2019 CCR & VSWMR Annual Groundwater Monitoring and Corrective Action Report

Possum Point Power Station
Ponds ABC
Solid Waste Permit No. 617

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EXECUTIVE SUMMARY

This *2019 CCR and VSWMR Annual Groundwater Monitoring and Corrective Action Report* (Report) was prepared on behalf of Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion Energy) for Ponds ABC (Unit) at the Possum Point Power Station (Station). The Station is located in Prince William County at 19000 Possum Point Road, Dumfries, Virginia. Historically, the Station operated the Unit, one of five (5) unlined surface impoundments at the Station, for management of Coal Combustion Residuals (CCR) generated by the power generation operations at the Station. The Unit is considered an inactive CCR surface impoundment under Title 40 Code of Federal Regulations (CFR) Part 257.50 *et seq*. [Disposal of CCR from Electric Utilities (Final Rule; Federal Register Vol. 80, No. 74, 21302-21501 on April 17, 2015, Federal Register Vol. 81, No. 151, 51802 51808 on August 5, 2016, as amended per Federal Register Vol. 83 No. 146 36435-36456 on July 30, 2018)] as well as the Commonwealth of Virginia adoption of 40 CFR Part 257 Subpart D by reference [Title 9 Virginia Administrative Code (VAC) Agency 20, Chapter 81-800 *et seq*. (9VAC20-81-800)]. Pursuant to the CCR Rule and the Virginia Department of Environmental Quality (DEQ)-issued solid waste permit, the Station operator is required to complete an *Annual Groundwater Monitoring and Corrective Action Report* (Report) for the Unit by January 31st annually or within 120 days of completing the laboratory analyses for the second semi-annual event of the year, whichever occurs first.

As an inactive CCR surface impoundment in the Commonwealth of Virginia, the Unit is also subject to regulation under the Virginia Solid Waste Management Regulations (VSWMR). Consistent with this requirement, the Unit is operated by Dominion Energy under Solid Waste Permit (SWP) No. 617 issued by the DEQ on June 13, 2019. These regulations and the Unit's solid waste permit require groundwater monitoring and reporting activities in addition to those required by the CCR Rule.

The Report was developed to meet the reporting requirements for both the CCR Rule and the VSWMR. Specifically, this Report documents the status of the groundwater monitoring program for the Unit, summarizes key actions completed, describes issues encountered and actions to resolve identified issues, and key project activities for the upcoming year. More specifically, this Report describes the performance of the Modified Assessment Monitoring Program (AMP) consistent with the Unit's SWP and the CCR Rule, activities performed to comply with CCR Rule and the Unit's SWP requirements, and the progression of future sampling activities pursuant to the CCR Rule and the Unit's SWP.

In March 2019, pursuant to the requirements of the CCR Rule, an initial Detection Monitoring Program (DMP) groundwater sampling event was conducted by Golder on behalf of Dominion Energy. The groundwater samples were analyzed for the constituents and parameters listed in Appendix III of the CCR Rule. Based on evaluation of the monitoring results, statistically significant increases (SSIs) were identified for boron, calcium, chloride, fluoride,

and total dissolved solids in one or more compliance monitoring well, triggering an AMP beginning with the second semi-annual 2019 sampling event.

Consistent with the Unit's SWP, Dominion Energy established site-specific background values as presented in the *Ponds ABC Facility Background Determination Report* submitted to the DEQ on August 15, 2019. The supporting statistical analyses for site-specific background values are presented in the August 2019 report. Consistent with the Unit's SWP, Dominion Energy proposed Groundwater Protection Standards (GPS) for the Unit in August 2019. At the time of this Report, background-based state GPS have not been approved by the DEQ.

An AMP was initiated with the second semi-annual 2019 sampling event in August 2019 for the for the parameters and constituents in the June 2019-issued SWP. Following receipt of the analytical results, the data were compared to the federal and applicable state GWPS/GPS established on August 15, 2019.

Based on the evaluation of the second semi-annual 2019 groundwater monitoring program data there was a statistically confirmed MCL exceedance for arsenic at monitoring well ABC-1614 in 2019 during the second semi-annual Modified Assessment Monitoring Program sampling event. The GPS exceedance was reported to the DEQ on November 7, 2019.

Based on the 2019 monitoring results, Dominion Energy intends to continue with groundwater monitoring activities under the AMP. Additionally, Dominion Energy has initiated an Assessment of Corrective Measures (ACM) in response to the arsenic GPS exceedance.

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1.0 INTRODUCTION

This *2019 CCR & VSWMR Annual Groundwater Monitoring and Corrective Action Report* (Report) was prepared on behalf of Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion Energy) for Ponds ABC at the Possum Point Power Station, Permit No. 617 (Unit) located in Prince William County, Virginia. The Unit is an inactive CCR surface impoundment and is subject to the groundwater monitoring requirements in Title 40 Code of Federal Regulations (CFR) Part 257.50 *et seq*. [Disposal of Coal Combustion Residuals (CCR) from Electric Utilities (Final Rule; Federal Register Vol. 80, No. 74, 21302-21501 on April 17, 2015, Federal Register Vol. 81, No. 151, 51802-51808 on August 5, 2016, as amended per Federal Register Vol. 83 No. 146 36435-36456 on July 30, 2018)] as well as the Commonwealth of Virginia adoption of 40 CFR Part 257 Subpart D by reference in the Virginia Solid Waste Management Regulations (VWMB, 2019; VSWMR). Pursuant to the CCR Rule, no later than January 31st annually, the owner or operator of a CCR Unit must prepare an annual groundwater monitoring and corrective action report for the CCR Unit documenting the status of groundwater monitoring and corrective action programs for the preceding year.

As an inactive CCR surface impoundment in the Commonwealth of Virginia, the Unit is also subject to regulation under the Virginia Solid Waste Management Regulations (Title 9, Virginia Administrative Code, Agency 20, Chapter 81 *et seq*.; VSWMR). Consistent with these requirements, the Unit is operated by Dominion Energy under Solid Waste Permit No. 617 issued by the Virginia Department of Environmental Quality (DEQ; DEQ, 2019). These regulations and the Unit's SWP require groundwater monitoring and reporting activities that are in addition to those required by the CCR Rule. Specifically, the Unit's SWP also requires the submission of an Annual Report by January 31st of each calendar year or within 120 days of completing the laboratory analyses for the compliance event of the year, whichever occurs first. Based on receipt of the complete laboratory certificates of analysis on September 24, 2019, the annual monitoring report submission due date is January 22, 2020. A completed copy of the VDEQ's annual report checklist is presented in Appendix A.

Golder Associates Inc. (Golder) has prepared this Report for the Unit on behalf of Dominion Energy in accordance with CCR Rule Part 257.90(e) and the Unit's SWP. This Report provides the monitoring data and required data evaluations for the first and second semi-annual groundwater sampling events performed in March and August 2019.

1.1 Site Location

Possum Point Power Station is located in Prince William County at 19000 Possum Point Road, Dumfries, Virginia. As shown on Figure 1, the Station is located immediately west of the Potomac River and north of Quantico Creek. The Unit is located on the Station property immediately south of Possum Point Road near its intersection with Cockpit Point Road.

1.2 Site History

The Station has two active power generating units: Unit 5 (heavy oil) and Unit 6 (combined cycle). Two of the former generating units (Units 3 and 4) that were converted from coal to natural gas in 2003, and two former generating units that were powered by coal (Units 1 and 2) have been retired. Historically the Station stored CCR in four unlined impoundments (Ponds A, B, C, and E) and one clay-lined impoundment (Pond D) located on site.

Ponds ABC were constructed circa 1955 as a single embankment spanning three existing drainage features collectively covering approximately 10.6 acres. During operation, low-volume wastewaters including CCR flowed through Ponds ABC until discharging through a riser structure on the northwest side of Pond C. Ponds ABC operated until around 1967. Further expansion of the Station in the 1960s, as well as decreasing available storage in Ponds ABC, prompted Dominion to construct an additional pond for ash sluicing. Placement of CCR into Ponds ABC ceased in 1967. In 2016, excavation of the contents of former Ponds ABC began to be consolidated into Pond D. The DEQ confirmed closure by removal in August 2019.

1.3 Key Actions

Key actions for the Unit to date are as follows:

- A copy of the Unit's *Groundwater Monitoring Plan* (GWMP) documenting the design information for the monitoring wells pursuant to the CCR Rule [257.91(e)(1)] was placed in the Unit's operating record on October 17, 2017, pursuant to the CCR Rule [257.105(h)(2)]. The GWMP has since been updated (Golder, 2018);
- Initiated the collection of eleven baseline/background samples on November 4, 2016, and completed the background monitoring activities on December 13, 2018, pursuant to the CCR Rule [257.94(b)];
- Conducted the initial Detection Monitoring Program (DMP) compliance sampling event on March 11, 2019, and completed the sample analyses on April 17, 2019 (date of laboratory analytical package), pursuant to the CCR Rule [257.94];
- Certified the Unit's groundwater monitoring system pursuant to the CCR Rule [257.91(e)(1) and Dominion Energy posted the Certification in the Unit's operating record on April 17, 2019, pursuant to the CCR Rule [257.105(h)(3)];
- Certified the selection of a statistical method pursuant to the CCR Rule [257.93(f)(6)] and Dominion Energy posted the Certification in the Unit's operating record on April 17, 2019, pursuant to the CCR Rule [257.105(h)(4)];
- Solid Waste Facility Permit No. 617 was issued by the DEQ on June 13, 2019, which includes closure, groundwater monitoring, and surface water monitoring requirements for Ponds ABC;
- Submitted the *Pond ABC Closure by Removal Report* and Engineer Certification to DEQ on June 25, 2019;

- A notification of a Statistically Significant Increase (SSI) over Unit background concentrations under the DMP was placed in the Unit's operating record on July 16, 2019.
- Completed the *Initial CCR Groundwater Monitoring and Corrective Action Report* on August 1, 2019, and placed a copy of the report in the operating record on August 30, 2019 (Golder 2019a);
- Submitted an updated copy of the Unit's *Groundwater Monitoring Plan* (GWMP) documenting the design information for the monitoring wells pursuant to the CCR Rule [257.91(e)(1)] to the DEQ on August 12, 2019 (Golder 2019b), pursuant to the CCR Rule [257.105(h)(2)] and the Unit's SWP;
- Submitted the *Pond ABC Facility Background Determination Report* (Golder, 2019c) and proposed Groundwater Protection Standards (GPS) to the DEQ on August 15, 2019;
- Conducted the second semi-annual 2019 Modified Assessment Monitoring Program (AMP) sampling event on August 29, 2019, and completed the sample analyses on September 24, 2019, (date of final laboratory analytical package), pursuant to the CCR Rule [257.94] and the Unit's SWP;
- Received a letter from DEQ on August 30, 2019 verifying closure by removal in accordance with the unit's closure plan; and
- Notification of second semi-annual 2019 Federal Maximum Contaminant Level (MCL)-based GPS exceedance was submitted to the DEQ on November 7, 2019.

1.4 Monitoring Program Issues

There were no monitoring program concerns identified during the compliance monitoring events conducted in 2019.

1.5 Variances

The Unit currently does not have any variances related to the groundwater monitoring program for Ponds ABC.

2.0 SITE INFORMATION

The Station is owned and operated by Dominion Energy and consists of approximately 650 acres on a peninsula that is bordered to the east and south by the Potomac River, and to the west by Quantico Creek.

The Station property is used for industrial purposes, and the surrounding properties are generally undeveloped or consist of private residential development. Undeveloped areas primarily consist of predominantly hardwoods and deciduous wooded uplands with wetlands present in low lying areas adjacent to stream channels.

Ponds ABC are defined as inactive CCR impoundments per the CCR rule and VSWMR regulations and as inactive surface impoundments must comply with groundwater monitoring requirements by April 17, 2019.

2.1 Monitoring Well Network

The Unit's GWMP (Golder, 2018) details the design of the Unit's CCR Rule groundwater monitoring network. As presented in the GWMP, the monitoring network is comprised of one (1) upgradient/background well (ABC-1602) and three (3) downgradient monitoring wells (ABC-1607, ABC-1608, and ABC-1614) designed to monitor the uppermost aquifer beneath the Unit. The groundwater monitoring well locations relative to the Unit are shown on Figure 2.

2.1.1 Annual Review of Monitoring Network

Wells were inspected during each sampling event and were determined to be functioning appropriately and no wells require replacement.

2.1.2 Monitoring Well Installation and Decommissioning Activities

Upgradient compliance well ABC-1602 and downgradient compliance wells ABC-1607, ABC-1608, and ABC-1614 were installed between September and October 2016.

As of the date of this report, no compliance wells for Ponds ABC have been decommissioned.

2.2 Geology and Hydrogeology

A summary of the geology and hydrogeology for the Station is presented in the following sections.

2.2.1 Geology

The Station and surrounding area are located entirely within the Coastal Plain physiographic province of Virginia. This province is characterized by transgressive and regressive unconsolidated sediments that generally form broad

terraces that slope towards the east. The terraces are transected by surface drainage channels, some of which have since been infilled.

The Station is underlain by Cretaceous marine sediments of the Potomac Formation and Tertiary to Quaternary fluvial-deltaic sediments mapped as lower Tertiary terrace deposits, and the Charles City, Shirley, and Tabb Formations. These sediments are unconsolidated and consist of clays, silts, poorly to well sorted sands, and gravel that exist as interbedded, discontinuous, horizontal layers across the site. The thickness of the sedimentary sequence ranges up to at least 600 feet as determined by well logs for the surrounding area. The Station appears to be located immediately west of a northeasterly trending monocline, which may be contributing to the easterly dip observed for the geologic strata.

Based on geological data obtained from soil borings advanced at the Station, the Potomac Confining Unit is considered to be a confining unit for the underlying Potomac Aquifer. The Potomac Confining Unit is present across the upland study area beneath the Unit. Therefore, the uppermost aquifer beneath the study area, which is present within the overlaying Quaternary/Tertiary and Cretaceous sediments, is physically and hydrologically separated from the lower confined Potomac Aquifer.

2.2.2 Hydrogeology

The uppermost aquifer beneath the Unit is unconfined and is present in the Quaternary/Tertiary and Cretaceous sediments that overlie the Potomac Confining Unit. Locally, the groundwater flow direction in the uppermost aquifer beneath the Unit is from the northeast to the southwest.

2.2.3 Potentiometric Surface Evaluation

The purpose of this evaluation is to determine the elevation of the groundwater surface beneath the Unit by generating a potentiometric surface contour map using groundwater elevations from compliance wells. Historical static water level data for the Unit are summarized in Appendix B.

Well ID	Top of Casing Elevation (ft/msl)	*1st Semi-Annual Event 2019 (March 11, 2019)*		*2nd Semi-Annual Event 2019 (August 26, 2019)*	
		Depth to Water (ft)	Groundwater Elevation (ft/msl)	Depth to Water (ft)	Groundwater Elevation (ft/msl)
ABC-1602	34.08	13.04	21.04	16.82	17.26
ABC-1607	23.63	22.80	0.83	22.49	1.14
ABC-1608	21.13	21.10	0.03	22.09	-0.96
ABC-1614	15.62	12.31	3.31	13.40	2.22

Notes: **ft/**msl = Above Mean Sea Level ft = feet

The Groundwater Potentiometric Surface Map presented as Figure 2 was prepared using static water level data obtained during the first semi-annual DMP compliance event on March 11, 2019. The Groundwater Potentiometric Surface Map presented as Figure 3 was prepared using static water level data obtained during the second semi-annual Modified AMP compliance event on August 26, 2019. The interpreted data indicates that the groundwater gradient and flow direction remain consistent (southwest) with previous interpretations. Consequently, the groundwater monitoring network continues to adequately monitor the uppermost aquifer in accordance with provisions of the CCR Rule (257.91) and the VSWMR (9VAC20-81-250.A.3).

2.2.4 Groundwater Flow Rate Calculation

Consistent with the requirements of the CCR Rule, the rate and direction of groundwater flow within the uppermost aquifer beneath the Unit was determined after each sampling event. Appendix C presents the equations used to calculate the approximate horizontal rate of groundwater flow in the uppermost aquifer beneath the Unit. Concurrently with the June 2019 ACM performed for Pond D, the average estimated hydraulic conductivity for the uppermost aquifer (site-wide) was recalculated. As presented in the ACM, the average estimated hydraulic conductivity decreased from 3.16E-04 centimeters per second (cm/s) to 2.01E-04 cm/s. Using this updated hydraulic conductivity estimate, the estimated average groundwater flow rate in the uppermost aquifer beneath the Unit was calculated at approximately 25.8 to 27.9 feet per year. As presented, the average calculated flow rate for March and August 2019 is approximately 40% lower than previous calculations for the Unit which is due to the decrease in the estimated hydraulic conductivity.

2.2.5 Network Certification

Based on this evaluation and previous evaluations completed for the Unit, the Unit's permitted groundwater monitoring system continues to adequately monitor the uppermost aquifer beneath the Unit in accordance with requirements of 9VAC20-81-250.A.3 and 9VAC20 81 250.E.2.a.(2)(e).

3.0 FIELD ACTIVITIES

Groundwater sampling activities that occurred during 2019 are summarized in the following sections.

3.1 First Semi-Annual 2019 Compliance Sampling Event

Pursuant to the requirements in 40 CFR 257.94(a), on behalf of Dominion Energy, Golder completed the initial DMP compliance sampling event at the Unit on March 11, 2019 in conformance with the Station's GWMP. Depth-to-water measurements are summarized in Appendix B with available historical measurements.

Field measurements are summarized on the field data sheets in Appendix D.1. Following collection, the samples were submitted on ice in secured coolers under chain-of-custody control to Pace in Mechanicsville, Virginia. The samples were then shipped to the Asheville, North Carolina (#460222), and Eden, North Carolina (#460025) locations of Pace Analytical Services. Both of the Pace laboratories are Virginia Environmental Laboratory Accreditation Program (VELA)-accredited laboratories. A summary of the DMP sampling event is presented below.

Monitoring Event	Sample Date(s)	Final Laboratory Package Receipt Date
1st Semi-Annual DMP Event	March 11, 2019	April 17, 2019

3.2 Second Semi-Annual 2019 Modified Assessment Monitoring Program Sampling Event

Pursuant to the requirements in Title 40 CFR 257.95(d)(1) and the Unit's SWP, a Modified Assessment Program monitoring event was completed for the second semi-annual event. The samples were analyzed for the constituents and parameters listed Appendices III and IV of the CCR Rule and the constituents and parameters listed the Unit's solid waste permit. A summary of key dates for the Modified AMP sampling event is presented below.

Monitoring Event	Sample Date(s)	Final Laboratory Package Receipt Date
2nd Semi-Annual Modified AMP Event	August 28-29, 2019	September 24, 2019

During the second semi-annual modified AMP sampling event, the compliance monitoring wells were sampled in accordance with the Station's GWMP

Samples collected during the second semi-annual modified AMP event, with the exception of hexavalent chromium, were submitted on ice in secured coolers under chain-of-custody control to Pace in Mechanicsville, Virginia. The samples were then shipped to the Asheville, North Carolina (#460222), Greensburg, Pennsylvania (#460198), Atlanta, Georgia (460204), and Eden, North Carolina (#460025) locations of Pace for analysis. The remaining hexavalent chromium samples were submitted on ice in secured coolers under chain-of-custody control to Air Water & Soil Laboratories, Inc. (AWS) in Richmond, Virginia. AWS (#460021) is also a VELAP-accredited laboratory for the analyses required under the federal and state regulations as outlined in the GWMP and SWP.

The field data sheets for the second semi-annual modified AMP sampling events are included in Appendices D.2.

