746 |
| SAMPLE No.: | SED7C-GTX |
| TESTING DATE: | 07/21/20 |
| TESTED BY: | FA |
| TRACKING CODE: | E121 |

| UNIT WEIGHT (DENSITY) | | | | | | |
|---|---|---|---|---|---|---|
| 1. SAMPLE NO. | A | | B | | C | |
| 2. WT OF MOLD (tare weight) | 18.15 | g | 18.16 | g | 18.16 | g |
| 3. WT OF MOLD + SOIL | 331.65 | g | 328.55 | g | 332.11 | g |
| 4. WT OF WET SOIL, W | 313.50 | g | 310.39 | g | 313.95 | g |
| 5. DIAMETER OF SPECIMEN, D | 2.00 | in | 2.00 | in | 2.00 | in |
| 6. HEIGHT OF SPECIMEN, H | 4.00 | in | 4.00 | in | 4.00 | in |
| 7. VOLUME OF SPECIMEN | 12.57 | $in^3$ | 12.57 | $in^3$ | 12.57 | $in^3$ |
| 8. BULK UNIT WEIGHT | 95.0 | pcf | 94.1 | pcf | 95.2 | pcf |
| 9. BULK SPECIFIC GRAVITY | 1.5 | | 1.5 | | 1.5 | |
| 10. AVERAGE BULK UNIT WEIGHT | 94.8 | pcf | | | | |
| 11. AVERAGE BULK SPECIFIC GRAVITY | 1.5 | | | | | |

# PAINT FILTER TEST

**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 7/27/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | FA |
| SAMPLE No.: | SED7C-GTX | TRACKING CODE: | E121 |
| TESTING METHOD: | EPA Method 9095 | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.02 | **g** |
| **RESULTS (PASS / FAIL) *** | FAIL | |

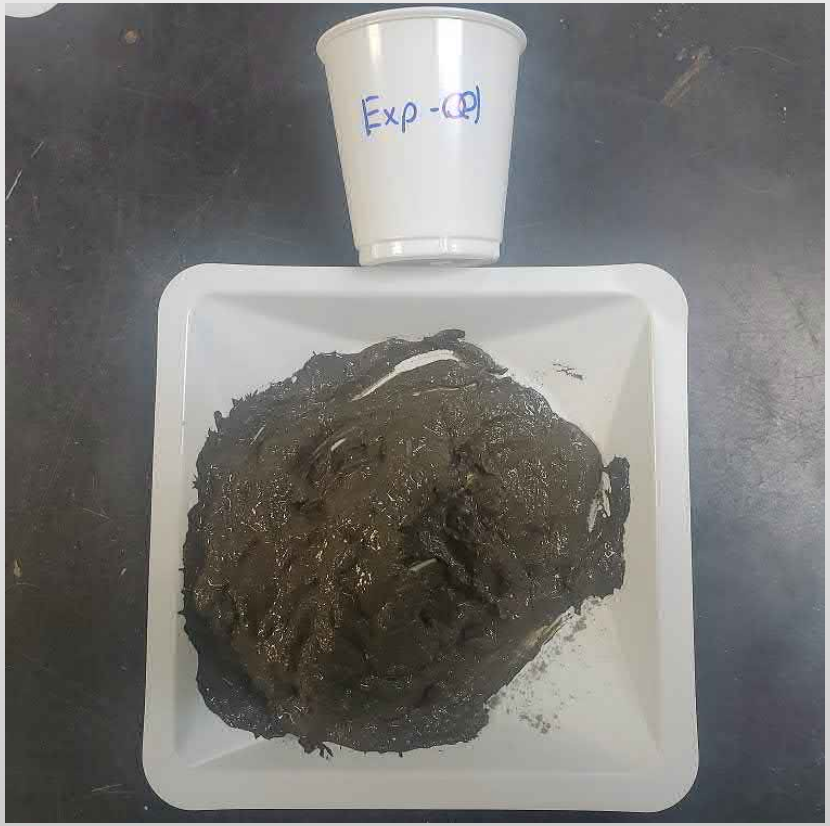
* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

# Appendix B:
# Experimental Mixture Evaluations
# Photographic Log

# AECOM
# Pepco Benning Road
# Treatability Study
# Kemron Project No. SH0746

KEMRON
ENVIRONMENTAL SERVICES

# Experimental Mixtures Observations




2% Type I Portland Cement
After mixing: Wet; Like pudding




4% Type I Portland Cement
After mixing: Wet; Like pudding



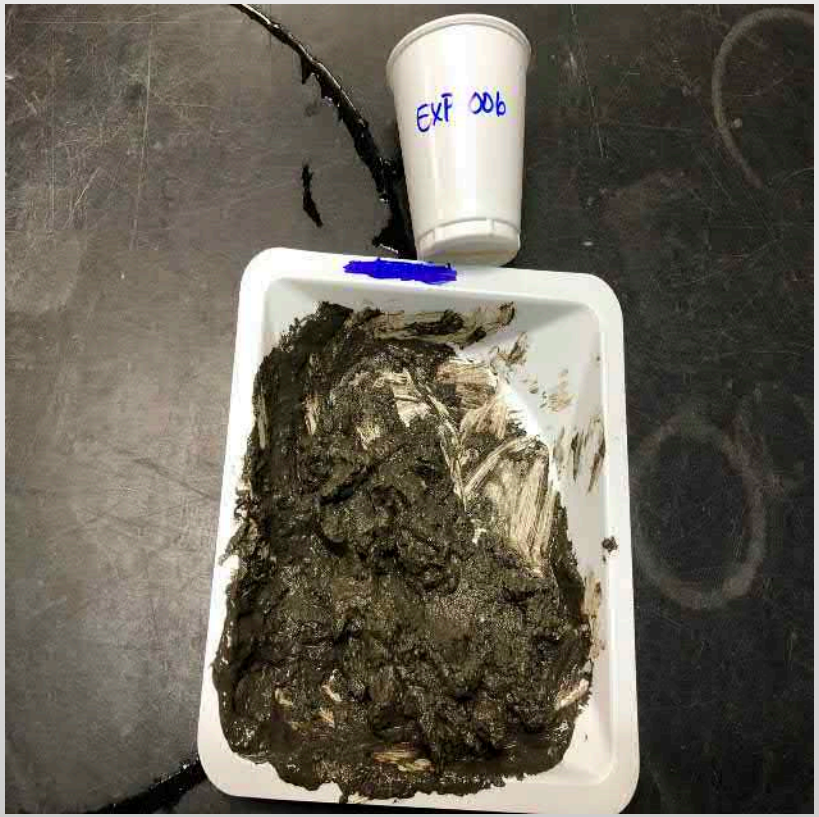

8% Type I Portland Cement
After mixing: Wet; Like pudding




5% Lime Kiln Dust
After mixing: Wet; Like pudding




7.5% Lime Kiln Dust
After mixing: Wet; Like soft serve ice cream




15% Lime Kiln Dust
After mixing: Wet; Like soft serve ice cream




0.5% ZapZorb
After mixing: Moist; Like soil




1.5% ZapZorb
After mixing: Moist; Like soil



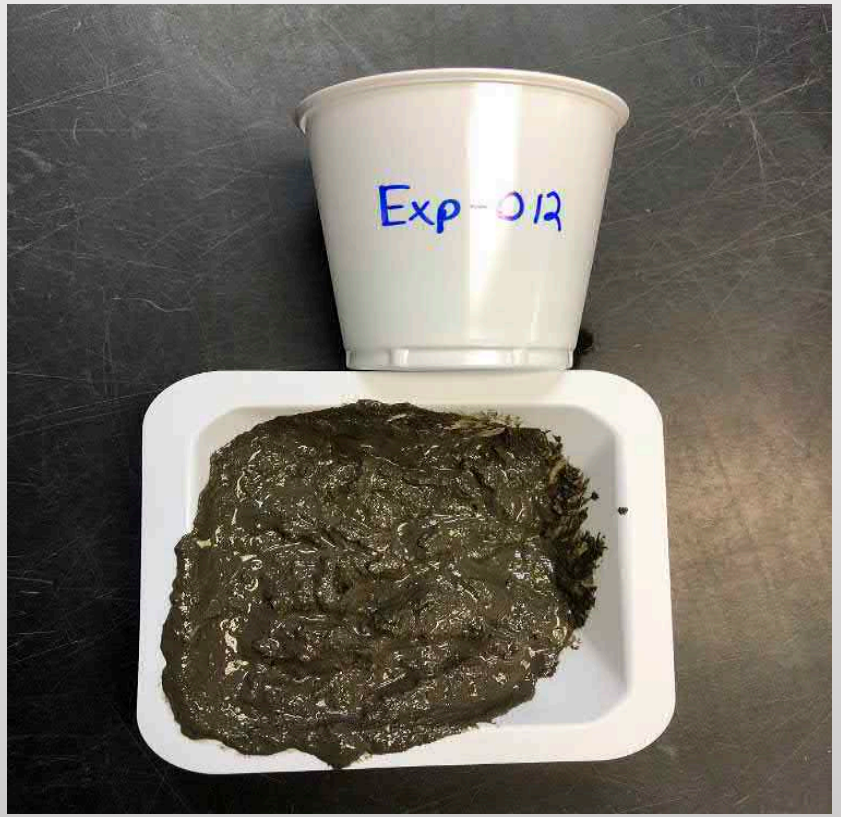

3% ZapZorb
After mixing: Moist; Like soil



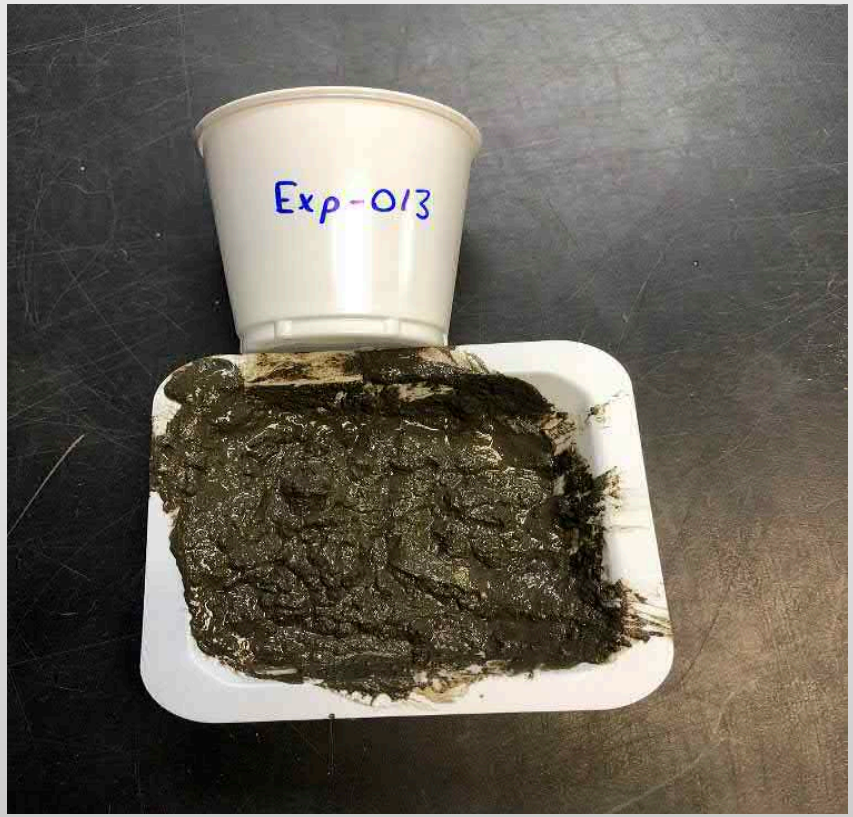

2% Calciment
After mixing: Wet; Like pudding



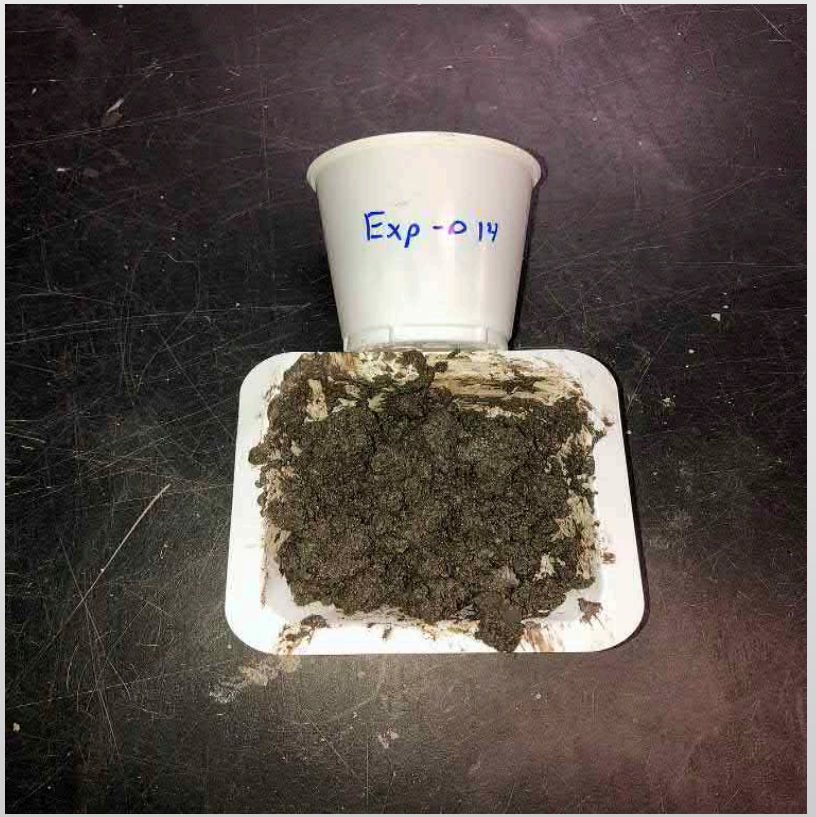

0.25% ZapZorb
After mixing: Wet; soft serve ice cream



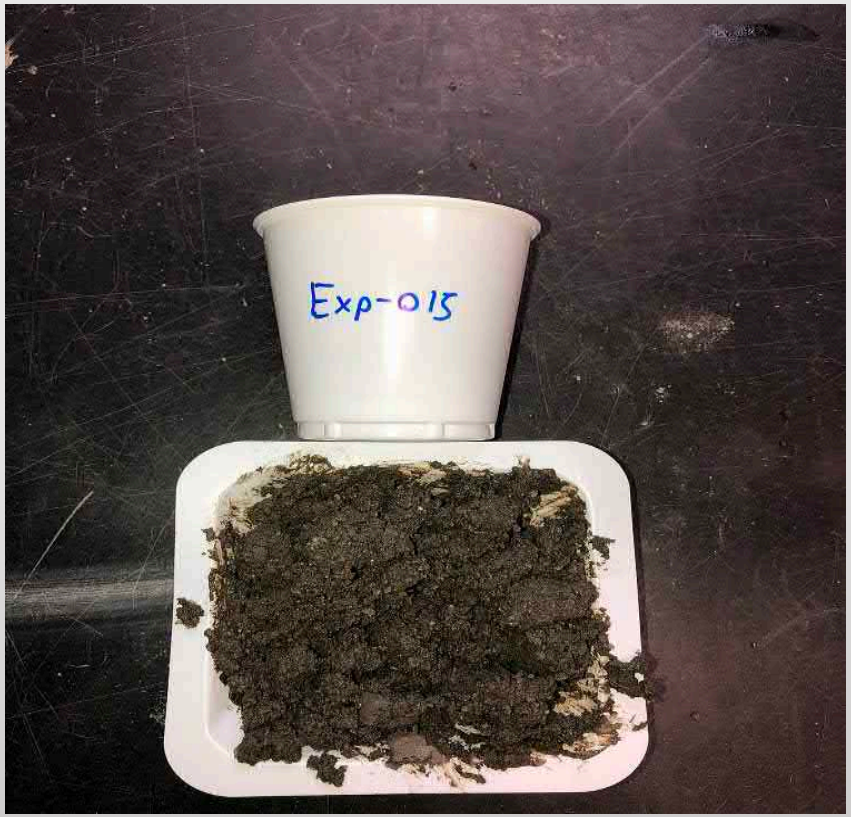

5% LKD/ 2% Type I Portland Cement
After mixing: Wet; like pudding



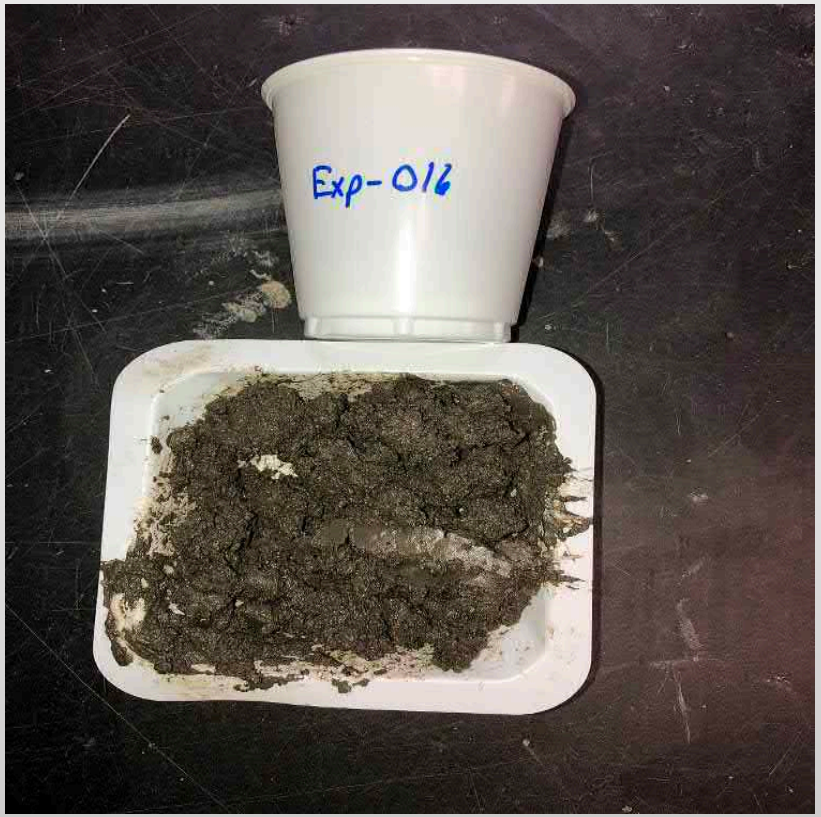

10% LKD/ 4% Type I Portland Cement
After mixing: Wet; like thick oatmeal




0.5% ZapZorb/ 3% Type I Portland Cement
After mixing: Moist; like soil




1% ZapZorb/ 3% Type I Portland Cement
After mixing: Moist; like soil




0.5% ZapZorb/ 5% Type I Portland Cement
After mixing: Moist; like soil




5% Calciment
After mixing: Wet; like pudding



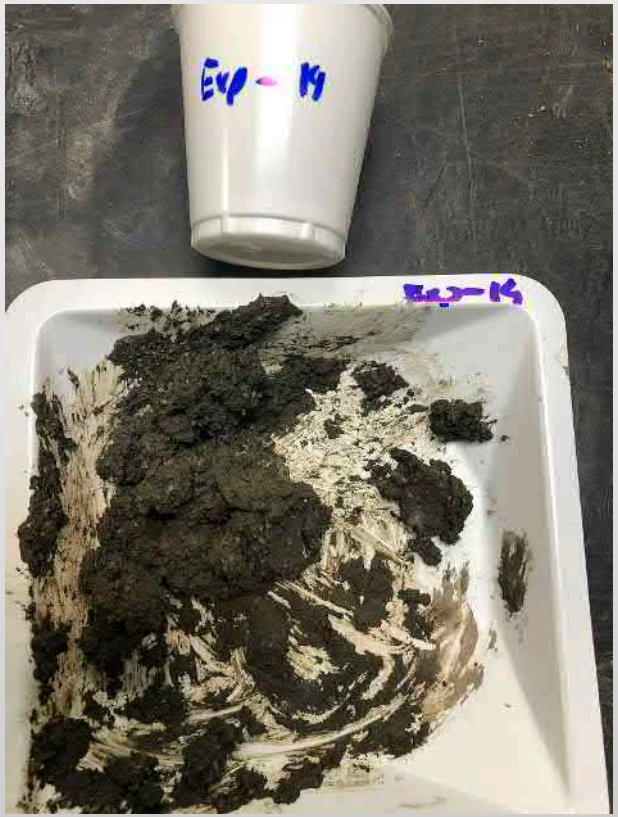

7.5% Calciment
After mixing: Wet; like pudding



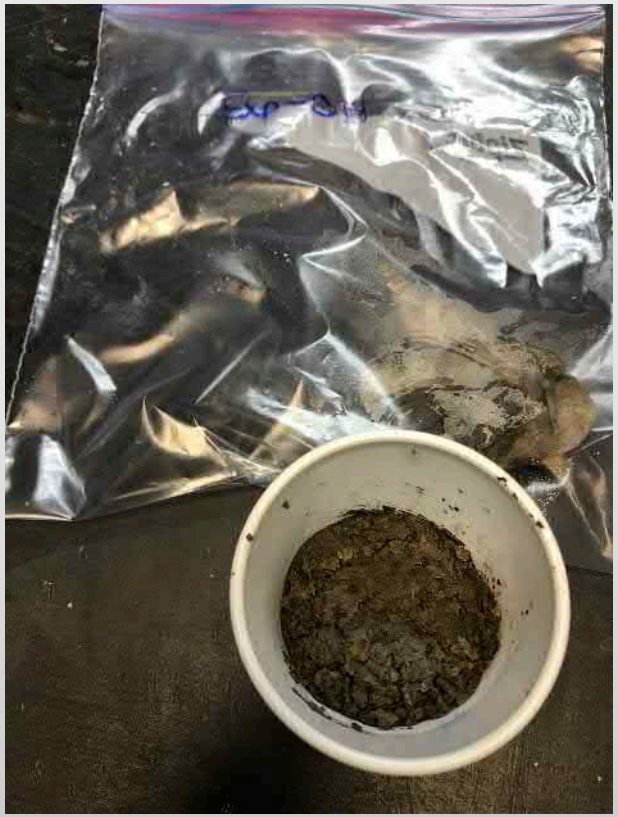

10% Calciment
After mixing: Wet; like pudding

KEMRON
ENVIRONMENTAL SERVICES

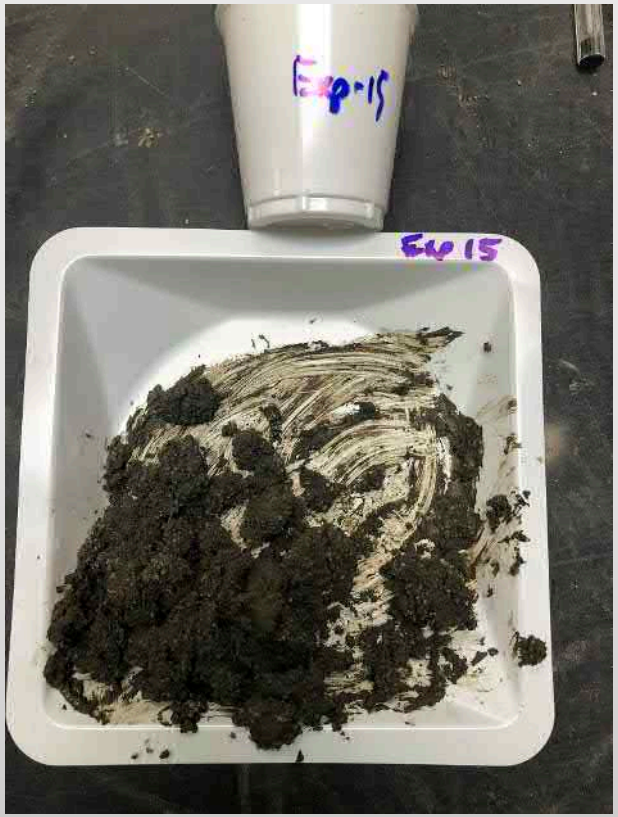
# Two Step Mixing Process

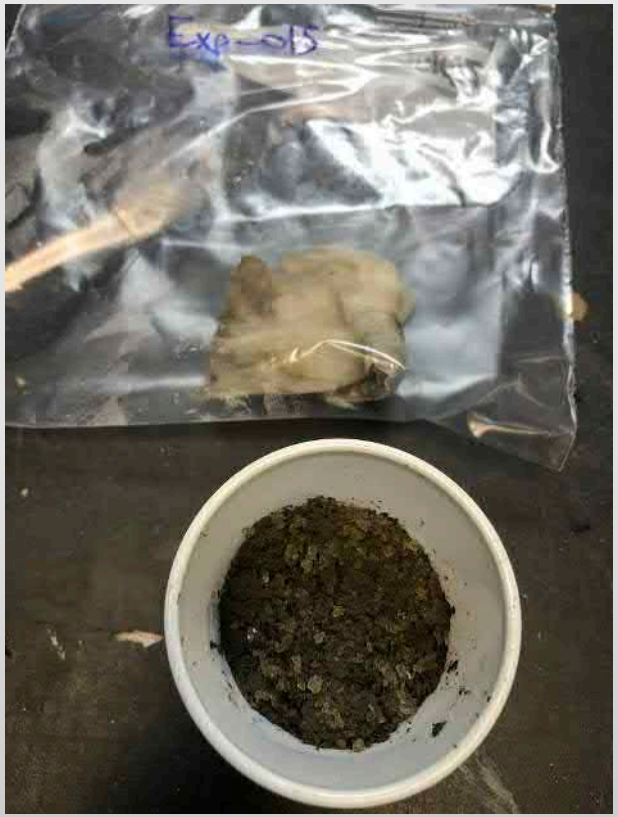


3% Type I Portland Cement added and then 0.5% ZapZorb added an hour later
After mixing: Moist; like soil



