Draft Sediment Quality Study Report

LANGDALE PROJECT (FERC NO. 2341)
AND
RIVERVIEW PROJECT (FERC NO. 2350)

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1.0 INTRODUCTION

Georgia Power Company (Georgia Power) is the Federal Energy Regulatory Commission (FERC) licensee for the Langdale Project (FERC No. 2341) and the Riverview Project (FERC No. 2350) ("Projects" or, collectively, the "Project"). On December 18, 2018[1], Georgia Power filed applications for license surrender and dam removal for the Projects with FERC in accordance with the Commission's regulations at 18 C.F.R. § 6.1 and 6.2. The licenses for the Projects expire on December 31, 2023.

1.1 Project Description

1.2 Langdale Project

The Langdale Project is located on the Chattahoochee River, adjacent to the City of Valley, Alabama and in Harris County, Georgia at river mile (RM) 191.9. The Langdale Project is located approximately 9.5 river miles downstream of the U.S. Army Corps of Engineers (USACE) West Point Dam (RM 201.4), which began operation in 1976 and regulates the flow through the Middle Chattahoochee River region (Figure 1-1).

The Langdale Project was constructed between 1904 and 1908 and purchased by Georgia Power from West Point Manufacturing Company in 1930. The Project operated as a run of river hydroelectric plant. The powerhouse included two vertical and four horizontal generating units. Over time, the four horizontal generating units developed maintenance problems, and eventually were no longer operable. Generation records suggest that Georgia Power stopped operating the horizontal units in approximately 1954. The horizontal units were officially retired in 1960, leaving only the two 520 kilowatt (kW) vertical units operating at the Langdale Project; these two units remain in place in the powerhouse but have not operated since 2009. The run of river project creates an approximately 4.4-mile long impoundment behind the approximately 1,300-foot long, 15-foot tall dam (Figure 1-2).

1.3 Riverview Project

The Riverview Project which includes two separate dams is located approximately at RM 191.0 (Crow Hop Diversion Dam) and RM 190.6 (Riverview Dam) on the Chattahoochee

[1] Accession Number 20181218-5451 and 20181218-54

River, downstream of the City of Valley, Alabama and in Harris County, Georgia (Figure 1-1). The Project is located approximately 10.5 RM downstream of the USACE West Point Project and 0.9 RM downstream of the Langdale Project.

The Project powerhouse is located on the western abutment of Riverview Dam (Figure 1-2). Crow Hop Dam is the upstream dam and is situated across the main river, diverting flow into a headrace channel between an island and the western bank. The headrace channel is approximately 1-mile-long. Riverview Dam (approximately 205-foot long, 12-foot tall) and the powerhouse are located at the lower end of this headrace channel. The Project was constructed in several phases. The smaller downstream dam was constructed in 1906 for West Point Manufacturing Company. Originally, the dam diverted water into the adjacent mill building to provide power for mill operation. The existing powerhouse was built in 1918 and houses two 240 kW generating units. Crow Hop Dam was constructed in 1920. Georgia Power purchased the Riverview Project from West Point Manufacturing Company in 1930 and began operating the two generating units. Over time, the units developed maintenance problems, and eventually were no longer operable or repairable. Georgia Power stopped operating the units in 2009. The Riverview Project previously operated as a run of river project that created an approximately 0.6-mile-long impoundment upstream of the approximately 950-foot long, 9-foot tall Crow Hop Dam.

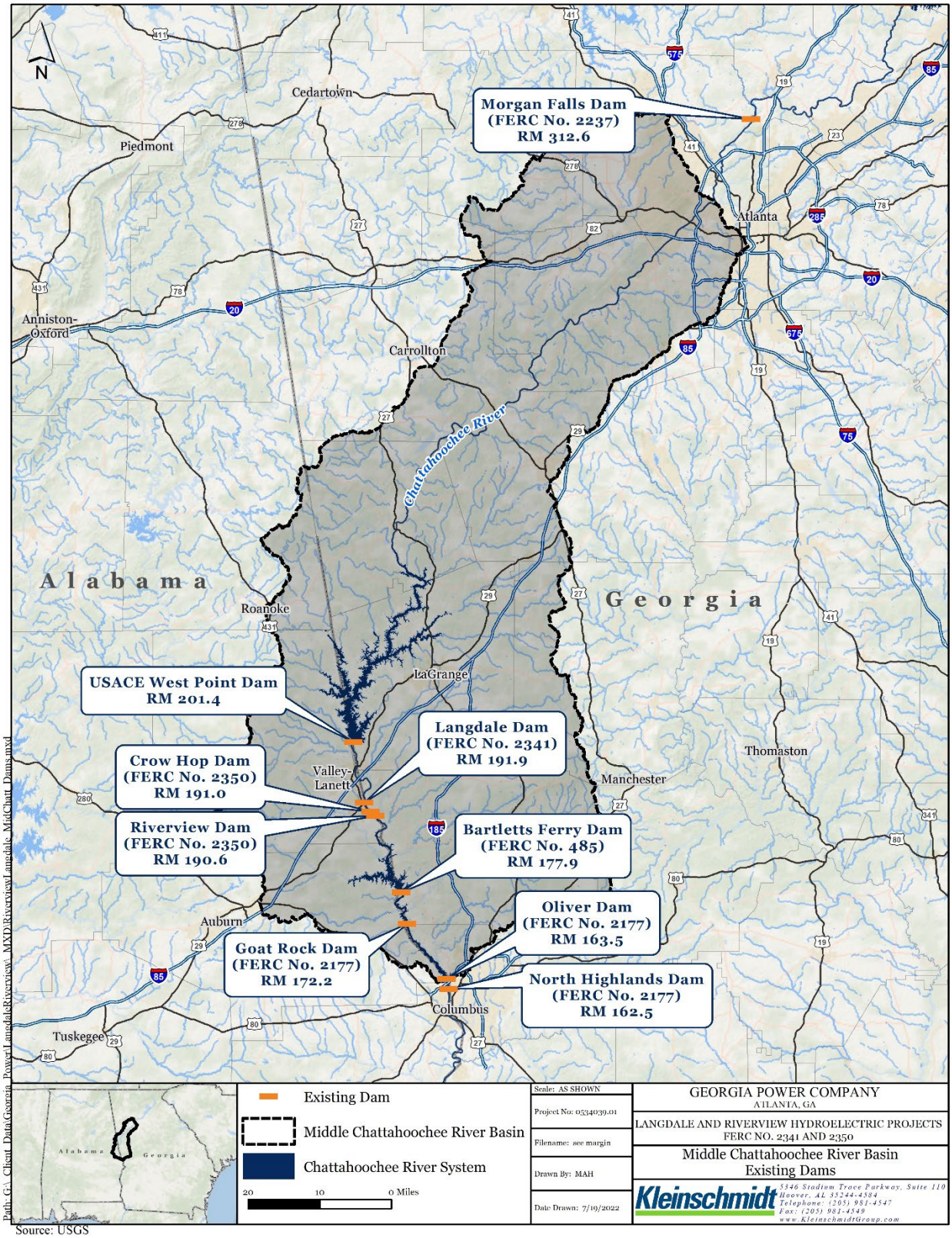

Figure 1-1 Middle Chattahoochee River Basin Existing Dams

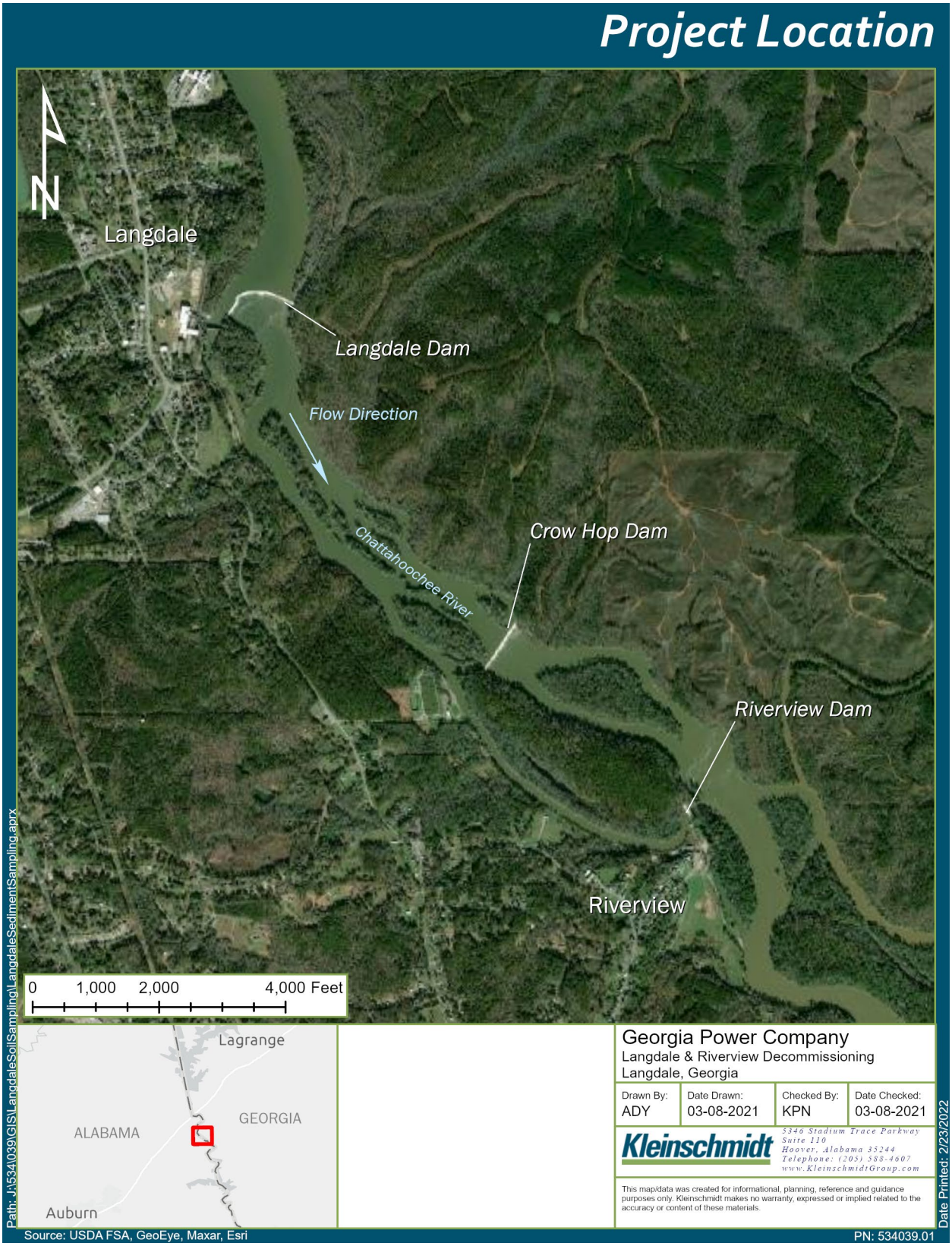

Figure 1-2 Langdale and Riverview Project Locations

1.4 Study Background

Langdale Dam, Crow Hop Dam, and Riverview Dam were constructed over 100 years ago, and each impoundment contains stored sediments. Removal of these three dams will enable the restoration of natural sediment transport processes in the river, including the mobilization of some of the sediment stored behind each dam. These sediments will eventually be transported downstream to Lake Harding (the reservoir for the Bartletts Ferry Project, FERC No. 485, the next downstream reservoir below the Projects). It is important to note that a USDA report (Eakin 1936 and Eakin and Brown 1939) found that the Langdale and Riverview reservoirs were essentially determined to be "filled to the point of practically complete elimination of storage as a factor of power production" in 1936; which was approximately 30 years after the construction of the dams. Based on that finding, the reservoirs likely have passed the incoming sediment load since at least 1936 as there are no recent substantial deposition areas within the Project reservoirs. The time scale for the process of sediment mobilization during and after dam removal and the quality of those sediments is important for assessing impacts to aquatic habitat.

On April 11, 2019, FERC issued an additional information request (AIR) regarding decommissioning studies proposed by Georgia Power. As part of its response, Georgia Power filed the Proposed Study Plan (PSP) on May 24, 2019 to provide additional information on the proposed studies to support its surrender applications for the Projects. Georgia Power filed the Final Study Plan (FSP) on July 24, 2019 and filed the Draft Study reports on September 21, 2020. On October 5, 2020, Georgia Power held a Public Meeting to present the study results to stakeholders. The meeting consisted of an afternoon and an evening session held virtually due to concerns with Coronavirus Disease 2019 (COVID-19). Georgia Power requested that stakeholders submit comments on all draft study reports no later than October 24, 2020. Georgia Power received seven comment letters on the draft study reports (Appendix A).

On November 18, 2020, FERC responded to the draft study reports indicating that Georgia Power had not fully addressed public comments regarding the possible presence of anthropogenic constituents in the Project's sediments. In addition to requesting that Georgia Power estimate the volume of sediment likely to be mobilized and redistributed downstream post-dam removal, FERC asked that Georgia Power characterize the sediments within the Project reservoirs, including a chemical analysis of the sediment to address the potential for chemical constituents (potential constituents) to be present in the impounded sediment. In response, Georgia Power developed the Sediment Testing

Study Plan[2] and Sediment Transport Assessment Study Plan in consultation with resource agencies and filed them with FERC on October 19, 2021.

This *Draft Sediment Quality Study Report* responds to FERC's request for information on sediment characterization and chemical composition. Georgia Power is characterizing the sediment quantity and potential post removal effects in the Draft Sediment Transport Assessment Study Report (Kleinschmidt 2022a). The scope of work for this study was finalized following review and consultation with Georgia Environmental Protection Division, Georgia Wildlife Resources Division, and United States Fish and Wildlife Service. Documentation of consultation is provided in Appendix A.

In 2019, Georgia Power performed a preliminary evaluation of the physical characteristics of the sediments stored upstream of the Projects' dams to understand how the river hydraulics may naturally evacuate the sediment down to the historic riverbed post-dam removal. Georgia Power hired Geotechnical & Environmental Consultants (GEC) to collect sediment borings upstream of all three dams. GEC collected 11 Vibracore borings in August 2019; five upstream of the Langdale Dam, three upstream of Crow Hop Dam, and three upstream of Riverview Dam (Figure 1-3). The borings provided grain size distributions (generally silty sand with traces of fine gravel) and depth to refusal. Generally, the sediment upstream of Langdale Dam varies from 2.3 feet to 8 feet in depth and is deeper on the western side of the river, which is on the inside of the riverbend and where sediment is more likely to accumulate. Based on these borings, there were two above Langdale Dam that showed evidence of a sandy silt residuum (~0.5-1' thick) under a sandy alluvium that may be indicative of sediments that existed on the former shoreline or stream bed prior to the construction of Langdale Dam. Upstream of Crow Hop Dam, the sediment depth varies from 3 feet to 6 feet and is shallowest in the middle of the river and deepest below the most downstream rock weir no. 3 (Figure 1-3). The sediment in the Riverview channel varies from 8 feet to 9 feet in depth and is deepest closest to Riverview Dam.

[2] The Sediment Testing Study Plan title was changed to Sediment Quality Study Plan.

Figure 1-3 2019 Sediment Boring Locations and Depths of Sediment Refusal

Sediments and sedimentation within the Chattahoochee River basin have been assessed at both a basin-wide and individual reservoir level over the past few decades. Auburn University's study of sediment and nutrient storage within reservoirs of the Chattahoochee basin included the reach occupied by the Projects (Waters and Webster 2019). In that study, Auburn University collected sediment cores and surface sediment samples at West Point Lake (the next upstream reservoir above the Projects) and Lake Harding (the next downstream reservoir below the Projects). Analysis of sediments at West Point Lake and Lake Harding show that both reservoirs serve as primary sediment and nutrient traps for the basin. Sediment core chemistry analysis within the basin showed that Lake Harding served as the primary sink within the basin from its construction in 1925 until West Point Dam was constructed in 1975. Concentrations of phosphorous, carbon, nitrogen, and organic matter generally remained stable in Lake Harding prior to 1960, showed a sharp increase associated with the 1960 population boom in the upper parts of the basin, and then a sharp decrease with the construction of West Point Dam. This indicates that West Point Dam may now be the primary sediment sink for the basin. As described in Section 1.4, these smaller Project reservoirs likely accumulated sediment following construction which substantially pre-dates the construction of Lake Harding. Subsequently, periodic, limited erosion and redeposition of sediments occurred as documented in the 1936 USDA report indicating the Project reservoirs had essentially no storage capacity for hydro generation (due to sedimentation). Sediment deposition patterns in Lake Harding suggest that the Projects have achieved sediment equilibrium and have not served as primary sediment sinks for the basin since West Point Dam's construction upstream.

The USGS collected sediment samples below West Point Dam, near the city of West Point, during 1981-1985 and 1988-1989. Grab samples of stream bed sediments and samples of suspended sediments were collected within the water column during high flow events. Sediment analyses are consistent with later findings in Auburn's basin-wide study. Bed sediment analyses throughout the decade were predominantly gravel with varying levels of sand and had almost no silt or clay (USGS 2019). Analysis of the suspended sediment samples found sand and silt, as is typical for this type of sample. The lack of silt and clay in bed sediments suggests that either there is a large fine-sediment sink just upstream (West Point Lake) and/or the river velocity in this area is too high to allow silt and clay to settle out. Since its construction, West Point Lake has functioned as a primary sink for sediments introduced to the basin and the limited fine sediment that may occur in the river below West Point Dam is likely from bank erosion or fine sediment inputs from tributaries below West Point Dam.

In 2012 and 2013,[3] the FERC licenses for the City Mills Dam (FERC Project No. 8519) and the Eagle and Phenix Dam (FERC Project No. 2655) were surrendered and the dams were removed. The dams (hereinafter, the "Columbus Dams") were built between 1880 and 1910 and formerly located on the Chattahoochee River in Columbus, Georgia, approximately 50 river miles downstream of the Projects. The Columbus City Mills Dam was 10 feet high, impounding 684 acre-feet (ac-ft) with 114 surface acres, while the Columbus Eagle and Phenix Dam was 17 feet high, impounding 260 ac-ft with 50 surface acres.[4] In anticipation of removal, the licensees for the Columbus Dams conducted sediment analysis upstream of each dam in 2009 (GEL 2009). Sediment sizes ranged from silty fine-grained sands to coarse grain sands, which is similar to those at the Projects. The Columbus Dams and the Langdale and Riverview Projects also had similar dam heights, impoundments, and watershed land uses, and were surrounded by similar industries.

Sampling of sediment deposits prior to removal of the Columbus Dams detected concentrations of various metal elements and organic compounds that exceeded (GEL 2009) the National Oceanic Atmospheric Association (NOAA) freshwater sediment Threshold Effects Level (TEL) or Probable Effects Level (PEL) screening criteria (Buchman, 2008) or exceeded the 2001 Draft Environmental Protection Agency (EPA) sediment Ecological Screening Values (ESV). The EPA and NOAA provide these screening values for preliminary evaluation of ecological risks to aquatic organisms; however, the EPA and NOAA also recommend that the impact of any potential sediment release be evaluated in the context of the project, considering existing sediment concentrations upstream and downstream of the project site and with input from resource agencies. Most detections exceeding the TEL at the Columbus Dams were of concentrations between the TEL and PEL levels, which is associated with limited potential toxicity conditions that may occur occasionally, depending on the aquatic biota present. A small number of volatile organic, polychlorinated biphenyl (PCB), and pesticide compounds were detected at levels exceeding screening PEL, which indicated the potential for adverse effects to the aquatic ecosystem should sediments become mobilized with subsequent transport downstream where the constituents could become bioavailable. Based on the 2009 report, the Columbus Dams were removed without additional testing or sediment management.

[3] Note that the Eagle and Phenix Dam was removed in 2012 followed by the City Mills Dam in 2013.

[4] Accession No. 20100823-5189

2.0 SEDIMENT QUALITY STUDY GOAL AND OBJECTIVES

As precedent for dam removal investigations in the basin below West Point Dam, the 2009 findings at the Columbus Dams described in Section 1.2 and ultimate dam removal influenced Georgia Power's overall assessment of the Projects' expected sediment quality conditions. Given the Columbus Dams' similar land uses, era of construction (prior to construction of West Point Lake and Lake Harding), and similar dam height and impoundment sizes, Georgia Power proposed to use the results of the sampling at the Columbus Dams to inform the sampling at the Projects.

While the Columbus Dams samples were collected farther downstream, the likelihood exists for similar or related constituents to be found in sediment accumulations upstream of the Projects given the similarities and time scale of watershed influences previously mentioned. Constituents have potentially entered the Projects' reach from upstream non-point and urban runoff, and existing permitted and historical industrial and municipal discharges. Therefore, this focused sediment quality study was conducted to screen potential risks associated with mobilization and transport of accumulated sediments during the proposed dam removal[5]. This *Draft Sediment Quality Study Report* was developed to provide Georgia Power with the information needed to evaluate the presence and geographic distribution of targeted potential constituents from representative sediment samples of the Projects and identify any of those potential constituents that may be of concern based on screening level analysis.

In general, contaminants do not bind to larger mineral grains and are mostly found in silt and clay fractions, and in organic material (e.g., Tansel and Rafiuddin 2016). Accordingly, the sample collection focused on the areas that are anticipated to have finer grain sediments deposited in the reservoir (near the dam, pool areas). For this screening level assessment, a portion of composited and homogenized sample from each sampling location was reserved for grain size distribution analysis to understand the relative percentages of gravel, sand, and silt in each sample.

2.1 Goal and Objectives

The primary study goal was to assess whether targeted chemical constituents are present in sediment accumulated behind the Langdale, Crow Hop, and Riverview dams that may

be mobilized during and after dam removal. The corresponding objectives of the study included the following:

- Implement a strategic, screening level assessment that identifies the presence of potential constituents in the sediment above Langdale, Crow Hop, and Riverview dams.
    - Target sample collection locations in areas representative of finer grain sediments based on channel hydraulics and morphology.
    - Focus on constituents identified as exceeding the Probable Effect Level (PEL) or Ecological Screening Value (ESV) in the downstream Columbus Dams report (GEL 2009), as well as naturally-occurring and anthropogenic trace metals (e.g., arsenic, nickel and selenium).
    - Collect sediment samples containing grain size ranges more likely to be associated with sediment-bound potential constituents (additional grain size analysis will be part of the Sediment Transport Study).
    - Collect, preserve, and handle samples in a manner consistent with EPA Contract Laboratory-accepted methods and chain of custody procedures.
- Compare the resulting detected concentrations against current screening levels (2018 Region 4 Freshwater Sediment ESV criteria).
- Summarize the results in a study report.

Based on the literature review, it was determined that a variety of inorganic and organic constituents may be detected in the samples. Non-point and urban stormwater runoff into the Chattahoochee River can contain numerous chemicals and breakdown (weathered) byproducts including metals, volatile and semi-volatile organic compounds (VOCs, SVOCs), pesticides, PCBs, and polynuclear aromatic hydrocarbons (PAHs) (e.g., Du et al. 2017; Peter et al. 2018). Typical textile mill contaminants include asbestos, mercury, lead, other metals, PCBs, and VOCs (e.g., EPA 2006). Wastewater treatment plant discharges are known to include a wide mix of residual chemicals, including pharmaceutical and personal care products (PPCPs), endocrine disrupting chemicals (EDCs) and odorous compounds (e.g., Chen et al. 2020). Given the wide range of possible outcomes, this study was guided by previous sediment testing on the Chattahoochee River.

2.2 Study Reach

The study reach encompasses the mainstem of Chattahoochee River at the Projects from the impoundment behind Langdale Dam downstream to the head of Lake Harding near

Johnson Island (approximately RM 199.5 to RM 190.0; Figure 1-1). Previous sampling of the river bottom indicated that the dominant sediment load is composed of a tan-brown, silty, fine to coarse sand with a grain size distribution D50 equal to approximately 1 mm (2019 Boring Logs). The river appears to mobilize this sediment readily and transport it through the study reach without extensive deposition. This inference is based on the 1936 report that essentially called these impoundments "full" and a review of the river reach longitudinal elevation profile, which shows a highly irregular thalweg elevation interspersed with exposed bedrock controls upstream of each dam and intervening deep pools (Figure 2-1). Finer grain size distributions have been found in quieter areas affected by backwater and in floodplain deposits, including in samples collected at locations immediately upstream of each Project dam. The profile and grain size distributions from 2019 samples indicate that the area between the dam and the first bedrock control upstream are most likely to have the greatest potential to accumulate sediments; therefore, sampling of sediment for potential constituent testing occurred in the immediate vicinity of each Project dam. The volume and physical characteristics of the sediment are being characterized in the Sediment Transport Assessment Study. Additionally, Georgia Power has conducted a Hydraulics and Hydrology Study (Kleinschmidt 2022b) to inform potential changes in water velocity, depth, and extents post-dam removal.

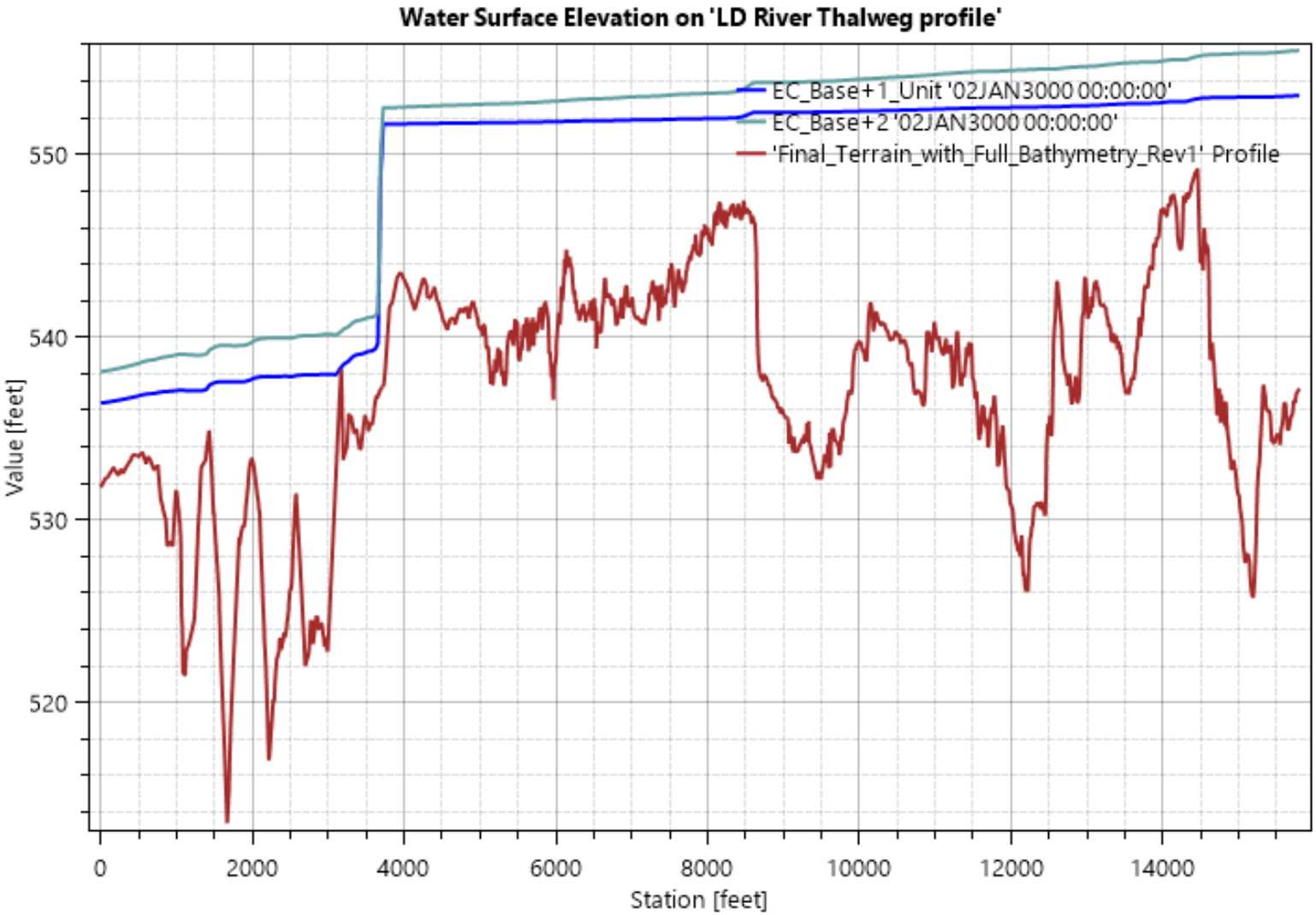

Figure 2-1 Stream Profile above Langdale Dam Showing Variability in Existing Terrain

3.0 METHODS

This study is generally based on the EPA (2018) guidance, as applicable to these Projects, to establish a screening level ecological risk assessment for sediments in the reservoirs prior to dam removal. The sediment quality study involves collecting core samples of sediments at a small number of strategic locations where finer sediments accumulate in the vicinity of each dam. Because the goal is to screen sediment chemistry as an indicator of aquatic environment health (based on published sediment screening values), single samples were collected and analyzed at a limited number of locations. Replicate and baseline samples suitable for a statistically-significant determination were not collected as part of this study because it is premature to attempt to compare concentrations or determine if the samples are statistically significantly different at this screening level analysis.

3.1 Sample Locations

Sampling was performed at five key locations in the study reach where finer sized sediments may have accumulated in response to dam construction, and would be expected to mobilize downstream upon dam removal (Table 3-1 and Figure 3-1). One additional sample was collected both upstream and downstream of the Projects to provide background concentrations at a single point (not for statistical comparison). The sampling distribution is focused on the Langdale impoundment, as any contaminants arriving at the Projects would be deposited in that impoundment because it is the most upstream and largest of the Projects' impoundments (Figure 3-2). One sample was located at Riverview to capture any additional inputs between Langdale and Riverview. (Figure 3-3). Further, the 2019 sampling (Figure 1-2) indicated relatively shallow sediment depths behind the Crow Hop Dam, which is the smallest impoundment; therefore, no sampling was conducted in that area. Note that the sediment testing number is identified as "Q" and the sediment depth probe "SP/PB" refers to the nomenclature used in the Sediment Transport Assessment Study, as some sample points are co-located on the river.

Table 3-1 Sediment Testing Site Details for the Langdale Riverview Dam Decommissioning Studies

Sample ID	Alt. ID*	Lab ID	Lat/Long	General Location	Purpose of Sample
Q1	PB1	180-129488-1	32.854°/ -85.1699°	Left bank (looking downstream), inside bend, submerged sand-silt point bar at very upstream end of Langdale impoundment (approximately 21,000 feet upstream of Langdale Dam)	Characterize upstream conditions at an upstream depositional surface in the Langdale impoundment
Q2	SP6.2	180-129488-2	32.8186° / -85.164°	~1,200 feet upstream of Langdale Dam on submerged sand-silt point bar where river profile appears to indicate start of substantial deposition	Characterize Langdale impoundment sediment
Q3	SP7.2	180-129488-3	32.8159° / -85.165°	~140 feet upstream of the Langdale Dam, near center/deepest point of cross section	Characterize Langdale impoundment sediment
Q4	SP9.2	180-129488-4	32.8144° / -85.167°	~200 feet upstream of the Langdale powerhouse	Characterize Langdale headrace sediment
Q5	N/A	180-129488-5	32.8102° / -85.1666°	Downstream end of Langdale powerhouse tailrace channel	Characterize constituents entering from Moore's Creek
Q6	SP20.3	180-129488-6	32.7926° / -85.1432°	~50 feet upstream of Riverview Dam in headrace channel, downstream of wastewater treatment plant outlet	Characterize Riverview sediment
Q7	N/A	180-129488-7	32.7719° / -85.1232°	Right bank, inside bend, submerged sand-silt point bar approximately 11,500 feet downstream of Riverview Dam	Characterize downstream sediment on a depositional surface

* For equivalent sampling site in the Sediment Transport Assessment Study

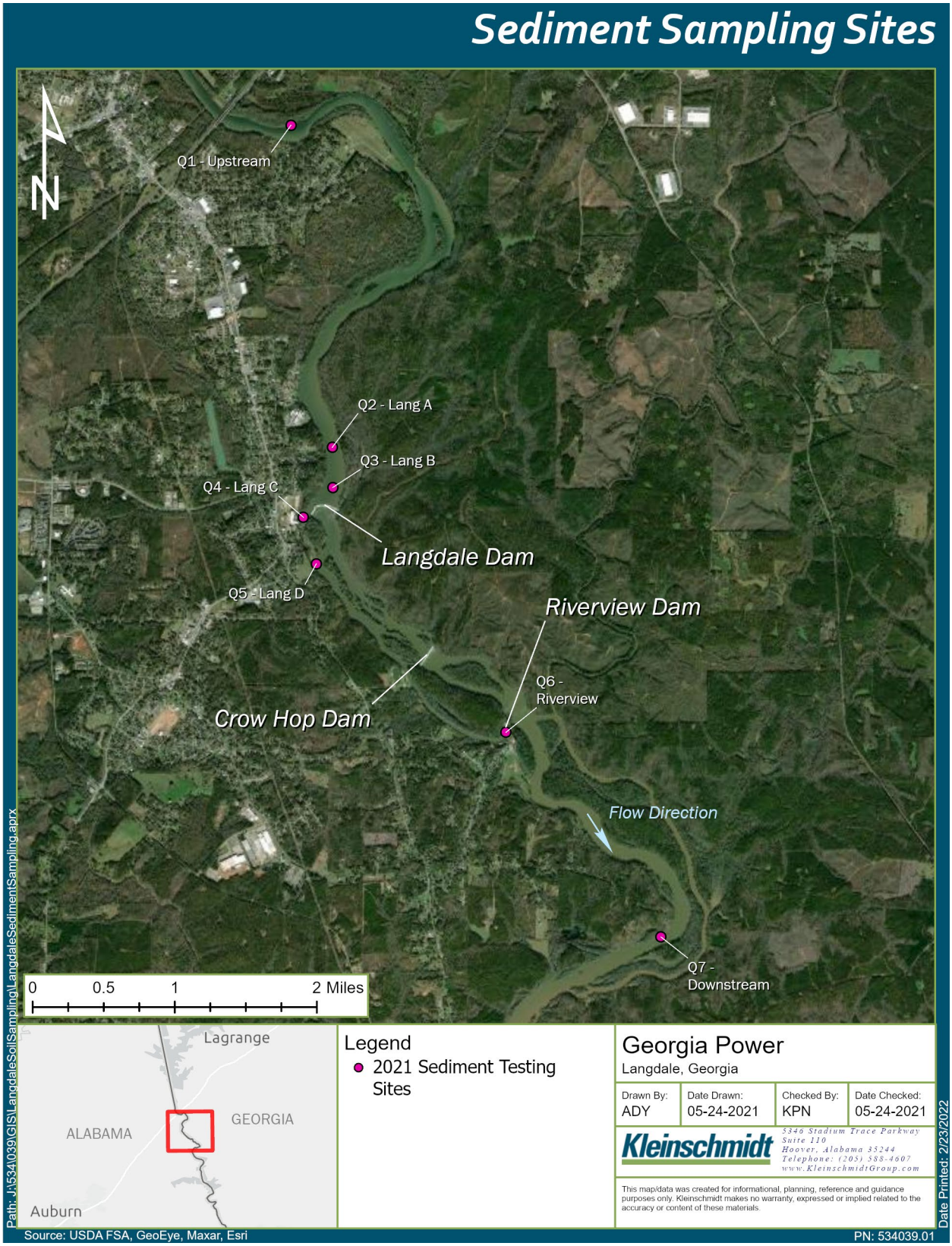

Figure 3-1 Overview of Sediment Testing Sites

Figure 3-2 Langdale Sediment Testing Sites

Figure 3-3 Riverview Sediment Testing Sites

3.2 Core Collection Method

Samples were collected and analyzed in general accordance with the 2001 EPA "Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual". Samples were collected using a boat-mounted sediment Vibracore sampler at each location by driving the sampler down through the sediments until refusal. For validation, a probing rod was driven to refusal at the same location with both depths of refusal documented to ensure the core sample represents the available sediment profile at each site. To match the depth probes completed for the Sediment Transport Assessment Study the Vibracore sampler was driven to refusal for all sample collections. The field crew ensured that the sample collected was representative of the full sediment depth at the location of the sample by comparing the core length to the probing rod depth. Georgia Power coordinated with the USACE to sample during the base flow releases from West Point. Sampling occurred after flow had steadied at its approximate base flow conditions, or otherwise under safe working conditions.

The sampling regimen consisted of a sub-sample of at least 200 grams of sediment taken from each of three depths within the sediment core at each sampling location:

- Upper third sub-sample: obtained representative sub-sample near the surface of the sediment.
- Middle third sub-sample: obtained representative sub-sample midway down the sample.
- Lower third sub-sample: obtained representative sub-sample at the bottom of the core (near refusal).

The three sub-samples at each sampling location were combined in approximately equal volumetric proportions in the field, resulting in a composite, homogenized sample of at least 600 grams (plus a bulk density sample; Table 3-3) at each sampling location. Each composite sample was labelled, stored, processed, and tested for potential constituents using EPA-approved methods as identified below.

Sediment sampling equipment was decontaminated as follows between locations (ASTM 2000):

- Soap and water wash
- 10 percent nitric acid rinse
- Distilled water rinse

- Acetone or ethanol rinse
- Site water rinse

3.3 Boring Logs

A boring log was developed for each sample, showing visual stratigraphic breaks, and the location coordinates (sub-meter) of the sample collection recorded (Appendix B). At each site, the boring log or field notes included:

- Site information (Project ID, Site ID, GPS coordinates, date, crew, sample method).
- Water depth, sediment depth/core sample length (until refusal), and probing rod penetration depth until refusal (sediment depth verification, should be within 10 percent of Vibracore refusal depth).
- Nature of refusal (e.g., likely bedrock, likely boulder, as can be estimated).
- Apparent physical description (including texture and grain size).
- Depths of any apparent changes in sediment composition (and if a split-sample was taken).

3.4 Chain of Custody Forms

Chain of custody forms were completed during field sampling and maintained with the samples through analysis to ensure proper chain of custody in accordance with the requirements of EPA Region 4's Laboratory Operations and Quality Assurance Manual (2020). Samples were preserved and held in accordance with Table 3-1 of the same EPA Region 4 Manual, in accordance with the most stringent requirement for the samples being analyzed. Note that in general the hold times are 14 days for most analytes and some require <6°Celcius (C) storage, so samples were moved from the field to the laboratory relatively quickly in accordance with EPA guidance (2020).

3.5 Sample Quality Assurance/Quality Control

For internal quality assurance and quality control, the field sampling program included:

- Collection of a field duplicate on 10 percent of the samples (7 samples, submit one field duplicate).
- Placement of a temperature blank with each container (cooler) of samples during transport to the lab.
- A matrix spike/matrix spike duplicate sample for each analytical method (used to determine the presence or absence of matrix interference).

3.6 Physical Sample Testing

Each sediment sample was tested for physical properties to inform the anticipated entrainment in the restored river reach and for use in the Sediment Transport Assessment Study. Physical properties measured included:

- Sieve analysis: necessary to develop a sediment grain size distribution curve (min. sieves: 0.5," 0.375," 0.25," #4, #10, #20, #40, #60, #100, and #200; per ASTM D6913).
- Bulk density (per ASTM D7263).
- Specific gravity (per ASTM D854 – 14).

3.7 Testing for Potential Constituents

Each composite sample (and split sample if they were collected) was tested for the potential constituents listed in Table 3-2. The target constituents listed are those found in samples of downstream sediments at the Columbus Dams (as reported in GEL, 2009) that were reported to exceed the 2008 NOAA Freshwater Sediment Probable Effect Levels (PEL) and/or the 2001 EPA Region 4 Sediment Ecological Screening Values (ESV) (Buchman 2008; GEL 2009). Additionally, the composite sediment samples were tested for antimony, arsenic, cadmium, nickel, selenium, silver, chlordane and total dioxins/furans, which were not in exceedance of the criteria in the Columbus Dams sediment sampling results but are constituents of interest relative to the reservoirs before West Point Dam was built (metals) or were found to be high in past watershed sediment studies (chlordane, per Frick et. al., 1998). Samples from the Projects were tested using the analytical methods identified in Table 3-2 and the storage and handling guidance in Table 3-3.

Table 3-2 List of Sediment Quality Parameters Testing and Relevant Criteria

Type	Parameter	Unit (dry weight)	Detection Limit	Analytical Method	ESV*	Columbus Dams Sediment **
Metal	Antimony	mg/kg	0.1	6010D	2	Non-detect
Metal	Arsenic	mg/kg	0.1	6010D	9.8	4.02
Metal	Cadmium	mg/kg	0.1	6010D	1.0	0.37
Metal	Chromium	mg/kg	0.1	6010D	43.4	38.2
Metal	Copper	mg/kg	0.17	6010D	31.6	27
Metal	Lead	mg/kg	0.34	6010D	35.8	43.1
Metal	Mercury (inorganic)	mg/kg	0.003	7470A	0.180	0.250
Metal	Nickel	mg/kg	0.1	6010D	22.7	9.08
Metal	Selenium	mg/kg	0.1	6010D	0.72	3.9
Metal	Silver	mg/kg	0.1	6010D	1.0	1.43
Metal	Zinc	mg/kg	0.7	6010D	121	140
PAH	Total Low Molecular Weight PAHs (LMW-PAHs)	µg/kg	analyte specific	8270E	600	N/A***
PAH	Total High Molecular Weight PAHs (HMW-PAHs)	µg/kg	analyte specific	8270E	1,000	N/A***
PCB	Total PCB Aroclors	µg/kg	100	EPA 8082A	59.8	327.5
Pesticide	4,4′ DDE	µg/kg****	0.18	8081B	1.4	14.2
Pesticide	Chlordane	µg/kg	2.9	8081B	3.2	Non-detect
Dioxin	Dioxins/Furans	µg/kg	analyte specific	1613B*****	0.0025	Not tested

*EPA 2018, Table 2a and 2b for Region 4 Freshwater Sediment Ecological Screening Values for Hazardous Waste Sites

**Maximum sample concentration reported in GEL, 2009

***The testing at the Columbus Dams was for individual PAH's. The current (2018) EPA Screening Level evaluation recommends testing only for Total LMW-PAHs and Total HMW-PAHs. Georgia Power is following the more recent guidance for screening level assessments (EPA, 2018), and as such, the LMW-PAHs and HMW-PAHs will be evaluated as the sum of the individual PAHs in each category. These constituents may have varying detection limits by PAH.

**** µg/kg at 1 percent OC

***** Analytical method 1613B was used to quantify the dioxins/furans results and was summarized using the Toxicity Equivalent Quotient (TEQ)

Table 3-3 Sample Storage and Handling Guidance for Sediment Test Sampling at the Langdale and Riverview Project

Analysis (Method)	Matrix	Container*	Preservation	Minimum Volume (g)	Hold Time (Days)
Metals (ICP)	Sediment	Clear Glass 4 oz Widemouth	Unpreserved	10	14
Metals (SEM)	Sediment	Clear Glass 4 oz Widemouth	Unpreserved	10	90
% Moisture (SM 2540G)	Sediment	Clear Glass 4 oz Widemouth	Unpreserved	10	n/a
Sulfide (AVS; EPA 9034)	Sediment	Clear Glass 4 oz Widemouth	Unpreserved	10	14
PCB (EPA 8082)	Sediment	Amber Glass 8 oz Widemouth	<6° C	50	180
PAH (EPA 8270E)	Sediment	Clear Glass 8 oz Widemouth	Unpreserved	15	14
Pesticides (8081B/8082A	Sediment	Clear Glass 8 oz Widemouth	Unpreserved	15	14
Dioxin (EPA 1613B)	Sediment	Amber Glass 8 oz Widemouth	<4°C / Dark	100	180
Sieve Analysis (ASTM D6913)	Sediment	Any: bag, tube	Unpreserved	200	N/A
Bulk density (ASTM D7263)	Sediment	Original Sampling container (Vibracore)	Unpreserved	6 to 7.5" long sample from the 3inch dia. tube	None - sample to remain undisturbed after sampling.
Specific Gravity (ASTM D854 – 14)	Sediment	Grab sample, 8 oz.	Unpreserved	100	N/A

* Larger containers or multiple containers of the same type may be used if sample sizes exceed these volumes

4.0 RESULTS AND DISCUSSION

The sediment core field collection effort was performed in October 2021. Seven locations were analyzed for sediment bulk chemistry and physical characteristics. Sediment bulk chemistry was analyzed by Eurofins TestAmerica. All constituent concentrations were found to be less than ESVs for all samples.

Summary tables of the analytical results are presented in Table 4-1 and Table 4-2. The complete summary of analytical results is shown in Appendix C. The EuroFins TestAmerica Analytical Reports are presented in Appendix D.

Table 4-1 Analytical Results for Metals Analyzed in Sediment Samples Collected from the Langdale and Riverview Project during October 2021

Analyte	ESV	Sampling Location						
		Q1	Q2	Q3	Q4	Q5	Q6	Q7
Metals: dry-weight (mg/kg)								
Antimony	2	<0.18	<0.2	<0.2	<1.2	<0.18	<0.2	<0.19
Arsenic	9.8	<0.25	0.3	<0.27	<1.6	<0.24	0.295	0.285
Cadmium	1.0	<0.0087	0.031	<0.0095	0.5085	<0.0087	0.0847	0.0796
Chromium	43.4	7.3	1.8	2.1	6.8	1.2	2.6	2.2
Copper	31.6	1.4	1.2	0.72	13	0.3975	0.98	0.94
Lead	35.8	1.3	1.4	1.3	15	0.99	1.6	1.7
Mercury	0.18	<0.003	<0.0032	<0.0032	<0.0039	<0.003	<0.0032	<0.0031
Nickel	22.7	3.3	0.88	0.82	3.2	0.6275	1.4	1.2
Selenium	0.72	<0.073	<0.076	<0.077	<0.092	<0.071	<0.076	<0.076
Silver	1.0	<0.027	<0.029	<0.029	<0.17	0.0885	<0.029	<0.028
Zinc	121	6.3	6.7	7.3	43	2.8	13	10

Table 4-2 Analytical Results for PAHs, PCBs, and Pesticides in Sediment Samples Collected from the Langdale and Riverview Projects during October 2021

Analyte	ESV	Sampling Location						
		Q1	Q2	Q3	Q4	Q5	Q6	Q7
PAHs, PCBs, and Pesticides: dry-weight (µg/kg)								
Total Low Molecular Weight PAHs (LMW-PAHs)	600	1.8	<5.97	<5.97	60.5	1.7	<6	170.8
Total High Molecular Weight PAHs (HMW-PAHs)	1,000	7.1	<16.11	<16.11	511	25.8	<16.22	650
Total PCB Aroclors	59.8	0.26	<1.008	<1.007	<1.182	0.54	0.22	0.18
Chlordane	3.2	<0.21	<0.23	<0.23	<0.27	<0.21	<1.1	<0.22
4,4′ DDE	1.4	<0.01	<0.011	<0.011	<0.013	<0.0099	<0.054	<0.01
Dioxins/Furans	0.0025	0.00041	0.00012	0.0001	0.0023	0.00032	0.000097	0.00023

Table 4-1 and Table 4-2 include screening values that were requested by Georgia Power for evaluation of the sediment data. The sediment bulk chemistry data are compared to the EPA 2018, Tables 2a and 2b for Region 4 Freshwater Sediment Ecological Screening Values for Hazardous Waste Sites. As stated in the EPA's document titled "Region 4 Ecological Risk Assessment Supplemental Guidance – March 2018 Update", the freshwater sediment ESVs are "…derived from statistical interpretation of effects databases obtained from the literature, as reported in publications from states such as Florida and Washington, and from other agencies. These benchmarks are generally based on observations of direct toxicity to benthic organisms."