4.0 LABORATORY ANALYTICAL RESULTS

Laboratory analytical results from the sampling events conducted in 2019 are summarized in the following sections.

4.1 First Semi-Annual 2019 Detection Monitoring Program Sampling Event

The March 11, 2019, compliance samples from the monitoring wells were analyzed by Pace for the presence and concentrations of the constituents and parameters listed in Appendix III of the CCR Rule. The laboratory certificates of analysis and chain-of-custody forms for the sampling event are presented in Appendix E.1. A summary of the CCR Rule Appendix III sampling data for the event is presented in Table 1.

4.2 Second Semi-Annual 2019 Modified Assessment Monitoring Program Event

Groundwater samples collected during the second semi-annual 2019 modified AMP event were analyzed by Pace and AWS for the presence and concentrations of the constituents and parameters listed in Appendices III and IV of the CCR Rule as well as additional SWP-required constituents. The laboratory certificates of analysis and chain-of-custody forms for the sampling event are presented in Appendix E.2. A summary of the CCR and VSWMR sampling data for the event is presented in Table 2.

4.3 Review of Prior Detections

A summary of historically detected constituents for each well is presented in Appendix F.

5.0 GROUNDWATER EVALUATION

This section summarizes the 2019 groundwater sampling and analysis results for the Unit.

5.1 Inorganic Constituents

Groundwater samples were analyzed for constituents and parameters listed in Appendices III and IV of the CCR Rule as well as additional solid waste permit-required constituents. Inorganic constituent and parameter data and the associated analytical methods are discussed in the following sections and summarized in Tables 1 and 2.

5.1.1 Antimony

Antimony was not detected in the second semi-annual 2019 samples.

5.1.2 Arsenic

For the second semi-annual 2019 samples, arsenic was detected at a quantified concentration above the laboratory reporting limit (RL) in the sample collected from ABC-1614 at a concentration of 30.1 micrograms per liter (µg/L).

5.1.3 Barium

For the second semi-annual 2019 samples, barium was detected at quantified concentrations above the laboratory RL in all compliance wells with concentrations ranging from 54.1 µg/L in the sample collected from ABC-1607 to 211 µg/L in the sample collected from ABC-1614.

5.1.4 Beryllium

For the second semi-annual 2019 samples, beryllium was detected at an estimated concentration above the laboratory method detection limit (MDL) in the sample collected from ABC-1602.

5.1.5 Boron

For the first semi-annual 2019 samples, boron was detected at quantified concentrations above the laboratory RL in three of the compliance wells with concentrations ranging from 150 µg/L in the sampled collected from ABC-1608 to 190 µg/L in the sampled collected from ABC-1607.

For the second semi-annual 2019 samples, boron was detected at an estimated concentration above the MDL in the sample collected from ABC-1602. Boron was detected at quantified concentrations above the RL in three of the compliance wells with concentrations ranging from 190 µg/L in the sample collected from ABC-1607 to 240 µg/L in the sample collected from ABC-1614.

5.1.6 Cadmium

Cadmium was not detected in the second semi-annual 2019 samples.

5.1.7 Calcium

For the first semi-annual 2019 samples, calcium was detected at quantified concentrations above the laboratory RL with concentrations ranging from 5,900 µg/L in the sample collected from ABC-1602 to 22,300 µg/L in the sample collected from ABC-1614.

For the second semi-annual 2019 samples, calcium was detected at quantified concentration above the laboratory RL with concentrations ranging from 5,900 µg/L in the sample collected from ABC-1602 to 35,000 µg/L in the sample collected from ABC-1614.

5.1.8 Chloride

For the first semi-annual 2019 samples, chloride was detected at quantified concentrations above the laboratory RL with concentrations ranging from 2.7 mg/L in the sample collected from ABC-1602 to 55.4 mg/L in the sample collected from ABC-1680.

For the second semi-annual 2019 samples, chloride was detected at quantified concentrations above the laboratory RL with concentrations ranging from 2.8 milligrams per liter (mg/L) in the sample collected from ABC-1602 to 52.8 mg/L in the sample collected from ABC-1608.

5.1.9 Chromium

Total chromium was not detected in the second semi-annual 2019 samples.

5.1.10 Hexavalent Chromium

For the second semi-annual 2019 samples, hexavalent chromium was detected at a quantified concentration at the laboratory RL of 5.0 µg/L in the sample collected from ABC-1607. However, this result was qualified due to presumed matrix interference since the total chromium result was reported as less than 1.0 µg/L.

5.1.11 Cobalt

For the second semi-annual 2019 samples, cobalt was detected at quantified concentrations above the laboratory RL with concentrations ranging from 8.1 µg/L in the sample collected from ABC-1607 to 22.5 µg/L in the sample collected from ABC-1608.

5.1.12 Copper

For the second semi-annual 2019 samples, copper was detected at an estimated concentration above the MDL in the sample collected from ABC-1602.

5.1.13 Fluoride

For the first semi-annual 2019 samples, fluoride was detected at quantified concentrations above the laboratory RL in the samples collected from ABC-1608 (0.11 mg/L) and ABC-1614 (0.12 mg/L).

For the second semi-annual 2019 samples, fluoride was detected at an estimated concentration above the laboratory MDL in the sample collected from ABC-1608. Fluoride was detected at a quantified concentration above the laboratory RL in the sample collected from ABC-1614 (0.11 mg/L).

5.1.14 Hardness

Hardness is a former Virginia Pollutant Discharge Elimination System (VPDES) constituent that is currently monitored under the SWP. For the second semi-annual 2019 samples, hardness was detected at quantified concentrations above the laboratory RL with concentrations ranging from 29.7 mg/L in the sample collected from ABC-1602 to 135 mg/L in the sample collected from ABC-1614.

5.1.15 Iron

Iron is a former VPDES constituent that is currently monitored under the SWP. For the second semi-annual 2019 samples, iron was detected at quantified concentrations above the laboratory RL with concentrations ranging from 280 µg/L in the sample collected from ABC-1602 to 32,800 µg/L in the sample collected from ABC-1614.

5.1.16 Lead

For the second semi-annual 2019 samples, lead was detected at estimated concentration above the laboratory MDL in the samples collected at ABC-1607 and ABC-1608. Lead was detected at quantified concentrations above the laboratory RL in the samples collected from ABC-1602 (0.19 µg/L) and from ABC-1614 (0.50 µg/L).

5.1.17 Lithium

For the second semi-annual 2019 samples, lithium was detected at quantified concentrations above the laboratory RL with concentrations ranging from 4.6 µg/L in the sample collected from ABC-1607 to 17.5 µg/L in the sample collected from ABC-1614.

5.1.18 Manganese

Manganese is a former VPDES constituent that is currently monitored under the SWP. For the second semi-annual 2019 samples, manganese was detected at quantified concentrations above the laboratory RL with concentrations ranging from 152 µg/L in the sample collected from ABC-1608 to 348 µg/L in the sample collected from ABC-1614.

5.1.19 Mercury

Mercury was not detected in the second semi-annual 2019 samples.

5.1.20 Molybdenum

For the second semi-annual 2019 samples, molybdenum was detected at estimated concentrations above the laboratory MDL in the samples collected from ABC-1607, ABC-1608, and ABC-1614.

5.1.21 Nickel

For the second semi-annual 2019 samples, nickel was detected at quantified concentrations above the laboratory RL at all four compliance wells with concentrations ranging from 6.2 µg/L in the sample collected from ABC-1602 to 17.9 µg/L in the sample collected from ABC-1608.

5.1.22 pH

For the first semi-annual 2019 samples, pH measurements ranged from 4.43 Standard Units (S.U.) in the sample collected from ABC-1602 to 6.13 S.U. in the sample collected from ABC-1614.

For the second semi-annual 2019 samples, pH measurements ranged from 4.17 S.U. in the sampled collected from ABC-1602 to 6.06 S.U. in the sample collected from ABC-1614.

5.1.23 Phenolics

Phenolics is a former VPDES constituent that is currently monitored under the SWP. Phenolics were not detected in the second semi-annual 2019 samples.

5.1.24 Potassium

Potassium is a former VPDES constituent that is currently monitored under the SWP. For the second semi-annual 2019 samples, potassium was detected at quantified concentrations above the laboratory RL with concentrations ranging from 1,910 µg/L in the sample collected from ABC-1607 to 5,470 µg/L in the sample collected from ABC-1602.

5.1.25 Total Radium

For the second semi-annual 2019 samples, Radium 226 and 228 (combined) was detected at concentrations above the Minimum Detectable Concentration (MDC) in samples collected at each compliance wells with concentrations ranging from 1.56 picoCuries per liter (pCi/L; ABC-1614) to 1.87 pCi/L (ABC-1602).

5.1.26 Selenium

Selenium was not detected in the second semi-annual 2019 samples.

5.1.27 Silver

Silver was not detected in the second semi-annual 2019 samples.

5.1.28 Sodium

Sodium is a former VPDES constituent that is currently monitored under the SWP. For the second semi-annual 2019 samples, sodium was detected at quantified concentrations above the laboratory RL with concentrations ranging from 7,410 µg/L in the sample collected from ABC-1602 to 36,800 µg/L in the sample collected from ABC-1608.

5.1.29 Sulfate

For the first semi-annual 2019 samples, sulfate was detected at quantified concentrations above the laboratory RL with concentrations ranging from 31.9 mg/L in the sample collected from ABC-1608 to 59.7 mg/L in the sample collected from ABC-1602.

For the second semi-annual 2019 samples, sulfate was detected at quantified concentrations above the laboratory RL with concentrations ranging from 27.8 mg/L in the sample collected from ABC-1608 to 41.4 mg/L in the sample collected from ABC-1602.

5.1.30 Thallium

Thallium was not detected in the second semi-annual 2019 samples.

5.1.31 Tin

Tin was not detected in the second semi-annual 2019 samples.

5.1.32 Total Dissolved Solids

For the first semi-annual 2019 samples, total dissolved solids (TDS) was detected at quantified concentrations above the laboratory RL with concentrations ranging from 132 mg/L in the samples collected from ABC-1602 and ABC-1607 to 260 mg/L in the sample collected from ABC-1614.

For the second semi-annual 2019 samples, TDS was detected at quantified concentrations above the laboratory RL with concentrations ranging from 118 mg/L in the sample collected from ABC-1607 to 284 mg/L in the sample collected from ABC-1614.

5.1.33 Total Organic Carbon

Total Organic Carbon (TOC) is a former VPDES constituent that is currently monitored under the SWP. For the second semi-annual 2019 samples, TOC was detected at an estimated concentration above the laboratory MDL in the sample collected from ABC-1608. TOC was detected at quantified concentrations above the laboratory RL in the samples collected from ABC-1607 (19.9 mg/L) and from ABC-1614 (3.1 mg/L).

5.1.34 Vanadium

For the second semi-annual 2019 samples, vanadium was detected at estimated concentrations above the laboratory MDL in the samples collected from ABC-1608 and ABC-1614.

5.1.35 Zinc

For the second semi-annual 2019 samples, zinc was detected at an estimated concentration above the laboratory MDL in the sample collected from ABC-1614. Zinc was detected at quantified concentrations above the laboratory RL in the samples collected from ABC-1607 (19.5 µg/L) and from ABC-1608 (12.2 µg/L).

6.0 DATA QUALITY VALIDATION

The Quality Assurance (QA) and quality control (QC) data provided by the laboratory for the Modified AMP sampling event were reviewed to ensure that the analytical results met the project's data quality objectives as outlined in the Station's GWMP. The review process was performed in general accordance with procedures outlined in the following EPA guidance documents:

- *National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017* (EPA, 2017);
- Evaluation of Radiochemical Data Usability. 1997. Department of Energy (Paar, G. *et al.*, April 1997).

6.1 First Semi-Annual 2019 Compliance Event Findings

The laboratory and field QA/QC data for the initial DMP compliance monitoring event samples collected March 11-12, 2019, were reviewed in accordance with EPA protocol. The field QA/QC sample for this event included a duplicate sample that was collected at the Unit on March 11, 2019. A field blank was also collected as part of an overall site monitoring sampling event Unit on March 12, 2019. These samples were analyzed for the same constituents as the groundwater samples. A description of the laboratory QA/QC data associated with the March 2019 groundwater monitoring event is presented in Appendix G.1.

As presented in Appendix G.1, with the exception of boron, calcium, and fluoride matrix spike and/or matrix spike duplicate recoveries that are outside of QC limits, laboratory QC results were within acceptable limits and interference free. Relative percent differences were above acceptable QC limits for total dissolved solids. A quantified detection of TDS was reported in the field blank with one sample qualified per EPA guidance. Duplicate results for TDS were outside of control limits and both the parent and duplicate samples were qualified estimated per EPA guidance. The associated sample delivery group (analytical batch) and recoveries outside QC limits are detailed in the laboratory QA/QC presented in Appendix G.1. Based on review of the laboratory-provided QC data, EPA guidance recommendations, and Golder's professional judgement, the data for the March 2019 compliance event were determined to meet the data quality objectives for the project.

6.2 Second Semi-Annual 2019 Compliance Event Findings

The laboratory and field QA/QC data for the second semi-annual compliance monitoring event samples collected August 27-29, 2019, were reviewed in accordance with EPA and DOE Protocol. Field QA/QC samples for this event included a field blank that was collected at the Unit on August 27, 2019. A field duplicate sample was also collected at the Unit on August 28, 2019. These QA/QC samples were analyzed for the same constituents as the groundwater samples. Based on review of the laboratory-provided QC data and EPA/DOE guidance

recommendations, the data for this sampling event were determined to meet the data quality objectives for the project. It is noted that a reported sample result (barium) was qualified as estimated per EPA protocol due to similar analyte detections in one or more sample-group associated QC samples (method blank, field blank). A copy of the data validation record is presented in Appendix G.2.

7.0 STATISTICAL EVALUATION OF GROUNDWATER DATA

This section presents a statistical evaluation for the 2019 data according to the requirements of the CCR Rule and the SWP. Two types of statistical analyses have been conducted as follows:

- Data from each semi-annual monitoring event of 2019 have been evaluated with respect to background data consistent with EPA guidance (EPA 2019); this analysis is designed to identify SSIs in downgradient wells over background concentration (inter-well analysis). It is noted that the background concentrations proposed in the *Pond ABC Facility Background Determination Report* (Golder, 2019c) have not been approved by the DEQ;
- Data from each well have been evaluated with respect to GPS.

7.1 Detection Monitoring Program Data Evaluation

Pursuant to §257.95 of the CCR Rule, Golder evaluated the DMP constituent detections against background concentrations that were established for the evaluation of DMP constituents. The calculated background concentrations for the DMP constituents and parameters are summarized in the following table and presented in Table 1. Based on a comparison of the initial DMP compliance downgradient groundwater monitoring data to the Unit's background concentrations, the following SSIs over the calculated Unit background concentrations were identified:

- Boron (ABC-1607, ABC-1608, ABC-1614)
- Calcium (ABC-1608, ABC-1614)
- Chloride (ABC-1607, ABC-1608, ABC-1614)
- Fluoride (ABC-1608, ABC1614)
- Total Dissolved Solids (ABC-1602, ABC-1607, ABC-1608, ABC-1614)

7.2 Second Semi-Annual Modified Assessment Monitoring Program Event

Pursuant to §257.95 of the CCR Rule, Golder evaluated the Appendix III constituent detections against background concentrations that were established for the evaluation of DMP constituents (Golder, 2019c). Based on that evaluation the following CCR Rule Appendix III SSIs were identified:

- Boron (ABC-1607, ABC-1608, ABC-1614)
- Calcium (ABC-1608, ABC-1614)

- Chloride (ABC-1607, ABC-1608, ABC-1614)
- Fluoride (ABC1614)
- Total Dissolved Solids (ABC-1602, ABC-1608, ABC-1614)

For AMP Appendix IV constituents, the following SSIs were identified consistent with §257.93(h) of the CCR Rule. Golder evaluated the AMP constituent detections using background concentrations that were established for the evaluation of AMP constituents (Golder, 2019c).

- Arsenic (ABC1614)
- Fluoride (ABC1614)

As this Unit is already monitoring groundwater under the AMP, no additional actions beyond reporting these background exceedances were required for 2019.

8.0 GROUNDWATER PROTECTION STANDARDS

8.1 Groundwater Protection Standard Establishment

Consistent with the SWP Module XI.J.2.a, the *Pond ABC Facility Background Determination Report* was submitted to the DEQ on August 15, 2019 (Golder, 2019c). The report documents and presents statistically calculated background concentrations and proposed state GPS for required parameters and constituents pursuant to the DEQ-issued SWP and 40 CFR Part 257.93(d) of the CCR Rule. The proposed GPS were based on Federal Maximum Contaminant Levels (MCLs) for constituents for which an MCL has been established, or site-specific background values for constituents for which an MCL has not been established, or for constituents for which the site-specific background value is higher than the MCL. As of the time of this report, proposed background-based Virginia GPS have not been approved by the DEQ. However, in accordance with SWP permit condition XI.G.6, MCL-based GPS are effective with the issuance of the permit.

8.1.1 Solid Waste Permit Virginia Groundwater Protection Standards Evaluation

Consistent with XI.H.2 of the Unit's SWP, Golder evaluated the AMP constituents (CCR Rule Appendix IV constituents, VSWMR make-up metals, and boron) against Maximum Contaminant Level (MCL)-based GPS. Based this evaluation, the following Virginia GPS exceedance was identified during the 2019 second semi-annual groundwater monitoring event based on a value-to-standard comparison.

Constituent	Groundwater Protection Standard (µg/L)	Assessment Monitoring Well	2SA 2019 Concentration (µg/L)
Arsenic	10.0	ABC-1614	30.1

Note: µg/L = Microgram per liter

8.1.2 CCR Groundwater Protection Standards Evaluation

Consistent with §257.95 *et seq*. of the CCR Rule, Golder evaluated the AMP constituents (CCR Rule Appendix IV constituents) against CCR Rule established GWPS. Based this evaluation, the following Federal GWPS exceedance was identified during the 2019 second semi-annual groundwater monitoring event based on a value-to-standard comparison.

Constituent	Groundwater Protection Standard (µg/L)	Assessment Monitoring Well	2SA 2019 Concentration (µg/L)
Arsenic	10.0	ABC-1614	30.1

Note: µg/L = Microgram per liter

9.0 CONCLUSIONS

The following findings are presented based on the results of the groundwater sampling activities conducted for the Unit in 2019:

9.1 Summary of Findings

- The overall direction of groundwater flow at the Unit generally follows topography and flows at an estimated horizontal velocity of 25.8 to 27.9 feet/year;
- Downgradient wells are located close to the waste management unit boundary and are able to determine groundwater quality downgradient to the Unit;
- During 2019, the monitoring well network functioned as designed and had the ability to determine the Unit's impact on the quality of the groundwater in the uppermost aquifer;
- Review of the current potentiometric map indicates the monitoring wells network fulfills the requirements of 9VAC20-81-250.A.3;
- Review of the 2019 Modified AMP monitoring data did not indicate any significant changes in the groundwater quality;
- Initial DMP sampling indicated SSIs above background and triggered the assessment monitoring program;
- Modified assessment monitoring identified SSIs over background for arsenic, boron, calcium, chloride, fluoride, and total dissolved solids; and
- Modified assessment monitoring identified a GPS/GWPS exceedance of arsenic in the sample collected from ABC-1614.

9.2 Planned Activities

Based on the results from the 2019 Modified AMP activities, Dominion Energy intends to continue with the Modified AMP in 2020 consistent with the provisions in the CCR Rule [part 257.95] and the Unit's solid waste permit. Dominion Energy intends to conduct two semi-annual compliance events in 2020. Additionally, due to the arsenic GPS exceedance in single well ABC-1614, Dominion Energy has initiated an Assessment of Corrective Measures.