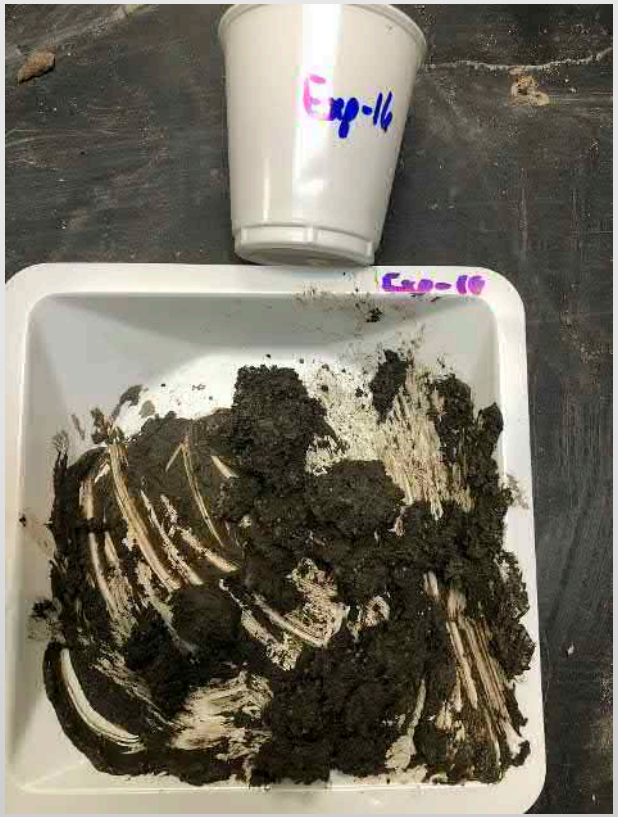
After 24 hours: Moist; like soil; pocket penetrometer 0.25 tons per square foot after 4 days of curing




3% Type I Portland Cement added and then 1% ZapZorb added an hour later
After mixing: Moist; like soil

After 24 hours: Moist; like soil; pocket penetrometer 0.0 tons per square foot after 4 days of curing



5% Type I Portland Cement added and then 0.5% ZapZorb added an hour later
After mixing: Moist; like soil



After 24 hours: Moist; like soil; pocket penetrometer 0.0 tons per square foot after 4 days of curing

# Appendix C:
# Solidification/Stabilization Evaluations
# Mixture Development Sheets

# MIX DEVELOPMENT DATA SHEET

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | MIX No. | |
| PROJECT No.: | SH0746 | | 0746-001 |
| MIXING DATE: | 15-Sep-20 | MIXED BY: | JA |

| UNTREATED MATERIAL TYPE | | SED7C-DEW |
|---|---|---|
| WEIGHT OF UNTREATED MATERIAL | | 1,000 g |
| REAGENT TYPE AND LOT NUMBER | ADDITION RATE | WEIGHT |
| | | |
| Zapzorb #1141 | 0.50 % | 5.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| Water Addition | % | 0.0 g |

OBSERVATIONS / NOTES

5 grams of Zapzorb was added to the site material

## MONITORING ACTIVITIES

| MONITORING ACTIVITIES | TIME PERIOD | | | | |
|---|---|---|---|---|---|
| | mixing | 1 hour | | | |
| MAXIMUM PID (ppm) | 0 | 0.2 | | | |
| Notes / Observations: | | | | | |

## PENETROMETER ANALYSES

| | | | | | |
|---|---|---|---|---|---|
| CURE TIME (Days) | 1 | 3 | 5 | 7 | |
| PENETROMETER (tons/ft$^2$) | 0.00 | 0.00 | 0.00 | 0.00 | |

# MIX DEVELOPMENT DATA SHEET

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | MIX No. | |
| PROJECT No.: | SH0746 | | 0746-002 |
| MIXING DATE: | 15-Sep-20 | MIXED BY: | JA |

| UNTREATED MATERIAL TYPE | | SED7C-DEW |
|---|---|---|
| WEIGHT OF UNTREATED MATERIAL | | 1,000 g |
| REAGENT TYPE AND LOT NUMBER | ADDITION RATE | WEIGHT |
| | | |
| Zapzorb #1141 | 0.50 % | 5.0 g |
| Type I Portland Cement #1150 | 10.00 % | 100.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| Water Addition | % | 0.0 g |

OBSERVATIONS / NOTES

100 grams of Type I Portland cement was added to the site material. After one hour of curing, 5 grams of Zapzorb was added to the Portland cement/site material mixture.

## MONITORING ACTIVITIES

| MONITORING ACTIVITIES | TIME PERIOD | | | | |
|---|---|---|---|---|---|
| | mixing | 1 hour | | | |
| MAXIMUM PID (ppm) | 0.7 | 0.7 | | | |
| Notes / Observations: | | | | | |

## PENETROMETER ANALYSES

| | | | | | |
|---|---|---|---|---|---|
| CURE TIME (Days) | 1 | 3 | 5 | 7 | |
| PENETROMETER (tons/ft$^2$) | 1.00 | 2.50 | 3.50 | 4.00 | |

# MIX DEVELOPMENT DATA SHEET

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | MIX No. | |
| PROJECT No.: | SH0746 | | 0746-003 |
| MIXING DATE: | 15-Sep-20 | MIXED BY: | JA |

| UNTREATED MATERIAL TYPE | | SED7C-DEW |
|---|---|---|
| WEIGHT OF UNTREATED MATERIAL | | 1,000 g |
| REAGENT TYPE AND LOT NUMBER | ADDITION RATE | WEIGHT |
| | | |
| Type I Portland Cement | 10.00 % | 100.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| Water Addition | % | 0.0 g |

OBSERVATIONS / NOTES

100 grams of Type I Portland cement was added to the site material

## MONITORING ACTIVITIES

| MONITORING ACTIVITIES | TIME PERIOD | | | | |
|---|---|---|---|---|---|
| | mixing | 1 hour | | | |
| MAXIMUM PID (ppm) | 0.2 | 2.0 | | | |
| Notes / Observations: | | | | | |

## PENETROMETER ANALYSES

| | | | | | |
|---|---|---|---|---|---|
| CURE TIME (Days) | 1 | 3 | 5 | 7 | |
| PENETROMETER (tons/ft$^2$) | 0.50 | 2.00 | 3.00 | 3.50 | |

# MIX DEVELOPMENT DATA SHEET

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | MIX No. | |
| PROJECT No.: | SH0746 | | 0746-004 |
| MIXING DATE: | 15-Sep-20 | MIXED BY: | JA |

| UNTREATED MATERIAL TYPE | | SED7C-DEW |
|---|---|---|
| WEIGHT OF UNTREATED MATERIAL | | 1,000 g |
| REAGENT TYPE AND LOT NUMBER | ADDITION RATE | WEIGHT |
| | | |
| Type I Portland Cement | 15.00 % | 150.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| Water Addition | % | 0.0 g |

OBSERVATIONS / NOTES

150 grams of Type I Portland cement was added to the site material

## MONITORING ACTIVITIES

| MONITORING ACTIVITIES | TIME PERIOD | | | | |
|---|---|---|---|---|---|
| | mixing | 1 hour | | | |
| MAXIMUM PID (ppm) | 1.4 | 1.6 | | | |
| Notes / Observations: | | | | | |

## PENETROMETER ANALYSES

| | | | | | |
|---|---|---|---|---|---|
| CURE TIME (Days) | 1 | 3 | 5 | 7 | |
| PENETROMETER (tons/ft$^2$) | 2.00 | >4.5 | >4.5 | >4.5 | |

# MIX DEVELOPMENT DATA SHEET

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | MIX No. | |
| PROJECT No.: | SH0746 | | 0746-005 |
| MIXING DATE: | 15-Sep-20 | MIXED BY: | JA |

| UNTREATED MATERIAL TYPE | | SED7.5E-DEW |
|---|---|---|
| WEIGHT OF UNTREATED MATERIAL | | 1,000 g |
| REAGENT TYPE AND LOT NUMBER | ADDITION RATE | WEIGHT |
| | | |
| Zapzorb #1141 | 0.50 % | 5.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| Water Addition | % | 0.0 g |

OBSERVATIONS / NOTES

5 grams of Zapzorb was added to the site material

## MONITORING ACTIVITIES

| MONITORING ACTIVITIES | TIME PERIOD | | | | |
|---|---|---|---|---|---|
| | mixing | 1 hour | | | |
| MAXIMUM PID (ppm) | 0.4 | 0.2 | | | |
| Notes / Observations: | | | | | |

## PENETROMETER ANALYSES

| CURE TIME (Days) | 1 | 3 | 5 | 7 | |
|---|---|---|---|---|---|
| PENETROMETER (tons/ft$^2$) | 0.00 | 0.00 | 0.00 | 0.00 | |

# MIX DEVELOPMENT DATA SHEET

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | MIX No. | |
| PROJECT No.: | SH0746 | | 0746-006 |
| MIXING DATE: | 15-Sep-20 | MIXED BY: | JA |

| UNTREATED MATERIAL TYPE | | SED7.5E-DEW |
|---|---|---|
| WEIGHT OF UNTREATED MATERIAL | | 1,000 g |
| REAGENT TYPE AND LOT NUMBER | ADDITION RATE | WEIGHT |
| | | |
| Zapzorb #1141 | 0.50 % | 5.0 g |
| Type I Portland Cement #1150 | 10.00 % | 100.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| Water Addition | % | 0.0 g |

OBSERVATIONS / NOTES

100 grams of Type I Portland cement was added to the site material. After one hour of curing, 5 grams of Zapzorb was added to the Portland cement/site material mixture.

## MONITORING ACTIVITIES

| MONITORING ACTIVITIES | TIME PERIOD | | | | |
|---|---|---|---|---|---|
| | mixing | 1 hour | | | |
| MAXIMUM PID (ppm) | 0 | 0.5 | | | |
| Notes / Observations: | | | | | |

## PENETROMETER ANALYSES

| | | | | | |
|---|---|---|---|---|---|
| CURE TIME (Days) | 1 | 3 | 5 | 7 | |
| PENETROMETER (tons/ft$^2$) | 1.50 | 1.50 | 1.75 | 2.75 | |

# MIX DEVELOPMENT DATA SHEET

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | MIX No. | |
| PROJECT No.: | SH0746 | | 0746-007 |
| MIXING DATE: | 15-Sep-20 | MIXED BY: | JA |

| UNTREATED MATERIAL TYPE | | SED7.5E-DEW |
|---|---|---|
| WEIGHT OF UNTREATED MATERIAL | | 1,000 g |
| REAGENT TYPE AND LOT NUMBER | ADDITION RATE | WEIGHT |
| | | |
| Type I Portland Cement | 10.00 % | 100.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| Water Addition | % | 0.0 g |

OBSERVATIONS / NOTES

100 grams of Type I Portland cement was added to the site material

## MONITORING ACTIVITIES

| MONITORING ACTIVITIES | TIME PERIOD | | | | |
|---|---|---|---|---|---|
| | mixing | 1 hour | | | |
| MAXIMUM PID (ppm) | 0.0 | 0.6 | | | |
| Notes / Observations: | | | | | |

## PENETROMETER ANALYSES

| | | | | | |
|---|---|---|---|---|---|
| CURE TIME (Days) | 1 | 3 | 5 | 7 | |
| PENETROMETER (tons/ft$^2$) | 1.00 | 2.00 | 2.50 | 2.75 | |

# MIX DEVELOPMENT DATA SHEET

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | MIX No. | |
| PROJECT No.: | SH0746 | | 0746-008 |
| MIXING DATE: | 15-Sep-20 | MIXED BY: | JA |

| UNTREATED MATERIAL TYPE | | SED7.5E-DEW |
|---|---|---|
| WEIGHT OF UNTREATED MATERIAL | | 1,000 g |
| REAGENT TYPE AND LOT NUMBER | ADDITION RATE | WEIGHT |
| | | |
| Type I Portland Cement | 15.00 % | 150.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| Water Addition | % | 0.0 g |

OBSERVATIONS / NOTES

150 grams of Type I Portland cement was added to the site material

## MONITORING ACTIVITIES

| MONITORING ACTIVITIES | TIME PERIOD | | | | |
|---|---|---|---|---|---|
| | mixing | 1 hour | | | |
| MAXIMUM PID (ppm) | 0.0 | 0.7 | | | |
| Notes / Observations: | | | | | |

## PENETROMETER ANALYSES

| | | | | | |
|---|---|---|---|---|---|
| CURE TIME (Days) | 1 | 3 | 5 | 7 | |
| PENETROMETER (tons/ft$^2$) | 2.50 | >4.5 | >4.5 | >4.5 | |

# MIX DEVELOPMENT DATA SHEET

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | MIX No. | |
| PROJECT No.: | SH0746 | | 0746-009 |
| MIXING DATE: | 7-Oct-20 | MIXED BY: | JA |

| UNTREATED MATERIAL TYPE | | SED7C-DEW |
|---|---|---|
| WEIGHT OF UNTREATED MATERIAL | | 1,000 g |
| REAGENT TYPE AND LOT NUMBER | ADDITION RATE | WEIGHT |
| | | |
| Type I Portland Cement | 7.00 % | 70.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| Water Addition | % | 0.0 g |

OBSERVATIONS / NOTES

70 grams of Type I Portland cement was added to the site material

## MONITORING ACTIVITIES

| MONITORING ACTIVITIES | TIME PERIOD | | | | |
|---|---|---|---|---|---|
| | mixing | 1 hour | | | |
| MAXIMUM PID (ppm) | 0.8 | 4.5 | | | |
| Notes / Observations: | | | | | |

## PENETROMETER ANALYSES

| | | | | | |
|---|---|---|---|---|---|
| CURE TIME (Days) | 1 | 3 | 5 | 7 | |
| PENETROMETER (tons/ft$^2$) | 0.00 | 0.25 | 0.25 | 0.25 | |

# MIX DEVELOPMENT DATA SHEET

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | MIX No. | |
| PROJECT No.: | SH0746 | | 0746-010 |
| MIXING DATE: | 7-Oct-20 | MIXED BY: | JA |

| UNTREATED MATERIAL TYPE | | SED7.5E-DEW |
|---|---|---|
| WEIGHT OF UNTREATED MATERIAL | | 1,000 g |
| REAGENT TYPE AND LOT NUMBER | ADDITION RATE | WEIGHT |
| | | |
| Type I Portland Cement | 5.00 % | 50.0 g |
| Zapsorb | 0.50 % | 5.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| | % | 0.0 g |
| Water Addition | % | 0.0 g |

OBSERVATIONS / NOTES

50 grams of Type I Portland cement was added to the site material. After one hour of curing, 5 grams of Zapzorb was added to the Portland cement/site material mixture.

## MONITORING ACTIVITIES

| MONITORING ACTIVITIES | TIME PERIOD | | | | |
|---|---|---|---|---|---|
| | mixing | 1 hour | | | |
| MAXIMUM PID (ppm) | 0.1 | 4.4 | | | |
| Notes / Observations: | | | | | |

## PENETROMETER ANALYSES

| | | | | | |
|---|---|---|---|---|---|
| CURE TIME (Days) | 1 | 3 | 5 | 7 | |
| PENETROMETER (tons/ft$^2$) | 0.00 | 0.00 | 0.00 | 0.25 | |

# Appendix D:
# Paint Filter Testing Data Sheets

# PAINT FILTER TEST

**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 9/23/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | JBA |
| SAMPLE No.: | 0746-001 | TRACKING CODE: | E261 |
| TESTING METHOD: | | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.00 | **g** |
| **RESULTS (PASS / FAIL) *** | PASS | |

* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

# PAINT FILTER TEST

**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 9/23/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | JBA |
| SAMPLE No.: | 0746-002 | TRACKING CODE: | E262 |
| TESTING METHOD: | | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.00 | **g** |
| **RESULTS (PASS / FAIL) *** | PASS | |

* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

# PAINT FILTER TEST

**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 9/23/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | JBA |
| SAMPLE No.: | 0746-003 | TRACKING CODE: | E263 |
| TESTING METHOD: | | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.00 | **g** |
| **RESULTS (PASS / FAIL) *** | PASS | |

* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

# PAINT FILTER TEST

**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 9/23/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | JBA |
| SAMPLE No.: | 0746-004 | TRACKING CODE: | E264 |
| TESTING METHOD: | | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.00 | **g** |
| **RESULTS (PASS / FAIL) *** | PASS | |

* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

# PAINT FILTER TEST

**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 9/23/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | JBA |
| SAMPLE No.: | 0746-005 | TRACKING CODE: | E265 |
| TESTING METHOD: | | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.00 | **g** |
| **RESULTS (PASS / FAIL) *** | PASS | |

* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

# PAINT FILTER TEST

**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 9/23/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | JBA |
| SAMPLE No.: | 0746-006 | TRACKING CODE: | E266 |
| TESTING METHOD: | | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.00 | **g** |
| **RESULTS (PASS / FAIL) *** | PASS | |

* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

# PAINT FILTER TEST

**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 9/23/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | JBA |
| SAMPLE No.: | 0746-007 | TRACKING CODE: | E267 |
| TESTING METHOD: | | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.00 | **g** |
| **RESULTS (PASS / FAIL) *** | PASS | |

* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

# PAINT FILTER TEST

**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 9/23/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | JBA |
| SAMPLE No.: | 0746-008 | TRACKING CODE: | E268 |
| TESTING METHOD: | | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.00 | **g** |
| **RESULTS (PASS / FAIL) *** | PASS | |

* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

# PAINT FILTER TEST

**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 10/10/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | JBA |
| SAMPLE No.: | 0746-009 | TRACKING CODE: | E269 |
| TESTING METHOD: | | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.00 | **g** |
| **RESULTS (PASS / FAIL) *** | PASS | |

* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

# PAINT FILTER TEST

**SUMMARY OF RESULTS**

| | | | |
|---|---|---|---|
| PROJECT: | Pepco Benning Road TS | TESTING DATE: | 10/10/2020 |
| PROJECT No.: | SH0746 | TESTED BY: | JBA |
| SAMPLE No.: | 0746-010 | TRACKING CODE: | E270 |
| TESTING METHOD: | | | |

| TESTING PARAMETER AND RESULTS | | |
|---|---|---|
| **QUANTITY OF MATERIAL** | 100.00 | **g** |
| **LENGTH OF TEST** | 5.0 | **min.** |
| **QUANTITY OF LIQUID** | 0.00 | **g** |
| **RESULTS (PASS / FAIL) *** | PASS | |

* In accordance with EPA Method 9095, if any liquid from the test material collects after 5 minutes of testing, the material is deemed to contain free liquids, and therefore has failed the paint filter test.

An Exelon Company

# Appendix H

# IAI Sediment Treatability Testing Report

INFRASTRUCTURE ALTERNATIVES, INC.

July 15, 2020

Ms. Kristine Carbonneau
AECOM
kris.carbonneau@aecom.com

**RE: BENNING ROAD FACILITY TREATABILITY REPORT**

Dear Ms. Kristine Carbonneau:

Infrastructure Alternatives, Inc. (IAI) was contracted by AECOM to perform treatability testing on sediment collected from Waterside Investigation Area at PEPCO's Benning Road Facility in Washington, DC. Objectives of the testing included identifying a single chemical conditioning program to be used for dewatering sediment in geotextile tubes and developing parameters to help provide information on scalability.

Enclosed, please find the subject report in its entirety. We have closely evaluated the report objectives and corresponding deliverables, and presented our findings in clear and concise format.

Throughout the testing process, IAI is pleased to have developed a quality relationship with AECOM and looks forward to the opportunity of partnering again in the future. Please feel free to contact me with any questions about the report.

Sincerely,

**INFRASTRUCTURE ALTERNATIVES, INC.**

Connor McNeely,
Chemist

Enclosed: Treatability Report

# Benning Road Facility Treatability Report

## INTRODUCTION

Infrastructure Alternatives, Inc. (IAI) was contracted by AECOM to perform treatability testing on sediment from the Waterside Investigation Area at PEPCO's Benning Road Facility in Washington, DC.

Objectives of the testing included:

- Evaluating dewatering efficacy of chemically-conditioned sediment with geotextile tubes
- Developing a dataset of physical and chemical dewatering parameters to help provide scale-up information
- Assisting in the generation of analytical data for determination of final disposition options
- Monitoring air emissions during various phases of testing

## SAMPLE PREPARATION

On June 11, 2020, three five-gallon buckets of sediment and two five-gallons jugs of surface water were received in good condition at IAI's Rockford, Michigan laboratory. Three additional five-gallon jugs of surface water were delivered to IAI the following day. One five-gallon bucket of sediment and one five-gallon jug of surface water were lost or damaged during the shipping process and were not delivered to IAI. Photos of the material as received, as well as photos taken throughout the testing process, can be found in Attachment A: Photolog. Upon opening the buckets of sediment, it was found that each bucket contained about three to five inches of water above the sediment settling line. In an effort to provide the most accurate representation of in-situ solids content, top-water was removed prior to sediment homogenization, leaving less than one inch of top-water. During the homogenization process in which a drill and paint mixer were used to thoroughly mix the material, observations were made for material characteristics such as odor, consistency, and color. These findings can be seen in Table 1.

**Table 1: Observations of Samples**

| Sample Location | Odor | Consistency | Color |
|---|---|---|---|
| SED 7C-GTX | none | thick sludge | light brown/gray |
| SED 7.5E-GTX | none | thick sludge, twigs | brown/gray |

From each sample location, an aliquot of homogenized in-situ sediment was collected and analyzed for solids content and density. An outside laboratory, Prein & Newhoff, was utilized for sediment analysis during the treatability project. The results of the in-situ solids content and density analyses can be seen in Table 2.

**Table 2: In-Situ Solids Content and Density Data**

| Sample Location | Solids Content (%) | Density (lbs/Gal) |
|---|---|---|
| SED 7C-GTX | 40.0 | 11.2 |
| SED 7.5E-GTX | 37.9[a] | 10.8 |

Using data from Table 2, slurries to be used for jar testing and bench-scale testing were prepared by mixing sediment with the provided surface water. A mixing ratio was calculated with intent to create slurries with average solids content of approximately 10%, similar to that which is typically produced during hydraulic dredging operations. For both sample locations, an aliquot of slurry was collected and analyzed for solids content. The volumes of surface water and in-situ sediment used to create the slurries, along with the solids content of the slurries, can be found in Table 3.