Since none of the sediment sample constituents were detected at or above respective ESVs, potential concerns for ecological risk are not expected due to mobilization of sediments currently stored behind the dams during dam removal activities nor due to natural sediment mobilization following completion of dam removals.

The Unified Soil Classification System (SCS) classification for all seven sediment sampling locations was silty sand with gravel (SM). The "S" part of the classification indicates that

50 percent or more of the coarse fraction is smaller than the No. 4 sieve size. The "M" part of the classification indicates more than 12 percent fines in the silty sand, sand-silt mixture. Water depths ranged from 2 to 11 feet. Sediment depths varied between 1 and 8.3 feet. Recovery depths were sampled between 0.6 and 4.2 feet. The boring log summary is presented in Table 4-3. The boring log report is presented in Appendix B.

Table 4-3 Boring Log Summary for Sediment Samples Collected from the Langdale and Riverview Projects during October 2021

Sampling Location	Description	Water Depth (ft)	Sediment Depth (ft)	Recovery Depth (ft)
Q1	Silty Sand with Gravel (SM)	4.5	1.5	1
Q2	Silty Sand with Gravel (SM)	10	1	0.6
Q3	Silty Sand with Gravel (SM)	9	2.6	1.5
Q4	Silty Sand with Gravel (SM)	3	8	3.5
Q5	Silty Sand with Gravel (SM)	2	8.3	4.2
Q6	Silty Sand with Gravel (SM)	11	2	1
Q7	Silty Sand with Gravel (SM)	7	4.8	2.5

Sieve analysis, bulk density, and specific gravity measurements were performed for each sediment sample. To further analyze the sediment samples' physical characteristics, a grain size distribution was computed from each sieve analysis. The equivalent "percent passing" for 60 percent (D_{60}), 50 percent (D_{50}), 30 percent (D_{30}), and 10 percent (D_{10}) was determined from the grain size distribution. The coefficient of uniformity, C_u, is a crude shape parameter that defines the uniformity of the gradation. For example, a C_u = 1 would be a soil with only one grain size. Very poorly graded soils, such as beach sands, have a C_u of 2 or 3, whereas very well graded soils may have a C_u of 15 or greater. The proportions of gravel, sand, and silt/clay for each sediment sample were determined from the grain size distribution. A summary of the sediment samples' physical characteristics is presented in Table 4-4. The sieve analysis and bulk density report is shown in Appendix E. The specific gravity report is presented in Appendix F. The grain size distribution computations and cumulative frequency plots are shown in Appendix G.

Table 4-4 Grain Size Distribution and Bulk Density for Sediment Samples Collected from the Langdale and Riverview Projects during October 2021

Sieve Analyses	Sampling Location						
	Q1	Q2	Q3	Q4	Q5	Q6	Q7
60% Passing by Weight, D_{60} [mm]	2.84	1.02	0.86	0.12	0.41	1.47	1.14
50% Passing by Weight, D_{50} [mm]	1.23	0.80	0.77	N/A	0.12	0.83	0.87
30% Passing by Weight, D_{30} [mm]	0.59	0.61	0.60	N/A	N/A	0.55	0.66
10% Passing by Weight, D_{10} [mm]	0.27	0.40	0.44	N/A	N/A	0.28	0.46
Coeff. of Uniformity, C_u	10.4	2.5	2.0	N/A	N/A	5.2	2.5
Gravel	18.0%	3.0%	1.1%	0.1%	0.5%	9.4%	0.6%
Sand	81.6%	96.7%	98.7%	44.4%	50.6%	88.5%	99.2%
Silt/Clay	0.5%	0.3%	0.2%	55.5%	48.8%	2.1%	0.2%
Wet Density	116.7	108.3	100.3	113.6	111.8	117	111.7
Dry Density	105.2	90.1	86.1	84.7	88.2	97	87.9
Moisture	10.9	20.2	16.5	34.2	28.7	20.6	27.2
Specific Gravity of soil @ 20°C	2.680	2.650	2.644	2.664	2.669	2.662	2.653

In reference to this study's October 2021 borings, five of the seven composite sediment samples (Q1, Q2, Q3, Q6, and Q7) were primarily comprised of sands based on their grain size distributions (Table 4-4, Appendix G). Contaminants generally do not bind to larger grain sizes such as sands and gravels (e.g., Tansel and Rafiuddin 2016). The chemical analytical results may support this assertion since all analyzed constituents were lower than their respective Ecological Screening Value in the sand and gravel dominant samples. Therefore, the sands and gravels impounded by the Langdale and Riverview dams are not likely to pose a contamination risk even if they are suspended in the water column during the proposed dam removal.

The focus of this sediment quality study was to screen potential risks in areas with greater capacity to accumulate finer grained sediments, especially because contaminants are more likely to bind to fine grain sediments such as silts and clays (e.g., Tansel and Rafiuddin 2016). Composite sediment sample Q4 was collected immediately upstream (approximately 200 feet) of the Langdale powerhouse. Composite sediment sample Q5 was collected within the downstream end of the Langdale powerhouse tailrace channel. Samples Q4 and Q5 were comprised of 56% and 49% fine grained sediments, respectively, with the remainder of the mixture being sands. While contaminant concentrations were greater in siltier samples Q4 and Q5 (i.e., cadmium, copper, lead, zinc, PCBs, dioxins/furans) in comparison to the remaining samples, there were no exceedances of the Ecological Screening Values for all analyzed constituents. Therefore, silts and clays are not likely to pose a significant contamination risk even if suspended and transported downstream during dam removal activities.

As reported by the USDA, the Langdale and Riverview reservoirs had maximized their sediment capacity within the first 30 years of their construction. This may suggest that the dams have been passing the incoming sediment load since 1936. The lack of silts and clays in bed sediments suggests that finer grain sediments may be suspended in the water column where high river velocities pass the load downstream to West Point Lake. Based on these observations, substantial deposition of new silts and clays are unlikely to occur. Therefore, the chemical contamination risk assessments and subsequent findings in this report should remain valid during the proposed dam removals.

In conclusion, the supporting evidence indicates that the accumulated sediments do not pose a chemical contamination risk. Limited to no adverse effects to the aquatic ecosystem are expected should the sediments become mobilized with subsequent transport downstream where constituents could become bioavailable to aquatic organisms.

The analytical reports for the sediment samples are presented in the Appendices to this report, as shown in Table 4-5.

Table 4-5 Appendices for Analytical Data

Analytical Data	Appendix
Boring Logs	B
Summary of Analytical Results – Sediment Bulk Chemistry Analyses	C
EuroFins TestAmerica Analytical Report	D
Sieve Analysis and Bulk Density Reports	E
Specific Gravity Reports	F
Grain Size Distributions	G

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APPENDIX A

DOCUMENTATION OF CONSULTATION

Langdale and Riverview Projects - Public Comment Matrix	
Comment by Lanny Bledsoe (Landowner) Accession No. 20201104-0020	**Georgia Power's Response**
I have a personal interest in this matter as I am the largest landowner directly affected by the destruction of the three dams at Langdale, Crow Hop, and River View. I own all of the islands in the river between Langdale and River View and they will be adversely affected if the dams are gone, as will all the shoreline. •The destruction will be caused by the overwhelming flood of water turned loose each day when West Point dam generates. The water in the Langdale/River View area rises several feet quickly with great force and through the years we have seen the effect it has, even with the dams in place. It is my opinion that the dams now act as a protecting buffer and keep the water hitting the islands with full force. However, two islands have already been washed away and are gone. •Some years back, the water force had washed to bank away in the bend above the River View dam and a portion of Riverdale Mill was in danger of falling into the river. I was manager of the mill at that time and a meeting was held with Corp of Engineers to review the situation. Alabama Sector Howard Heflin was in the meeting and after reviewing the evidence, Senator Heflin directed the Corp to line the bank with riprap to protect it. According to tests Georgia Power has done, they are concerned about this same area with the dams down and plan to protect it. •Based on the latest Georgia Power studies just released, at minimum flow level, when West Point is not generating, only canoes and kayaks can travel on the river. These dams have been in place for a hundred years, the ponds behind the dams is a great place to boat, fish, and have recreation. The city of Valley should be greatly concerned about this, they're going to lose an asset. •I've heard a lot of talk about concern for Shoal Bass as a reason to take the dams down. The state of Georgia showed little concern for any fish when they put striped bass in the river. Years ago, we could catch crappie and shad by the thousands at River View dam. Not they are gone, wiped out by the striped bass. Striped bass are not a problem above the dams now, but they will be with the dams gone. •The River View powerhouse was built across an arm of the river. One side of the building was on the Alabama bank and the other side on Hodge Island. The tail race from the powerhouse flowed as it had before the powerhouse was built. Georgia Power's plans are to take the powerhouse down and block the flow of the river. Hodge Island, which I own, will not be an island but will be joined by land to the Alabama side. This will change the original flow of the river and they should not have the power to do this. They used the powerhouse for a hundred years and now want to block the river. •I grew up in River View 84 years ago. The river has been a wonderful place for everyone to enjoy. It has been an asset here for all of my life. Now it will change. Georgia Power used these dams all these years for their business and the generation of electricity. They no longer have any use for the dam, and their plan would change what has been in place, for all of these years. This should not happen.	Georgia Power will evaluate potential erosion on the privately owned islands as part of removal process and post removal monitoring and would, if needed, propose to provide some protection potentially using rock from the dam removal. The Decommissioning Plan (Section 4) specifically addresses bank stabilization in the Riverview headrace channel. The Applicant Prepared Environmental Assessment describes the change in river navigability of various vessels in Section 11. To address public access to the river, Georgia Power is proposing to extend three existing public boat ramps into the river to at least two feet of water depth at the new water surface elevation (measured at West Point minimum flow) following dam removal and river stabilization (see Section 11 of the APEA). Additionally, as discussed in the Recreation Section 11, there are nearby access points at Lake Harding and West Point that provide powered boat recreational access. Regarding effects on Shoal Bass, Georgia Power implemented a Pre-Removal Shoal Bass Abundance and Tracking Study to provide baseline information on Shoal Bass. In addition, Georgia Power is proposing to implement a Post Removal Shoal Bass Abundance and Tracking Study to assess effects of the removal on Shoal Bass in the Project area. Section 8 of the APEA discusses effects of dam removal on Shoal Bass and other aquatic organisms. Georgia Power performed studies to address effects of the decommissioning including: river hydraulics and hydrology (H&H) and potential impacts to aquatic organisms (including shoal bass). Study reports applicable to these comments include: • Final H&H Report • Final Water Quality Report •Draft Sediment Quality Study Report •Draft Sediment Transport Study Report •Final Potential Effects on Dam Removal on Shoal Bass •Pre-Dam Removal Shoal Bass Abundance and Tracking Study Report •Freshwater Mussel Survey Report
Comment by GADNR - WRD Accession No. 20201104-5105	**Georgia Power's Response**
GA Power has completed a series of studies addressing potential changes to existing resources associated with the dam removals. These studies included modeling changes to river hydraulics and hydrology, sediment characterization, and potential impacts to aquatic wildlife, water quality, and cultural resources. Comprehensive modeling of flow distribution and velocity, shoal habitat, and potential impacts to aquatic resources such as the endemic Shoal Bass and native mussel community was also presented. •Wildlife Resources Division finds the studies to be adequate, and we support Georgia Power's indication that sediment distribution will be further investigated during the decommissioning process in consultation with FERC and US Fish and Wildlife Service National Fish Passage Program.	Thank you for your comment and continued consultation.

•We request that WRD be informed of related findings. •Georgia Power maintains ongoing consultation with WRD regarding the decommission and removal of these hydropower projects, and we support the proposed actions and associated studies. The removal of these projects is expected to restore connectivity and riverine characteristics in this reach of the Chattahoochee River, which is expected to benefit fish, wildlife, and aquatic resources. The WRD will remain engaged in the decommissioning process.	
Comment by Valley City Council District 5 (Kendall Andrews) Accession No. 20201105-5000	**Georgia Power's Response**
I have made previous comments opposing the removal of the Langdale, Riverview, and Crow Hop dams. These dams provide the City of Valley and its citizens with an invaluable natural resource. I have many concerns about their removal that I will list below: •The H&H model presented by Georgia Power predicts that both boat ramps located in the City of Valley will be dewatered post removal. Even if the boat ramps are extended, the amount navigable water with a powerboat will be so little that they will be useless. The City of Valley has a large number of older citizens that use the river on a daily basis with powerboats. Many of these people will not be able to drag a canoe or paddle a kayak through the shoals that will be present. Also, many people with disabilities will face the same barriers. Their access to the river will be gone •The restoration of suitable shoal bass habitat has been mentioned as a possible benefit to the removal of the dams. I disagree with this. The only example of dam removal where shoal bass were present in the surrounding waters was in Columbus, GA with the removal of the City Mills and Eagle Phenix dams. Removal of these dams had an extremely negative effect on the shoal bass in this area. There has been no research done on the shoal bass population located in the reservoir below Langdale Dam. It is common knowledge that this is where the best population of shoal bass exists in this area. I believe that there should be some data obtained from this area, if for nothing else, to create a baseline for comparison post removal of the dams. •The virtual format of the public meeting made participation very difficult for much of the community. The list of attendees submitted shows that there were few participants that were not associated with an agency or group. This is one of the only chances for members of the community to have their questions answered and to voice their opinions. The removal of these dams has the potential to devastate the local community. The public meeting should not be rushed to meet a deadline. •I would like to respectively request that the Federal Energy Regulatory Commission require Georgia Power to hold an in-person public meeting once the nation pandemic ends. This will give everyone the opportunity to participate before any decisions are finalized.	The Applicant Prepared Environmental Assessment describes the change in river navigability of various vessels in Section 11. To address public access to the river, Georgia Power is proposing to extend three existing public boat ramps into the river to at least two feet of water depth at the new water surface elevation (measured at West Point minimum flow) following dam removal and river stabilization (see Section 11 of the APEA). Additionally, as discussed in the Recreation Section 11, there are nearby access points at Lake Harding and West Point that provide powered boat recreational access. Regarding effects on Shoal Bass, Georgia Power implemented a Pre-Removal Shoal Bass Abundance and Tracking Study to provide baseline information on Shoal Bass. In addition, Georgia Power is proposing to implement a Post Removal Shoal Bass Abundance and Tracking Study to assess effects of the removal on Shoal Bass in the Project area. Section 8 of the APEA discusses effects of dam removal on Shoal Bass and other aquatic organisms.
Comment by Chattahoochee Riverkeeper (Chris Manganiello) Accession No. 20201105-5077	**Georgia Power's Response**
… Our comments will focus on 3 topics: recreational access; construction process; and aquatic resources. •Recreational Access: -CRK supports safe, continued and enhanced access to the River in the middle of the Project area's middle (Cemetery Road) and the bottom (Lake Harding). This type of access will enable paddlers of varying skill to enter and exit the project area at multiple points. Some existing access points will require extensions and improvement when dam removal reduces pool elevations and river flows. -CRK also supports a new public recreational access point to the river above the Projects. For example, a new proposed park above Langdale on river right would provide safe access above the exposed Langdale shoals.	The new Langdale Park is described in Section 11 of the Applicant Prepared Environmental Assessment and is also referenced in the Decommissioning Plan and 90 percent drawings for the Langdale Project (Appendix D). In addition, the Decommissioning Plan provides details on the construction process, schedule, and post removal monitoring. Regarding effects on Shoal Bass, Georgia Power implemented a Pre-Removal Shoal Bass Abundance and Tracking Study to provide baseline information on Shoal Bass. In addition, Georgia Power is proposing to implement a Post Removal Shoal Bass Abundance and Tracking Study to assess effects of the removal on Shoal Bass in the Project area. Section 8 of the APEA discusses effects of dam removal on Shoal Bass and other aquatic organisms.

For example, see slide 55 from the October 5, 2020 Public Meeting. CRK understands that the City of Valley, Alabama may assume local control and responsibility for recreational assets in the Project area. Foot access to the islands and the river is something that might be considered. CRK understands the managed nature of West Point Dam releases and river flows adds significant risk for people who choose to recreate in the Project area. If a single access point from Langdale to the large adjacent island was available, anglers might appreciate foot access from the west bank to the shoals. •Construction Process: -CRK understands that Georgia Power is developing the details of the construction plan. CRK anticipates those details in the next round of public engagement and document release. CRK is very interested to learn about Georgia Power's plans for egress and river access to conduct physical construction and removal activities. -Additionally, we look forward to reviewing the dam removal schedule, that is, which dam will be removed first and by what methods, and what will Georgia Power intend to do with the dams' debris. -Finally, CRK would also like to know if Georgia Power has any additional plans for pre-construction and post-construction monitoring during the construction process, and specifically for sediment movement as well as quantity and quality. •Aquatic Resources: -CRK is optimistic that removal of the dams in the Project area will enhance aquatic habitat and connectivity for species, including shoal bass. While CRK understands that Georgia Power cannot stock any aquatic species without coordinating with Georgia's Department of Natural Resources Wildlife Resources Division, it would be helpful to understand Georgia Power's plans for pre-construction and post-construction monitoring of aquatic species. -For example, is there a base-line for the shoal bass population, and if post-construction monitoring revealed poor conditions, what might Georgia Power do to improve conditions? It is our understanding that post-construction monitoring in Columbus after the removal of Eagle & Phenix and City Mills dams has been extremely limited. •In closing, CRK remains supportive and hopeful about the prospect of barrier removal in the Middle Chattahoochee River region. Given the unprecedented size, scale and scope of this proposed project, pre- and post-construction monitoring of multiple natural and aquatic resources would greatly aid in the general understanding of the impacts and consequences of barrier removal in large, regulated southeastern river systems.	Georgia Power performed studies to address effects of the decommissioning, as described in the following study reports: • Final H&H Report • Final Water Quality Report •Draft Sediment Quality Study Report •Draft Sediment Transport Study Report •Final Potential Effects on Dam Removal on Shoal Bass •Pre-Dam Removal Shoal Bass Abundance and Tracking Study Report •Freshwater Mussel Survey Report •Archaeological Testing of Two Sites On The Chattahoochee River, 9HS30 AND 9HS31, Harris County, Georgia •Archaeological Survey of 20 Acre Island in the Chattahoochee River, Harris County, GA •Archaeological Reconnaissance Survey of the Chattahoochee River, Harris County, GA •Langdale Dam Marine Remote Sensing in the Chattahoochee River, Harris County, GA •Assessment of Effects for Archaeological Sites 9HS30, 9HS525, 9HS526, 9HS527, 9HS528, 9HS529, 9HS530, 9HS531, 9HS532, and 9HS533.
Based on our review of the study report, we have the following comments: • On Page 5 of the draft study report, GPC stated "searches for relevant contemporary USGS and ADEM data were not found." ADEM sampled Moores Creek, which is one of the main tributaries to the Riverview Project Reservoir, in 2014 and 2016. This data can be found using the Water Quality Data Portal. • We request Georgia Power to continue informing the ADEM of water quality and sediment distribution findings during the decommissioning process.	These comments are addressed in the Final Water Quality Study Report.
Comment by American Rivers Accession No. 20201106-5010	**Georgia Power's Response**
American Rivers fully supports and encourages the removal of these projects for the reasons outline below: •Public safety improvements: On 4/1/2019, one drowning and three injuries occurred at Crow Hop diversion dam as a result of a kayaking accident. Eliminating the low head dams will significantly improve public safety in this reach of river, especially for water recreation activities.	Georgia Power performed studies to address effects of the decommissioning including: river hydraulics and hydrology (H&H), sediment characterization (quality and quantity), potential impacts to aquatic organisms, water quality, and cultural resources. Georgia Power is filing an Applicant Prepared Environmental Assessment (which incorporates study results and analyzes effects on environmental, recreational, and cultural resources), Dam Decommissioning Plan, and the following study reports:

•Sediment release: Based on data provided by GPC, impounded sediment volumes behind the low head dams are negligible compared to overall sediment volume in the system below West Point dam, which has become a sediment sink since its construction. Release of impounded sediments at the removed Riverview & Langdale Dams will renourish sediment-starved downstream habitat for the benefit of aquatic species. •River flow: By definition, low head dams do not store water, therefore removal of the dams will not cause significant changes in flow volume or timing, as the flow of the Chattahoochee River is controlled by US Army Corps of Engineers (USACE) operations at West Point Dam. USACE may elect to hold back flow in West Point Lake during dam removal construction to provide optimal conditions for instream activities. Presence of naturally occurring bedrock shoals will act as grade control for the river once dam removal construction is completed. •Flood risk: According to GPC studies, removing the dams will not increase flood risk, and in fact reduces flood risk at the 1% return, particularly upstream of the Langdale Dam. American Rivers concurs with this finding. •Boat access: due to water elevation changes associated with dam removal, some areas of the river may not be navigable during low flow conditions, even for low draft paddling boats such as canoes and kayaks. However, the public safety benefits of dam removal are critical given the recent fatality and injuries at the Crow Hop dam. It may be possible to negotiate short term flow augmentation from West Point Lake to support schedule water recreation events. It is important to point out that more than adequate access to flat water boating for canoes, kayaks, jon boats, and deeper draft motorized boats exists at West Point Lake and Lake Harding in proximity to the project area. •Aquatic habitat connectivity and species impacted: GA Wildlife Resources Division finds that dam removal will support aquatic habitat connectivity and access for shoal bass, a high-value, rare species identified as a priority species in the GA State Wildlife Action Plan. Chattahoochee Riverkeeper finds the potential reconnection of up to 11 miles of shoal bass habitat and encourages habitat enhancements be included in the project. American Rivers concurs with these positions and supports dam removal for aquatic habitat connectivity to benefit shoal bass. •Infrastructure: American Rivers finds that GPC plan for dam removal incorporates structural adjustments to accommodate continued treated effluent discharges to the Chattahoochee River. •Public engagement: Based on materials provide by GPC, American Rivers finds that public engagement was sufficient to provide critical information about the project to surrounding property owners, river interest groups, cognizant agencies, and stakeholders. •Water quality: American Rivers has documented the impacts of low head dams on water quality including decreased dissolved oxygen and increased thermal profile at numerous locations around the country. We concur with GPC's finding that dam removal will not negatively impact the water quality of the Chattahoochee River.	• Final H&H Report • Final Water Quality Report •Draft Sediment Quality Study Report •Draft Sediment Transport Study Report •Final Potential Effects on Dam Removal on Shoal Bass •Pre-Dam Removal Shoal Bass Abundance and Tracking Study Report •Freshwater Mussel Survey Report •Archaeological Testing of Two Sites On The Chattahoochee River, 9HS30 AND 9HS31, Harris County, Georgia •Archaeological Survey of 20 Acre Island in the Chattahoochee River, Harris County, GA •Archaeological Reconnaissance Survey of the Chattahoochee River, Harris County, GA •Langdale Dam Marine Remote Sensing in the Chattahoochee River, Harris County, GA •Assessment of Effects for Archaeological Sites 9HS30, 9HS525, 9HS526, 9HS527, 9HS528, 9HS529, 9HS530, 9HS531, 9HS532, and 9HS533.
Comment by American Rivers Accession No. 20201106-5011 - Duplicate of above comments	**Georgia Power's Response - see above**
Comment by Chattahoochee Riverkeeper (Chris Manganiello) Accession No. 20201106-5011 - Duplicate of above comments	**Georgia Power's Response - see above**
Comments by Federal Energy Regulatory Commission Accession No. 20201118-3015	**Georgia Power's Response**
H&H	
As noted in our August 15, 2019 letter, several stakeholders raised concerns regarding the composition of the sediment and the possible presence of contaminants within it. The H&H study fails to characterize the sediments found within the projects' reservoirs and instead speaks mostly to sediments elsewhere in the river	Georgia Power conducted a standalone Sediment Quality Study and is filing a Draft Sediment Quality Study Report concurrent with the Dam Decommissioning Plan and Applicant Prepared Environmental Assessment to address specific comments on sediment. The Final H&H Study Report incorporates by reference the Draft Sediment Quality Study Report.

Langdale and Riverview Projects - Public Comment Matrix	
basin. Additionally, Appendix C only includes data for the borings within the proposed constructed channel through the island between Langdale Dam and Powerhouse. •You must revise the H&H study report to characterize the sediments within the project reservoirs and include the associated data.	
The H&H study fails to explain why you did not perform a chemical analysis of the sediment and does not speak to the concerns related to possible contaminants in any meaningful way. You must explain the appropriateness of the comparisons in the H&H study to other sampling completed within the river basin due to the following conditions: 1) West Point Dam was more recently constructed and some of the sampling was performed in the riverine section just below the dam; and 2) the City Mills and Eagle Phenix Dams were located downstream of Lake Harding and had smaller impoundments with characteristics that made them less likely to trap sediment. •You must revise the H&H study report to reassess the need for chemical analysis based on project specific circumstances.	Georgia Power conducted a standalone Sediment Quality Study and is filing a Draft Sediment Quality Study Report concurrent with the Dam Decommissioning Plan and Applicant Prepared Environmental Assessment. The Draft Sediment Quality Study Report provides a chemical analysis of the sediment and documentation of consultation. As applicable, the Final H&H Study Report incorporates by reference the Draft Sediment Quality Study Report.
The H&H study fails to explain how the number and locations of the sediment borings were determined, or explain their adequacy of lack thereof (e.g., see pages 31 and 52 – "borings did not provide enough information for interpolation"). •You must revise the H&H study report to include an explanation of the appropriateness and adequacy of the locations and number of borings completed.	Georgia Power conducted a standalone Sediment Transport Study and is filing a Draft Sediment Transport Study Report with the Dam Decommissioning Plan and Applicant Prepared Environmental Assessment. The Final H&H Study Report incorporates by reference the Draft Sediment Transport Study Report.
The H&H study fails to address sediment quantity (estimated to be 516-acre-feet or approximately 832,500 cubic yards), post removal sediment transport, and associated impacts in any meaningful way. •Either the Decommissioning Plan or the revised H&H study report must include a thorough analysis of the post removal sediment impacts, considering specific metrics such as erosion, scouring, incision, accretion, etc., stemming from the initial and prolonged changes in flow dynamics during and following dam removals. •You must also include specific analyses of these impacts to aquatic organisms, as described below.	Georgia Power has addressed the sediment quantity in the Draft Sediment Transport Study Report along with responses to each of the specific metrics described by FERC. Potential effects on aquatic organisms are described in the Applicant Prepared Environmental Assessment and in the Draft Sediment Transport Study Report.
•Either the Decommissioning Plan or the revised H&H study report must include a discussion of post-removal streambank erosion.	The Decommissioning Plan discusses post removal streambank erosion.
The H&H study indicates two boat launches will be dewatered as well as the loss of motorboat access to most of the study reach but fails to discuss the impacts or possible mitigation measures. •Either the Decommissioning Plan or the revised H&H study report must include a discussion of impacts and possible mitigation measures.	The Decommissioning Plan and the Applicant Prepared Environmental Assessment discuss Georgia Power's proposed protection, mitigation, and enhancement measures to address access to existing public boat ramps.
The H&H study contains the following error message in several locations (e.g., pages 25, 52, 53, and 74): "Error! Reference source not found." Please correct these reference errors.	Error corrected in the Final H&H Study Report.
Shoal Bass & Water Quality	
In the shoal bass literature review, you included a histogram displaying predicted acres of existing and post-removal optimal habitat for shoal bass. You state that the data were generated from output from the Hydrologic Engineer Center – River Analyses System (HEC-RAS) modeling and analyzed with GIS, however, you did not provide supporting evidence (methods, data, maps, etc.) to substantiate those conclusions. •Either the Decommissioning Plan or a revised shoal bass literature review must include such evidence to adequately support your conclusions.	Georgia Power conducted a standalone Pre-Dam Removal Shoal Bass Abundance and Tracking study that includes methods, data, maps, and conclusions.

Langdale and Riverview Projects - Public Comment Matrix	
Similarly, you state in the water quality study report that conclusions were made based on modeling results; however, the methods you used were not described in the report, nor were any pertinent supporting materials to substantiate the statements that: -The decommissioning and removal of Crop Hop and Riverview Dams will result in a minimum flow of at least 193 cubic feet per second in the Headrace Channel [thereby not impacting the Valley Wastewater Treatment Plan permitted effluent discharge]; -and If the projects' dams are removed, the resulting lower water levels and higher water velocities in the affected reach of the Chattahoochee River would provide an alternative means of physical aeration as the water passes through exposed shoals. •Because there are gaps in your conclusions, you must address the items above in either the Decommissioning Plan or a revised water quality study report by providing such evidence to adequately support your results. Regarding minimum flows in the headrace channel, please also include documentation of correspondence with Valley Wastewater Treatment Plant for our review.	These comments are addressed in the Final Water Quality Study Report. Note that the consultation for the Valley Wastewater Treatment Plant was conducted with the East Alabama Water, Sewer, and Fire Protection District.
Aquatic Resources	
The H&H study does not address the specific methods that will be used in the removal of each individual dam, nor does it address the rate of drawdowns that each pond would experience as a result of each removal. •The Decommissioning Plan must include the specific means by which the dams would be removed, including the anticipated rate of drawdown (to natural river channel) that would occur under each scenario.	Specific information on the removal of each dam and the Riverview Powerhouse is provided in the Decommissioning Plan, along with the construction sequence, schedule, and drawdown information.
As noted above, the H&H study does not provide an adequate analysis of sediment transport during and following dam removals. Further, there is no analysis of potential effects to mussel beds or other aquatic organisms in the shoal bass or mussel studies. •The Decommissioning Plan must include an analysis of the potential impacts of sediment transport to aquatic organisms (i.e., sedimentation of mussel beds, habitat loss/creation, etc.), based on the revised H&H study report as directed above.	These issues are addressed in the Applicant Prepared Environmental Assessment.
Regarding aquatic organisms that may become stranded in dewatered areas during and following dam removals, there is no mention of a plan for surveys and/or rescue efforts in either the mussel or shoal bass studies. •The Decommissioning Plan must include a plan to survey for stranded aquatic organisms during each dam removal, including methods for rescue/relocation if stranded organisms are found. This plan must be based on your previous bathymetry models, as well as your pending analysis of anticipated rates of reservoir drawdown as directed above.	The Draft Aquatic Organism Recovery Survey and Relocation Plan is discussed in the Decommissioning Plan and the Applicant Prepared Environmental Assessment. In addition, the draft Aquatic Organism Recovery Survey and Relocation Plan is provided as an appendix to the Decommissioning Plan.
Cultural Resources	
On September 21, 2020, you filed archaeological surveys completed for the Langdale and Riverview Projects with the Commission. However, you did not include consultation from the Georgia and Alabama State Historic Preservation Officers (Georgia and Alabama SHPOs) regarding the review of archaeological surveys in your filing. •In our review of the archaeological surveys, we expect your Decommissioning Plan filing to include a draft Memorandum of Understanding (MOA) that memorializes the mitigation of any adverse effect to historic properties that would result from your proposals. •Additionally, you should include documentation of your consultation with the Georgia and Alabama SHPOs and how you addressed any of their comments in the MOA.	Consultation with the SHPOs has been ongoing during the study phase and this documentation is provided in the Consultation Summary as appendices to the concurrently filed Privileged cultural resource reports. After the study report review concluded, Georgia Power drafted an MOA that went out on July 1, 2022 to Alabama and Georgia SHPOs as well as Alabama-Coushatta Tribe of Texas, Alabama-Quassarte Tribal Town, Coushatta Tribe of Louisiana, and the Muscogee (Creek) Nation. Georgia Power did receive comments from the SHPOs and is currently addressing those comments in the MOA; a 2nd draft MOA will be sent back out to the same July 1st groups by middle to late August 2022. Georgia Power anticipates receiving any further comments and addressing them by about early October. Georgia Power will submit documentation of the MOA drafts and MOA consultation in a separate submittal to FERC in October 2022.

Langdale and Riverview Projects - Public Comment Matrix	
Other Issues	
Several comments were filed in response to the October 5, 2020 virtual study result meetings. •You are expected to respond to those comments either as part of the study report revisions requested above or in the Decommissioning Plan to be filed with the Commission.	Comments are addressed in the Draft and Final Study Reports, Decommissioning Plan, and/or Applicant Prepared Environmental Assessment.
We remind you that our analysis of the surrender and decommissioning is based only on information filed on the record for these proceedings. •To help prevent the need for additional future studies and information requests, we again recommend that you document the detailed methods, consultation process, development, and implementation of these studies. Additionally, each study report should include each party's concurrence and/or comments, and explanations of how you addressed the comments.	The Study Reports include the associated documentation of consultation.

U.S. Fish and Wildlife Service

From: Bauer, Eric F <eric_bauer@fws.gov>
Sent: Wednesday, September 8, 2021 2:46 PM
To: Dodd, Anthony Ray <ARDODD@southernco.com>
Cc: Maholland, Peter D <peter_maholland@fws.gov>; Doresky, John <John_Doresky@fws.gov>
Subject: Re: [EXTERNAL] Langdale/Riverview Dam Decommissioning Sediment Testing Study Plan

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Tony,

Thanks, no need for the appendices. Both the sediment transport assessment and draft sediment testing study plans look good to me and seem well-reasoned for this stage (screening level assessment). I look forward to seeing/reviewing the study reports that result from these studies. As we discussed in our meeting the other day, the proposed sampling protocol should be able to identify any contaminants issues and if any are identified it may be necessary to further map the extent of deposited contaminants and for finer scale analyses regarding depths at which they're deposited. But there's no need to explore that path unless or until contaminants are identified. Thanks for the opportunity to review this study plan. Please let me know if you need my comments in the form of a more official letter; I think GPC has included email correspondence in their FERC filings before, but it's no problem to provide a letter if you need it.

-Eric

Eric F. Bauer, PhD
(he/him/his)
Fish and Wildlife Biologist
Georgia Ecological Services
US Fish and Wildlife Service
RG Stephens, Jr. Federal Building
355 East Hancock Avenue, Room 320, Box 7
Athens, GA 30601
Office #: 706-613-9493

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Friday, September 3, 2021 12:39 PM
To: Bauer, Eric F <eric_bauer@fws.gov>
Subject: RE: [EXTERNAL] Langdale/Riverview Dam Decommissioning Sediment Testing Study Plan

Hi Eric,

Thanks for the call earlier.

Here's a copy of the sediment transport study plan. I didn't attached the Appendix A - sediment boring logs. Let me know if you want those as well and I'll send.

Tony

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Friday, September 3, 2021 11:56 AM
To: Bauer, Eric F <eric_bauer@fws.gov>
Subject: Re: [EXTERNAL] Langdale/Riverview Dam Decommissioning Sediment Testing Study Plan

Hi Eric
I'm free from now til about 1:10.
Would be happy to discuss now or next week.
Tony

Get Outlook for iOS [gcc02.safelinks.protection.outlook.com]

From: Bauer, Eric F <eric_bauer@fws.gov>
Sent: Friday, September 3, 2021 11:34:45 AM
To: Dodd, Anthony Ray <ARDODD@southernco.com>
Subject: Re: [EXTERNAL] Langdale/Riverview Dam Decommissioning Sediment Testing Study Plan

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Hey Tony,

Would you have time to discuss this Sediment Testing Study Plan? I feel like it might be easier to talk over the plan and ask questions first and then I can provide feedback in writing, if it's warranted, based on that discussion. I'm free until 2Pm today and most of next week outside of 1-3PM on Tuesday.

-Eric

Eric F. Bauer, PhD
(he/him/his)
Fish and Wildlife Biologist
Georgia Ecological Services
US Fish and Wildlife Service
RG Stephens, Jr. Federal Building
355 East Hancock Avenue, Room 320, Box 7

Athens, GA 30601
Office #: 706-613-9493

From: Doresky, John <John_Doresky@fws.gov>
Sent: Friday, September 3, 2021 10:12 AM
To: Bauer, Eric F <eric_bauer@fws.gov>
Cc: Maholland, Peter D <peter_maholland@fws.gov>
Subject: Fw: [EXTERNAL] Langdale/Riverview Dam Decommissioning

Can you look to make sure there's no red flags? Thanks in Advance. jd

BTW -- See their September 10 return request. jd

John Doresky

Georgia Ecological Services

US Fish and Wildlife Service

Highway 27 @ 1st Division Road

Building 5889

Fort Benning, GA 31905

706-544-6030

706-202-2467 (c)
Email: john_doresky@fws.gov

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Friday, September 3, 2021 9:53 AM
To: Imm, Donald <donald_imm@fws.gov>
Cc: Doresky, John <John_Doresky@fws.gov>
Subject: RE: [EXTERNAL] Langdale/Riverview Dam Decommissioning

Re: Langdale_ Riverview Dam Decommissioning

Don,

I hope all is well with you. I had hoped to circle back to you sooner. We are finally at the point now, following consultations with GA EPD and document refinement, ready to share the Draft Langdale_Riverview Sediment Testing Study Plan (attached as *.pdf) for your review. So that you know, we are also sharing this study plan with ADEM and WRD. If you still have the opportunity at this stage of your recent shift in duties, we hope that you'll be able to review and turn around comments/acknowledgements by 10 September. I've copied John Doresky here. We are hopeful that this stage of the study planning will enable GPC to sample this Fall.

Please let me know if you have any questions.

Best Regards,

Tony

Tony Dodd
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Georgia Power Company
241 Ralph McGill Blvd, NE
Atlanta, GA 30308
Cell: 404-434-9412
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Email: ardodd@southernco.com

Georgia Power

From: Imm, Donald <donald_imm@fws.gov>
Sent: Wednesday, May 26, 2021 7:25 AM
To: Dodd, Anthony Ray <ARDODD@southernco.com>
Cc: Doresky, John <John_Doresky@fws.gov>
Subject: Re: [EXTERNAL] Langdale/Riverview Dam Decommissioning

Yes, please forward, I'll review ASAP, and if possible try to get a signature on our response. John Doresky will be acting once I've left, he is the supervisor in the Ft. Benning office, so he is already aware of the proposed dam removal and the documents shared over the past few years, etc.

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Tuesday, May 25, 2021 3:38 PM
To: Imm, Donald <donald_imm@fws.gov>
Subject: [EXTERNAL] Langdale/Riverview Dam Decommissioning

Hey Don,

I didn't know that I'd bouncing back your way so soon after our recent email.

This note is about making a request of USFWS for the Langdale/Riverview Dam Decommissioning. The project is still moving along. In response to FERC's request for sediment quality characterization, we have developed a study plan for screening level analysis of study area sediment quality in addition to a sediment transport study plan. We believe those will be ready by end of this week. Owing to our schedule intent to sample in July, we think it's time now to seek USFWS' review or, at least, acknowledgement of the proposed study plans. We will be reaching out to EPD and WRD at the same time.

Can I send those to you … assuming that you might review directly or designate?

Tony Dodd
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Cell: 404-434-9412
Desk: 404-506-5026
Email: ardodd@southernco.com

Georgia Power

Georgia Department of Natural Resources

Environmental Protection Division

From: Dodd, Anthony Ray
To: Wiedl, Stephen
Cc: Zeng, Wei; Booth, Elizabeth
Subject: Langdale Riverview - Slide Presentation
Date: Monday, June 14, 2021 5:06:25 PM
Attachments: 2020-10-01 FINAL Slides Combined_Reduced.pdf

Attached are supporting report presentations produced prior to GPC's development of draft study plans for sediment transport and sediment testing.
Thank you for tee-ing up discussion with your risk assessment group to hear their thoughts on our proposed sediment testing approach and perhaps ideas on how best to meet EPD's information needs for a 401 certification determination. Also, if after looking through the presentation slides, if you feel that you'd rather see the actual reports, please let me know and I'll send those along.
Please let us know if you have any questions.

Tony Dodd
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Georgia Power Company
241 Ralph McGill Blvd, NE
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Desk: 404-506-5026
Email: ardodd@southernco.com

From: Dodd, Anthony Ray
Sent: Monday, June 14, 2021 5:47 PM
To: Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>
Cc: Zeng Wei (wei.zeng@dnr.ga.gov) <wei.zeng@dnr.ga.gov>; Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>
Subject: Langdale Riverview

Thanks again for your time earlier today in the discussion on Langdale Riverview Dams decommissioning project.
Per our call action items, please find copies of GPC's draft study plans for Sediment Transport and Sediment Testing (Quality)
I will send a follow-up email to this message with attachments for the previous study reports for water quality, freshwater mussels plus the Hydrology and Hydraulics modeling study.

Tony Dodd
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Desk: 404-506-5026
Email: ardodd@southernco.com

Georgia Power

From: Clark, Jill <Jill.Clark@dnr.ga.gov>
Sent: Monday, June 21, 2021 10:26 AM
To: Wiedl, Stephen
Cc: Potter, Amy; Mahbub, Amin
Subject: FW: Solicit Review/Input per Langdale Riverview Dam Decommissioning Sediment Testing Plan
Attachments: 2021-06-04 Draft Sediment Testing Study Plan.pdf; Langdale Riverview - Sediment Transport & Testing Study Plans; Langdale Riverview - Slide Presentation

Hi Stephan,

The analytes selected to be analyzed in Section 3.3 of the Draft Sediment Testing Study Plan are appropriate. It may be beneficial to analyze for dioxins due to papermills being in the area. Additionally, if surface water samples will be collected in future sampling events, it is recommended to collect hardness data (in mg/L CaCO3) for each sediment sample since hardness-dependent metals are being analyzed.

Please let us know if you would like to discuss further.

Jill Clark
Senior Risk Assessor
Risk Assessment Program
Zoom Phone 470-524-0314 (NEW)
jill.clark@dnr.ga.gov

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

From: Potter, Amy <Amy.Potter@dnr.ga.gov>
Sent: Wednesday, June 16, 2021 8:58 AM
To: Clark, Jill <Jill.Clark@dnr.ga.gov>; Mahbub, Amin <amin.mahbub@dnr.ga.gov>
Subject: FW: Solicit Review/Input per Langdale Riverview Dam Decommissioning Sediment Testing Plan

FYI

Amy M. Potter
Manager

Risk Assessment Program
Land Protection Branch
Zoom phone 470-524-0565 (NEW)

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

From: Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>
Sent: Tuesday, June 15, 2021 7:26 PM
To: Potter, Amy <Amy.Potter@dnr.ga.gov>
Cc: Zeng, Wei <Wei.Zeng@dnr.ga.gov>; Booth, Elizabeth <Elizabeth.Booth@dnr.ga.gov>; Driggers, Nathan <nathan.driggers@dnr.ga.gov>; Dodd, Anthony Ray <ardodd@southernco.com>; Thiery, Devin <devin.thiery@dnr.ga.gov>
Subject: Solicit Review/Input per Langdale Riverview Dam Decommissioning Sediment Testing Plan

Amy,

I wanted to reach out to you in EPD's Risk Assessment Unit to solicit your help to review a draft sediment testing plan which Georgia Power/Kleinschmidt have prepared regarding the planned decommissioning and removal of a series of three low-head dams on the Chattahoochee River above Columbus. Yesterday I, Wei Zeng and Liz Booth had an E-meeting with several folks from Georgia Power/Southern Company on this topic and they (Tony Dodd) have supplied several documents relating to the overall project. Much of the attached material really doesn't pertain to your risk assessment/contaminant review in that it focuses on issues such as bulk river sediment transport, non-contaminant water quality, biological assessments, etc. I believe the area for your focus would be limited to Section 3.3 Sample Testing for Potential (Contaminant (my insertion here)) Constituents within the attached Draft Sediment Testing Study Plan.

If you would be able to review and comment on the sampling target contaminants contained at Section 3.3 it would be appreciated. One issue that we discussed yesterday regarding the draft sediment plan as it stands is that the plan currently would focus on contaminant levels in bulk river bottom sediments. I raised the issue that such an approach may not really get at our 401 WQC concerns about materials as released into the river water column, i.e. that assessment and reporting of this list of analytes may need to include elutriate testing, not simply bulk sediment testing. Of course there are many complex issues about mobilization/release of constituents that may require certain analysis or modeling approaches that have not yet been decided upon. But your input on the issue of elutriate-phase assessment for such contaminants would be helpful.

Thank you very much for your input on this.

Stephen C. Wiedl, PWS
Manager – Wetlands Unit
Georgia Environmental Protection Division
7 Martin Luther King, Jr. Drive, Suite 450
Atlanta, GA 30334

404-452-5060
Stephen.Wiedl@dnr.ga.gov

From: Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>
Sent: Monday, August 16, 2021 5:09 PM
To: Dodd, Anthony Ray <ARDODD@southernco.com>; Zeng, Wei <Wei.Zeng@dnr.ga.gov>; Potter, Amy <Amy.Potter@dnr.ga.gov>
Cc: Smith, Bradley <Bradley.Smith@dnr.ga.gov>
Subject: RE: Langdale Riverview

Tony,

I have reviewed the issues which you describe in your message below and have consulted with my manager Wei Zeng on these topics. What we at EPD Wetlands/401 Unit are able to respond to you at this time is this: Through our consultation and coordination these past weeks we have facilitated EPD's Risk Assessment Unit providing you at Georgia Power/Southern Company with information which will hopefully be informative and worthwhile regarding your development of a sediment assessment study plan. We have also shared to you our thoughts regarding potential elutriate phase assessment of sediments and/or modeling of sediment effects to the Chattahoochee River system as they may be important for our eventual review and potential issuance of a 401 water quality certification at some point in the future. However, in our authorized role focused on 401 WQC administration, we are not in a position to provide any formal agreement with your intent to move forward with the proposed sediment assessment study plan.

We do look forward to working with you in the future as you move into the phase of this project wherein a formal application and review for 401 water quality certification may play out.

Best wishes.