10.0 REFERENCES

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Golder. 2019b. *Groundwater Monitoring Plan*, Possum Point Power Station, Dumfries, Virginia. August 8.

Golder. 2019c. *Pond ABC Facility Background Determination Report*, Possum Point Power Station, Dumfries, Virginia. August 15.

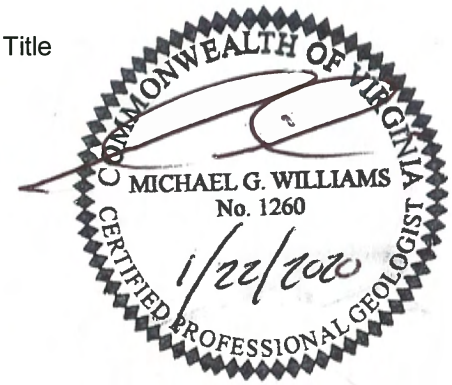
Virginia Waste Management Board (VWMB). 2019. Virginia Solid Waste Management Regulations – (9VAC20-81 *et seq*.). March.

11.0 CERTIFICATION SECTION

This Report has been prepared by qualified groundwater scientists and engineers on behalf of Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion Energy) for Ponds ABC at the Possum Point Power Station in Dumfries, Virginia. This document was prepared by scientists and engineers who have received baccalaureate and/or post-graduate degrees in the natural sciences and/or engineering and who have sufficient training and experience in groundwater hydrology, engineering, statistical evaluations, and related fields as demonstrated by state professional registrations and completion of an accredited university program that enables sound professional judgments consistent with the industry standard of care for groundwater monitoring, contaminant fate and transport, environmental corrective actions, and cost estimate development. This Report also satisfies the reporting requirements specified in 9VAC20-81-250.E.2.a of the VSWMR (VWMB, 2019) and the DEQ SWP No. 617.

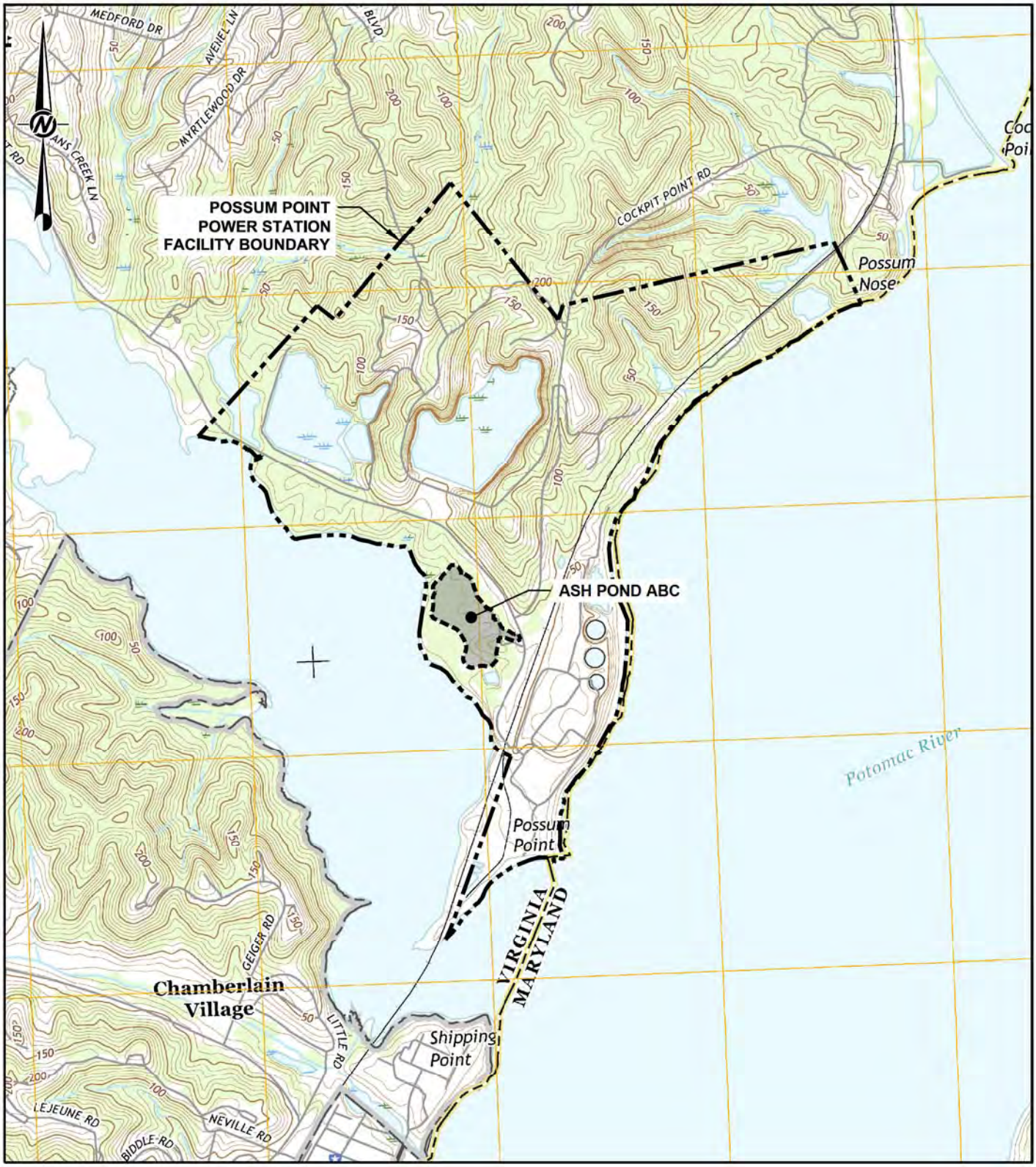
Signature

Name & Title



Michael G. Williams, C.P.G.
Principal, Senior Hydrogeologist

FIGURES



REFERENCE

BASE MAP CONSISTS OF USGS TOPOGRAPHIC QUADRANGLE QUANTICO, VIRGINIA DATED 2016.

2000 0 2000
SCALE FEET

CLIENT
DOMINION ENERGY

CONSULTANT
GOLDER

YYYY-MM-DD	2019-05-22
DESIGNED	ALR
PREPARED	ABR
REVIEWED	ALR
APPROVED	MGW

PROJECT
POSSUM POINT POWER STATION
ASH POND ABC
PRINCE WILLIAM COUNTY, VIRGINIA

TITLE
SITE LOCATION MAP

PROJECT NO. 16-62150 | REV. 0 | FIGURE 1

Path: G:\Plan Production Data Files\Drawing Data Files\16-62150\YY - ASH POND ABC CCR AMR\Active Drawings\16621 50YY00.dwg

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

LEGEND

- PROPERTY BOUNDARY
- EX. TOPOGRAPHIC CONTOURS (5' INTERVALS)
- WETLAND
- STREAM OR SURFACE WATER BOUNDARY
- RESOURCE PROTECTION AREA BOUNDARY
- 100-YEAR FLOOD PLAIN
- ASH POND LIMITS
- ABC-1602 — EX. COMPLIANCE GROUNDWATER MONITORING WELL
- 21.04 — STATIC GROUNDWATER LEVEL ELEVATION [FEET ABOVE MEAN SEA LEVEL (AMSL)]
- 50 — GROUNDWATER SURFACE CONTOUR (FEET AMSL)
- APPROXIMATE GROUNDWATER FLOW PATHWAY USED TO CALCULATE HYDRAULIC GRADIENT

NOTES

1. EXISTING CONDITIONS COMPILED BY KEDDAL AERIAL MAPPING USING PHOTOGRAMMETRIC METHODS, FROM AERIAL PHOTOGRAPHY DATED FEBRUARY 13, 2015.
2. STATIC WATER LEVELS MEASURED ON MARCH 11, 2019.
3. GROUNDWATER CONTOURS BASED ON LINEAR INTERPOLATION BETWEEN AND EXTRAPOLATION FROM KNOWN DATA, TOPOGRAPHIC CONTOURS, AND KNOWN FIELD CONDITIONS. THEREFORE, GROUNDWATER CONTOURS MAY NOT REFLECT ACTUAL GROUNDWATER CONDITIONS. GROUNDWATER CONTOUR(S) SHOWN IN GREEN ARE INFERRED.
4. GROUNDWATER CONTOUR LINES SHOW THE WATER TABLE SHAPE AND ELEVATION. THESE CONTOURS ARE INFERRED LINES FOLLOWING THE GROUNDWATER SURFACE AT A CONSTANT ELEVATION ABOVE SEA LEVEL. THE GROUNDWATER FLOW DIRECTION IS GENERALLY PERPENDICULAR TO THE GROUNDWATER SURFACE CONTOURS, SIMILAR TO THE RELATIONSHIP BETWEEN SURFACE WATER FLOW AND TOPOGRAPHIC CONTOURS.

CLIENT
DOMINION
POSSUM POINT POWER STATION
PRINCE WILLIAM COUNTY, VIRGINIA

PROJECT
GROUNDWATER MONITORING PROGRAM
ASH POND ABC

TITLE
GROUNDWATER SURFACE CONTOUR MAP
MARCH 11, 2019

CONSULTANT
GOLDER

YYYY-MM-DD	2019-09-19
DESIGNED	ALR
PREPARED	ABR
REVIEWED	ALR
APPROVED	MGW

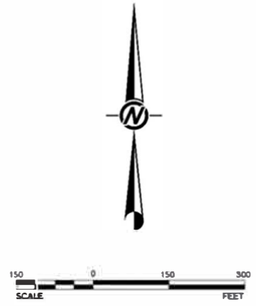
PROJECT NO. 16-62150 | REV. 0 | FIGURE 2

LEGEND

- PROPERTY BOUNDARY
- EX. TOPOGRAPHIC CONTOURS (5' INTERVALS)
- WETLAND
- STREAM OR SURFACE WATER BOUNDARY
- RESOURCE PROTECTION AREA BOUNDARY
- 100-YEAR FLOOD PLAIN
- ASH POND LIMITS
- ABC-1602 — EX. COMPLIANCE GROUNDWATER MONITORING WELL
- 17.26 — STATIC GROUNDWATER LEVEL ELEVATION (FEET ABOVE MEAN SEA LEVEL (AMSL))
- 50 — GROUNDWATER SURFACE CONTOUR (FEET AMSL)
- APPROXIMATE GROUNDWATER FLOW PATHWAY USED TO CALCULATE HYDRAULIC GRADIENT

NOTES

1. EXISTING CONDITIONS COMPILED BY KEDDAL AERIAL MAPPING USING PHOTOGRAMMETRIC METHODS, FROM AERIAL PHOTOGRAPHY DATED FEBRUARY 13, 2015.
2. STATIC WATER LEVELS MEASURED ON AUGUST 26, 2019.
3. GROUNDWATER CONTOURS BASED ON LINEAR INTERPOLATION BETWEEN AND EXTRAPOLATION FROM KNOWN DATA, TOPOGRAPHIC CONTOURS, AND KNOWN FIELD CONDITIONS. THEREFORE, GROUNDWATER CONTOURS MAY NOT REFLECT ACTUAL GROUNDWATER CONDITIONS. GROUNDWATER CONTOUR(S) SHOWN IN GREEN ARE INFERRED.
4. GROUNDWATER CONTOUR LINES SHOW THE WATER TABLE SHAPE AND ELEVATION. THESE CONTOURS ARE INFERRED LINES FOLLOWING THE GROUNDWATER SURFACE AT A CONSTANT ELEVATION ABOVE SEA LEVEL. THE GROUNDWATER FLOW DIRECTION IS GENERALLY PERPENDICULAR TO THE GROUNDWATER SURFACE CONTOURS, SIMILAR TO THE RELATIONSHIP BETWEEN SURFACE WATER FLOW AND TOPOGRAPHIC CONTOURS.



CLIENT
DOMINION
POSSUM POINT POWER STATION
PRINCE WILLIAM COUNTY, VIRGINIA

PROJECT
GROUNDWATER MONITORING PROGRAM
ASH POND ABC

TITLE
GROUNDWATER SURFACE CONTOUR MAP
AUGUST 26, 2019

CONSULTANT
GOLDER

YYYY-MM-DD	2019-09-19
DESIGNED	ALR
PREPARED	ABR
REVIEWED	ALR
APPROVED	MGW

PROJECT NO. 16-62150 | REV. 0 | FIGURE 3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

TABLES

Table 1
Summary of 1st Semi-Annual Detection Monitoring Program Sampling Event Data (March 2019)
Possum Point Power Station, Ponds ABC
Permit No. 617

			Upgradient Well				Downgradient Wells												Lab QC				Field QC			
		Location	**ABC-1602**				**ABC-1607**				**ABC-1608**				**ABC-1614**				**ABC-1614 Duplicate**				**Field Blank**			
		Sample Date	**3/11/2019**				**3/11/2019**				**3/11/2019**				**3/11/2019**				**3/11/2019**				**3/12/2019**			
Analyte	**Unit**	**Site-Specific Background**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**	**Result**	**Qual**	**MDL**	**RL**
CCR Appendix III																										
Boron	µg/L	94.5	< 25.0		25.0	50.0	**190**		25.0	50.0	**150**		25.0	50.0	**180**		25.0	50.0	**180**		25.0	50.0	< 25.0		25.0	50.0
Calcium	µg/L	7,222	**5900**		50.0	100	**6200**		50.0	100	**12600**		50.0	100	**22300**		50.0	100	**24000**		50.0	100	< 50.0		50.0	100
Chloride	mg/L	5.1	**2.7**		0.60	1.0	**11.1**		0.60	1.0	**55.4**		0.60	1.0	**16.2**		0.60	1.0	**15.9**		0.60	1.0	< 0.60		0.60	1.0
Fluoride	mg/L	0.10	< 0.050		0.050	1.0	< 0.050		0.050	1.0	**0.11**		0.050	1.0	**0.12**		0.050	1.0	**0.12**		0.050	1.0	< 0.050		0.050	1.0
pH	SU	3.45-6.23	4.43		0.01	0.01	4.86		0.01	0.01	5.48		0.01	0.01	6.13		0.01	0.01	--		0.01	0.01	--		0.01	0.01
Sulfate	mg/L	70.45	**59.7**		0.50	1.0	**43.5**		0.50	1.0	**31.9**		0.50	1.0	**44.4**		0.50	1.0	**42.6**		0.50	1.0	< 0.50		0.50	1.0
Total Dissolved Solids	mg/L	126	**132**	J+	25.0	25.0	**132**		25.0	25.0	**250**		25.0	25.0	**260**	J	25.0	25.0	**323**	J	25.0	25.0	**254**		25.0	25.0
Field Measurements																										
Conductivity	µS/cm	--	146.8		0.1	0.1	151.2		0.1	0.1	331.0		0.1	0.1	389.2		0.1	0.1	--		--	--	--		--	--
Depth to Water	ft btoc	--	13.04		0.01	0.01	22.80		0.01	0.01	21.10		0.01	0.01	12.31		0.01	0.01	--		--	--	--		--	--
Dissolved Oxygen	mg/L	--	3.37		0.01	0.01	1.95		0.01	0.01	1.35		0.01	0.01	1.62		0.01	0.01	--		--	--	--		--	--
Groundwater Elevation	ft msl	--	21.04		0.01	0.01	0.83		0.01	0.01	0.03		0.01	0.01	3.31		0.01	0.01	--		--	--	--		--	--
Oxidation Reduction Potential	millivolts	--	288.7		0.1	0.1	117.7		0.1	0.1	83.5		0.1	0.1	-12.4		0.1	0.1	--		--	--	--		--	--
Temperature	C	--	14.1		0.1	0.1	14.6		0.1	0.1	13.9		0.1	0.1	14.1		0.1	0.1	--		--	--	--		--	--
Turbidity	ntu	--	5.60		0.1	0.1	7.18		0.1	0.1	7.29		0.1	0.1	13.58		0.1	0.1	--		--	--	--		--	--

Notes: mg/L = milligram per liter
µg/L = microgram per liter
MDL = Method Detection Limit
RL = Reporting Limit
ft btoc = feet below top of casing
ft msl = feet above mean sea level
SU = Standard Units
ntu = nephelometric turbidity units
µS/cm = microSiemens
C = Celsius
*Background values from the 2019-07-16 Notification of Statistically Significant Increase
** - Water levels gauged on March 11, 2019
Bold Font - Detected Concentration

Data Qualifiers: J = Estimated Result
J+ = Potential Bias High

Table 2
Summary of 2nd Semi-Annual Assessment Monitoring Program Sampling Event Data (August 2019)
Possum Point Power Station, Ponds ABC
Permit No. 617