**Table 3: Slurry Mixing Ratio and Solids Content Data**

| Sample Location | Surface Water Added (L) | Sediment Added (L) | Solids Content (%) |
|---|---|---|---|
| SED 7C-GTX | 6 | 2 | 9.61 |
| SED 7.5E-GTX | 7 | 2 | 9.45 |

[a] Second analysis being reported; first result of 45.5% likely not representative as described in Recommendations and Discussion section.

## JAR TESTING

Slurries from each sample location were then used for jar testing to evaluate a range of chemical conditioning programs. Flocculants varying in charge, structure, and molecular weight were added via syringe to pre-determined aliquots of slurry samples (approximately 100 mL) for evaluation. After addition of a dewatering agent, aliquots were sufficiently mixed by pouring from one jar to another. Upon mixing, observations were recorded for qualities such as floc appearance, water release, and water clarity. Observations of the jar tests can be found in Attachment B: Jar Testing Log Sheet. Unless otherwise specified, all dewatering agents throughout the treatability testing were made down to a concentration of 0.5% (product) by volume using a graduated cylinder, distilled water, syringe, and stir bar.

## BENCH-SCALE GEOTEXTILE TUBE FEASABILITY TESTING

Bench-scale testing was then performed to evaluate the top-performing conditioning program for facilitating dewatering through geotextile tube fabric. For bench-scale testing, 500 mL aliquots of slurry from both sample locations were conditioned with Aqua Hawk 7840 using a dosage of approximately 2.70 lbs/DT (pounds of neat polymer product used per dry ton of material), and separately poured over individual 100 $in^2$ pieces of geotextile tube fabric, allowing for solids to be captured on the fabric. Filter cake samples from each bench-scale test were collected 1 minute, 15 minutes, and 24 hours after pouring, and analyzed for solids content. Data from the solids content analyses can be seen in Table 4.

**Table 4: Bench-Scale Solids Content Data**

| Sample Location | Slurry Solids Content (%) | 1 Minute Solids Content (%) | 15 Minute Solids Content (%) | 24 Hour Solids Content (%) |
|---|---|---|---|---|
| SED 7C-GTX | 9.61 | 34.0 | 35.9 | 41.6 |
| SED 7.5E-GTX | 9.45 | 27.4 | 27.3 | 34.7 |

With evidence that the selected conditioning program was able to facilitate successful dewatering through geotextile tube fabric on a bench-scale level, the large-scale geotextile tube feasibility study was able to be started.

## LARGE-SCALE GEOTEXTILE TUBE FEASABILITY TESTING

Using mixing ratios found in Table 3, approximately 50 L of slurry was made using surface water and sediment. Aliquots of slurry from both sample locations were collected and analyzed for solids content. The volumes of surface water and in-situ sediment used to create the slurry, along with the solids content of the slurry, can be found in Table 5. Although the slurry solids content values are above10%, they are both still within range of slurry typically produced by hydraulic dredging.

**Table 5: GTDT Slurry Mixing Ratio and Solids Content Results**

| Sample Location | Surface Water Added (L) | Sediment Added (L) | Slurry Solids Content (%) |
|---|---|---|---|
| SED 7C-GTX | 36 | 12 | 15.7 |
| SED 7.5E-GTX | 39 | 11 | 12.7 |

Following solids content analysis, the selected conditioning program was applied to each bucket of slurry and allowed to sufficiently mix by pouring the slurry from one bucket to another. The buckets of conditioned slurry were then poured into a pillow-sized geotextile tube and allowed to dewater. Filtrate from the geotextile tube dewatering test (GTDT) was monitored for 24 hours, and its turbidity was analyzed during the following time intervals: 0-1 minute, 1-10 minutes, 10-60 minutes, and 1-24 hours. GTDT filter cake samples were collected 24 hours, 48 hours, 96 hours, and 7 days from the start of the GTDT and analyzed for solids content. GTDT data can be seen in Attachment C: GTDT Log Sheets. Filter cake samples were collected from different locations of the filter cake, and each cake sample was comprised of the entire vertical column of cake at that spot (i.e. material was not scooped from the surface). At the end of seven days, a paint filter test (EPA SW 846 Method 9095B) was performed on filter cake from each pillow test. Results from the GTDT filter cake solids content analyses, as well as paint filter results, can be found in Table 6.

**Table 6: GTDT Filter Cake Solids Content and Paint Filter Results**

| Sample Location | 24 Hour Solids Content (%) | 48 Hour Solids Content (%) | 96 Hour Solids Content (%) | 7 Day Solids Content (%) | 7 Day Paint Filter Test (Pass/Fail) |
|---|---|---|---|---|---|
| SED 7C-GTX | 47.0 | 47.2 | 48.8 | 50.1 | Pass |
| SED 7.5E-GTX | 39.5 | 48.3 | 38.5 | 41.7 | Pass |

## AIR MONITORING

Air emissions monitoring for polychlorinated biphenyls (PCBs) was performed during the geotextile feasibility testing. First, ambient air conditions were monitored prior to GTDT performance. Next, air conditions adjacent to individual GTDTs were monitored beginning just after each individual GTDT was started. In each case, a small pump was used to filter air through a cartridge for eight hours at a rate of 0.21 L/min before the cartridge was capped and shipped to ALS Environmental for analysis. Results from the air monitoring can be found in Table 7.

**Table 7: Air Monitoring Data**

| Sample Location | SED 7C-GTX | SED 7.5E-GTX | Background |
|---|---|---|---|
| PCB Concentration | non-detect | non-detect | non-detect |

## RECOMMENDATIONS AND DISCUSSION

Evaluations indicate this material can be effectively dewatered via geotextile tubes with the use of Aqua Hawk 7840, a medium-high molecular weight polymer with medium cationic charge, at a dosage of approximately 2.70 lbs/DT (pounds of neat polymer product used per dry ton of material).

Data from bench-scale testing originally suggested material from SED 7.5E-GTX did not dewater as well as material from SED 7C-GTX when using in-situ solids content as a reference point. In an attempt to counter this, polymer dosage was slightly increased for the large-scale testing of SED7.5E-GTX. During jar testing and bench-scale testing, a dosage of approximately 2.70 lbs/DT was used to condition material from both sample locations. For the large-scale pillow testing, a dosage of 3.09 lbs/DT was applied to material from SED 7.5E-GTX, while a dosage of 2.71 lbs/DT was applied to material from SED 7C-GTX. In both of the pillow tests, filter cake solids content increased by two to three percent from 24 hours to seven days (viewing the 48 hour solids content value from SED 7.5E-GTX as an outlier). Similarly, solids content increased by about seven percent for both sample locations from the one minute mark to the 24 hour mark during the bench-scale testing. It was then questioned why material from SED 7C-GTX surpassed in-situ solids content values during bench-scale and large-scale testing, but material from SED 7.5E-GTX did not. A second in-situ sample from SED 7.5E-GTX was then analyzed for solids content. This second sample was found to have a solids content value of 37.9%, down from the original value of 45.5%. By acknowledging the second in-situ solids content value for SED 7.5E-GTX, data then suggests material from both sample

locations behave similarly. It is reasonable to believe that the increased polymer dosage for SED 7.5E-GTX was not necessary, and that a dosage of 2.70 lbs/DT works well to effectively dewater material from both sample locations via geotextile tubes.

It is believed that large-scale pillow tests provide valuable information on the performance potential of full-scale operations. However, there are many variables (operational techniques and procedures, climate, geotextile tube surface area to volume ratio, partially representative sediment samples, etc.) that cannot be replicated in a laboratory setting. While it is believed that in-situ solids content can be achieved through full-scale dewatering operations, an accurate timeline for achieving this cannot be provided.

Chemical dosages were calculated using Equation 1.

**Equation 1**:

$$\frac{\text{Lbs.}}{\text{Dry Ton}} = \frac{(2000\ \text{lbs./ton})(\text{X vol. added})(\text{X \% Dilution})(\text{X SG})}{(\text{Y vol.})(\text{Y \% Solids})(\text{Y SG})}$$

In this equation, Y represents the slurry, X represents the dewatering agent added to the slurry, and SG stands for specific gravity. Specific gravity of dilute coagulants and polymers is typically very close to 1.00, and is thus ignored.

The specific gravity of a slurry was calculated by taking the in-situ specific gravity value and accounting for the slurry dilution ratios found in Table 3. Specific gravity values of slurry samples were calculated using Equation 2.

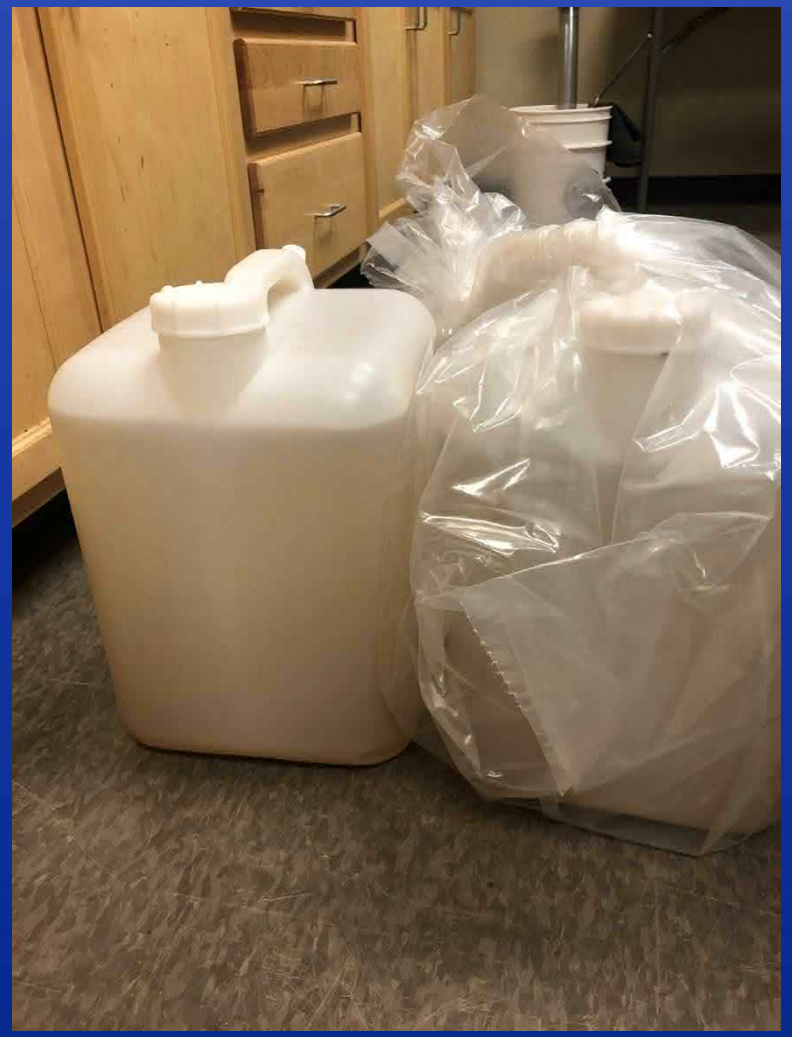
**Equation 2**:

$$\text{Slurry SG} = 1 + (\text{InSitu SG} - 1) * \left( \frac{\text{InSitu Sediment Vol. Added}}{\text{Surface Water + InSitu Sediment Vol. Added}} \right)$$

Attached, please find:

- Attachment A: Photolog
- Attachment B: Jar Testing Log Sheets
- Attachment C: GTDT Log Sheets
- Attachment D: Lab Reports
- Attachment E: Geotextile Fabric Specifications
- Attachment F: Safety Data Sheet