Stephen C. Wiedl, PWS
Manager – Wetlands Unit
Georgia Environmental Protection Division
7 Martin Luther King, Jr. Drive, Suite 450
Atlanta, GA 30334

404-452-5060
Stephen.Wiedl@dnr.ga.gov

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Friday, August 6, 2021 12:01 PM
To: Zeng, Wei <Wei.Zeng@dnr.ga.gov>; Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>; Potter, Amy <Amy.Potter@dnr.ga.gov>
Cc: Smith, Bradley <Bradley.Smith@dnr.ga.gov>
Subject: RE: Langdale Riverview

Wei,

Thanks to you and Steve for responding to our recent question seeking clarification as to whether elutriate sampling is required by EPD as an aspect of GPC's proposed sediment assessment study for the Langdale Riverview Dams decommissioning project. We understand from you at this point that elutriate sampling is not required by EPD as part of the proposed sediment assessment study but may offer a means to help EPD address 401 water quality certification (WQC) for the decommissioning project.

To recap, our inquiries of EPD have been seeking study plan approval by means of a singular sediment-based sampling-strategy that attempts to:

1) address FERC's recent request for GPC to conduct a sediment assessment (which is ecologically focused), and
2) additionally address WQC as required as part of FERC's decommissioning process.

Our consultations with EPD have highlighted the need for GPC to separate the proposed sediment assessment from the 401 WQC process. At this time, we wish to move forward with the ecologically-oriented sediment assessment which would include the targeted list of potential constituents (including dioxins) recently reviewed by EPD's risk assessment unit. Separating current project task needs (sediment assessment) now from the eventual WQC process will allow us to focus on the sediment study that was principally designed to address FERC's inquiry into project sediment quality - rather than water quality. Results of the sediment assessment will satisfy initial investigatory needs surrounding potential concerns to aquatic biota due to dam demolition. Those results may also provide insight toward the eventual 401 certification process.

In addition, as we discussed in recent correspondence, needs for project progression will eventually be subject to USACE Section 404 permitting which itself may inform the 401 WQC process. We are looking forward to the reauthorization/release of applicable permits, and until that happens, uncertainty exists about the timeliness of release date as well as whether a region-specific Nation-wide Permit (NWP), tailored to low-head dam removal, will be available. The sediment sampling proposed to meet FERC's comments will inform additional, future discussion on WQC that may include USACE, ADEM, and others in addition to EPD and GPC.

We are seeking your agreement with our intent to move forward with the proposed sediment assessment study plan as we look forward to engaging the 401 process with EPD at a later time step.

Tony

Tony Dodd
Natural Resources Specialist
Georgia Power Company
241 Ralph McGill Blvd, NE
Atlanta, GA 30308
Cell: 404-434-9412
Desk: 404-506-5026

Email: ardodd@southernco.com

Georgia Power

From: Potter, Amy
To: Wiedl, Stephen
Subject: Fw: GPC Langdale Riverview Dam Decommissioning Project
Date: Thursday, June 2, 2022 5:11:46 PM
Attachments: 2022-05-25 Preliminary Review Draft Sediment Testing Study Report.pdf

---

Hey Stephen, hope you are doing well. I looked over the report. The sediments samples did not exceed EPA Region 4 ecological screening values for sediments. There were 7 samples - very limited given what may be transported downstream when the dams are removed. There was 1 upgradient (Q1), 2 upgradient of Langdale Dam (Q2 & Q3) and 2 at the beginning and end of the Langdale trailrace (Q4 & Q5), 1 sample before the Riverview Dam (Q6) and one downgradient (Q7). The locations were meant to pick up more fines than sand, although most contained a majority of sand (>80%) except for Q4 and Q5 which contains about 50-50 sand and fines. It appears that Q7 (downstream sample) was the most contaminated. I wish they would have taken more samples, but without that, I would say that the dam removal activities should not be detrimental to the ecosystem and the surface water with regards to contaminants in the sediments.

Let me know if you have any questions! Thanks!

Amy

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Thursday, May 26, 2022 2:04 PM
To: Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>
Cc: Potter, Amy <Amy.Potter@dnr.ga.gov>
Subject: RE: GPC Langdale Riverview Dam Decommissioning Project

Steve,

I hope all is well with you. Per your request, I have copied this to Amy Potter.
As anticipated from our most recent communications about the Sediment Testing Study for GPC's Riverview/Langdale Dam Decommissioning Project, we ask that you please find and review the study results in the Review Draft Report attached here.
This the same study effort for which you and Amy had reviewed the prior associated study plan. Although, this report also includes information on certain physical aspects (i.e., composition, grain-sizes, depth, location, etc.) of the project sediments, there is a supporting Sediment Transport Study report (now almost completed) which, based on extensive physical field data collection and hydraulic and hydrologic modelling, predicts estimated volume and timing of sediment transport through and out of the study area in the scenario of dam(s) removal. After your review of the Sediment (Quality) Testing Report, please let us know if you all want/need to see the Sediment

Transport Study Results. We can forward a copy of that to you as soon as it becomes ready. We hope this information will provide a significant building block of information about the nature and quality of sediments in the project area that in turn will help inform decisions about the anticipated temporary effects of water quality in the scenario of future dam(s) removal. We look forward to your comments. Please contact me if you have any questions that I might be able to help with during your review.

Thank you and Best Regards,
Tony

Tony Dodd
Natural Resources Specialist
Georgia Power Company
241 Ralph McGill Blvd, NE
Atlanta, GA 30308
Cell: 404-434-9412
Desk: 404-506-5026
Email: ardodd@southernco.com

From: Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>
Sent: Wednesday, April 27, 2022 8:15 AM
To: Dodd, Anthony Ray <ARDODD@southernco.com>
Cc: Potter, Amy <Amy.Potter@dnr.ga.gov>; Zeng, Wei <Wei.Zeng@dnr.ga.gov>; Smith, Bradley <Bradley.Smith@dnr.ga.gov>
Subject: RE: GPC Langdale Riverview Dam Decommissioning Project

---

Tony,

Following up on the voicemail I left you, I wanted to say that, as mentioned in your message below, I feel that the participation of EPD's Risk Assessment Unit/Amy Potter-Manager would be essential to

our consideration of the upcoming Sediment Testing results report. When that report is finalized, please E-transmit it to Amy Potter and myself. Once Amy has had a chance to review that report we could decide what sort of follow-up discussion or meeting would be appropriate.

As regards your coordination with the Corps on 404 permitting issues, I would respond that we can sit in on any possible virtual meeting you schedule with the Corps. But I don't know that it is really necessary that we participate. The Corps will work out the necessary 404 permit requirements for Langdale Riverview based on their authority and perspective. And we at EPD will address 401 WQC issues which would seem to be primarily triggered by FERC's permitting as the lead federal agency for this project. Correct? Of course the Corps' permitting role will be central to your project, but it seems that it may be characterized as a parallel/secondary role relative what I would think FERC's role to be.

Thank you for your outreach on this project.

Stephen C. Wiedl, PWS
Manager – Wetlands Unit
Georgia Environmental Protection Division
7 Martin Luther King, Jr. Drive, Suite 450
Atlanta, GA 30334

404-452-5060
Stephen.Wiedl@dnr.ga.gov

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Friday, April 22, 2022 11:55 AM
To: Wiedl, Stephen <Stephen.Wiedl@dnr.ga.gov>
Subject: GPC Langdale Riverview Dam Decommissioning Project

Hey Steve,

I hope all is well with you.
I have a longish email message here and I apologize for that up front.
There are two points I want to bring to you for GPC's Langdale-Riverview Dam Decommissioning Project including: results of the Sediment Testing Study and Corps 404 permitting.
The project is still slowly moving forward.

Sediment Testing Study

The Sediment Testing field sampling was completed and the study results report is finally nearing completion. As you'll recall, the sediment testing study assesses sediment chemistry based on ecological screening of targeted parameters (samples collected from depth intervals at and beneath the substrate (to depth refusal)) and as such the study is focused on assessing protection of aquatic organisms per potential dam removal effects. We are inviting you to review and or meet with us to review the study results as they represent the next step toward understanding the environmental quality of the project area, and possibly inform or aid anticipation about potential water column water quality associated with dam removal. It would be beneficial to the course of planning next project steps to hear your thoughts following review. We would be happy to arrange an in-person or virtual meeting instead of emails back and forth. Also, as note and suggestion, during our prior discussions on the Sediment Testing Study Plan review, it was valuable to hear from your counterparts in EPD's Risk Assessment group.

404 Permitting

Part of our project team met yesterday to discuss potential 404 permitting needs for removal of the three dams in the project plus other associated 404 jurisdictional activities. We are aware of the inclusion of NWP53 for low-head dam removal in the recent round of authorizations but because the project includes multiple structures, activities other than dam removal and on a schedule that may have some phased timing, we may be required permit under multiple NWPs or IP's. At this point, we are still not settled on the extent of impacts (until learning more detail from the project engineers). On behalf of GPC, Jennifer Cannon, plus one of our Kleinschmidt consultant representatives, will try arrange a meeting in the near future with the Corps to discuss scope and hopefully nail down a 404 permitting strategy. We are inviting you to join us in that meeting when the time comes as it will directly provide an opportunity for your (EPD) guidance and specifically regarding needs for 401 WQC in the projected permitting matrix.

Please, let me know your thoughts on these meeting opportunities as well as any questions you might have in the meantime.

Thank you,
Have a good weekend!

Tony

Tony Dodd
Natural Resources Specialist
Georgia Power Company
241 Ralph McGill Blvd, NE
Atlanta, GA 30308
Cell: 404-434-9412
Desk: 404-506-5026
Email: ardodd@southernco.com

Georgia Department of Natural Resources
Wildlife Resources Division

From: Rowe, Matthew <matthew.rowe@dnr.ga.gov>
Sent: Monday, September 20, 2021 12:20 PM
To: Dodd, Anthony Ray <ARDODD@southernco.com>
Subject: RE: Langdale Riverview Dam decommissioning

Tony,

I'm sorry for the slow turnaround on this. I've been scrambling to get in as much field work as I can ahead of the weather and before I loose my technician next week. I'm not any kind of expert in sediment analysis, but I read the proposal and it looks to have sensible testing locations and include the contaminants that would be of the most concern so I have no objections to the proposal as it's written. Let me know if you need anything more concrete and I'll take care of it today.

Matthew Rowe
Aquatic Biologist - Freshwater Invertebrates, Wildlife Conservation

Wildlife Resources Division [gcc01.safelinks.protection.outlook.com]
(706) 557-3217 | M: (678) 836-6132

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Buy a hunting or fishing license today! [gcc01.safelinks.protection.outlook.com]

A division of the
GEORGIA DEPARTMENT OF NATURAL RESOURCES

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Monday, September 20, 2021 11:56 AM
To: Rowe, Matthew <matthew.rowe@dnr.ga.gov>
Subject: RE: Langdale Riverview Dam decommissioning

Hi Matt
I hope all is well with you. I'm circling back to learn if you found time to look at the proposed sediment testing study plan for Langdale Riverview Dam Decommissioning Project. Please let me know if you have any questions or comments.
Thanks!
Tony

From: Dodd, Anthony Ray
Sent: Wednesday, September 8, 2021 4:21 PM

To: Rowe, Matthew <matthew.rowe@dnr.ga.gov>
Subject: RE: Langdale Riverview Dam decommissioning

Hi Matt,

I hope all is well with you. It's taken the process a while, but we're final at the point now, following consultations with GA EPD, ready to share the Draft Langdale_Riverview Sediment Testing Study Plan (attached as *.pdf) for your review. Also, in that it will accompany the sediment testing study and its results will provide expanded context, I have attached a copy of the Sediment Transport Assessment Study Plan as well. So that you know, we are also sharing this study plan with ADEM and USFWS. We hope that you'll be able to review and turn around comments/acknowledgements to us by 15 September. We are hopeful that this stage of the study planning will enable GPC to sample this Fall.

Thank you and please let me know if you have any questions.

Kindest Regards,

Tony

From: Rowe, Matthew <matthew.rowe@dnr.ga.gov>
Sent: Friday, June 18, 2021 9:46 AM
To: Dodd, Anthony Ray <ARDODD@southernco.com>
Subject: RE: Langdale Riverview Dam decommissioning

EXTERNAL MAIL: Caution Opening Links or Files

Thanks for the update, Tony. I'd love to see the results of the sediment study!

The weather outlook for the weekend… does not look good for Altamaha River sampling…

From: Dodd, Anthony Ray <ARDODD@southernco.com>
Sent: Thursday, June 17, 2021 5:15 PM
To: Rowe, Matthew <matthew.rowe@dnr.ga.gov>
Subject: Langdale Riverview Dam decommissioning

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Matt
Wanting to keep you up-to-date on the Langdale Riverview dam removal project. Our team has been working steadily to complete study plans for sediment transport as well as sediment quality studies at the request of the FERC.

We consulted with EPD last week on the sediment quality study plan and as soon as we work through any revisions there, we hope to then send the study plans to you /WRD and USFWS for your review/comments. I don't have an exact date yet but will keep you posted. Our summer schedule will be tight as it seems to be every year… We hope to be in the river collecting sediment samples in July if the schedule / review process allows.
Thanks!
Tony

Alabama Department of Environmental Management

From: Haslbauer, Jennifer <jhaslbauer@adem.alabama.gov>
Sent: Monday, September 20, 2021 11:38 AM
To: O'Mara, Courtenay R. <CROMARA@SOUTHERNCO.COM>
Cc: Dodd, Anthony Ray <ARDODD@southernco.com>; Moore, David <djmoore@adem.alabama.gov>; Crabbe, Melissa C. <MCCRABBE@SOUTHERNCO.COM>
Subject: RE: Sediment Testing and Transport Plans for Langdale/Riverview Dam FERC Surrenders

---

Hi Courtenay,

The only feedback we have regarding the draft plans is to update the footnote numbers to superscript throughout page 1-2 of the Draft Sediment Transport Assessment Study Plan.

Thanks,

Jennifer Haslbauer, P.E.
Chief, Standards and Planning Section
Water Quality Branch – Water Division
Alabama Department of Environmental Management
P.O. Box 301463
Montgomery, Alabama 36130-1463
(334) 274-4250
adem.alabama.gov

Mission: Assure for all citizens of the state a safe, healthful, and productive environment

From: O'Mara, Courtenay R. <CROMARA@SOUTHERNCO.COM>
Sent: Friday, September 3, 2021 1:31 PM
To: Haslbauer, Jennifer <jhaslbauer@adem.alabama.gov>
Cc: Dodd, Anthony Ray <ARDODD@southernco.com>; Moore, David <djmoore@adem.alabama.gov>; Crabbe, Melissa C. <MCCRABBE@SOUTHERNCO.COM>
Subject: Sediment Testing and Transport Plans for Langdale/Riverview Dam FERC Surrenders

Jennifer-
Thanks for your patience. As I mentioned in my last email we were in the middle of reviewing with GA DNR-EPD the sediment testing and transport plans that were requested from FERC. We have just finished and as a result have updated the draft sediment testing plan by adding dioxin to our list of analytes for the sediment samples. We are now circulating the draft plans out to y'all and Georgia DNR-Wildlife Resources Division and U.S. Fish and Wildlife Service for input before submitting to FERC. Our goal remains to get out in the field in the next month or so to collect these samples and hopefully wrap

up the results of these final studies and complete the Decommissioning Plan by the end of the year. Depending on when I can contract the field work our final submittal to FERC could shift into the 1st quarter of 2022.

If you would like to provide feedback on the draft plans would you have time to do so in the next 2 weeks?

Thanks so much and enjoy the long weekend!

Courtenay R. O'Mara, P.E.
Hydro Licensing and Compliance Supervisor
Southern Company
241 Ralph McGill Blvd. – Bin 10193
Atlanta, Georgia 30308
Tel 404.506.7219
Mobile 404.797.9432
southerncompany.com

APPENDIX B

BORING LOGS

LANGDALE PROJECT (FERC NO. 2341) AND RIVERVIEW PROJECT (FERC NO. 2350)

BORING LOG NO. Q1

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.854° Longitude: -85.1699°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 4.5'								
	4.5								
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 1.5'		5						
	6.0								
	at 6 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-3

BORING LOG NO. PB-2

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8562° Longitude: -85.1616°

GRAPHIC LOG	DEPTH		INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
		Water Depth 2.6'								
	2.6	**SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 12'		5						
				10						
	14.6	***at 14.6 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:
Boring Completed:
Drill Rig:
Driller:
Project No.: HP215086
Exhibit: A-1

BORING LOG NO. PB-3

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	See Exhibit A-2 Latitude: 32.8402° Longitude: -85.1544°								
	Water Depth 3.2'								
	3.2 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 10'		5 10						
	13.2 ***at 13.2 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-2

BORING LOG NO. SP-1

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.8289° Longitude: -85.1676° DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 9.8'		5						
	9.8 10.4 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 0.6' ***at 10.4 Feet***		10						

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-10

BORING LOG NO. SP-2.1

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	See Exhibit A-2 Latitude: 32.8281° Longitude: -85.1665°								
	Water Depth 6'		5						
	6.0								
	6.5 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 0.5' ***at 6.5 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-33

BORING LOG NO. SP-2.2

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	LOCATION See Exhibit A-2 Latitude: 32.8278° Longitude: -85.1674° DEPTH								
	Water Depth 5'								
	5.0		5						
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 1.75'								
	6.8								
	at 6.75 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-34

BORING LOG NO. SP-2.3

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	See Exhibit A-2 Latitude: 32.8276° Longitude: -85.1683° Water Depth 5'		5						
	5.0 / 5.3 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 0.25' ***at 5.25 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:
Boring Completed:
Drill Rig:
Driller:
Project No.: HP215086
Exhibit: A-35

BORING LOG NO. SP-3

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	LOCATION See Exhibit A-2 Latitude: 32.8264° Longitude: -85.1671° DEPTH								
	Water Depth 5.6'		5						
	5.6 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 3.3'								
	8.9 ***at 8.9 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-38

BORING LOG NO. SP-4

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8245° Longitude: -85.166°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 6.3'		5						
	6.3 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 4.75'		10						
	11.1 *at 11 Feet*								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-39

BORING LOG NO. SP-5

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.821° Longitude: -85.1642°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 7.6'		5						
	7.6 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 1.6'								
	9.2 ***at 9.2 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:
Boring Completed:
Drill Rig:
Driller:
Project No.: HP215086
Exhibit: A-40

BORING LOG NO. SP-6.1

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8186° Longitude: -85.1633°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 8.6'		5						
	8.6 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 2'		10						
	10.6 ***at 10.6 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-41

BORING LOG NO. Q2

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	LOCATION See Exhibit A-2 Latitude: 32.8186° Longitude: -85.164° DEPTH								
	Water Depth 10'		5						
	10.0		10						
	SILTY SAND WITH GRAVEL (SM), Sediment 11.0 Depth 1.0'								
	at 11 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-4

BORING LOG NO. SP-6.3

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8186° Longitude: -85.1648°

DEPTH	GRAPHIC LOG		INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
		Water Depth 7'								
7.0				5						
		SILTY SAND WITH GRAVEL (SM), Sediment Depth 7'								
14.0				10						
		at 14 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:

Boring Completed:

Drill Rig:

Driller:

Project No.: HP215086

Exhibit: A-42

BORING LOG NO. SP-7.1

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8157° Longitude: -85.1642°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 14'		5						
	14.0		10						
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 1' 15.0		15						
	at 15 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:

Boring Completed:

Drill Rig:

Driller:

Project No.: HP215086

Exhibit: A-43

BORING LOG NO. Q3

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.8159° Longitude: -85.165° DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 9'		5						
	9.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 2.6'		10						
	11.6 ***at 11.6 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-5

BORING LOG NO. SP7.3

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8157° Longitude: -85.1662°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 4'								
	4.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 9'		5						
			10						
	13.0 ***at 13 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-44

BORING LOG NO. SP-8

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8155° Longitude: -85.167°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 10'		5						
	10.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment		10						
	11.0 Depth 1'								
	at 11 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-44

BORING LOG NO. SP-9.1

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8145° Longitude: -85.1672°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 3'								
	3.0								
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 13'		5						
			10						
			15						
	16.0								
	at 16 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:
Boring Completed:
Drill Rig:
Driller:
Project No.: HP215086
Exhibit: A-45

BORING LOG NO. Q4

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8144° Longitude: -85.1675°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 3'								
	3.0								
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 8'		5						
	11.0		10						
	at 11 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:

Boring Completed:

Drill Rig:

Driller:

Project No.: HP215086

Exhibit: A-6

BORING LOG NO. SP-9.3

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8144° Longitude: -85.1677°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 4.5'								
	4.5								
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 3.6'		5						
	8.1								
	at 8.1 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:

Boring Completed:

Drill Rig:

Driller:

Project No.: HP215086

Exhibit: A-46

BORING LOG NO. SP-10.1

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8141° Longitude: -85.1675°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 6'		5						
	6.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 6.25'		10						
	12.3 ***at 12.25 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started: | Boring Completed:
Drill Rig: | Driller:
Project No.: HP215086 | Exhibit: A-11

BORING LOG NO. SP-10.2

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8139° Longitude: -85.1677°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 9.2'		5						
	9.2 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 3.6'		10						
	12.8 ***at 12.8 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-12

BORING LOG NO. SP-10.3

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.814° Longitude: -85.168°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 7'		5						
	7.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 5.5'		10						
	12.5 ***at 12.5 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-13

BORING LOG NO. SP-10.4

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8141° Longitude: -85.1681°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 5.7'		5						
	5.7 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 3'								
	8.7 ***at 8.7 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-14

BORING LOG NO. SP-10.5

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8137° Longitude: -85.168°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 6'		5						
	6.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 3.6'								
	9.6 *at 9.6 Feet*								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-15

BORING LOG NO. SP-10.6

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	See Exhibit A-2 Latitude: 32.8137° Longitude: -85.1678° Water Depth 7'		5						
	7.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 1.3'								
	8.3 ***at 8.3 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-16

BORING LOG NO. SP-10.7

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8137° Longitude: -85.1676°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 2.25'								
	2.3								
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 8.3'		5						
	10.6		10						
	at 10.55 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-17

BORING LOG NO. Q5

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8102° Longitude: -85.1666°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 2'								
	2.0								
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 8.3'		5						
	10.3		10						
	at 10.3 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started: | Boring Completed:

Drill Rig: | Driller:

Project No.: HP215086 | Exhibit: A-7

BORING LOG NO. SP-11

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	LOCATION See Exhibit A-2 Latitude: 32.8026° Longitude: -85.1593° DEPTH								
	Water Depth 7'		5						
	7.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 1.5'								
	8.5 *at 8.5 Feet*								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-18

BORING LOG NO. SP-11

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	LOCATION See Exhibit A-2 Latitude: 32.8026° Longitude: -85.1593° DEPTH								
	Water Depth 7'		5						
	7.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 1.5'								
	8.5 *at 8.5 Feet*								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-18

BORING LOG NO. SP-12.1

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	LOCATION See Exhibit A-2 Latitude: 32.8005° Longitude: -85.1576° DEPTH								
	Water Depth 4.2'								
	4.2 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 8'		5 10						
	12.2 ***at 12.2 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-19

BORING LOG NO. SP-12.2

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.8004° Longitude: -85.1577°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 7'		5						
	7.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 4.8'		10						
	11.8 ***at 11.8 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-20

BORING LOG NO. SP-12.3

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.8003° Longitude: -85.1579° DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 10'		5						
	10.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 2'		10						
	12.0 ***at 12 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-21

BORING LOG NO. SP-13

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	See Exhibit A-2 Latitude: 32.7995° Longitude: -85.1563°								
	Water Depth 4.6'								
	4.6								
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 4.3'		5						
	8.9								
	at 8.9 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:
Boring Completed:
Drill Rig:
Driller:
Project No.: HP215086
Exhibit: A-22

BORING LOG NO. SP-14.1

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.7986° Longitude: -85.1551°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 5'								
	5.0		5						
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 4.3'								
	9.3								
	at 9.3 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:
Boring Completed:
Drill Rig:
Driller:
Project No.: HP215086
Exhibit: A-23

BORING LOG NO. SP-14.2

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.7985° Longitude: -85.1553°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 4'								
	4.0								
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 4.6'		5						
	8.6								
	at 8.6 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started: | Boring Completed:

Drill Rig: | Driller:

Project No.: HP215086 | Exhibit: A-24

BORING LOG NO. SP-14.3

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.7985° Longitude: -85.1554°

GRAPHIC LOG	DEPTH		INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
		Water Depth 3.3'								
	3.3	**SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 5.5'		5						
	8.8	***at 8.8 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:
Boring Completed:
Drill Rig:
Driller:
Project No.: HP215086
Exhibit: A-25

BORING LOG NO. SP-15

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.7951° Longitude: -85.1529°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 5.5'		5						
	5.5 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 6.75'		10						
	12.3 ***at 12.25 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started: | Boring Completed:
Drill Rig: | Driller:
Project No.: HP215086 | Exhibit: A-26

BORING LOG NO. SP-16

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.7928° Longitude: -85.1493°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 5'								
	5.0		5						
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 5.8'								
	10.8		10						
	at 10.8 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-27

BORING LOG NO. SP-17

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.7919° Longitude: -85.1475°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 6'		5						
	6.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 5.25'		10						
	11.3 *at 11.25 Feet*								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-28

BORING LOG NO. SP-18.1

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.7916° Longitude: -85.1443°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 5.25'								
	5.3		5						
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 8'								
	13.3		10						
	at 13.25 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:

Boring Completed:

Drill Rig:

Driller:

Project No.: HP215086

Exhibit: A-29

BORING LOG NO. SP-18.2

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.7915° Longitude: -85.1443°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 4.6'								
	4.6								
	SILTY SAND WITH GRAVEL (SM), Sediment Depth 2'		5						
	6.6								
	at 6.6 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:
Boring Completed:
Drill Rig:
Driller:
Project No.: HP215086
Exhibit: A-30

BORING LOG NO. SP-18.3

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.7914° Longitude: -85.1442°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 7'		5						
	7.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 5.5'		10						
	12.5 ***at 12.5 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-31

BORING LOG NO. SP-19

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	See Exhibit A-2 Latitude: 32.7918° Longitude: -85.1435°								
	Water Depth 8.75'		5						
	8.8 9.3 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 0.5' ***at 9.25 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-32

BORING LOG NO. SP-20.2

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION See Exhibit A-2 Latitude: 32.7928° Longitude: -85.1433° DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 5.6'		5						
	5.6 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 5.5'		10						
	11.1 ***at 11.1 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-36

BORING LOG NO. Q6

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.7926° Longitude: -85.1432°

GRAPHIC LOG	DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	Water Depth 11'		5						
	11.0 **SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 2'		10						
	13.0 ***at 13 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started: | Boring Completed:
Drill Rig: | Driller:
Project No.: HP215086 | Exhibit: A-8

BORING LOG NO. SP-20.4

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

GRAPHIC LOG	LOCATION / DEPTH	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
	See Exhibit A-2 Latitude: 32.7924° Longitude: -85.1432° Water Depth 11.25'		5 10						
	11.3 **SILTY SAND WITH GRAVEL (SM)**, Sediment 12.3 Depth 1' ***at 12.25 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-37

BORING LOG NO. Q7

PROJECT: Langdale Dams Sediment Plan

CLIENT: Southern Power Company Inc.
Atlanta, GA

SITE: 59th Street
Valley, AL

LOCATION See Exhibit A-2

Latitude: 32.7719° Longitude: -85.1232°

GRAPHIC LOG	DEPTH		INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
		Water Depth 7'		5						
	7.0	**SILTY SAND WITH GRAVEL (SM)**, Sediment Depth 4.8'		10						
	11.8	***at 11.8 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Vibrocore

Abandonment Method:

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
5031 Milgen Ct
Columbus, GA

Boring Started:	Boring Completed:
Drill Rig:	Driller:
Project No.: HP215086	Exhibit: A-9

APPENDIX C

SUMMARY OF ANALYTICAL RESULTS – SEDIMENT BULK CHEMISTRY ANALYSES

LANGDALE PROJECT (FERC NO. 2341) AND RIVERVIEW PROJECT (FERC NO. 2350)

Table XX
Summary of Analytical Results – Sediment Bulk Chemistry Analyses
Langdale Project (FERC No. 2341) and Riverview Project (FERC No. 2350)

Sample Number	Fraction	Parameter	Units (dry weight)	Detection Limit	Analytical Method	ESV	Result	Qualifier	RL	MDL
180-129488-1	Metal	Antimony SEM	mg/kg	0.1	6010D	2	<0.18	F1	0.30	0.18
180-129488-1	Metal	Arsenic SEM	mg/kg	0.1	6010D	9.8	<0.25		0.30	0.25
180-129488-1	Metal	Cadmium SEM	mg/kg	0.1	6010D	1.0	<0.0087		0.15	0.0087
180-129488-1	Metal	Chromium SEM	mg/kg	0.1	6010D	43.4	7.3	F1, F2	0.15	0.048
180-129488-1	Metal	Copper SEM	mg/kg	0.17	6010D	31.6	1.4		0.74	0.065
180-129488-1	Metal	Lead SEM	mg/kg	0.34	6010D	35.8	1.3		0.30	0.13
180-129488-1	Metal	Mercury (inorganic - aquatic life)	mg/kg	0.003	EPA 7470A	0.18	<0.003		0.0059	0.0030
180-129488-1	Metal	Nickel SEM	mg/kg	0.1	6010D	22.7	3.3	F1, F2	1.2	0.055
180-129488-1	Metal	Selenium	mg/kg	0.1	6010D	0.72	<0.073		0.30	0.073
180-129488-1	Metal	Silver SEM	mg/kg	0.1	6010D	1.0	<0.027		0.0014	0.027
180-129488-1	Metal	Zinc SEM	mg/kg	0.7	6010D	121	6.3	B	3.0	0.078
180-129488-1	LMW-PAH	Anthracene	µg/kg		EPA 8270E		<1		4	1
180-129488-1	HMW-PAH	Benzo[a]anthracene	µg/kg		EPA 8270E		<1.8		4	1.8
180-129488-1	HMW-PAH	Benzo[b]fluoranthene	µg/kg		EPA 8270E		*2.49*	J	4	0.98
180-129488-1	HMW-PAH	Benzo[k]fluoranthene	µg/kg		EPA 8270E		<1.2		4	1.2
180-129488-1	HMW-PAH	Benzo[g,h,i]perylene	µg/kg		EPA 8270E		*2.43*	J	4	0.86
180-129488-1	HMW-PAH	Benzo[a]pyrene	µg/kg		EPA 8270E		<1.7		4	1.7
180-129488-1	HMW-PAH	Chrysene	µg/kg		EPA 8270E		<2.2		4	2.2
180-129488-1	HMW-PAH	Dibenz(a,h)anthracene	µg/kg		EPA 8270E		<2.6		4	2.6
180-129488-1	HMW-PAH	Fluoranthene	µg/kg		EPA 8270E		*2.55*	J	4	1.1
180-129488-1	LMW-PAH	Fluorene	µg/kg		EPA 8270E		<0.78		4	0.78
180-129488-1	HMW-PAH	Indeno[1,2,3-cd]pyrene	µg/kg		EPA 8270E		<2		4	2
180-129488-1	LMW-PAH	Phenanthrene	µg/kg		EPA 8270E		*2.55*	J	4	1.1
180-129488-1	HMW-PAH	Pyrene	µg/kg		EPA 8270E		*2.475*	J	4	0.95
180-129488-1	LMW-PAH	Acenaphthene	µg/kg		EPA 8270E		<1.1		4	1.1
180-129488-1	LMW-PAH	Acenaphthylene	µg/kg		EPA 8270E		<0.87		4	0.87
180-129488-1	LMW-PAH	Naphthalene	µg/kg		EPA 8270E		<0.78		4	0.78
180-129488-1	LMW-PAH	Total Low Molecular Weight PAHs (LMW-PAHs)	µg/kg	analyte specific	EPA 8270E	600	1.8			
180-129488-1	HMW-PAH	Total High Molecular Weight PAHs (HMW-PAHs)	µg/kg	analyte specific	EPA 8270E	1,000	7.1			
180-129488-1	PCB	PCB-1016	µg/kg		EPA 8082A		<0.16	F1	0.5	0.16
180-129488-1	PCB	PCB-1221	µg/kg		EPA 8082A		<0.18		0.5	0.18
180-129488-1	PCB	PCB-1232	µg/kg		EPA 8082A		<0.12		0.5	0.12
180-129488-1	PCB	PCB-1242	µg/kg		EPA 8082A		<0.073		0.5	0.073
180-129488-1	PCB	PCB-1248	µg/kg		EPA 8082A		<0.12		0.5	0.12
180-129488-1	PCB	PCB-1254	µg/kg		EPA 8082A		<0.15		0.5	0.15
180-129488-1	PCB	PCB-1260	µg/kg		EPA 8082A		0.26	J, F1	0.5	0.14
180-129488-1	PCB	Total PCB Aroclors	µg/kg	100	EPA 8082A	59.8	0.26	J, F1		
180-129488-1	Pesticide	Chlordane	µg/kg	2.9	EPA 8081B	3.2	<0.21		0.50	0.21
180-129488-1	Pesticide	4,4’ DDE	µg/kg	0.18	EPA 8081B	1.4	<0.01		0.050	0.010
180-129488-1	Dioxin	Dioxins/Furans	µg/kg		TEQ	0.0025	0.00041			

Sample Number	Fraction	Parameter	Units (dry weight)	Detection Limit	Analytical Method	ESV	Result	Qualifier	RL	MDL
180-129488-2	Metal	Antimony SEM	mg/kg	0.1	6010D	2	<0.2		0.32	0.20
180-129488-2	Metal	Arsenic SEM	mg/kg	0.1	6010D	9.8	0.3		0.32	0.27
180-129488-2	Metal	Cadmium SEM	mg/kg	0.1	6010D	1.0	0.031		0.16	0.0094
180-129488-2	Metal	Chromium SEM	mg/kg	0.1	6010D	43.4	1.8		0.16	0.051
180-129488-2	Metal	Copper SEM	mg/kg	0.17	6010D	31.6	1.2		0.80	0.07
180-129488-2	Metal	Lead SEM	mg/kg	0.34	6010D	35.8	1.4		0.32	0.14
180-129488-2	Metal	Mercury (inorganic - aquatic life)	mg/kg	0.003	EPA 7470A	0.18	<0.0032		0.0064	0.0032
180-129488-2	Metal	Nickel SEM	mg/kg	0.1	6010D	22.7	0.88		1.3	0.060
180-129488-2	Metal	Selenium	mg/kg	0.1	6010D	0.72	<0.076		0.32	0.076
180-129488-2	Metal	Silver SEM	mg/kg	0.1	6010D	1.0	<0.029		0.16	0.029
180-129488-2	Metal	Zinc SEM	mg/kg	0.7	6010D	121	6.7		3.2	0.084
180-129488-2	LMW-PAH	Anthracene	µg/kg		EPA 8270E		<1.1		4.2	1.1
180-129488-2	HMW-PAH	Benzo[a]anthracene	µg/kg		EPA 8270E		<1.9		4.2	1.9
180-129488-2	HMW-PAH	Benzo[b]fluoranthene	µg/kg		EPA 8270E		<1		4.2	1
180-129488-2	HMW-PAH	Benzo[k]fluoranthene	µg/kg		EPA 8270E		<1.3		4.2	1.3
180-129488-2	HMW-PAH	Benzo[g,h,i]perylene	µg/kg		EPA 8270E		<0.91		4.2	0.91
180-129488-2	HMW-PAH	Benzo[a]pyrene	µg/kg		EPA 8270E		<1.8		4.2	1.8
180-129488-2	HMW-PAH	Chrysene	µg/kg		EPA 8270E		<2.3		4.2	2.3
180-129488-2	HMW-PAH	Dibenz(a,h)anthracene	µg/kg		EPA 8270E		<2.7		4.2	2.7
180-129488-2	HMW-PAH	Fluoranthene	µg/kg		EPA 8270E		<1.1		4.2	1.1
180-129488-2	LMW-PAH	Fluorene	µg/kg		EPA 8270E		<0.83		4.2	0.83
180-129488-2	HMW-PAH	Indeno[1,2,3-cd]pyrene	µg/kg		EPA 8270E		<2.1		4.2	2.1
180-129488-2	LMW-PAH	Phenanthrene	µg/kg		EPA 8270E		<1.1		4.2	1.1
180-129488-2	HMW-PAH	Pyrene	µg/kg		EPA 8270E		<1		4.2	1
180-129488-2	LMW-PAH	Acenaphthene	µg/kg		EPA 8270E		<1.2		4.2	1.2
180-129488-2	LMW-PAH	Acenaphthylene	µg/kg		EPA 8270E		<0.92		4.2	0.92
180-129488-2	LMW-PAH	Naphthalene	µg/kg		EPA 8270E		<0.82		4.2	0.82
180-129488-2	LMW-PAH	Total Low Molecular Weight PAHs (LMW-PAHs)	µg/kg	analyte specific	EPA 8270E	600	<5.97			
180-129488-2	HMW-PAH	Total High Molecular Weight PAHs (HMW-PAHs)	µg/kg	analyte specific	EPA 8270E	1,000	<16.11			
180-129488-2	PCB	PCB-1016	µg/kg		EPA 8082A		<0.17		0.53	0.17
180-129488-2	PCB	PCB-1221	µg/kg		EPA 8082A		<0.19		0.53	0.19
180-129488-2	PCB	PCB-1232	µg/kg		EPA 8082A		<0.13		0.53	0.13
180-129488-2	PCB	PCB-1242	µg/kg		EPA 8082A		<0.078		0.53	0.078
180-129488-2	PCB	PCB-1248	µg/kg		EPA 8082A		<0.13		0.53	0.13
180-129488-2	PCB	PCB-1254	µg/kg		EPA 8082A		<0.16		0.53	0.16
180-129488-2	PCB	PCB-1260	µg/kg		EPA 8082A		<0.15		0.53	0.15
180-129488-2	PCB	Total PCB Aroclors	µg/kg	100	EPA 8082A	59.8	<1.008			
180-129488-2	Pesticide	Chlordane	µg/kg	2.9	EPA 8081B	3.2	<0.23		0.53	0.23
180-129488-2	Pesticide	4,4’ DDE	µg/kg	0.18	EPA 8081B	1.4	<0.011		0.053	0.011
180-129488-2	Dioxin	Dioxins/Furans	µg/kg		TEQ	0.0025	0.00012			

Sample Number	Fraction	Parameter	Units (dry weight)	Detection Limit	Analytical Method	ESV	Result	Qualifier	RL	MDL
180-129488-3	Metal	Antimony SEM	mg/kg	0.1	6010D	2	<0.2		0.32	0.20
180-129488-3	Metal	Arsenic SEM	mg/kg	0.1	6010D	9.8	<0.27		0.32	0.27
180-129488-3	Metal	Cadmium SEM	mg/kg	0.1	6010D	1.0	<0.0095		0.16	0.0095
180-129488-3	Metal	Chromium SEM	mg/kg	0.1	6010D	43.4	2.1		0.16	0.052
180-129488-3	Metal	Copper SEM	mg/kg	0.17	6010D	31.6	0.72		0.8	0.071
180-129488-3	Metal	Lead SEM	mg/kg	0.34	6010D	35.8	1.3		0.32	0.14
180-129488-3	Metal	Mercury (inorganic - aquatic life)	mg/kg	0.003	EPA 7470A	0.18	<0.0032		0.0064	0.0032
180-129488-3	Metal	Nickel SEM	mg/kg	0.1	6010D	22.7	0.82		1.3	0.14
180-129488-3	Metal	Selenium	mg/kg	0.1	6010D	0.72	<0.077		0.32	0.077
180-129488-3	Metal	Silver SEM	mg/kg	0.1	6010D	1.0	<0.029		0.16	0.029
180-129488-3	Metal	Zinc SEM	mg/kg	0.7	6010D	121	7.3		3.2	0.084
180-129488-3	LMW-PAH	Anthracene	µg/kg		EPA 8270E		<1.1		4.2	1.1
180-129488-3	HMW-PAH	Benzo[a]anthracene	µg/kg		EPA 8270E		<1.9		4.2	1.9
180-129488-3	HMW-PAH	Benzo[b]fluoranthene	µg/kg		EPA 8270E		<1		4.2	1
180-129488-3	HMW-PAH	Benzo[k]fluoranthene	µg/kg		EPA 8270E		<1.3		4.2	1.3
180-129488-3	HMW-PAH	Benzo[g,h,i]perylene	µg/kg		EPA 8270E		<0.91		4.2	0.91
180-129488-3	HMW-PAH	Benzo[a]pyrene	µg/kg		EPA 8270E		<1.8		4.2	1.8
180-129488-3	HMW-PAH	Chrysene	µg/kg		EPA 8270E		<2.3		4.2	2.3
180-129488-3	HMW-PAH	Dibenz(a,h)anthracene	µg/kg		EPA 8270E		<2.7		4.2	2.7
180-129488-3	HMW-PAH	Fluoranthene	µg/kg		EPA 8270E		<1.1		4.2	1.1
180-129488-3	LMW-PAH	Fluorene	µg/kg		EPA 8270E		<0.83		4.2	0.83
180-129488-3	HMW-PAH	Indeno[1,2,3-cd]pyrene	µg/kg		EPA 8270E		<2.1		4.2	2.1
180-129488-3	LMW-PAH	Phenanthrene	µg/kg		EPA 8270E		<1.1		4.2	1.1
180-129488-3	HMW-PAH	Pyrene	µg/kg		EPA 8270E		<1		4.2	1
180-129488-3	LMW-PAH	Acenaphthene	µg/kg		EPA 8270E		<1.2		4.2	1.2
180-129488-3	LMW-PAH	Acenaphthylene	µg/kg		EPA 8270E		<0.92		4.2	0.92
180-129488-3	LMW-PAH	Naphthalene	µg/kg		EPA 8270E		<0.82		4.2	0.82
180-129488-3	LMW-PAH	Total Low Molecular Weight PAHs (LMW-PAHs)	µg/kg	analyte specific	EPA 8270E	600	<5.97			
180-129488-3	HMW-PAH	Total High Molecular Weight PAHs (HMW-PAHs)	µg/kg	analyte specific	EPA 8270E	1,000	<16.11			
180-129488-3	PCB	PCB-1016	µg/kg		EPA 8082A		<0.17		0.53	0.17
180-129488-3	PCB	PCB-1221	µg/kg		EPA 8082A		<0.19		0.53	0.19
180-129488-3	PCB	PCB-1232	µg/kg		EPA 8082A		<0.13		0.53	0.13
180-129488-3	PCB	PCB-1242	µg/kg		EPA 8082A		<0.077		0.53	0.077
180-129488-3	PCB	PCB-1248	µg/kg		EPA 8082A		<0.13		0.53	0.13
180-129488-3	PCB	PCB-1254	µg/kg		EPA 8082A		<0.16		0.53	0.16
180-129488-3	PCB	PCB-1260	µg/kg		EPA 8082A		<0.15		0.53	0.15
180-129488-3	PCB	Total PCB Aroclors	µg/kg	100	EPA 8082A	59.8	<1.007			
180-129488-3	Pesticide	Chlordane	µg/kg	2.9	EPA 8081B	3.2	<0.23		0.53	0.23
180-129488-3	Pesticide	4,4’ DDE	µg/kg	0.18	EPA 8081B	1.4	<0.011		0.053	0.011
180-129488-3	Dioxin	Dioxins/Furans	µg/kg		TEQ	0.0025	0.00010			

Sample Number	Fraction	Parameter	Units (dry weight)	Detection Limit	Analytical Method	ESV	Result	Qualifier	RL	MDL
180-129488-4	Metal	Antimony SEM	mg/kg	0.1	6010D	2	<1.2		1.9	1.2
180-129488-4	Metal	Arsenic SEM	mg/kg	0.1	6010D	9.8	<1.6		1.9	1.6
180-129488-4	Metal	Cadmium SEM	mg/kg	0.1	6010D	1.0	*0.5085*	J	0.96	0.057
180-129488-4	Metal	Chromium SEM	mg/kg	0.1	6010D	43.4	6.8		0.96	0.31
180-129488-4	Metal	Copper SEM	mg/kg	0.17	6010D	31.6	13		4.8	0.42
180-129488-4	Metal	Lead SEM	mg/kg	0.34	6010D	35.8	15		0.38	0.17
180-129488-4	Metal	Mercury (inorganic - aquatic life)	mg/kg	0.003	EPA 7470A	0.18	<0.0039		0.0076	0.0039
180-129488-4	Metal	Nickel SEM	mg/kg	0.1	6010D	22.7	3.2		1.5	0.072
180-129488-4	Metal	Selenium	mg/kg	0.1	6010D	0.72	<0.092		0.38	0.092
180-129488-4	Metal	Silver SEM	mg/kg	0.1	6010D	1.0	<0.17		0.96	0.17
180-129488-4	Metal	Zinc SEM	mg/kg	0.7	6010D	121	43	B	19	0.5
180-129488-4	LMW-PAH	Anthracene	µg/kg		EPA 8270E		11		5.1	1.3
180-129488-4	HMW-PAH	Benzo[a]anthracene	µg/kg		EPA 8270E		61		5.1	2.3
180-129488-4	HMW-PAH	Benzo[b]fluoranthene	µg/kg		EPA 8270E		66		5.1	1.3
180-129488-4	HMW-PAH	Benzo[k]fluoranthene	µg/kg		EPA 8270E		28		5.1	1.5
180-129488-4	HMW-PAH	Benzo[g,h,i]perylene	µg/kg		EPA 8270E		56		5.1	1.1
180-129488-4	HMW-PAH	Benzo[a]pyrene	µg/kg		EPA 8270E		73		5.1	2.2
180-129488-4	HMW-PAH	Chrysene	µg/kg		EPA 8270E		55		5.1	2.8
180-129488-4	HMW-PAH	Dibenz(a,h)anthracene	µg/kg		EPA 8270E		11		5.1	3.3
180-129488-4	HMW-PAH	Fluoranthene	µg/kg		EPA 8270E		50		5.1	1.3
180-129488-4	LMW-PAH	Fluorene	µg/kg		EPA 8270E		*3.05*	J	5.1	1
180-129488-4	HMW-PAH	Indeno[1,2,3-cd]pyrene	µg/kg		EPA 8270E		44		5.1	2.5
180-129488-4	LMW-PAH	Phenanthrene	µg/kg		EPA 8270E		20		5.1	1.4
180-129488-4	HMW-PAH	Pyrene	µg/kg		EPA 8270E		67		5.1	1.2
180-129488-4	LMW-PAH	Acenaphthene	µg/kg		EPA 8270E		<1.5		5.1	1.5
180-129488-4	LMW-PAH	Acenaphthylene	µg/kg		EPA 8270E		20		5.1	1.1
180-129488-4	LMW-PAH	Naphthalene	µg/kg		EPA 8270E		*3.045*	J	5.1	0.99
180-129488-4	LMW-PAH	Total Low Molecular Weight PAHs (LMW-PAHs)	µg/kg	analyte specific	EPA 8270E	600	60.5			
180-129488-4	HMW-PAH	Total High Molecular Weight PAHs (HMW-PAHs)	µg/kg	analyte specific	EPA 8270E	1,000	511			
180-129488-4	PCB	PCB-1016	µg/kg		EPA 8082A		<0.2		0.63	0.2
180-129488-4	PCB	PCB-1221	µg/kg		EPA 8082A		<0.22		0.63	0.22
180-129488-4	PCB	PCB-1232	µg/kg		EPA 8082A		<0.15		0.63	0.15
180-129488-4	PCB	PCB-1242	µg/kg		EPA 8082A		<0.092		0.63	0.092
180-129488-4	PCB	PCB-1248	µg/kg		EPA 8082A		<0.15		0.63	0.15
180-129488-4	PCB	PCB-1254	µg/kg		EPA 8082A		<0.19		0.63	0.19
180-129488-4	PCB	PCB-1260	µg/kg		EPA 8082A		<0.18		0.63	0.18
180-129488-4	PCB	Total PCB Aroclors	µg/kg	100	EPA 8082A	59.8	<1.182			
180-129488-4	Pesticide	Chlordane	µg/kg	2.9	EPA 8081B	3.2	<0.27		0.63	0.27
180-129488-4	Pesticide	4,4’ DDE	µg/kg	0.18	EPA 8081B	1.4	<0.013		0.063	0.013
180-129488-4	Dioxin	Dioxins/Furans	µg/kg		TEQ	0.0025	0.0023			