					Upgradient Well				Downgradient Wells												Field QC							
				Sample ID:	**ABC-1602**				**ABC-1607**				**ABC-1608**				**ABC-1614**				**ABC-1607 DUP**				**Field Blank**			
				Sample Date:	**08/29/2019**				**08/28/2019**				**08/28/2019**				**08/28/2019**				**08/28/2019**				**08/27/2019**			
Parameter Name	**Units**	**Site-Specific Background**	**Federal GWPS**	**Virginia GPS**	**Result**	**Qualifier**	**MDL**	**RL**	**Result**	**Qualifier**	**MDL**	**RL**	**Result**	**Qualifier**	**MDL**	**RL**	**Result**	**Qualifier**	**MDL**	**RL**	**Result**	**Qualifier**	**MDL**	**RL**	**Result**	**Qualifier**	**MDL**	**RL**
CCR Appendix III Constituents																												
Boron	µg/L	94.5	--	*	**8.8**	J	6.6	50	**190**		6.6	50	**220**		6.6	50	**240**		6.6	50	**200**		6.6	50	**7.4**	J+	6.6	50
Calcium	µg/L	7,222	--	--	**5900**		24	100	**6600**		24	100	**19600**		24	100	**35000**		24	100	**6700**		24	100	< 24		24	100
Chloride	mg/L	5.1	--	--	**2.8**		0.60	1.0	**12.2**		0.60	1.0	**52.8**		0.60	1.0	**17.2**		0.60	1.0	**13.1**		0.60	1.0	< 0.60		0.60	1.0
Fluoride	mg/L	QL (0.10)	4	4	< 0.050		0.050	0.10	< 0.050		0.050	0.10	**0.064**	J	0.050	0.10	**0.11**		0.050	0.10	< 0.050		0.050	0.10	< 0.050		0.050	0.10
pH	SU	3.45-6.23	--	--	4.17		0.01	0.01	4.73		0.01	0.01	5.63		0.01	0.01	6.06		0.01	0.01	--		--	--	--		--	--
Sulfate	mg/L	70.45	--	--	**41.4**		0.50	1.0	**30.9**		0.50	1.0	**27.8**		0.50	1.0	**38.5**		0.50	1.0	**34.7**		0.50	1.0	< 0.50		0.50	1.0
Total Dissolved Solids	mg/L	126	--	--	**144**	J+	25.0	25.0	**118**		25.0	25.0	**237**		25.0	25.0	**284**		33.3	33.3	**120**		25.0	25.0	**45.0**		25.0	25.0
CCR Appendix IV Constituents																												
Antimony	µg/L	QL (5)	6	6	< 3.0		3.0	5.0	< 3.0		3.0	5.0	< 3.0		3.0	5.0	< 3.0		3.0	5.0	< 3.0		3.0	5.0	< 3.0		3.0	5.0
Arsenic	µg/L	QL (10)	10	10	< 4.7		4.7	10.0	< 4.7		4.7	10.0	< 4.7		4.7	10.0	**30.1**		4.7	10.0	< 4.7		4.7	10.0	< 4.7		4.7	10.0
Barium	µg/L	100.6	2000	2,000	**62.1**		1.0	5.0	**54.1**	J+	1.0	5.0	**66.2**		1.0	5.0	**211**		1.0	5.0	**54.5**		1.0	5.0	**1.1**	J	1.0	5.0
Beryllium	µg/L	QL (1)	4	4	**0.60**	J	0.50	1.0	< 0.50		0.50	1.0	< 0.50		0.50	1.0	< 0.50		0.50	1.0	< 0.50		0.50	1.0	< 0.20		0.20	1.0
Cadmium	µg/L	QL (1)	5	5	< 0.40		0.40	1.0	< 0.40		0.40	1.0	< 0.40		0.40	1.0	< 0.40		0.40	1.0	< 0.40		0.40	1.0	< 0.40		0.40	1.0
Chromium	µg/L	QL (5)	100	100	< 1.0		1.0	5.0	< 1.0		1.0	5.0	< 1.0		1.0	5.0	< 1.0		1.0	5.0	< 1.0		1.0	5.0	< 1.0		1.0	5.0
Cobalt	µg/L	24.9	6	*	**11.1**		0.050	0.10	**8.1**		0.050	0.10	**22.5**		0.050	0.10	**21.1**		0.050	0.10	**8.0**		0.050	0.10	< 0.050		0.050	0.10
Fluoride	mg/L	QL (0.10)	4	4	< 0.050		0.050	0.10	< 0.050		0.050	0.10	**0.064**	J	0.050	0.10	**0.11**		0.050	0.10	< 0.050		0.050	0.10	< 0.050		0.050	0.10
Lead	µg/L	QL (5)	15**	*	**0.19**		0.050	0.10	**0.085**	J	0.050	0.10	**0.056**	J	0.050	0.10	**0.50**		0.050	0.10	< 0.050		0.050	0.10	< 0.050		0.050	0.10
Lithium	µg/L	QL (25)	40	*	**9.4**		0.42	2.5	**4.6**		0.42	2.5	**14.2**		0.42	2.5	**17.5**		0.42	2.5	**4.4**		0.42	2.5	< 0.42		0.42	2.5
Mercury	µg/L	QL (0.2)	2	2	< 0.10		0.10	0.20	< 0.10		0.10	0.20	< 0.10		0.10	0.20	< 0.10		0.10	0.20	< 0.10		0.10	0.20	< 0.10		0.10	0.20
Molybdenum	µg/L	QL (5)	100	*	< 0.90		0.90	5.0	**1.0**	J	0.90	5.0	**1.7**	J	0.90	5.0	**1.6**	J	0.90	5.0	< 0.90		0.90	5.0	< 0.90		0.90	5.0
Selenium	µg/L	QL (10)	50	50	< 4.7		4.7	10.0	< 4.7		4.7	10.0	< 4.7		4.7	10.0	< 4.7		4.7	10.0	< 4.7		4.7	10.0	< 4.7		4.7	10.0
Thallium	µg/L	QL (1)	2	2	< 0.060		0.060	0.10	< 0.060		0.060	0.10	< 0.060		0.060	0.10	< 0.060		0.060	0.10	< 0.060		0.060	0.10	< 0.060		0.060	0.10
Total Radium	pCi/l	3.727	5	5	**1.87**		1.12	1.12	**1.58**		0.903	0.903	**1.59**		0.912	0.912	**1.56**		1.05	1.05	**1.16**		0.963	0.963	**1.33**	J	1.25	1.25
Additional VSWMR Constituents																												
Copper	µg/L	--	--	1,300**	**4.9**	J	2.1	5.0	< 2.1		2.1	5.0	< 2.1		2.1	5.0	< 2.1		2.1	5.0	< 2.1		2.1	5.0	< 2.1		2.1	5.0
Nickel	µg/L	--	--	*	**6.2**		0.90	5.0	**10**		0.90	5.0	**17.9**		0.90	5.0	**15.5**		0.90	5.0	**10.2**		0.90	5.0	< 0.90		0.90	5.0
Silver	µg/L	--	--	*	< 2.5		2.5	5.0	< 2.5		2.5	5.0	< 2.5		2.5	5.0	< 2.5		2.5	5.0	< 2.5		2.5	5.0	< 2.5		2.5	5.0
Tin	µg/L	--	--	*	< 0.090		0.090	0.50	< 0.090		0.090	0.50	< 0.090		0.090	0.50	< 0.090		0.090	0.50	< 0.090		0.090	0.50	< 0.090		0.090	0.50
Vanadium	µg/L	--	--	*	< 1.3		1.3	5.0	< 1.3		1.3	5.0	**1.9**	J	1.3	5.0	**2.3**	J	1.3	5.0	**1.3**	J	1.3	5.0	< 1.3		1.3	5.0
Zinc	µg/L	--	--	*	< 3.9		3.9	10.0	**19.5**		3.9	10.0	**12.2**		3.9	10.0	**5.5**	J	3.9	10.0	**18.5**		3.9	10.0	**7.4**	J+	3.9	10.0
Speciation of Chromium																												
Hexavalent Chromium	µg/L	--	--	--	< 5.0		5.0	5.0	**5.0**	R	5.0	5.0	< 5.0		5.0	5.0	< 5.0		5.0	5.0	< 5.0		5.0	5.0	< 5.0		5.0	5.0
Former VPDES Constituents																												
Hardness	mg/L	--	--	--	**29.7**		662	662	**30.8**		131	662	**85.5**		131	662	**135**		131	662	**31.1**		131	662	< 0.131		131	662
Iron	µg/L	--	--	--	**280**		7.5	50.0	**1350**	J	7.5	50.0	**5780**		7.5	50.0	**32800**		7.5	50.0	**768**	J	7.5	50.0	< 7.5		7.5	50.0
Manganese	µg/L	--	--	--	**166**		0.14	0.50	**170**		0.14	0.50	**152**		0.14	0.50	**348**		0.14	0.50	**166**		0.14	0.50	< 0.14		0.14	0.50
Phenolics	µg/L	--	--	--	< 50		0.050	0.050	< 50		0.050	0.050	< 50		0.050	0.050	< 50		0.050	0.050	< 50		0.050	0.050	< 50		0.050	0.050
Potassium	µg/L	--	--	--	**5470**		6.2	50.0	**1910**		6.2	50.0	**3830**		6.2	50.0	**4250**		6.2	50.0	**1880**		6.2	50.0	< 6.2		6.2	50.0
Sodium	µg/L	--	--	--	**7410**		14.3	250	**14200**		143	2500	**36800**		143	2500	**30300**		143	2500	**15200**		143	2500	< 14.3		14.3	250
Total Organic Carbon	mg/L	--	--	--	< 0.50		0.50	1.0	**19.9**	J	0.50	1.0	**0.97**	J	0.50	1.0	**3.1**		0.50	1.0	< 0.50	UJ	0.50	1.0	< 0.50		0.50	1.0
Field Parameters																												
Conductivity	µS/cm	--	--	--	139.9		0.1	0.1	136.5		0.1	0.1	321.0		0.1	0.1	497.9		0.1	0.1	--		--	--	--		--	--
Depth to Water***	ft btoc	--	--	--	16.82		0.01	0.01	22.49		0.01	0.01	22.09		0.01	0.01	13.40		0.01	0.01	--		--	--	--		--	--
Dissolved Oxygen	mg/L	--	--	--	2.90		0.01	0.01	2.23		0.01	0.01	1.89		0.01	0.01	2.51		0.01	0.01	--		--	--	--		--	--
Groundwater Elevation	ft msl	--	--	--	17.26		0.01	0.01	1.14		0.01	0.01	-0.96		0.01	0.01	2.22		0.01	0.01	--		--	--	--		--	--
Oxidation Reduction Potential	millivolts	--	--	--	332.7		0.1	0.1	219.2		0.1	0.1	93.8		0.1	0.1	-21.7		0.1	0.1	--		--	--	--		--	--
Temperature	C	--	--	--	15.2		0.01	0.01	17.1		0.01	0.01	15.6		0.01	0.01	16.5		0.01	0.01	--		--	--	--		--	--
Turbidity	NTU	--	--	--	16.11		0.1	0.1	9.73		0.1	0.1	9.53		0.1	0.1	9.7		0.1	0.1	--		--	--	--		--	--

Notes:
MDL = Method Detection Limit
RL = Reporting Limit
mg/L = Milligram per liter
µg/L = Microgram per liter
pCi/L = picoCurie per liter
µS/cm = MicroSiemen per centimeter
ft btoc = below top of casing
SU = Standard Units
ft msl = feet above mean sea level
C = Degrees Celsius
NTU = Nephelometric Turbidity Unit
ft btoc = feet below top of casing
ft msl = feet above mean sea level
MDC = Minimum Detection Concentration
CCR = Coal Combustion Residuals
QL = Laboratory quantitation limit (value shown in parentheses is a recent QL and is subject to change)
GPS/GWPS = Groundwater Protection Standards
VSWMR = Virginai Solid Waste Management Regulations
VPDES = Virginia Pollutant Discharge Elimination System
Bold font = Detected constituent
* - Background-based GPS not yet approved by DEQ
** - EPA Action Level
*** - Water levels gauged on August 26, 2019

Qualifiers:
J = Estimated Result
J+ = Potential Bias High
U = Not detected above the Minimum Detection Concentration
UJ = Estimated Non-Detect
R= Unusable

= Concentration greater than proposed site-specific background

= Concentration greater than Federal GWPS, Virginia GPS, and site-specific background

APPENDIX A
COMPLETED ARSC-01 FORM

Annual Report QA/QC Submission Checklist
(DEQ Form ARSC-01)

INCLUDED IN FINAL REPORT?	YES	NO
Signature of a qualified groundwater professional	X	
Solid waste facility permit number & facility name	X	
Name of current owner/operator & type of facility	X	
Dates LF began operations and was deemed closed (if applicable)	X	
Date of last waste receipt (if applicable) [2.b]	X	
Identified if site is lined or unlined [2.b]	X	
Identified waste disposal method (trench fill/area fill/etc.) [2.b]	X	
Total site acreage, and acreage used for waste disposal [2.b]	X	
Adjoining land use described including any aquifer users [2.c]	X	
Topographic map included as *Figure 1* [2.a]	X	
Figure 1 shows facility location, includes a bar scale, and north arrow	X	
Discuss the type, name & age of the geologic unit(s) on site [2.d]	X	
Description of general site topography [2.d]	X	
Name of nearest permanent water body, perennial stream, etc. [2.d]	X	
Description of the uppermost aquifer [2.d]	X	
Description of the aquifer type (confined vs unconfined) [2.d]	X	
Date facility entered detection or phase I monitoring [2.b]	X	
Date facility entered assessment or phase II monitoring [2.b]	X	
Identified if the facility monitors groundwater under a variance	X	
Identified the dates of any groundwater variance approvals	N/A	
Approval date for wetlands demonstration (if applicable)	N/A	
Identified all upgradient and downgradient monitoring wells [2.e]	X	
Identified if all monitoring wells were sampled during the year [2.e]	X	
Identified reasons for failure to sample (if applicable) [2.e]	N/A	
Identified if any monitoring wells have been abandoned [2.e]	X	
Identified if any wells require replacement [2.e]	X	
Included network performance certification statement [2.e]	X	
Identified groundwater sampling dates during past year [2.f]	X	
Included site plan drawing as *Figure 2* [2.h]	X	
Figure 2 contains current topographic contours	X	
Figure 2 contains facility and waste management unit boundaries	X	
Figure 2 includes all monitoring wells	X	
Figure 2 includes potentiometric surface contours	X	
Figure 2 includes groundwater flow direction arrows	X	
Figure 2 includes all surface water bodies	X	

Annual Report Submission Checklist, DEQ Form ARSC-01 (11/01 – Revised 07/11)

Annual Report QA/QC Submission Checklist
(DEQ Form ARSC-01)

INCLUDED IN FINAL REPORT?	YES	NO
Figure 2 includes all structures on site, a bar scale, and north arrow	X	
Listing of groundwater elevation readings in past year [2.h]	X	
Table of historical groundwater elevation data as *Appendix B*	X	
Calculated rate of groundwater flow (distance/year) [2.h]	X	
Flow rate calculations included as *Appendix C*	X	
Identified the name of the analytical laboratory [2.h]	X	
Identified whether lab was DCLS certified	X	
Identified type of analytical methods used [2.h]	X	
Identified those constituents found above the LOD and LOQ	X	
Identified if verification sampling was used during any event	NA	
Identified statistical methods used to analyze groundwater data as Section 7.0	X(1)	
Identified any SSI's noted during prior year of monitoring	X	
Table of prior detected constituent concentrations in each well [2.g] as *Appendix F*	X	
Field data sheet copies included as *Appendix D*	X	
Laboratory results & certificates of analysis as CDROM in *Appendix E*	X	
Included historical summary of laboratory results in *Appendix F*	X	
Full list of References	X	
Copy of this QA/QC checklist	X	

Notes:

(1) Statistical methods used to analyze groundwater data for the Facility are summarized in Section 7.0 and presented in the *Ash Pond ABC Facility Background Determination Report* that was submitted to the DEQ on August 15, 2019.

(2) N/A = Not Applicable

APPENDIX B
HISTORICAL GROUNDWATER ELEVATION DATA

Appendix B
Summary of Historical CCR and VSWMR Static Water Level Data
Possum Point Power Station, Ash Pond ABC
Permit No. 617

Well Identification	Top of Casing Elevation (feet AMSL)	Measurement Date	Depth to Water (feet below top of casing)	Groundwater Elevation (feet AMSL)
ABC-1602	34.08	11/02/2016	16.51	17.57
		12/13/2016	17.35	16.73
		01/25/2017	15.26	18.82
		03/06/2017	16.20	17.88
		04/19/2017	14.65	19.43
		05/30/2017	13.13	20.95
		07/10/2017	15.44	18.64
		08/21/2017	16.76	17.32
		06/27/2018	12.80	21.28
		09/19/2018	14.08	20.00
		12/13/2018	14.31	19.77
		03/11/2019	13.04	21.04
		08/26/2019	16.82	17.26
ABC-1607	23.90	11/02/2016	23.27	0.63
		12/13/2016	23.61	0.29
		01/25/2017	22.46	1.44
		03/06/2017	23.97	-0.07
	23.63	04/19/2017	24.16	-0.53
		05/30/2017	22.50	1.13
		07/10/2017	23.21	0.42
		08/21/2017	24.12	-0.49
		06/27/2018	22.21	1.42
		09/19/2018	23.05	0.58
		12/12/2018	23.40	0.23
		03/11/2019	22.80	0.83
		08/26/2019	22.49	1.14
ABC-1608	21.13	11/02/2016	19.22	1.91
		12/13/2016	20.72	0.41
		01/25/2017	20.86	0.27
		03/06/2017	21.36	-0.23
		04/19/2017	21.28	-0.15
		05/30/2017	20.94	0.19
		07/10/2017	21.15	-0.02
		08/21/2017	21.12	0.01
		06/27/2018	20.46	0.67
		09/19/2018	21.52	-0.39
		12/12/2018	22.16	-1.03
		03/11/2019	21.10	0.03
		08/26/2019	22.09	-0.96
ABC-1614	15.62	11/02/2016	12.68	2.94
		12/12/2016	12.73	2.89
		01/25/2017	12.50	3.12
		03/06/2017	13.10	2.52
		04/19/2017	12.61	3.01
		05/30/2017	11.99	3.63
		07/10/2017	12.39	3.23
		08/21/2017	12.40	3.22
		06/27/2018	12.74	2.88
		09/19/2018	12.82	2.80
		12/12/2018	12.98	2.64
		03/11/2019	12.31	3.31
		08/26/2019	13.40	2.22

Notes: CCR = Coal Combustion Residuals
VSWMR = Virginia Solid Waste Management Regulations
AMSL = Above Mean Sea Level

APPENDIX C
GROUNDWATER FLOW RATE CALCULATIONS

Appendix C

Calculation of Groundwater Velocity
Possum Point Power Station, Ponds ABC
Solid Waste Permit #617

1st Semi-Annual Groundwater Monitoring Event (March 2019)

The average hydraulic gradient for the Unit along the ideal flow line beneath the Unit was calculated using the following equation:

$$i = {}^{h_L}/_{L}$$

Where: i = hydraulic gradient (unitless)
h_L = head loss (elevation difference in feet)
L = length (horizontal distance in feet)

The groundwater flow rate was calculated using the following formula:

$$V = {}^{ki}/_{\theta}$$

Where: V = Groundwater Velocity (cm/s)
k = hydraulic conductivity (cm/s)
i = hydraulic gradient (unitless)
θ = assumed porosity (unitless)

Area	Hydraulic Conductivity (k, cm/s)	Contour lines (feet amsl)	Flow Length (feet)	Average Gradient (i)	Assumed Porosity (Ø)	Estimated Groundwater Velocity	
						(cm/s)	(feet/year)
Unit	2.01E-04	20-1	706	2.69E-02	0.20	2.70E-05	27.9

Notes:

cm/s = centimeter per second
amsl = above mean sea level
k = hydraulic conductivity
i = hydraulic gradient
θ = estimated value based on properties of lithologies comprising the uppermost aquifer

Appendix C

Calculation of Groundwater Velocity
Possum Point Power Station, Ponds ABC
Solid Waste Permit #617

2nd Semi-Annual Groundwater Monitoring Event (August 2019)

The average hydraulic gradient for the Unit along the ideal flow line beneath the Unit was calculated using the following equation:

$$i = {}^{h_L}/_{L}$$

Where: i = hydraulic gradient (unitless)
h_L = head loss (elevation difference in feet)
L = length (horizontal distance in feet)

The groundwater flow rate was calculated using the following formula:

$$V = {}^{ki}/_{\theta}$$

Where: V = Groundwater Velocity (cm/s)
k = hydraulic conductivity (cm/s)
i = hydraulic gradient (unitless)
θ = assumed porosity (unitless)

Area	Hydraulic Conductivity (k, cm/s)	Contour lines (feet amsl)	Flow Length (feet)	Average Gradient (i)	Assumed Porosity (Ø)	Estimated Groundwater Velocity	
						(cm/s)	(feet/year)
Unit	2.01E-04	20-1	766	2.48E-02	0.20	2.49E-05	25.8

Notes:

cm/s = centimeter per second
amsl = above mean sea level
k = hydraulic conductivity
i = hydraulic gradient
θ = estimated value based on properties of sediments comprising the uppermost aquifer

APPENDIX D
FIELD DATA SHEETS

APPENDIX D.1
FIELD DATA SHEETS
1ST SEMI-ANNUAL GROUNDWATER MONITORING EVENT (MARCH 2019)

GOLDER

Date: 3/11/2019

WELL GAUGING LOG

Project Name: PPT - Pond ABC App III

Project No./Task No.: 1662150.2000

Sampler(s): M. Antal

Equipment: W.L. Indicator

Well ID	Personnel (initials)	Time	DTW (feet)	DTB (feet)	Well Condition Summary				
					Protective Casing	Well Casing	Label	Lock	Pad Condition
ABC-1602	MA	1246	13.04	—	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Inadequate	☑ Yes ☐ No	☑ OK ☐ Damaged
ABC-1607	MA	1047	22.80	—	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Inadequate	☑ Yes ☐ No	☑ OK ☐ Damaged
ABC-1608	MA	1126	21.10	—	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Inadequate	☑ Yes ☐ No	☑ OK ☐ Damaged
ABC-1614	MA	1413	12.31	—	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Inadequate	☑ Yes ☐ No	☑ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged
					☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged

Observations/Notes:

Signature: [signature] MT   Date: ~~3/11/2019~~ MT

QA/QC Signature: [signature]   Date: 3/18/2019

Page 1 of 1

GOLDER

MICROPURGE SAMPLING LOG

Date: 3/11/19
Weather: cloudy 50s

Project Name: Possum Point Power Station
Project No./Task No.: 1662150.2000
Event: ABC BKG APP III JSA19
Sampler(s): M. Antal
Well ID: ABC-1602 CCR
Field Calibration Completed: 0945
Well Diameter: 2.0 inches
Initial Depth to Water: 13.04 feet
Depth to Bottom: — feet
Water Column Thickness: — feet

Equipment Used:
- ☑ WL Indicator
- ☑ YSI Pro DSS 606108553
- ☐ In-Situ —
- ☐ Turbidity Meter
- ☐ Peristaltic Pump
- ☐ MP-10 Controller Box
- ☐ Air Tank
- ☐ Compressor
- ☑ MP-15 Controller Box
- ☑ Dedicated Bladder Pump
- ☐ Non-dedicated BP
- ☐ —

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)°C	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1253	4.56	146.7	3.40	3.93	14.0	228.3	13.24	200
1256	4.43	146.8	3.23	3.60	14.1	249.2	13.30	200
1259	4.43	146.9	4.07	3.47	14.1	268.4	13.25	200
1302	4.43	147.2	4.96	3.37	14.1	278.5	13.21	200
1305	4.43	146.8	5.60	3.37	14.1	288.7	13.24	200
1307				SAMPLE				
1315	4.46	147.9	4.32	3.63	14.3	300.0	13.20	200

Purge Cycle (End): 2/6 sec @ 20 psi
Flow Rate (ml/min End): 200
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): ~0.16
Total Purge Volume (Gallons): ~2.0
Purge Water Management: Polytank storage
Purge Observations (color, odor, turbidity, sheen): clear grab sample
Purge time: 1248
Sample Time: 1307
Field Filtered (0.45um): ☐ Yes ☑ No
Sample Group(s)/Analyte(s): B, Ca, Chloride, Sulfate, Fluoride, TDS

Other Observations / Equipment Operation Problems:

Sampler Signature: [signature] Date: 3/11/19
QA/QC Signature: Moira Taylor Date: 3/15/19

GOLDER

MICROPURGE SAMPLING LOG

Date: 3/11/19
Weather: Cloudy 50s

Project Name: Possum Point Power Station
Project No./Task No.: 1662150.2000
Event: ABC APP III ISA19-CCR
Sampler(s): M. Antal
Well ID: ABC-1607
Field Calibration Completed: 0945
Well Diameter: 2.0 inches
Initial Depth to Water: 22.80 feet
Depth to Bottom: — feet
Water Column Thickness: — feet

Equipment Used:
- [x] WL Indicator
- [x] YSI Pro DSS 16M103153
- [ ] In-Situ
- [ ] Turbidity Meter
- [ ] Peristaltic Pump
- [ ] MP-10 Controller Box
- [ ] Air Tank
- [ ] Compressor
- [x] MP-15 Controller Box
- [x] Dedicated Bladder Pump
- [ ] Non-dedicated BP
- [ ] —

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)^{oC}	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1054	4.91	151.5	22.68	2.28	14.5	110.1	25.04	200
1057	4.89	148.5	11.71	2.43	14.5	114.0	24.37	200
1100	4.88	148.7	8.03	2.22	14.5	115.9	24.46	200
1103	4.86	151.2	7.18	1.95	14.6	117.7	24.50	200
1105					SAMPLE			
1111	4.89	151.5	5.54	2.09	14.5	121.5	24.32	200

Purge Cycle (End): 25/5 sec @ 23 psi
Flow Rate (ml/min End): 200
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): ~0.18
Total Purge Volume (Gallons): ~1.5
Purge Water Management: poly tank disposal
Purge Observations (color, odor, turbidity, sheen): clear grab sample
Purge time: 1049
Sample Time: 1105
Field Filtered (0.45um): ☐ Yes ☑ No
Sample Group(s)/Analyte(s): B, Ca, Cl, sulfate, Fluoride, TDS, chloride

Other Observations / Equipment Operation Problems:

Sampler Signature: Michael Antal Date: 3/11/19
QA/QC Signature: Morgan Mayer Date: 3/15/19

GOLDER

MICROPURGE SAMPLING LOG

Date: 3/11/19
Weather: Cloudy 50s

Project Name: Possum Point Power Station
Project No./Task No.: 1662150.2000
Event: ABCAPP III ISM9 - CCR
Sampler(s): M. Antal
Well ID: ABC-1608
Field Calibration Completed: 0945
Well Diameter: 2.0 inches
Initial Depth to Water: 21.10 feet
Depth to Bottom: ~~—~~ feet
Water Column Thickness: ~~—~~ feet

Equipment Used:
- ☑ WL Indicator
- ☑ YSI RDO55160810j53
- ☐ In-Situ ~~—~~
- ☐ Turbidity Meter
- ☐ Peristaltic Pump
- ☐ MP-10 Controller Box
- ☐ Air Tank
- ☐ Compressor
- ☑ MP-15 Controller Box
- ☑ Dedicated Bladder Pump
- ☐ Non-dedicated BP
- ☐ ~~—~~

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)^{oC}	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1133	5.50	324.5	16.93	3.86	13.8	123.5	21.93	200
1136	5.46	326.0	6.88	2.70	13.9	102.4	22.00	200
1139	5.47	328.6	5.73	1.91	13.8	92.1	22.01	200
1142	5.47	330.5	4.60	1.48	13.9	86.6	22.04	200
1145	5.48	331.0	7.29	1.35	13.9	83.5	22.02	200
1147					SAMPLE			
1154	5.52	330.3	4.24	2.28	13.9	77.9	21.75	200

Purge Cycle (End): 24/6 sec @ 20 psi
Flow Rate (ml/min End): 200
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): ~0.16
Total Purge Volume (Gallons): ~2.0
Purge Water Management: polytank Storage
Purge Observations (color, odor, turbidity, sheen): clear grab sample
Purge time: 1128
Sample Time: 1147
Field Filtered (0.45um): ☐ Yes ☑ No
Sample Group(s)/Analyte(s): boron, Calcium, Chloride, Sulfate, Fluoride, TDS

Other Observations / Equipment Operation Problems:

Sampler Signature: Michael Antal
Date: 3/11/19
Page 1 of 1

QA/QC Signature: Mona Tayeh
Date: ~~3/11/19~~ mt 3/15/19

GOLDER

MICROPURGE SAMPLING LOG

Date: 3/11/19
Weather: Cloudy 50s

Project Name: Possum Point Power Station
Project No./Task No.: 1662150.2000
Event: ABC ~~APIII~~ 2SM19
Sampler(s): M. Antal
Well ID: ABC-1614
Field Calibration Completed: 0945
Well Diameter: 2.0 inches
Initial Depth to Water: 12.31 feet
Depth to Bottom: — feet
Water Column Thickness: — feet

Equipment Used:
- ☑ WL Indicator
- ☑ YSI ProDSS16M10B153
- ☐ In-Situ —
- ☐ Turbidity Meter
- ☐ Peristaltic Pump
- ☐ MP-10 Controller Box
- ☐ Air Tank
- ☐ Compressor
- ☑ MP-15 Controller Box
- ☑ Dedicated Bladder Pump
- ☐ Non-dedicated BP
- ☐ —

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)^{oC}	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1420	6.50	392.9	155.23	7.40	13.9	74.9	13.43	200
1423	6.74	387.7	104.59	7.87	13.9	18.7	13.92	200
1426	6.37	387.9	63.76	5.17	13.9	7.6	14.41	200
1429	6.29	393.7	35.59	3.99	14.0	-0.9	14.68	200
1432	6.23	400.7	28.22	3.04	14.1	-6.3	14.70	200
1435	6.22	406.7	23.82	2.53	14.0	-11.3	14.66	200
1438	6.18	407.6	24.43	1.88	14.1	-13.2	14.85	200
1441	6.18	408.2	24.45	2.16	14.1	-14.3	14.80	200
1444	6.17	406.8	23.96	2.04	14.1	-14.6	14.97	200
1447	6.17	404.8	17.39	1.74	14.1	-15.1	14.50	200
1450	6.15	401.3	16.53	1.40	14.1	-15.1	14.71	200
1453	6.15	400.1	16.55	1.35	14.1	-15.0	14.77	200
1456	6.17	398.7	17.53	2.50	14.1	-14.1	14.92	200
1459	6.14	395.0	16.95	1.66	14.1	-13.2	14.81	200
1502	6.14	393.9	13.71	1.61	14.1	-13.2	14.81	200
1505	6.14	392.1	13.81	1.54	14.2	-12.7	14.92	200
1508	6.13	389.2	13.58	1.62	14.1	-12.4	14.90	200

Purge Cycle (End): 24/6 sec @ 20 psi
Flow Rate (ml/min End): 200
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): ~0.13
Total Purge Volume (Gallons): ~4.0
Purge Water Management: polytank storage
Purge Observations (color, odor, turbidity, sheen): ~~clear~~ grab sample slightly cloudy
Purge time: 1415 high turbidity at start of purge (orange c
Sample Time: 1510
Field Filtered (0.45um): ☐ Yes ☑ No
Sample Group(s)/Analyte(s): ~~MS/MSD sampled @ ABC-1614~~ M
B, Ca, Chloride, sulfate, fluoride, TDS

Other Observations / Equipment Operation Problems: MS/MSD sampled @ ABC-1614

Sampler Signature: Michael Antal Date: 3/11/19
QA/QC Signature: Moira Mayer Date: 3/15/19

GOLDER

MICROPURGE SAMPLING LOG

Date: 3/11/19
Weather: cloudy 50s

Project Name: Possum Point Power Station
Project No./Task No.: 1662150.2000
Event: ABC App III ~~2019~~ CCR
Sampler(s): M. Antal
Well ID: ABC-1614
Field Calibration Completed: 0945
Well Diameter: 2.0 inches
Initial Depth to Water: 12.31 feet
Depth to Bottom: _____ feet
Water Column Thickness: _____ feet

Equipment Used:
- [x] WL Indicator
- [ ] Turbidity Meter
- [ ] Air Tank
- [x] Dedicated Bladder Pump
- [x] YSI Pro DSS 16M103153
- [ ] Peristaltic Pump
- [ ] Compressor
- [ ] Non-dedicated BP
- [ ] In-Situ _____
- [ ] MP-10 Controller Box
- [x] MP-15 Controller Box
- [ ] _____

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)^{oC}	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1510			SAMPLE					
MS								
MSD								
1536	6.19	370.1	23.55	2.06	14.7	-12.9	14.53	200

Purge Cycle (End): 24/6 sec @ 20 psi
Flow Rate (ml/min End): 200
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): ~0.13
Total Purge Volume (Gallons): ~4.0
Purge Water Management: polytank storage
Purge Observations (color, odor, turbidity, sheen): ~~clear~~ grab sample slightly cloudy
Purge time: 1415 High turbidity at start of purge clearing to
Sample Time: 1510
Field Filtered (0.45um): [ ] Yes [x] No
Sample Group(s)/Analyte(s): B, Ca, Chloride, sulfate, fluoride, TDS

Other Observations / Equipment Operation Problems: MS/MSD Sampled @ ABC-1614

Sampler Signature: _____ Date: 3/11/19
QA/QC Signature: Moira Taylor Date: 3/15/19

GOLDER

MICROPURGE SAMPLING LOG

Date: 3/11/19
Weather: Cloudy 50s

Project Name: Possum Point Power Station
Project No./Task No.: 1662150.B000
Event: ABC AP III 1S A19
Sampler(s): M. Antal
Well ID: Duplicate CCR
Field Calibration Completed: 0945
Well Diameter: — inches
Initial Depth to Water: — feet
Depth to Bottom: — feet
Water Column Thickness: — feet

Equipment Used: ☐ WL Indicator ☐ Turbidity Meter ☐ Air Tank ☐ Dedicated Bladder Pump ☐ YSI — ☐ Peristaltic Pump ☐ Compressor ☐ Non-dedicated BP ☐ In-Situ — ☐ MP-10 Controller Box ☐ MP-15 Controller Box ☐

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)°C	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1528	—	—	—	—	SAMPLE	—	—	—

Purge Cycle (End): — @ — psi
Flow Rate (ml/min End): —
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): —
Total Purge Volume (Gallons): —
Purge Water Management: —
Purge Observations (color, odor, turbidity, sheen): Duplicate sampled at ABC-~~1602~~ MA; see ABC-~~1602~~ MA 1614 log for sampling details
Sample Time: 1528
Field Filtered (0.45um): ☐ Yes ☑ No
Sample Group(s)/Analyte(s): B, Ca, chloride, sulfate, fluoride, TDS

Other Observations / Equipment Operation Problems:

Sampler Signature: [signature]
Date: 3/11/19
Page 1 of 1
QA/QC Signature: Moira Taylor
Date: 3/15/19

GOLDER

MICROPURGE SAMPLING LOG

Date: 3-12-19

Weather: sun, 40s

Project Name: Possum Point Power Station

Project No./Task No.: 166.2150.2002

Event: ACM / Pond D CCR

Sampler(s): M. Taylor

Well ID: Field Blank ~~ACM~~ MT → FB ACM + Pond D CCR

Field Calibration Completed: —

Well Diameter: — inches

Initial Depth to Water: — feet

Depth to Bottom: _____ feet

Water Column Thickness: — feet

Equipment Used:
- ☐ WL Indicator
- ☐ Turbidity Meter
- ☐ Air Tank
- ☐ Dedicated Bladder Pump
- ☐ YSI —
- ☐ Peristaltic Pump
- ☐ Compressor
- ☐ Non-dedicated BP
- ☐ In-Situ —
- ☐ MP-10 Controller Box
- ☐ MP-15 Controller Box
- ☐ —

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)^{oC}	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1045	—	—	SAMPLED	—	—	—	—	—

Purge Cycle (End): — @ — psi Flow Rate (ml/min End): —

Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): —

Total Purge Volume (Gallons): — Purge Water Management: —

Purge Observations (color, odor, turbidity, sheen): Clear grab sample taken near ED-24R using lab-supplied D.I. water

Sample Time: 1045 Field Filtered (0.45um): ☐ Yes ☒ No

Sample Group(s)/Analyte(s): CCR ~~App III~~: B, Ca, Chloride, sulfate, fluoride, TDS; FB ~~App IV~~: Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl, Radium 226/228, ACM Group A: ~~Li~~ MT Sr, alkalinity (carbonate + bicarbonate), Mg, ~~sulfate~~ MT Na, K, ACM Group B, Boron 4/10, Strontium 87/86, Lithium 7/6

same as App. IV and App III plus

Other Observations / Equipment Operation Problems:

Sampler Signature: M. Taylor Date: 3-12-19

QA/QC Signature: [signature] Date: 3/15/19

APPENDIX D.2
FIELD DATA SHEETS
2ND SEMI-ANNUAL GROUNDWATER MONITORING EVENT (AUGUST 2019)

Date: 8/26/19

GOLDER

WELL GAUGING LOG

Project Name: Possum Point P.S. 25A19 Pond ABC Project No./Task No.: 1662150.2004.001

Sampler(s): M.Antal / N.Chien

Equipment: Water Level Indicator

Well ID	Personnel (initials)	Time	DTW (feet)	DTB (feet)	Well Condition Summary				
					Protective Casing	Well Casing	Label	Lock	Pad Condition
ABC-1602	NC	1519	16.82	32.15	✓OK Damaged	✓OK Damaged	✓OK Inadequate	✓Yes No	✓OK Damaged
ABC-1607	NC	1506	22.49	35.50	✓OK Damaged	✓OK Damaged	✓OK Inadequate	✓Yes No	✓OK Damaged
ABC-1608	NC	1525	22.09	33.80	✓OK Damaged	✓OK Damaged	✓OK Inadequate	✓Yes No	✓OK Damaged
ABC-1614	NC	1544	13.40	28.20	✓OK Damaged	✓OK Damaged	✓OK Inadequate	✓Yes No	✓OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged
					OK Damaged	OK Damaged	OK Inadequate	Yes No	OK Damaged

Observations/Notes:

Signature: [signature] Date: 8/26/19

QA/QC Signature: [signature] Date: 8/30/19

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MICROPURGE SAMPLING LOG

Date: 8/29/19
Weather: clear sky, 70°F

Project Name: Possum Point P.S.
Project No./Task No.: 1662150.2004.001
Event: 2SA19 CCR/VSWMR/VPDES
Sampler(s): N. Chien
Well ID: ABC-1602
Field Calibration Completed: 0800 on 8/29/19
Well Diameter: 2.0 inches
Initial Depth to Water: 16.89 feet
Depth to Bottom: 32.15 feet
Water Column Thickness: — 15.26 feet

Equipment Used:
- [x] WL Indicator
- [x] YSI ProDSS (17M102881)
- [ ] In-Situ
- [ ] Turbidity Meter
- [ ] Peristaltic Pump
- [ ] MP-10 Controller Box
- [ ] Air Tank
- [ ] Compressor
- [x] MP-15 Controller Box
- [x] Dedicated Bladder Pump
- [ ] Non-dedicated BP
- [ ] _____

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)°C	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
0839	4.41	146.6	23.16	4.41	15.9	255.0	16.97	300
0842	4.10	138.9	16.38	3.17	15.2	295.9	16.97	300
0845	4.11	140.0	14.24	3.10	15.2	315.3	17.02	300
0848	4.11	140.1	17.29	3.01	15.2	331.2	16.97	300
0851	4.13	140.5	16.46	2.88	15.1	331.3	16.95	300
0854	4.17	139.9	16.11	2.90	15.2	332.7	16.96	300
0857			SAMPLED					
0934	4.41	141.4	9.18	3.07	16.3	327.8	17.00	300

Purge Cycle (End): 25/5 @ 20 psi
Flow Rate (ml/min End): 300
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): ~0.16
Total Purge Volume (Gallons): ~0.5
Purge Water Management: on-site containment
Purge Observations (color, odor, turbidity, sheen): clear grab sample
Purge Start: 0834
Sample Time: 0857
Field Filtered (0.45um): [ ] Yes [x] No

Sample Parameters/Analyte(s):
- [ ] CCR Appendix III Constituents
- [ ] CCR Appendix IV Constituents
- [ ] VPDES Parameters: 6010/6020 metals, 7470 Hg, 9056 Anions (Cl, F, SO4), TDS, 9060 TOC, 9065 Phenolics, Radium 226/228, hexchrome

Other Observations / Equipment Operation Problems: MS/MSD sampled here
Depth to Pump = 26.80

Sampler Signature: [signature] Date: 8/29/19
QA/QC Signature: [signature] Date: 8/30/19

Page 1 of 1

GOLDER

MICROPURGE SAMPLING LOG

Date: 8/28/19
Weather: Cloudy 70s °F

Project Name: Possum Point P.S.
Project No./Task No.: 1662150.2004.001
Event: 2SA19 CCR/USCMR/VPDES
Sampler(s): N. Chien
Well ID: ABC-1607
Field Calibration Completed: 0710 on 8/28/19
Well Diameter: 2.0 inches
Initial Depth to Water: 23.90 feet
Depth to Bottom: 35.50 feet
Water Column Thickness: 11.6 feet

Equipment Used:
- [x] WL Indicator
- [x] YSI Pro DSS 17M102981
- [ ] In-Situ
- [ ] Turbidity Meter
- [ ] Peristaltic Pump
- [ ] MP-10 Controller Box
- [ ] Air Tank
- [ ] Compressor
- [x] MP-15 Controller Box
- [x] Dedicated Bladder Pump
- [ ] Non-dedicated BP
- [ ] —