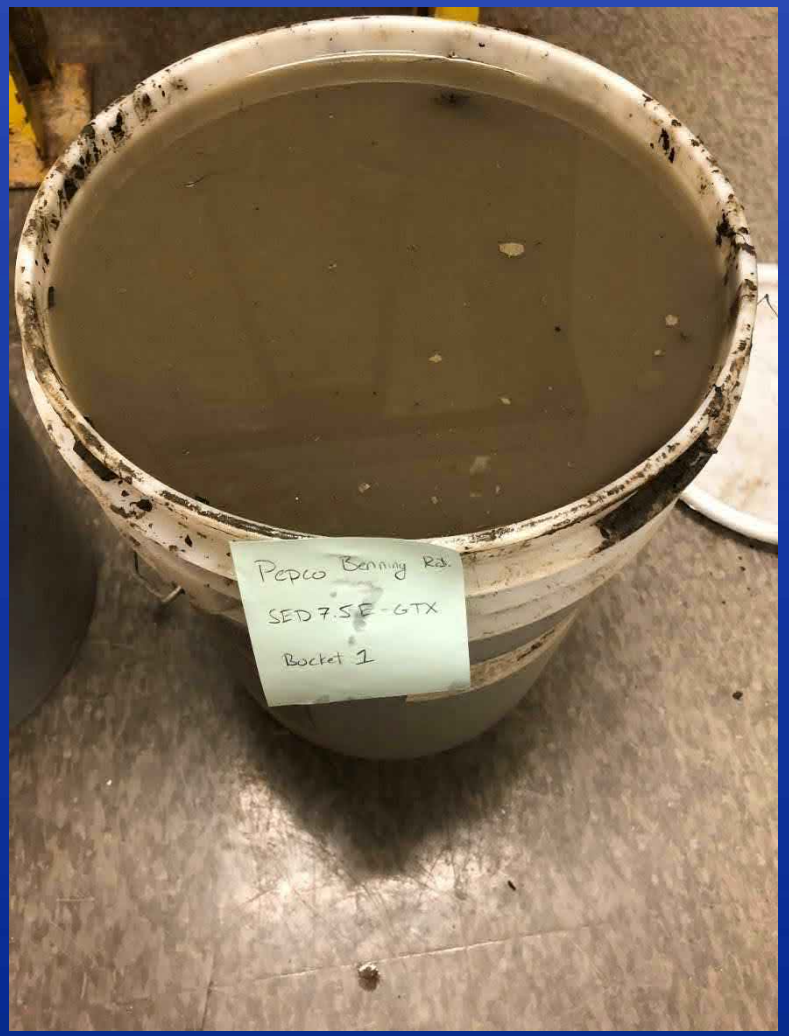
# ATTACHMENT A: PHOTO LOG



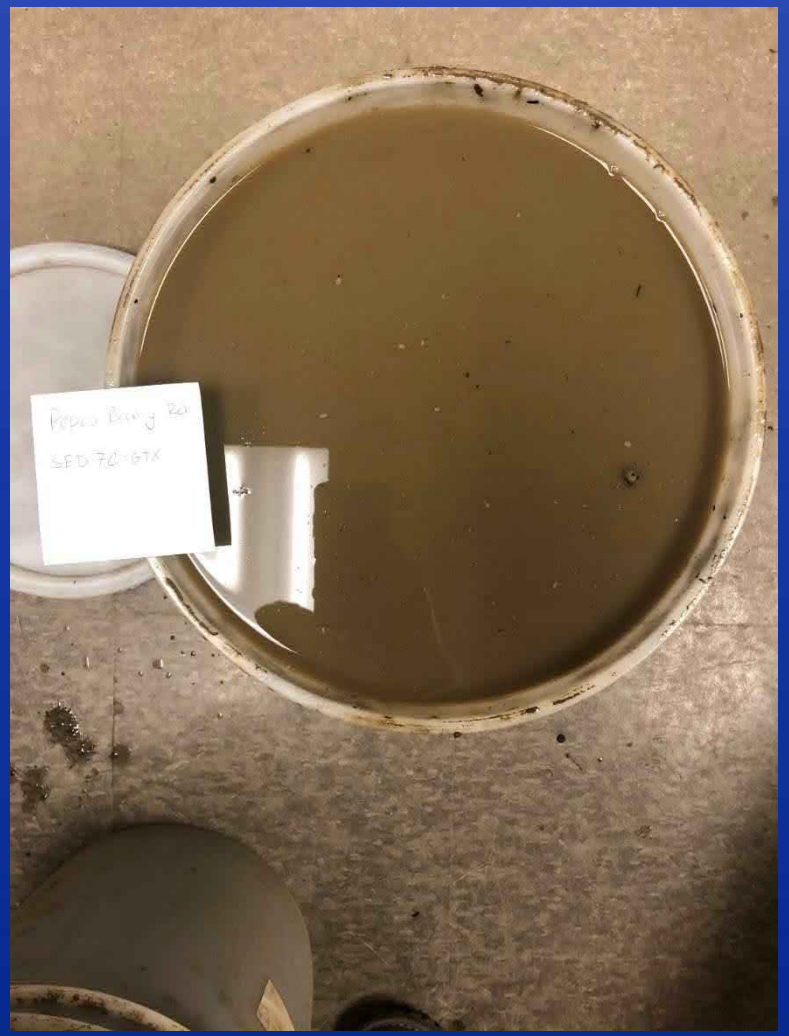
Surface Water Containers as Recieved



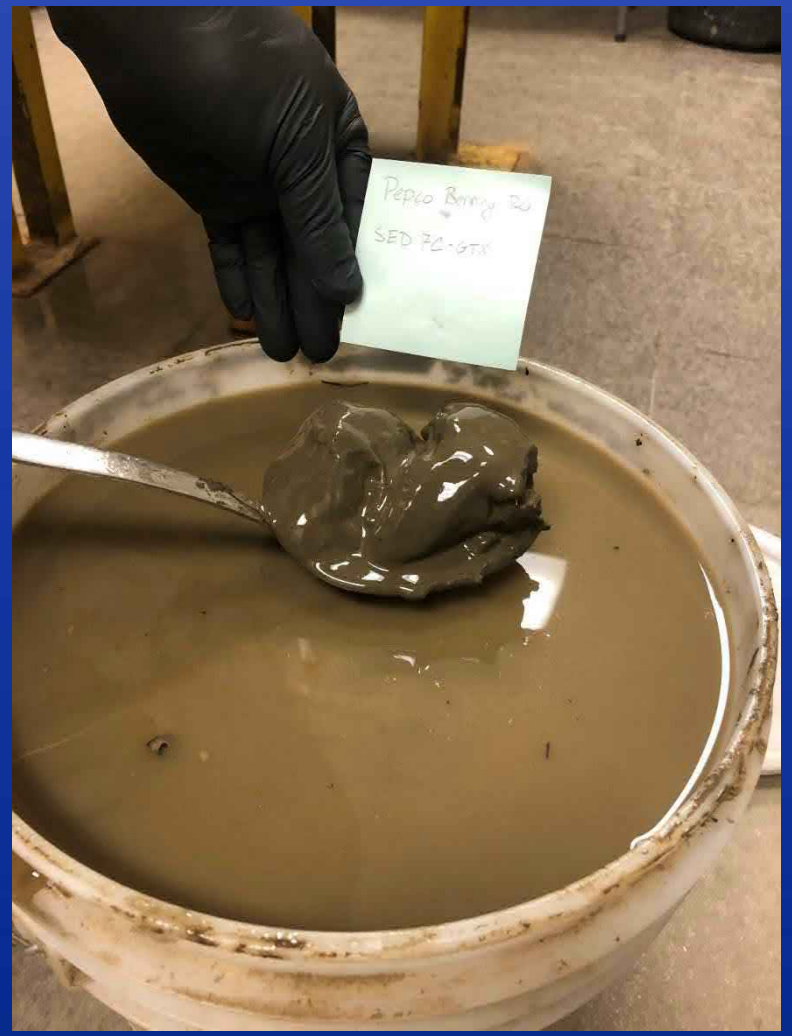
Sediment Sample Bucket as Recieved



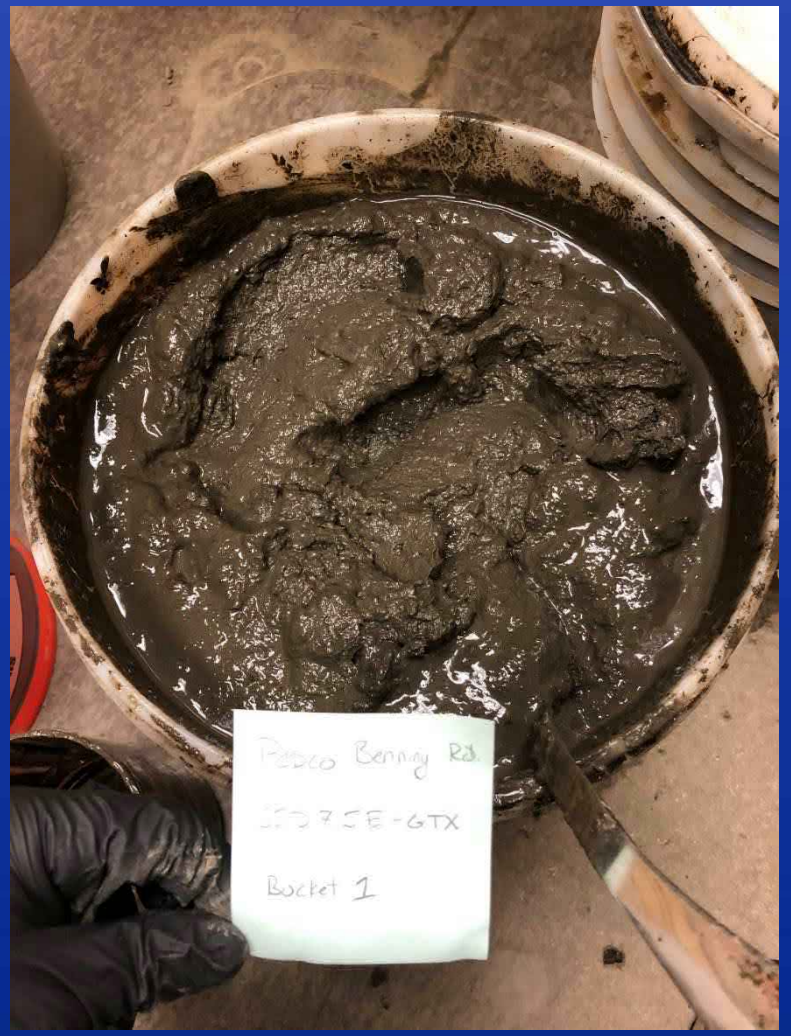

SED 7.5E-GTX Undistrurbed



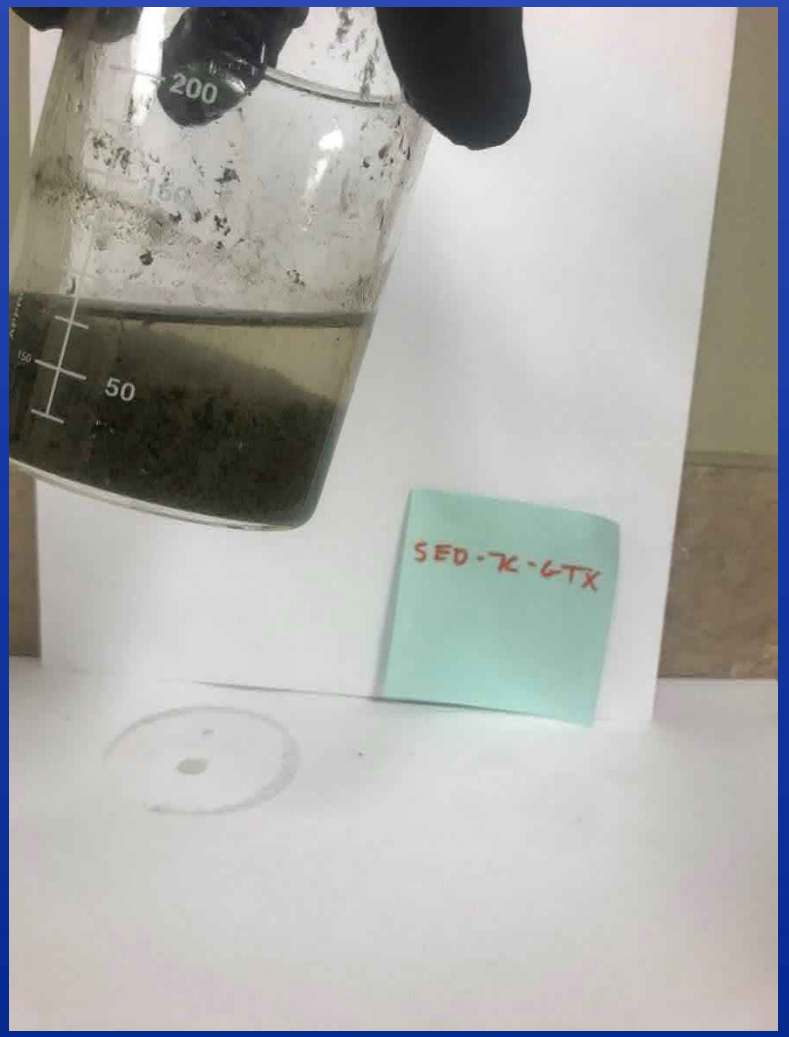
SED 7C-GTX Undisturbed



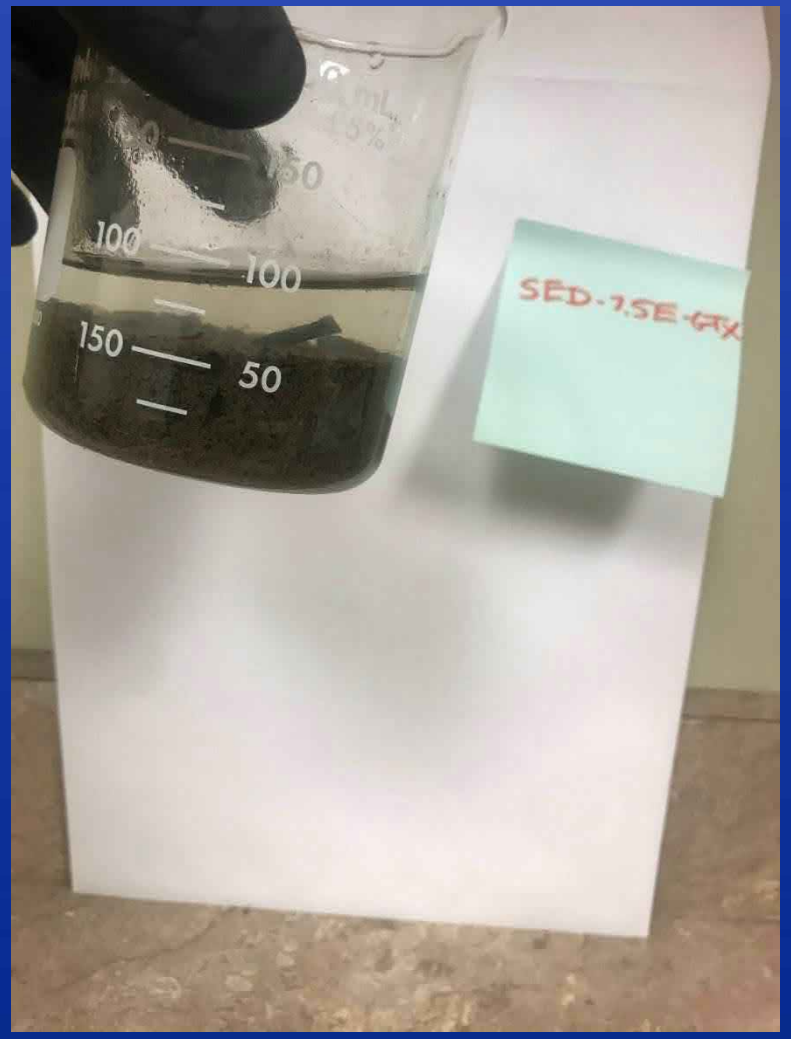

SED 7C-GTX Sediment Prior to Decant



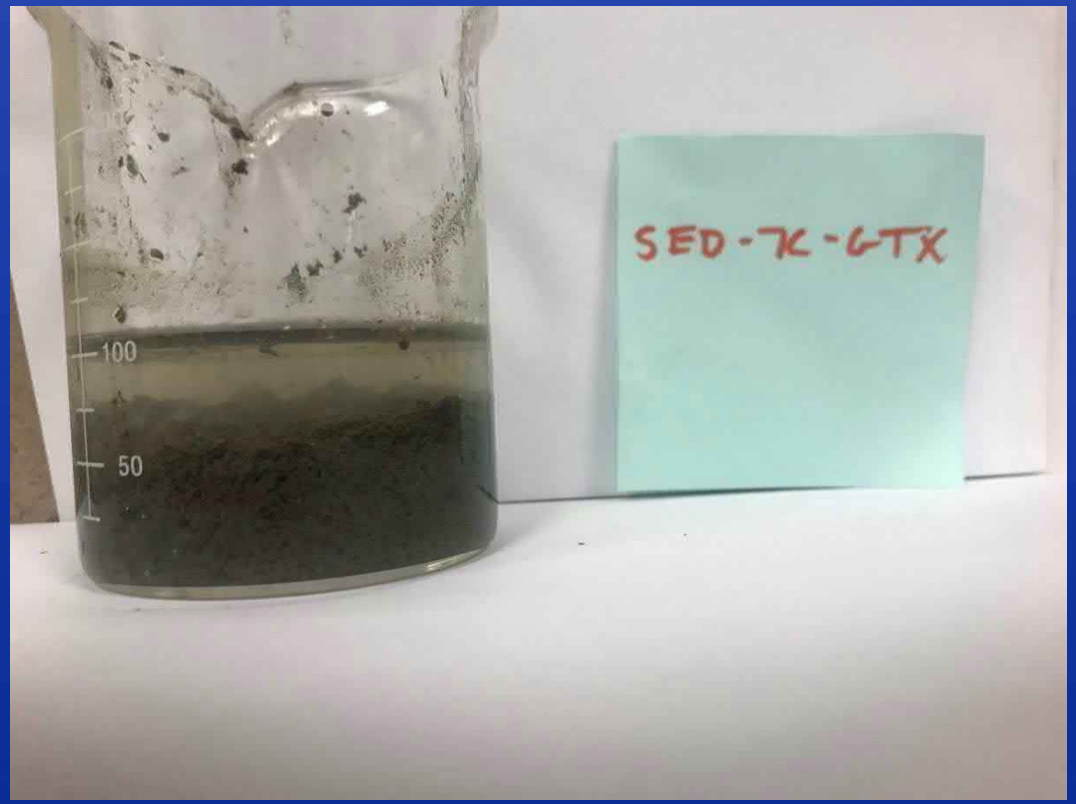

SED 7.5E-GTX Sediment After Decant



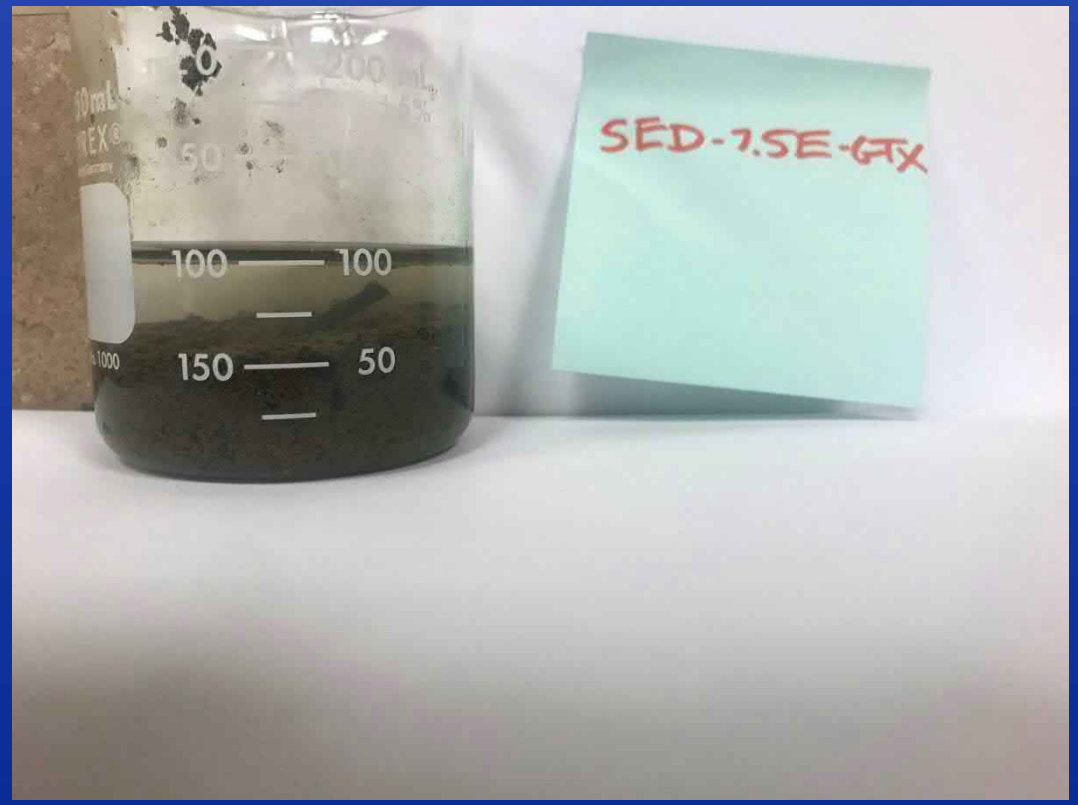

SED 7C-GTX Jar Test




SED 7.5E-GTX Jar Test




SED 7C-GTX Jar Test




SED 7.5E-GTX Jar Test



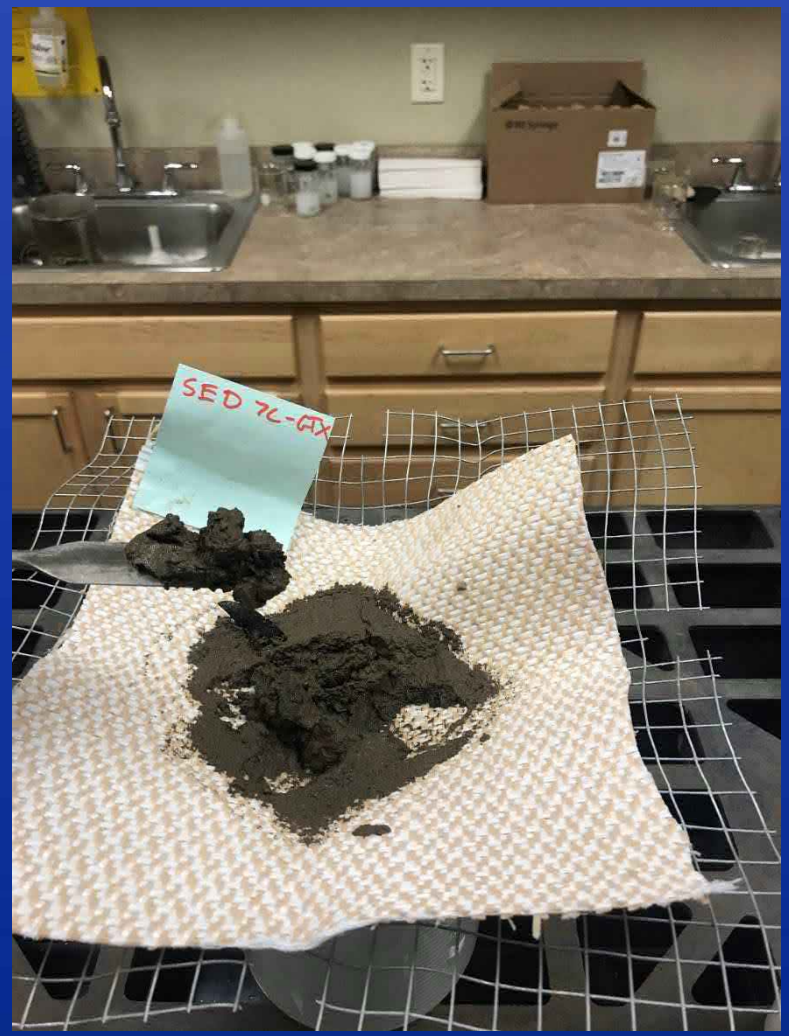

SED 7C-GTX Bench-Scale Test: Initial Pour



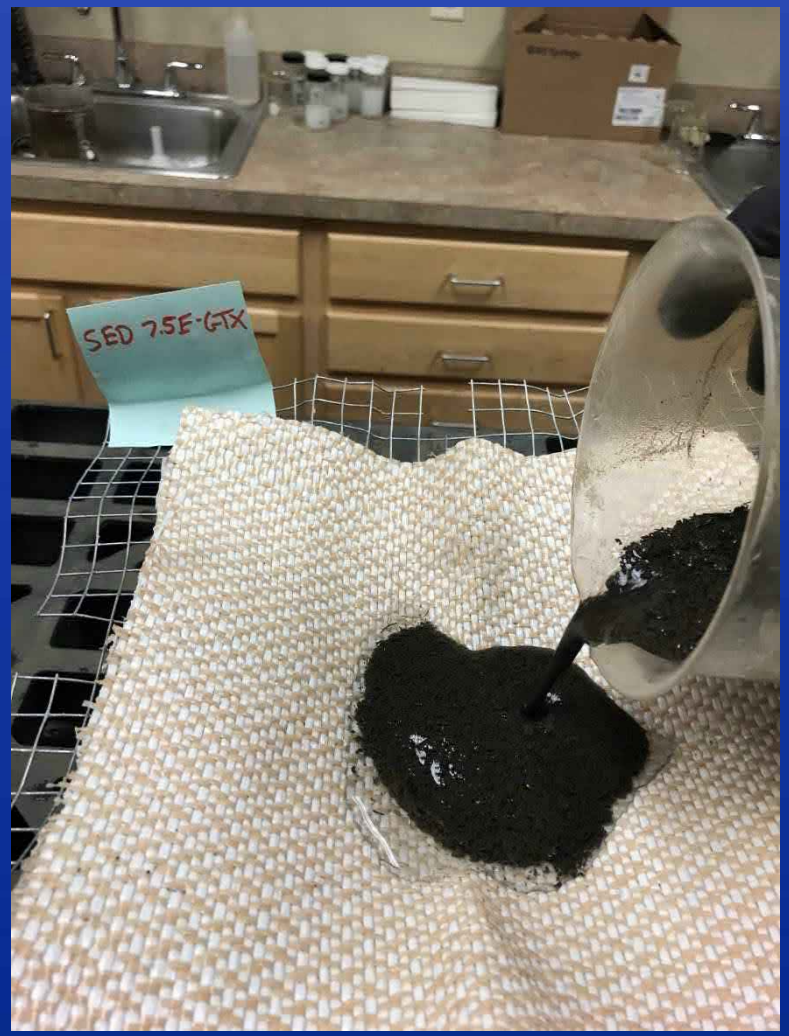

SED 7C-GTX Bench-Scale Test: 1 Minute




SED 7C-GTX Bench-Scale Test: 15 Minutes




SED 7C-GTX Bench-Scale Test: 24 Hours




SED 7.5E-GTX Bench-Scale Test: Initial Pour




SED 7.5E-GTX Bench-Scale Test: 1 Minute



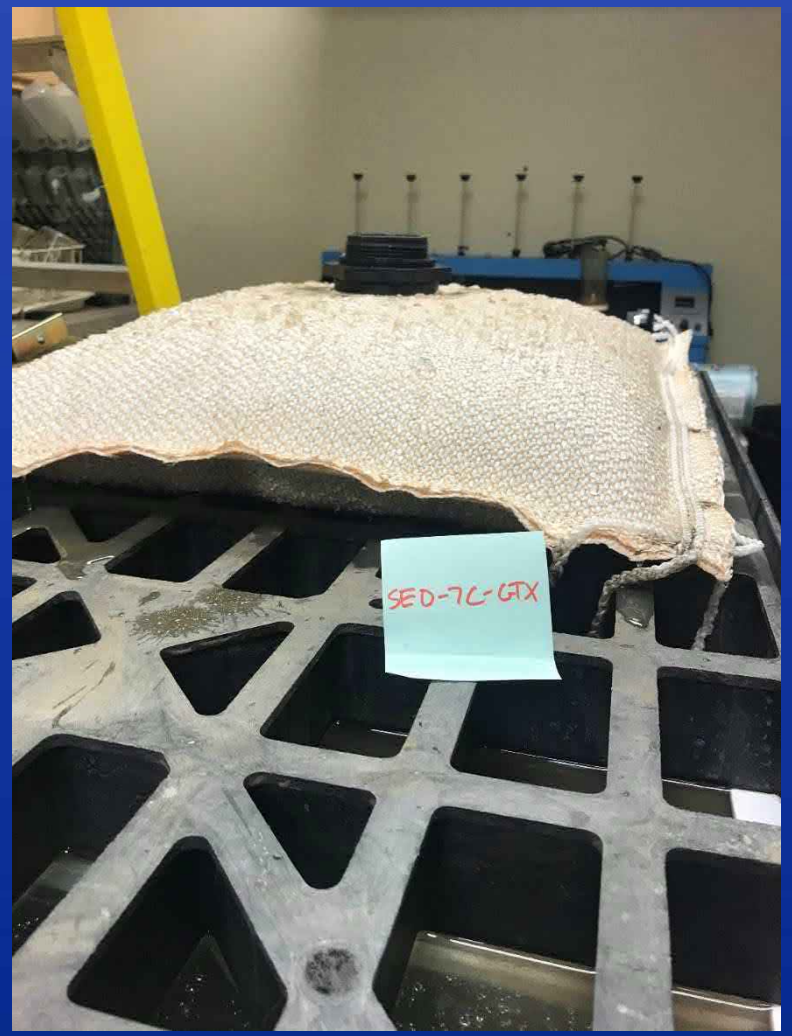

SED 7.5E-GTX Bench-Scale Test: 15 Minutes



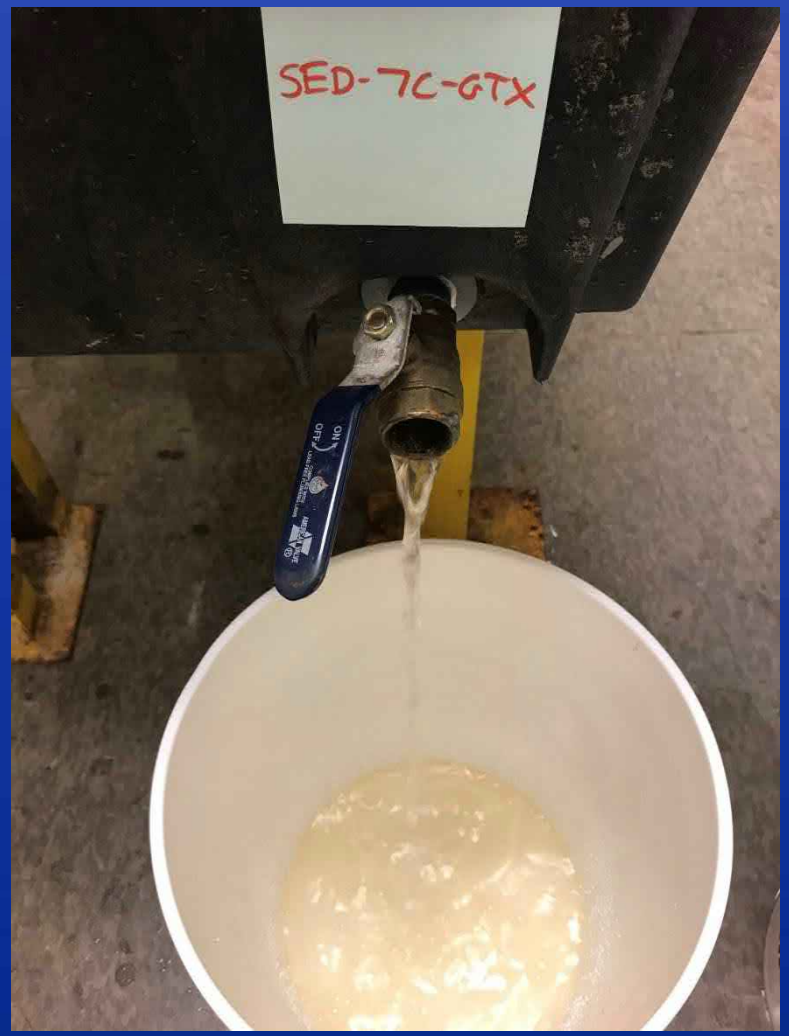

SED 7.5E-GTX Bench-Scale Test: 24 Hours



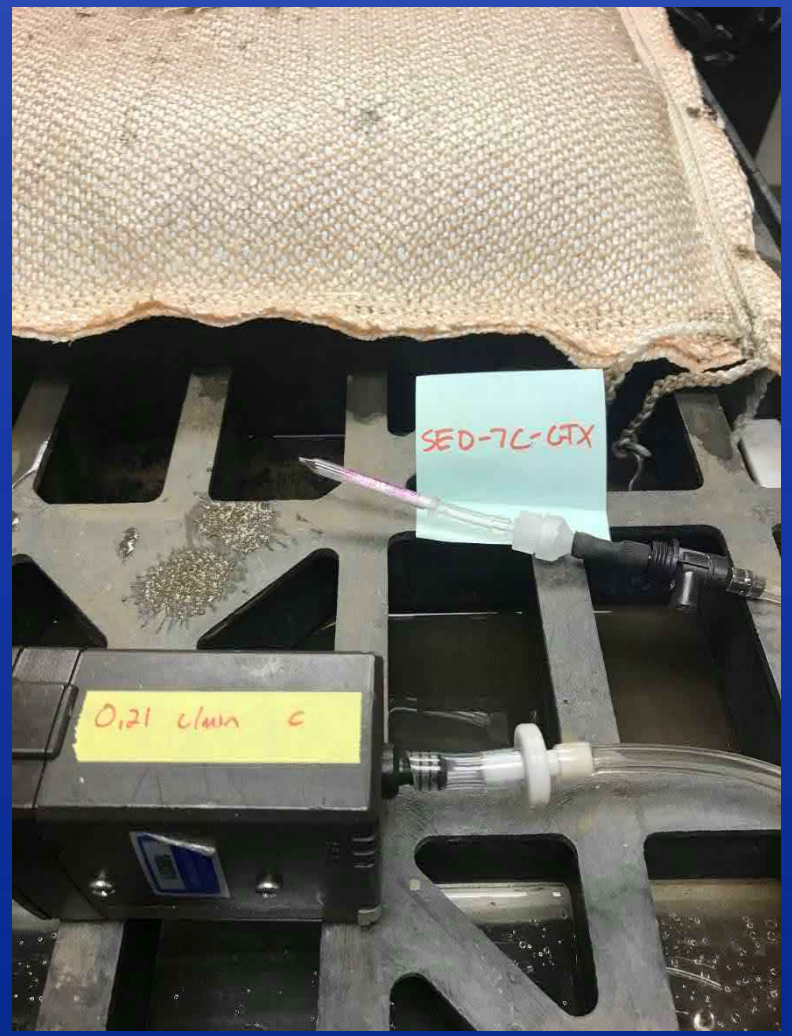

Conditioned SED 7C-GTX Slurry




SED 7C-GTX Pillow Test



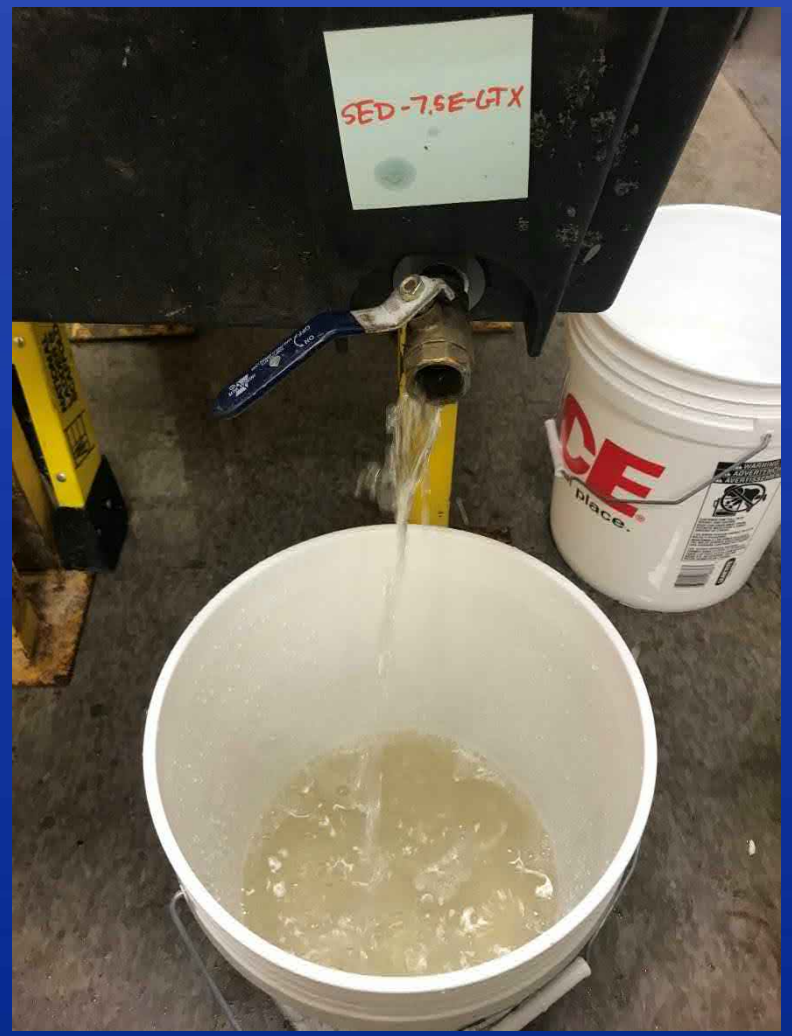

SED 7C-GTX Pillow Test Filtrate




Air Monitoring Pump and Filter




SED 7.5E-GTX Pillow Test




SED 7.5E-GTX Pillow Test Filtrate




SED 7C-GTX Filter Cake Sample Collection



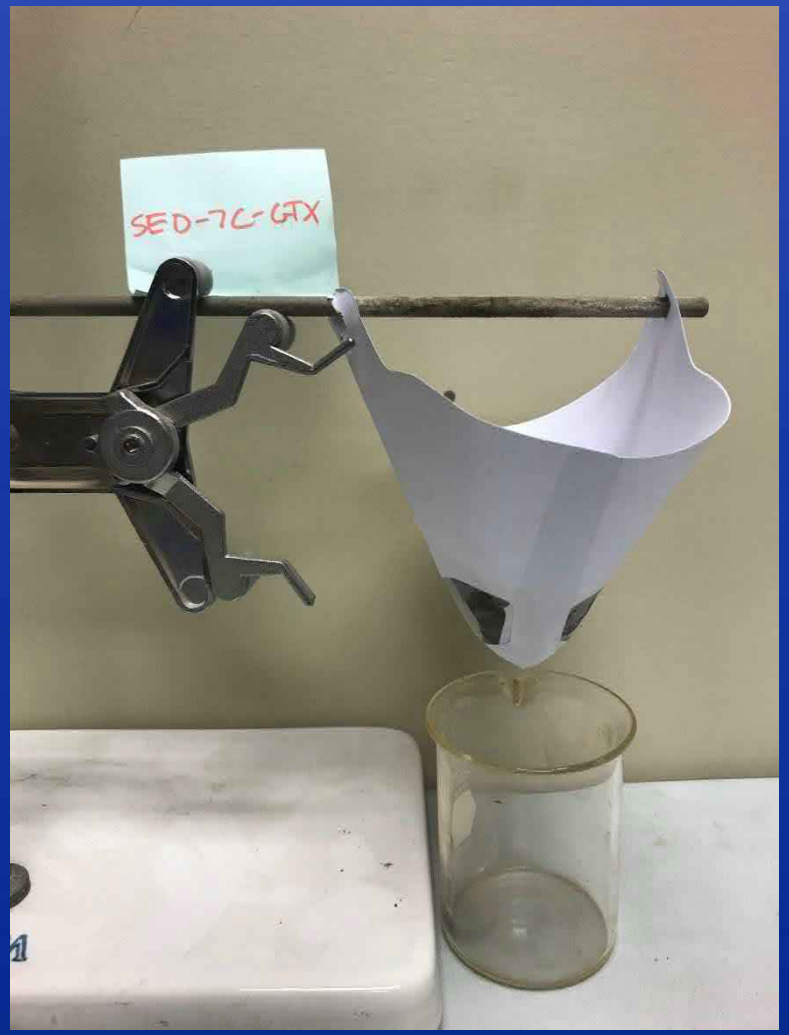

SED 7.5E-GTX Filter Cake Sample



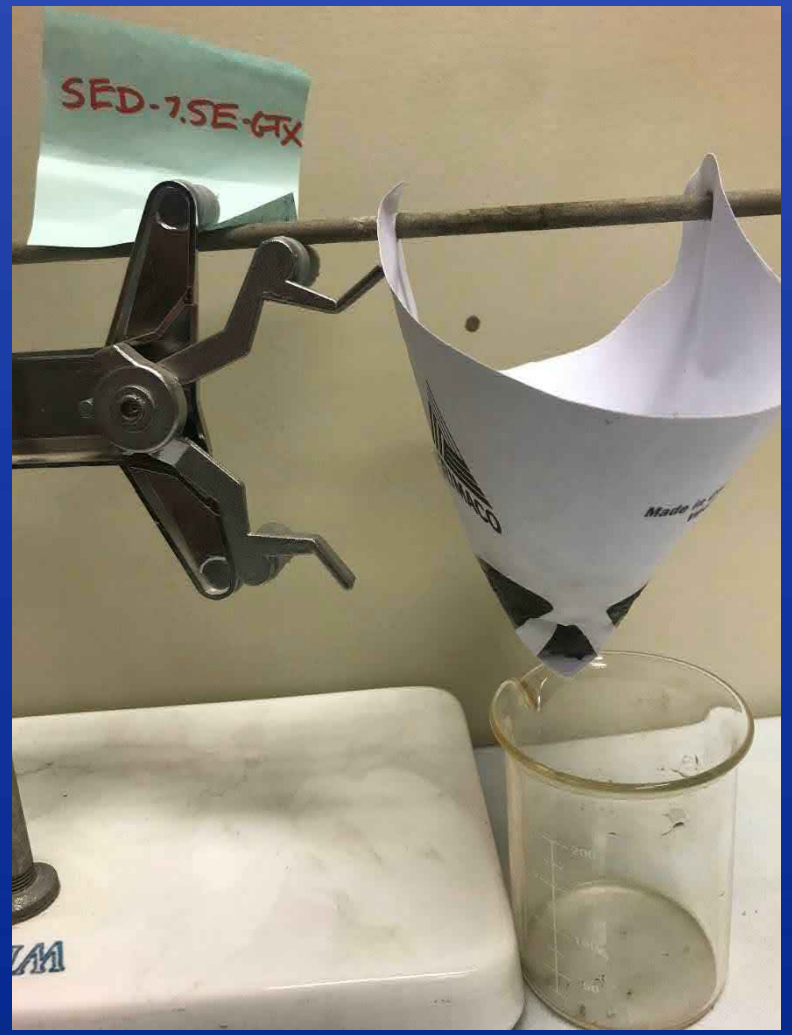

SED 7C-GTX Filter Cake




SED 7.5E-GTX Filter Cake




SED 7C-GTX Paint Filter Test




SED 7.5E-GTX Paint Filter Test

# ATTACHMENT B: JAR TESTING LOG SHEETS

INFRASTRUCTURE ALTERNATIVES, INC.

Project ID: Benning Road Facility
Location: SED-7C-GTX

Date: 6-16-2020
Analyst: Conner

| Jar # | Conditioning Product(s) | Dose (mL) | Rated 5-1, Best-Worst: Floc Appearance | Water Clarity | Water Release | Comments |
|---|---|---|---|---|---|---|
| | AH 7840 | 4 | 5 | 4 | 5 | |
| | AH 7840 | 3.5 | 5 | 4 | 5 | possible clay fines |
| | AH 7840 | 3 | 5 | 4 | 5 | |
| | AH 7267 + AH 7840 | 1, 3 | 5 | 5 | 5 | |
| | AH 7267 + AH 7840 | 1, 2 | 5 | 5 | 5 | good |
| | AH 7337 + AH 7840 | 0.5, 2 | 4 | 4/5 | 4 | sloppy |
| | AH 7337 + AH 7840 | 1, 1.5 | 3 | 4 | 3 | |
| | AH 7387 + AH 7840 | 1, 1.5 | 4 | 5 | 4 | good |
| | AH 7840 | 2.5 | 5 | 4 | 4/5 | COAG NOT NEEDED |
| | AH 7840 | 2 | 3 | 3 | 3 | very sloppy |
| | AH 7850 | 2 | 3 | 2 | 2 | |
| | AH 7810 | 2.5 | 4 | 3 | 3 | |
| | AH 7880 | 2.5 | 5 | 4 | 4 | |
| | | | | | | |
| | | | | | | |
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| | | | | | | |
| | | | | | | |
| | | | | | | |

Slurry % solids: 9.61%

100 mL aliquots of slurry used for each jar test

Conditioning products diluted by factor of 200 unless otherwise specified

INFRASTRUCTURE ALTERNATIVES, INC.

Project ID: Benning Road Facility
Location: SED-75E-GTX

Date: 6-16-2020
Analyst: Connor

| | | | Rated 5-1, Best-Worst | | | |
|---|---|---|---|---|---|---|
| Jar # | Conditioning Product(s) | Dose (mL) | Floc Appearance | Water Clarity | Water Release | Comments |
| | AH 9727 | 4 | 3 | 2 | 3 | |
| | AH 9727 | 6 | 4 | 2 | 3 | |
| | AH 9650 | 6 | 2 | 1 | 1 | |
| | AH 1120 | 4 | 4 | 3 | 4 | |
| | AH 7810 | 4 | 5 | 4 | 5 | |
| | AH 7840 | 4 | 5 | 5 | 5 | |
| | AH 7840 | 3.5 | 5 | 5 | 5 | |
| | AH 7640 | 3 | 5 | 5 | 5 | |
| | AH 7850 | 3 | 5 | 5 | 4 | |
| | AH 7880 | 3 | 4 | 5 | 4 | |
| | AH 7860 | 3 | 5 | 4 | 5 | |
| | AH 7860 | 2.5 | 4 | 3 | 3 | |
| | AH 7840 | 2.5 | 5 | 5 | 5 | floc shears |
| | AH 7840 | 2 | 3 | 4 | 2 | |
| | | | | | | |
| | AH 7387 + AH 7840 | 0.5 + 2 | 4 | 5 | 4 | |
| | AH 7387 + AH 7840 | 1 + 2 | 5 | 5 | 5 | dual app |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Slurry % solids: 9.45%

100 mL aliquots of slurry used for each jar test

Conditioning products diluted by factor of 200 unless otherwise specified

CO

# ATTACHMENT C: GTDT LOG SHEETS

INFRASTRUCTURE ALTERNATIVES, INC.

Project ID: Benning Road Facility
Location: SED-7C-C-TX

Date: 7-2-2020
Analyst: CM

| | | | |
|---|---|---|---|
| In-Situ % Solids: | 40.0 | Slurry % Solids: | 15.7 |
| In-Situ Sediment Added (L): | 12 | Cake % Solids after 24 hours: | 47.0 |
| Surface Water Added (L): | 36 | Cake % Solids after 48 hours: | 47.2 |
| Coagulant Added (mL): | — | Cake % Solids after 96 hours: | 48.8 |
| Flocculant Added (mL): | 2,200 | Cake % Solids after 7 days: | 50.1 |

| Time Interval | Filtrate Collected (mL) | Percentage of Total Filtrate Collected | Filtrate Turbidity (NTU) | Filtrate Total Suspended Solids (mg/L) |
|---|---|---|---|---|
| 0-1 min | 14,790 | 44.6 | 78 | — |
| 1-10 min | 8,140 | 24.5 | 86 | — |
| 10-60 min | 6,400 | 19.3 | 54 | — |
| 1-24 hours | 3,860 | 11.6 | 27 | — |

Notes: 2.71 lbs/DT

7888 Childsdale Ave. NE | Rockford, MI 49341 | Phone 616.866.1600 | Fax 616.866.1611
info@iaiwater.com | www.iaiwater.com

INFRASTRUCTURE ALTERNATIVES, INC.

Project ID: Benning Road Facility
Location: SED-7.5E-GTX

Date: 7-2-2020
Analyst: C-M

| | | | |
|---|---|---|---|
| In-Situ % Solids: | 37.9 | Slurry % Solids: | 12.7 |
| In-Situ Sediment Added (L): | 11 | Cake % Solids after 24 hours: | 39.5 |
| Surface Water Added (L): | 39 | Cake % Solids after 48 hours: | 48.3 |
| Coagulant Added (mL): | — | Cake % Solids after 96 hours: | 38.5 |
| Flocculant Added (mL): | 2,100 | Cake % Solids after 7 days: | 41.7 |

| Time Interval | Filtrate Collected (mL) | Percentage of Total Filtrate Collected | Filtrate Turbidity (NTU) | Filtrate Total Suspended Solids (mg/L) |
|---|---|---|---|---|
| 0-1 min | 12,260 | 35.6 | 40 | — |
| 1-10 min | 8,950 | 26.0 | 33 | — |
| 10-60 min | 7,880 | 22.9 | 22 | — |
| 1-24 hours | 5,320 | 15.5 | 24 | — |

Notes: 3.09 lbs/DT

7888 Childsdale Ave. NE | Rockford, MI 49341 | Phone 616.866.1600 | Fax 616.866.1611
info@iaiwater.com | www.iaiwater.com

# ATTACHMENT D: LAB REPORTS

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

June 16, 2020

Infrastructure Alternatives
7888 Childsdale NE
Rockford, MI 49341

RE: PBRT

Order No.: 2006738

Dear Mr. Sierra Brown:

Prein&Newhof Laboratory received 6 sample(s) on 6/12/2020 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Any analyte that exceeds the provided permit level are noted on the report with an "*" in the Qual field. Quality control data is within laboratory defined or method specified acceptance limits except if noted.

Due to the COVID-19 Virus outbreak and the possibility of this affecting our staff and their families, the standard 5 day turnaround time will be lengthened. Prein&Newhof will do our best to get you your results as quickly as we can.

If you have any questions regarding these tests results, please feel free to call.

Thank you for your business.
Sincerely,

Steve Bylsma
Laboratory Manager

**CC:**
Mr. Connor McNeely



3260 Evergreen Drive, NE Grand Rapids, MI 49525 t.616-364-7600 f. 616-364-4222 www.preinnewhof.com

**CLIENT:** Infrastructure Alternatives **Lab Order:** 2006738
**Project:** PBRT

**Lab ID:** 2006738-01 **Matrix:** SOLID **Collection Date:** 6/12/2020 9:45:00 AM
**Client ID:** 7C-001-INSITU **Sampler:** S. Ponstein **Received Date:** 6/12/2020 3:23:36 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **DENSITY** | | | | **SM 2710-F** | | Analyst: **SB** |
| Density | 11.2 | 1.00 | | lb/Gal | 1 | 6/16/2020 11:53:33 AM |
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **DV** |
| Total Solids | 40.0 | 0.0100 | | % | 1 | 6/12/2020 5:00:00 PM |

**Lab ID:** 2006738-02 **Matrix:** SOLID **Collection Date:** 6/12/2020 9:48:00 AM
**Client ID:** 7.5E-001-INSITU **Sampler:** S. Ponstein **Received Date:** 6/12/2020 3:23:36 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **DENSITY** | | | | **SM 2710-F** | | Analyst: **SB** |
| Density | 10.8 | 1.00 | | lb/Gal | 1 | 6/16/2020 11:53:33 AM |
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **DV** |
| Total Solids | 46.0 | 0.0100 | | % | 1 | 6/12/2020 5:00:00 PM |

**Lab ID:** 2006738-03 **Matrix:** SOLID **Collection Date:** 6/12/2020 9:51:00 AM
**Client ID:** 7.5E-002-INSITU **Sampler:** S. Ponstein **Received Date:** 6/12/2020 3:23:36 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **DENSITY** | | | | **SM 2710-F** | | Analyst: **SB** |
| Density | 10.8 | 1.00 | | lb/Gal | 1 | 6/16/2020 11:53:33 AM |