Sample Number	Fraction	Parameter	Units (dry weight)	Detection Limit	Analytical Method	ESV	Result	Qualifier	RL	MDL
180-129488-5	Metal	Antimony SEM	mg/kg	0.1	6010D	2	<0.18		0.29	0.18
180-129488-5	Metal	Arsenic SEM	mg/kg	0.1	6010D	9.8	<0.24		0.29	0.24
180-129488-5	Metal	Cadmium SEM	mg/kg	0.1	6010D	1.0	<0.0087		0.15	0.0087
180-129488-5	Metal	Chromium SEM	mg/kg	0.1	6010D	43.4	1.2		0.15	0.047
180-129488-5	Metal	Copper SEM	mg/kg	0.17	6010D	31.6	*0.3975*	J	0.73	0.065
180-129488-5	Metal	Lead SEM	mg/kg	0.34	6010D	35.8	0.99		0.29	0.13
180-129488-5	Metal	Mercury (inorganic - aquatic life)	mg/kg	0.003	EPA 7470A	0.18	<0.003		0.0059	0.0030
180-129488-5	Metal	Nickel SEM	mg/kg	0.1	6010D	22.7	*0.6275*	J	1.2	0.055
180-129488-5	Metal	Selenium	mg/kg	0.1	6010D	0.72	<0.071		0.29	0.071
180-129488-5	Metal	Silver SEM	mg/kg	0.1	6010D	1.0	*0.0885*	J	0.15	0.027
180-129488-5	Metal	Zinc SEM	mg/kg	0.7	6010D	121	2.8	J, B	2.9	0.077
180-129488-5	LMW-PAH	Anthracene	µg/kg		EPA 8270E		<1		3.9	1
180-129488-5	HMW-PAH	Benzo[a]anthracene	µg/kg		EPA 8270E		*2.8*	J	3.9	1.7
180-129488-5	HMW-PAH	Benzo[b]fluoranthene	µg/kg		EPA 8270E		*2.425*	J	3.9	0.95
180-129488-5	HMW-PAH	Benzo[k]fluoranthene	µg/kg		EPA 8270E		*2.55*	J	3.9	1.2
180-129488-5	HMW-PAH	Benzo[g,h,i]perylene	µg/kg		EPA 8270E		*2.37*	J	3.9	0.84
180-129488-5	HMW-PAH	Benzo[a]pyrene	µg/kg		EPA 8270E		*2.8*	J	3.9	1.7
180-129488-5	HMW-PAH	Chrysene	µg/kg		EPA 8270E		*3*	J	3.9	2.1
180-129488-5	HMW-PAH	Dibenz(a,h)anthracene	µg/kg		EPA 8270E		<2.5		3.9	2.5
180-129488-5	HMW-PAH	Fluoranthene	µg/kg		EPA 8270E		*2.45*	J	3.9	1
180-129488-5	LMW-PAH	Fluorene	µg/kg		EPA 8270E		<0.76		3.9	0.76
180-129488-5	HMW-PAH	Indeno[1,2,3-cd]pyrene	µg/kg		EPA 8270E		*2.9*	J	3.9	1.9
180-129488-5	LMW-PAH	Phenanthrene	µg/kg		EPA 8270E		*2.45*	J	3.9	1
180-129488-5	HMW-PAH	Pyrene	µg/kg		EPA 8270E		4.1		3.9	0.92
180-129488-5	LMW-PAH	Acenaphthene	µg/kg		EPA 8270E		<1.1		3.9	1.1
180-129488-5	LMW-PAH	Acenaphthylene	µg/kg		EPA 8270E		<0.85		3.9	0.85
180-129488-5	LMW-PAH	Naphthalene	µg/kg		EPA 8270E		<0.76		3.9	0.76
180-129488-5	LMW-PAH	Total Low Molecular Weight PAHs (LMW-PAHs)	µg/kg	analyte specific	EPA 8270E	600	1.7			
180-129488-5	HMW-PAH	Total High Molecular Weight PAHs (HMW-PAHs)	µg/kg	analyte specific	EPA 8270E	1,000	25.8			
180-129488-5	PCB	PCB-1016	µg/kg		EPA 8082A		<0.16		0.48	0.16
180-129488-5	PCB	PCB-1221	µg/kg		EPA 8082A		<0.17		0.48	0.17
180-129488-5	PCB	PCB-1232	µg/kg		EPA 8082A		<0.12		0.48	0.12
180-129488-5	PCB	PCB-1242	µg/kg		EPA 8082A		<0.071		0.48	0.071
180-129488-5	PCB	PCB-1248	µg/kg		EPA 8082A		<0.12		0.48	0.12
180-129488-5	PCB	PCB-1254	µg/kg		EPA 8082A		<0.15		0.48	0.15
180-129488-5	PCB	PCB-1260	µg/kg		EPA 8082A		0.54		0.48	0.14
180-129488-5	PCB	Total PCB Aroclors	µg/kg	100	EPA 8082A	59.8	0.54			
180-129488-5	Pesticide	Chlordane	µg/kg	2.9	EPA 8081B	3.2	<0.21		0.49	0.21
180-129488-5	Pesticide	4,4’ DDE	µg/kg	0.18	EPA 8081B	1.4	<0.0099		0.049	0.0099
180-129488-5	Dioxin	Dioxins/Furans	µg/kg		TEQ	0.0025	0.00032			

Sample Number	Fraction	Parameter	Units (dry weight)	Detection Limit	Analytical Method	ESV	Result	Qualifier	RL	MDL
180-129488-6	Metal	Antimony SEM	mg/kg	0.1	6010D	2	<0.2		0.32	0.2
180-129488-6	Metal	Arsenic SEM	mg/kg	0.1	6010D	9.8	*0.295*	J	0.32	0.27
180-129488-6	Metal	Cadmium SEM	mg/kg	0.1	6010D	1.0	*0.0847*	J	0.16	0.0094
180-129488-6	Metal	Chromium SEM	mg/kg	0.1	6010D	43.4	2.6		0.16	0.051
180-129488-6	Metal	Copper SEM	mg/kg	0.17	6010D	31.6	0.98		0.80	0.070
180-129488-6	Metal	Lead SEM	mg/kg	0.34	6010D	35.8	1.6		0.32	0.14
180-129488-6	Metal	Mercury (inorganic - aquatic life)	mg/kg	0.003	EPA 7470A	0.18	<0.0032		0.0064	0.0032
180-129488-6	Metal	Nickel SEM	mg/kg	0.1	6010D	22.7	1.4		1.3	0.060
180-129488-6	Metal	Selenium	mg/kg	0.1	6010D	0.72	<0.076		0.31	0.076
180-129488-6	Metal	Silver SEM	mg/kg	0.1	6010D	1.0	<0.029		0.16	0.029
180-129488-6	Metal	Zinc SEM	mg/kg	0.7	6010D	121	13	B	3.2	0.084
180-129488-6	LMW-PAH	Anthracene	µg/kg		EPA 8270E		<1.1		4.3	1.1
180-129488-6	HMW-PAH	Benzo[a]anthracene	µg/kg		EPA 8270E		<1.9		4.3	1.9
180-129488-6	HMW-PAH	Benzo[b]fluoranthene	µg/kg		EPA 8270E		<1		4.3	1
180-129488-6	HMW-PAH	Benzo[k]fluoranthene	µg/kg		EPA 8270E		<1.3		4.3	1.3
180-129488-6	HMW-PAH	Benzo[g,h,i]perylene	µg/kg		EPA 8270E		<0.92		4.3	0.92
180-129488-6	HMW-PAH	Benzo[a]pyrene	µg/kg		EPA 8270E		<1.8		4.3	1.8
180-129488-6	HMW-PAH	Chrysene	µg/kg		EPA 8270E		<2.4		4.3	2.4
180-129488-6	HMW-PAH	Dibenz(a,h)anthracene	µg/kg		EPA 8270E		<2.7		4.3	2.7
180-129488-6	HMW-PAH	Fluoranthene	µg/kg		EPA 8270E		<1.1		4.3	1.1
180-129488-6	LMW-PAH	Fluorene	µg/kg		EPA 8270E		<0.84		4.3	0.84
180-129488-6	HMW-PAH	Indeno[1,2,3-cd]pyrene	µg/kg		EPA 8270E		<2.1		4.3	2.1
180-129488-6	LMW-PAH	Phenanthrene	µg/kg		EPA 8270E		<1.1		4.3	1.1
180-129488-6	HMW-PAH	Pyrene	µg/kg		EPA 8270E		<1		4.3	1
180-129488-6	LMW-PAH	Acenaphthene	µg/kg		EPA 8270E		<1.2		4.3	1.2
180-129488-6	LMW-PAH	Acenaphthylene	µg/kg		EPA 8270E		<0.93		4.3	0.93
180-129488-6	LMW-PAH	Naphthalene	µg/kg		EPA 8270E		<0.83		4.3	0.83
180-129488-6	LMW-PAH	Total Low Molecular Weight PAHs (LMW-PAHs)	µg/kg	analyte specific	EPA 8270E	600	<6			
180-129488-6	HMW-PAH	Total High Molecular Weight PAHs (HMW-PAHs)	µg/kg	analyte specific	EPA 8270E	1,000	<16.22			
180-129488-6	PCB	PCB-1016	µg/kg		EPA 8082A		<0.17		0.53	0.17
180-129488-6	PCB	PCB-1221	µg/kg		EPA 8082A		<0.19		0.53	0.19
180-129488-6	PCB	PCB-1232	µg/kg		EPA 8082A		<0.13		0.53	0.13
180-129488-6	PCB	PCB-1242	µg/kg		EPA 8082A		<0.078		0.53	0.078
180-129488-6	PCB	PCB-1248	µg/kg		EPA 8082A		<0.13		0.53	0.13
180-129488-6	PCB	PCB-1254	µg/kg		EPA 8082A		<0.16		0.53	0.16
180-129488-6	PCB	PCB-1260	µg/kg		EPA 8082A		*0.34*	J	0.53	0.15
180-129488-6	PCB	Total PCB Aroclors	µg/kg	100	EPA 8082A	59.8	0.22			
180-129488-6	Pesticide	Chlordane	µg/kg	2.9	EPA 8081B	3.2	<1.1		2.6	1.1
180-129488-6	Pesticide	4,4’ DDE	µg/kg	0.18	EPA 8081B	1.4	<0.054		0.26	0.054
180-129488-6	Dioxin	Dioxins/Furans	µg/kg		TEQ	0.0025	0.000097			

Sample Number	Fraction	Parameter	Units (dry weight)	Detection Limit	Analytical Method	ESV	Result	Qualifier	RL	MDL
180-129488-7	Metal	Antimony SEM	mg/kg	0.1	6010D	2	<0.19		0.31	0.19
180-129488-7	Metal	Arsenic SEM	mg/kg	0.1	6010D	9.8	*0.285*	J	0.31	0.26
180-129488-7	Metal	Cadmium SEM	mg/kg	0.1	6010D	1.0	*0.0796*	J	0.15	0.0092
180-129488-7	Metal	Chromium SEM	mg/kg	0.1	6010D	43.4	2.2		0.15	0.05
180-129488-7	Metal	Copper SEM	mg/kg	0.17	6010D	31.6	0.94		0.77	0.068
180-129488-7	Metal	Lead SEM	mg/kg	0.34	6010D	35.8	1.7		0.31	0.14
180-129488-7	Metal	Mercury (inorganic - aquatic life)	mg/kg	0.003	EPA 7470A	0.18	<0.0031		0.0062	0.0031
180-129488-7	Metal	Nickel SEM	mg/kg	0.1	6010D	22.7	1.2		1.2	0.058
180-129488-7	Metal	Selenium	mg/kg	0.1	6010D	0.72	<0.076		0.31	0.076
180-129488-7	Metal	Silver SEM	mg/kg	0.1	6010D	1.0	<0.028		0.15	0.028
180-129488-7	Metal	Zinc SEM	mg/kg	0.7	6010D	121	10	B	3.1	0.082
180-129488-7	LMW-PAH	Anthracene	µg/kg		EPA 8270E		14		4.2	1.1
180-129488-7	HMW-PAH	Benzo[a]anthracene	µg/kg		EPA 8270E		66		4.2	1.9
180-129488-7	HMW-PAH	Benzo[b]fluoranthene	µg/kg		EPA 8270E		72		4.2	1
180-129488-7	HMW-PAH	Benzo[k]fluoranthene	µg/kg		EPA 8270E		26		4.2	1.2
180-129488-7	HMW-PAH	Benzo[g,h,i]perylene	µg/kg		EPA 8270E		42		4.2	0.89
180-129488-7	HMW-PAH	Benzo[a]pyrene	µg/kg		EPA 8270E		50		4.2	1.8
180-129488-7	HMW-PAH	Chrysene	µg/kg		EPA 8270E		65		4.2	2.3
180-129488-7	HMW-PAH	Dibenz(a,h)anthracene	µg/kg		EPA 8270E		12		4.2	2.6
180-129488-7	HMW-PAH	Fluoranthene	µg/kg		EPA 8270E		150		4.2	1.1
180-129488-7	LMW-PAH	Fluorene	µg/kg		EPA 8270E		10		4.2	0.81
180-129488-7	HMW-PAH	Indeno[1,2,3-cd]pyrene	µg/kg		EPA 8270E		37		4.2	2.1
180-129488-7	LMW-PAH	Phenanthrene	µg/kg		EPA 8270E		130		4.2	1.1
180-129488-7	HMW-PAH	Pyrene	µg/kg		EPA 8270E		130		4.2	0.98
180-129488-7	LMW-PAH	Acenaphthene	µg/kg		EPA 8270E		8.4		4.2	1.2
180-129488-7	LMW-PAH	Acenaphthylene	µg/kg		EPA 8270E		4.3		4.2	0.91
180-129488-7	LMW-PAH	Naphthalene	µg/kg		EPA 8270E		*2.505*	J	4.2	0.81
180-129488-7	LMW-PAH	Total Low Molecular Weight PAHs (LMW-PAHs)	µg/kg	analyte specific	EPA 8270E	600	170.8			
180-129488-7	HMW-PAH	Total High Molecular Weight PAHs (HMW-PAHs)	µg/kg	analyte specific	EPA 8270E	1,000	650			
180-129488-7	PCB	PCB-1016	µg/kg		EPA 8082A		<0.17		0.52	0.17
180-129488-7	PCB	PCB-1221	µg/kg		EPA 8082A		<0.18		0.52	0.18
180-129488-7	PCB	PCB-1232	µg/kg		EPA 8082A		<0.13		0.52	0.13
180-129488-7	PCB	PCB-1242	µg/kg		EPA 8082A		<0.076		0.52	0.076
180-129488-7	PCB	PCB-1248	µg/kg		EPA 8082A		<0.13		0.52	0.13
180-129488-7	PCB	PCB-1254	µg/kg		EPA 8082A		<0.16		0.52	0.16
180-129488-7	PCB	PCB-1260	µg/kg		EPA 8082A		*0.335*	J	0.52	0.15
180-129488-7	PCB	Total PCB Aroclors	µg/kg	100	EPA 8082A	59.8	0.18			
180-129488-7	Pesticide	Chlordane	µg/kg	2.9	EPA 8081B	3.2	<0.22		0.51	0.22
180-129488-7	Pesticide	4,4’ DDE	µg/kg	0.18	EPA 8081B	1.4	<0.01		0.051	0.010
180-129488-7	Dioxin	Dioxins/Furans	µg/kg		TEQ	0.0025	0.00023			

Notes:

mg/kg = milligrams per kilogram (ppm)

µg/kg = micrograms per kilogram (ppb)

B = Compound was found in the blank and sample

ESV = United States Environmental Protection Agency 2018, Table 2a and 2b for Region 4 Freshwater Sediment Ecological Screening Values for Hazardous Waste Sites

F1 = MS and/or MSD recovery exceeds control limits

F2 = MS/MSD Relative Percent Difference 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

MDL = Method Detection Limit

RL = Reporting Limit

TEQ = Toxicity Equivalent Quotient (Dioxin)

= Exceeds ESV

Italics = J qualified result is reported as halfway between RL and MDL

APPENDIX D

EUROFINS TESTAMERICA

ANALYTICAL REPORTS 180-129488-1, 180-129488-3, AND 180-129488-4

LANGDALE PROJECT (FERC NO. 2341) AND RIVERVIEW PROJECT (FERC NO. 2350)

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 180-129488-1
Client Project/Site: Langdale

For:
Georgia Power - Environmental Lab
2480 Maner Rd. SE
Bin 39110
Atlanta, Georgia 30309

Attn: Gary Blackmon

Authorized for release by:
11/30/2021 12:05:45 PM

Carrie Gamber, Senior Project Manager
(412)963-2428
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PA Lab ID: 02-00416

Table of Contents

Job ID: 180-129488-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

CASE NARRATIVE

Client: Georgia Power - Environmental Lab

Project: Langdale

Report Number: 180-129488-1

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 11/04/2021; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.2º C and 3.0º C.

The Field Sampler was not listed on the Chain of Custody. The samples are from a laboratory.

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

PESTICIDES
Sample 131831006 (180-129488-6) required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The continuing calibration verification (CCV) associated with 378906 recovered low and outside the control limits for d-BHC on one column. Results are confirmed on both columns and reported from the passing column. The associated samples are: (CCVIS 180-378906/30), (CCVIS 180-378906/5), (CCVIS 180-378906/56) and (CCVIS 180-378906/81).

The continuing calibration verification (CCV) associated with 378906 recovered low and outside the control limits for 4,4-DDE on one column. Results are confirmed on both columns and reported from the passing column. The associated samples are: (CCVIS 180-378906/30), (CCVIS 180-378906/5), (CCVIS 180-378906/56) and (CCVIS 180-378906/81).

The continuing calibration verification (CCV) associated with 378906 recovered high and outside the control limits for Endosulf II on one column. Results are confirmed on both columns and reported from the passing column. The associated samples are: (CCVIS 180-378906/30), (CCVIS 180-378906/5), (CCVIS 180-378906/56) and (CCVIS 180-378906/81).

The continuing calibration verification (CCV) associated with 378906 recovered high and outside the control limits for Endrin Aldehyde on one column. Results are confirmed on both columns and reported from the passing column. The associated samples are: (CCVIS 180-378906/30), (CCVIS 180-378906/56) and (CCVIS 180-378906/81).

PCBs
PCB-1016 and PCB-1260 failed the recovery criteria high for the MS of sample 131831001MS (180-129488-1) in batch 180-377888. PCB-1260 failed the recovery criteria high for the MSD of sample 131831001MSD (180-129488-1) in batch 180-377888.

AVS/SEM

Job ID: 180-129488-1 (Continued)

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

The Potassium Biiodate (4224729) used for the Acid Volatile Sulfide (AVS) determination in batch 378467 was used 4-days past the 6-month expiration date. The samples in batch 378467 were already outside of holding time and were not reanalyzed. All batch QC was within acceptable limits for the batch. 131831001 (180-129488-1), 131831002 (180-129488-2), 131831003 (180-129488-3), 131831004 (180-129488-4), 131831005 (180-129488-5), 131831006 (180-129488-6), 131831007 (180-129488-7), (CCB 180-378467/14), (CCB 180-378467/20), (CCV 180-378467/13), (CCV 180-378467/19), (ICB 180-378467/2), (ICV 180-378467/1), (LCS 180-378290/2-A), (MB 180-378290/1-A), (180-129488-B-1-R MS) and (180-129488-B-1-S MSD).

Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following sample: 131831004 (180-129488-4). All analytes referencing the yttrium internal standards required dilution due to the yttrium internal standard counts being high and outside the 70%-130% control limits.

Zinc SEM was detected in method blank MB 180-378249/1-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.

Antimony SEM failed the recovery criteria low for the MS of sample 131831001MS (180-129488-1) in batch 180-379178. Chromium SEM and Nickel SEM failed the recovery criteria high. Antimony SEM failed the recovery criteria low for the MSD of sample 131831001MSD (180-129488-1) in batch 180-379178. Chromium SEM and Nickel SEM exceeded the RPD limit.

PERCENT SOLIDS

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.

Definitions/Glossary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-1

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
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.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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.

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: Georgia Power - Environmental Lab
Job ID: 180-129488-1
Project/Site: Langdale

Laboratory: Eurofins TestAmerica, Pittsburgh

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Georgia	State	PA 02-00416	04-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540G		Sediment	Percent Moisture
2540G		Sediment	Percent Solids
PCB		Sediment	Polychlorinated biphenyls, Total
SEM		Sediment	SEM/AVS Ratio

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	05-17-22
Florida	NELAP	E87467	06-30-22
Minnesota	NELAP	050-999-436	11-18-21
New Hampshire	NELAP	2006	12-18-21
New Jersey	NELAP	VT972	06-30-22
New York	NELAP	10391	04-01-22
Pennsylvania	NELAP	68-00489	04-30-22
Rhode Island	State	LAO00298	12-30-21
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00272	10-30-23
Vermont	State	VT4000	02-10-22
Virginia	NELAP	460209	12-14-21
Wisconsin	State	399133350	08-31-22

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

Sample Summary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-129488-1	131831001	Sediment	10/26/21 10:35	11/04/21 10:45
180-129488-2	131831002	Sediment	10/26/21 15:16	11/04/21 10:45
180-129488-3	131831003	Sediment	10/27/21 10:00	11/04/21 10:45
180-129488-4	131831004	Sediment	10/27/21 11:40	11/04/21 10:45
180-129488-5	131831005	Sediment	10/28/21 11:40	11/04/21 10:45
180-129488-6	131831006	Sediment	10/28/21 15:10	11/04/21 10:45
180-129488-7	131831007	Sediment	10/29/21 18:24	11/04/21 10:45

Method Summary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-1

Method	Method Description	Protocol	Laboratory
EPA 8270E LL	Semivolatile Organic Compounds (GC/MS)	SW846	TAL PIT
EPA 8081B LL	Organochlorine Pesticides (GC)	SW846	TAL PIT
EPA 8082A	Polychlorinated Biphenyls (PCBs) (GC)	SW846	TAL PIT
PCB	Total PCB Calculation	TAL SOP	TAL PIT
6010D	Metals (ICP)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SEM	Metals, Simultaneously Extracted Metals (SEM)	EPA	TAL PIT
2540G	SM 2540G	SM22	TAL PIT
EPA 9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL PIT
D854	Specific Gravity	ASTM	TAL BUR
3541	Automated Soxhlet Extraction (Low Level)	SW846	TAL PIT
3640A	Gel-Permeation Cleanup	SW846	TAL PIT
3660B	Sulfur Cleanup	SW846	TAL PIT
3665A	Sulfuric Acid/Permanganate Cleanup	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT
AVSSEM	Preparation, Acid Volatile Sulfide (AVS) and Simultaneously Extracted Metals (SE	EPA	TAL PIT

Protocol References:

ASTM = ASTM International
EPA = US Environmental Protection Agency
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 BUR = Eurofins TestAmerica, Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-1

Client Sample ID: 131831001
Date Collected: 10/26/21 10:35
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-1
Matrix: Sediment

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			378925	11/08/21 14:15	SAB	TAL PIT
	Instrument ID: NOEQUIP									
SEM/AVS	Analysis	SEM		1			380370	11/29/21 09:54	RSR	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	2540G		1			378652	11/11/21 16:09	BAC	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	D854		1			174057	11/18/21 19:52	MAP	TAL BUR
	Instrument ID: NOEQUIP									

Client Sample ID: 131831001
Date Collected: 10/26/21 10:35
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-1
Matrix: Sediment
Percent Solids: 83.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			30.0 g	0.5 mL	378135	11/08/21 20:03	CSC	TAL PIT
Total/NA	Analysis	EPA 8270E LL		1	1 mL	1 mL	378179	11/09/21 12:00	VVP	TAL PIT
	Instrument ID: CH722									
Total/NA	Prep	3541			30.1 g	10.0 mL	377887	11/05/21 22:17	CSC	TAL PIT
Total/NA	Cleanup	3640A			5.0 mL	0.5 mL	378547	11/11/21 08:37	VJC	TAL PIT
Total/NA	Analysis	EPA 8081B LL		1			378906	11/15/21 19:32	JMO	TAL PIT
	Instrument ID: CHGC15									
Total/NA	Prep	3541			30.0 g	1.0 mL	377888	11/08/21 14:15	CTM	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	378140	11/09/21 03:58	JMO	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	378141	11/09/21 03:59	JMO	TAL PIT
Total/NA	Analysis	EPA 8082A		1			378144	11/09/21 14:38	JMO	TAL PIT
	Instrument ID: CHGC20									
SEM/AVS	Prep	AVSSEM			10.14 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	6010D		1			379178	11/16/21 12:18	RJG	TAL PIT
	Instrument ID: C									
SEM/AVS	Prep	AVSSEM			10.14 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Prep	7470A			25 mL	25 mL	379083	11/16/21 10:03	RJR	TAL PIT
SEM/AVS	Analysis	EPA 7470A		1			379278	11/17/21 12:08	RJR	TAL PIT
	Instrument ID: HGY									
SEM/AVS	Prep	AVSSEM			10.14 g	50 mL	378290	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	EPA 9034		1			378467	11/09/21 15:43	CMR	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: 131831002
Date Collected: 10/26/21 15:16
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-2
Matrix: Sediment

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			378925	11/08/21 14:15	SAB	TAL PIT
	Instrument ID: NOEQUIP									
SEM/AVS	Analysis	SEM		1			380370	11/29/21 09:54	RSR	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: 131831002
Date Collected: 10/26/21 15:16
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-2
Matrix: Sediment

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			378652	11/11/21 16:09	BAC	TAL PIT
Total/NA	Analysis	D854		1			174057	11/18/21 19:52	MAP	TAL BUR
	Instrument ID: NOEQUIP									

Client Sample ID: 131831002
Date Collected: 10/26/21 15:16
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-2
Matrix: Sediment
Percent Solids: 78.1

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	0.5 mL	378135	11/08/21 20:03	CSC	TAL PIT
Total/NA	Analysis	EPA 8270E LL		1	1 mL	1 mL	378179	11/09/21 13:07	VVP	TAL PIT
	Instrument ID: CH722									
Total/NA	Prep	3541			30.3 g	10.0 mL	377887	11/05/21 22:17	CSC	TAL PIT
Total/NA	Cleanup	3640A			5.0 mL	0.5 mL	378547	11/11/21 08:37	VJC	TAL PIT
Total/NA	Analysis	EPA 8081B LL		1			378906	11/15/21 19:47	JMO	TAL PIT
	Instrument ID: CHGC15									
Total/NA	Prep	3541			30.2 g	1.0 mL	377888	11/08/21 14:15	CTM	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	378140	11/09/21 03:58	JMO	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	378141	11/09/21 03:59	JMO	TAL PIT
Total/NA	Analysis	EPA 8082A		1			378144	11/09/21 15:53	JMO	TAL PIT
	Instrument ID: CHGC20									
SEM/AVS	Prep	AVSSEM			10.04 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	6010D		1			379178	11/16/21 12:50	RJG	TAL PIT
	Instrument ID: C									
SEM/AVS	Prep	AVSSEM			10.04 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Prep	7470A			25 mL	25 mL	379083	11/16/21 10:03	RJR	TAL PIT
SEM/AVS	Analysis	EPA 7470A		1			379278	11/17/21 12:11	RJR	TAL PIT
	Instrument ID: HGY									
SEM/AVS	Prep	AVSSEM			10.04 g	50 mL	378290	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	EPA 9034		1			378467	11/09/21 15:50	CMR	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: 131831003
Date Collected: 10/27/21 10:00
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-3
Matrix: Sediment

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			378925	11/08/21 14:15	SAB	TAL PIT
	Instrument ID: NOEQUIP									
SEM/AVS	Analysis	SEM		1			380370	11/29/21 09:54	RSR	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	2540G		1			378652	11/11/21 16:09	BAC	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	D854		1			174057	11/18/21 19:52	MAP	TAL BUR
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-1

Client Sample ID: 131831003

Date Collected: 10/27/21 10:00
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-3

Matrix: Sediment
Percent Solids: 78.1

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	0.5 mL	378131	11/08/21 19:01	CSC	TAL PIT
Total/NA	Analysis	EPA 8270E LL		1	1 mL	1 mL	378209	11/09/21 19:18	VVP	TAL PIT
	Instrument ID: CHMSD7									
Total/NA	Prep	3541			30.1 g	10.0 mL	377887	11/05/21 22:17	CSC	TAL PIT
Total/NA	Cleanup	3640A			5.0 mL	0.5 mL	378547	11/11/21 08:37	VJC	TAL PIT
Total/NA	Analysis	EPA 8081B LL		1			378906	11/15/21 20:03	JMO	TAL PIT
	Instrument ID: CHGC15									
Total/NA	Prep	3541			30.3 g	1.0 mL	377888	11/08/21 14:15	CTM	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	378140	11/09/21 03:58	JMO	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	378141	11/09/21 03:59	JMO	TAL PIT
Total/NA	Analysis	EPA 8082A		1			378144	11/09/21 16:12	JMO	TAL PIT
	Instrument ID: CHGC20									
SEM/AVS	Prep	AVSSEM			10.00 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	6010D		1			379178	11/16/21 12:55	RJG	TAL PIT
	Instrument ID: C									
SEM/AVS	Prep	AVSSEM			10.00 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Prep	7470A			25 mL	25 mL	379083	11/16/21 10:03	RJR	TAL PIT
SEM/AVS	Analysis	EPA 7470A		1			379278	11/17/21 12:15	RJR	TAL PIT
	Instrument ID: HGY									
SEM/AVS	Prep	AVSSEM			10.00 g	50 mL	378290	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	EPA 9034		1			378467	11/09/21 15:53	CMR	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: 131831004

Date Collected: 10/27/21 11:40
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-4

Matrix: Sediment

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			378925	11/08/21 14:15	SAB	TAL PIT
	Instrument ID: NOEQUIP									
SEM/AVS	Analysis	SEM		1			380370	11/29/21 09:54	RSR	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	2540G		1			378652	11/11/21 16:09	BAC	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	D854		1			174057	11/18/21 19:52	MAP	TAL BUR
	Instrument ID: NOEQUIP									

Client Sample ID: 131831004

Date Collected: 10/27/21 11:40
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-4

Matrix: Sediment
Percent Solids: 65.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			30.0 g	0.5 mL	378131	11/08/21 19:01	CSC	TAL PIT
Total/NA	Analysis	EPA 8270E LL		1	1 mL	1 mL	378209	11/09/21 20:23	VVP	TAL PIT
	Instrument ID: CHMSD7									

Client Sample ID: 131831004

Lab Sample ID: 180-129488-4

Date Collected: 10/27/21 11:40

Matrix: Sediment

Date Received: 11/04/21 10:45

Percent Solids: 65.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			30.4 g	10.0 mL	377887	11/05/21 22:17	CSC	TAL PIT
Total/NA	Cleanup	3640A			5.0 mL	0.5 mL	378547	11/11/21 08:37	VJC	TAL PIT
Total/NA	Analysis	EPA 8081B LL		1			378906	11/15/21 20:19	JMO	TAL PIT
	Instrument ID: CHGC15									
Total/NA	Prep	3541			30.4 g	1.0 mL	377888	11/08/21 14:15	CTM	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	378140	11/09/21 03:58	JMO	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	378141	11/09/21 03:59	JMO	TAL PIT
Total/NA	Analysis	EPA 8082A		1			378144	11/09/21 16:30	JMO	TAL PIT
	Instrument ID: CHGC20									
SEM/AVS	Prep	AVSSEM			9.98 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	6010D		1			379178	11/16/21 12:59	RJG	TAL PIT
	Instrument ID: C									
SEM/AVS	Prep	AVSSEM			9.98 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	6010D		5			379178	11/16/21 13:32	RJG	TAL PIT
	Instrument ID: C									
SEM/AVS	Prep	AVSSEM			9.98 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Prep	7470A			25 mL	25 mL	379083	11/16/21 10:03	RJR	TAL PIT
SEM/AVS	Analysis	EPA 7470A		1			379278	11/17/21 12:16	RJR	TAL PIT
	Instrument ID: HGY									
SEM/AVS	Prep	AVSSEM			9.98 g	50 mL	378290	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	EPA 9034		1			378467	11/09/21 15:55	CMR	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: 131831005

Lab Sample ID: 180-129488-5

Date Collected: 10/28/21 11:40

Matrix: Sediment

Date Received: 11/04/21 10:45

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			378925	11/08/21 14:15	SAB	TAL PIT
	Instrument ID: NOEQUIP									
SEM/AVS	Analysis	SEM		1			380370	11/29/21 09:54	RSR	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	2540G		1			378652	11/11/21 16:09	BAC	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	D854		1			174057	11/18/21 19:52	MAP	TAL BUR
	Instrument ID: NOEQUIP									

Client Sample ID: 131831005

Lab Sample ID: 180-129488-5

Date Collected: 10/28/21 11:40

Matrix: Sediment

Date Received: 11/04/21 10:45

Percent Solids: 85.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			30.3 g	0.5 mL	378131	11/08/21 19:01	CSC	TAL PIT
Total/NA	Analysis	EPA 8270E LL		1	1 mL	1 mL	378209	11/09/21 20:45	VVP	TAL PIT
	Instrument ID: CHMSD7									

Lab Chronicle

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-1

Client Sample ID: 131831005

Date Collected: 10/28/21 11:40
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-5

Matrix: Sediment
Percent Solids: 85.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			30.2 g	10.0 mL	377887	11/05/21 22:17	CSC	TAL PIT
Total/NA	Cleanup	3640A			5.0 mL	0.5 mL	378547	11/11/21 08:37	VJC	TAL PIT
Total/NA	Analysis	EPA 8081B LL		1			378906	11/15/21 22:24	JMO	TAL PIT
	Instrument ID: CHGC15									
Total/NA	Prep	3541			30.3 g	1.0 mL	377888	11/08/21 14:15	CTM	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	378140	11/09/21 03:58	JMO	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	378141	11/09/21 03:59	JMO	TAL PIT
Total/NA	Analysis	EPA 8082A		1			378144	11/09/21 16:49	JMO	TAL PIT
	Instrument ID: CHGC20									
SEM/AVS	Prep	AVSSEM			10.02 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	6010D		1			379178	11/16/21 13:04	RJG	TAL PIT
	Instrument ID: C									
SEM/AVS	Prep	AVSSEM			10.02 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Prep	7470A			25 mL	25 mL	379083	11/16/21 10:03	RJR	TAL PIT
SEM/AVS	Analysis	EPA 7470A		1			379278	11/17/21 12:17	RJR	TAL PIT
	Instrument ID: HGY									
SEM/AVS	Prep	AVSSEM			10.02 g	50 mL	378290	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	EPA 9034		1			378467	11/09/21 15:58	CMR	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: 131831006

Date Collected: 10/28/21 15:10
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-6

Matrix: Sediment

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			378925	11/08/21 14:15	SAB	TAL PIT
	Instrument ID: NOEQUIP									
SEM/AVS	Analysis	SEM		1			380370	11/29/21 09:54	RSR	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	2540G		1			378652	11/11/21 16:09	BAC	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	D854		1			174057	11/18/21 19:52	MAP	TAL BUR
	Instrument ID: NOEQUIP									

Client Sample ID: 131831006

Date Collected: 10/28/21 15:10
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-6

Matrix: Sediment
Percent Solids: 78.1

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	0.5 mL	378131	11/08/21 19:01	CSC	TAL PIT
Total/NA	Analysis	EPA 8270E LL		1	1 mL	1 mL	378209	11/09/21 21:06	VVP	TAL PIT
	Instrument ID: CHMSD7									
Total/NA	Prep	3541			30.4 g	10.0 mL	377887	11/05/21 22:17	CSC	TAL PIT
Total/NA	Cleanup	3640A			5.0 mL	0.5 mL	378547	11/11/21 08:37	VJC	TAL PIT
Total/NA	Analysis	EPA 8081B LL		5			378906	11/15/21 22:39	JMO	TAL PIT
	Instrument ID: CHGC15									

Lab Chronicle

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-1

Client Sample ID: 131831006

Date Collected: 10/28/21 15:10
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-6

Matrix: Sediment
Percent Solids: 78.1

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	1.0 mL	377888	11/08/21 14:15	CTM	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	378140	11/09/21 03:58	JMO	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	378141	11/09/21 03:59	JMO	TAL PIT
Total/NA	Analysis	EPA 8082A		1			378144	11/09/21 17:08	JMO	TAL PIT
	Instrument ID: CHGC20									
SEM/AVS	Prep	AVSSEM			10.04 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	6010D		1			379178	11/16/21 13:09	RJG	TAL PIT
	Instrument ID: C									
SEM/AVS	Prep	AVSSEM			10.04 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Prep	7470A			25 mL	25 mL	379083	11/16/21 10:03	RJR	TAL PIT
SEM/AVS	Analysis	EPA 7470A		1			379278	11/17/21 12:18	RJR	TAL PIT
	Instrument ID: HGY									
SEM/AVS	Prep	AVSSEM			10.04 g	50 mL	378290	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	EPA 9034		1			378467	11/09/21 16:00	CMR	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: 131831007

Date Collected: 10/29/21 18:24
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-7

Matrix: Sediment

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			378925	11/08/21 14:15	SAB	TAL PIT
	Instrument ID: NOEQUIP									
SEM/AVS	Analysis	SEM		1			380370	11/29/21 09:54	RSR	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	2540G		1			378652	11/11/21 16:09	BAC	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	D854		1			174057	11/18/21 19:52	MAP	TAL BUR
	Instrument ID: NOEQUIP									

Client Sample ID: 131831007

Date Collected: 10/29/21 18:24
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-7

Matrix: Sediment
Percent Solids: 80.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			30.0 g	0.5 mL	378131	11/08/21 19:01	CSC	TAL PIT
Total/NA	Analysis	EPA 8270E LL		1	1 mL	1 mL	378209	11/09/21 21:28	VVP	TAL PIT
	Instrument ID: CHMSD7									
Total/NA	Prep	3541			30.4 g	10.0 mL	377887	11/05/21 22:17	CSC	TAL PIT
Total/NA	Cleanup	3640A			5.0 mL	0.5 mL	378547	11/11/21 08:37	VJC	TAL PIT
Total/NA	Analysis	EPA 8081B LL		1			378906	11/15/21 22:55	JMO	TAL PIT
	Instrument ID: CHGC15									

Client Sample ID: 131831007
Date Collected: 10/29/21 18:24
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-7
Matrix: Sediment
Percent Solids: 80.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			30.0 g	1.0 mL	377888	11/08/21 14:15	CTM	TAL PIT
Total/NA	Cleanup	3665A			2 mL	2 mL	378140	11/09/21 03:58	JMO	TAL PIT
Total/NA	Cleanup	3660B			2 mL	2 mL	378141	11/09/21 03:59	JMO	TAL PIT
Total/NA	Analysis	EPA 8082A		1			378144	11/09/21 17:26	JMO	TAL PIT
	Instrument ID: CHGC20									
SEM/AVS	Prep	AVSSEM			10.03 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	6010D		1			379178	11/16/21 13:13	RJG	TAL PIT
	Instrument ID: C									
SEM/AVS	Prep	AVSSEM			10.03 g	250 mL	378249	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Prep	7470A			25 mL	25 mL	379083	11/16/21 10:03	RJR	TAL PIT
SEM/AVS	Analysis	EPA 7470A		1			379278	11/17/21 12:19	RJR	TAL PIT
	Instrument ID: HGY									
SEM/AVS	Prep	AVSSEM			10.03 g	50 mL	378290	11/09/21 14:30	CMR	TAL PIT
SEM/AVS	Analysis	EPA 9034		1			378467	11/09/21 16:08	CMR	TAL PIT
	Instrument ID: NOEQUIP									

Laboratory References:

TAL BUR = Eurofins TestAmerica, Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
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
  - MAP = Mark Peterson

Lab: TAL PIT
- Batch Type: Cleanup
  - JMO = John Oravec
  - VJC = Vincent Cervone
- Batch Type: Prep
  - CMR = Carl Reagle
  - CSC = Chayce Cockroft
  - CTM = Connor Mitsch
  - RJR = Ron Rosenbaum
- Batch Type: Analysis
  - BAC = Blase Cindric
  - CMR = Carl Reagle
  - JMO = John Oravec
  - RJG = Rob Good
  - RJR = Ron Rosenbaum
  - RSR = Roseann Ruyechan
  - SAB = Sharon Bacha
  - VVP = Vincent Piccolino

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-1

Client Sample ID: 131831001
Date Collected: 10/26/21 10:35
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-1
Matrix: Sediment
Percent Solids: 83.6

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		4.0	1.0	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Benzo[a]anthracene	ND		4.0	1.8	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Benzo[b]fluoranthene	**1.9**	**J**	4.0	0.98	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Benzo[k]fluoranthene	ND		4.0	1.2	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Benzo[g,h,i]perylene	**1.0**	**J**	4.0	0.86	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Benzo[a]pyrene	ND		4.0	1.7	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Chrysene	ND		4.0	2.2	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Dibenz(a,h)anthracene	ND		4.0	2.6	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Fluoranthene	**2.1**	**J**	4.0	1.1	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Fluorene	ND		4.0	0.78	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Indeno[1,2,3-cd]pyrene	ND		4.0	2.0	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Phenanthrene	**1.8**	**J**	4.0	1.1	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Pyrene	**2.1**	**J**	4.0	0.95	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Acenaphthene	ND		4.0	1.1	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Acenaphthylene	ND		4.0	0.87	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1
Naphthalene	ND		4.0	0.78	ug/Kg	☼	11/08/21 20:03	11/09/21 12:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*79*		*34 - 109*	*11/08/21 20:03*	*11/09/21 12:00*	*1*
2-Fluorobiphenyl	*77*		*35 - 105*	*11/08/21 20:03*	*11/09/21 12:00*	*1*
Terphenyl-d14 (Surr)	*96*		*20 - 117*	*11/08/21 20:03*	*11/09/21 12:00*	*1*

Method: EPA 8081B LL - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.50	0.21	ug/Kg	☼	11/05/21 22:17	11/15/21 19:32	1
4,4'-DDE	ND		0.050	0.010	ug/Kg	☼	11/05/21 22:17	11/15/21 19:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*38*		*10 - 105*	*11/05/21 22:17*	*11/15/21 19:32*	*1*
Tetrachloro-m-xylene (Surr)	*37*		*10 - 105*	*11/05/21 22:17*	*11/15/21 19:32*	*1*
DCB Decachlorobiphenyl (Surr)	*58*		*25 - 107*	*11/05/21 22:17*	*11/15/21 19:32*	*1*
DCB Decachlorobiphenyl (Surr)	*54*		*25 - 107*	*11/05/21 22:17*	*11/15/21 19:32*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND	F1	0.50	0.16	ug/Kg	☼	11/08/21 14:15	11/09/21 14:38	1
PCB-1221	ND		0.50	0.18	ug/Kg	☼	11/08/21 14:15	11/09/21 14:38	1
PCB-1232	ND		0.50	0.12	ug/Kg	☼	11/08/21 14:15	11/09/21 14:38	1
PCB-1242	ND		0.50	0.073	ug/Kg	☼	11/08/21 14:15	11/09/21 14:38	1
PCB-1248	ND		0.50	0.12	ug/Kg	☼	11/08/21 14:15	11/09/21 14:38	1
PCB-1254	ND		0.50	0.15	ug/Kg	☼	11/08/21 14:15	11/09/21 14:38	1
PCB-1260	**0.26**	**J F1**	0.50	0.14	ug/Kg	☼	11/08/21 14:15	11/09/21 14:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*95*		*26 - 170*	*11/08/21 14:15*	*11/09/21 14:38*	*1*
DCB Decachlorobiphenyl (Surr)	*98*		*26 - 170*	*11/08/21 14:15*	*11/09/21 14:38*	*1*
Tetrachloro-m-xylene (Surr)	*77*		*33 - 126*	*11/08/21 14:15*	*11/09/21 14:38*	*1*
Tetrachloro-m-xylene (Surr)	*75*		*33 - 126*	*11/08/21 14:15*	*11/09/21 14:38*	*1*

Client Sample ID: 131831001
Date Collected: 10/26/21 10:35
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-1
Matrix: Sediment
Percent Solids: 83.6

Method: PCB - Total PCB Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Polychlorinated biphenyls, Total	0.26	J	0.50	0.18	ug/Kg			11/08/21 14:15	1