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)°C	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1133	4.86	132.5	99.71	3.69	16.9	180.6	~~24.10~~ 24.10	200
1136	4.82	131.9	72.01	3.46	17.0	191.3	24.19	200
1139	4.76	132.9	38.19	3.08	17.0	198.0	24.25	200
1142	4.75	135.2	23.86	2.68	17.0	203.7	24.24	200
1143	4.75	135.2	19.56	2.52	16.9	205.7	24.29	200
1146	4.74	135.4	15.41	2.42	16.8	210.4	24.36	200
1149	4.74	135.7	12.52	2.34	16.9	213.8	24.41	200
1152	4.73	136.2	10.58	2.28	17.0	216.8	24.42	200
1155	4.73	136.5	9.73	2.23	17.1	219.2	24.40	200
1157				SAMPLED				
1240	5.26	142.6	7.79	2.91	21.0	216.9	24.75	200

Purge Cycle (End): 25/5 sec @ 20 psi
Flow Rate (ml/min End): 200
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): ~0.17
Total Purge Volume (Gallons): 1.5
Purge Water Management: On-site containment
Purge Observations (color, odor, turbidity, sheen): Clear grab sample
Purge Start: 1128

Sample Time: 1157
Field Filtered (0.45um): [ ] Yes [x] No

Sample Parameters/Analyte(s):
- [ ] CCR Appendix III Constituents
- [ ] CCR Appendix IV Constituents
- [ ] VPDES Parameters: 6010/6020 metals, 7470 Hg, 9056 Anions (Cl, F, SO_4), TDS, 9060 TOC, 9065 Phenolics, Radium 226/228, hex chrome

Other Observations / Equipment Operation Problems:
Depth to pump ~29.00 ft; Sampled ABC-Duplicate

Sampler Signature: [signature]
Date: 8/28/19
Page 1 of 1

QA/QC Signature: [signature]
Date: 8/30/19

MICROPURGE SAMPLING LOG

GOLDER

Date: 8/28/19
Weather: Overcast 70s

Project Name: Possum Point P.S.
Project No./Task No.: 1662150.2004.001
Event: 2SA19 CCR/USUMR/VPDES
Sampler(s): N. Chien
Well ID: ABC-1608
Field Calibration Completed: 0710 on 8/28/19
Well Diameter: 2.0 inches
Initial Depth to Water: 21.16 feet
Depth to Bottom: 33.80 feet
Water Column Thickness: 12.64 feet

Equipment Used:
- [x] WL Indicator
- [x] YSI ProDSS 17M102881
- [ ] In-Situ ____
- [ ] Turbidity Meter
- [ ] Peristaltic Pump
- [ ] MP-10 Controller Box
- [ ] Air Tank
- [ ] Compressor
- [x] MP-15 Controller Box
- [x] Dedicated Bladder Pump
- [ ] Non-dedicated BP
- [ ] ____

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)°C	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1253	5.73	323.7	71.22	4.28	15.8	113.8	22.95	200
1257	5.67	320.8	47.41	3.41	15.6	106.7	23.02	200
1300	5.65	320.1	25.29	2.45	15.8	100.7	23.02	200
1303	5.65	322.3	14.66	2.20	15.6	96.9	23.04	200
1306	5.64	321.7	14.10	1.92	15.5	95.2	23.12	200
1309	5.63	321.0	9.53	1.89	15.6	93.8	23.15	200
1311				SAMPLED				
1330	5.71	329.6	11.28	2.86	17.4	86.4	23.02	200

Purge Cycle (End): 26/4 @ 20 psi
Flow Rate (ml/min End): 200
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): ~0.16
Total Purge Volume (Gallons): ~1.0
Purge Water Management: on-site containment
Purge Observations (color, odor, turbidity, sheen): Clear grab sample
Purge Start: 1248
Sample Time: 1311
Field Filtered (0.45um): [ ] Yes [x] No

Sample Parameters/Analyte(s):
- [ ] CCR Appendix III Constituents
- [ ] CCR Appendix IV Constituents
- [ ] VPDES Parameters: 6010/6020 metals, 7470 Hg, 9056 anions (Cl, F, SO4), TDS, 9060 TOC, 9065 Phenolics, Radium 226/228, hex chrome

Other Observations / Equipment Operation Problems:
Depth to pump: 26.58ft

Sampler Signature: [signature] Date: 8/28/19
QA/QC Signature: [signature] Date: 8/30/19

MICROPURGE SAMPLING LOG

Golder Associates

Date: 8/28/19
Weather: Cloudy 80s

Project Name: Possum Point Power Station
Project No./Task No.: 1662150.2004.001
Event: 2SA19 ~~ABC Pond~~ coal ash pond MW
Sampler(s): M. Antal
Well ID: ABC-1614
Field Calibration Completed: 0710 on 8/28/19
Well Diameter: 2.0 inches
Initial Depth to Water: 13.30 feet
Depth to Bottom: 28.20 feet
Water Column Thickness: 14.90 feet

Equipment Used:
- ☑ WL Indicator
- ☑ YSI Pro DSS 17M102880
- ☐ In-Situ
- ☐ Turbidity Meter
- ☐ Peristaltic Pump
- ☐ MP-10 Controller Box
- ☐ Air Tank
- ☐ Compressor
- ☑ MP-15 Controller Box
- ☑ Dedicated Bladder Pump
- ☐ Non-dedicated BP
- ☐ ———

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)°C	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1248	6.48	459.3	72.1	4.95	17.0	21.0	14.91	200
1251	6.18	489.2	32.0	4.47	16.6	-2.7	15.31	200
1254	6.09	503	22.7	3.48	16.5	-13.7	15.51	200
1257	6.07	504	14.3	2.80	16.5	-19.7	15.72	200
1300	6.06	497.9	9.7	2.51	16.5	-21.7	15.89	200
1302				SAMPLE				
1424	6.30	479.1	25.6	2.58	16.7	-37.7	15.95	200

Purge Cycle (End): 24/6 sec @ 20 psi
Flow Rate (ml/min End): 200
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): ~0.13
Total Purge Volume (Gallons): ~1.5
Purge Water Management: onsite containment
Purge Observations (color, odor, turbidity, sheen): clear grab sample
Purge time: 1243
Sample Time: 1302
Field Filtered (0.45um): ☐ Yes ☑ No

Sample Parameters/Analyte(s):
- ☐ VSWMR Table 3.1 Column A VOCs
- ☐ VSWMR Table 3.1 Column A Metals
- ☐ Metals, chloride, fluoride, sulfate, TDS, Hg, radium 226/228, Cr(VI), cyanide, sulfide, alkalinity, hardness, TOC
- ☑ Other: 6010/6020 metals, Hg, anions (Cl, F, SO4), TDS, TOC, Phenolics, Radium 226/228, hex chrome

Other Observations / Equipment Operation Problems:

Sampler Signature: ——— Date: 8/28/19
QA/QC Signature: ——— Date: 8/30/19

MICROPURGE SAMPLING LOG

GOLDER

Date: 8/28/19
Weather: Cloudy 70°F

Project Name: Possum Point P.S.
Project No./Task No.: 1662150.2004.001
Event: 2SA19 CCR/VSWMR/VPDES
Sampler(s): N. Chien
Well ID: Duplicate → ABC
Field Calibration Completed: 0710 on 8/28/19
Well Diameter: 2.0 inches
Initial Depth to Water: 23.90 feet
Depth to Bottom: — feet
Water Column Thickness: — feet

Equipment Used:
- [x] WL Indicator
- [x] YSI Pro DSS 17H102881
- [ ] In-Situ —
- [ ] Turbidity Meter
- [ ] Peristaltic Pump
- [ ] MP-10 Controller Box
- [ ] Air Tank
- [ ] Compressor
- [x] MP-15 Controller Box
- [x] Dedicated Bladder Pump
- [ ] Non-dedicated BP
- [ ] —

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)^{oC}	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
NL ~~1517~~ 1217	—	—	SAMPLED	—	—	—	—	—

Purge Cycle (End): 25/5 @ 20 psi
Flow Rate (ml/min End): 200
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): —
Total Purge Volume (Gallons): —
Purge Water Management: on-site containment
Purge Observations (color, odor, turbidity, sheen): —

Sample Time: NL ~~1517~~ 1217
Field Filtered (0.45um): [ ] Yes [x] No

Sample Parameters/Analyte(s):
- [ ] CCR Appendix III Constituents
- [ ] CCR Appendix IV Constituents
- [ ] VPDES Parameters: 6010/6020 metals/7470 Hg, 9056 anions (Cl, F, SO4), TDS, 9060 TOC, 9065 Phenolics, Radium 226/228, hexchrome

Other Observations / Equipment Operation Problems:
Duplicate taken at ABC-1607

Sampler Signature: [signature] Date: 8/28/19
QA/QC Signature: [signature] Date: 8/30/19

MICROPURGE SAMPLING LOG

Golder Associates

Date: 8/27/19
Weather: Cloudy 70s

Project Name: Possum Point Power Station
Project No./Task No.: 1662150.2004.001
Event: 2SA19 CCR/VSWMR/UPDES
Sampler(s): M. Antal
Well ID: Field Blank ~~APPIII~~ AE
Field Calibration Completed: 0710 on 8/27/19
Well Diameter: — inches
Initial Depth to Water: — feet
Depth to Bottom: — feet
Water Column Thickness: — feet
Equipment Used: ☐ WL Indicator ☐ Turbidity Meter ☐ Air Tank ☐ Dedicated Bladder Pump
☐ YSI — ☐ Peristaltic Pump ☐ Compressor ☐ Non-dedicated BP
☐ In-Situ — ☐ MP-10 Controller Box ☐ MP-15 Controller Box ☐ —

Time (5 minute int.)	pH (S.U.)	Sp. Cond. (uS/cm)°C	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	ORP (mV)	DTW (feet)	Flow Rate (mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1030	—	—	—	SAMPLE	—	—	—	—

Purge Cycle (End): — @ — psi
Flow Rate (ml/min End): —
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): —
Total Purge Volume (Gallons): —
Purge Water Management: —
Purge Observations (color, odor, turbidity, sheen): Clear grab sample taken near FD-24R using lab provided D.I. water
Sample Time: 1030
Field Filtered (0.45um): ☐ Yes ☑ No
Sample Parameters/Analyte(s):
☐ VSWMR Table 3.1 Column A VOCs ☐ VSWMR Table 3.1 Column A Metals
☐ Metals, chloride, fluoride, sulfate, TDS, Hg, radium 226/228, Cr(VI), cyanide, sulfide, alkalinity, hardness, TOC
☑ Other: ~~B, Ca, Cl, Fluoride, pH, sulfate, TDS, Sb, As, Ba, Mn~~ 6010/6020 metals, 7470 Hg, 9056 anions (Cl, F, SO4), TDS, 9060 TOC, 9065 Phenolics, Radium 226/228, hexchrome
Other Observations / Equipment Operation Problems:

Sampler Signature: [signature] Date: 8/27/19 Page 1 of 1
QA/QC Signature: [signature] Date: 8/30/19

APPENDIX E
LABORATORY ANALYTICAL RESULTS

APPENDIX E.1
LABORATORY ANALYTICAL RESULTS
1ST SEMI-ANNUAL GROUNDWATER MONITORING EVENT (MARCH 2019)

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

April 17, 2019

Mike Williams
Golder Associates
2108 W Laburnum Ave
Suite 200
Richmond, VA 23227

RE: Project: ABC CCR App III 1SA19 (A)
Pace Project No.: 92421450

Dear Mike Williams:
Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Gasiorowski

Nicole Gasiorowski
nicole.gasiorowski@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Craig LaCosse, Golder Associates Inc.
Rachel Powell, Golder Associates
Amanda Reynolds, Golder Associates
Martha Smith, Golder Associates Inc.

Pace Analytical Services, LLC
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Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: ABC CCR App III 1SA19 (A)
Pace Project No.: 92421450

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

Eden Certification IDs

205 East Meadow Road Suite A, Eden, NC 27288
North Carolina Drinking Water Certification #: 37738
North Carolina Wastewater Certification #: 633
Virginia/VELAP Certification #: 460025

Pace Analytical Services, LLC
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Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: ABC CCR App III 1SA19 (A)
Pace Project No.: 92421450

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92421450001	**ABC-1602**	Water	03/11/19 13:07	03/13/19 14:00

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(704)875-9092

SAMPLE ANALYTE COUNT

Project: ABC CCR App III 1SA19 (A)
Pace Project No.: 92421450

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92421450001	**ABC-1602**	SM 2540C-2011	SOB	1	PASI-E
		EPA 6010D	SH1	2	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A

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SUMMARY OF DETECTION

Project: ABC CCR App III 1SA19 (A)
Pace Project No.: 92421450

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92421450001	**ABC-1602**					
SM 2540C-2011	Total Dissolved Solids	132	mg/L	25.0	03/18/19 16:36	D6
EPA 6010D	Calcium	5.9	mg/L	0.10	03/21/19 21:54	
EPA 300.0 Rev 2.1 1993	Chloride	2.7	mg/L	1.0	03/16/19 16:19	
EPA 300.0 Rev 2.1 1993	Sulfate	59.7	mg/L	1.0	03/16/19 16:19	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: ABC CCR App III 1SA19 (A)
Pace Project No.: 92421450

Sample: ABC-1602 **Lab ID: 92421450001** Collected: 03/11/19 13:07 Received: 03/13/19 14:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011								
Total Dissolved Solids	**132**	mg/L	25.0	25.0	1		03/18/19 16:36		D6
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Boron	ND	mg/L	0.050	0.025	1	03/20/19 17:00	03/21/19 21:54	7440-42-8	
Calcium	**5.9**	mg/L	0.10	0.050	1	03/20/19 17:00	03/21/19 21:54	7440-70-2	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**2.7**	mg/L	1.0	0.60	1		03/16/19 16:19	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		03/16/19 16:19	16984-48-8	
Sulfate	**59.7**	mg/L	1.0	0.50	1		03/16/19 16:19	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: ABC CCR App III 1SA19 (A)
Pace Project No.: 92421450

QC Batch: 463576 Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 92421450001

METHOD BLANK: 2522021 Matrix: Water
Associated Lab Samples: 92421450001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	03/18/19 16:08	

LABORATORY CONTROL SAMPLE: 2522022

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	262	105	90-110	

SAMPLE DUPLICATE: 2523124

Parameter	Units	92421440004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	337	519	43	5	D6

SAMPLE DUPLICATE: 2523128

Parameter	Units	92421450001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	132	144	9	5	D6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Huntersville, NC 28078
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QUALITY CONTROL DATA

Project: ABC CCR App III 1SA19 (A)
Pace Project No.: 92421450

QC Batch: 464195 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010 MET
Associated Lab Samples: 92421450001

METHOD BLANK: 2524554 Matrix: Water
Associated Lab Samples: 92421450001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	mg/L	ND	0.050	0.025	03/21/19 20:31	
Calcium	mg/L	ND	0.10	0.050	03/21/19 20:31	

LABORATORY CONTROL SAMPLE: 2524555

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	0.5	0.47	94	80-120	
Calcium	mg/L	5	4.6	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2524556 2524557

Parameter	Units	92421443002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.18	0.5	0.5	0.58	0.61	81	87	75-125	6	20	
Calcium	mg/L	22.3	5	5	26.6	28.1	86	116	75-125	5	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2524558 2524559

Parameter	Units	92421445002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	ND	0.5	0.5	0.38	0.42	74	83	75-125	11	20	M1
Calcium	mg/L	3.2	5	5	6.6	7.5	68	87	75-125	13	20	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: ABC CCR App III 1SA19 (A)
Pace Project No.: 92421450

QC Batch: 463694 Analysis Method: EPA 300.0 Rev 2.1 1993
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 92421450001

METHOD BLANK: 2522484 Matrix: Water
Associated Lab Samples: 92421450001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	03/16/19 09:23	
Fluoride	mg/L	ND	0.10	0.050	03/16/19 09:23	
Sulfate	mg/L	ND	1.0	0.50	03/16/19 09:23	

LABORATORY CONTROL SAMPLE: 2522485

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	52.0	104	90-110	
Fluoride	mg/L	2.5	2.6	104	90-110	
Sulfate	mg/L	50	54.3	109	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2522486 2522487

Parameter	Units	92421443002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	16.2	50	50	68.8	69.6	105	107	90-110	1	10	
Fluoride	mg/L	0.12	2.5	2.5	3.0	3.1	115	118	90-110	2	10	M1
Sulfate	mg/L	44.4	50	50	97.9	98.9	107	109	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2522488 2522489

Parameter	Units	92421445002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.9	50	50	55.7	56.7	106	108	90-110	2	10	
Fluoride	mg/L	0.30	2.5	2.5	3.1	3.1	111	111	90-110	0	10	M1
Sulfate	mg/L	5.5	50	50	59.9	60.8	109	110	90-110	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(704)875-9092

QUALIFIERS

Project: ABC CCR App III 1SA19 (A)
Pace Project No.: 92421450

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-E	Pace Analytical Services - Eden

ANALYTE QUALIFIERS

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ABC CCR App III 1SA19 (A)
Pace Project No.: 92421450

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92421450001	**ABC-1602**	SM 2540C-2011	463576		
92421450001	**ABC-1602**	EPA 3010A	464195	EPA 6010D	464603
92421450001	**ABC-1602**	EPA 300.0 Rev 2.1 1993	463694		

WO# : 92421450

92421450

Pace Analytical

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here
MTJL Log-in Number Here

ALL SHADED AREAS

Company: Golder Associates
Address: 2108 W. Laburnum Ave #200
Report To: A. Reynolds
Copy To: M. Williams
Customer Project Name/Number: ABC ~~BAP III~~ CCR(?) & ECCR / 1662150.2000
Phone:
Email: 804-358-7900

Billing Information: 1662150.2000 Accounts Payable
Email To: areynolds@golder.com
Site Collection Info/Address:
State: VA County/City: ~~Richmond~~ Dumfries Time Zone Collected: [ ] PT [ ] MT [ ] CT [✓] ET

Site/Facility ID #: Possum Point Power Station
Compliance Monitoring? [✓] Yes [ ] No

Collected By (print): Michael Antal
Purchase Order #:
Quote #:
DW PWS ID #:
DW Location Code:

Collected By (signature): [signature]
Turnaround Date Required: Standard TAT
Immediately Packed on Ice: [✓] Yes [ ] No

Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: ____ [ ] Hold: ____
Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)
Field Filtered (if applicable): [ ] Yes [✓] No
Analysis: ____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: 1 1 U U U U

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other ____

Lab Project Manager:

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns	Boron	Calcium	Chloride	Sulfate	Fluoride	TDS	Lab Sample # / Comments
ABC-1602	GW	G	3/11/19	1307		MA	N	3	X	X	X	X	X	X	*all samples preserved on ice* 001

Lab Profile/Line:
Lab Sample Receipt Checklist:
- Custody Seals Present/Intact (Y) N NA
- Custody Signatures Present (Y) N NA
- Collector Signature Present (Y) N NA
- Bottles Intact (Y) N NA
- Correct Bottles (Y) N NA
- Sufficient Volume (Y) N NA
- Samples Received on Ice (Y) N NA
- VOA - Headspace Acceptable Y N (NA)
- USDA Regulated Soils Y N (NA)
- Samples in Holding Time (Y) N NA
- Residual Chlorine Present Y N NA
- Cl Strips: ____
- Sample pH Acceptable Y N NA
- pH Strips: ____
- Sulfide Present Y N NA
- Lead Acetate Strips: ____

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards: Level II Data Package

Type of Ice Used: (Wet) Blue Dry None
Packing Material Used:
Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A
Lab Tracking #: 2326426
Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: T-3
Cooler 1 Temp Upon Receipt: 0.5 oC
Cooler 1 Therm Corr. Factor: -0.1 oC
Cooler 1 Corrected Temp: 0.4 oC
Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
[signature] / Golder	3/13/19 0845	[signature] / Golder	3/13/19 0845
[signature] / Golder	3/13/19 1400	Rachel Burruss	3-13-19 1400