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **DV** |
| Total Solids | 45.5 | 0.0100 | | % | 1 | 6/12/2020 5:00:00 PM |

**Qualifiers:**
< Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
PL Permit Limit
RL Reporting Limit



3260 Evergreen Drive, NE Grand Rapids, MI 49525 t.616-364-7600 f. 616-364-4222 www.preinnewhof.com

**CLIENT:** Infrastructure Alternatives **Lab Order:** 2006738
**Project:** PBRT

**Lab ID:** 2006738-04 **Matrix:** SOLID **Collection Date:** 6/12/2020 10:01:00 AM
**Client ID:** 7C-001-Slurry **Sampler:** S. Ponstein **Received Date:** 6/12/2020 3:23:36 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **DV** |
| Total Solids | 18.1 | 0.0100 | | % | 1 | 6/12/2020 5:00:00 PM |

**Lab ID:** 2006738-05 **Matrix:** SOLID **Collection Date:** 6/12/2020 10:07:00 AM
**Client ID:** 7.5E-001-Slurry **Sampler:** S. Ponstein **Received Date:** 6/12/2020 3:23:36 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **DV** |
| Total Solids | 14.6 | 0.0100 | | % | 1 | 6/12/2020 5:00:00 PM |

**Lab ID:** 2006738-06 **Matrix:** SOLID **Collection Date:** 6/12/2020 10:15:00 AM
**Client ID:** 7.5E-002-Slurry **Sampler:** S. Ponstein **Received Date:** 6/12/2020 3:23:36 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **DV** |
| Total Solids | 16.4 | 0.0100 | | % | 1 | 6/12/2020 5:00:00 PM |

**Qualifiers:**

| | |
|---|---|
| < | Not Detected at the Reporting Limit |
| MCL | Maximum Contaminant Level |
| RL | Reporting Limit |
| H | Holding times for preparation or analysis exceeded |
| PL | Permit Limit |



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**Prein&Newhof**
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory
3260 Evergreen Drive NE
Grand Rapids, MI 49525
t. 616-364-7600
f. 616-364-4222

Client: Infrastructure Alternatives (IAI)
Project Name: Pepco Beming Rd. (PBRT)
Project #: PBRT
Send Results to: cmcneely@iaiwater.com
Sampling Personnel: Scott Ponstein (SAP)

# CHAIN OF CUSTODY

| | |
|---|---|
| Air | A |
| Drinking Water | D |
| Groundwater | W |
| Soil | S |
| Sludge | L |
| Oil | O |
| Other | X |

| Lab Use | Sample Information | | | | Preservative | | | | | | Analysis Requested | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab Sample ID # | Date | Time | Sample Description and Location (e.g. MW-1) | MATRIX | None | H2SO4 | HNO3 | HCl | NaOH | Other | % Solids | Density |
| 6738-1 | 6/12/20 | 0945 | PBRT-7C-001-INSITU | L | X | | | | | | X | X |
| 2 | " " | 0948 | PBRT-7.5E-001-INSITU | L | X | | | | | | X | X |
| 3 | | 0951 | PBRT-7.5E-002-INSITU | L | X | | | | | | X | X |
| 4 | | 1001 | PBRT-7C-001-Slurry | L | X | | | | | | X | |
| 5 | | 1007 | PBRT-7.5E-001-Slurry | L | X | | | | | | X | |
| 6 | | 1015 | PBRT-7.5E-002-Slurry | L | X | | | | | | X | |

Comments: ~~Forry~~ For Slurry samples please mix well. Solids will settle to bottom

| Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time | Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scott A. Pon | 6/12/20 | 1530 | | | | | | | | | |
| Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time | Method of Shipment: | | | Bill of Lading: | | |
| | | | | | | | | | | | |
| Received for Laboratory By: | Date | Time | Data Package Relinquished By: | Date | Time | Data Received By: | Date | Time | No. 41198 | | |
| S. Diem | 6/12/20 | 1530 | | | | | | | | | |

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

June 20, 2020

Infrastructure Alternatives
7888 Childsdale NE
Rockford, MI 49341

RE: PBRT

Order No.: 2006A63

Dear Mr. Connor McNeely:

Prein&Newhof Laboratory received 2 sample(s) on 6/19/2020 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Any analyte that exceeds the provided permit level are noted on the report with an "*" in the Qual field. Quality control data is within laboratory defined or method specified acceptance limits except if noted.

Due to the COVID-19 Virus outbreak and the possibility of this affecting our staff and their families, the standard 5 day turnaround time will be lengthened. Prein&Newhof will do our best to get you your results as quickly as we can.

HOLIDAY HOURS: Prein & Newhof will be closed on Friday, July 3 for Independance Day. Bacteria samples will be accepted until 3pm on Thursday, July 2.

If you have any questions regarding these tests results, please feel free to call.

Thank you for your business.
Sincerely,

Steve Bylsma
Laboratory Manager



3260 Evergreen Drive, NE Grand Rapids, MI 49525 t.616-364-7600 f. 616-364-4222 www.preinnewhof.com

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

# Analytical Report

(consolidated)

WO#: **2006A63**

Date Reported: **6/20/2020**

| | | | |
|---|---|---|---|
| **CLIENT:** | Infrastructure Alternatives | **Collection Date:** | 6/19/2020 12:00:00 PM |
| **Project:** | PBRT | **Received Date:** | 6/19/2020 12:10:00 PM |
| **Lab ID:** | 2006A63-01 | **Matrix:** | SEDIMENT |
| **Client Sample ID:** | SED-7.5E-GTX | **Sampled By:** | Connor |

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **AB** |
| Total Solids | 9.45 | 0.0100 | | % | 1 | 6/20/2020 2:21:13 PM |

**Qualifiers:**

| | |
|---|---|
| < | Not Detected at the Reporting Limit |
| MCL | Maximum Contaminant Level |
| RL | Reporting Limit |
| H | Holding times for preparation or analysis exceeded |
| PL | Permit Limit |

Original



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Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

# Analytical Report

(consolidated)

WO#: **2006A63**

Date Reported: **6/20/2020**

| | | | |
|---|---|---|---|
| **CLIENT:** | Infrastructure Alternatives | **Collection Date:** | 6/19/2020 12:00:00 PM |
| **Project:** | PBRT | **Received Date:** | 6/19/2020 12:10:00 PM |
| **Lab ID:** | 2006A63-02 | **Matrix:** | SEDIMENT |
| **Client Sample ID:** | SED-7C-GTX | **Sampled By:** | Connor |

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **AB** |
| Total Solids | 9.61 | 0.0100 | | % | 1 | 6/20/2020 2:21:13 PM |

**Qualifiers:**

| | |
|---|---|
| < | Not Detected at the Reporting Limit |
| MCL | Maximum Contaminant Level |
| RL | Reporting Limit |
| H | Holding times for preparation or analysis exceeded |
| PL | Permit Limit |

Original



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Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory
3260 Evergreen Drive NE
Grand Rapids, MI 49525
t. 616-364-7600
f. 616-364-4222

Client: IAI
Project Name: PBRT
Project #:
Send Results to: cmcneely@iaiwater.com
Sampling Personnel: Connor McNeely

| | |
|---|---|
| Air | A |
| Drinking Water | D |
| Groundwater | W |
| Soil | S |
| Sludge | L |
| Oil | O |
| Other | X |

# CHAIN OF CUSTODY

| Lab Use | Sample Information | | | MATRIX | Preservative | | | | | | Analysis Requested | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab Sample ID # | Date | Time | Sample Description and Location (e.g. MW-1) | | None | H2SO4 | HNO3 | HCl | NaOH | Other | % solids | | | | | | | | | | | | | | | | | |
| 6A631 | 6-19 | 12 00 | SED-7.5E-GTX | | X | | | | | | X | | | | | | | | | | | | | | | | | |
| 2 | 6-19 | 12:00 | SED-7C-GTX | | X | | | | | | X | | | | | | | | | | | | | | | | | |
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Comments:

| Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time | Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Connor McNeely | 6-19 | 12:10 | | | | | | | | | |
| Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time | Method of Shipment: | | | Bill of Lading: | | |
| | | | | | | | | | | | |
| Received for Laboratory By: | Date | Time | Data Package Relinquished By: | Date | Time | Data Received By: | Date | Time | No. 41199 | | |
| | 6/19 | 12:10 | | | | | | | | | |

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

June 25, 2020

Infrastructure Alternatives
7888 Childsdale NE
Rockford, MI 49341

RE: PBRT

Order No.: 2006C45

Dear Mr. Connor McNeely:

Prein&Newhof Laboratory received 6 sample(s) on 6/24/2020 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Any analyte that exceeds the provided permit level are noted on the report with an "*" in the Qual field. Quality control data is within laboratory defined or method specified acceptance limits except if noted.