Method: 6010D - Metals (ICP) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND	F1	0.30	0.18	mg/Kg	☼	11/09/21 14:30	11/16/21 12:18	1
Arsenic SEM	ND		0.30	0.25	mg/Kg	☼	11/09/21 14:30	11/16/21 12:18	1
Cadmium SEM	ND		0.15	0.0087	mg/Kg	☼	11/09/21 14:30	11/16/21 12:18	1
Chromium SEM	7.3	F1 F2	0.15	0.048	mg/Kg	☼	11/09/21 14:30	11/16/21 12:18	1
Copper SEM	1.4		0.74	0.065	mg/Kg	☼	11/09/21 14:30	11/16/21 12:18	1
Lead SEM	1.3		0.30	0.13	mg/Kg	☼	11/09/21 14:30	11/16/21 12:18	1
Nickel SEM	3.3	F1 F2	1.2	0.055	mg/Kg	☼	11/09/21 14:30	11/16/21 12:18	1
Silver SEM	ND		0.15	0.027	mg/Kg	☼	11/09/21 14:30	11/16/21 12:18	1
Zinc SEM	6.3	B	3.0	0.078	mg/Kg	☼	11/09/21 14:30	11/16/21 12:18	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND	F1	0.0024	0.0015	umol/g	☼	11/09/21 14:30	11/16/21 12:18	1
Arsenic SEM	ND		0.0039	0.0033	umol/g	☼	11/09/21 14:30	11/16/21 12:18	1
Cadmium SEM	ND		0.0013	0.000078	umol/g	☼	11/09/21 14:30	11/16/21 12:18	1
Chromium SEM	0.14	F1 F2	0.0028	0.00091	umol/g	☼	11/09/21 14:30	11/16/21 12:18	1
Copper SEM	0.022		0.012	0.0010	umol/g	☼	11/09/21 14:30	11/16/21 12:18	1
Lead SEM	0.0063		0.0014	0.00063	umol/g	☼	11/09/21 14:30	11/16/21 12:18	1
Nickel SEM	0.057	F1 F2	0.020	0.00095	umol/g	☼	11/09/21 14:30	11/16/21 12:18	1
Silver SEM	ND		0.0014	0.00025	umol/g	☼	11/09/21 14:30	11/16/21 12:18	1
Zinc SEM	0.096	B	0.045	0.0012	umol/g	☼	11/09/21 14:30	11/16/21 12:18	1

Method: EPA 7470A - Mercury (CVAA) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.0059	0.0030	mg/Kg	☼	11/09/21 14:30	11/17/21 12:08	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.000029	0.000015	umol/g	☼	11/09/21 14:30	11/17/21 12:08	1

Method: SEM - Metals, Simultaneously Extracted Metals (SEM) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
SEM/AVS Ratio	NC		0.0010	NaN	NONE			11/29/21 09:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	16.4		0.1	0.1	%			11/11/21 16:09	1
Percent Solids	83.6		0.1	0.1	%			11/11/21 16:09	1

General Chemistry - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		18	5.9	mg/Kg	☼	11/09/21 14:30	11/09/21 15:43	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		0.55	0.18	umol/g	☼	11/09/21 14:30	11/09/21 15:43	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Gravity at 20 deg Celsius	2.68				NONE			11/18/21 19:52	1

Client Sample ID: 131831002
Date Collected: 10/26/21 15:16
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-2
Matrix: Sediment
Percent Solids: 78.1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		4.2	1.1	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Benzo[a]anthracene	ND		4.2	1.9	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Benzo[b]fluoranthene	ND		4.2	1.0	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Benzo[k]fluoranthene	ND		4.2	1.3	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Benzo[g,h,i]perylene	ND		4.2	0.91	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Benzo[a]pyrene	ND		4.2	1.8	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Chrysene	ND		4.2	2.3	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Dibenz(a,h)anthracene	ND		4.2	2.7	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Fluoranthene	ND		4.2	1.1	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Fluorene	ND		4.2	0.83	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Indeno[1,2,3-cd]pyrene	ND		4.2	2.1	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Phenanthrene	ND		4.2	1.1	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Pyrene	ND		4.2	1.0	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Acenaphthene	ND		4.2	1.2	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Acenaphthylene	ND		4.2	0.92	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1
Naphthalene	ND		4.2	0.82	ug/Kg	☼	11/08/21 20:03	11/09/21 13:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*62*		*34 - 109*	*11/08/21 20:03*	*11/09/21 13:07*	*1*
2-Fluorobiphenyl	*60*		*35 - 105*	*11/08/21 20:03*	*11/09/21 13:07*	*1*
Terphenyl-d14 (Surr)	*69*		*20 - 117*	*11/08/21 20:03*	*11/09/21 13:07*	*1*

Method: EPA 8081B LL - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.53	0.23	ug/Kg	☼	11/05/21 22:17	11/15/21 19:47	1
4,4'-DDE	ND		0.053	0.011	ug/Kg	☼	11/05/21 22:17	11/15/21 19:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*42*		*10 - 105*	*11/05/21 22:17*	*11/15/21 19:47*	*1*
Tetrachloro-m-xylene (Surr)	*41*		*10 - 105*	*11/05/21 22:17*	*11/15/21 19:47*	*1*
DCB Decachlorobiphenyl (Surr)	*59*		*25 - 107*	*11/05/21 22:17*	*11/15/21 19:47*	*1*
DCB Decachlorobiphenyl (Surr)	*57*		*25 - 107*	*11/05/21 22:17*	*11/15/21 19:47*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.53	0.17	ug/Kg	☼	11/08/21 14:15	11/09/21 15:53	1
PCB-1221	ND		0.53	0.19	ug/Kg	☼	11/08/21 14:15	11/09/21 15:53	1
PCB-1232	ND		0.53	0.13	ug/Kg	☼	11/08/21 14:15	11/09/21 15:53	1
PCB-1242	ND		0.53	0.078	ug/Kg	☼	11/08/21 14:15	11/09/21 15:53	1
PCB-1248	ND		0.53	0.13	ug/Kg	☼	11/08/21 14:15	11/09/21 15:53	1
PCB-1254	ND		0.53	0.16	ug/Kg	☼	11/08/21 14:15	11/09/21 15:53	1
PCB-1260	ND		0.53	0.15	ug/Kg	☼	11/08/21 14:15	11/09/21 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*96*		*26 - 170*	*11/08/21 14:15*	*11/09/21 15:53*	*1*
DCB Decachlorobiphenyl (Surr)	*96*		*26 - 170*	*11/08/21 14:15*	*11/09/21 15:53*	*1*
Tetrachloro-m-xylene (Surr)	*83*		*33 - 126*	*11/08/21 14:15*	*11/09/21 15:53*	*1*
Tetrachloro-m-xylene (Surr)	*79*		*33 - 126*	*11/08/21 14:15*	*11/09/21 15:53*	*1*

Client Sample ID: 131831002
Date Collected: 10/26/21 15:16
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-2
Matrix: Sediment
Percent Solids: 78.1

Method: PCB - Total PCB Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Polychlorinated biphenyls, Total	ND		0.53	0.19	ug/Kg			11/08/21 14:15	1

Method: 6010D - Metals (ICP) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.32	0.20	mg/Kg	☼	11/09/21 14:30	11/16/21 12:50	1
Arsenic SEM	**0.30**	**J**	0.32	0.27	mg/Kg	☼	11/09/21 14:30	11/16/21 12:50	1
Cadmium SEM	**0.031**	**J**	0.16	0.0094	mg/Kg	☼	11/09/21 14:30	11/16/21 12:50	1
Chromium SEM	**1.8**		0.16	0.051	mg/Kg	☼	11/09/21 14:30	11/16/21 12:50	1
Copper SEM	**1.2**		0.80	0.070	mg/Kg	☼	11/09/21 14:30	11/16/21 12:50	1
Lead SEM	**1.4**		0.32	0.14	mg/Kg	☼	11/09/21 14:30	11/16/21 12:50	1
Nickel SEM	**0.88**	**J**	1.3	0.060	mg/Kg	☼	11/09/21 14:30	11/16/21 12:50	1
Silver SEM	ND		0.16	0.029	mg/Kg	☼	11/09/21 14:30	11/16/21 12:50	1
Zinc SEM	**6.7**	**B**	3.2	0.084	mg/Kg	☼	11/09/21 14:30	11/16/21 12:50	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.0026	0.0016	umol/g	☼	11/09/21 14:30	11/16/21 12:50	1
Arsenic SEM	**0.0040**	**J**	0.0043	0.0035	umol/g	☼	11/09/21 14:30	11/16/21 12:50	1
Cadmium SEM	**0.00027**	**J**	0.0014	0.000084	umol/g	☼	11/09/21 14:30	11/16/21 12:50	1
Chromium SEM	**0.035**		0.0031	0.00099	umol/g	☼	11/09/21 14:30	11/16/21 12:50	1
Copper SEM	**0.019**		0.013	0.0011	umol/g	☼	11/09/21 14:30	11/16/21 12:50	1
Lead SEM	**0.0068**		0.0015	0.00068	umol/g	☼	11/09/21 14:30	11/16/21 12:50	1
Nickel SEM	**0.015**	**J**	0.022	0.0010	umol/g	☼	11/09/21 14:30	11/16/21 12:50	1
Silver SEM	ND		0.0015	0.00027	umol/g	☼	11/09/21 14:30	11/16/21 12:50	1
Zinc SEM	**0.10**	**B**	0.049	0.0013	umol/g	☼	11/09/21 14:30	11/16/21 12:50	1

Method: EPA 7470A - Mercury (CVAA) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.0064	0.0032	mg/Kg	☼	11/09/21 14:30	11/17/21 12:11	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.000032	0.000016	umol/g	☼	11/09/21 14:30	11/17/21 12:11	1

Method: SEM - Metals, Simultaneously Extracted Metals (SEM) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
SEM/AVS Ratio	**NC**		0.0010	NaN	NONE			11/29/21 09:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**21.9**		0.1	0.1	%			11/11/21 16:09	1
Percent Solids	**78.1**		0.1	0.1	%			11/11/21 16:09	1

General Chemistry - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		19	6.4	mg/Kg	☼	11/09/21 14:30	11/09/21 15:50	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		0.60	0.20	umol/g	☼	11/09/21 14:30	11/09/21 15:50	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Gravity at 20 deg Celsius	**2.67**				NONE			11/18/21 19:52	1

Client Sample ID: 131831003
Date Collected: 10/27/21 10:00
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-3
Matrix: Sediment
Percent Solids: 78.1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		4.2	1.1	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Benzo[a]anthracene	ND		4.2	1.9	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Benzo[b]fluoranthene	ND		4.2	1.0	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Benzo[k]fluoranthene	ND		4.2	1.3	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Benzo[g,h,i]perylene	ND		4.2	0.91	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Benzo[a]pyrene	ND		4.2	1.8	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Chrysene	ND		4.2	2.3	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Dibenz(a,h)anthracene	ND		4.2	2.7	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Fluoranthene	ND		4.2	1.1	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Fluorene	ND		4.2	0.83	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Indeno[1,2,3-cd]pyrene	ND		4.2	2.1	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Phenanthrene	ND		4.2	1.1	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Pyrene	ND		4.2	1.0	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Acenaphthene	ND		4.2	1.2	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Acenaphthylene	ND		4.2	0.92	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1
Naphthalene	ND		4.2	0.82	ug/Kg	☼	11/08/21 19:01	11/09/21 19:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*73*		*34 - 109*	*11/08/21 19:01*	*11/09/21 19:18*	*1*
2-Fluorobiphenyl	*68*		*35 - 105*	*11/08/21 19:01*	*11/09/21 19:18*	*1*
Terphenyl-d14 (Surr)	*82*		*20 - 117*	*11/08/21 19:01*	*11/09/21 19:18*	*1*

Method: EPA 8081B LL - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.53	0.23	ug/Kg	☼	11/05/21 22:17	11/15/21 20:03	1
4,4'-DDE	ND		0.053	0.011	ug/Kg	☼	11/05/21 22:17	11/15/21 20:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*45*		*10 - 105*	*11/05/21 22:17*	*11/15/21 20:03*	*1*
Tetrachloro-m-xylene (Surr)	*43*		*10 - 105*	*11/05/21 22:17*	*11/15/21 20:03*	*1*
DCB Decachlorobiphenyl (Surr)	*64*		*25 - 107*	*11/05/21 22:17*	*11/15/21 20:03*	*1*
DCB Decachlorobiphenyl (Surr)	*62*		*25 - 107*	*11/05/21 22:17*	*11/15/21 20:03*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.53	0.17	ug/Kg	☼	11/08/21 14:15	11/09/21 16:12	1
PCB-1221	ND		0.53	0.19	ug/Kg	☼	11/08/21 14:15	11/09/21 16:12	1
PCB-1232	ND		0.53	0.13	ug/Kg	☼	11/08/21 14:15	11/09/21 16:12	1
PCB-1242	ND		0.53	0.077	ug/Kg	☼	11/08/21 14:15	11/09/21 16:12	1
PCB-1248	ND		0.53	0.13	ug/Kg	☼	11/08/21 14:15	11/09/21 16:12	1
PCB-1254	ND		0.53	0.16	ug/Kg	☼	11/08/21 14:15	11/09/21 16:12	1
PCB-1260	ND		0.53	0.15	ug/Kg	☼	11/08/21 14:15	11/09/21 16:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*100*		*26 - 170*	*11/08/21 14:15*	*11/09/21 16:12*	*1*
DCB Decachlorobiphenyl (Surr)	*100*		*26 - 170*	*11/08/21 14:15*	*11/09/21 16:12*	*1*
Tetrachloro-m-xylene (Surr)	*84*		*33 - 126*	*11/08/21 14:15*	*11/09/21 16:12*	*1*
Tetrachloro-m-xylene (Surr)	*79*		*33 - 126*	*11/08/21 14:15*	*11/09/21 16:12*	*1*

Client Sample ID: 131831003
Date Collected: 10/27/21 10:00
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-3
Matrix: Sediment
Percent Solids: 78.1

Method: PCB - Total PCB Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Polychlorinated biphenyls, Total	ND		0.53	0.19	ug/Kg			11/08/21 14:15	1

Method: 6010D - Metals (ICP) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.32	0.20	mg/Kg	☼	11/09/21 14:30	11/16/21 12:55	1
Arsenic SEM	ND		0.32	0.27	mg/Kg	☼	11/09/21 14:30	11/16/21 12:55	1
Cadmium SEM	ND		0.16	0.0095	mg/Kg	☼	11/09/21 14:30	11/16/21 12:55	1
Chromium SEM	**2.1**		0.16	0.052	mg/Kg	☼	11/09/21 14:30	11/16/21 12:55	1
Copper SEM	**0.72**	**J**	0.80	0.071	mg/Kg	☼	11/09/21 14:30	11/16/21 12:55	1
Lead SEM	**1.3**		0.32	0.14	mg/Kg	☼	11/09/21 14:30	11/16/21 12:55	1
Nickel SEM	**0.82**	**J**	1.3	0.060	mg/Kg	☼	11/09/21 14:30	11/16/21 12:55	1
Silver SEM	ND		0.16	0.029	mg/Kg	☼	11/09/21 14:30	11/16/21 12:55	1
Zinc SEM	**7.3**	**B**	3.2	0.084	mg/Kg	☼	11/09/21 14:30	11/16/21 12:55	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.0026	0.0016	umol/g	☼	11/09/21 14:30	11/16/21 12:55	1
Arsenic SEM	ND		0.0043	0.0036	umol/g	☼	11/09/21 14:30	11/16/21 12:55	1
Cadmium SEM	ND		0.0014	0.000084	umol/g	☼	11/09/21 14:30	11/16/21 12:55	1
Chromium SEM	**0.041**		0.0031	0.00099	umol/g	☼	11/09/21 14:30	11/16/21 12:55	1
Copper SEM	**0.011**	**J**	0.013	0.0011	umol/g	☼	11/09/21 14:30	11/16/21 12:55	1
Lead SEM	**0.0063**		0.0015	0.00068	umol/g	☼	11/09/21 14:30	11/16/21 12:55	1
Nickel SEM	**0.014**	**J**	0.022	0.0010	umol/g	☼	11/09/21 14:30	11/16/21 12:55	1
Silver SEM	ND		0.0015	0.00027	umol/g	☼	11/09/21 14:30	11/16/21 12:55	1
Zinc SEM	**0.11**	**B**	0.049	0.0013	umol/g	☼	11/09/21 14:30	11/16/21 12:55	1

Method: EPA 7470A - Mercury (CVAA) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.0064	0.0032	mg/Kg	☼	11/09/21 14:30	11/17/21 12:15	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.000032	0.000016	umol/g	☼	11/09/21 14:30	11/17/21 12:15	1

Method: SEM - Metals, Simultaneously Extracted Metals (SEM) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
SEM/AVS Ratio	**NC**		0.0010	NaN	NONE			11/29/21 09:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**21.9**		0.1	0.1	%			11/11/21 16:09	1
Percent Solids	**78.1**		0.1	0.1	%			11/11/21 16:09	1

General Chemistry - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		19	6.4	mg/Kg	☼	11/09/21 14:30	11/09/21 15:53	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		0.60	0.20	umol/g	☼	11/09/21 14:30	11/09/21 15:53	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Gravity at 20 deg Celsius	**2.66**				NONE			11/18/21 19:52	1

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-1

Client Sample ID: 131831004
Date Collected: 10/27/21 11:40
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-4
Matrix: Sediment
Percent Solids: 65.5

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	11		5.1	1.3	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Benzo[a]anthracene	61		5.1	2.3	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Benzo[b]fluoranthene	66		5.1	1.3	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Benzo[k]fluoranthene	28		5.1	1.5	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Benzo[g,h,i]perylene	56		5.1	1.1	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Benzo[a]pyrene	73		5.1	2.2	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Chrysene	55		5.1	2.8	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Dibenz(a,h)anthracene	11		5.1	3.3	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Fluoranthene	50		5.1	1.3	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Fluorene	4.6	J	5.1	1.0	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Indeno[1,2,3-cd]pyrene	44		5.1	2.5	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Phenanthrene	20		5.1	1.4	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Pyrene	67		5.1	1.2	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Acenaphthene	ND		5.1	1.5	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Acenaphthylene	20		5.1	1.1	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1
Naphthalene	4.9	J	5.1	0.99	ug/Kg	☼	11/08/21 19:01	11/09/21 20:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*76*		*34 - 109*	*11/08/21 19:01*	*11/09/21 20:23*	*1*
2-Fluorobiphenyl	*70*		*35 - 105*	*11/08/21 19:01*	*11/09/21 20:23*	*1*
Terphenyl-d14 (Surr)	*82*		*20 - 117*	*11/08/21 19:01*	*11/09/21 20:23*	*1*

Method: EPA 8081B LL - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.63	0.27	ug/Kg	☼	11/05/21 22:17	11/15/21 20:19	1
4,4'-DDE	ND		0.063	0.013	ug/Kg	☼	11/05/21 22:17	11/15/21 20:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*43*		*10 - 105*	*11/05/21 22:17*	*11/15/21 20:19*	*1*
Tetrachloro-m-xylene (Surr)	*41*		*10 - 105*	*11/05/21 22:17*	*11/15/21 20:19*	*1*
DCB Decachlorobiphenyl (Surr)	*79*		*25 - 107*	*11/05/21 22:17*	*11/15/21 20:19*	*1*
DCB Decachlorobiphenyl (Surr)	*70*		*25 - 107*	*11/05/21 22:17*	*11/15/21 20:19*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.63	0.20	ug/Kg	☼	11/08/21 14:15	11/09/21 16:30	1
PCB-1221	ND		0.63	0.22	ug/Kg	☼	11/08/21 14:15	11/09/21 16:30	1
PCB-1232	ND		0.63	0.15	ug/Kg	☼	11/08/21 14:15	11/09/21 16:30	1
PCB-1242	ND		0.63	0.092	ug/Kg	☼	11/08/21 14:15	11/09/21 16:30	1
PCB-1248	ND		0.63	0.15	ug/Kg	☼	11/08/21 14:15	11/09/21 16:30	1
PCB-1254	ND		0.63	0.19	ug/Kg	☼	11/08/21 14:15	11/09/21 16:30	1
PCB-1260	ND		0.63	0.18	ug/Kg	☼	11/08/21 14:15	11/09/21 16:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*91*		*26 - 170*	*11/08/21 14:15*	*11/09/21 16:30*	*1*
DCB Decachlorobiphenyl (Surr)	*90*		*26 - 170*	*11/08/21 14:15*	*11/09/21 16:30*	*1*
Tetrachloro-m-xylene (Surr)	*76*		*33 - 126*	*11/08/21 14:15*	*11/09/21 16:30*	*1*
Tetrachloro-m-xylene (Surr)	*72*		*33 - 126*	*11/08/21 14:15*	*11/09/21 16:30*	*1*

Client Sample ID: 131831004
Date Collected: 10/27/21 11:40
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-4
Matrix: Sediment
Percent Solids: 65.5

Method: PCB - Total PCB Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Polychlorinated biphenyls, Total	ND		0.63	0.22	ug/Kg			11/08/21 14:15	1

Method: 6010D - Metals (ICP) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		1.9	1.2	mg/Kg	☼	11/09/21 14:30	11/16/21 13:32	5
Arsenic SEM	ND		1.9	1.6	mg/Kg	☼	11/09/21 14:30	11/16/21 13:32	5
Cadmium SEM	**0.069**	**J**	0.96	0.057	mg/Kg	☼	11/09/21 14:30	11/16/21 13:32	5
Chromium SEM	**6.8**		0.96	0.31	mg/Kg	☼	11/09/21 14:30	11/16/21 13:32	5
Copper SEM	**13**		4.8	0.42	mg/Kg	☼	11/09/21 14:30	11/16/21 13:32	5
Lead SEM	**15**		0.38	0.17	mg/Kg	☼	11/09/21 14:30	11/16/21 12:59	1
Nickel SEM	**3.2**		1.5	0.072	mg/Kg	☼	11/09/21 14:30	11/16/21 12:59	1
Silver SEM	ND		0.96	0.17	mg/Kg	☼	11/09/21 14:30	11/16/21 13:32	5
Zinc SEM	**43**	**B**	19	0.50	mg/Kg	☼	11/09/21 14:30	11/16/21 13:32	5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.016	0.0097	umol/g	☼	11/09/21 14:30	11/16/21 13:32	5
Arsenic SEM	ND		0.026	0.021	umol/g	☼	11/09/21 14:30	11/16/21 13:32	5
Cadmium SEM	**0.00061**	**J**	0.0085	0.00050	umol/g	☼	11/09/21 14:30	11/16/21 13:32	5
Chromium SEM	**0.13**		0.018	0.0059	umol/g	☼	11/09/21 14:30	11/16/21 13:32	5
Copper SEM	**0.20**		0.075	0.0066	umol/g	☼	11/09/21 14:30	11/16/21 13:32	5
Lead SEM	**0.074**		0.0018	0.00081	umol/g	☼	11/09/21 14:30	11/16/21 12:59	1
Nickel SEM	**0.055**		0.026	0.0012	umol/g	☼	11/09/21 14:30	11/16/21 12:59	1
Silver SEM	ND		0.0089	0.0016	umol/g	☼	11/09/21 14:30	11/16/21 13:32	5
Zinc SEM	**0.65**	**B**	0.29	0.0077	umol/g	☼	11/09/21 14:30	11/16/21 13:32	5

Method: EPA 7470A - Mercury (CVAA) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.0076	0.0039	mg/Kg	☼	11/09/21 14:30	11/17/21 12:16	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.000038	0.000019	umol/g	☼	11/09/21 14:30	11/17/21 12:16	1

Method: SEM - Metals, Simultaneously Extracted Metals (SEM) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
SEM/AVS Ratio	**NC**		0.0010	NaN	NONE			11/29/21 09:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**34.5**		0.1	0.1	%			11/11/21 16:09	1
Percent Solids	**65.5**		0.1	0.1	%			11/11/21 16:09	1

General Chemistry - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		23	7.6	mg/Kg	☼	11/09/21 14:30	11/09/21 15:55	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		0.72	0.24	umol/g	☼	11/09/21 14:30	11/09/21 15:55	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Gravity at 20 deg Celsius	**2.64**				NONE			11/18/21 19:52	1

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-1

Client Sample ID: 131831005
Date Collected: 10/28/21 11:40
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-5
Matrix: Sediment
Percent Solids: 85.2

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		3.9	1.0	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Benzo[a]anthracene	**3.1**	**J**	3.9	1.7	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Benzo[b]fluoranthene	**2.9**	**J**	3.9	0.95	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Benzo[k]fluoranthene	**2.3**	**J**	3.9	1.2	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Benzo[g,h,i]perylene	**2.1**	**J**	3.9	0.84	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Benzo[a]pyrene	**2.6**	**J**	3.9	1.7	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Chrysene	**3.2**	**J**	3.9	2.1	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Dibenz(a,h)anthracene	ND		3.9	2.5	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Fluoranthene	**3.6**	**J**	3.9	1.0	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Fluorene	ND		3.9	0.76	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Indeno[1,2,3-cd]pyrene	**1.9**	**J**	3.9	1.9	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Phenanthrene	**1.7**	**J**	3.9	1.0	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Pyrene	**4.1**		3.9	0.92	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Acenaphthene	ND		3.9	1.1	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Acenaphthylene	ND		3.9	0.85	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1
Naphthalene	ND		3.9	0.76	ug/Kg	☼	11/08/21 19:01	11/09/21 20:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*97*		*34 - 109*	*11/08/21 19:01*	*11/09/21 20:45*	*1*
2-Fluorobiphenyl	*87*		*35 - 105*	*11/08/21 19:01*	*11/09/21 20:45*	*1*
Terphenyl-d14 (Surr)	*99*		*20 - 117*	*11/08/21 19:01*	*11/09/21 20:45*	*1*

Method: EPA 8081B LL - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.49	0.21	ug/Kg	☼	11/05/21 22:17	11/15/21 22:24	1
4,4'-DDE	ND		0.049	0.0099	ug/Kg	☼	11/05/21 22:17	11/15/21 22:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*50*		*10 - 105*	*11/05/21 22:17*	*11/15/21 22:24*	*1*
Tetrachloro-m-xylene (Surr)	*47*		*10 - 105*	*11/05/21 22:17*	*11/15/21 22:24*	*1*
DCB Decachlorobiphenyl (Surr)	*68*		*25 - 107*	*11/05/21 22:17*	*11/15/21 22:24*	*1*
DCB Decachlorobiphenyl (Surr)	*69*		*25 - 107*	*11/05/21 22:17*	*11/15/21 22:24*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.48	0.16	ug/Kg	☼	11/08/21 14:15	11/09/21 16:49	1
PCB-1221	ND		0.48	0.17	ug/Kg	☼	11/08/21 14:15	11/09/21 16:49	1
PCB-1232	ND		0.48	0.12	ug/Kg	☼	11/08/21 14:15	11/09/21 16:49	1
PCB-1242	ND		0.48	0.071	ug/Kg	☼	11/08/21 14:15	11/09/21 16:49	1
PCB-1248	ND		0.48	0.12	ug/Kg	☼	11/08/21 14:15	11/09/21 16:49	1
PCB-1254	ND		0.48	0.15	ug/Kg	☼	11/08/21 14:15	11/09/21 16:49	1
PCB-1260	**0.54**		0.48	0.14	ug/Kg	☼	11/08/21 14:15	11/09/21 16:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*92*		*26 - 170*	*11/08/21 14:15*	*11/09/21 16:49*	*1*
DCB Decachlorobiphenyl (Surr)	*94*		*26 - 170*	*11/08/21 14:15*	*11/09/21 16:49*	*1*
Tetrachloro-m-xylene (Surr)	*77*		*33 - 126*	*11/08/21 14:15*	*11/09/21 16:49*	*1*
Tetrachloro-m-xylene (Surr)	*75*		*33 - 126*	*11/08/21 14:15*	*11/09/21 16:49*	*1*

Client Sample ID: 131831005
Date Collected: 10/28/21 11:40
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-5
Matrix: Sediment
Percent Solids: 85.2

Method: PCB - Total PCB Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Polychlorinated biphenyls, Total	0.54		0.48	0.17	ug/Kg			11/08/21 14:15	1

Method: 6010D - Metals (ICP) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.29	0.18	mg/Kg	☼	11/09/21 14:30	11/16/21 13:04	1
Arsenic SEM	ND		0.29	0.24	mg/Kg	☼	11/09/21 14:30	11/16/21 13:04	1
Cadmium SEM	ND		0.15	0.0087	mg/Kg	☼	11/09/21 14:30	11/16/21 13:04	1
Chromium SEM	1.2		0.15	0.047	mg/Kg	☼	11/09/21 14:30	11/16/21 13:04	1
Copper SEM	0.60	J	0.73	0.065	mg/Kg	☼	11/09/21 14:30	11/16/21 13:04	1
Lead SEM	0.99		0.29	0.13	mg/Kg	☼	11/09/21 14:30	11/16/21 13:04	1
Nickel SEM	0.37	J	1.2	0.055	mg/Kg	☼	11/09/21 14:30	11/16/21 13:04	1
Silver SEM	0.085	J	0.15	0.027	mg/Kg	☼	11/09/21 14:30	11/16/21 13:04	1
Zinc SEM	2.8	J B	2.9	0.077	mg/Kg	☼	11/09/21 14:30	11/16/21 13:04	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.0024	0.0015	umol/g	☼	11/09/21 14:30	11/16/21 13:04	1
Arsenic SEM	ND		0.0039	0.0033	umol/g	☼	11/09/21 14:30	11/16/21 13:04	1
Cadmium SEM	ND		0.0013	0.000077	umol/g	☼	11/09/21 14:30	11/16/21 13:04	1
Chromium SEM	0.024		0.0028	0.00091	umol/g	☼	11/09/21 14:30	11/16/21 13:04	1
Copper SEM	0.0095	J	0.012	0.0010	umol/g	☼	11/09/21 14:30	11/16/21 13:04	1
Lead SEM	0.0048		0.0014	0.00062	umol/g	☼	11/09/21 14:30	11/16/21 13:04	1
Nickel SEM	0.0063	J	0.020	0.00094	umol/g	☼	11/09/21 14:30	11/16/21 13:04	1
Silver SEM	0.00079	J	0.0014	0.00025	umol/g	☼	11/09/21 14:30	11/16/21 13:04	1
Zinc SEM	0.043	J B	0.045	0.0012	umol/g	☼	11/09/21 14:30	11/16/21 13:04	1

Method: EPA 7470A - Mercury (CVAA) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.0059	0.0030	mg/Kg	☼	11/09/21 14:30	11/17/21 12:17	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.000029	0.000015	umol/g	☼	11/09/21 14:30	11/17/21 12:17	1

Method: SEM - Metals, Simultaneously Extracted Metals (SEM) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
SEM/AVS Ratio	NC		0.0010	NaN	NONE			11/29/21 09:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.8		0.1	0.1	%			11/11/21 16:09	1
Percent Solids	85.2		0.1	0.1	%			11/11/21 16:09	1

General Chemistry - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		18	5.9	mg/Kg	☼	11/09/21 14:30	11/09/21 15:58	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		0.55	0.18	umol/g	☼	11/09/21 14:30	11/09/21 15:58	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Gravity at 20 deg Celsius	2.68				NONE			11/18/21 19:52	1

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-1

Client Sample ID: 131831006
Date Collected: 10/28/21 15:10
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-6
Matrix: Sediment
Percent Solids: 78.1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		4.3	1.1	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Benzo[a]anthracene	ND		4.3	1.9	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Benzo[b]fluoranthene	ND		4.3	1.0	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Benzo[k]fluoranthene	ND		4.3	1.3	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Benzo[g,h,i]perylene	ND		4.3	0.92	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Benzo[a]pyrene	ND		4.3	1.8	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Chrysene	ND		4.3	2.4	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Dibenz(a,h)anthracene	ND		4.3	2.7	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Fluoranthene	ND		4.3	1.1	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Fluorene	ND		4.3	0.84	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Indeno[1,2,3-cd]pyrene	ND		4.3	2.1	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Phenanthrene	ND		4.3	1.1	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Pyrene	ND		4.3	1.0	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Acenaphthene	ND		4.3	1.2	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Acenaphthylene	ND		4.3	0.93	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1
Naphthalene	ND		4.3	0.83	ug/Kg	☼	11/08/21 19:01	11/09/21 21:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*66*		*34 - 109*	*11/08/21 19:01*	*11/09/21 21:06*	*1*
2-Fluorobiphenyl	*60*		*35 - 105*	*11/08/21 19:01*	*11/09/21 21:06*	*1*
Terphenyl-d14 (Surr)	*71*		*20 - 117*	*11/08/21 19:01*	*11/09/21 21:06*	*1*

Method: EPA 8081B LL - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		2.6	1.1	ug/Kg	☼	11/05/21 22:17	11/15/21 22:39	5
4,4'-DDE	ND		0.26	0.054	ug/Kg	☼	11/05/21 22:17	11/15/21 22:39	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*33*		*10 - 105*	*11/05/21 22:17*	*11/15/21 22:39*	*5*
Tetrachloro-m-xylene (Surr)	*39*		*10 - 105*	*11/05/21 22:17*	*11/15/21 22:39*	*5*
DCB Decachlorobiphenyl (Surr)	*59*		*25 - 107*	*11/05/21 22:17*	*11/15/21 22:39*	*5*
DCB Decachlorobiphenyl (Surr)	*64*		*25 - 107*	*11/05/21 22:17*	*11/15/21 22:39*	*5*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.53	0.17	ug/Kg	☼	11/08/21 14:15	11/09/21 17:08	1
PCB-1221	ND		0.53	0.19	ug/Kg	☼	11/08/21 14:15	11/09/21 17:08	1
PCB-1232	ND		0.53	0.13	ug/Kg	☼	11/08/21 14:15	11/09/21 17:08	1
PCB-1242	ND		0.53	0.078	ug/Kg	☼	11/08/21 14:15	11/09/21 17:08	1
PCB-1248	ND		0.53	0.13	ug/Kg	☼	11/08/21 14:15	11/09/21 17:08	1
PCB-1254	ND		0.53	0.16	ug/Kg	☼	11/08/21 14:15	11/09/21 17:08	1
PCB-1260	**0.22**	**J**	0.53	0.15	ug/Kg	☼	11/08/21 14:15	11/09/21 17:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*98*		*26 - 170*	*11/08/21 14:15*	*11/09/21 17:08*	*1*
DCB Decachlorobiphenyl (Surr)	*97*		*26 - 170*	*11/08/21 14:15*	*11/09/21 17:08*	*1*
Tetrachloro-m-xylene (Surr)	*82*		*33 - 126*	*11/08/21 14:15*	*11/09/21 17:08*	*1*
Tetrachloro-m-xylene (Surr)	*77*		*33 - 126*	*11/08/21 14:15*	*11/09/21 17:08*	*1*

Client Sample ID: 131831006

Date Collected: 10/28/21 15:10
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-6

Matrix: Sediment
Percent Solids: 78.1

Method: PCB - Total PCB Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Polychlorinated biphenyls, Total	0.22	J	0.53	0.19	ug/Kg			11/08/21 14:15	1

Method: 6010D - Metals (ICP) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.32	0.20	mg/Kg	☼	11/09/21 14:30	11/16/21 13:09	1
Arsenic SEM	0.30	J	0.32	0.27	mg/Kg	☼	11/09/21 14:30	11/16/21 13:09	1
Cadmium SEM	0.011	J	0.16	0.0094	mg/Kg	☼	11/09/21 14:30	11/16/21 13:09	1
Chromium SEM	2.6		0.16	0.051	mg/Kg	☼	11/09/21 14:30	11/16/21 13:09	1
Copper SEM	0.98		0.80	0.070	mg/Kg	☼	11/09/21 14:30	11/16/21 13:09	1
Lead SEM	1.6		0.32	0.14	mg/Kg	☼	11/09/21 14:30	11/16/21 13:09	1
Nickel SEM	1.4		1.3	0.060	mg/Kg	☼	11/09/21 14:30	11/16/21 13:09	1
Silver SEM	ND		0.16	0.029	mg/Kg	☼	11/09/21 14:30	11/16/21 13:09	1
Zinc SEM	13	B	3.2	0.084	mg/Kg	☼	11/09/21 14:30	11/16/21 13:09	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.0026	0.0016	umol/g	☼	11/09/21 14:30	11/16/21 13:09	1
Arsenic SEM	0.0040	J	0.0043	0.0035	umol/g	☼	11/09/21 14:30	11/16/21 13:09	1
Cadmium SEM	0.000094	J	0.0014	0.000084	umol/g	☼	11/09/21 14:30	11/16/21 13:09	1
Chromium SEM	0.049		0.0031	0.00099	umol/g	☼	11/09/21 14:30	11/16/21 13:09	1
Copper SEM	0.015		0.013	0.0011	umol/g	☼	11/09/21 14:30	11/16/21 13:09	1
Lead SEM	0.0078		0.0015	0.00068	umol/g	☼	11/09/21 14:30	11/16/21 13:09	1
Nickel SEM	0.024		0.022	0.0010	umol/g	☼	11/09/21 14:30	11/16/21 13:09	1
Silver SEM	ND		0.0015	0.00027	umol/g	☼	11/09/21 14:30	11/16/21 13:09	1
Zinc SEM	0.19	B	0.049	0.0013	umol/g	☼	11/09/21 14:30	11/16/21 13:09	1

Method: EPA 7470A - Mercury (CVAA) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.0064	0.0032	mg/Kg	☼	11/09/21 14:30	11/17/21 12:18	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.000032	0.000016	umol/g	☼	11/09/21 14:30	11/17/21 12:18	1

Method: SEM - Metals, Simultaneously Extracted Metals (SEM) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
SEM/AVS Ratio	NC		0.0010	NaN	NONE			11/29/21 09:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	21.9		0.1	0.1	%			11/11/21 16:09	1
Percent Solids	78.1		0.1	0.1	%			11/11/21 16:09	1

General Chemistry - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		19	6.4	mg/Kg	☼	11/09/21 14:30	11/09/21 16:00	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		0.60	0.20	umol/g	☼	11/09/21 14:30	11/09/21 16:00	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Gravity at 20 deg Celsius	2.66				NONE			11/18/21 19:52	1

Client Sample ID: 131831007
Date Collected: 10/29/21 18:24
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-7
Matrix: Sediment
Percent Solids: 80.6

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	**14**		4.2	1.1	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Benzo[a]anthracene	**66**		4.2	1.9	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Benzo[b]fluoranthene	**72**		4.2	1.0	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Benzo[k]fluoranthene	**26**		4.2	1.2	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Benzo[g,h,i]perylene	**42**		4.2	0.89	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Benzo[a]pyrene	**50**		4.2	1.8	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Chrysene	**65**		4.2	2.3	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Dibenz(a,h)anthracene	**12**		4.2	2.6	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Fluoranthene	**150**		4.2	1.1	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Fluorene	**10**		4.2	0.81	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Indeno[1,2,3-cd]pyrene	**37**		4.2	2.1	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Phenanthrene	**130**		4.2	1.1	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Pyrene	**130**		4.2	0.98	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Acenaphthene	**8.4**		4.2	1.2	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Acenaphthylene	**4.3**		4.2	0.91	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1
Naphthalene	**4.1**	**J**	4.2	0.81	ug/Kg	☼	11/08/21 19:01	11/09/21 21:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*89*		*34 - 109*	*11/08/21 19:01*	*11/09/21 21:28*	*1*
2-Fluorobiphenyl	*80*		*35 - 105*	*11/08/21 19:01*	*11/09/21 21:28*	*1*
Terphenyl-d14 (Surr)	*89*		*20 - 117*	*11/08/21 19:01*	*11/09/21 21:28*	*1*

Method: EPA 8081B LL - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.51	0.22	ug/Kg	☼	11/05/21 22:17	11/15/21 22:55	1
4,4'-DDE	ND		0.051	0.010	ug/Kg	☼	11/05/21 22:17	11/15/21 22:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*45*		*10 - 105*	*11/05/21 22:17*	*11/15/21 22:55*	*1*
Tetrachloro-m-xylene (Surr)	*43*		*10 - 105*	*11/05/21 22:17*	*11/15/21 22:55*	*1*
DCB Decachlorobiphenyl (Surr)	*60*		*25 - 107*	*11/05/21 22:17*	*11/15/21 22:55*	*1*
DCB Decachlorobiphenyl (Surr)	*56*		*25 - 107*	*11/05/21 22:17*	*11/15/21 22:55*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.52	0.17	ug/Kg	☼	11/08/21 14:15	11/09/21 17:26	1
PCB-1221	ND		0.52	0.18	ug/Kg	☼	11/08/21 14:15	11/09/21 17:26	1
PCB-1232	ND		0.52	0.13	ug/Kg	☼	11/08/21 14:15	11/09/21 17:26	1
PCB-1242	ND		0.52	0.076	ug/Kg	☼	11/08/21 14:15	11/09/21 17:26	1
PCB-1248	ND		0.52	0.13	ug/Kg	☼	11/08/21 14:15	11/09/21 17:26	1
PCB-1254	ND		0.52	0.16	ug/Kg	☼	11/08/21 14:15	11/09/21 17:26	1
PCB-1260	**0.18**	**J**	0.52	0.15	ug/Kg	☼	11/08/21 14:15	11/09/21 17:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*98*		*26 - 170*	*11/08/21 14:15*	*11/09/21 17:26*	*1*
DCB Decachlorobiphenyl (Surr)	*97*		*26 - 170*	*11/08/21 14:15*	*11/09/21 17:26*	*1*
Tetrachloro-m-xylene (Surr)	*83*		*33 - 126*	*11/08/21 14:15*	*11/09/21 17:26*	*1*
Tetrachloro-m-xylene (Surr)	*78*		*33 - 126*	*11/08/21 14:15*	*11/09/21 17:26*	*1*

Client Sample ID: 131831007
Date Collected: 10/29/21 18:24
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-7
Matrix: Sediment
Percent Solids: 80.6

Method: PCB - Total PCB Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Polychlorinated biphenyls, Total	0.18	J	0.52	0.18	ug/Kg			11/08/21 14:15	1

Method: 6010D - Metals (ICP) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.31	0.19	mg/Kg	☼	11/09/21 14:30	11/16/21 13:13	1
Arsenic SEM	0.27	J	0.31	0.26	mg/Kg	☼	11/09/21 14:30	11/16/21 13:13	1
Cadmium SEM	0.0096	J	0.15	0.0092	mg/Kg	☼	11/09/21 14:30	11/16/21 13:13	1
Chromium SEM	2.2		0.15	0.050	mg/Kg	☼	11/09/21 14:30	11/16/21 13:13	1
Copper SEM	0.94		0.77	0.068	mg/Kg	☼	11/09/21 14:30	11/16/21 13:13	1
Lead SEM	1.7		0.31	0.14	mg/Kg	☼	11/09/21 14:30	11/16/21 13:13	1
Nickel SEM	1.2		1.2	0.058	mg/Kg	☼	11/09/21 14:30	11/16/21 13:13	1
Silver SEM	ND		0.15	0.028	mg/Kg	☼	11/09/21 14:30	11/16/21 13:13	1
Zinc SEM	10	B	3.1	0.082	mg/Kg	☼	11/09/21 14:30	11/16/21 13:13	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.0025	0.0016	umol/g	☼	11/09/21 14:30	11/16/21 13:13	1
Arsenic SEM	0.0036	J	0.0041	0.0034	umol/g	☼	11/09/21 14:30	11/16/21 13:13	1
Cadmium SEM	0.000085	J	0.0014	0.000081	umol/g	☼	11/09/21 14:30	11/16/21 13:13	1
Chromium SEM	0.042		0.0030	0.00096	umol/g	☼	11/09/21 14:30	11/16/21 13:13	1
Copper SEM	0.015		0.012	0.0011	umol/g	☼	11/09/21 14:30	11/16/21 13:13	1
Lead SEM	0.0081		0.0015	0.00066	umol/g	☼	11/09/21 14:30	11/16/21 13:13	1
Nickel SEM	0.021		0.021	0.00099	umol/g	☼	11/09/21 14:30	11/16/21 13:13	1
Silver SEM	ND		0.0014	0.00026	umol/g	☼	11/09/21 14:30	11/16/21 13:13	1
Zinc SEM	0.16	B	0.047	0.0012	umol/g	☼	11/09/21 14:30	11/16/21 13:13	1

Method: EPA 7470A - Mercury (CVAA) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.0062	0.0031	mg/Kg	☼	11/09/21 14:30	11/17/21 12:19	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.000031	0.000016	umol/g	☼	11/09/21 14:30	11/17/21 12:19	1

Method: SEM - Metals, Simultaneously Extracted Metals (SEM) - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
SEM/AVS Ratio	NC		0.0010	NaN	NONE			11/29/21 09:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	19.4		0.1	0.1	%			11/11/21 16:09	1
Percent Solids	80.6		0.1	0.1	%			11/11/21 16:09	1

General Chemistry - SEM/AVS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		19	6.2	mg/Kg	☼	11/09/21 14:30	11/09/21 16:08	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		0.58	0.19	umol/g	☼	11/09/21 14:30	11/09/21 16:08	1

Method: D854 - Specific Gravity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Gravity at 20 deg Celsius	2.67				NONE			11/18/21 19:52	1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-378131/1-A
Matrix: Sediment
Analysis Batch: 378209

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378131

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		3.4	0.87	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Benzo[a]anthracene	ND		3.4	1.5	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Benzo[b]fluoranthene	ND		3.4	0.82	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Benzo[k]fluoranthene	ND		3.4	1.0	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Benzo[g,h,i]perylene	ND		3.4	0.72	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Benzo[a]pyrene	ND		3.4	1.4	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Chrysene	ND		3.4	1.9	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Dibenz(a,h)anthracene	ND		3.4	2.1	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Fluoranthene	ND		3.4	0.88	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Fluorene	ND		3.4	0.66	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Indeno[1,2,3-cd]pyrene	ND		3.4	1.7	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Phenanthrene	ND		3.4	0.90	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Pyrene	ND		3.4	0.79	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Acenaphthene	ND		3.4	0.96	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Acenaphthylene	ND		3.4	0.73	ug/Kg		11/08/21 19:01	11/09/21 13:30	1
Naphthalene	ND		3.4	0.65	ug/Kg		11/08/21 19:01	11/09/21 13:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*89*		*34 - 109*	*11/08/21 19:01*	*11/09/21 13:30*	*1*
2-Fluorobiphenyl	*83*		*35 - 105*	*11/08/21 19:01*	*11/09/21 13:30*	*1*
Terphenyl-d14 (Surr)	*87*		*20 - 117*	*11/08/21 19:01*	*11/09/21 13:30*	*1*