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO
Page: 1 of: 1

Pace Analytical Services, LLC
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(704)875-9092

April 17, 2019

Mike Williams
Golder Associates
2108 W Laburnum Ave
Suite 200
Richmond, VA 23227

RE: Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

Dear Mike Williams:
Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Gasiorowski

Nicole Gasiorowski
nicole.gasiorowski@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Craig LaCosse, Golder Associates Inc.
Rachel Powell, Golder Associates
Amanda Reynolds, Golder Associates
Martha Smith, Golder Associates Inc.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

Eden Certification IDs

205 East Meadow Road Suite A, Eden, NC 27288
North Carolina Drinking Water Certification #: 37738
North Carolina Wastewater Certification #: 633
Virginia/VELAP Certification #: 460025

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92421443001	**ABC-1608**	Water	03/11/19 11:47	03/13/19 14:00
92421443002	**ABC-1614**	Water	03/11/19 15:10	03/13/19 14:00
92421443003	**ABC-Duplicate**	Water	03/11/19 15:28	03/13/19 14:00
92421443004	**ABC-1607**	Water	03/11/19 11:05	03/13/19 14:00

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SAMPLE ANALYTE COUNT

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92421443001	**ABC-1608**	SM 2540C-2011	SOB	1	PASI-E
		EPA 6010D	DS	2	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92421443002	**ABC-1614**	SM 2540C-2011	SOB	1	PASI-E
		EPA 6010D	DS	2	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92421443003	**ABC-Duplicate**	SM 2540C-2011	SOB	1	PASI-E
		EPA 6010D	SH1	2	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A
92421443004	**ABC-1607**	SM 2540C-2011	SOB	1	PASI-E
		EPA 6010D	SH1	2	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A

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SUMMARY OF DETECTION

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92421443001	**ABC-1608**					
SM 2540C-2011	Total Dissolved Solids	250	mg/L	25.0	03/14/19 17:50	
EPA 6010D	Boron	0.15	mg/L	0.050	03/21/19 21:08	
EPA 6010D	Calcium	12.6	mg/L	0.10	03/21/19 21:08	
EPA 300.0 Rev 2.1 1993	Chloride	55.4	mg/L	1.0	03/16/19 12:51	
EPA 300.0 Rev 2.1 1993	Fluoride	0.11	mg/L	0.10	03/16/19 12:51	
EPA 300.0 Rev 2.1 1993	Sulfate	31.9	mg/L	1.0	03/16/19 12:51	
92421443002	**ABC-1614**					
SM 2540C-2011	Total Dissolved Solids	260	mg/L	25.0	03/14/19 17:50	D6
EPA 6010D	Boron	0.18	mg/L	0.050	03/21/19 21:11	
EPA 6010D	Calcium	22.3	mg/L	0.10	03/21/19 21:11	
EPA 300.0 Rev 2.1 1993	Chloride	16.2	mg/L	1.0	03/16/19 13:07	
EPA 300.0 Rev 2.1 1993	Fluoride	0.12	mg/L	0.10	03/16/19 13:07	M1
EPA 300.0 Rev 2.1 1993	Sulfate	44.4	mg/L	1.0	03/16/19 13:07	
92421443003	**ABC-Duplicate**					
SM 2540C-2011	Total Dissolved Solids	323	mg/L	25.0	03/18/19 16:28	
EPA 6010D	Boron	0.19	mg/L	0.050	03/21/19 21:36	
EPA 6010D	Calcium	24.0	mg/L	0.10	03/21/19 21:36	
EPA 300.0 Rev 2.1 1993	Chloride	15.9	mg/L	1.0	03/16/19 13:55	
EPA 300.0 Rev 2.1 1993	Fluoride	0.12	mg/L	0.10	03/16/19 13:55	
EPA 300.0 Rev 2.1 1993	Sulfate	42.6	mg/L	1.0	03/16/19 13:55	
92421443004	**ABC-1607**					
SM 2540C-2011	Total Dissolved Solids	132	mg/L	25.0	03/14/19 17:50	
EPA 6010D	Boron	0.19	mg/L	0.050	03/21/19 21:39	
EPA 6010D	Calcium	6.2	mg/L	0.10	03/21/19 21:39	
EPA 300.0 Rev 2.1 1993	Chloride	11.1	mg/L	1.0	03/16/19 14:11	
EPA 300.0 Rev 2.1 1993	Sulfate	43.5	mg/L	1.0	03/16/19 14:11	

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ANALYTICAL RESULTS

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

Sample: ABC-1608 **Lab ID: 92421443001** Collected: 03/11/19 11:47 Received: 03/13/19 14:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011								
Total Dissolved Solids	**250**	mg/L	25.0	25.0	1		03/14/19 17:50		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Boron	**0.15**	mg/L	0.050	0.025	1	03/20/19 17:00	03/21/19 21:08	7440-42-8	
Calcium	**12.6**	mg/L	0.10	0.050	1	03/20/19 17:00	03/21/19 21:08	7440-70-2	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**55.4**	mg/L	1.0	0.60	1		03/16/19 12:51	16887-00-6	
Fluoride	**0.11**	mg/L	0.10	0.050	1		03/16/19 12:51	16984-48-8	
Sulfate	**31.9**	mg/L	1.0	0.50	1		03/16/19 12:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

Sample: ABC-1614 **Lab ID: 92421443002** Collected: 03/11/19 15:10 Received: 03/13/19 14:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011								
Total Dissolved Solids	**260**	mg/L	25.0	25.0	1		03/14/19 17:50		D6
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Boron	**0.18**	mg/L	0.050	0.025	1	03/20/19 17:00	03/21/19 21:11	7440-42-8	
Calcium	**22.3**	mg/L	0.10	0.050	1	03/20/19 17:00	03/21/19 21:11	7440-70-2	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**16.2**	mg/L	1.0	0.60	1		03/16/19 13:07	16887-00-6	
Fluoride	**0.12**	mg/L	0.10	0.050	1		03/16/19 13:07	16984-48-8	M1
Sulfate	**44.4**	mg/L	1.0	0.50	1		03/16/19 13:07	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

Sample: ABC-Duplicate **Lab ID: 92421443003** Collected: 03/11/19 15:28 Received: 03/13/19 14:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011								
Total Dissolved Solids	**323**	mg/L	25.0	25.0	1		03/18/19 16:28		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Boron	**0.19**	mg/L	0.050	0.025	1	03/20/19 17:00	03/21/19 21:36	7440-42-8	
Calcium	**24.0**	mg/L	0.10	0.050	1	03/20/19 17:00	03/21/19 21:36	7440-70-2	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**15.9**	mg/L	1.0	0.60	1		03/16/19 13:55	16887-00-6	
Fluoride	**0.12**	mg/L	0.10	0.050	1		03/16/19 13:55	16984-48-8	
Sulfate	**42.6**	mg/L	1.0	0.50	1		03/16/19 13:55	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

Sample: ABC-1607 **Lab ID: 92421443004** Collected: 03/11/19 11:05 Received: 03/13/19 14:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011								
Total Dissolved Solids	**132**	mg/L	25.0	25.0	1		03/14/19 17:50		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Boron	**0.19**	mg/L	0.050	0.025	1	03/20/19 17:00	03/21/19 21:39	7440-42-8	
Calcium	**6.2**	mg/L	0.10	0.050	1	03/20/19 17:00	03/21/19 21:39	7440-70-2	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**11.1**	mg/L	1.0	0.60	1		03/16/19 14:11	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		03/16/19 14:11	16984-48-8	
Sulfate	**43.5**	mg/L	1.0	0.50	1		03/16/19 14:11	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

QC Batch: 463574 Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 92421443001, 92421443002, 92421443004

METHOD BLANK: 2522019 Matrix: Water
Associated Lab Samples: 92421443001, 92421443002, 92421443004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	03/14/19 17:50	

LABORATORY CONTROL SAMPLE: 2522020

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	260	104	90-110	

SAMPLE DUPLICATE: 2523099

Parameter	Units	92421445002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	111	103	7	5	D6

SAMPLE DUPLICATE: 2523100

Parameter	Units	92421443002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	260	275	6	5	D6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

QC Batch: 463576 Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 92421443003

METHOD BLANK: 2522021 Matrix: Water
Associated Lab Samples: 92421443003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	03/18/19 16:08	

LABORATORY CONTROL SAMPLE: 2522022

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	262	105	90-110	

SAMPLE DUPLICATE: 2523124

Parameter	Units	92421440004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	337	519	43	5	D6

SAMPLE DUPLICATE: 2523128

Parameter	Units	92421450001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	132	144	9	5	D6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

QC Batch: 464195 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010 MET
Associated Lab Samples: 92421443001, 92421443002, 92421443003, 92421443004

METHOD BLANK: 2524554 Matrix: Water
Associated Lab Samples: 92421443001, 92421443002, 92421443003, 92421443004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	mg/L	ND	0.050	0.025	03/21/19 20:31	
Calcium	mg/L	ND	0.10	0.050	03/21/19 20:31	

LABORATORY CONTROL SAMPLE: 2524555

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	0.5	0.47	94	80-120	
Calcium	mg/L	5	4.6	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2524556 2524557

Parameter	Units	92421443002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.18	0.5	0.5	0.58	0.61	81	87	75-125	6	20	
Calcium	mg/L	22.3	5	5	26.6	28.1	86	116	75-125	5	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2524558 2524559

Parameter	Units	92421445002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	ND	0.5	0.5	0.38	0.42	74	83	75-125	11	20	M1
Calcium	mg/L	3.2	5	5	6.6	7.5	68	87	75-125	13	20	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

QC Batch: 463694 Analysis Method: EPA 300.0 Rev 2.1 1993
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 92421443001, 92421443002, 92421443003, 92421443004

METHOD BLANK: 2522484 Matrix: Water
Associated Lab Samples: 92421443001, 92421443002, 92421443003, 92421443004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	03/16/19 09:23	
Fluoride	mg/L	ND	0.10	0.050	03/16/19 09:23	
Sulfate	mg/L	ND	1.0	0.50	03/16/19 09:23	

LABORATORY CONTROL SAMPLE: 2522485

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	52.0	104	90-110	
Fluoride	mg/L	2.5	2.6	104	90-110	
Sulfate	mg/L	50	54.3	109	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2522486 2522487

Parameter	Units	92421443002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	16.2	50	50	68.8	69.6	105	107	90-110	1	10	
Fluoride	mg/L	0.12	2.5	2.5	3.0	3.1	115	118	90-110	2	10	M1
Sulfate	mg/L	44.4	50	50	97.9	98.9	107	109	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2522488 2522489

Parameter	Units	92421445002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.9	50	50	55.7	56.7	106	108	90-110	2	10	
Fluoride	mg/L	0.30	2.5	2.5	3.1	3.1	111	111	90-110	0	10	M1
Sulfate	mg/L	5.5	50	50	59.9	60.8	109	110	90-110	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-E	Pace Analytical Services - Eden

ANALYTE QUALIFIERS

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ABC CCR App III 1SA19 (B)
Pace Project No.: 92421443

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92421443001	**ABC-1608**	SM 2540C-2011	463574		
92421443002	**ABC-1614**	SM 2540C-2011	463574		
92421443003	**ABC-Duplicate**	SM 2540C-2011	463576		
92421443004	**ABC-1607**	SM 2540C-2011	463574		
92421443001	**ABC-1608**	EPA 3010A	464195	EPA 6010D	464603
92421443002	**ABC-1614**	EPA 3010A	464195	EPA 6010D	464603
92421443003	**ABC-Duplicate**	EPA 3010A	464195	EPA 6010D	464603
92421443004	**ABC-1607**	EPA 3010A	464195	EPA 6010D	464603
92421443001	**ABC-1608**	EPA 300.0 Rev 2.1 1993	463694		
92421443002	**ABC-1614**	EPA 300.0 Rev 2.1 1993	463694		
92421443003	**ABC-Duplicate**	EPA 300.0 Rev 2.1 1993	463694		
92421443004	**ABC-1607**	EPA 300.0 Rev 2.1 1993	463694		

Pace Analytical

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

WO# : 92421443

92421443

ALL SHADED AREAS are for LAB USE ONLY

Company: Golder Associates

Address: 2108 W. Laburnum Ave #200

Billing Information: 1662150.2000 Accounts Payable

Report To: A. Reynolds

Email To: areynolds@golder.com

Copy To: M. Williams

Site Collection Info/Address:

Customer Project Name/Number: ABC ~~APP III~~ (25A19) / 1662150.2000 ~~SECCR~~

State: VA / County/City: ~~Richmond~~ Dumfries

Time Zone Collected: [ ] PT [ ] MT [ ] CT [✓] ET

Phone: / Email: 804-358-7900

Site/Facility ID #: Possum Point Power Station

Compliance Monitoring? [✓] Yes [ ] No

Collected By (print): Michael Antal

Purchase Order #: / Quote #:

DW PWS ID #: / DW Location Code:

Collected By (signature): [signature]

Turnaround Date Required: Standard TAT

Immediately Packed on Ice: [✓] Yes [ ] No

Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: ______ [ ] Hold: ______

Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [✓] No

Analysis: ______

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: 1 | 1 | U | U | U | U

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other ______

Lab Project Manager:

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite ~~Start~~ END) Date	Time	~~Composite End~~ Date	Time	Res Cl	# of Ctns	Boron	Calcium	Chloride	Sulfate	Fluoride	TDS	Lab Sample # / Comments
~~ABC-1607~~ MA															
ABC-1608	GW	G	3/11/19	1147			N	3	X	X	X	X	X	X	*All samples preserved on ice* 001
ABC-1614	GW	G	3/11/19	1510			N	3	X	X	X	X	X	X	002
ABC-Duplicate	GW	G	3/11/19	1528			N	3	X	X	X	X	X	X	003
ABC-MS ~~/MSD~~ MA	GW	G	3/11/19	1510			N	3	X	X	X	X	X	X	
ABC-1607	GW	G	3/11/19	1105			N	3	X	X	X	X	X	X	004
ABC-MSD	GW	G	3/11/19	1510			N	3	X	X	X	X	X	X	

Lab Profile/Line:

Lab Sample Receipt Checklist:

- Custody Seals Present/Intact (Y) N NA
- Custody Signatures Present (Y) N NA
- Collector Signature Present (Y) N NA
- Bottles Intact (Y) N NA
- Correct Bottles (Y) N NA
- Sufficient Volume (Y) N NA
- Samples Received on Ice (Y) N NA
- VOA - Headspace Acceptable Y N (NA)
- USDA Regulated Soils Y N (NA)
- Samples in Holding Time (Y) N NA
- Residual Chlorine Present Y N NA
- Cl Strips: ______
- Sample pH Acceptable Y N NA
- pH Strips: ______
- Sulfide Present Y N NA
- Lead Acetate Strips: ______

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards: Level II Data Package

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2326425

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: T-3
Cooler 1 Temp Upon Receipt: 0.5 oC
Cooler 1 Therm Corr. Factor: -0.1 oC
Cooler 1 Corrected Temp: 0.4 oC
Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
[signature] / Golder	3/13/19 0845	[signature] / Golder	3/13/19 0845
[signature] / Golder	3/13/19 1400	Rachel Burruss	3-13-19 1400

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: 1 of: 1

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

April 17, 2019

Mike Williams
Golder Associates
2108 W Laburnum Ave
Suite 200
Richmond, VA 23227

RE: Project: PP Pond D FB App III (H)
Pace Project No.: 92421482

Dear Mike Williams:
Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Gasiorowski

Nicole Gasiorowski
nicole.gasiorowski@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Craig LaCosse, Golder Associates Inc.
Rachel Powell, Golder Associates
Amanda Reynolds, Golder Associates
Martha Smith, Golder Associates Inc.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: PP Pond D FB App III (H)
Pace Project No.: 92421482

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

Eden Certification IDs

205 East Meadow Road Suite A, Eden, NC 27288
North Carolina Drinking Water Certification #: 37738
North Carolina Wastewater Certification #: 633
Virginia/VELAP Certification #: 460025

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: PP Pond D FB App III (H)
Pace Project No.: 92421482

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92421482001	**Field Blank**	Water	03/12/19 10:45	03/13/19 14:00

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SAMPLE ANALYTE COUNT

Project: PP Pond D FB App III (H)
Pace Project No.: 92421482

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92421482001	**Field Blank**	SM 2540C-2011	SOB	1	PASI-E
		EPA 6010D	SH1	2	PASI-A
		EPA 300.0 Rev 2.1 1993	BRJ	3	PASI-A

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SUMMARY OF DETECTION

Project: PP Pond D FB App III (H)
Pace Project No.: 92421482

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92421482001	**Field Blank**					
SM 2540C-2011	Total Dissolved Solids	254	mg/L	25.0	03/18/19 16:33	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: PP Pond D FB App III (H)
Pace Project No.: 92421482

Sample: Field Blank **Lab ID: 92421482001** Collected: 03/12/19 10:45 Received: 03/13/19 14:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011								
Total Dissolved Solids	**254**	mg/L	25.0	25.0	1		03/18/19 16:33		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Boron	ND	mg/L	0.050	0.025	1	03/20/19 17:00	03/21/19 22:01	7440-42-8	
Calcium	ND	mg/L	0.10	0.050	1	03/20/19 17:00	03/21/19 22:01	7440-70-2	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	ND	mg/L	1.0	0.60	1		03/16/19 16:51	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		03/16/19 16:51	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		03/16/19 16:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PP Pond D FB App III (H)
Pace Project No.: 92421482

QC Batch: 463576 Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 92421482001

METHOD BLANK: 2522021 Matrix: Water
Associated Lab Samples: 92421482001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	03/18/19 16:08	

LABORATORY CONTROL SAMPLE: 2522022

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	262	105	90-110	

SAMPLE DUPLICATE: 2523124

Parameter	Units	92421440004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	337	519	43	5	D6

SAMPLE DUPLICATE: 2523128

Parameter	Units	92421450001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	132	144	9	5	D6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP Pond D FB App III (H)
Pace Project No.: 92421482

QC Batch: 464195 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010 MET
Associated Lab Samples: 92421482001

METHOD BLANK: 2524554 Matrix: Water
Associated Lab Samples: 92421482001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	mg/L	ND	0.050	0.025	03/21/19 20:31	
Calcium	mg/L	ND	0.10	0.050	03/21/19 20:31	

LABORATORY CONTROL SAMPLE: 2524555

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	0.5	0.47	94	80-120	
Calcium	mg/L	5	4.6	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2524556 2524557

Parameter	Units	92421443002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.18	0.5	0.5	0.58	0.61	81	87	75-125	6	20	
Calcium	mg/L	22.3	5	5	26.6	28.1	86	116	75-125	5	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2524558 2524559

Parameter	Units	92421445002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	ND	0.5	0.5	0.38	0.42	74	83	75-125	11	20	M1
Calcium	mg/L	3.2	5	5	6.6	7.5	68	87	75-125	13	20	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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(704)875-9092

QUALITY CONTROL DATA

Project: PP Pond D FB App III (H)
Pace Project No.: 92421482

QC Batch: 463694 Analysis Method: EPA 300.0 Rev 2.1 1993
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 92421482001

METHOD BLANK: 2522484 Matrix: Water
Associated Lab Samples: 92421482001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	03/16/19 09:23	
Fluoride	mg/L	ND	0.10	0.050	03/16/19 09:23	
Sulfate	mg/L	ND	1.0	0.50	03/16/19 09:23	

LABORATORY CONTROL SAMPLE: 2522485

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	52.0	104	90-110	
Fluoride	mg/L	2.5	2.6	104	90-110	
Sulfate	mg/L	50	54.3	109	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2522486 2522487