Due to the COVID-19 Virus outbreak and the possibility of this affecting our staff and their families, the standard 5 day turnaround time will be lengthened. Prein&Newhof will do our best to get you your results as quickly as we can.

HOLIDAY HOURS: Prein & Newhof will be closed on Friday, July 3 for Independance Day. Bacteria samples will be accepted until 3pm on Thursday, July 2.

If you have any questions regarding these tests results, please feel free to call.

Thank you for your business.
Sincerely,

Steve Bylsma
Laboratory Manager



3260 Evergreen Drive, NE Grand Rapids, MI 49525 t.616-364-7600 f. 616-364-4222 www.preinnewhof.com

**CLIENT:** Infrastructure Alternatives **Lab Order:** 2006C45
**Project:** PBRT

**Lab ID:** 2006C45-01 **Matrix:** SOIL **Collection Date:** 6/23/2020 11:15:00 AM
**Client ID:** SED-7C-GTX-1 min **Sampler:** Connor **Received Date:** 6/24/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **KF** |
| Total Solids | 34.0 | 0.0100 | | % | 1 | 6/25/2020 8:28:26 AM |

**Lab ID:** 2006C45-02 **Matrix:** SOIL **Collection Date:** 6/23/2020 11:30:00 AM
**Client ID:** SED-7C-GTX-15 min **Sampler:** Connor **Received Date:** 6/24/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **KF** |
| Total Solids | 35.9 | 0.0100 | | % | 1 | 6/25/2020 8:28:26 AM |

**Lab ID:** 2006C45-03 **Matrix:** SOIL **Collection Date:** 6/24/2020 11:15:00 AM
**Client ID:** SED-7C-GTX- 24 hr **Sampler:** Connor **Received Date:** 6/24/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **KF** |
| Total Solids | 41.6 | 0.0100 | | % | 1 | 6/25/2020 8:28:26 AM |

**Lab ID:** 2006C45-04 **Matrix:** SOIL **Collection Date:** 6/23/2020 10:45:00 AM
**Client ID:** SED-7.5E-GTX-1 min **Sampler:** Connor **Received Date:** 6/24/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **KF** |
| Total Solids | 27.4 | 0.0100 | | % | 1 | 6/25/2020 8:28:26 AM |

**Qualifiers:**
< Not Detected at the Reporting Limit
MCL Maximum Contaminant Level
RL Reporting Limit
H Holding times for preparation or analysis exceeded
PL Permit Limit



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**CLIENT:** Infrastructure Alternatives **Lab Order:** 2006C45
**Project:** PBRT

**Lab ID:** 2006C45-05 **Matrix:** SOIL **Collection Date:** 6/23/2020 11:00:00 AM
**Client ID:** SED-7.5E-GTX-15 min **Sampler:** Connor **Received Date:** 6/24/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **KF** |
| Total Solids | 27.3 | 0.0100 | | % | 1 | 6/25/2020 8:28:26 AM |

**Lab ID:** 2006C45-06 **Matrix:** SOIL **Collection Date:** 6/24/2020 10:45:00 AM
**Client ID:** SED-7.5E-GTX-24 hr **Sampler:** Connor **Received Date:** 6/24/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **KF** |
| Total Solids | 34.7 | 0.0100 | | % | 1 | 6/25/2020 8:28:26 AM |

**Qualifiers:**

| | |
|---|---|
| < | Not Detected at the Reporting Limit |
| MCL | Maximum Contaminant Level |
| RL | Reporting Limit |
| H | Holding times for preparation or analysis exceeded |
| PL | Permit Limit |



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Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory
3260 Evergreen Drive NE
Grand Rapids, MI 49525
t. 616-364-7600
f. 616-364-4222

Client: IAI
Project Name: PBRT
Project #:
Send Results to: cmcneely@iaiwater.com
Sampling Personnel: Connor McNeely

| | |
|---|---|
| Air | A |
| Drinking Water | D |
| Groundwater | W |
| Soil | S |
| Sludge | L |
| Oil | O |
| Other | X |

# CHAIN OF CUSTODY

| Lab Use | Sample Information | | | MATRIX | Preservative | | | | | | Analysis Requested | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab Sample ID # | Date | Time | Sample Description and Location (e.g. MW-1) | | None | H2SO4 | HNO3 | HCl | NaOH | Other | % sol. As | | | | | | | | | | | | | | | |
| 66451 | 6-23 | 11:15 | SED-7C-GTX-1min | | | | | | | | X | | | | | | | | | | | | | | | |
| 2 | 6-23 | 11:30 | SED-7C-GTX-15min | | | | | | | | X | | | | | | | | | | | | | | | |
| 3 | 6-24 | 11:15 | SED-7C-GTX-24hr | | | | | | | | X | | | | | | | | | | | | | | | |
| 4 | 6-23 | 10:45 | SED-7.5E-GTX-1min | | | | | | | | X | | | | | | | | | | | | | | | |
| 5 | 6-23 | 11:00 | SED-7.5E-GTX-15min | | | | | | | | X | | | | | | | | | | | | | | | |
| 6 | 6-24 | 10:45 | SED-7.5E-GTX-24hr | | | | | | | | X | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | | |

Comments: 24 hr TOT please, Results by 6-25 10:30 AM.

| Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time | Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Connor McNeely | 6-24 | 12:15 | | | | | | | | | |
| Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time | Method of Shipment: | | | Bill of Lading: | | |
| | | | | | | | | | | | |
| Received for Laboratory By: | Date | Time | Data Package Relinquished By: | Date | Time | Data Received By: | Date | Time | No. 41200 | | |
| G. Dean | 6/24/20 | 1215 | | | | | | | | | |

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

June 29, 2020

Infrastructure Alternatives
7888 Childsdale NE
Rockford, MI 49341

RE: PBRT

Order No.: 2006D97

Dear Mr. Connor McNeely:

Prein&Newhof Laboratory received 2 sample(s) on 6/26/2020 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Any analyte that exceeds the provided permit level are noted on the report with an "*" in the Qual field. Quality control data is within laboratory defined or method specified acceptance limits except if noted.

Due to the COVID-19 Virus outbreak and the possibility of this affecting our staff and their families, the standard 5 day turnaround time will be lengthened. Prein&Newhof will do our best to get you your results as quickly as we can.

HOLIDAY HOURS: Prein & Newhof will be closed on Friday, July 3 for Independance Day. Bacteria samples will be accepted until 3pm on Thursday, July 2.

If you have any questions regarding these tests results, please feel free to call.

Thank you for your business.
Sincerely,

Steve Bylsma
Laboratory Manager



3260 Evergreen Drive, NE Grand Rapids, MI 49525 t.616-364-7600 f. 616-364-4222 www.preinnewhof.com

**CLIENT:** Infrastructure Alternatives **Lab Order:** 2006D97
**Project:** PBRT

**Lab ID:** 2006D97-01 **Matrix:** SOIL **Collection Date:** 6/25/2020 12:00:00 PM
**Client ID:** SED-7C-GTX-slurry **Sampler:** CM **Received Date:** 6/26/2020 11:55:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **SJ** |
| Total Solids | 15.7 | 0.0100 | | % | 1 | 6/26/2020 3:00:00 PM |

**Lab ID:** 2006D97-02 **Matrix:** SOIL **Collection Date:** 6/26/2020 12:00:00 PM
**Client ID:** SED-7.5E-GTX-slurry **Sampler:** CM **Received Date:** 6/26/2020 11:55:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **SJ** |
| Total Solids | 12.7 | 0.0100 | | % | 1 | 6/26/2020 3:00:00 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| < | Not Detected at the Reporting Limit | H | Holding times for preparation or analysis exceeded |
| MCL | Maximum Contaminant Level | PL | Permit Limit |
| RL | Reporting Limit | | |



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Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory
3260 Evergreen Drive NE
Grand Rapids, MI 49525
t. 616-364-7600
f. 616-364-4222

Client: IAI
Project Name: PBRT
Project #:
Send Results to: CMCNEELY@IAIWATER.COM
Sampling Personnel: CM

| | |
|---|---|
| Air | A |
| Drinking Water | D |
| Groundwater | W |
| Soil | S |
| Sludge | L |
| Oil | O |
| Other | X |

# CHAIN OF CUSTODY

| Lab Use | Sample Information | | | MATRIX | Preservative | | | | | | Analysis Requested | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab Sample ID # | Date | Time | Sample Description and Location (e.g. MW-1) | | None | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | Other | % Solids | | | | | | | | | | | | | | | | | |
| 60971 | 6-26 | 12:00 | SED-7C-GTX-slurry | | | | | | | | X | | | | | | | | | | | | | | | | | |
| 2 | 6-26 | 12:00 | SED-7.5E-GTX-slurry | | | | | | | | X | | | | | | | | | | | | | | | | | |
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Comments: Standard TOT. Please shake contents

| Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time | Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time | Method of Shipment: | | | Bill of Lading: | | |
| | | | | | | | | | | | |
| Received for Laboratory By: | Date | Time | Data Package Relinquished By: | Date | Time | Data Received By: | Date | Time | No. 41184 | | |
| K | 6/26/21 | 1210 | | | | | | | | | |

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

July 08, 2020

Infrastructure Alternatives
7888 Childsdale NE
Rockford, MI 49341

RE: PBRT

Order No.: 2007262

Dear Mr. Connor McNeely:

Prein&Newhof Laboratory received 8 sample(s) on 7/7/2020 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Any analyte that exceeds the provided permit level are noted on the report with an "*" in the Qual field. Quality control data is within laboratory defined or method specified acceptance limits except if noted.

Due to the COVID-19 Virus outbreak and the possibility of this affecting our staff and their families, the standard 5 day turnaround time will be lengthened. Prein&Newhof will do our best to get you your results as quickly as we can.

If you have any questions regarding these tests results, please feel free to call.

Thank you for your business.
Sincerely,

Steve Bylsma
Laboratory Manager



3260 Evergreen Drive, NE Grand Rapids, MI 49525 t.616-364-7600 f. 616-364-4222 www.preinnewhof.com

**CLIENT:** Infrastructure Alternatives **Lab Order:** 2007262
**Project:** PBRT

**Lab ID:** 2007262-01 **Matrix:** SOIL **Collection Date:** 7/1/2020 2:00:00 PM
**Client ID:** SED-7C-GTX-24hr **Sampler:** Connor **Received Date:** 7/7/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **SJ** |
| Total Solids | 47.0 | 0.0100 | | % | 1 | 7/8/2020 8:43:05 AM |

**Lab ID:** 2007262-02 **Matrix:** SOIL **Collection Date:** 7/2/2020 2:00:00 PM
**Client ID:** SED-7C-GTX-48hr **Sampler:** Connor **Received Date:** 7/7/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **SJ** |
| Total Solids | 47.2 | 0.0100 | | % | 1 | 7/8/2020 8:43:05 AM |

**Lab ID:** 2007262-03 **Matrix:** SOIL **Collection Date:** 7/4/2020 2:00:00 PM
**Client ID:** SED-7C-GTX-96hr **Sampler:** Connor **Received Date:** 7/7/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **SJ** |
| Total Solids | 48.8 | 0.0100 | | % | 1 | 7/8/2020 8:43:05 AM |

**Lab ID:** 2007262-04 **Matrix:** SOIL **Collection Date:** 7/7/2020 12:00:00 PM
**Client ID:** SED-7C-GTX-7day **Sampler:** Connor **Received Date:** 7/7/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **SJ** |
| Total Solids | 50.1 | 0.0100 | | % | 1 | 7/8/2020 8:43:05 AM |

**Qualifiers:**
< Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
PL Permit Limit
RL Reporting Limit



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**CLIENT:** Infrastructure Alternatives **Lab Order:** 2007262
**Project:** PBRT

**Lab ID:** 2007262-05 **Matrix:** SOIL **Collection Date:** 7/1/2020 12:00:00 PM
**Client ID:** SED-7.5E-GTX-24hr **Sampler:** Connor **Received Date:** 7/7/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | | **D2216** | Analyst: **SJ** |
| Total Solids | 39.5 | 0.0100 | | % | 1 | 7/8/2020 8:43:05 AM |

**Lab ID:** 2007262-06 **Matrix:** SOIL **Collection Date:** 7/2/2020 12:00:00 PM
**Client ID:** SED-7.5E-GTX-48hr **Sampler:** Connor **Received Date:** 7/7/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | | **D2216** | Analyst: **SJ** |
| Total Solids | 48.3 | 0.0100 | | % | 1 | 7/8/2020 8:43:05 AM |

**Lab ID:** 2007262-07 **Matrix:** SOIL **Collection Date:** 7/4/2020 12:00:00 PM
**Client ID:** SED-7.5E-GTX-96hr **Sampler:** Connor **Received Date:** 7/7/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | | **D2216** | Analyst: **SJ** |
| Total Solids | 38.5 | 0.0100 | | % | 1 | 7/8/2020 8:43:05 AM |

**Lab ID:** 2007262-08 **Matrix:** SOIL **Collection Date:** 7/7/2020 12:00:00 PM
**Client ID:** SED-7.5E-GTX-7day **Sampler:** Connor **Received Date:** 7/7/2020 12:15:00 PM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | | **D2216** | Analyst: **SJ** |
| Total Solids | 41.7 | 0.0100 | | % | 1 | 7/8/2020 8:43:05 AM |

**Qualifiers:**
< Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
PL Permit Limit
RL Reporting Limit



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3260 Evergreen Drive NE
Grand Rapids, MI 49525
t. 616-364-7600
f. 616-364-4222

Client: IAI
Project Name: PBRT
Project #:
Send Results to: CMCNEELY@IAIWATER.COM
Sampling Personnel: Connor

| | |
|---|---|
| Air | A |
| Drinking Water | D |
| Groundwater | W |
| Soil | S |
| Sludge | L |
| Oil | O |
| Other | X |

# CHAIN OF CUSTODY

| Lab Use | Sample Information | | | MATRIX | Preservative | | | | | | Analysis Requested | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab Sample ID # | Date | Time | Sample Description and Location (e.g. MW-1) | | None | H2SO4 | HNO3 | HCl | NaOH | Other | % solids | | | | | | | | | | | | | | | | | |
| 7262-1 | 7-1 | 2:00 | SED-7C-GTX-24hr | S | | | | | | | X | | | | | | | | | | | | | | | | | |
| 2 | 7-2 | 2:00 | SED-7C-GTX-48hr | S | | | | | | | X | | | | | | | | | | | | | | | | | |
| 3 | 7-4 | 2:00 | SED-7C-GTX-96hr | S | | | | | | | X | | | | | | | | | | | | | | | | | |
| 4 | 7-7 | 12:00 | SED-7C-GTX-7day | S | | | | | | | X | | | | | | | | | | | | | | | | | |
| 5 | 7-1 | 12:00 | SED-7.5E-GTX-24hr | S | | | | | | | X | | | | | | | | | | | | | | | | | |
| 6 | 7-2 | 12:00 | SED-7.5E-GTX-48hr | S | | | | | | | X | | | | | | | | | | | | | | | | | |
| 7 | 7-4 | 12:00 | SED-7.5E-GTX-96hr | S | | | | | | | X | | | | | | | | | | | | | | | | | |
| 8 | 7-7 | 12:00 | SED-7.5E-GTX-7day | S | | | | | | | X | | | | | | | | | | | | | | | | | |
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Comments:

| Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time | Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Connor McNeely | 7-7 | 12:15 | | | | | | | | | |
| Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time | Method of Shipment: | | | Bill of Lading: | | |
| | | | | | | | | | | | |
| Received for Laboratory By: | Date | Time | Data Package Relinquished By: | Date | Time | Data Received By: | Date | Time | No. 42228 | | |
| K | 7/7/20 | 12:15 | | | | | | | | | |

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

July 14, 2020

Infrastructure Alternatives
7888 Childsdale NE
Rockford, MI 49341

RE: PBRT

Order No.: 2007586

Dear Mr. Sierra Brown:

Prein&Newhof Laboratory received 1 sample(s) on 7/13/2020 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Any analyte that exceeds the provided permit level are noted on the report with an "*" in the Qual field. Quality control data is within laboratory defined or method specified acceptance limits except if noted.

Due to the COVID-19 Virus outbreak and the possibility of this affecting our staff and their families, the standard 5 day turnaround time will be lengthened. Prein&Newhof will do our best to get you your results as quickly as we can.

If you have any questions regarding these tests results, please feel free to call.

Thank you for your business.
Sincerely,

Steve Bylsma
Laboratory Manager

**CC:**
Mr. Connor McNeely



3260 Evergreen Drive, NE Grand Rapids, MI 49525 t.616-364-7600 f. 616-364-4222 www.preinnewhof.com

Prein&Newhof
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# Analytical Report

(consolidated)

WO#: **2007586**

Date Reported: **7/14/2020**

| | | | |
|---|---|---|---|
| **CLIENT:** | Infrastructure Alternatives | **Collection Date:** | 7/13/2020 2:30:00 PM |
| **Project:** | PBRT | **Received Date:** | 7/13/2020 4:00:00 PM |
| **Lab ID:** | 2007586-01 | **Matrix:** | SOIL |
| **Client Sample ID:** | SED-7.5E-GTX-Redo | **Sampled By:** | Connor |

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | **D2216** | | Analyst: **JS** |
| Total Solids | 37.9 | 0.0100 | | % | 1 | 7/13/2020 4:00:00 PM |

**Qualifiers:**

| | |
|---|---|
| < | Not Detected at the Reporting Limit |
| MCL | Maximum Contaminant Level |
| RL | Reporting Limit |
| H | Holding times for preparation or analysis exceeded |
| PL | Permit Limit |

Original



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3260 Evergreen Drive NE
Grand Rapids, MI 49525
t. 616-364-7600
f. 616-364-4222

Client: FAI
Project Name: PBRT
Project #:
Send Results to: CMCNEELY@FAIWATER.COM
Sampling Personnel: Connor

# CHAIN OF CUSTODY

| | |
|---|---|
| Air | A |
| Drinking Water | D |
| Groundwater | W |
| Soil | S |
| Sludge | L |
| Oil | O |
| Other | X |

| Lab Use | Sample Information | | | | Preservative | | | | | | Analysis Requested |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lab Sample ID # | Date | Time | Sample Description and Location (e.g. MW-1) | MATRIX | None | H2SO4 | HNO3 | HCl | NaOH | Other | V. Solids |
| 7586-1 | 7-13 | 2:30 | SED-7.5 E-GTX-Redo | | X | | | | | | X |

Comments:

| Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time | Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Connor [signature] | 7-13 | 4:00 | | | | | | | | | |
| Relinquished By: (Signature) | Date | Time | Received By: (Signature) | Date | Time | Method of Shipment: | | | Bill of Lading: | | |
| | | | | | | | | | | | |
| Received for Laboratory By: | Date | Time | Data Package Relinquished By: | Date | Time | Data Received By: | Date | Time | No. 42382 | | |
| S. Dieu[illegible] | 7/13/26 | 1600 | | | | | | | | | |

15-Jul-2020

Connor McNeely
Infrastructure Alternatives
788 Childsdale Avenue NE
Rockford, MI 49341

Tel: (616) 916-1160
Fax:

Re: Not Available Work Order: **2007191**

Dear Connor,

ALS Environmental received 3 samples on 08-Jul-2020 10:25 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 8.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Shawn Smythe

Electronically approved by: Shawn Smythe

Shawn Smythe
Project Manager

# ALS Environmental

Date: 15-Jul-20

**Client:** Infrastructure Alternatives
**Project:** Not Available
**Work Order:** **2007191**

## Work Order Sample Summary

| Lab Samp ID | Client Sample ID | Matrix | Tag Number | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| 2007191-01 | SED-7C-GTX | Air | | 7/1/2020 | 7/8/2020 10:25 | ☐ |
| 2007191-02 | SED-7.SE-GTX | Air | | 7/1/2020 | 7/8/2020 10:25 | ☐ |
| 2007191-03 | Background | Air | | 7/1/2020 | 7/8/2020 10:25 | ☐ |

## ALS Environmental

*Date: 15-Jul-20*

| | |
|---|---|
| **Client:** | Infrastructure Alternatives |
| **Project:** | Not Available |
| **Work Order:** | 2007191 |

# Case Narrative

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Results relate only to the items tested and are not blank corrected unless indicated.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

ALS is an EPA recognized NLLAP laboratory for lead paint, soil, and dust wipe analyses under its AIHA-LAP accreditation.