Lab Sample ID: LCS 180-378131/2-A
Matrix: Sediment
Analysis Batch: 378209

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378131

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Anthracene	333	264		ug/Kg		79	47 - 100
Benzo[a]anthracene	333	279		ug/Kg		84	47 - 100
Benzo[b]fluoranthene	333	236		ug/Kg		71	44 - 100
Benzo[k]fluoranthene	333	225		ug/Kg		68	43 - 100
Benzo[g,h,i]perylene	333	251		ug/Kg		75	45 - 103
Benzo[a]pyrene	333	246		ug/Kg		74	45 - 101
Chrysene	333	250		ug/Kg		75	44 - 100
Dibenz(a,h)anthracene	333	262		ug/Kg		79	46 - 107
Fluoranthene	333	273		ug/Kg		82	49 - 102
Fluorene	333	261		ug/Kg		78	46 - 100
Indeno[1,2,3-cd]pyrene	333	265		ug/Kg		80	48 - 104
Phenanthrene	333	251		ug/Kg		75	46 - 100
Pyrene	333	281		ug/Kg		84	44 - 102
Acenaphthene	333	261		ug/Kg		78	41 - 100
Acenaphthylene	333	256		ug/Kg		77	45 - 100
Naphthalene	333	248		ug/Kg		75	43 - 100

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*87*		*34 - 109*
2-Fluorobiphenyl	*75*		*35 - 105*
Terphenyl-d14 (Surr)	*85*		*20 - 117*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: 180-129488-3 MS
Matrix: Sediment
Analysis Batch: 378209

Client Sample ID: 131831003
Prep Type: Total/NA
Prep Batch: 378131

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Anthracene	ND		422	244		ug/Kg	☼	58	47 - 100
Benzo[a]anthracene	ND		422	268		ug/Kg	☼	63	47 - 100
Benzo[b]fluoranthene	ND		422	213		ug/Kg	☼	50	44 - 100
Benzo[k]fluoranthene	ND		422	214		ug/Kg	☼	51	43 - 100
Benzo[g,h,i]perylene	ND		422	233		ug/Kg	☼	55	45 - 103
Benzo[a]pyrene	ND		422	221		ug/Kg	☼	52	45 - 101
Chrysene	ND		422	240		ug/Kg	☼	57	44 - 100
Dibenz(a,h)anthracene	ND		422	242		ug/Kg	☼	57	46 - 107
Fluoranthene	ND		422	249		ug/Kg	☼	59	49 - 102
Fluorene	ND		422	233		ug/Kg	☼	55	46 - 100
Indeno[1,2,3-cd]pyrene	ND		422	244		ug/Kg	☼	58	48 - 104
Phenanthrene	ND		422	231		ug/Kg	☼	55	46 - 100
Pyrene	ND		422	271		ug/Kg	☼	64	44 - 102
Acenaphthene	ND		422	233		ug/Kg	☼	55	41 - 100
Acenaphthylene	ND		422	230		ug/Kg	☼	54	45 - 100
Naphthalene	ND		422	209		ug/Kg	☼	49	43 - 100

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*64*		*34 - 109*
2-Fluorobiphenyl	*57*		*35 - 105*
Terphenyl-d14 (Surr)	*70*		*20 - 117*

Lab Sample ID: 180-129488-3 MSD
Matrix: Sediment
Analysis Batch: 378209

Client Sample ID: 131831003
Prep Type: Total/NA
Prep Batch: 378131

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Anthracene	ND		427	234		ug/Kg	☼	55	47 - 100	4	26
Benzo[a]anthracene	ND		427	264		ug/Kg	☼	62	47 - 100	1	24
Benzo[b]fluoranthene	ND		427	217		ug/Kg	☼	51	44 - 100	2	26
Benzo[k]fluoranthene	ND		427	194		ug/Kg	☼	45	43 - 100	10	18
Benzo[g,h,i]perylene	ND		427	226		ug/Kg	☼	53	45 - 103	3	22
Benzo[a]pyrene	ND		427	219		ug/Kg	☼	51	45 - 101	1	21
Chrysene	ND		427	237		ug/Kg	☼	55	44 - 100	1	26
Dibenz(a,h)anthracene	ND		427	238		ug/Kg	☼	56	46 - 107	2	24
Fluoranthene	ND		427	238		ug/Kg	☼	56	49 - 102	4	26
Fluorene	ND		427	225		ug/Kg	☼	53	46 - 100	4	22
Indeno[1,2,3-cd]pyrene	ND		427	235		ug/Kg	☼	55	48 - 104	4	22
Phenanthrene	ND		427	224		ug/Kg	☼	53	46 - 100	3	27
Pyrene	ND		427	267		ug/Kg	☼	63	44 - 102	1	27
Acenaphthene	ND		427	223		ug/Kg	☼	52	41 - 100	4	22
Acenaphthylene	ND		427	224		ug/Kg	☼	52	45 - 100	3	23
Naphthalene	ND		427	198		ug/Kg	☼	46	43 - 100	5	28

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*61*		*34 - 109*
2-Fluorobiphenyl	*55*		*35 - 105*
Terphenyl-d14 (Surr)	*70*		*20 - 117*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-378135/1-A
Matrix: Sediment
Analysis Batch: 378179

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378135

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		3.4	0.87	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Benzo[a]anthracene	ND		3.4	1.5	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Benzo[b]fluoranthene	ND		3.4	0.82	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Benzo[k]fluoranthene	ND		3.4	1.0	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Benzo[g,h,i]perylene	ND		3.4	0.72	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Benzo[a]pyrene	ND		3.4	1.4	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Chrysene	ND		3.4	1.9	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Dibenz(a,h)anthracene	ND		3.4	2.1	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Fluoranthene	ND		3.4	0.88	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Fluorene	ND		3.4	0.66	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Indeno[1,2,3-cd]pyrene	ND		3.4	1.7	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Phenanthrene	ND		3.4	0.90	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Pyrene	ND		3.4	0.79	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Acenaphthene	ND		3.4	0.96	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Acenaphthylene	ND		3.4	0.73	ug/Kg		11/08/21 20:03	11/09/21 09:46	1
Naphthalene	ND		3.4	0.65	ug/Kg		11/08/21 20:03	11/09/21 09:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*72*		*34 - 109*	*11/08/21 20:03*	*11/09/21 09:46*	*1*
2-Fluorobiphenyl	*68*		*35 - 105*	*11/08/21 20:03*	*11/09/21 09:46*	*1*
Terphenyl-d14 (Surr)	*76*		*20 - 117*	*11/08/21 20:03*	*11/09/21 09:46*	*1*

Lab Sample ID: LCS 180-378135/2-A
Matrix: Sediment
Analysis Batch: 378179

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378135

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Anthracene	333	248		ug/Kg		75	47 - 100
Benzo[a]anthracene	333	265		ug/Kg		79	47 - 100
Benzo[b]fluoranthene	333	236		ug/Kg		71	44 - 100
Benzo[k]fluoranthene	333	207		ug/Kg		62	43 - 100
Benzo[g,h,i]perylene	333	210		ug/Kg		63	45 - 103
Benzo[a]pyrene	333	228		ug/Kg		69	45 - 101
Chrysene	333	234		ug/Kg		70	44 - 100
Dibenz(a,h)anthracene	333	233		ug/Kg		70	46 - 107
Fluoranthene	333	249		ug/Kg		75	49 - 102
Fluorene	333	231		ug/Kg		69	46 - 100
Indeno[1,2,3-cd]pyrene	333	233		ug/Kg		70	48 - 104
Phenanthrene	333	243		ug/Kg		73	46 - 100
Pyrene	333	254		ug/Kg		76	44 - 102
Acenaphthene	333	239		ug/Kg		72	41 - 100
Acenaphthylene	333	242		ug/Kg		73	45 - 100
Naphthalene	333	240		ug/Kg		72	43 - 100

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*76*		*34 - 109*
2-Fluorobiphenyl	*72*		*35 - 105*
Terphenyl-d14 (Surr)	*77*		*20 - 117*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: 180-129488-1 MS
Matrix: Sediment
Analysis Batch: 378179

Client Sample ID: 131831001
Prep Type: Total/NA
Prep Batch: 378135

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Anthracene	ND		395	278		ug/Kg	☼	70	47 - 100
Benzo[a]anthracene	ND		395	299		ug/Kg	☼	76	47 - 100
Benzo[b]fluoranthene	1.9	J	395	257		ug/Kg	☼	64	44 - 100
Benzo[k]fluoranthene	ND		395	223		ug/Kg	☼	56	43 - 100
Benzo[g,h,i]perylene	1.0	J	395	247		ug/Kg	☼	62	45 - 103
Benzo[a]pyrene	ND		395	246		ug/Kg	☼	62	45 - 101
Chrysene	ND		395	262		ug/Kg	☼	66	44 - 100
Dibenz(a,h)anthracene	ND		395	264		ug/Kg	☼	67	46 - 107
Fluoranthene	2.1	J	395	263		ug/Kg	☼	66	49 - 102
Fluorene	ND		395	250		ug/Kg	☼	63	46 - 100
Indeno[1,2,3-cd]pyrene	ND		395	263		ug/Kg	☼	67	48 - 104
Phenanthrene	1.8	J	395	265		ug/Kg	☼	67	46 - 100
Pyrene	2.1	J	395	297		ug/Kg	☼	75	44 - 102
Acenaphthene	ND		395	258		ug/Kg	☼	65	41 - 100
Acenaphthylene	ND		395	266		ug/Kg	☼	67	45 - 100
Naphthalene	ND		395	261		ug/Kg	☼	66	43 - 100

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*67*		*34 - 109*
2-Fluorobiphenyl	*64*		*35 - 105*
Terphenyl-d14 (Surr)	*77*		*20 - 117*

Lab Sample ID: 180-129488-1 MSD
Matrix: Sediment
Analysis Batch: 378179

Client Sample ID: 131831001
Prep Type: Total/NA
Prep Batch: 378135

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Anthracene	ND		394	282		ug/Kg	☼	72	47 - 100	1	26
Benzo[a]anthracene	ND		394	300		ug/Kg	☼	76	47 - 100	0	24
Benzo[b]fluoranthene	1.9	J	394	269		ug/Kg	☼	68	44 - 100	5	26
Benzo[k]fluoranthene	ND		394	230		ug/Kg	☼	58	43 - 100	3	18
Benzo[g,h,i]perylene	1.0	J	394	248		ug/Kg	☼	63	45 - 103	1	22
Benzo[a]pyrene	ND		394	254		ug/Kg	☼	64	45 - 101	3	21
Chrysene	ND		394	263		ug/Kg	☼	67	44 - 100	0	26
Dibenz(a,h)anthracene	ND		394	269		ug/Kg	☼	68	46 - 107	2	24
Fluoranthene	2.1	J	394	262		ug/Kg	☼	66	49 - 102	0	26
Fluorene	ND		394	256		ug/Kg	☼	65	46 - 100	2	22
Indeno[1,2,3-cd]pyrene	ND		394	264		ug/Kg	☼	67	48 - 104	0	22
Phenanthrene	1.8	J	394	277		ug/Kg	☼	70	46 - 100	4	27
Pyrene	2.1	J	394	312		ug/Kg	☼	79	44 - 102	5	27
Acenaphthene	ND		394	265		ug/Kg	☼	67	41 - 100	3	22
Acenaphthylene	ND		394	272		ug/Kg	☼	69	45 - 100	3	23
Naphthalene	ND		394	262		ug/Kg	☼	67	43 - 100	1	28

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*68*		*34 - 109*
2-Fluorobiphenyl	*67*		*35 - 105*
Terphenyl-d14 (Surr)	*82*		*20 - 117*

Method: EPA 8081B LL - Organochlorine Pesticides (GC)

Lab Sample ID: MB 180-377887/1-B
Matrix: Sediment
Analysis Batch: 378906

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 377887

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.42	0.18	ug/Kg		11/05/21 22:17	11/15/21 18:29	1
4,4'-DDE	ND		0.042	0.0085	ug/Kg		11/05/21 22:17	11/15/21 18:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene (Surr)	*39*		*10 - 105*	*11/05/21 22:17*	*11/15/21 18:29*	*1*
Tetrachloro-m-xylene (Surr)	*40*		*10 - 105*	*11/05/21 22:17*	*11/15/21 18:29*	*1*
DCB Decachlorobiphenyl (Surr)	*47*		*25 - 107*	*11/05/21 22:17*	*11/15/21 18:29*	*1*
DCB Decachlorobiphenyl (Surr)	*51*		*25 - 107*	*11/05/21 22:17*	*11/15/21 18:29*	*1*

Lab Sample ID: LCS 180-377887/2-B
Matrix: Sediment
Analysis Batch: 378906

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 377887

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
4,4'-DDE			1.67	0.627	p	ug/Kg		38	28 - 128		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene (Surr)	*42*		*10 - 105*
Tetrachloro-m-xylene (Surr)	*45*		*10 - 105*
DCB Decachlorobiphenyl (Surr)	*62*		*25 - 107*
DCB Decachlorobiphenyl (Surr)	*52*		*25 - 107*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 180-377888/1-C
Matrix: Sediment
Analysis Batch: 378144

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 377888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.42	0.14	ug/Kg		11/08/21 14:15	11/09/21 14:01	1
PCB-1221	ND		0.42	0.15	ug/Kg		11/08/21 14:15	11/09/21 14:01	1
PCB-1232	ND		0.42	0.10	ug/Kg		11/08/21 14:15	11/09/21 14:01	1
PCB-1242	ND		0.42	0.061	ug/Kg		11/08/21 14:15	11/09/21 14:01	1
PCB-1248	ND		0.42	0.10	ug/Kg		11/08/21 14:15	11/09/21 14:01	1
PCB-1254	ND		0.42	0.13	ug/Kg		11/08/21 14:15	11/09/21 14:01	1
PCB-1260	ND		0.42	0.12	ug/Kg		11/08/21 14:15	11/09/21 14:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*106*		*26 - 170*	*11/08/21 14:15*	*11/09/21 14:01*	*1*
DCB Decachlorobiphenyl (Surr)	*103*		*26 - 170*	*11/08/21 14:15*	*11/09/21 14:01*	*1*
Tetrachloro-m-xylene (Surr)	*93*		*33 - 126*	*11/08/21 14:15*	*11/09/21 14:01*	*1*
Tetrachloro-m-xylene (Surr)	*89*		*33 - 126*	*11/08/21 14:15*	*11/09/21 14:01*	*1*

Method: EPA 8082A - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

Lab Sample ID: LCS 180-377888/2-C
Matrix: Sediment
Analysis Batch: 378144

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 377888

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016			33.3	24.3		ug/Kg		73	32 - 126		
PCB-1260			33.3	28.6		ug/Kg		86	40 - 121		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*106*		*26 - 170*
DCB Decachlorobiphenyl (Surr)	*106*		*26 - 170*
Tetrachloro-m-xylene (Surr)	*93*		*33 - 126*
Tetrachloro-m-xylene (Surr)	*89*		*33 - 126*

Lab Sample ID: 180-129488-1 MS
Matrix: Sediment
Analysis Batch: 378144

Client Sample ID: 131831001
Prep Type: Total/NA
Prep Batch: 377888

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016	ND	F1	39.5	56.9	F1	ug/Kg	☼	144	32 - 126		
PCB-1260	0.26	J F1	39.5	65.7	F1	ug/Kg	☼	166	40 - 121		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*100*		*26 - 170*
DCB Decachlorobiphenyl (Surr)	*100*		*26 - 170*
Tetrachloro-m-xylene (Surr)	*87*		*33 - 126*
Tetrachloro-m-xylene (Surr)	*84*		*33 - 126*

Lab Sample ID: 180-129488-1 MSD
Matrix: Sediment
Analysis Batch: 378144

Client Sample ID: 131831001
Prep Type: Total/NA
Prep Batch: 377888

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	ND	F1	39.8	50.1		ug/Kg	☼	126	32 - 126	13	40
PCB-1260	0.26	J F1	39.8	56.8	F1	ug/Kg	☼	142	40 - 121	15	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*95*		*26 - 170*
DCB Decachlorobiphenyl (Surr)	*93*		*26 - 170*
Tetrachloro-m-xylene (Surr)	*77*		*33 - 126*
Tetrachloro-m-xylene (Surr)	*73*		*33 - 126*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 180-378249/1-A
Matrix: Sediment
Analysis Batch: 379178

Client Sample ID: Method Blank
Prep Type: SEM/AVS
Prep Batch: 378249

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.25	0.15	mg/Kg		11/09/21 14:30	11/16/21 12:10	1
Arsenic SEM	ND		0.25	0.21	mg/Kg		11/09/21 14:30	11/16/21 12:10	1
Cadmium SEM	ND		0.13	0.0074	mg/Kg		11/09/21 14:30	11/16/21 12:10	1
Chromium SEM	ND		0.13	0.040	mg/Kg		11/09/21 14:30	11/16/21 12:10	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 180-378249/1-A
Matrix: Sediment
Analysis Batch: 379178

Client Sample ID: Method Blank
Prep Type: SEM/AVS
Prep Batch: 378249

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper SEM	ND		0.63	0.055	mg/Kg		11/09/21 14:30	11/16/21 12:10	1
Lead SEM	ND		0.25	0.11	mg/Kg		11/09/21 14:30	11/16/21 12:10	1
Nickel SEM	ND		1.0	0.047	mg/Kg		11/09/21 14:30	11/16/21 12:10	1
Silver SEM	ND		0.13	0.023	mg/Kg		11/09/21 14:30	11/16/21 12:10	1
Zinc SEM	0.804	J	2.5	0.066	mg/Kg		11/09/21 14:30	11/16/21 12:10	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony SEM	ND		0.0021	0.0013	umol/g		11/09/21 14:30	11/16/21 12:10	1
Arsenic SEM	ND		0.0033	0.0028	umol/g		11/09/21 14:30	11/16/21 12:10	1
Cadmium SEM	ND		0.0011	0.000066	umol/g		11/09/21 14:30	11/16/21 12:10	1
Chromium SEM	ND		0.0024	0.00077	umol/g		11/09/21 14:30	11/16/21 12:10	1
Copper SEM	ND		0.0098	0.00087	umol/g		11/09/21 14:30	11/16/21 12:10	1
Lead SEM	ND		0.0012	0.00053	umol/g		11/09/21 14:30	11/16/21 12:10	1
Nickel SEM	ND		0.017	0.00080	umol/g		11/09/21 14:30	11/16/21 12:10	1
Silver SEM	ND		0.0012	0.00021	umol/g		11/09/21 14:30	11/16/21 12:10	1
Zinc SEM	0.0123	J	0.038	0.0010	umol/g		11/09/21 14:30	11/16/21 12:10	1

Lab Sample ID: LCS 180-378249/2-A
Matrix: Sediment
Analysis Batch: 379178

Client Sample ID: Lab Control Sample
Prep Type: SEM/AVS
Prep Batch: 378249

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony SEM	12.5	11.8		mg/Kg		95	80 - 120
Arsenic SEM	50.0	52.8		mg/Kg		106	80 - 120
Cadmium SEM	25.0	25.6		mg/Kg		102	80 - 120
Chromium SEM	25.0	24.7		mg/Kg		99	80 - 120
Copper SEM	25.0	24.6		mg/Kg		98	80 - 120
Lead SEM	25.0	25.2		mg/Kg		101	80 - 120
Nickel SEM	25.0	25.2		mg/Kg		101	80 - 120
Silver SEM	12.5	12.3		mg/Kg		98	80 - 120
Zinc SEM	12.5	13.2		mg/Kg		106	80 - 120

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony SEM	0.10	0.0971		umol/g		95	80 - 120
Arsenic SEM	0.67	0.705		umol/g		106	80 - 120
Cadmium SEM	0.22	0.228		umol/g		102	80 - 120
Chromium SEM	0.48	0.474		umol/g		99	80 - 120
Copper SEM	0.39	0.387		umol/g		98	80 - 120
Lead SEM	0.12	0.122		umol/g		101	80 - 120
Nickel SEM	0.43	0.429		umol/g		101	80 - 120
Silver SEM	0.12	0.114		umol/g		98	80 - 120
Zinc SEM	0.19	0.202		umol/g		106	80 - 120

Lab Sample ID: 180-129488-1 MS
Matrix: Sediment
Analysis Batch: 379178

Client Sample ID: 131831001
Prep Type: SEM/AVS
Prep Batch: 378249

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony SEM	ND	F1	14.9	10.5	F1	mg/Kg	☼	70	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 180-129488-1 MS
Matrix: Sediment
Analysis Batch: 379178

Client Sample ID: 131831001
Prep Type: SEM/AVS
Prep Batch: 378249

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic SEM	ND		59.4	49.7		mg/Kg	☼	84	75 - 125
Cadmium SEM	ND		29.7	29.5		mg/Kg	☼	99	75 - 125
Chromium SEM	7.3	F1 F2	29.7	97.8	F1	mg/Kg	☼	304	75 - 125
Copper SEM	1.4		29.7	28.7		mg/Kg	☼	92	75 - 125
Lead SEM	1.3		29.7	31.3		mg/Kg	☼	101	75 - 125
Nickel SEM	3.3	F1 F2	29.7	64.1	F1	mg/Kg	☼	205	75 - 125
Silver SEM	ND		14.9	13.1		mg/Kg	☼	88	75 - 125
Zinc SEM	6.3	B	14.9	22.3		mg/Kg	☼	108	75 - 125

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony SEM	ND	F1	0.12	0.0859	F1	umol/g	☼	70	75 - 125
Arsenic SEM	ND		0.79	0.664		umol/g	☼	84	75 - 125
Cadmium SEM	ND		0.26	0.263		umol/g	☼	99	75 - 125
Chromium SEM	0.14	F1 F2	0.57	1.88	F1	umol/g	☼	304	75 - 125
Copper SEM	0.022		0.47	0.452		umol/g	☼	92	75 - 125
Lead SEM	0.0063		0.14	0.151		umol/g	☼	101	75 - 125
Nickel SEM	0.057	F1 F2	0.51	1.09	F1	umol/g	☼	205	75 - 125
Silver SEM	ND		0.14	0.121		umol/g	☼	88	75 - 125
Zinc SEM	0.096	B	0.23	0.341		umol/g	☼	108	75 - 125

Lab Sample ID: 180-129488-1 MSD
Matrix: Sediment
Analysis Batch: 379178

Client Sample ID: 131831001
Prep Type: SEM/AVS
Prep Batch: 378249

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony SEM	ND	F1	14.9	10.5	F1	mg/Kg	☼	70	75 - 125	0	20
Arsenic SEM	ND		59.6	50.2		mg/Kg	☼	84	75 - 125	1	20
Cadmium SEM	ND		29.8	29.7		mg/Kg	☼	100	75 - 125	1	20
Chromium SEM	7.3	F1 F2	29.8	33.9	F2	mg/Kg	☼	89	75 - 125	97	20
Copper SEM	1.4		29.8	30.2		mg/Kg	☼	97	75 - 125	5	20
Lead SEM	1.3		29.8	32.7		mg/Kg	☼	105	75 - 125	4	20
Nickel SEM	3.3	F1 F2	29.8	33.7	F2	mg/Kg	☼	102	75 - 125	62	20
Silver SEM	ND		14.9	14.3		mg/Kg	☼	96	75 - 125	8	20
Zinc SEM	6.3	B	14.9	21.3		mg/Kg	☼	101	75 - 125	4	20

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony SEM	ND	F1	0.12	0.0863	F1	umol/g	☼	70	75 - 125	0	20
Arsenic SEM	ND		0.80	0.670		umol/g	☼	84	75 - 125	1	20
Cadmium SEM	ND		0.27	0.264		umol/g	☼	100	75 - 125	1	20
Chromium SEM	0.14	F1 F2	0.57	0.652	F2	umol/g	☼	89	75 - 125	97	20
Copper SEM	0.022		0.47	0.475		umol/g	☼	97	75 - 125	5	20
Lead SEM	0.0063		0.14	0.158		umol/g	☼	105	75 - 125	4	20
Nickel SEM	0.057	F1 F2	0.51	0.575	F2	umol/g	☼	102	75 - 125	62	20
Silver SEM	ND		0.14	0.132		umol/g	☼	96	75 - 125	8	20
Zinc SEM	0.096	B	0.23	0.326		umol/g	☼	101	75 - 125	4	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-378249/1-B
Matrix: Sediment
Analysis Batch: 379278

Client Sample ID: Method Blank
Prep Type: SEM/AVS
Prep Batch: 378249

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.0050	0.0025	mg/Kg		11/09/21 14:30	11/17/21 12:06	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury SEM	ND		0.000025	0.000013	umol/g		11/09/21 14:30	11/17/21 12:06	1

Lab Sample ID: LCS 180-378249/2-B
Matrix: Sediment
Analysis Batch: 379278

Client Sample ID: Lab Control Sample
Prep Type: SEM/AVS
Prep Batch: 378249

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury SEM	0.0625	0.0655		mg/Kg		105	80 - 120

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury SEM	0.00031	0.000327		umol/g		105	80 - 120

Lab Sample ID: 180-129488-1 MS
Matrix: Sediment
Analysis Batch: 379278

Client Sample ID: 131831001
Prep Type: SEM/AVS
Prep Batch: 378249

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury SEM	ND		0.0297	0.0334		mg/Kg	☼	112	75 - 125

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury SEM	ND		0.00015	0.000167		umol/g	☼	112	75 - 125

Lab Sample ID: 180-129488-1 MSD
Matrix: Sediment
Analysis Batch: 379278

Client Sample ID: 131831001
Prep Type: SEM/AVS
Prep Batch: 378249

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury SEM	ND		0.0298	0.0338		mg/Kg	☼	114	75 - 125	1	20

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury SEM	ND		0.00015	0.000169		umol/g	☼	114	75 - 125	1	20

Method: 2540G - SM 2540G

Lab Sample ID: 180-129488-5 DU
Matrix: Sediment
Analysis Batch: 378652

Client Sample ID: 131831005
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	14.8		16.0		%		8	10
Percent Solids	85.2		84.0		%		1	10

Method: EPA 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 180-378290/1-A
Matrix: Sediment
Analysis Batch: 378467

Client Sample ID: Method Blank
Prep Type: SEM/AVS
Prep Batch: 378290

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		15	5.0	mg/Kg		11/09/21 14:30	11/09/21 15:38	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acid Volatile Sulfides (AVS)	ND		0.47	0.16	umol/g		11/09/21 14:30	11/09/21 15:38	1

Lab Sample ID: LCS 180-378290/2-A
Matrix: Sediment
Analysis Batch: 378467

Client Sample ID: Lab Control Sample
Prep Type: SEM/AVS
Prep Batch: 378290

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acid Volatile Sulfides (AVS)	68.1	62.4		mg/Kg		92	85 - 115

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acid Volatile Sulfides (AVS)	2.1	1.95		umol/g		92	85 - 115

Lab Sample ID: 180-129488-1 MS
Matrix: Sediment
Analysis Batch: 378467

Client Sample ID: 131831001
Prep Type: SEM/AVS
Prep Batch: 378290

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acid Volatile Sulfides (AVS)	ND		81.0	74.7		mg/Kg	☼	92	75 - 125

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acid Volatile Sulfides (AVS)	ND		2.5	2.33		umol/g	☼	92	75 - 125

Lab Sample ID: 180-129488-1 MSD
Matrix: Sediment
Analysis Batch: 378467

Client Sample ID: 131831001
Prep Type: SEM/AVS
Prep Batch: 378290

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acid Volatile Sulfides (AVS)	ND		80.8	75.0		mg/Kg	☼	93	75 - 125	0	20

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acid Volatile Sulfides (AVS)	ND		2.5	2.34		umol/g	☼	93	75 - 125	0	20

GC/MS Semi VOA

Prep Batch: 378131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-3	131831003	Total/NA	Sediment	3541	
180-129488-4	131831004	Total/NA	Sediment	3541	
180-129488-5	131831005	Total/NA	Sediment	3541	
180-129488-6	131831006	Total/NA	Sediment	3541	
180-129488-7	131831007	Total/NA	Sediment	3541	
MB 180-378131/1-A	Method Blank	Total/NA	Sediment	3541	
LCS 180-378131/2-A	Lab Control Sample	Total/NA	Sediment	3541	
180-129488-3 MS	131831003	Total/NA	Sediment	3541	
180-129488-3 MSD	131831003	Total/NA	Sediment	3541	

Prep Batch: 378135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	3541	
180-129488-2	131831002	Total/NA	Sediment	3541	
MB 180-378135/1-A	Method Blank	Total/NA	Sediment	3541	
LCS 180-378135/2-A	Lab Control Sample	Total/NA	Sediment	3541	
180-129488-1 MS	131831001	Total/NA	Sediment	3541	
180-129488-1 MSD	131831001	Total/NA	Sediment	3541	

Analysis Batch: 378179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	EPA 8270E LL	378135
180-129488-2	131831002	Total/NA	Sediment	EPA 8270E LL	378135
MB 180-378135/1-A	Method Blank	Total/NA	Sediment	EPA 8270E LL	378135
LCS 180-378135/2-A	Lab Control Sample	Total/NA	Sediment	EPA 8270E LL	378135
180-129488-1 MS	131831001	Total/NA	Sediment	EPA 8270E LL	378135
180-129488-1 MSD	131831001	Total/NA	Sediment	EPA 8270E LL	378135

Analysis Batch: 378209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-3	131831003	Total/NA	Sediment	EPA 8270E LL	378131
180-129488-4	131831004	Total/NA	Sediment	EPA 8270E LL	378131
180-129488-5	131831005	Total/NA	Sediment	EPA 8270E LL	378131
180-129488-6	131831006	Total/NA	Sediment	EPA 8270E LL	378131
180-129488-7	131831007	Total/NA	Sediment	EPA 8270E LL	378131
MB 180-378131/1-A	Method Blank	Total/NA	Sediment	EPA 8270E LL	378131
LCS 180-378131/2-A	Lab Control Sample	Total/NA	Sediment	EPA 8270E LL	378131
180-129488-3 MS	131831003	Total/NA	Sediment	EPA 8270E LL	378131
180-129488-3 MSD	131831003	Total/NA	Sediment	EPA 8270E LL	378131

GC Semi VOA

Prep Batch: 377887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	3541	
180-129488-2	131831002	Total/NA	Sediment	3541	
180-129488-3	131831003	Total/NA	Sediment	3541	
180-129488-4	131831004	Total/NA	Sediment	3541	
180-129488-5	131831005	Total/NA	Sediment	3541	
180-129488-6	131831006	Total/NA	Sediment	3541	
180-129488-7	131831007	Total/NA	Sediment	3541	

GC Semi VOA (Continued)

Prep Batch: 377887 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-377887/1-B	Method Blank	Total/NA	Sediment	3541	
LCS 180-377887/2-B	Lab Control Sample	Total/NA	Sediment	3541	

Prep Batch: 377888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	3541	
180-129488-2	131831002	Total/NA	Sediment	3541	
180-129488-3	131831003	Total/NA	Sediment	3541	
180-129488-4	131831004	Total/NA	Sediment	3541	
180-129488-5	131831005	Total/NA	Sediment	3541	
180-129488-6	131831006	Total/NA	Sediment	3541	
180-129488-7	131831007	Total/NA	Sediment	3541	
MB 180-377888/1-C	Method Blank	Total/NA	Sediment	3541	
LCS 180-377888/2-C	Lab Control Sample	Total/NA	Sediment	3541	
180-129488-1 MS	131831001	Total/NA	Sediment	3541	
180-129488-1 MSD	131831001	Total/NA	Sediment	3541	

Cleanup Batch: 378140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	3665A	377888
180-129488-2	131831002	Total/NA	Sediment	3665A	377888
180-129488-3	131831003	Total/NA	Sediment	3665A	377888
180-129488-4	131831004	Total/NA	Sediment	3665A	377888
180-129488-5	131831005	Total/NA	Sediment	3665A	377888
180-129488-6	131831006	Total/NA	Sediment	3665A	377888
180-129488-7	131831007	Total/NA	Sediment	3665A	377888
MB 180-377888/1-C	Method Blank	Total/NA	Sediment	3665A	377888
LCS 180-377888/2-C	Lab Control Sample	Total/NA	Sediment	3665A	377888
180-129488-1 MS	131831001	Total/NA	Sediment	3665A	377888
180-129488-1 MSD	131831001	Total/NA	Sediment	3665A	377888

Cleanup Batch: 378141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	3660B	378140
180-129488-2	131831002	Total/NA	Sediment	3660B	378140
180-129488-3	131831003	Total/NA	Sediment	3660B	378140
180-129488-4	131831004	Total/NA	Sediment	3660B	378140
180-129488-5	131831005	Total/NA	Sediment	3660B	378140
180-129488-6	131831006	Total/NA	Sediment	3660B	378140
180-129488-7	131831007	Total/NA	Sediment	3660B	378140
MB 180-377888/1-C	Method Blank	Total/NA	Sediment	3660B	378140
LCS 180-377888/2-C	Lab Control Sample	Total/NA	Sediment	3660B	378140
180-129488-1 MS	131831001	Total/NA	Sediment	3660B	378140
180-129488-1 MSD	131831001	Total/NA	Sediment	3660B	378140

Analysis Batch: 378144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	EPA 8082A	378141
180-129488-2	131831002	Total/NA	Sediment	EPA 8082A	378141
180-129488-3	131831003	Total/NA	Sediment	EPA 8082A	378141
180-129488-4	131831004	Total/NA	Sediment	EPA 8082A	378141

GC Semi VOA (Continued)

Analysis Batch: 378144 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-5	131831005	Total/NA	Sediment	EPA 8082A	378141
180-129488-6	131831006	Total/NA	Sediment	EPA 8082A	378141
180-129488-7	131831007	Total/NA	Sediment	EPA 8082A	378141
MB 180-377888/1-C	Method Blank	Total/NA	Sediment	EPA 8082A	378141
LCS 180-377888/2-C	Lab Control Sample	Total/NA	Sediment	EPA 8082A	378141
180-129488-1 MS	131831001	Total/NA	Sediment	EPA 8082A	378141
180-129488-1 MSD	131831001	Total/NA	Sediment	EPA 8082A	378141

Cleanup Batch: 378547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	3640A	377887
180-129488-2	131831002	Total/NA	Sediment	3640A	377887
180-129488-3	131831003	Total/NA	Sediment	3640A	377887
180-129488-4	131831004	Total/NA	Sediment	3640A	377887
180-129488-5	131831005	Total/NA	Sediment	3640A	377887
180-129488-6	131831006	Total/NA	Sediment	3640A	377887
180-129488-7	131831007	Total/NA	Sediment	3640A	377887
MB 180-377887/1-B	Method Blank	Total/NA	Sediment	3640A	377887
LCS 180-377887/2-B	Lab Control Sample	Total/NA	Sediment	3640A	377887

Analysis Batch: 378906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	EPA 8081B LL	378547
180-129488-2	131831002	Total/NA	Sediment	EPA 8081B LL	378547
180-129488-3	131831003	Total/NA	Sediment	EPA 8081B LL	378547
180-129488-4	131831004	Total/NA	Sediment	EPA 8081B LL	378547
180-129488-5	131831005	Total/NA	Sediment	EPA 8081B LL	378547
180-129488-6	131831006	Total/NA	Sediment	EPA 8081B LL	378547
180-129488-7	131831007	Total/NA	Sediment	EPA 8081B LL	378547
MB 180-377887/1-B	Method Blank	Total/NA	Sediment	EPA 8081B LL	378547
LCS 180-377887/2-B	Lab Control Sample	Total/NA	Sediment	EPA 8081B LL	378547

Analysis Batch: 378925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	PCB	
180-129488-2	131831002	Total/NA	Sediment	PCB	
180-129488-3	131831003	Total/NA	Sediment	PCB	
180-129488-4	131831004	Total/NA	Sediment	PCB	
180-129488-5	131831005	Total/NA	Sediment	PCB	
180-129488-6	131831006	Total/NA	Sediment	PCB	
180-129488-7	131831007	Total/NA	Sediment	PCB	

Metals

Prep Batch: 378249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	SEM/AVS	Sediment	AVSSEM	
180-129488-2	131831002	SEM/AVS	Sediment	AVSSEM	
180-129488-3	131831003	SEM/AVS	Sediment	AVSSEM	
180-129488-4	131831004	SEM/AVS	Sediment	AVSSEM	
180-129488-5	131831005	SEM/AVS	Sediment	AVSSEM	

Metals (Continued)

Prep Batch: 378249 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-6	131831006	SEM/AVS	Sediment	AVSSEM	
180-129488-7	131831007	SEM/AVS	Sediment	AVSSEM	
MB 180-378249/1-A	Method Blank	SEM/AVS	Sediment	AVSSEM	
MB 180-378249/1-B	Method Blank	SEM/AVS	Sediment	AVSSEM	
LCS 180-378249/2-A	Lab Control Sample	SEM/AVS	Sediment	AVSSEM	
LCS 180-378249/2-B	Lab Control Sample	SEM/AVS	Sediment	AVSSEM	
180-129488-1 MS	131831001	SEM/AVS	Sediment	AVSSEM	
180-129488-1 MSD	131831001	SEM/AVS	Sediment	AVSSEM	

Prep Batch: 379083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	SEM/AVS	Sediment	7470A	378249
180-129488-2	131831002	SEM/AVS	Sediment	7470A	378249
180-129488-3	131831003	SEM/AVS	Sediment	7470A	378249
180-129488-4	131831004	SEM/AVS	Sediment	7470A	378249
180-129488-5	131831005	SEM/AVS	Sediment	7470A	378249
180-129488-6	131831006	SEM/AVS	Sediment	7470A	378249
180-129488-7	131831007	SEM/AVS	Sediment	7470A	378249
MB 180-378249/1-B	Method Blank	SEM/AVS	Sediment	7470A	378249
LCS 180-378249/2-B	Lab Control Sample	SEM/AVS	Sediment	7470A	378249
180-129488-1 MS	131831001	SEM/AVS	Sediment	7470A	378249
180-129488-1 MSD	131831001	SEM/AVS	Sediment	7470A	378249

Analysis Batch: 379178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	SEM/AVS	Sediment	6010D	378249
180-129488-2	131831002	SEM/AVS	Sediment	6010D	378249
180-129488-3	131831003	SEM/AVS	Sediment	6010D	378249
180-129488-4	131831004	SEM/AVS	Sediment	6010D	378249
180-129488-4	131831004	SEM/AVS	Sediment	6010D	378249
180-129488-5	131831005	SEM/AVS	Sediment	6010D	378249
180-129488-6	131831006	SEM/AVS	Sediment	6010D	378249
180-129488-7	131831007	SEM/AVS	Sediment	6010D	378249
MB 180-378249/1-A	Method Blank	SEM/AVS	Sediment	6010D	378249
LCS 180-378249/2-A	Lab Control Sample	SEM/AVS	Sediment	6010D	378249
180-129488-1 MS	131831001	SEM/AVS	Sediment	6010D	378249
180-129488-1 MSD	131831001	SEM/AVS	Sediment	6010D	378249

Analysis Batch: 379278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	SEM/AVS	Sediment	EPA 7470A	379083
180-129488-2	131831002	SEM/AVS	Sediment	EPA 7470A	379083
180-129488-3	131831003	SEM/AVS	Sediment	EPA 7470A	379083
180-129488-4	131831004	SEM/AVS	Sediment	EPA 7470A	379083
180-129488-5	131831005	SEM/AVS	Sediment	EPA 7470A	379083
180-129488-6	131831006	SEM/AVS	Sediment	EPA 7470A	379083
180-129488-7	131831007	SEM/AVS	Sediment	EPA 7470A	379083
MB 180-378249/1-B	Method Blank	SEM/AVS	Sediment	EPA 7470A	379083
LCS 180-378249/2-B	Lab Control Sample	SEM/AVS	Sediment	EPA 7470A	379083
180-129488-1 MS	131831001	SEM/AVS	Sediment	EPA 7470A	379083
180-129488-1 MSD	131831001	SEM/AVS	Sediment	EPA 7470A	379083

QC Association Summary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-1

Metals

Analysis Batch: 380370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	SEM/AVS	Sediment	SEM	
180-129488-2	131831002	SEM/AVS	Sediment	SEM	
180-129488-3	131831003	SEM/AVS	Sediment	SEM	
180-129488-4	131831004	SEM/AVS	Sediment	SEM	
180-129488-5	131831005	SEM/AVS	Sediment	SEM	
180-129488-6	131831006	SEM/AVS	Sediment	SEM	
180-129488-7	131831007	SEM/AVS	Sediment	SEM	

General Chemistry

Prep Batch: 378290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	SEM/AVS	Sediment	AVSSEM	
180-129488-2	131831002	SEM/AVS	Sediment	AVSSEM	
180-129488-3	131831003	SEM/AVS	Sediment	AVSSEM	
180-129488-4	131831004	SEM/AVS	Sediment	AVSSEM	
180-129488-5	131831005	SEM/AVS	Sediment	AVSSEM	
180-129488-6	131831006	SEM/AVS	Sediment	AVSSEM	
180-129488-7	131831007	SEM/AVS	Sediment	AVSSEM	
MB 180-378290/1-A	Method Blank	SEM/AVS	Sediment	AVSSEM	
LCS 180-378290/2-A	Lab Control Sample	SEM/AVS	Sediment	AVSSEM	
180-129488-1 MS	131831001	SEM/AVS	Sediment	AVSSEM	
180-129488-1 MSD	131831001	SEM/AVS	Sediment	AVSSEM	

Analysis Batch: 378467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	SEM/AVS	Sediment	EPA 9034	378290
180-129488-2	131831002	SEM/AVS	Sediment	EPA 9034	378290
180-129488-3	131831003	SEM/AVS	Sediment	EPA 9034	378290
180-129488-4	131831004	SEM/AVS	Sediment	EPA 9034	378290
180-129488-5	131831005	SEM/AVS	Sediment	EPA 9034	378290
180-129488-6	131831006	SEM/AVS	Sediment	EPA 9034	378290
180-129488-7	131831007	SEM/AVS	Sediment	EPA 9034	378290
MB 180-378290/1-A	Method Blank	SEM/AVS	Sediment	EPA 9034	378290
LCS 180-378290/2-A	Lab Control Sample	SEM/AVS	Sediment	EPA 9034	378290
180-129488-1 MS	131831001	SEM/AVS	Sediment	EPA 9034	378290
180-129488-1 MSD	131831001	SEM/AVS	Sediment	EPA 9034	378290

Analysis Batch: 378652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	2540G	
180-129488-2	131831002	Total/NA	Sediment	2540G	
180-129488-3	131831003	Total/NA	Sediment	2540G	
180-129488-4	131831004	Total/NA	Sediment	2540G	
180-129488-5	131831005	Total/NA	Sediment	2540G	
180-129488-6	131831006	Total/NA	Sediment	2540G	
180-129488-7	131831007	Total/NA	Sediment	2540G	
180-129488-5 DU	131831005	Total/NA	Sediment	2540G	

Client: Georgia Power - Environmental Lab
Job ID: 180-129488-1
Project/Site: Langdale

Geotechnical

Analysis Batch: 174057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	D854	
180-129488-2	131831002	Total/NA	Sediment	D854	
180-129488-3	131831003	Total/NA	Sediment	D854	
180-129488-4	131831004	Total/NA	Sediment	D854	
180-129488-5	131831005	Total/NA	Sediment	D854	
180-129488-6	131831006	Total/NA	Sediment	D854	
180-129488-7	131831007	Total/NA	Sediment	D854	

Environmental Laboratory
2480 Maner Road SE, Bin 39110

Atlanta, Georgia 30339

Phone: (404) 799-2128 Fax: (404) 799-2141
Company: 8-530-2128 Fax: 8-530-2141

TRANSFER OF SAMPLES

Georgia Power

Sample Delivery Group No. **131831**

Lab Contact: **Holly McClure**	Project Name: **Sediment Study- Langdale**	Vendor Laboratory Name and Address **Eurofins, Environmental Testing America** **301 Alpha Drive, RIDC Park** **Pittsburgh, PA 15238**
Email Results To: hamcclur@southernco.com Turnaround Time (or expected date of results): 7 day		
Rush Charges Authorized: Yes **No** Signature:		Date of Sample Transfer **11/2/2021**

Sample Date	Sample Time	No. of Containers	Project ID#	Laboratory ID#	Analysis Requested	Remarks
10/26/2021	**10:35**	**5**	**Q1**	**131831001**	**Please see attached**	
10/26/2021	**15:16**	**5**	**Q 2**	**131831002**	**Please see attached**	
10/27/2021	**10:00**	**5**	**Q 3**	**131831003**	**Please see attached**	
10/27/2021	**11:40**	**5**	**Q 4**	**131831004**	**Please see attached**	
10/28/2021	**11:40**	**5**	**Q 5**	**131831005**	**Please see attached**	
10/28/2021	**15:10**	**5**	**Q 6**	**131831006**	**Please see attached**	
10/29/2021	**18:24**	**5**	**Q 7**	**131831007**	**Please see attached**	

180-129488 Chain of Custody

Transfer By (Signature): K. Owens 11/2/21

Received By: David C Talbert 11/2/21 09:22

Comments:

Date / Time:

Relinquished by: David C Talbert 11/2/21 16:30 Recd by lab: Marked Marked 16:30

Davidson Pitt 11-2-21 11-4-21 10:45

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238

Prepared for:

Gary Blackmon
Georgia Power - Environmental Lab
2480 Maner Rd. SE
Bin 39110
Atlanta, GA 30309
glblackm@southernco.com
Tel: (404) 799-2180

Prepared by	O'Donnell, Brian T
Date	10/26/2021
Expiration Date	1/26/2022
Est. Start Date	11/2/2021

Project: AVS-SEM Analysis REVISED *Quote Number: 18023438 - 1*

Sediment — TAT: 20_Days (Business Days)

Matrix *	Method	Test Description	Quantity	Unit Price	Extended Price
Sediment 1	SEM	AVS/SEM Ratio	14	$ 170.00	$ 2,380.00
Sediment 1	6010D	ICP SEM Metals: Sb,As,Cd,Cr,Cu,Pb,Ni,Ag,Zn	14	$ 0.00	$ 0.00
Sediment	EPA 7470A	SEM Mercury	14	$ 0.00	$ 0.00
Sediment	EPA 9034	AVS	14	$ 0.00	$ 0.00
Sediment	EPA 8270E LL	PAHs in Sediment (16 cmpds-see list), Low Level	14	$ 160.00	$ 2,240.00
Sediment	EPA 8082A	PCBs, Low Level	14	$ 60.00	$ 840.00
Sediment	PCB	Total PCB Calculation	14	$ 0.00	$ 0.00
Sediment	EPA 8081B LL	4,4' DDE, Chlordane (Technical)	14	$ 95.00	$ 1,330.00
Sediment	3640A	Gel-Permeation Cleanup	14	$ 20.00	$ 280.00
Sediment	2540G	Percent Moisture	14	$ 5.00	$ 70.00

Sediment — TAT: 25_Days (Business Days) (to be analyzed by Eurofins TestAmerica, Knoxville)

Matrix *	Method	Test Description	Quantity	Unit Price	Extended Price
Sediment	1613B	Dioxins/Furans: Standard 17 Isomers Only	14	$ 575.00	$ 8,050.00

Sediment — TAT: 25_Days (Business Days) (to be analyzed by Eurofins TestAmerica, Burlington)

Matrix *	Method	Test Description	Quantity	Unit Price	Extended Price
Sediment	D854	Specific Gravity	14	$ 40.00	$ 560.00
		Total Sediment			**$ 15,750.00**

* See Footnotes in Detail Section

Quote Other Charges

Description	Quantity	Unit Price	Extended Price
Safe and Environmentally Responsible Waste Management (per sample)	14	$ 2.50	$ 35.00
Minimum Total Invoice per analytical receipt (for details see T&Cs)	0	$ 150.00	$ 0.00
Total Other Charge			**$35.00**

Issued on: 10/26/2021

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238

Prepared for:

Gary Blackmon
Georgia Power - Environmental Lab
2480 Maner Rd. SE
Bin 39110
Atlanta, GA 30309
glblackm@southernco.com
Tel: (404) 799-2180

Prepared by	O'Donnell, Brian T
Date	10/26/2021
Expiration Date	1/26/2022
Est. Start Date	11/2/2021

Project: AVS-SEM Analysis REVISED *Quote Number: 18023438 - 1*

Total Other Charges	**$ 35.00**
Total Analysis Charges	**$ 15,750.00**
Grand Total for Quote 18023438	**$ 15,785.00**

***Quoted charges do not include sales tax. Applicable sales tax will be added to invoices where required by law.*


RT 98
FZ
eurofins
Environment Testing
TestAmerica
159469-434 RIT2 EXP 09/21
ORIGIN ID:LIYA (678) 966-9991
GEORGE TAYLOR
EUROFINS TESTING AMERICA ATL SC
6215 REGENCY PARKWAY NW
SUITE 900
NORCROSS, GA 30071
UNITED STATES US
SHIP DATE: 02NOV21
ACTWGT: 44.90 LB
CAD: 859116/CAFE3507
BILL THIRD PARTY
TO SAMPLE RECIEVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DR.
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF:
DEPT:
INV:
PO:
Chain under
head
Uncorrected temp 2.2 °C
Thermometer ID 2
Initials Mo
CF 0
PT-WI-SR-001 effective 11/8/18
FedEx Express
1 of 2
TRK# 0201 5220 7114 0729
MASTER
NA AGCA
WED - 03 NOV 11:30A
PRIORITY OVERNIGHT
15238
PA-US PIT
Part # 159469-434 RIT2 EXP 09/21
180-129488 Waybill
SAMPLE RECIEVING
UROFINS TESTAMERICA PITTSBURGH
01 ALPHA DR.
DC PARK
TTSBURGH PA 15238
Uncorrected temp 2.0 °C
Thermometer ID 3
Initials Mo
CF 0
WI-SR-001 effective 11/8/18
of 2
7114 0730
7114 0729
0201
AGCA
IOV 11:30A
PRIORITY OVERNIGHT
15238
PA-US PIT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

180-129488 Chain of Custody

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Gamber, Carrie L	COC No: 180-448488.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Carrie.Gamber@Eurofinset.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - Georgia; State - Georgia (DW)	Job #: 180-129488-1
Address: 530 Community Drive, Suite 11,	Due Date Requested: 12/2/2021		
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email:	WO #:		
Project Name: Langdale	Project #: 18024672		
Site:	SSOW#:		

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:

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)	D854/ Specific Gravity	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
131831001 (180-129488-1)	10/26/21	10:35 Eastern		Sediment			X	1	
131831002 (180-129488-2)	10/26/21	15:16 Eastern		Sediment			X	1	
131831003 (180-129488-3)	10/27/21	10:00 Eastern		Sediment			X	1	
131831004 (180-129488-4)	10/27/21	11:40 Eastern		Sediment			X	1	
131831005 (180-129488-5)	10/28/21	11:40 Eastern		Sediment			X	1	
131831006 (180-129488-6)	10/28/21	15:10 Eastern		Sediment			X	1	
131831007 (180-129488-7)	10/29/21	18:24 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.