# ALS Environmental

**Date:** *15-Jul-20*

**Client:** Infrastructure Alternatives
**Project:** Not Available

**Work Order:** 2007191

## Analytical Results

**Lab ID:** 2007191-01A
**Client Sample ID:** SED-7C-GTX

**Collection Date:** 7/1/2020
**Matrix:** AIR

**Analyses**

| **PCBS** | | Method: **N5503** | Air Volume (L): **100.8** | Analyst: **ECP** |
|---|---|---|---|---|
| Date Analyzed: 7/15/2020 | µg/sample | Reporting Limit µg/sample | mg/m3 | |
| Aroclor 1016 | ND | 0.010 | <0.000099 | |
| Aroclor 1221 | ND | 0.020 | <0.00020 | |
| Aroclor 1232 | ND | 0.010 | <0.000099 | |
| Aroclor 1242 | ND | 0.010 | <0.000099 | |
| Aroclor 1248 | ND | 0.010 | <0.000099 | |
| Aroclor 1254 | ND | 0.010 | <0.000099 | |
| Aroclor 1260 | ND | 0.010 | <0.000099 | |

**Lab ID:** 2007191-02A
**Client Sample ID:** SED-7.SE-GTX

**Collection Date:** 7/1/2020
**Matrix:** AIR

**Analyses**

| **PCBS** | | Method: **N5503** | Air Volume (L): **100.8** | Analyst: **ECP** |
|---|---|---|---|---|
| Date Analyzed: 7/15/2020 | µg/sample | Reporting Limit µg/sample | mg/m3 | |
| Aroclor 1016 | ND | 0.010 | <0.000099 | |
| Aroclor 1221 | ND | 0.020 | <0.00020 | |
| Aroclor 1232 | ND | 0.010 | <0.000099 | |
| Aroclor 1242 | ND | 0.010 | <0.000099 | |
| Aroclor 1248 | ND | 0.010 | <0.000099 | |
| Aroclor 1254 | ND | 0.010 | <0.000099 | |
| Aroclor 1260 | ND | 0.010 | <0.000099 | |

**Note:**

# ALS Environmental

**Date:** *15-Jul-20*

**Client:** Infrastructure Alternatives
**Project:** Not Available

**Work Order:** 2007191

## Analytical Results

**Lab ID:** 2007191-03A
**Client Sample ID:** Background

**Collection Date:** 7/1/2020
**Matrix:** AIR

**Analyses**

| **PCBS** | | Method: **N5503** | Air Volume (L): **100.8** | Analyst: **ECP** |
|---|---|---|---|---|
| Date Analyzed: 7/15/2020 | µg/sample | Reporting Limit µg/sample | mg/m3 | |
| Aroclor 1016 | ND | 0.010 | <0.000099 | |
| Aroclor 1221 | ND | 0.020 | <0.00020 | |
| Aroclor 1232 | ND | 0.010 | <0.000099 | |
| Aroclor 1242 | ND | 0.010 | <0.000099 | |
| Aroclor 1248 | ND | 0.010 | <0.000099 | |
| Aroclor 1254 | ND | 0.010 | <0.000099 | |
| Aroclor 1260 | ND | 0.010 | <0.000099 | |

**Note:**

ALS Environmental

Date: 15-Jul-20

**Client:** Infrastructure Alternatives

**Work Order:** 2007191

**Project:** Not Available

# QC BATCH REPORT

Batch ID: **R179098** Instrument ID **GC3** Method: **N5503**

**MBLK** Sample ID **MB-R179098-R179098** Units: **µg/sample** Analysis Date: **7/15/2020**

Client ID: Run ID: **GC3_200715A** SeqNo: **2268596** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | ND | 0.010 | | | | | | | | |
| Aroclor 1221 | ND | 0.020 | | | | | | | | |
| Aroclor 1232 | ND | 0.010 | | | | | | | | |
| Aroclor 1242 | ND | 0.010 | | | | | | | | |
| Aroclor 1248 | ND | 0.010 | | | | | | | | |
| Aroclor 1254 | ND | 0.010 | | | | | | | | |
| Aroclor 1260 | ND | 0.010 | | | | | | | | |

**LCS** Sample ID **LCS-R179098-R179098** Units: **µg/sample** Analysis Date: **7/15/2020**

Client ID: Run ID: **GC3_200715A** SeqNo: **2268597** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | 0.106 | 0.010 | 0.1 | 0 | 106 | 70-130 | 0 | | | |
| Aroclor 1260 | 0.107 | 0.010 | 0.1 | 0 | 107 | 70-130 | 0 | | | |

**LCSD** Sample ID **LCSD-R179098** Units: **µg/sample** Analysis Date: **7/15/2020**

Client ID: Run ID: **GC3_200715A** SeqNo: **2268601** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | 0.104 | 0.010 | 0.1 | 0 | 104 | 70-130 | 0.106 | 1.9 | 20 | |
| Aroclor 1260 | 0.106 | 0.010 | 0.1 | 0 | 106 | 70-130 | 0.107 | 0.939 | 20 | |

**The following samples were analyzed in this batch:** 2007191-01A 2007191-02A 2007191-03A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

# ALS Environmental

Date: 15-Jul-20

**Client:** Infrastructure Alternatives
**Project:** Not Available
**WorkOrder:** **2007191**

## QUALIFIERS, ACRONYMS, UNITS

| Qualifier | Description |
|---|---|
| * | Value exceeds Regulatory Limit |
| a | Not accredited |
| B | Analyte detected in the associated Method Blank above the Reporting Limit |
| E | Value above quantitation range |
| H | Analyzed outside of Holding Time |
| J | Analyte detected below quantitation limit |
| n | Not offered for accreditation |
| ND | Not Detected at the Reporting Limit |
| O | Sample amount is > 4 times amount spiked |
| P | Dual Column results percent difference > 40% |
| R | RPD above laboratory control limit |
| S | Spike Recovery outside laboratory control limits |
| U | Analyzed but not detected above the MDL |

| Acronym | Description |
|---|---|
| DUP | Method Duplicate |
| E | EPA Method |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| MBLK | Method Blank |
| MDL | Method Detection Limit |
| MQL | Method Quantitation Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| PDS | Post Digestion Spike |
| PQL | Practical Quantitaion Limit |
| SDL | Sample Detection Limit |
| SW | SW-846 Method |

| Units Reported | Description |
|---|---|
| µg/sample | |

ALS Environmental

## Sample Receipt Checklist

Client Name: **INFRASTRUCTURE-ROCKFORD** Date/Time Received: **08-Jul-20 10:25**

Work Order: **2007191** Received by: **DNS**

Checklist completed by Shawn Smythe 08-Jul-20 Reviewed by: Shawn Smythe 08-Jul-20

eSignature Date eSignature Date

Matrices:

Carrier name: UPS

| | | | |
|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on shipping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature in compliance? | Yes ☑ | No ☐ | |
| Temperature(s)/Thermometer(s): | | | |
| Cooler(s)/Kit(s): | | | |
| Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA vials submitted ☐ |
| Water - pH acceptable upon receipt? | Yes ☐ | No ☐ | N/A ☐ |
| pH adjusted? | Yes ☐ | No ☐ | N/A ☐ |
| pH adjusted by: | | | |

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

# ATTACHMENT E: GEOTEXTILE FABRIC SPECIFICATIONS

GEOSTRUX™

GEOTEXTILE TUBES

# ENVIRONMENTALLY PROVEN SOLUTIONS FOR DEWATERING AND COASTAL APPLICATIONS



GEOSTRUX™ Tubes are produced using high strength woven fabrics which are manufactured to exacting standards by our in-house fabrication group.

Once on site, GEOSTRUX™ Tubes are hydraulically filled with heavily saturated sediment, sand or waste materials. When fully dewatered, the sediment has reduced weight and volume, allowing for more cost-effective material handling. In coastal applications the structure is strategically placed before filling to provide cost effective shoreline protection or habitat creation.





GEO-SYNTHETICS, LLC.

WWW.GEO-SYNTHETICS.COM

PHONE: 800.444.5523

GEOSTRUX@GEO-SYNTHETICS.COM

GEOSTRUX™

GEOTEXTILE TUBES

# FIELD PROVEN IN A WIDE VARIETY OF APPLICATIONS

## APPLICATIONS

- Habitat Creation
- Coastal Protection
- Breakwaters, Groins & Jetties
- Dewatering Liquid Waste and Sludge
- Dewatering Lake and River Sediments

## ADVANTAGES

- Cost Effective
- Passive Dewatering
- Improved Effluent Clarity







## GEOSTRUX™ Geotextile Tube

### Dimensions and Capacities

| Circumference | Capacity* |
|---|---|
| 22.5'** | 1.3 CY/LF |
| 30' | 2.3 CY/LF |
| 45' | 4.1 CY/LF |
| 60' | 6.2 CY/LF |
| 75' | 8.3 CY/LF |
| 90' | 10.1 CY/LF |

**Calculated volume – Actual capacity may vary*

***Container Tubes*

*Available in either black or tan fabric*

*Note: Dimensions and capacities are represented as typical values. They should not be used for design purposes. GSI makes no warranties and assumes no liability in connection with the use of this information.*

GSI GEO-SYNTHETICS, LLC.

WWW.GEO-SYNTHETICS.COM PHONE: 800.444.5523 GEOSTRUX@GEO-SYNTHETICS.COM

# Beltech 4.5 x 6.25

## 2159

## Product Data Sheet

### June 2015

A woven geotextile fabric, produced from polypropylene slit-film tapes, which will meet or exceed the following MARV's. This fabric is produced for use in Filtration and Dewatering application. Its sand color makes it more appealing than traditional black fabrics in many applications. The fabric is designed and engineered with 4 inch reinforced selvages to insure maximum fabricated seam strength.

| Property | Test Method | English Units | | | SI Units | | |
|---|---|---|---|---|---|---|---|
| | | MARV | | | MARV | | |
| | | MD | CD | | MD | CD | |
| Wide Width Tensile Ultimate | ASTM D-4595 | 450 | 622 | lbs/in | 79 | 109 | kN/m |
| Wide Width Elongation | ASTM D-4595 | 20 | 18 | % | 20 | 18 | % |
| Wide Width @ 2% - **Typical** | ASTM D-4595 | 25 | 135 | lbs/in | 4 | 24 | kN/m |
| Wide Width @ 5% - **Typical** | ASTM D-4595 | 120 | 320 | lbs/in | 21 | 56 | kN/m |
| Wide Width @ 10% - **Typical** | ASTM D-4595 | 320 | n/a | lbs/in | 56 | n/a | kN/m |
| Trapezoid Tear | ASTM D-4533 | 250 | 300 | lbs | 1113 | 1335 | N |
| CBR Puncture | ASTM D-6241 | 3000 | | lbs | 13 | | kN |
| Puncture | ASTM D-4833 | 225 | | lbs | 1001 | | N |
| Permittivity | ASTM D-4491 | 0.27 | | $sec^{1}$ | 0.27 | | $sec^{-1}$ |
| Water Flow Rate | ASTM D-4491 | 20 | | $gpm/ft^2$ | 815 | | $l/min/m^2$ |
| A.O.S. | ASTM D-4751 | 30 | | U.S. Sieve | 0.6 | | mm |
| UV Resistance (1400 hrs) - **Typical** | ASTM D-4355 | 85 | | % | 85 | | % |
| UV Resistance (1400 hrs) - **MARV** | ASTM D-4355 | 70 | | % | 70 | | % |
| Pore Size Distribution ($O_{50}$) ** - **Typical** | ASTM D-6767 | 140 | | U.S. Sieve | 100 | | micron |
| Pore Size Distribution ($O_{95}$) ** - **Typical** | ASTM D-6767 | 40 | | U.S. Sieve | 395 | | micron |

**** Performed by a Third Party Laboratory**



**Produced in Belton, South Carolina, U.S.A.**

The foregoing is believed to be an accurate representation of information complied from inside and/or outside sources, however, because test values, statistical data, and other information presented may be based solely on results of unverified tests made on random samples, information presented may relate only to tested samples and because the conditions in which such information may be used are beyond the control of Belton Industries, Inc., Belton does not guarantee either the accuracy or reliability of the information or the suggestions and recommendations contained herein. Belton assumes no responsibility for the use of information presented herein and hereby disclaims all liabilities which may arise in connection with the use of information herein presented. All specifications, properties, values, statistical data and applications listed herein are provided as information only, without charge or obligation to the recipient or user, and in no way either makes or creates any warranty with respect to any product or modifies, amends or enlarges any warranty made with respect to any product. Final determination of the suitability, reliability and accuracy of the information and suggested uses is solely the responsibility of the user. The property values expressed are effective on the date shown above, supersede any values previously published, and are subject to change without notice.

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Phone 864.338.5711 / 800.845.8753 · Fax 864.338.5594 / 800.851.5049 · www.BeltonIndustries.com

ACCREDITED
Testing Lab - Cert 3507.01

**LONGITUDINAL SEWING**

| Height | ``` | 15-ft | 15-ft | 22.5-ft | 22.5-ft | 22.5-ft | 30-ft | 30-ft | 30-ft | 45-ft | 45-ft | 45-ft | 60-ft | 60-ft | 60-ft | 75-ft | 75-ft | 75-ft | 80.5-ft | 80.5-ft | 80.5-ft | 85-ft | 85-ft | 85-ft | 90-ft | 90-ft | 90-ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Feet | SF | CY/l.f. | gal/l.f. | SF | CY/l.f. | gal/l.f. | SF | CY/l.f. | gal/l.f. | SF | CY/l.f. | gal/l.f. | SF | CY/l.f. | gal/l.f. | SF | CY/l.f. | gal/l.f. | SF | CY/l.f. | gal/l.f. | SF | CY/l.f. | gal/l.f. | SF | CY/l.f. | gal/l.f. |
| 1.0 | 6.2 | 0.2 | 46.4 | 9.8 | 0.4 | 73.3 | 13.7 | 0.5 | 102.5 | 20.9 | 0.8 | 156.4 | 28.0 | 1.0 | 209.5 | 36.4 | 1.3 | 272.3 | 39.9 | 1.5 | 298.5 | 42.2 | 1.6 | 315.7 | 43.7 | 1.6 | 326.9 |
| 1.5 | 8.6 | 0.3 | 64.3 | 14.1 | 0.5 | 105.5 | 19.8 | 0.7 | 148.1 | 30.7 | 1.1 | 229.7 | 41.6 | 1.5 | 311.2 | 52.5 | 1.9 | 392.8 | 57.8 | 2.1 | 432.4 | 61.1 | 2.3 | 457.1 | 63.4 | 2.3 | 474.3 |
| 2.0 | 10.7 | 0.4 | 80.1 | 17.8 | 0.7 | 133.2 | 25.5 | 0.9 | 190.8 | 39.5 | 1.5 | 295.5 | 54.5 | 2.0 | 407.7 | 69.1 | 2.6 | 517.0 | 76.2 | 2.8 | 570.1 | 80.7 | 3.0 | 603.8 | 83.7 | 3.1 | 626.2 |
| 2.5 | 12.6 | 0.5 | 94.3 | 21.3 | 0.8 | 159.4 | 30.4 | 1.1 | 227.4 | 48.3 | 1.8 | 361.4 | 66.2 | 2.5 | 495.3 | 84.4 | 3.1 | 631.4 | 93.1 | 3.4 | 696.5 | 98.7 | 3.7 | 738.4 | 102.3 | 3.8 | 765.4 |
| 3.0 | 14.2 | 0.5 | 106.2 | 24.3 | 0.9 | 181.8 | 35.4 | 1.3 | 264.8 | 56.6 | 2.1 | 423.5 | 78.1 | 2.9 | 584.3 | 99.8 | 3.7 | 746.7 | 110.3 | 4.1 | 825.2 | 117.0 | 4.3 | 875.3 | 121.4 | 4.5 | 908.3 |
| 3.5 | 16.8 | 0.6 | 125.7 | 27.2 | 1.0 | 203.5 | 39.9 | 1.5 | 298.5 | 64.2 | 2.4 | 480.3 | 90.4 | 3.3 | 676.3 | 116.1 | 4.3 | 868.6 | 128.5 | 4.8 | 961.4 | 136.4 | 5.1 | 1020.5 | 141.6 | 5.2 | 1059.4 |
| 4.0 | 17.5 | 0.6 | 130.9 | 29.7 | 1.1 | 222.2 | 44.1 | 1.6 | 329.9 | 71.6 | 2.7 | 535.7 | 100.3 | 3.7 | 750.4 | 129.4 | 4.8 | 968.1 | 143.4 | 5.3 | 1072.8 | 152.3 | 5.6 | 1139.4 | 158.2 | 5.9 | 1183.6 |
| 4.2 | 17.1 | 0.6 | 127.9 | 32.1 | 1.2 | 240.2 | 45.8 | 1.7 | 342.7 | 75.0 | 2.8 | 561.1 | 111.0 | 4.1 | 830.4 | 143.8 | 5.3 | 1075.8 | 151.3 | 5.6 | 1131.9 | 160.8 | 6.0 | 1203.0 | 176.4 | 6.5 | 1319.7 |
| 5.0 | | | | 35.5 | 1.3 | 265.6 | 52.5 | 1.9 | 392.8 | 85.8 | 3.2 | 641.9 | 121.0 | 4.5 | 905.3 | 157.5 | 5.8 | 1178.3 | 175.2 | 6.5 | 1310.8 | 186.3 | 6.9 | 1393.8 | 193.8 | 7.2 | 1449.9 |
| 5.5 | | | | 40.7 | 1.5 | 304.5 | 54.8 | 2.0 | 410.0 | 92.3 | 3.4 | 690.5 | 131.6 | 4.9 | 984.6 | 170.0 | 6.3 | 1271.9 | 189.3 | 7.0 | 1416.2 | 201.6 | 7.5 | 1508.3 | 209.7 | 7.8 | 1568.9 |
| 6.0 | | | | 39.4 | 1.5 | 294.8 | 58.2 | 2.2 | 435.4 | 97.9 | 3.6 | 732.4 | 141.0 | 5.2 | 1054.9 | 183.2 | 6.8 | 1370.6 | 204.3 | 7.6 | 1528.5 | 217.7 | 8.1 | 1628.7 | 226.7 | 8.4 | 1696.1 |
| 6.5 | | | | | | | 62.5 | 2.3 | 467.6 | 104.4 | 3.9 | 781.1 | 149.1 | 5.5 | 1115.5 | 197.0 | 7.3 | 1473.9 | 217.5 | 8.1 | 1627.2 | 231.9 | 8.6 | 1735.0 | 241.6 | 8.9 | 1807.5 |
| 7.0 | | | | | | | 70.2 | 2.6 | 525.2 | 109.9 | 4.1 | 822.2 | 158.9 | 5.9 | 1188.8 | 209.0 | 7.7 | 1563.6 | 231.2 | 8.6 | 1729.7 | 246.8 | 9.1 | 1846.4 | 257.2 | 9.5 | 1924.2 |
| 7.5 | | | | | | | | | | 119.5 | 4.4 | 894.0 | 167.2 | 6.2 | 1250.9 | 218.8 | 8.1 | 1636.9 | 245.3 | 9.1 | 1835.2 | 262.2 | 9.7 | 1961.6 | 273.4 | 10.1 | 2045.4 |
| 8.0 | | | | | | | | | | 120.2 | 4.5 | 899.3 | 175.5 | 6.5 | 1313.0 | 231.3 | 8.6 | 1730.5 | 257.0 | 9.5 | 1922.7 | 274.9 | 10.2 | 2056.7 | 286.9 | 10.6 | 2146.4 |
| 8.5 | | | | | | | | | | 124.9 | 4.6 | 934.4 | | | | | | | | | | | | | | | |
| 9.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes:

Shaded areas denote height to width ratio above 0.5 ( for structural stability)

Boxes represent results with a T-ult(circumferential) of greater than 4800 lbs/ft. (failure of tube is likely)

Unit weight of slurry estimated to be 78.0 lbs/ft for all calculations

Calculations performed assuming tubes will be filled on land, not in water.

15-ft circumference tube calculated at 14.5 feet

22.5-ft circumference tube calculated at 21.84 feet

30-ft circumference tube calculated at 29.5 feet

45-ft circumference tube calculated at 44.0 feet

60-ft circumference tube calculated at 58.7 feet

75-ft circumference tube calculated at 73.5 feet

80.5-ft circumference tube calculated at 80.5 feet

85-ft circumference tube calculated at 85 feet

90-ft circumference tube calculated at 88.0 feet

Column Headings:

Height: Top elevation of tube

SF: Cross sectional area of tube in square feet

cy/L.F.: Capacity of tube in cubic yards per unit length (ft)

gal/l.f.: Capacity of tube in gallons per unit length (ft)

# Fabrication Procedures

**Geotextile Tube production protocols to be used on all sew tags**

1. **Item Number** is the Integra item number.
   **Examples:**
   a. TGTUBE4660100 for a 60x100' tube made from black 4x6
   b. TGTUBET60100 for a 60x100' tube made from tan 1853

2. **Product ID # or serial number is assign to a specific tube based on the date of production. Each tube is labeled as** TTYYMMDD# where:
   - TT = Type of material used (i.e.46or 53)
   - YY= two digit designation of the year (e.g. 10)
   - MM = two digit designation of the month
   - DD = date
   - # = the count of tubes manufactured on that date (e.g. the second tube made that day would be "2", even if the first one made was from a different fabric)

   **Examples:**
   a. 4x6 black tubes
      i. 46YYMMDD#
      ii. e.g. the first tube finished on October 20, 2010 would be 461010201
   b. 1853 Tan
      i. 53YYMMDD#
      ii. e.g. the 2nd tube finished on June 14, 2011 would be 531106142

3. **Size** is the circumference and length of the tube in feet
   e.g. 60' x 100'
4. **Ports** is the number of ports built on the Geotextile tube
5. **Weight** is the estimated weight rounded to the nearest 100 pounds
6. **Inspected by** is where the lead fabricator initials
7. The tag is sewn in a prominent location

*SILTTEX*

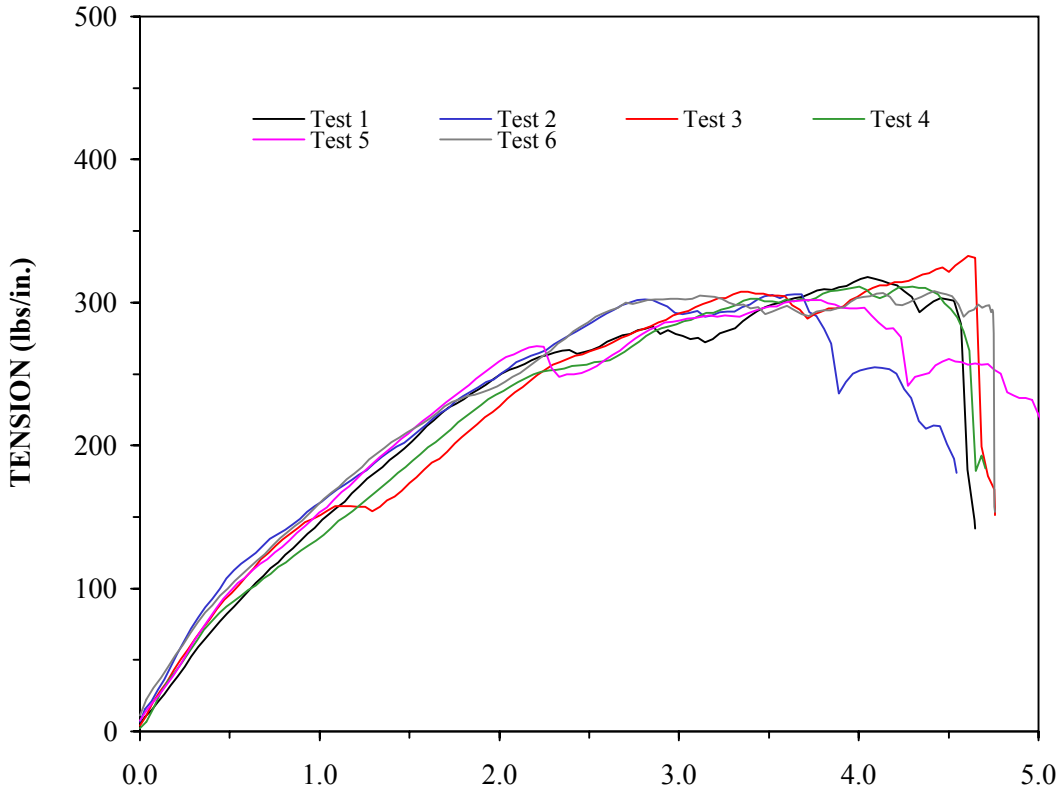
*GSI - Waukesha, WI*

| *ITEM NUMBER* (1) | *PRODUCT ID #* (2) |
|---|---|
| *Size* (3) ____ X ____ | *PORTS:* (4) ____ *WEIGHT:* (5) ____ |

**INSPECTED BY:** (6) ____

**THIS INFORMATION IS PROVIDED FOR REFERENCE PURPOSES ONLY AND IS NOT INTENDED TO IMPLY A WARRANTY OR GUARANTEE. THIS PRODUCT WAS INSPECTED AT TIME OF SHIPMENT AND WAS FOUND TO BE IN GOOD QUALITY AND FREE FROM DEFECTS. GSI ASSUMES NO LIABILITY AS TO DAMAGE FROM SHIPMENT OR ON SITE HANDLING.**

**GEO-SYNTHETICS, INC.**
**SEAM STRENGTH TESTING (AST.M D 4884)**
Butterfly Seam with 2 Rows of Stitches at Selvage and 3 SPI
Propex 4 x 6 Woven Geotextile
Geotextile Roll # 202255359 and 2022567984
SGI Sample ID No. S17162




| Test No. | Maximum Seam Strength (lbs/in.) | Displacement at Maximum (in.) | Time to Rupture (min.) | Failure Mode (-) | Ultimate Strength in XD (lbs/in.) | Seam Efficiency (%) |
|---|---|---|---|---|---|---|
| 1 | 318 | 4.1 | 10.2 | Rupture of XD Yarns | | |
| 2 | 306 | 3.6 | 9.1 | | | |
| 3 | 334 | 4.6 | 11.6 | | | |
| 4 | 312 | 4.2 | 10.6 | | | |
| 5 | 303 | 3.8 | 9.4 | | | |
| 6 | 308 | 4.4 | 11.0 | | | |
| Mean | 313 | 4.1 | 10.3 | NA | NA | NA |
| STD | 11 | 0.4 | 0.9 | NA | NA | NA |

**NOTES:**

| | |
|---|---|
| Clamp: | Roller |
| Padding: | None |
| Specimen Width (in.): | 8.0 |
| Gage Length (in.): | 4.0 |
| Strain Rate (% per minute): | 10 |
| MD: | Machine direction |
| XD: | Cross-machine direction |
| NA: | Not Applicable |

DATE TESTED: 12/11/2012

SGI TESTING SERVICES, LLC

| | |
|---|---|
| FIGURE NO. | 2 |
| PROJECT NO. | SGI10012 |
| DOCUMENT NO. | |
| FILE NO. | |

**GEOSTRUX™ GEOTEXTILE TUBE HANDLING AND STORAGE**[1]

- Product Delivery, Handling, and Storage
  - Product Delivery
    - The Geotextile tube shall be delivered wrapped in a protective wrap that consists of a nonwoven geotextile and a black plastic wrap. There will be product identification on the outside wrap as well as on the Geotextile tube itself. The identification on the wrap will be the tube size. The information on the tube proper will be the size, weight, and production date. The tube will be rolled on a steel/cardboard core depending on the size of the tube.
  - Product Handling
    - No hooks, tongs, forks, or other sharp devices shall be used to handle the Geotextile Tube. If practical use machinery fitted with poles that can be inserted into the core for moving the Geotextile tube around. Care should be taken so as to not damaging the protective wrap by sliding, dragging, or prodding the roll. Care should be taken to not damage the core with a pole that is not at least two thirds the length of the core. Straps and slings may be used to carry relatively rigid rolls of material provided the slings do not cause damage to the rolls.
  - Product Storage
    - When storing the Geotextile Tube care should be taken to elevate the tube so as to keep the product out of standing/accumulated water. Care should be taken to protect the product from environmental conditions that could reduce the performance of the Geotextile Tube. The protective wrap should remain in place until the product is to be installed on site to assure protection from sunlight and other environmental conditions over extended periods of time. Care should be taken to assure that there are no sharp objects in the storage area that may damage the tube.

Geotextile Tube Repair

It is always best to enlist an experienced geotextile tube installer on the project. They have the ability to assess the damage and provide solutions at the time of the mishap. The first step in repair of a geotextile tube should be to determine the cause for the damage to the tube, if the damage was created by internal or external forces or debris, the process for pumping should be reviewed in order to prevent further damage.

Should a hole develop in the fabric of the tube first clean the area around the hole. Cut a piece of fabric that is 6 inches wider than the hole. Insert the patch material into the hole and spread the patch out to create good contact with the inside of the tube. Then if the inside pressure does not hold the patch in place use the hook needle and thread supplied to attach the patch to the side wall of the tube. If the hole is more of a slit then use the needle and thread supplied to sew the slit together.

Nylon zip ties are also supplied to make a quick repair of a slit area in the wall of the tube. This works for damaged areas less than 18” in length. In areas that are larger then clamp the area with two pieces of wood and “C” clamps and use all weather screws and screw the wood together creating a new “seam”.

[1] ASTM D 4873-02

If the damage is in the seam there may not be a repair solution that will allow for maximum filling of the tube. A replacement may be the only solution. Working around the tube with sharp edges and mechanical equipment should warrant care and where necessary a second person to spot the activity to prevent moving too close to the geotextile tube.

The immediate filling period is when the tube will experience the greatest pressures. As consolidation develops there will be less outward pressure on the damaged area. At that time it is a matter of sealing the hole to prevent migration of the contained materials.

# INSTALLATION INSTRUCTIONS

The *information, including technical and engineering* data, *figures, tables, designs, drawings, details, suggested* procedures, *and suggested specifications, presented* in *this publication are for general information only.* The *information contained* herein is subject to change without notice. While every *effort has* been made to ensure *its accuracy, this information should* not be used *or relied upon for any specific application without* independent *professional examination and verification of its accuracy, suitability*, and *applicability.*

## Tube installation shall be in accordance with the following specifications:

**The foundation for the placement of the geotextile tube shall be smooth and free of protrusions, which could damage the geotextile. Remnant timber piles, piers, footings, underground utilities, etc., at or below grade, shall be removed if located within 6.0 m (20 ft) of the project site. Weak or unsuitable foundation material shall be removed or stabilized. The dewatering area shall be graded to a maximum slope of 1%. The dewatering area shall have a non-erodable surface (gravel, grass, asphalt or concrete) or shall be lined with plastic sheeting.**

**DEPLOYMENT**

**Tubes shall be aligned as straight as possible. Means of assuring that the tubes are properly aligned within the specified tolerances shall be incorporated into the placement methodology presented the Plan of Construction. The geotextile tubes shall be deployed along the alignment and secured in place as necessary to assure proper alignment after filling. No portion of the tubes shall be filled until the entire tube segment has been fully anchored to the foundation along the correct alignment and pulled taut. Larger tubes may require concrete barriers to prevent the tubes from rolling during filling. All unused fill ports shall be tied closed.**

**FILLING**

**After completing the deployment and anchorage of the geotextile tube, filling with dredged material shall be accomplished in accordance with the approved Plan of Construction. The discharge line of the dredge shall be fitted with a "Y-valve" to allow control of the rate of filling. The Y-valve system shall be fitted with an internal mechanism such as a gate, butterfly valve, ball valve, or pinch valve to allow the contractor to regulate discharge into the geotextile tube. Any excess discharge shall be directed away from the tubes toward the borrow area. The dredge discharge pipe shall be free of protrusions that could that could tear the fill port. It is generally accepted practice to support the dredge discharge pipe above the fill port in a manner, which reduces stress on the fill port seams. The height to width ratio of the full-deployed tube shall not exceed a value, of 0.5. Other height and width specification may be required by the Engineer to assure sliding, overturning, bearing capacity, and global stability of the tube system. If the tube is not to be externally backfilled, the area should be left in a neat and properly graded manner. If the tube is to be externally backfilled, the lines and grade on the Plan of Construction must be followed. The tubes shall not be filled higher than the manufacturer's recommended height.**

**PROTECTION**

**No hooks, tongs or other sharp instruments shall be used for handling. The geotextile tube shall not be dragged on the ground.**

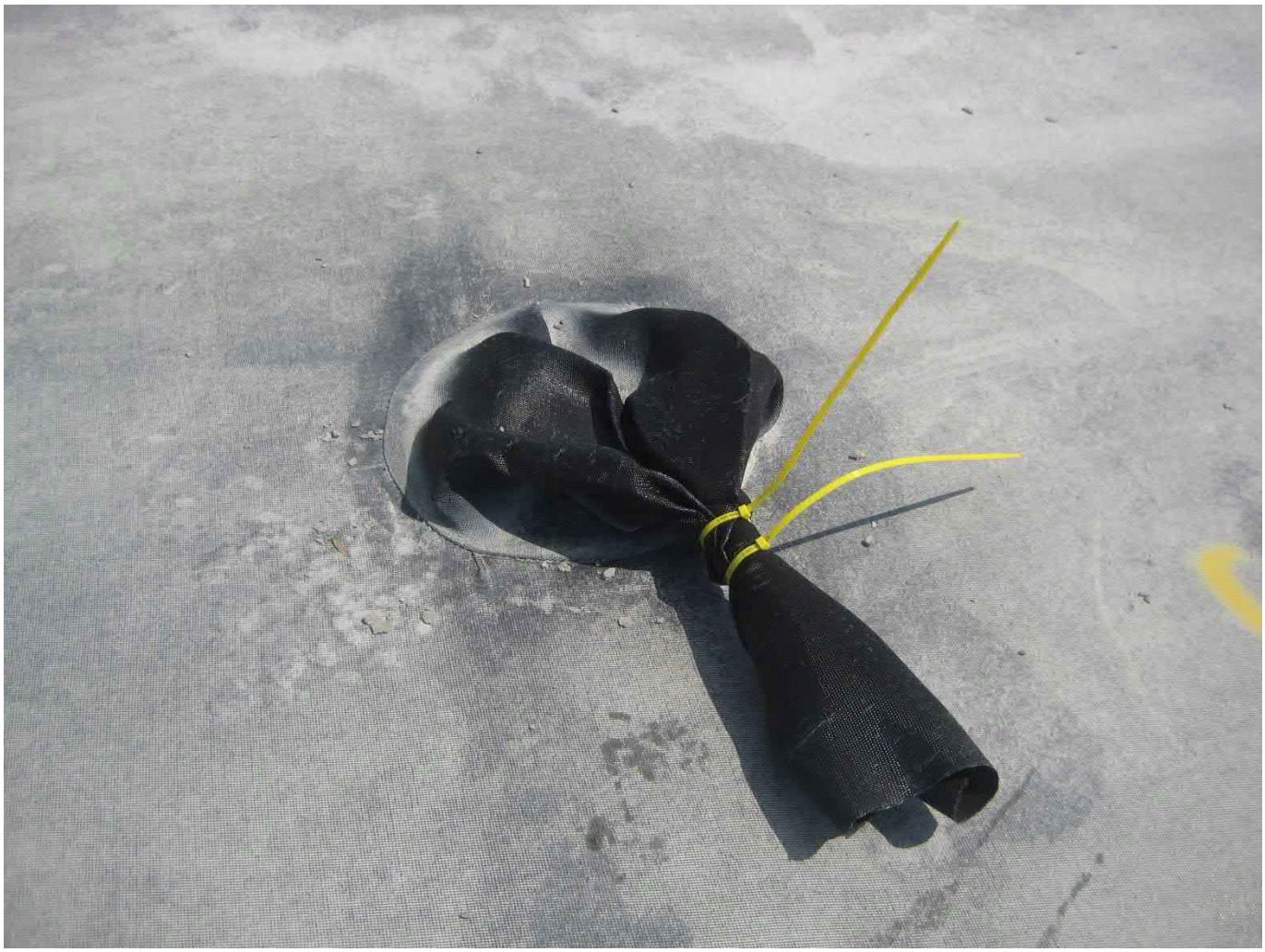
**RECOMMENDED FILL HEIGHT**

**15'-3', 30'-4', 45'-5.5', 60'- 7.0'**

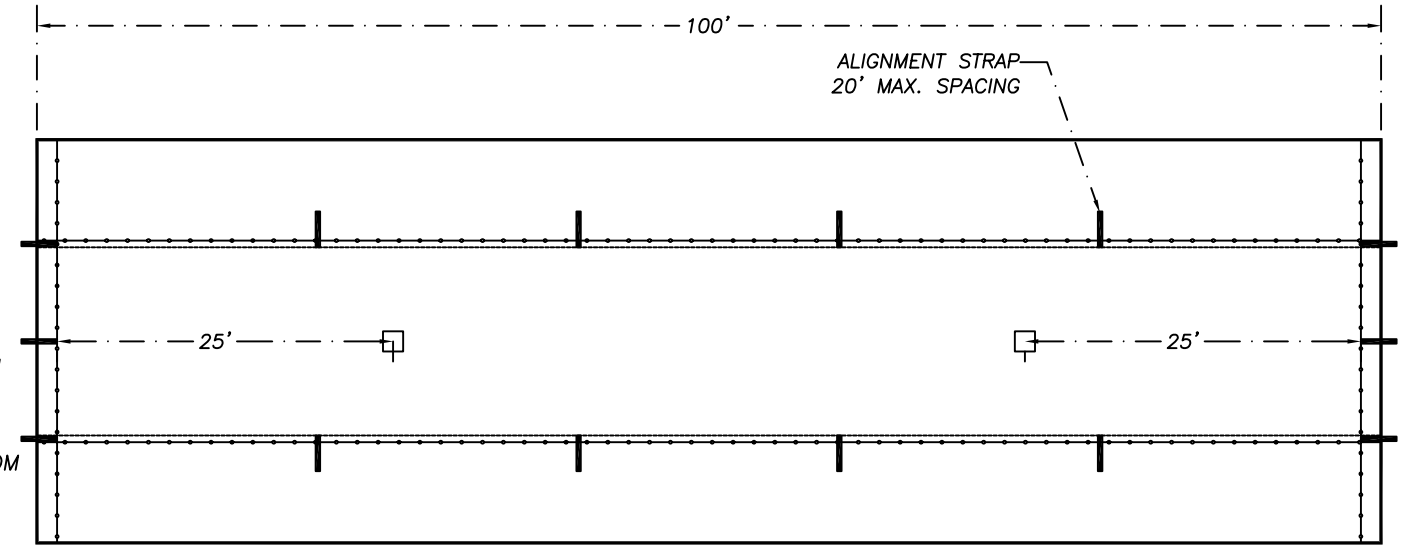
Injection Port Closing Details

1. Geotextile Tubes are shipped with zip ties to close off the port after the filling operation is complete
2. Contractor has the option to use an alternate method to achieve the same result

A closed port should resemble the following:



2401 PEWAUKEE ROAD • WAUKESHA, WI 53188-6904 • 262-524-7979 • Fax: 262-524-7961 • 800-444-5523 • www.geo-synthetics.com



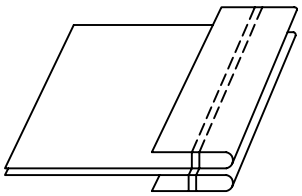

GSI RECOMMENDS AT A MINIMUM PERFORMING A HANGING BAG TEST PRIOR TO STARTING PROJECT.

TUBE TO BE PLACED ON PROPERLY PREPARED SUBGRADE. DETAILS AVAILABLE AT WWW.GEO-SYNTHETICS.COM

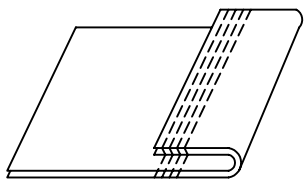
FILL PORTS

ALIGNMENT STRAPS

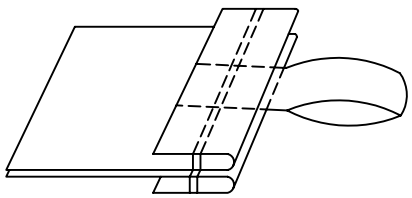
# GEOSTRUX™ GEOTEXTILE TUBE PLAN VIEW



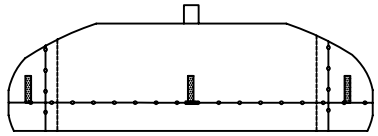
LONGITUDINAL SEAM DETAIL



END SEAM DETAIL



ALINGMENT STRAP DETAIL



GEOSTRUX™ GEOTEXTILE TUBE END VIEW

| REVISIONS | | |
|---|---|---|
| NO. | DATE | BY |
| | | |
| | | |
| | | |
| | | |

## NOTES:

1) GEOSTRUX™ GEOTEXTILE TUBES ARE CONSTRUCTED WITH 15' PANEL SECTIONS.
2) STANDARD FILL PORTS ARE 18" DIAMETER BY 36" LONG.

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## LEGEND

- PANEL OUTLINE
- SEAM
- ALIGNMENT STRAP
- FILL PORT

## CUSTOMER'S APPROVAL

THE UNDERSIGNED APPROVES PRODUCTION OF GEOSTRUX™ GEOTEXTILE TUBES BY GEO-SYNTHETICS, LLC AS SHOWN.

_____
SIGNATURE

_____
COMPANY

**DRAWN BY:** MAR **DATE:** 01/12/10

**CHKD BY:** **DATE:**

**SCALE:** NTS **DRAWING #** GT-610

**FILENAME:** 60100 STANDARD

**PROJECT INFORMATION:**

60' X 100' GEOSTRUX™ GEOTEXTILE TUBE - STANDARD

GEO-SYNTHETICS, LLC.
2401 PEWAUKEE ROAD
WAUKESHA, WI 53188
262-524-7979

# ATTACHMENT F: SAFETY DATA SHEETS

# SAFETY DATA SHEET

**Version** 2

## 1. Identification of the Substance / Preparation and of the Company / Undertaking

**Product Name** Aqua Hawk® 7840
**Product Code** 41777
**Recommended Use** Industrial, Manufacturing or Laboratory use.
**Restrictions on Use** None known

**Manufacturer**
Hawkins, Inc., 2381 Rosegate, Roseville, MN 55113 (612-331-6910)

**Emergency Telephone:**
CHEMTREC (US): 1-800-424-9300

## 2. Hazards Identification

### GHS - Classification

| | |
|---|---|
| Skin corrosion/irritation | Category 2 |
| Serious eye damage/eye irritation | Category 2B |

**Hazards not otherwise classified (HNOC)**
Not applicable

### Label elements



**Signal Word:** **Warning**

**Hazard Statements:**
• Causes skin and eye irritation

**Precautionary Statements:**
• Wash face, hands and any exposed skin thoroughly after handling
• Wear protective gloves
• IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
• If eye irritation persists: Get medical advice/attention
• IF ON SKIN: Wash with plenty of soap and water
• If skin irritation occurs: Get medical advice/attention
• Take off contaminated clothing and wash before reuse

## 3. Composition / Information on Ingredients

| Chemical name | CAS No. | Weight-% |
|---|---|---|
| Trade Secret Aliphatic Hydrocarbon | - | 20-30 |

Any concentration shown as a range is due to batch variation or the exact percentage has been withheld as a trade secret.

## 4. First Aid Measures

**Description of first aid measures**

| | |
|---|---|
| **General advice** | Show this safety data sheet to the doctor in attendance. |
| **Inhalation** | Remove to fresh air. Get medical attention immediately if symptoms occur. |
| **Eye contact** | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. |
| **Skin contact** | Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists. |
| **Ingestion** | Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician. |
| **Self-protection of the first aider** | Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). |

**Most important symptoms and effects, both acute and delayed**

| | |
|---|---|
| **Symptoms** | Redness. May cause redness and tearing of the eyes. |

**Indication of any immediate medical attention and special treatment needed**

| | |
|---|---|
| **Note to physicians** | Treat symptomatically. |

## 5. Fire-fighting Measures

| | |
|---|---|
| **Suitable Extinguishing Media** | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| **Large Fire** | CAUTION: Use of water spray when fighting fire may be inefficient. |
| **Unsuitable extinguishing media** | Do not scatter spilled material with high pressure water streams. |
| **Specific hazards arising from the chemical** | Do not allow run-off from fire-fighting to enter drains or water courses. |
| **Hazardous combustion products** | Carbon oxides. Nitrogen oxides ($NO_x$). |
| **Explosion Data** | |
| **Sensitivity to mechanical impact** | None. |
| **Sensitivity to static discharge** | None. |
| **Special protective equipment for fire-fighters** | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. |

## 6. Accidental Release Measures

**Personal precautions, protective equipment and emergency procedures**

| | |
|---|---|
| **Personal precautions** | Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. |
| **Other information** | Refer to protective measures listed in Sections 7 and 8. |

**Methods and material for containment and cleaning up**

| | |
|---|---|
| **Methods for containment** | Prevent further leakage or spillage if safe to do so. |
| **Methods for cleaning up** | Dike far ahead of liquid spill for later disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly. After cleaning, flush away traces with water. |

## 7. Handling and Storage

**Precautions for safe handling**

| | |
|---|---|
| **Advice on safe handling** | Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. |

**Conditions for safe storage, including any incompatibilities**

| | |
|---|---|
| **Storage Conditions** | Keep containers tightly closed in a dry, cool and well-ventilated place. |
| **Incompatible materials** | Strong oxidizing agents. |

## 8. Exposure Controls / Personal Protection

**Control parameters**

**Exposure Limits** The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|---|---|---|
| Trade Secret Aliphatic Hydrocarbon | TWA: 200 mg/m³ (total hydrocarbon vapor) | TWA (Mist): 5 mg/m³ | - |

**Appropriate engineering controls**

**Engineering controls** Showers
Eyewash stations
Ventilation systems.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection** Tight sealing safety goggles.
**Hand protection** Wear suitable gloves. Impervious gloves.

**Skin and body protection** Wear suitable protective clothing. Long sleeved clothing.
**Respiratory protection** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
**Environmental exposure controls** Do not allow into any sewer, on the ground or into any body of water. Prevent product from entering drains.
**General hygiene considerations** Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing.

## 9. Physical and Chemical Properties

**9.1. Information on basic physical and chemical properties**

**Physical State:** Liquid
**Appearance:** Emulsion
**Color:** White to off-white
**Odor:** Mineral oil-like
**Odor Threshold:** No information available

| Property | Values | Remarks • Method |
|---|---|---|
| **pH:** | 4 | |
| **Salt Out Point:** | | No information available |
| **Melting Point/Freezing Point:** | | No information available |
| **Boiling Point/Boiling Range:** | 100 °C / 212 °F | |
| **Flash Point:** | > 100 °C / 212 °F | ASTM D92: Standard Test Method for Flash and Fire Points by Cleveland Open Cup |
| **Evaporation Rate (BuAc=1):** | | No information available |
| **Flammability (solid, gas)** | | Not highly flammable |
| **Flammability Limits in Air:** | | No information available |
| **Upper Flammability Limit:** | | **Lower Flammability Limit:** |
| **Vapor Pressure (mm Hg):** | | No information available |
| **Vapor density (Air =1)** | | No information available |
| **Specific Gravity ($H_2O$=1):** | | No information available |
| **Specific Gravity (2nd value):** | | No information available |
| **Water Solubility:** | Dispersible | |
| **Solubility(ies):** | | No information available |
| **Partition Coefficient (n-octanol/water)** | | No information available |
| **Autoignition Temperature:** | | Not self-igniting |
| **Decomposition Temperature:** | | No information available |
| **Kinematic Viscosity:** | >20.5 mm²/s | |
| **Dynamic Viscosity:** | 1000 mPa.s | |
| **Oxidizing Properties:** | Not fire-propagating | |
| **Explosive Properties:** | Not considered to be an explosion hazard | |

**9.2. Other information**

| | |
|---|---|
| **Softening Point:** | No information available |
| **Molecular Weight:** | N/A |
| **VOC Content(%):** | No information available |
| **Liquid Density** | ca. 1.0 g/cm3 |
| **Bulk density** | No information available |

## 10. Stability and Reactivity

| | |
|---|---|
| **Reactivity** | No information available. |
| **Chemical stability** | Stable under normal conditions. |
| **Possibility of hazardous reactions** | None under normal processing. |
| **Conditions to avoid** | Heat, flames and sparks. |
| **Incompatible materials** | Strong oxidizing agents. |
| **Hazardous decomposition products** | Carbon oxides. Nitrogen oxides ($NO_x$). |

## 11. Toxicological Information

**Information on likely routes of exposure**

**Product Information**

| | |
|---|---|
| **Inhalation** | Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. |
| **Eye contact** | Specific test data for the substance or mixture is not available. Irritating to eyes. (based on components). Causes eye irritation. |
| **Skin contact** | Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components). |
| **Ingestion** | Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. |

**Symptoms related to the physical, chemical and toxicological characteristics**

**Symptoms** Redness. May cause redness and tearing of the eyes.

**Numerical measures of toxicity**

Not applicable

**Acute Toxicity:**

**Unknown Acute toxicity** No information available

**Component Information**

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

| | |
|---|---|
| **Skin corrosion/irritation** | Classification based on data available for ingredients. Irritating to skin. |
| **Serious eye damage/eye irritation** | Classification based on data available for ingredients. Irritating to eyes. |
| **Respiratory or skin sensitization** | No information available. |
| **Germ cell mutagenicity** | No information available. |
| **Carcinogenicity** | This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP. |
| **Reproductive toxicity** | No information available. |
| **STOT - single exposure** | No information available. |
| **STOT - repeated exposure** | No information available. |
| **Other Adverse Effects:** | No information available. |
| **Aspiration hazard** | No information available. |

## 12. Ecological Information

**Ecotoxicity** Toxic to aquatic life.

**Persistence and Degradability:** No information available.
**Bioaccumulation:** There is no data for this product.

**Mobility:** Assessment transport between environmental compartments: Adsorption to solid soil phase is expected.
**Other Adverse Effects:** No information available.

## 13. Disposal Considerations

**Waste treatment methods**

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
**Contaminated packaging** Do not reuse empty containers.

## 14. Transport Information

**DOT**

**Description** Not DOT Regulated

## 15. Regulatory Information

**International Inventories**

| | |
|---|---|
| **AICS** | - |
| **TSCA** | - |
| **DSL/NDSL** | - |
| **EINECS/ELINCS** | - |
| **ENCS** | - |
| **IECSC** | - |
| **KECL** | - |
| **PICCS** | - |

**Inventory Legend**

**AICS** - Australian Inventory of Chemical Substances
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
**ENCS** - Japan Existing and New Chemical Substances
**IECSC** - China Inventory of Existing Chemical Substances
**KECL** - Korean Existing and Evaluated Chemical Substances
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**RESTRICTIONS - REACH TITLE VII** No information available

### US Federal Regulations

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and

Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

**SARA 311/312 Hazard Categories**

| | |
|---|---|
| **Acute health hazard** | Yes |
| **Chronic health hazard** | No |
| **Fire hazard** | No |
| **Sudden release of pressure hazard** | No |
| **Reactive hazard** | No |

## U.S. State Right-to-Know Regulations

**California Proposition 65:**
WARNING! This product contains a chemical known in the State of California to cause cancer This product contains chemicals known to the state of California to cause birth defects or other reproductive harm

## 16. Other Information

| | |
|---|---|
| **Prepared By:** | HSE Department |
| **Issue Date:** | 30-Jul-2014 |
| **Revision Date:** | 10-Mar-2020 |
| **Revision Note:** | Reviewed and Re-issued |

**Disclaimer:**
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**