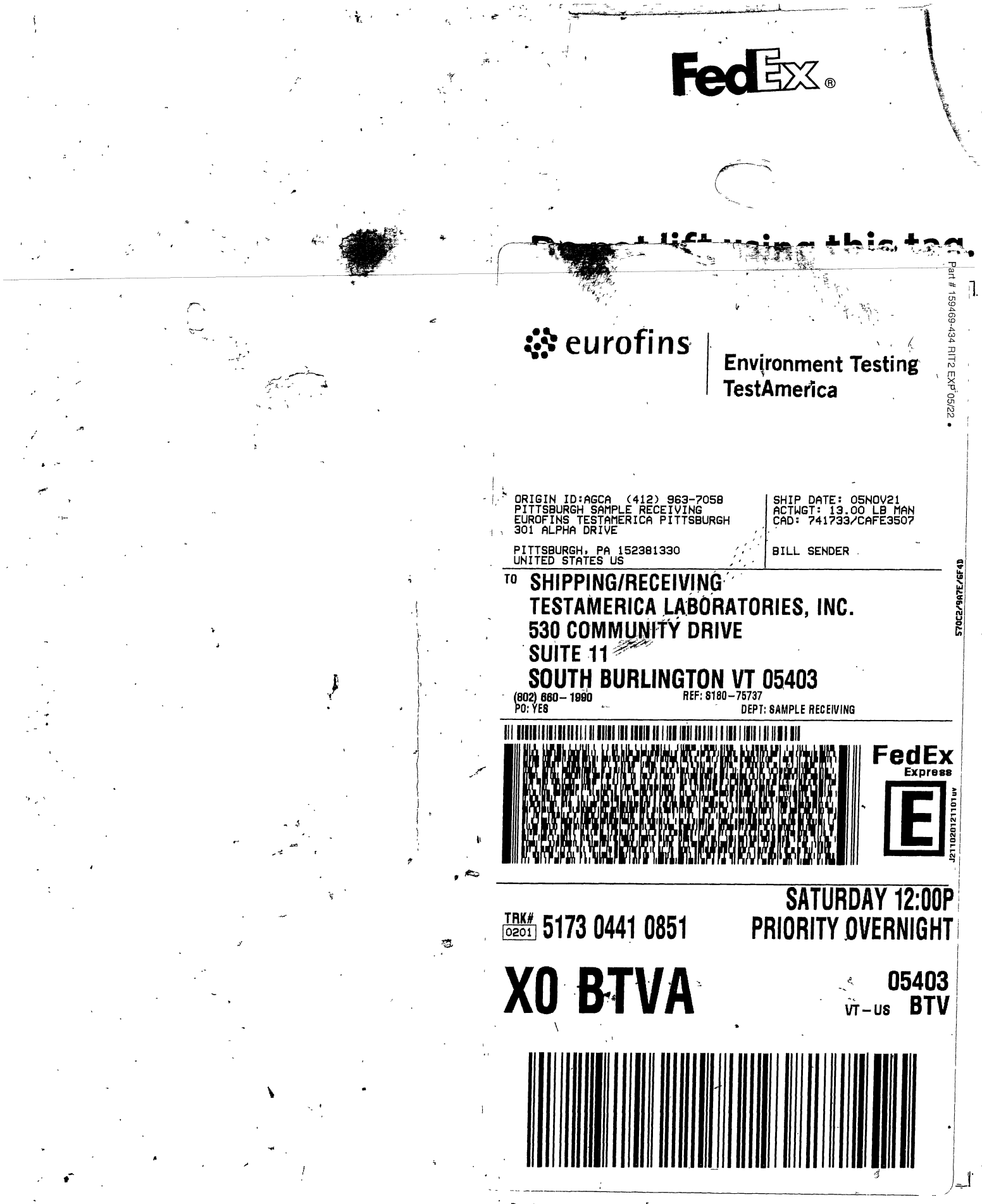
Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Mo	11-5-21 1700	Client	[illegible]	11/6/21 1100	ETHorg
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: 06/08/2021



FedEx®

Part # 159469-434 RIT2 EXP 05/22

eurofins | Environment Testing TestAmerica

ORIGIN ID:AGCA (412) 963-7058
PITTSBURGH SAMPLE RECEIVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH, PA 152381330
UNITED STATES US

SHIP DATE: 05NOV21
ACTWGT: 13.00 LB MAN
CAD: 741733/CAFE3507

BILL SENDER

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
530 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403

(802) 660-1990
PO: YES

REF: S180-75737
DEPT: SAMPLE RECEIVING

570C2/907E/6F41

FedEx Express

J21102012101UV

TRK# 0201 5173 0441 0851

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: Georgia Power - Environmental Lab

Job Number: 180-129488-1

Login Number: 129488
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	samples are from a lab
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: Georgia Power - Environmental Lab

Job Number: 180-129488-1

Login Number: 129488
List Number: 2
Creator: Beane, John P

List Source: Eurofins TestAmerica, Burlington
List Creation: 11/06/21 12:02 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.	N/A	Not present
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	0.8ºC
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: 180-129488-3
Client Project/Site: Langdale

For:
Georgia Power - Environmental Lab
2480 Maner Rd. SE
Bin 39110
Atlanta, Georgia 30309

Attn: Gary Blackmon

Authorized for release by:
12/20/2021 10:54:31 AM

Carrie Gamber, Senior Project Manager
(412)963-2428
Carrie.Gamber@Eurofinset.com

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-129488-3

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

CASE NARRATIVE

Client: Georgia Power - Environmental Lab

Project: Langdale

Report Number: 180-129488-3

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 11/4/2021 10:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.2º C and 3.0º C.

The Field Sampler was not listed on the Chain of Custody. The samples are from a laboratory.

METALS

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

Definitions/Glossary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-3

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: Georgia Power - Environmental Lab
Job ID: 180-129488-3
Project/Site: Langdale

Laboratory: Eurofins TestAmerica, Pittsburgh

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Georgia	State	PA 02-00416	04-30-22

Sample Summary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-129488-1	131831001	Sediment	10/26/21 10:35	11/04/21 10:45
180-129488-2	131831002	Sediment	10/26/21 15:16	11/04/21 10:45
180-129488-3	131831003	Sediment	10/27/21 10:00	11/04/21 10:45
180-129488-4	131831004	Sediment	10/27/21 11:40	11/04/21 10:45
180-129488-5	131831005	Sediment	10/28/21 11:40	11/04/21 10:45
180-129488-6	131831006	Sediment	10/28/21 15:10	11/04/21 10:45
180-129488-7	131831007	Sediment	10/29/21 18:24	11/04/21 10:45

Method Summary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-3

Method	Method Description	Protocol	Laboratory
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
3050B	Preparation, Metals	SW846	TAL PIT

Protocol References:

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

Laboratory References:

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

Lab Chronicle

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-3

Client Sample ID: 131831001
Date Collected: 10/26/21 10:35
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-1
Matrix: Sediment
Percent Solids: 83.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.00 g	100 mL	381855	12/11/21 12:25	KFS	TAL PIT
Total/NA	Analysis	EPA 6020B		1			382563	12/16/21 22:01	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: 131831002
Date Collected: 10/26/21 15:16
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-2
Matrix: Sediment
Percent Solids: 78.1

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	381855	12/11/21 12:25	KFS	TAL PIT
Total/NA	Analysis	EPA 6020B		1			382563	12/16/21 22:19	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: 131831003
Date Collected: 10/27/21 10:00
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-3
Matrix: Sediment
Percent Solids: 78.1

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	381855	12/11/21 12:25	KFS	TAL PIT
Total/NA	Analysis	EPA 6020B		1			382563	12/16/21 22:23	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: 131831004
Date Collected: 10/27/21 11:40
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-4
Matrix: Sediment
Percent Solids: 65.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.02 g	100 mL	381855	12/11/21 12:25	KFS	TAL PIT
Total/NA	Analysis	EPA 6020B		1			382563	12/16/21 22:26	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: 131831005
Date Collected: 10/28/21 11:40
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-5
Matrix: Sediment
Percent Solids: 85.2

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	381855	12/11/21 12:25	KFS	TAL PIT
Total/NA	Analysis	EPA 6020B		1			382563	12/16/21 22:37	RSK	TAL PIT
	Instrument ID: A									

Lab Chronicle

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-3

Client Sample ID: 131831006

Date Collected: 10/28/21 15:10
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-6

Matrix: Sediment
Percent Solids: 78.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.05 g	100 mL	381855	12/11/21 12:25	KFS	TAL PIT
Total/NA	Analysis	EPA 6020B		1			382563	12/16/21 22:41	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: 131831007

Date Collected: 10/29/21 18:24
Date Received: 11/04/21 10:45

Lab Sample ID: 180-129488-7

Matrix: Sediment
Percent Solids: 80.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.02 g	100 mL	381855	12/11/21 12:25	KFS	TAL PIT
Total/NA	Analysis	EPA 6020B		1			382563	12/16/21 22:45	RSK	TAL PIT
	Instrument ID: A									

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: Prep

KFS = Kelly Shannon

Batch Type: Analysis

RSK = Robert Kurtz

Client Sample ID: 131831001 — **Lab Sample ID: 180-129488-1**
Date Collected: 10/26/21 10:35 — **Matrix: Sediment**
Date Received: 11/04/21 10:45 — **Percent Solids: 83.6**

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.30	0.073	mg/Kg	☼	12/11/21 12:25	12/16/21 22:01	1

Client Sample ID: 131831002 — **Lab Sample ID: 180-129488-2**
Date Collected: 10/26/21 15:16 — **Matrix: Sediment**
Date Received: 11/04/21 10:45 — **Percent Solids: 78.1**

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.32	0.078	mg/Kg	☼	12/11/21 12:25	12/16/21 22:19	1

Client Sample ID: 131831003 — **Lab Sample ID: 180-129488-3**
Date Collected: 10/27/21 10:00 — **Matrix: Sediment**
Date Received: 11/04/21 10:45 — **Percent Solids: 78.1**

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.32	0.077	mg/Kg	☼	12/11/21 12:25	12/16/21 22:23	1

Client Sample ID: 131831004 — **Lab Sample ID: 180-129488-4**
Date Collected: 10/27/21 11:40 — **Matrix: Sediment**
Date Received: 11/04/21 10:45 — **Percent Solids: 65.5**

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.38	0.092	mg/Kg	☼	12/11/21 12:25	12/16/21 22:26	1

Client Sample ID: 131831005 — **Lab Sample ID: 180-129488-5**
Date Collected: 10/28/21 11:40 — **Matrix: Sediment**
Date Received: 11/04/21 10:45 — **Percent Solids: 85.2**

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.29	0.071	mg/Kg	☼	12/11/21 12:25	12/16/21 22:37	1

Client Sample ID: 131831006 — **Lab Sample ID: 180-129488-6**
Date Collected: 10/28/21 15:10 — **Matrix: Sediment**
Date Received: 11/04/21 10:45 — **Percent Solids: 78.1**

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.31	0.076	mg/Kg	☼	12/11/21 12:25	12/16/21 22:41	1

Client Sample ID: 131831007 — **Lab Sample ID: 180-129488-7**
Date Collected: 10/29/21 18:24 — **Matrix: Sediment**
Date Received: 11/04/21 10:45 — **Percent Solids: 80.6**

Method: EPA 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.31	0.075	mg/Kg	☼	12/11/21 12:25	12/16/21 22:45	1

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-381855/1-A
Matrix: Sediment
Analysis Batch: 382563

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 381855

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.25	0.061	mg/Kg		12/11/21 12:25	12/16/21 21:46	1

Lab Sample ID: LCS 180-381855/2-A
Matrix: Sediment
Analysis Batch: 382563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 381855

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Selenium			50.0	48.6		mg/Kg		97	80 - 120		

Lab Sample ID: 180-129488-1 MS
Matrix: Sediment
Analysis Batch: 382563

Client Sample ID: 131831001
Prep Type: Total/NA
Prep Batch: 381855

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Selenium	ND		59.8	45.1		mg/Kg	☼	75	75 - 125		

Lab Sample ID: 180-129488-1 MSD
Matrix: Sediment
Analysis Batch: 382563

Client Sample ID: 131831001
Prep Type: Total/NA
Prep Batch: 381855

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium	ND		59.8	47.3		mg/Kg	☼	79	75 - 125	5	20

Metals

Prep Batch: 381855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	3050B	
180-129488-2	131831002	Total/NA	Sediment	3050B	
180-129488-3	131831003	Total/NA	Sediment	3050B	
180-129488-4	131831004	Total/NA	Sediment	3050B	
180-129488-5	131831005	Total/NA	Sediment	3050B	
180-129488-6	131831006	Total/NA	Sediment	3050B	
180-129488-7	131831007	Total/NA	Sediment	3050B	
MB 180-381855/1-A	Method Blank	Total/NA	Sediment	3050B	
LCS 180-381855/2-A	Lab Control Sample	Total/NA	Sediment	3050B	
180-129488-1 MS	131831001	Total/NA	Sediment	3050B	
180-129488-1 MSD	131831001	Total/NA	Sediment	3050B	

Analysis Batch: 382563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-129488-1	131831001	Total/NA	Sediment	EPA 6020B	381855
180-129488-2	131831002	Total/NA	Sediment	EPA 6020B	381855
180-129488-3	131831003	Total/NA	Sediment	EPA 6020B	381855
180-129488-4	131831004	Total/NA	Sediment	EPA 6020B	381855
180-129488-5	131831005	Total/NA	Sediment	EPA 6020B	381855
180-129488-6	131831006	Total/NA	Sediment	EPA 6020B	381855
180-129488-7	131831007	Total/NA	Sediment	EPA 6020B	381855
MB 180-381855/1-A	Method Blank	Total/NA	Sediment	EPA 6020B	381855
LCS 180-381855/2-A	Lab Control Sample	Total/NA	Sediment	EPA 6020B	381855
180-129488-1 MS	131831001	Total/NA	Sediment	EPA 6020B	381855
180-129488-1 MSD	131831001	Total/NA	Sediment	EPA 6020B	381855

Environmental Laboratory
2480 Maner Road SE, Bin 39110

Atlanta, Georgia 30339

Phone: (404) 799-2128 Fax: (404) 799-2141
Company: 8-530-2128 Fax: 8-530-2141

TRANSFER OF SAMPLES

Georgia Power

Sample Delivery Group No. **131831**

Lab Contact: **Holly McClure**	Project Name: **Sediment Study- Langdale**	Vendor Laboratory Name and Address **Eurofins, Environmental Testing America** **301 Alpha Drive, RIDC Park** **Pittsburgh, PA 15238**
Email Results To: hamcclur@southernco.com Turnaround Time (or expected date of results): 7 day		
Rush Charges Authorized: Yes **No** Signature:		Date of Sample Transfer **11/2/2021**

Sample Date	Sample Time	No. of Containers	Project ID#	Laboratory ID#	Analysis Requested	Remarks
10/26/2021	**10:35**	**5**	**Q1**	**131831001**	**Please see attached**	
10/26/2021	**15:16**	**5**	**Q 2**	**131831002**	**Please see attached**	
10/27/2021	**10:00**	**5**	**Q 3**	**131831003**	**Please see attached**	
10/27/2021	**11:40**	**5**	**Q 4**	**131831004**	**Please see attached**	
10/28/2021	**11:40**	**5**	**Q 5**	**131831005**	**Please see attached**	
10/28/2021	**15:10**	**5**	**Q 6**	**131831006**	**Please see attached**	
10/29/2021	**18:24**	**5**	**Q 7**	**131831007**	**Please see attached**	

180-129488 Chain of Custody

Transfer By (Signature): K. Owens 11/2/21

Received By: Dark C Falls 11/2/21 09:22

Comments:

Date / Time:

Relinquished by: Dark C Falls 11/2/21 16:30 Recd by lab: Marked Marked 16:30

Davidson 11-2-21 16:30 Pittsburgh 11-4-21 10:45

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238

Prepared for:

Gary Blackmon
Georgia Power - Environmental Lab
2480 Maner Rd. SE
Bin 39110
Atlanta, GA 30309
glblackm@southernco.com
Tel: (404) 799-2180

Prepared by	O'Donnell, Brian T
Date	10/26/2021
Expiration Date	1/26/2022
Est. Start Date	11/2/2021

Project: AVS-SEM Analysis REVISED *Quote Number: 18023438 - 1*

Sediment — TAT: 20_Days (Business Days)

Matrix *	Method	Test Description	Quantity	Unit Price	Extended Price
Sediment 1	SEM	AVS/SEM Ratio	14	$ 170.00	$ 2,380.00
Sediment 1	6010D	ICP SEM Metals: Sb,As,Cd,Cr,Cu,Pb,Ni,Ag,Zn	14	$ 0.00	$ 0.00
Sediment	EPA 7470A	SEM Mercury	14	$ 0.00	$ 0.00
Sediment	EPA 9034	AVS	14	$ 0.00	$ 0.00
Sediment	EPA 8270E LL	PAHs in Sediment (16 cmpds-see list), Low Level	14	$ 160.00	$ 2,240.00
Sediment	EPA 8082A	PCBs, Low Level	14	$ 60.00	$ 840.00
Sediment	PCB	Total PCB Calculation	14	$ 0.00	$ 0.00
Sediment	EPA 8081B LL	4,4' DDE, Chlordane (Technical)	14	$ 95.00	$ 1,330.00
Sediment	3640A	Gel-Permeation Cleanup	14	$ 20.00	$ 280.00
Sediment	2540G	Percent Moisture	14	$ 5.00	$ 70.00

Sediment — TAT: 25_Days (Business Days) (to be analyzed by Eurofins TestAmerica, Knoxville)

Matrix *	Method	Test Description	Quantity	Unit Price	Extended Price
Sediment	1613B	Dioxins/Furans: Standard 17 Isomers Only	14	$ 575.00	$ 8,050.00

Sediment — TAT: 25_Days (Business Days) (to be analyzed by Eurofins TestAmerica, Burlington)

Matrix *	Method	Test Description	Quantity	Unit Price	Extended Price
Sediment	D854	Specific Gravity	14	$ 40.00	$ 560.00
		Total Sediment			**$ 15,750.00**

* See Footnotes in Detail Section

Quote Other Charges

Description	Quantity	Unit Price	Extended Price
Safe and Environmentally Responsible Waste Management (per sample)	14	$ 2.50	$ 35.00
Minimum Total Invoice per analytical receipt (for details see T&Cs)	0	$ 150.00	$ 0.00
Total Other Charge			**$35.00**

Issued on: 10/26/2021

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238

Prepared for:

Gary Blackmon
Georgia Power - Environmental Lab
2480 Maner Rd. SE
Bin 39110
Atlanta, GA 30309
glblackm@southernco.com
Tel: (404) 799-2180

Prepared by	O'Donnell, Brian T
Date	10/26/2021
Expiration Date	1/26/2022
Est. Start Date	11/2/2021

Project: AVS-SEM Analysis REVISED *Quote Number: 18023438 - 1*

Total Other Charges	**$ 35.00**
Total Analysis Charges	**$ 15,750.00**
Grand Total for Quote 18023438	**$ 15,785.00**

***Quoted charges do not include sales tax. Applicable sales tax will be added to invoices where required by law.*


RT 98
FZ
eurofins
Environment Testing
TestAmerica
159469-434 RIT2 EXP 09/21
ORIGIN ID:LIYA (678) 966-9991
GEORGE TAYLOR
EUROFINS TESTING AMERICA ATL SC
6215 REGENCY PARKWAY NW
SUITE 900
NORCROSS, GA 30071
UNITED STATES US
SHIP DATE: 02NOV21
ACTWGT: 44.90 LB
CAD: 859116/CAFE3507
BILL THIRD PARTY
TO SAMPLE RECIEVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DR.
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF:
DEPT:
INV:
PO:
Chain under
head
Uncorrected temp 2.2 °C
Thermometer ID 2
Initials Mo
CF 0
PT-WI-SR-001 effective 11/8/18
FedEx Express
1 of 2
TRK# 0201 5220 7114 0729
MASTER
NA AGCA
WED - 03 NOV 11:30A
PRIORITY OVERNIGHT
15238
PA-US PIT
Part # 159469-434 RIT2 EXP 09/21
180-129488 Waybill
SAMPLE RECIEVING
UROFINS TESTAMERICA PITTSBURGH
01 ALPHA DR.
DC PARK
TTSBURGH PA 15238
3-7058
REF:
DEPT:
Uncorrected temp 2.0 °C
Thermometer ID 3
CF 0
Initials Mo
WI-SR-001 effective 11/8/18
FedEx Express
of 2
7114 0730
7114 0729
0201
AGCA
IOV 11:30A
PRIORITY OVERNIGHT
15238
PA-US PIT

Login Sample Receipt Checklist

Client: Georgia Power - Environmental Lab

Job Number: 180-129488-3

Login Number: 129488
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	samples are from a lab
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 Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-129488-4
Client Project/Site: Langdale

For:
Georgia Power - Environmental Lab
2480 Maner Rd. SE
Bin 39110
Atlanta, Georgia 30309

Attn: Gary Blackmon

Authorized for release by:
2/11/2022 11:10:04 AM

Carrie Gamber, Senior Project Manager
(412)963-2428
Carrie.Gamber@Eurofinset.com

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-129488-4

Laboratory: Eurofins Pittsburgh

Narrative

CASE NARRATIVE

Client: Georgia Power - Environmental Lab

Project: Langdale

Report Number: 180-129488-4

NOTE: this report is for the additionally requested TEQ calculations per sample.

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 11/4/2021 10:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.2º C and 3.0º C.

The Field Sampler was not listed on the Chain of Custody. The samples are from a laboratory.

DIOXINS

The following samples went through Gel-Permeation Cleanup procedure, based on EPA method 3640A: 131831001 (180-129488-1), 131831002 (180-129488-2), 131831003 (180-129488-3), 131831004 (180-129488-4), 131831005 (180-129488-5), 131831006 (180-129488-6) and 131831007 (180-129488-7).

The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: 131831001 (180-129488-1). 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 140-56593/9-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.

Definitions/Glossary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-4

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: Georgia Power - Environmental Lab
Job ID: 180-129488-4
Project/Site: Langdale

Laboratory: Eurofins Knoxville

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Georgia (DW)	State	906	12-11-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
TEQ		Sediment	1,2,3,4,6,7,8-HpCDD
TEQ		Sediment	1,2,3,4,6,7,8-HpCDF
TEQ		Sediment	1,2,3,4,7,8,9-HpCDF
TEQ		Sediment	1,2,3,4,7,8-HxCDD
TEQ		Sediment	1,2,3,4,7,8-HxCDF
TEQ		Sediment	1,2,3,6,7,8-HxCDD
TEQ		Sediment	1,2,3,6,7,8-HxCDF
TEQ		Sediment	1,2,3,7,8,9-HxCDD
TEQ		Sediment	1,2,3,7,8,9-HxCDF
TEQ		Sediment	1,2,3,7,8-PeCDD
TEQ		Sediment	1,2,3,7,8-PeCDF
TEQ		Sediment	2,3,4,6,7,8-HxCDF
TEQ		Sediment	2,3,4,7,8-PeCDF
TEQ		Sediment	2,3,7,8-TCDD
TEQ		Sediment	2,3,7,8-TCDF
TEQ		Sediment	OCDD
TEQ		Sediment	OCDF
TEQ		Sediment	Total Toxic Dioxins and Furans

Sample Summary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-129488-1	131831001	Sediment	10/26/21 10:35	11/04/21 10:45
180-129488-2	131831002	Sediment	10/26/21 15:16	11/04/21 10:45
180-129488-3	131831003	Sediment	10/27/21 10:00	11/04/21 10:45
180-129488-4	131831004	Sediment	10/27/21 11:40	11/04/21 10:45
180-129488-5	131831005	Sediment	10/28/21 11:40	11/04/21 10:45
180-129488-6	131831006	Sediment	10/28/21 15:10	11/04/21 10:45
180-129488-7	131831007	Sediment	10/29/21 18:24	11/04/21 10:45

Method Summary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-4

Method	Method Description	Protocol	Laboratory
TEQ	Total TEQ Calculation	Lab SOP	TAL KNX

Protocol References:

Lab SOP = Laboratory Standard Operating Procedure

Laboratory References:

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

Toxicity Summary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-4

Client Sample ID: 131831001 — Lab Sample ID: 180-129488-1

Analyte	Result	Qualifier	NONE	EDL	Unit	WHO 2005 ND = EDL TEF	WHO 2005 ND = EDL TEQ	Method
2,3,7,8-TCDD			0.97	0.075	pg/g	1	0.075	TEQ
1,2,3,7,8-PeCDD			4.8	0.067	pg/g	1	0.067	TEQ
1,2,3,4,7,8-HxCDD		**J B**	4.8	0.035	pg/g	0.1	**0.021**	TEQ
1,2,3,6,7,8-HxCDD		**J B q**	4.8	0.032	pg/g	0.1	**0.023**	TEQ
1,2,3,7,8,9-HxCDD		**J B q**	4.8	0.032	pg/g	0.1	**0.043**	TEQ
1,2,3,4,6,7,8-HpCDD			4.8	0.19	pg/g	0.01	**0.071**	TEQ
OCDD		**B**	9.7	0.080	pg/g	0.0003	**0.024**	TEQ
2,3,7,8-TCDF			0.97	0.049	pg/g	0.1	0.0049	TEQ
1,2,3,7,8-PeCDF			4.8	0.14	pg/g	0.03	0.0042	TEQ
2,3,4,7,8-PeCDF			4.8	0.12	pg/g	0.3	0.036	TEQ
1,2,3,4,7,8-HxCDF			4.8	0.062	pg/g	0.1	0.0062	TEQ
1,2,3,6,7,8-HxCDF			4.8	0.066	pg/g	0.1	0.0066	TEQ
1,2,3,7,8,9-HxCDF			4.8	0.091	pg/g	0.1	0.0091	TEQ
2,3,4,6,7,8-HxCDF			4.8	0.076	pg/g	0.1	0.0076	TEQ
1,2,3,4,6,7,8-HpCDF		**J B**	4.8	0.051	pg/g	0.01	**0.011**	TEQ
1,2,3,4,7,8,9-HpCDF			4.8	0.079	pg/g	0.01	0.00079	TEQ
OCDF		**J B**	9.7	0.065	pg/g	0.0003	**0.00057**	TEQ

Analyte	Result	Qualifier	NONE	NONE	Unit	WHO 2005 TEF	WHO 2005 TEQ	Method
Total Toxic Dioxins and Furans					pg/g		0.41	TEQ

Client Sample ID: 131831002 — Lab Sample ID: 180-129488-2

Analyte	Result	Qualifier	NONE	EDL	Unit	WHO 2005 ND = EDL TEF	WHO 2005 ND = EDL TEQ	Method
2,3,7,8-TCDD			0.97	0.026	pg/g	1	0.026	TEQ
1,2,3,7,8-PeCDD			4.8	0.022	pg/g	1	0.022	TEQ
1,2,3,4,7,8-HxCDD		**J B q**	4.8	0.028	pg/g	0.1	**0.0060**	TEQ
1,2,3,6,7,8-HxCDD			4.8	0.026	pg/g	0.1	0.0026	TEQ
1,2,3,7,8,9-HxCDD		**J B**	4.8	0.026	pg/g	0.1	**0.011**	TEQ
1,2,3,4,6,7,8-HpCDD		**J q**	4.8	0.070	pg/g	0.01	**0.015**	TEQ
OCDD		**B**	9.7	0.022	pg/g	0.0003	**0.010**	TEQ
2,3,7,8-TCDF			0.97	0.020	pg/g	0.1	0.0020	TEQ
1,2,3,7,8-PeCDF			4.8	0.031	pg/g	0.03	0.00093	TEQ
2,3,4,7,8-PeCDF			4.8	0.027	pg/g	0.3	0.0081	TEQ
1,2,3,4,7,8-HxCDF			4.8	0.026	pg/g	0.1	0.0026	TEQ
1,2,3,6,7,8-HxCDF			4.8	0.028	pg/g	0.1	0.0028	TEQ
1,2,3,7,8,9-HxCDF			4.8	0.033	pg/g	0.1	0.0033	TEQ
2,3,4,6,7,8-HxCDF			4.8	0.029	pg/g	0.1	0.0029	TEQ
1,2,3,4,6,7,8-HpCDF		**J B q**	4.8	0.045	pg/g	0.01	**0.0017**	TEQ
1,2,3,4,7,8,9-HpCDF			4.8	0.067	pg/g	0.01	0.00067	TEQ
OCDF		**J B**	9.7	0.023	pg/g	0.0003	**0.000072**	TEQ

TEF Reference:
WHO 2005 = World Health Organization (WHO) 2005 TEF, Dioxins, Furans and PCB Congeners

Toxicity Summary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-4

Client Sample ID: 131831002 (Continued) — Lab Sample ID: 180-129488-2

Analyte	Result	Qualifier	NONE	NONE	Unit	WHO 2005 TEF	WHO 2005 TEQ	Method
Total Toxic Dioxins and Furans					pg/g		0.12	TEQ

Client Sample ID: 131831003 — Lab Sample ID: 180-129488-3

Analyte	Result	Qualifier	NONE	EDL	Unit	WHO 2005 ND = EDL TEF	WHO 2005 ND = EDL TEQ	Method
2,3,7,8-TCDD			0.97	0.023	pg/g	1	0.023	TEQ
1,2,3,7,8-PeCDD			4.9	0.019	pg/g	1	0.019	TEQ
1,2,3,4,7,8-HxCDD		**J B**	4.9	0.025	pg/g	0.1	**0.0089**	TEQ
1,2,3,6,7,8-HxCDD			4.9	0.021	pg/g	0.1	0.0021	TEQ
1,2,3,7,8,9-HxCDD			4.9	0.022	pg/g	0.1	0.0022	TEQ
1,2,3,4,6,7,8-HpCDD		**J**	4.9	0.058	pg/g	0.01	**0.014**	TEQ
OCDD		**B**	9.7	0.022	pg/g	0.0003	**0.0090**	TEQ
2,3,7,8-TCDF			0.97	0.017	pg/g	0.1	0.0017	TEQ
1,2,3,7,8-PeCDF			4.9	0.039	pg/g	0.03	0.0012	TEQ
2,3,4,7,8-PeCDF			4.9	0.035	pg/g	0.3	0.011	TEQ
1,2,3,4,7,8-HxCDF			4.9	0.020	pg/g	0.1	0.0020	TEQ
1,2,3,6,7,8-HxCDF		**J q**	4.9	0.021	pg/g	0.1	**0.0038**	TEQ
1,2,3,7,8,9-HxCDF			4.9	0.027	pg/g	0.1	0.0027	TEQ
2,3,4,6,7,8-HxCDF			4.9	0.023	pg/g	0.1	0.0023	TEQ
1,2,3,4,6,7,8-HpCDF		**J B**	4.9	0.016	pg/g	0.01	**0.0010**	TEQ
1,2,3,4,7,8,9-HpCDF			4.9	0.024	pg/g	0.01	0.00024	TEQ
OCDF		**J B q**	9.7	0.028	pg/g	0.0003	**0.000042**	TEQ

Analyte	Result	Qualifier	NONE	NONE	Unit	WHO 2005 TEF	WHO 2005 TEQ	Method
Total Toxic Dioxins and Furans					pg/g		0.10	TEQ

Client Sample ID: 131831004 — Lab Sample ID: 180-129488-4

Analyte	Result	Qualifier	NONE	EDL	Unit	WHO 2005 ND = EDL TEF	WHO 2005 ND = EDL TEQ	Method
2,3,7,8-TCDD		**J q**	0.96	0.018	pg/g	1	**0.097**	TEQ
1,2,3,7,8-PeCDD		**J q**	4.8	0.098	pg/g	1	**0.25**	TEQ
1,2,3,4,7,8-HxCDD		**J B**	4.8	0.018	pg/g	0.1	**0.068**	TEQ
1,2,3,6,7,8-HxCDD		**J B**	4.8	0.017	pg/g	0.1	**0.14**	TEQ
1,2,3,7,8,9-HxCDD		**J B**	4.8	0.017	pg/g	0.1	**0.19**	TEQ
1,2,3,4,6,7,8-HpCDD			4.8	0.064	pg/g	0.01	**0.57**	TEQ
OCDD		**B**	9.6	0.014	pg/g	0.0003	**0.48**	TEQ
2,3,7,8-TCDF		**J**	0.96	0.018	pg/g	0.1	**0.051**	TEQ
1,2,3,7,8-PeCDF		**J**	4.8	0.044	pg/g	0.03	**0.0057**	TEQ
2,3,4,7,8-PeCDF		**J q**	4.8	0.043	pg/g	0.3	**0.084**	TEQ
1,2,3,4,7,8-HxCDF		**J**	4.8	0.079	pg/g	0.1	**0.14**	TEQ
1,2,3,6,7,8-HxCDF		**J I**	4.8	0.086	pg/g	0.1	**0.083**	TEQ

TEF Reference:

WHO 2005 = World Health Organization (WHO) 2005 TEF, Dioxins, Furans and PCB Congeners

Toxicity Summary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-4

Client Sample ID: 131831004 (Continued) — Lab Sample ID: 180-129488-4

Analyte	Result	Qualifier	NONE	EDL	Unit	WHO 2005 ND = EDL TEF	WHO 2005 ND = EDL TEQ	Method
1,2,3,7,8,9-HxCDF			4.8	0.11	pg/g	0.1	0.011	TEQ
2,3,4,6,7,8-HxCDF		**J**	4.8	0.092	pg/g	0.1	**0.048**	TEQ
1,2,3,4,6,7,8-HpCDF		**B**	4.8	0.063	pg/g	0.01	**0.12**	TEQ
1,2,3,4,7,8,9-HpCDF		**J**	4.8	0.089	pg/g	0.01	**0.0055**	TEQ
OCDF		**B**	9.6	0.12	pg/g	0.0003	**0.0066**	TEQ

Analyte	Result	Qualifier	NONE	NONE	Unit	WHO 2005 TEF	WHO 2005 TEQ	Method
Total Toxic Dioxins and Furans					pg/g		2.3	TEQ

Client Sample ID: 131831005 — Lab Sample ID: 180-129488-5

Analyte	Result	Qualifier	NONE	EDL	Unit	WHO 2005 ND = EDL TEF	WHO 2005 ND = EDL TEQ	Method
2,3,7,8-TCDD			0.97	0.028	pg/g	1	0.028	TEQ
1,2,3,7,8-PeCDD			4.9	0.059	pg/g	1	0.059	TEQ
1,2,3,4,7,8-HxCDD		**J B**	4.9	0.013	pg/g	0.1	**0.015**	TEQ
1,2,3,6,7,8-HxCDD		**J B q**	4.9	0.012	pg/g	0.1	**0.022**	TEQ
1,2,3,7,8,9-HxCDD		**J B**	4.9	0.012	pg/g	0.1	**0.040**	TEQ
1,2,3,4,6,7,8-HpCDD			4.9	0.077	pg/g	0.01	**0.081**	TEQ
OCDD		**B**	9.7	0.021	pg/g	0.0003	**0.033**	TEQ
2,3,7,8-TCDF		**J**	0.97	0.014	pg/g	0.1	**0.0046**	TEQ
1,2,3,7,8-PeCDF		**J q**	4.9	0.010	pg/g	0.03	**0.00045**	TEQ
2,3,4,7,8-PeCDF		**J q**	4.9	0.0090	pg/g	0.3	**0.011**	TEQ
1,2,3,4,7,8-HxCDF		**J q**	4.9	0.019	pg/g	0.1	**0.0050**	TEQ
1,2,3,6,7,8-HxCDF		**J q**	4.9	0.020	pg/g	0.1	**0.0074**	TEQ
1,2,3,7,8,9-HxCDF			4.9	0.027	pg/g	0.1	0.0027	TEQ
2,3,4,6,7,8-HxCDF			4.9	0.022	pg/g	0.1	0.0022	TEQ
1,2,3,4,6,7,8-HpCDF		**J B**	4.9	0.017	pg/g	0.01	**0.0051**	TEQ
1,2,3,4,7,8,9-HpCDF		**J**	4.9	0.026	pg/g	0.01	**0.00074**	TEQ
OCDF		**J B**	9.7	0.027	pg/g	0.0003	**0.00045**	TEQ

Analyte	Result	Qualifier	NONE	NONE	Unit	WHO 2005 TEF	WHO 2005 TEQ	Method
Total Toxic Dioxins and Furans					pg/g		0.32	TEQ

Client Sample ID: 131831006 — Lab Sample ID: 180-129488-6

Analyte	Result	Qualifier	NONE	EDL	Unit	WHO 2005 ND = EDL TEF	WHO 2005 ND = EDL TEQ	Method
2,3,7,8-TCDD			0.96	0.027	pg/g	1	0.027	TEQ
1,2,3,7,8-PeCDD			4.8	0.020	pg/g	1	0.020	TEQ
1,2,3,4,7,8-HxCDD		**J B q**	4.8	0.011	pg/g	0.1	**0.0056**	TEQ
1,2,3,6,7,8-HxCDD		**J B**	4.8	0.010	pg/g	0.1	**0.0040**	TEQ

TEF Reference:
WHO 2005 = World Health Organization (WHO) 2005 TEF, Dioxins, Furans and PCB Congeners

Toxicity Summary

Client: Georgia Power - Environmental Lab
Project/Site: Langdale

Job ID: 180-129488-4

Client Sample ID: 131831006 (Continued)

Lab Sample ID: 180-129488-6

Analyte	Result	Qualifier	NONE	EDL	Unit	WHO 2005 ND = EDL TEF	WHO 2005 ND = EDL TEQ	Method
1,2,3,7,8,9-HxCDD		J B q	4.8	0.010	pg/g	0.1	0.0024	TEQ
1,2,3,4,6,7,8-HpCDD		J q	4.8	0.053	pg/g	0.01	0.0088	TEQ
OCDD		B	9.6	0.020	pg/g	0.0003	0.0063	TEQ
2,3,7,8-TCDF		J q	0.96	0.018	pg/g	0.1	0.0024	TEQ
1,2,3,7,8-PeCDF			4.8	0.021	pg/g	0.03	0.00063	TEQ
2,3,4,7,8-PeCDF			4.8	0.019	pg/g	0.3	0.0057	TEQ
1,2,3,4,7,8-HxCDF			4.8	0.026	pg/g	0.1	0.0026	TEQ
1,2,3,6,7,8-HxCDF		J q	4.8	0.030	pg/g	0.1	0.0036	TEQ
1,2,3,7,8,9-HxCDF			4.8	0.035	pg/g	0.1	0.0035	TEQ
2,3,4,6,7,8-HxCDF			4.8	0.030	pg/g	0.1	0.0030	TEQ
1,2,3,4,6,7,8-HpCDF		J B q	4.8	0.018	pg/g	0.01	0.00065	TEQ
1,2,3,4,7,8,9-HpCDF			4.8	0.027	pg/g	0.01	0.00027	TEQ
OCDF		J B q	9.6	0.022	pg/g	0.0003	0.000054	TEQ

Analyte	Result	Qualifier	NONE	NONE	Unit	WHO 2005 TEF	WHO 2005 TEQ	Method
Total Toxic Dioxins and Furans					pg/g		0.097	TEQ

Client Sample ID: 131831007

Lab Sample ID: 180-129488-7

Analyte	Result	Qualifier	NONE	EDL	Unit	WHO 2005 ND = EDL TEF	WHO 2005 ND = EDL TEQ	Method
2,3,7,8-TCDD			0.97	0.020	pg/g	1	0.020	TEQ
1,2,3,7,8-PeCDD		J q	4.9	0.016	pg/g	1	0.078	TEQ
1,2,3,4,7,8-HxCDD		J B	4.9	0.013	pg/g	0.1	0.032	TEQ
1,2,3,6,7,8-HxCDD		J B q	4.9	0.012	pg/g	0.1	0.0098	TEQ
1,2,3,7,8,9-HxCDD		J B	4.9	0.012	pg/g	0.1	0.023	TEQ
1,2,3,4,6,7,8-HpCDD		J	4.9	0.11	pg/g	0.01	0.017	TEQ
OCDD		B	9.7	0.014	pg/g	0.0003	0.0072	TEQ
2,3,7,8-TCDF		J q	0.97	0.016	pg/g	0.1	0.0037	TEQ
1,2,3,7,8-PeCDF		J	4.9	0.034	pg/g	0.03	0.0021	TEQ
2,3,4,7,8-PeCDF		J q	4.9	0.031	pg/g	0.3	0.017	TEQ
1,2,3,4,7,8-HxCDF		J q	4.9	0.038	pg/g	0.1	0.0061	TEQ
1,2,3,6,7,8-HxCDF			4.9	0.041	pg/g	0.1	0.0041	TEQ
1,2,3,7,8,9-HxCDF			4.9	0.050	pg/g	0.1	0.0050	TEQ
2,3,4,6,7,8-HxCDF			4.9	0.046	pg/g	0.1	0.0046	TEQ
1,2,3,4,6,7,8-HpCDF		J B	4.9	0.024	pg/g	0.01	0.0019	TEQ
1,2,3,4,7,8,9-HpCDF		J q	4.9	0.036	pg/g	0.01	0.00086	TEQ
OCDF		J B	9.7	0.022	pg/g	0.0003	0.000099	TEQ

Analyte	Result	Qualifier	NONE	NONE	Unit	WHO 2005 TEF	WHO 2005 TEQ	Method
Total Toxic Dioxins and Furans					pg/g		0.23	TEQ

TEF Reference:

WHO 2005 = World Health Organization (WHO) 2005 TEF, Dioxins, Furans and PCB Congeners

Login Sample Receipt Checklist

Client: Georgia Power - Environmental Lab

Job Number: 180-129488-4

Login Number: 129488
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins 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	samples are from a lab
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	

APPENDIX E

SIEVE ANALYSIS AND BULK DENSITY

LANGDALE PROJECT (FERC NO. 2341) AND RIVERVIEW PROJECT (FERC NO. 2350)

Geotechnical | Environmental | Construction Materials | Facilities

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: Q-1

Technician: Drew Hoffman Begin Sample Weight gms: 549.97

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	97.07	97.07	17.65	17.65	82.35	
1/4 in.	47.26	144.33	8.59	26.24	73.76	
3/8 in.	32.1	176.43	5.84	32.08	67.92	
No. 4	19.45	195.88	3.54	35.62	64.38	
No. 10	34.72	230.6	6.31	41.93	58.07	
No. 20	66.05	296.65	12.01	53.94	46.06	
No. 40	147.09	443.74	26.75	80.68	19.32	
No. 60	59.52	503.26	10.82	91.51	8.49	
No. 100	32.68	535.94	5.94	97.45	2.55	
No. 200	11.13	547.07	2.02	99.47	0.53	
Minus 200	0.28	547.35	0.05	99.52	0.48	

Wet density : 116.7

Dry density : 105.2

Moisture : 10.9

Remarks: _____

Geotechnical | Environmental | Construction Materials | Facilities

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: Q-2

Technician: Drew Hoffman Begin Sample Weight gms: 517.65

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	1.39	1.39	0.27	0.27	99.73	
1/4 in.	3.41	4.8	0.66	0.93	99.07	
3/8 in.	5.44	10.24	1.05	1.98	98.02	
No. 4	6.67	16.91	1.29	3.27	96.73	
No. 10	33.27	50.18	6.43	9.69	90.31	
No. 20	184.61	234.79	35.66	45.36	54.64	
No. 40	224.86	459.65	43.44	88.80	11.20	
No. 60	45.67	505.32	8.82	97.62	2.38	
No. 100	7.85	513.17	1.52	99.13	0.87	
No. 200	3.14	516.31	0.61	99.74	0.26	
Minus 200	0.12	516.43	0.02	99.76	0.24	

Wet density : 108.3

Dry density : 90.1

Moisture : 20.2

Remarks: _____

Geotechnical | Environmental | Construction Materials | Facilities

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: Q-3

Technician: Drew Hoffman Begin Sample Weight gms: 513.49

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	1.95	1.95	0.38	0.38	99.62	
1/4 in.	0.47	2.42	0.09	0.47	99.53	
3/8 in.	3.39	5.81	0.66	1.13	98.87	
No. 4	1.85	7.66	0.36	1.49	98.51	
No. 10	16.36	24.02	3.19	4.68	95.32	
No. 20	183.2	207.22	35.68	40.36	59.64	
No. 40	262.7	469.92	51.16	91.51	8.49	
No. 60	39.1	509.02	7.61	99.13	0.87	
No. 100	2.48	511.5	0.48	99.61	0.39	
No. 200	1.04	512.54	0.20	99.81	0.19	
Minus 200	0.13	512.67	0.03	99.84	0.16	

Wet density : 100.3

Dry density : 86.1

Moisture : 16.5

Remarks: _____

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: Q-4

Technician: Drew Hoffman Begin Sample Weight gms: 391.95

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	0	0	0.00	0.00	100.00	
1/4 in.	0	0	0.00	0.00	100.00	
3/8 in.	0	0	0.00	0.00	100.00	
No. 4	0.31	0.31	0.08	0.08	99.92	
No. 10	2.75	3.06	0.70	0.78	99.22	
No. 20	22.77	25.83	5.81	6.59	93.41	
No. 40	45.35	71.18	11.57	18.16	81.84	
No. 60	31.78	102.96	8.11	26.27	73.73	
No. 100	41.84	144.8	10.67	36.94	63.06	
No. 200	29.55	174.35	7.54	44.48	55.52	
Minus 200	0.87	175.22	0.22	44.70	55.30	

Wet density : 113.6

Dry density : 84.7

Moisture : 34.2

Remarks: _____

Geotechnical | Environmental | Construction Materials | Facilities

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: Q-5

Technician: Drew Hoffman Begin Sample Weight gms: 439.44

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	0	0	0.00	0.00	100.00	
1/4 in.	0	0	0.00	0.00	100.00	
3/8 in.	1.54	1.54	0.35	0.35	99.65	
No. 4	0.83	2.37	0.19	0.54	99.46	
No. 10	12.23	14.6	2.78	3.32	96.68	
No. 20	57.53	72.13	13.09	16.41	83.59	
No. 40	99.45	171.58	22.63	39.05	60.95	
No. 60	38.06	209.64	8.66	47.71	52.29	
No. 100	6	215.64	1.37	49.07	50.93	
No. 200	9.26	224.9	2.11	51.18	48.82	
Minus 200	0.47	225.37	0.11	51.29	48.71	

Wet density : 111.8

Dry density : 88.2

Moisture : 28.7

Remarks: _____

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: Q-6

Technician: Drew Hoffman Begin Sample Weight gms: 550.17

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	100.35	100.35	18.24	18.24	81.76	
1/4 in.	16.47	116.82	2.99	21.23	78.77	
3/8 in.	23.52	140.34	4.28	25.51	74.49	
No. 4	11.8	152.14	2.14	27.65	72.35	
No. 10	27.23	179.37	4.95	32.60	67.40	
No. 20	88.64	268.01	16.11	48.71	51.29	
No. 40	166.49	434.5	30.26	78.98	21.02	
No. 60	74.27	508.77	13.50	92.48	7.52	
No. 100	22.83	531.6	4.15	96.62	3.38	
No. 200	7.14	538.74	1.30	97.92	2.08	
Minus 200	0.39	539.13	0.07	97.99	2.01	

Wet density : 117

Dry density : 97

Moisture : 20.6

Remarks: _____

Geotechnical | Environmental | Construction Materials | Facilities

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: Q-7

Technician: Drew Hoffman Begin Sample Weight gms: 496.71

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	0	0	0.00	0.00	100.00	
1/4 in.	0	0	0.00	0.00	100.00	
3/8 in.	0.63	0.63	0.13	0.13	99.87	
No. 4	2.41	3.04	0.49	0.61	99.39	
No. 10	33.74	36.78	6.79	7.40	92.60	
No. 20	215.93	252.71	43.47	50.88	49.12	
No. 40	212.32	465.03	42.75	93.62	6.38	
No. 60	27.41	492.44	5.52	99.14	0.86	
No. 100	2.26	494.7	0.45	99.60	0.40	
No. 200	0.89	495.59	0.18	99.77	0.23	
Minus 200	0.14	495.73	0.03	99.80	0.20	

Wet density : 111.7

Dry density : 87.9

Moisture : 27.2

Remarks: _____

Geotechnical | Environmental | Construction Materials | Facilities

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: PB-2

Technician: Drew Hoffman Begin Sample Weight gms: 601.66

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	6.33	6.33	1.05	1.05	98.95	
1/4 in.	7.94	14.27	1.32	2.37	97.63	
3/8 in.	21.14	35.41	3.51	5.89	94.11	
No. 4	20.15	55.56	3.35	9.23	90.77	
No. 10	105.86	161.42	17.59	26.83	73.17	
No. 20	257.15	418.57	42.74	69.57	30.43	
No. 40	155.83	574.4	25.90	95.47	4.53	
No. 60	19.18	593.58	3.19	98.66	1.34	
No. 100	3.58	597.16	0.60	99.25	0.75	
No. 200	1.75	598.91	0.29	99.54	0.46	
Minus 200	0.18	599.09	0.03	99.57	0.43	

Wet density : 95.2

Dry density : 90.7

Moisture : 5

Remarks: _____

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: PB-3

Technician: Drew Hoffman Begin Sample Weight gms: 483.28

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	0	0	0.00	0.00	100.00	
1/4 in.	0	0	0.00	0.00	100.00	
3/8 in.	0.35	0.35	0.07	0.07	99.93	
No. 4	3.79	4.14	0.78	0.86	99.14	
No. 10	33.13	37.27	6.86	7.71	92.29	
No. 20	222.01	259.28	45.94	53.65	46.35	
No. 40	150.67	409.95	31.18	84.83	15.17	
No. 60	20.04	429.99	4.15	88.97	11.03	
No. 100	5.87	435.86	1.21	90.19	9.81	
No. 200	2.41	438.27	0.50	90.69	9.31	
Minus 200	0.21	438.48	0.04	90.73	9.27	

Wet density : 98.5

Dry density : 79.6

Moisture : 23.8

Remarks: _____

Geotechnical | Environmental | Construction Materials | Facilities

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: SP6.3

Technician: Drew Hoffman Begin Sample Weight gms: 601.93

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	5.66	5.66	0.94	0.94	99.06	
1/4 in.	4.45	10.11	0.74	1.68	98.32	
3/8 in.	5.07	15.18	0.84	2.52	97.48	
No. 4	8.2	23.38	1.36	3.88	96.12	
No. 10	68.42	91.8	11.37	15.25	84.75	
No. 20	316.47	408.27	52.58	67.83	32.17	
No. 40	173.23	581.5	28.78	96.61	3.39	
No. 60	16.27	597.77	2.70	99.31	0.69	
No. 100	2.27	600.04	0.38	99.69	0.31	
No. 200	1.06	601.1	0.18	99.86	0.14	
Minus 200	0.07	601.17	0.01	99.87	0.13	

Wet density : 95.7

Dry density : 84.2

Moisture : 13.7

Remarks: _____

Geotechnical | Environmental | Construction Materials | Facilities

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: SP10.2

Technician: Drew Hoffman Begin Sample Weight gms: 253.94

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	0	0	0.00	0.00	100.00	
1/4 in.	1.26	1.26	0.50	0.50	99.50	
3/8 in.	1.48	2.74	0.58	1.08	98.92	
No. 4	1.19	3.93	0.47	1.55	98.45	
No. 10	3	6.93	1.18	2.73	97.27	
No. 20	4.92	11.85	1.94	4.67	95.33	
No. 40	3.68	15.53	1.45	6.12	93.88	
No. 60	8.57	24.1	3.37	9.49	90.51	
No. 100	24.39	48.49	9.60	19.10	80.90	
No. 200	64.43	112.92	25.37	44.47	55.53	
Minus 200	2.13	115.05	0.84	45.31	54.69	

Wet density : 83.8

Dry density : 59.2

Moisture : 41.6

Remarks: _____

Geotechnical | Environmental | Construction Materials | Facilities

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: SP10.7

Technician: Drew Hoffman Begin Sample Weight gms: 501.35

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	4.43	4.43	0.88	0.88	99.12	
1/4 in.	1.77	6.2	0.35	1.24	98.76	
3/8 in.	1.62	7.82	0.32	1.56	98.44	
No. 4	0.86	8.68	0.17	1.73	98.27	
No. 10	22.74	31.42	4.54	6.27	93.73	
No. 20	226	257.42	45.08	51.35	48.65	
No. 40	177.36	434.78	35.38	86.72	13.28	
No. 60	28.94	463.72	5.77	92.49	7.51	
No. 100	7.41	471.13	1.48	93.97	6.03	
No. 200	6.38	477.51	1.27	95.24	4.76	
Minus 200	0.32	477.83	0.06	95.31	4.69	

Wet density : 114.3

Dry density : 90.7

Moisture : 26

Remarks: _____

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: SP12.2

Technician: Drew Hoffman Begin Sample Weight gms: 503.11

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	6.36	6.36	1.26	1.26	98.74	
1/4 in.	0.84	7.2	0.17	1.43	98.57	
3/8 in.	2.6	9.8	0.52	1.95	98.05	
No. 4	1.9	11.7	0.38	2.33	97.67	
No. 10	8.61	20.31	1.71	4.04	95.96	
No. 20	67.26	87.57	13.37	17.41	82.59	
No. 40	165.32	252.89	32.86	50.27	49.73	
No. 60	74.63	327.52	14.83	65.10	34.90	
No. 100	26.19	353.71	5.21	70.30	29.70	
No. 200	13.81	367.52	2.74	73.05	26.95	
Minus 200	0.5	368.02	0.10	73.15	26.85	

Wet density : 108.4

Dry density : 96.6

Moisture : 12.2

Remarks: _____

Geotechnical | Environmental | Construction Materials | Facilities

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: SP14.2

Technician: Drew Hoffman Begin Sample Weight gms: 479.56

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	17.6	17.6	3.67	3.67	96.33	
1/4 in.	12.31	29.91	2.57	6.24	93.76	
3/8 in.	12.04	41.95	2.51	8.75	91.25	
No. 4	10.03	51.98	2.09	10.84	89.16	
No. 10	33.92	85.9	7.07	17.91	82.09	
No. 20	130.28	216.18	27.17	45.08	54.92	
No. 40	205.45	421.63	42.84	87.92	12.08	
No. 60	48.42	470.05	10.10	98.02	1.98	
No. 100	5.9	475.96	1.23	99.25	0.75	
No. 200	1.94	477.9	0.40	99.65	0.35	
Minus 200	0.33	478.23	0.07	99.72	0.28	

Wet density : 110.4

Dry density : 89.2

Moisture : 23.8

Remarks: _____

Terracon
Consulting Engineers & Scientists

SIEVE ANALYSIS WORKSHEET

Date: _____ Lab Number: _____

Project: Langdale Dams Sediment Plan Project Number: HP215086

Material: _____

Source: SP17

Technician: Drew Hoffman Begin Sample Weight gms: 492.88

	Weight of sample retained, gms		Percent retained			Spec.
Sieve Size	Individual	Cumulative	Individual	Cumulative	Percent Passing	_____
1/2 in.	0	0	0.00	0.00	100.00	
1/4 in.	4.52	4.52	0.92	0.92	99.08	
3/8 in.	9.75	14.27	1.98	2.90	97.10	
No. 4	5.48	19.75	1.11	4.01	95.99	
No. 10	34.31	54.06	6.96	10.97	89.03	
No. 20	140.22	194.28	28.45	39.42	60.58	
No. 40	163.72	358	33.22	72.63	27.37	
No. 60	43.54	401.54	8.83	81.47	18.53	
No. 100	5.59	407.13	1.13	82.60	17.40	
No. 200	4.7	411.83	0.95	83.56	16.44	
Minus 200	0.51	412.34	0.10	83.66	16.34	

Wet density : 105.8

Dry density : 82.9

Moisture : 27.6

Remarks: _____

APPENDIX F

SPECIFIC GRAVITY

LANGDALE PROJECT (FERC NO. 2341) AND RIVERVIEW PROJECT (FERC NO. 2350)

SPECIFIC GRAVITY DETERMINATION
ASTM D854

Terracon

Project: Langdale Dams Sediment Plan Project No HP215086

Sample No.: _____ Boring No.: _____ Depth: _____

Location: _____

Sample Description: _____

[A] Calibration of Pyncometer Flask F2

a] Weight of clean, dry pyncometer:	170.12	g
b] Weight of pyncometer & water:	667.33	g
c] Weight of water **[b-a]**:	497.21	g
d] Observed temperature of water:	20.3	°C
e] Density of water @ observed temp:	0.99814	g/ml (ASTM D854, Table 1)
f] Volume of pyncometer **[c÷e]**:	498.14	ml

[B] Specific Gravity Determination

	Q-5	**PB-2**	**SP6.3**	**Q-4**	**PB-3**
g] Weight of pyncometer + soil + water (g)	732.44	730.4	718.2	717.81	730.01
h] Observed temperature of water (°C)	19.8	18.3	17.4	19.2	19.8
i] Density of water @ observed temp **[D854, Table 1]**	0.99825	0.99854	0.99871	0.99837	0.99825
Tare ID	D	D	D	D	A
j] Weight of tare (g)	0.0	0.0	0.0	0.0	0.0
k] Weight of tare + oven-dried soil (g)	104.0	100.8	80.7	80.7	100.1
l] Weight of oven-dried soil **[k-j]** (g)	104.0	100.8	80.7	80.7	100.1
m] Weight of pyncometer + water @ observed temp **[a + (f*i)]**	667.39	667.53	667.62	667.44	667.39
n] Specific Gravity of soil @ observed temp $\frac{l}{m-(g-l)}$	**2.669**	**2.659**	**2.680**	**2.663**	**2.673**
o] Temperature coefficient **[D854, Table 1]**	1.00004	1.00034	1.0005	1.00016	1.00004
p] Specific Gravity of soil @ 20° C **[n * o]**	**2.669**	**2.660**	**2.682**	**2.664**	**2.673**

Tested by: Drew Hoffman Date: _____

SPECIFIC GRAVITY DETERMINATION
ASTM D854

Project: Langdale Dams Sediment Plan Project No HP215086

Sample No.: _____ Boring No.: _____ Depth: _____

Location: _____

Sample Description: _____

[A] Calibration of Pyncometer Flask F3

a] Weight of clean, dry pyncometer:	174.44	g	
b] Weight of pyncometer & water:	671.68	g	
c] Weight of water **[b-a]**:	497.24	g	
d] Observed temperature of water:	20.4	°C	
e] Density of water @ observed temp:	0.99812	g/ml	(ASTM D854, Table 1)
f] Volume of pyncometer **[c÷e]**:	498.18	ml	

[B] Specific Gravity Determination

	Q-3	**SP12.2**	**SP10.7**	**Q-1**	
g] Weight of pyncometer + soil + water (g)	734.25	727.66	735.03	737.38	
h] Observed temperature of water (°C)	19.2	17.3	18.3	19.7	
i] Density of water @ observed temp **[D854, Table 1]**	0.99837	0.99872	0.99854	0.99827	
Tare ID	A	C	C	C	
j] Weight of tare (g)	0.0	0.0	0.0	0.0	
k] Weight of tare + oven-dried soil (g)	100.4	89.3	101.1	104.7	
l] Weight of oven-dried soil **[k-j]** (g)	100.4	89.3	101.1	104.7	
m] Weight of pyncometer + water @ observed temp **[a + (f*i)]**	671.81	671.98	671.89	671.76	
n] Specific Gravity of soil @ observed temp $\frac{l}{m-(g-l)}$	**2.644**	**2.657**	**2.662**	**2.680**	
o] Temperature coefficient **[D854, Table 1]**	1.00016	1.00052	1.00034	1.00006	
p] Specific Gravity of soil @ 20° C **[n * o]**	**2.644**	**2.658**	**2.662**	**2.680**	

Tested by: Drew Hoffman Date: _____

SPECIFIC GRAVITY DETERMINATION
ASTM D854

Project: Langdale Dams Sediment Plan Project No HP215086

Sample No.: _____ Boring No.: _____ Depth: _____

Location: _____

Sample Description: _____

[A] Calibration of Pyncometer Flask F4

a] Weight of clean, dry pyncometer:	177.58	g	
b] Weight of pyncometer & water:	674.72	g	
c] Weight of water **[b-a]**:	497.14	g	
d] Observed temperature of water:	20.4	°C	
e] Density of water @ observed temp:	0.99812	g/ml	(ASTM D854, Table 1)
f] Volume of pyncometer **[c÷e]**:	498.08	ml	

[B] Specific Gravity Determination

	Q-6	**SP17**	**Q-7**		
g] Weight of pyncometer + soil + water (g)	738.79	737.76	738.64		
h] Observed temperature of water (°C)	19.2	18.3	19.8		
i] Density of water @ observed temp **[D854, Table 1]**	0.99837	0.99854	0.99825		
Tare ID	B	B	B		
j] Weight of tare (g)	0.0	0.0	0.0		
k] Weight of tare + oven-dried soil (g)	102.4	100.9	102.5		
l] Weight of oven-dried soil **[k-j]** (g)	102.4	100.9	102.5		
m] Weight of pyncometer + water @ observed temp **[a + (f*i)]**	674.85	674.93	674.79		
n] Specific Gravity of soil @ observed temp $\frac{l}{m-(g-l)}$	**2.662**	**2.653**	**2.653**		
o] Temperature coefficient **[D854, Table 1]**	1.00016	1.00034	1.00004		
p] Specific Gravity of soil @ 20° C **[n * o]**	**2.662**	**2.653**	**2.653**		

Tested by: Drew Hoffman Date: _____

SPECIFIC GRAVITY DETERMINATION
ASTM D854

Terracon

Project: Langdale Dams Sediment Plan Project No HP215086

Sample No.: _____ Boring No.: _____ Depth: _____

Location: _____

Sample Description: _____

[A] Calibration of Pyncometer Flask F5

a] Weight of clean, dry pyncometer:	170.49	g
b] Weight of pyncometer & water:	667.88	g
c] Weight of water **[b-a]**:	497.39	g
d] Observed temperature of water:	20.7	°C
e] Density of water @ observed temp:	0.99806	g/ml (ASTM D854, Table 1)
f] Volume of pyncometer **[c÷e]**:	498.36	ml

[B] Specific Gravity Determination

	SP10.2	**SP14.2**	**Q-2**		
g] Weight of pyncometer + soil + water (g)	716.59	732.01	732.64		
h] Observed temperature of water (°C)	19.2	18.2	19.7		
i] Density of water @ observed temp **[D854, Table 1]**	0.99837	0.99856	0.99827		
Tare ID	A	A	A		
j] Weight of tare (g)	0.0	0.0	0.0		
k] Weight of tare + oven-dried soil (g)	78.3	103.0	103.8		
l] Weight of oven-dried soil **[k-j]** (g)	78.3	103.0	103.8		
m] Weight of pyncometer + water @ observed temp **[a + (f*i)]**	668.04	668.13	667.99		
n] Specific Gravity of soil @ observed temp $\frac{l}{m-(g-l)}$	**2.631**	**2.633**	**2.650**		
o] Temperature coefficient **[D854, Table 1]**	1.00016	1.00035	1.00006		
p] Specific Gravity of soil @ 20° C **[n * o]**	**2.631**	**2.633**	**2.650**		

Tested by: Drew Hoffman Date: _____

APPENDIX G

GRAIN SIZE DISTRIBUTION

LANGDALE PROJECT (FERC NO. 2341) AND RIVERVIEW PROJECT (FERC NO. 2350)

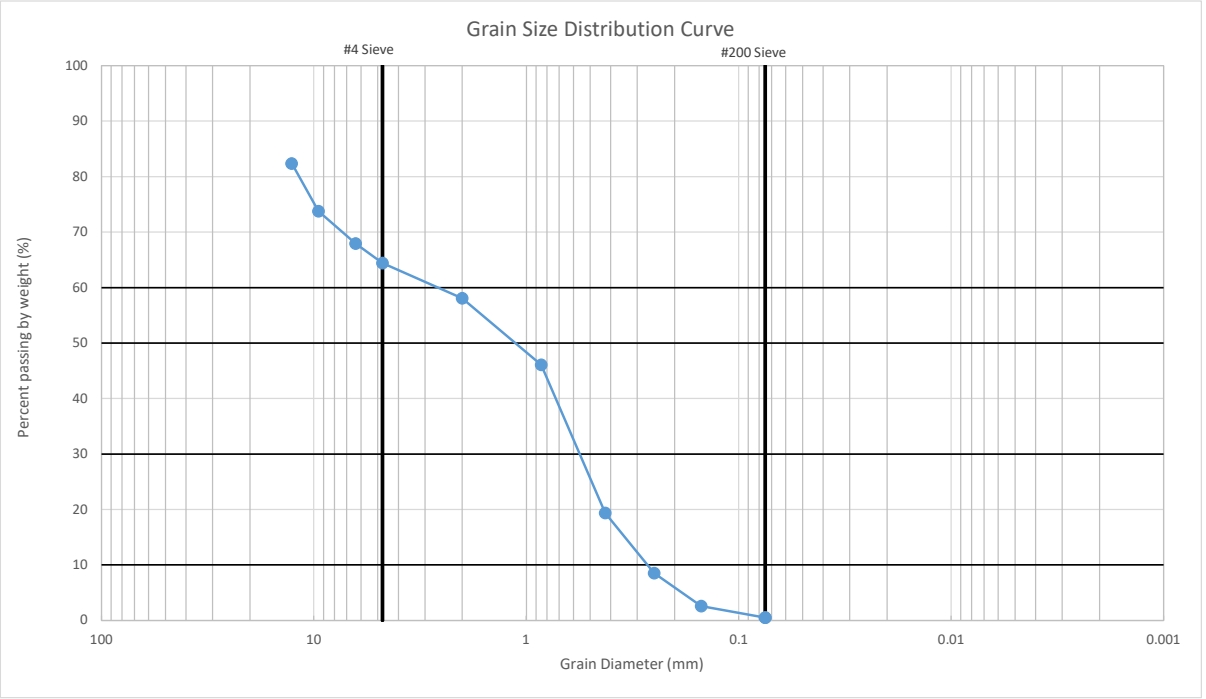
US Standard Sieve Size	Opening Size (mm)	Percent Passing by Weight
0.5"	12.7	82.35
0.375"	9.5	73.76
0.25"	6.35	67.92
4	4.75	64.38
10	2.0	58.07
20	0.85	46.06
40	0.425	19.32
60	0.250	8.49
100	0.150	2.55
200	0.075	0.48
Minus 200	0.075	0.48

Solutions	
D_{60}	2.8411
D_{50}	1.2273
D_{30}	0.5947
D_{10}	0.2744
C_u	10.35
C_c	0.45
Gravel	18%
Sand	82%
Silt/Clay	0%

Equations:
$C_u = D_{60}/D_{10}$
$C_c = (D_{30})^2/(D_{10}*D_{60})$

Calculations				
D	60	50	30	10
Nearest Large to D	64	58	46	19
Nearest Small to D	58	46	19	8
Fraction D from Nearest Small to Nearest Large	0.31	0.33	0.40	0.14
Opening Size Range	4.75	2	0.85	0.425
	2	0.85	0.425	0.25
Extrapolated Grain Diameter (mm)	2.841	1.227	0.595	0.274

Graphing	
60% Passing	
100	60
0.001	60
50% Passing	
100	50
0.001	50
30% Passing	
100	30
0.001	30
10% Passing	
100	10
0.001	10
# 4 Sieve	
4.75	0
4.75	100
#200 Sieve	
0.075	0
0.075	100



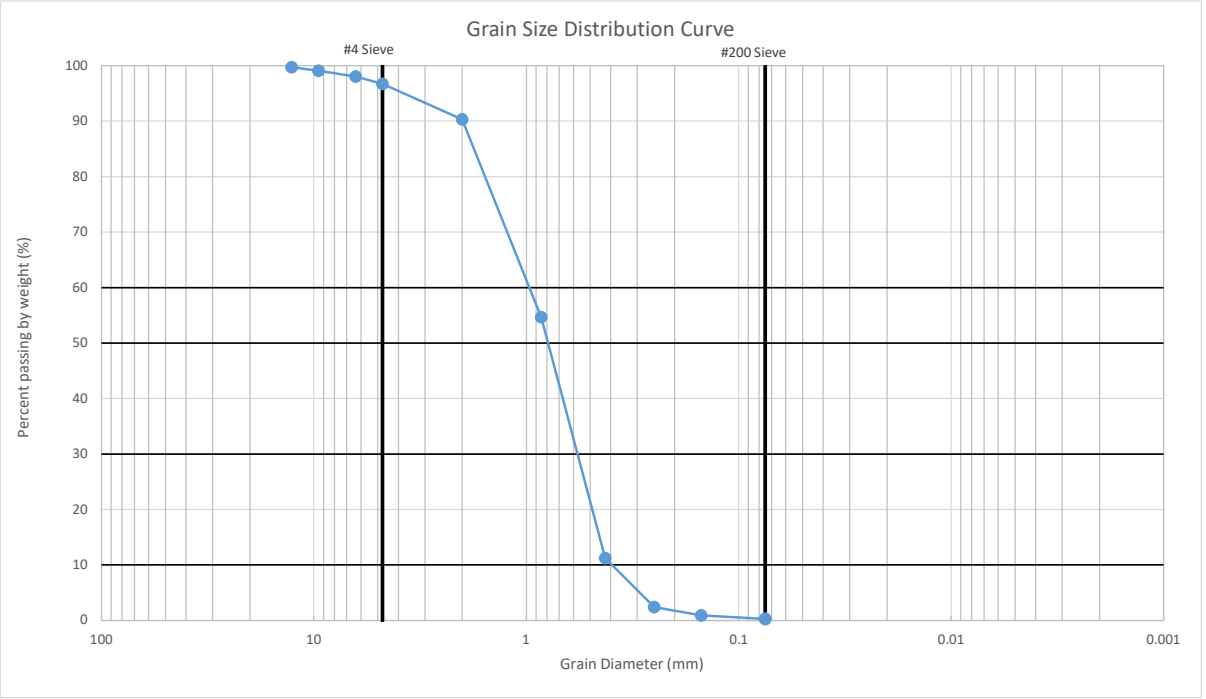
US Standard Sieve Size	Opening Size (mm)	Percent Passing by Weight
0.5"	12.7	99.73
0.375"	9.5	99.07
0.25"	6.35	98.02
4	4.75	96.73
10	2.0	90.31
20	0.85	54.64
40	0.425	11.20
60	0.250	2.38
100	0.150	0.87
200	0.075	0.26
Minus 200	0.075	0.24

Solutions	
D_{60}	1.0228
D_{50}	0.8046
D_{30}	0.6089
D_{10}	0.4012
C_u	2.55
C_c	0.90
Gravel	3%
Sand	97%
Silt/Clay	0%

Equations:
$C_u = D_{60}/D_{10}$
$C_c = (D_{30})^2/(D_{10}*D_{60})$

Calculations				
D	60	50	30	10
Nearest Large to D	90	55	55	11
Nearest Small to D	55	11	11	2
Fraction D from Nearest Small to Nearest Large	0.15	0.89	0.43	0.86
Opening Size Range	2	0.85	0.85	0.425
	0.85	0.425	0.425	0.25
Extrapolated Grain Diameter (mm)	1.023	0.805	0.609	0.401

Graphing	
60% Passing	
100	60
0.001	60
50% Passing	
100	50
0.001	50
30% Passing	
100	30
0.001	30
10% Passing	
100	10
0.001	10
# 4 Sieve	
4.75	0
4.75	100
#200 Sieve	
0.075	0
0.075	100



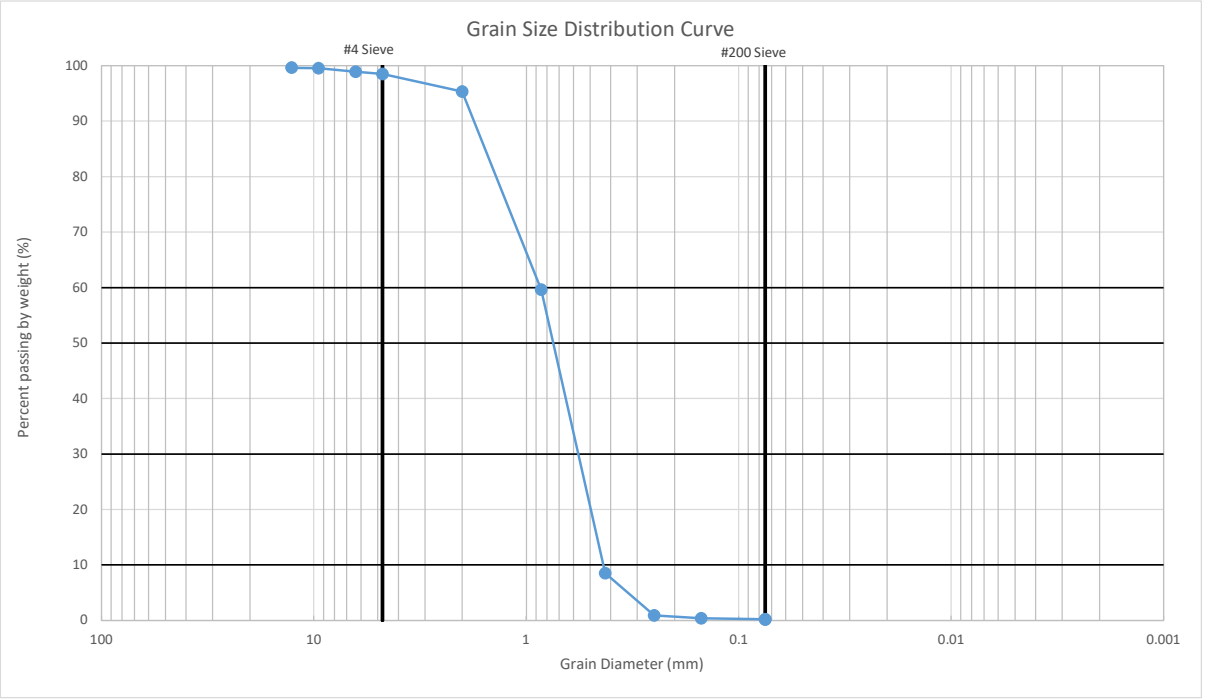
US Standard Sieve Size	Opening Size (mm)	Percent Passing by Weight
0.5"	12.7	99.62
0.375"	9.5	99.53
0.25"	6.35	98.87
4	4.75	98.51
10	2.0	95.32
20	0.85	59.60
40	0.425	8.49
60	0.250	0.87
100	0.150	0.39
200	0.075	0.19
Minus 200	0.075	0.16

Solutions	
D_{60}	0.8629
D_{50}	0.7702
D_{30}	0.6039
D_{10}	0.4376
C_u	1.97
C_c	0.97
Gravel	1%
Sand	99%
Silt/Clay	0%

Equations:
$C_u = D_{60}/D_{10}$
$C_c = (D_{30})^2/(D_{10}*D_{60})$

Calculations				
D	60	50	30	10
Nearest Large to D	95	60	60	60
Nearest Small to D	60	8	8	8
Fraction D from Nearest Small to Nearest Large	0.01	0.81	0.42	0.03
Opening Size Range	2	0.85	0.85	0.85
	0.85	0.425	0.425	0.425
Extrapolated Grain Diameter (mm)	0.863	0.770	0.604	0.438

Graphing	
60% Passing	
100	60
0.001	60
50% Passing	
100	50
0.001	50
30% Passing	
100	30
0.001	30
10% Passing	
100	10
0.001	10
# 4 Sieve	
4.75	0
4.75	100
#200 Sieve	
0.075	0
0.075	100



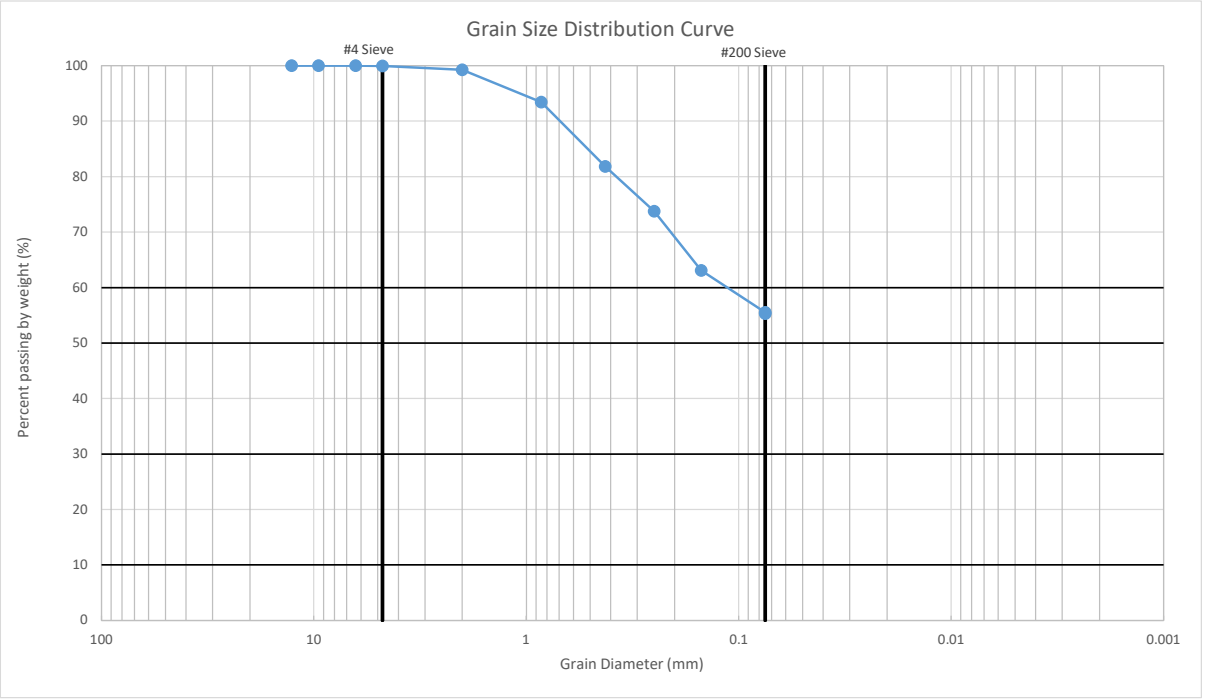
US Standard Sieve Size	Opening Size (mm)	Percent Passing by Weight
0.5"	12.7	100.00
0.375"	9.5	100.00
0.25"	6.35	100.00
4	4.75	99.92
10	2.0	99.22
20	0.85	93.41
40	0.425	81.84
60	0.250	73.73
100	0.150	63.06
200	0.075	55.52
Minus 200	0.075	55.30

Solutions	
D_{60}	0.1196
D_{50}	N/A
D_{30}	N/A
D_{10}	N/A
C_u	N/A
C_c	N/A
Gravel	0%
Sand	44%
Silt/Clay	56%

Equations:
$C_u = D_{60}/D_{10}$
$C_c = (D_{30})^2/(D_{10}*D_{60})$

Calculations				
D	60	50	30	10
Nearest Large to D	63	55	55	55
Nearest Small to D	56	#NUM!	#NUM!	#NUM!
Fraction D from Nearest Small to Nearest Large	0.59	#N/A	#N/A	#N/A
Opening Size Range	0.15	0.075	0.075	0.075
	0.075	#NUM!	#NUM!	#NUM!
Extrapolated Grain Diameter (mm)	0.120	#N/A	#N/A	#N/A

Graphing	
60% Passing	
100	60
0.001	60
50% Passing	
100	50
0.001	50
30% Passing	
100	30
0.001	30
10% Passing	
100	10
0.001	10
# 4 Sieve	
4.75	0
4.75	100
#200 Sieve	
0.075	0
0.075	100



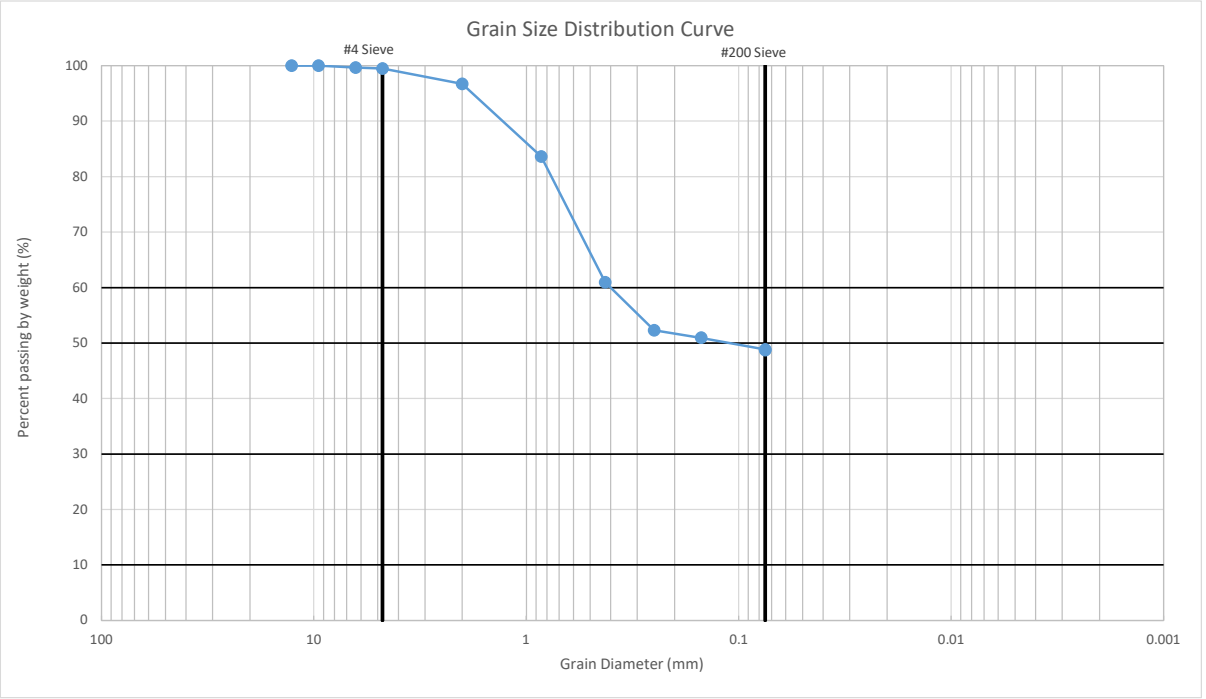
US Standard Sieve Size	Opening Size (mm)	Percent Passing by Weight
0.5"	12.7	100.00
0.375"	9.5	100.00
0.25"	6.35	99.65
4	4.75	99.46
10	2.0	96.68
20	0.85	83.59
40	0.425	60.95
60	0.250	52.29
100	0.150	50.93
200	0.075	48.82
Minus 200	0.075	48.71

Solutions	
D_{60}	0.4058
D_{50}	0.1169
D_{30}	N/A
D_{10}	N/A
C_u	N/A
C_c	N/A
Gravel	1%
Sand	51%
Silt/Clay	49%

Equations:
$C_u = D_{60}/D_{10}$
$C_c = (D_{30})^2/(D_{10}*D_{60})$

Calculations				
D	60	50	30	10
Nearest Large to D	61	51	49	49
Nearest Small to D	52	49	#NUM!	#NUM!
Fraction D from Nearest Small to Nearest Large	0.89	0.56	#N/A	#N/A
Opening Size Range	0.425	0.15	0.075	0.075
	0.25	0.075	#NUM!	#NUM!
Extrapolated Grain Diameter (mm)	0.406	0.117	#N/A	#N/A

Graphing	
60% Passing	
100	60
0.001	60
50% Passing	
100	50
0.001	50
30% Passing	
100	30
0.001	30
10% Passing	
100	10
0.001	10
# 4 Sieve	
4.75	0
4.75	100
#200 Sieve	
0.075	0
0.075	100



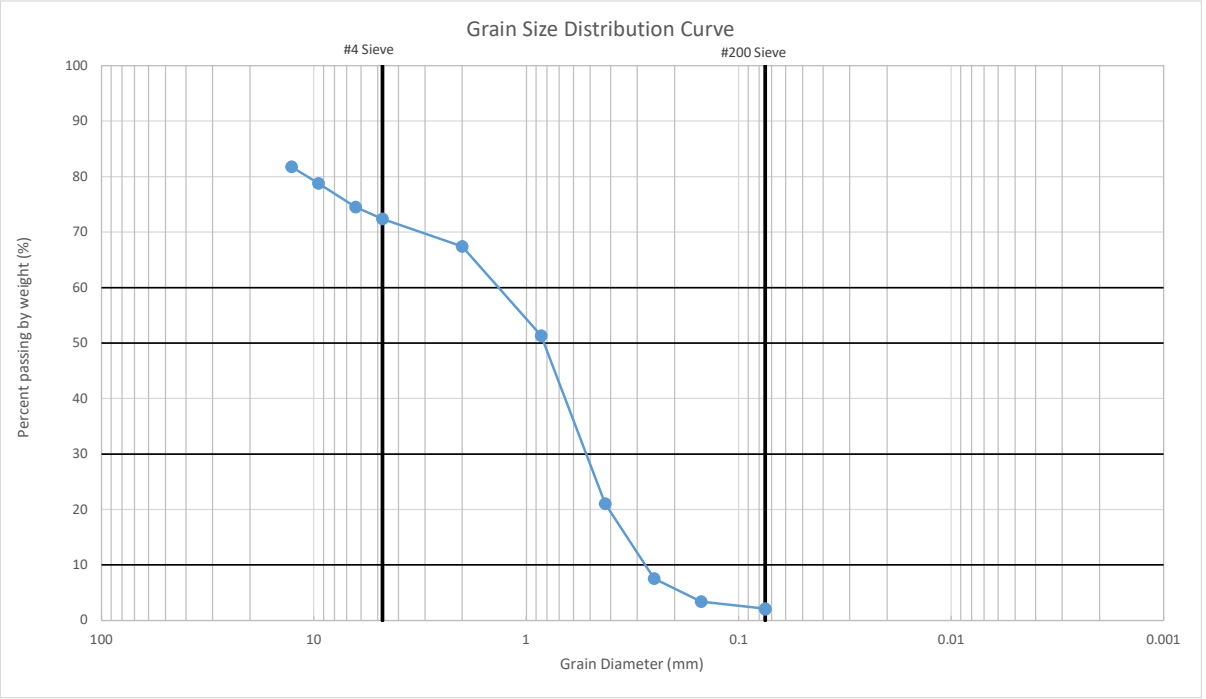
US Standard Sieve Size	Opening Size (mm)	Percent Passing by Weight
0.5"	12.7	81.76
0.375"	9.5	78.77
0.25"	6.35	74.49
4	4.75	72.35
10	2.0	67.40
20	0.85	51.29
40	0.425	21.02
60	0.250	7.52
100	0.150	3.38
200	0.075	2.08
Minus 200	0.075	2.01

Graphing	
60% Passing	
100	60
0.001	60
50% Passing	
100	50
0.001	50
30% Passing	
100	30
0.001	30
10% Passing	
100	10
0.001	10
# 4 Sieve	
4.75	0
4.75	100
#200 Sieve	
0.075	0
0.075	100

Solutions	
D_{60}	1.4718
D_{50}	0.8319
D_{30}	0.5511
D_{10}	0.2821
C_u	5.22
C_c	0.73
Gravel	9%
Sand	89%
Silt/Clay	2%

Equations:
$C_u = D_{60}/D_{10}$
$C_c = (D_{30})^2/(D_{10}*D_{60})$

Calculations				
D	60	50	30	10
Nearest Large to D	67	51	51	21
Nearest Small to D	51	21	21	8
Fraction D from Nearest Small to Nearest Large	0.54	0.96	0.30	0.18
Opening Size Range	2	0.85	0.85	0.425
	0.85	0.425	0.425	0.25
Extrapolated Grain Diameter (mm)	1.472	0.832	0.551	0.282



US Standard Sieve Size	Opening Size (mm)	Percent Passing by Weight
0.5"	12.7	100.00
0.375"	9.5	100.00
0.25"	6.35	99.87
4	4.75	99.39
10	2.0	92.60
20	0.85	49.12
40	0.425	6.38
60	0.250	0.86
100	0.150	0.40
200	0.075	0.23
Minus 200	0.075	0.20

Solutions	
D_{60}	1.1378
D_{50}	0.8733
D_{30}	0.6599
D_{10}	0.4610
C_u	2.47
C_c	0.83
Gravel	1%
Sand	99%
Silt/Clay	0%

Equations:
$C_u = D_{60}/D_{10}$
$C_c = (D_{30})^2/(D_{10}*D_{60})$

Calculations				
D	60	50	30	10
Nearest Large to D	93	93	49	49
Nearest Small to D	49	49	6	6
Fraction D from Nearest Small to Nearest Large	0.25	0.02	0.55	0.08
Opening Size Range	2	2	0.85	0.85
	0.85	0.85	0.425	0.425
Extrapolated Grain Diameter (mm)	1.138	0.873	0.660	0.461

Graphing	
60% Passing	
100	60
0.001	60
50% Passing	
100	50
0.001	50
30% Passing	
100	30
0.001	30
10% Passing	
100	10
0.001	10
# 4 Sieve	
4.75	0
4.75	100
#200 Sieve	
0.075	0
0.075	100