Parameter	Units	92421443002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	16.2	50	50	68.8	69.6	105	107	90-110	1	10	
Fluoride	mg/L	0.12	2.5	2.5	3.0	3.1	115	118	90-110	2	10	M1
Sulfate	mg/L	44.4	50	50	97.9	98.9	107	109	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2522488 2522489

Parameter	Units	92421445002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.9	50	50	55.7	56.7	106	108	90-110	2	10	
Fluoride	mg/L	0.30	2.5	2.5	3.1	3.1	111	111	90-110	0	10	M1
Sulfate	mg/L	5.5	50	50	59.9	60.8	109	110	90-110	1	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: PP Pond D FB App III (H)
Pace Project No.: 92421482

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-E	Pace Analytical Services - Eden

ANALYTE QUALIFIERS

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PP Pond D FB App III (H)
Pace Project No.: 92421482

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92421482001	**Field Blank**	SM 2540C-2011	463576		
92421482001	**Field Blank**	EPA 3010A	464195	EPA 6010D	464603
92421482001	**Field Blank**	EPA 300.0 Rev 2.1 1993	463694		

WO# : 92421482

92421482

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorde

ALL SHADED

Company: Golder Associates Inc.	Billing Information: 19117220.2004 Accounts Billable
Address: 2108 W. Laburnum Ave, Suite 200	
Report To: A. Reynolds	Email To: A-Reynolds
Copy To: M. Williams	Site Collection Info/Address:
Customer Project Name/Number: ISA19 Pond D CCR / App. III 19117220.2004	State: VA / County/City: Dumfries Time Zone Collected: [ ] PT [ ] MT [ ] CT [X] ET
Phone: (804) 358-7900 Email:	Site/Facility ID #: Possum Point Power Station
Collected By (print): M. Taylor	Purchase Order #: Quote #:
Collected By (signature): M. Taylor	Turnaround Date Required: Standard TAT
Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)

Compliance Monitoring? [X] Yes [ ] No

DW PWS ID #: DW Location Code:

Immediately Packed on Ice: [X] Yes [ ] No

Field Filtered (if applicable): [ ] Yes [X] No

Analysis: _____

Container Preservative Type **: 1 1 U U U U

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Boron	Calcium	Chloride	Sulfate	Fluoride	total dissolved solids	Lab Sample # / Comments
Field Blank	GW	G	———	MT	3/12/19	1045	N	3	X	X	X	X	X	X	001

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	(Y)	N	NA
Custody Signatures Present	(Y)	N	NA
Collector Signature Present	(Y)	N	NA
Bottles Intact	(Y)	N	NA
Correct Bottles	(Y)	N	NA
Sufficient Volume	(Y)	N	NA
Samples Received on Ice	(Y)	N	NA
VOA - Headspace Acceptable	Y	N	(NA)
USDA Regulated Soils	Y	N	(NA)
Samples in Holding Time	(Y)	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips: _____			
Sample pH Acceptable	Y	N	NA
pH Strips: _____			
Sulfide Present	Y	N	NA
Lead Acetate Strips: _____			

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:
Level ~~III~~ Data Package

* all samples preserved on ice *

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2326437

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: T-3
Cooler 1 Temp Upon Receipt: 0.5 oC
Cooler 1 Therm Corr. Factor: 0.1 oC
Cooler 1 Corrected Temp: 0.4 oC
Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Morgan Murphy / Golder	3-13-19 0845	[signature] / Golder	3/13/19 0845
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
[signature] / Golder	3/13/19 1400	Rachel Burruss	3-13-19 1400
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: 1 of: 1

APPENDIX E.2
LABORATORY ANALYTICAL RESULTS
2ND SEMI-ANNUAL GROUNDWATER MONITORING EVENT (AUGUST 2019)

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

September 24, 2019

Mike Williams
Golder Associates
2108 W Laburnum Ave
Suite 200
Richmond, VA 23227

RE: Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Dear Mike Williams:
Enclosed are the analytical results for sample(s) received by the laboratory on August 29, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Gasiorowski

Nicole Gasiorowski
nicole.gasiorowski@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Craig LaCosse, Golder Associates Inc.
Rachel Powell, Golder Associates
Amanda Reynolds, Golder Associates
Martha Smith, Golder Associates Inc.

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
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CERTIFICATIONS

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812
North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Florida: Cert E871149 SEKS WET
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

Eden Certification IDs

205 East Meadow Road Suite A, Eden, NC 27288
North Carolina Drinking Water Certification #: 37738
North Carolina Wastewater Certification #: 633
Virginia/VELAP Certification #: 460025

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92443549001	**ABC-1602**	Water	08/29/19 08:57	08/29/19 13:40
92443549002	**ABC-1607**	Water	08/28/19 11:57	08/29/19 13:40
92443549003	**ABC-1608**	Water	08/28/19 13:11	08/29/19 13:40
92443549004	**ABC-1614**	Water	08/28/19 13:02	08/29/19 13:40
92443549005	**ABC-Duplicate**	Water	08/28/19 12:17	08/29/19 13:40

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92443549001	**ABC-1602**	SM 2540C-2011	SAM1	1	PASI-E
		EPA 6010D	SH1	16	PASI-A
		EPA 6020B	JOR	9	PASI-A
		EPA 7470A	RDT	1	PASI-A
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9065	MWB	1	PASI-GA
		EPA 9056A	CDC	3	PASI-A
		EPA 9060A	ECH	5	PASI-A
92443549002	**ABC-1607**	SM 2540C-2011	SAM1	1	PASI-E
		EPA 6010D	SH1	16	PASI-A
		EPA 6020B	JOR	9	PASI-A
		EPA 7470A	RDT	1	PASI-A
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9065	MWB	1	PASI-GA
		EPA 9056A	CDC	3	PASI-A
		EPA 9060A	ECH	5	PASI-A
92443549003	**ABC-1608**	SM 2540C-2011	SAM1	1	PASI-E
		EPA 6010D	SH1	16	PASI-A
		EPA 6020B	JOR	9	PASI-A
		EPA 7470A	RDT	1	PASI-A
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9065	MWB	1	PASI-GA
		EPA 9056A	CDC	3	PASI-A
		EPA 9060A	ECH	5	PASI-A
92443549004	**ABC-1614**	SM 2540C-2011	SAM1	1	PASI-E
		EPA 6010D	SH1	16	PASI-A
		EPA 6020B	JOR	9	PASI-A
		EPA 7470A	RDT	1	PASI-A
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9065	MWB	1	PASI-GA
		EPA 9056A	CDC	3	PASI-A
		EPA 9060A	ECH	5	PASI-A
92443549005	**ABC-Duplicate**	SM 2540C-2011	SAM1	1	PASI-E
		EPA 6010D	SH1	16	PASI-A
		EPA 6020B	JOR	9	PASI-A
		EPA 7470A	RDT	1	PASI-A
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9065	MWB	1	PASI-GA
		EPA 9056A	CDC	3	PASI-A
		EPA 9060A	ECH	5	PASI-A

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SUMMARY OF DETECTION

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92443549001	**ABC-1602**					
SM 2540C-2011	Total Dissolved Solids	144	mg/L	25.0	08/30/19 14:04	
EPA 6010D	Barium	62.1	ug/L	5.0	09/06/19 23:30	
EPA 6010D	Beryllium	0.60J	ug/L	1.0	09/07/19 13:09	
EPA 6010D	Boron	0.0088J	mg/L	0.050	09/06/19 23:30	
EPA 6010D	Calcium	5.9	mg/L	0.10	09/06/19 23:30	
EPA 6010D	Copper	4.9J	ug/L	5.0	09/06/19 23:30	
EPA 6010D	Nickel	6.2	ug/L	5.0	09/06/19 23:30	
EPA 6010D	Hardness, Total(SM 2340B)	29700	ug/L	662	09/07/19 13:09	
EPA 6020B	Cobalt	11.1	ug/L	0.10	09/07/19 09:23	
EPA 6020B	Iron	280	ug/L	50.0	09/07/19 09:23	
EPA 6020B	Lead	0.19	ug/L	0.10	09/07/19 09:23	
EPA 6020B	Lithium	9.4	ug/L	2.5	09/07/19 09:23	
EPA 6020B	Manganese	166	ug/L	0.50	09/07/19 09:23	
EPA 6020B	Potassium	5470	ug/L	50.0	09/07/19 09:23	M1
EPA 6020B	Sodium	7410	ug/L	250	09/07/19 09:23	M1
EPA 9315	Radium-226	0.517 ± 0.288 (0.438) C:48% T:NA	pCi/L		09/20/19 11:45	
EPA 9320	Radium-228	1.35 ± 0.473 (0.685) C:81% T:87%	pCi/L		09/20/19 10:28	
Total Radium Calculation	Total Radium	1.87 ± 0.761 (1.12)	pCi/L		09/23/19 11:58	
EPA 9056A	Chloride	2.8	mg/L	1.0	09/03/19 22:21	M1, R1
EPA 9056A	Sulfate	41.4	mg/L	1.0	09/03/19 22:21	M1, R1
92443549002	**ABC-1607**					
SM 2540C-2011	Total Dissolved Solids	118	mg/L	25.0	08/30/19 14:04	
EPA 6010D	Barium	54.1	ug/L	5.0	09/06/19 23:39	
EPA 6010D	Boron	0.19	mg/L	0.050	09/06/19 23:39	
EPA 6010D	Calcium	6.6	mg/L	0.10	09/06/19 23:39	
EPA 6010D	Molybdenum	1.0J	ug/L	5.0	09/06/19 23:39	
EPA 6010D	Nickel	10	ug/L	5.0	09/06/19 23:39	
EPA 6010D	Hardness, Total(SM 2340B)	30800	ug/L	662	09/06/19 23:39	
EPA 6010D	Zinc	19.5	ug/L	10.0	09/06/19 23:39	
EPA 6020B	Cobalt	8.1	ug/L	0.10	09/07/19 10:03	
EPA 6020B	Iron	1350	ug/L	50.0	09/07/19 10:03	
EPA 6020B	Lead	0.085J	ug/L	0.10	09/07/19 10:03	
EPA 6020B	Lithium	4.6	ug/L	2.5	09/07/19 10:03	
EPA 6020B	Manganese	170	ug/L	0.50	09/07/19 10:03	
EPA 6020B	Potassium	1910	ug/L	50.0	09/07/19 10:03	
EPA 6020B	Sodium	14200	ug/L	2500	09/09/19 23:58	
EPA 9315	Radium-226	0.620 ± 0.226 (0.256) C:90% T:NA	pCi/L		09/20/19 15:10	

REPORT OF LABORATORY ANALYSIS

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(704)875-9092

SUMMARY OF DETECTION

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92443549002	**ABC-1607**					
EPA 9320	Radium-228	0.959 ± 0.400 (0.647) C:82% T:91%	pCi/L		09/20/19 10:28	
Total Radium Calculation	Total Radium	1.58 ± 0.626 (0.903)	pCi/L		09/23/19 11:58	
EPA 9056A	Chloride	12.2	mg/L	1.0	09/03/19 23:04	
EPA 9056A	Sulfate	30.9	mg/L	1.0	09/03/19 23:04	
EPA 9060A	Total Organic Carbon	20.3	mg/L	1.0	09/06/19 13:21	M1
EPA 9060A	Total Organic Carbon	19.5	mg/L	1.0	09/06/19 13:21	M1
EPA 9060A	Total Organic Carbon	19.8	mg/L	1.0	09/06/19 13:21	M1
EPA 9060A	Total Organic Carbon	19.9	mg/L	1.0	09/06/19 13:21	M1
EPA 9060A	Mean Total Organic Carbon	19.9	mg/L	1.0	09/06/19 13:21	M1
92443549003	**ABC-1608**					
SM 2540C-2011	Total Dissolved Solids	237	mg/L	25.0	08/30/19 14:04	
EPA 6010D	Barium	66.2	ug/L	5.0	09/06/19 23:42	
EPA 6010D	Boron	0.22	mg/L	0.050	09/06/19 23:42	
EPA 6010D	Calcium	19.6	mg/L	0.10	09/06/19 23:42	
EPA 6010D	Molybdenum	1.7J	ug/L	5.0	09/06/19 23:42	
EPA 6010D	Nickel	17.9	ug/L	5.0	09/06/19 23:42	
EPA 6010D	Hardness, Total(SM 2340B)	85500	ug/L	662	09/06/19 23:42	
EPA 6010D	Vanadium	1.9J	ug/L	5.0	09/06/19 23:42	
EPA 6010D	Zinc	12.2	ug/L	10.0	09/06/19 23:42	
EPA 6020B	Cobalt	22.5	ug/L	0.10	09/07/19 10:11	
EPA 6020B	Iron	5780	ug/L	50.0	09/07/19 10:11	
EPA 6020B	Lead	0.056J	ug/L	0.10	09/07/19 10:11	
EPA 6020B	Lithium	14.2	ug/L	2.5	09/07/19 10:11	
EPA 6020B	Manganese	152	ug/L	0.50	09/07/19 10:11	
EPA 6020B	Potassium	3830	ug/L	50.0	09/07/19 10:11	
EPA 6020B	Sodium	36800	ug/L	2500	09/10/19 00:02	
EPA 9315	Radium-226	0.703 ± 0.247 (0.269) C:90% T:NA	pCi/L		09/20/19 11:45	
EPA 9320	Radium-228	0.885 ± 0.390 (0.643) C:78% T:92%	pCi/L		09/20/19 10:28	
Total Radium Calculation	Total Radium	1.59 ± 0.637 (0.912)	pCi/L		09/23/19 11:58	
EPA 9056A	Chloride	52.8	mg/L	1.0	09/03/19 23:19	
EPA 9056A	Fluoride	0.064J	mg/L	0.10	09/03/19 23:19	
EPA 9056A	Sulfate	27.8	mg/L	1.0	09/03/19 23:19	
EPA 9060A	Total Organic Carbon	0.93J	mg/L	1.0	09/06/19 09:05	
EPA 9060A	Total Organic Carbon	1.1	mg/L	1.0	09/06/19 09:05	
EPA 9060A	Total Organic Carbon	0.94J	mg/L	1.0	09/06/19 09:05	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92443549003	**ABC-1608**					
EPA 9060A	Total Organic Carbon	0.94J	mg/L	1.0	09/06/19 09:05	
EPA 9060A	Mean Total Organic Carbon	0.97J	mg/L	1.0	09/06/19 09:05	
92443549004	**ABC-1614**					
SM 2540C-2011	Total Dissolved Solids	284	mg/L	33.3	08/30/19 14:04	
EPA 6010D	Arsenic	30.1	ug/L	10.0	09/06/19 23:46	
EPA 6010D	Barium	211	ug/L	5.0	09/06/19 23:46	
EPA 6010D	Boron	0.24	mg/L	0.050	09/06/19 23:46	
EPA 6010D	Calcium	35.0	mg/L	0.10	09/06/19 23:46	
EPA 6010D	Molybdenum	1.6J	ug/L	5.0	09/06/19 23:46	
EPA 6010D	Nickel	15.5	ug/L	5.0	09/06/19 23:46	
EPA 6010D	Hardness, Total(SM 2340B)	135000	ug/L	662	09/06/19 23:46	
EPA 6010D	Vanadium	2.3J	ug/L	5.0	09/06/19 23:46	
EPA 6010D	Zinc	5.5J	ug/L	10.0	09/06/19 23:46	
EPA 6020B	Cobalt	21.1	ug/L	0.10	09/07/19 10:18	
EPA 6020B	Iron	32800	ug/L	50.0	09/07/19 10:18	
EPA 6020B	Lead	0.50	ug/L	0.10	09/07/19 10:18	
EPA 6020B	Lithium	17.5	ug/L	2.5	09/07/19 10:18	
EPA 6020B	Manganese	348	ug/L	0.50	09/07/19 10:18	
EPA 6020B	Potassium	4250	ug/L	50.0	09/07/19 10:18	
EPA 6020B	Sodium	30300	ug/L	2500	09/10/19 00:06	
EPA 9315	Radium-226	0.511 ± 0.224 (0.265) C:69% T:NA	pCi/L		09/20/19 11:45	
EPA 9320	Radium-228	1.05 ± 0.468 (0.785) C:84% T:81%	pCi/L		09/20/19 13:42	
Total Radium Calculation	Total Radium	1.56 ± 0.692 (1.05)	pCi/L		09/23/19 11:58	
EPA 9056A	Chloride	17.2	mg/L	1.0	09/04/19 23:49	
EPA 9056A	Fluoride	0.11	mg/L	0.10	09/04/19 23:49	
EPA 9056A	Sulfate	38.5	mg/L	1.0	09/04/19 23:49	
EPA 9060A	Total Organic Carbon	3.1	mg/L	1.0	09/06/19 09:34	
EPA 9060A	Total Organic Carbon	3.2	mg/L	1.0	09/06/19 09:34	
EPA 9060A	Total Organic Carbon	3.1	mg/L	1.0	09/06/19 09:34	
EPA 9060A	Total Organic Carbon	3.0	mg/L	1.0	09/06/19 09:34	
EPA 9060A	Mean Total Organic Carbon	3.1	mg/L	1.0	09/06/19 09:34	
92443549005	**ABC-Duplicate**					
SM 2540C-2011	Total Dissolved Solids	120	mg/L	25.0	08/30/19 14:04	
EPA 6010D	Barium	54.5	ug/L	5.0	09/06/19 23:49	
EPA 6010D	Boron	0.20	mg/L	0.050	09/06/19 23:49	
EPA 6010D	Calcium	6.7	mg/L	0.10	09/06/19 23:49	
EPA 6010D	Nickel	10.2	ug/L	5.0	09/06/19 23:49	
EPA 6010D	Hardness, Total(SM 2340B)	31100	ug/L	662	09/06/19 23:49	
EPA 6010D	Vanadium	1.3J	ug/L	5.0	09/06/19 23:49	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92443549005	**ABC-Duplicate**					
EPA 6010D	Zinc	18.5	ug/L	10.0	09/06/19 23:49	
EPA 6020B	Cobalt	8.0	ug/L	0.10	09/07/19 10:26	
EPA 6020B	Iron	768	ug/L	50.0	09/07/19 10:26	
EPA 6020B	Lithium	4.4	ug/L	2.5	09/07/19 10:26	
EPA 6020B	Manganese	166	ug/L	0.50	09/07/19 10:26	
EPA 6020B	Potassium	1880	ug/L	50.0	09/07/19 10:26	
EPA 6020B	Sodium	15200	ug/L	2500	09/10/19 00:09	
EPA 9315	Radium-226	0.548 ± 0.226 (0.271) C:76% T:NA	pCi/L		09/20/19 11:45	
EPA 9320	Radium-228	0.613 ± 0.370 (0.692) C:83% T:93%	pCi/L		09/20/19 13:42	
Total Radium Calculation	Total Radium	1.16 ± 0.596 (0.963)	pCi/L		09/23/19 11:58	
EPA 9056A	Chloride	13.1	mg/L	1.0	09/05/19 00:03	
EPA 9056A	Sulfate	34.7	mg/L	1.0	09/05/19 00:03	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-1602 **Lab ID: 92443549001** Collected: 08/29/19 08:57 Received: 08/29/19 13:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011								
Total Dissolved Solids	**144**	mg/L	25.0	25.0	1		08/30/19 14:04		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Antimony	ND	ug/L	5.0	3.0	1	09/05/19 18:53	09/06/19 23:30	7440-36-0	
Arsenic	ND	ug/L	10.0	4.7	1	09/05/19 18:53	09/06/19 23:30	7440-38-2	
Barium	**62.1**	ug/L	5.0	1.0	1	09/05/19 18:53	09/06/19 23:30	7440-39-3	
Beryllium	**0.60J**	ug/L	1.0	0.50	1	09/05/19 18:53	09/07/19 13:09	7440-41-7	
Boron	**0.0088J**	mg/L	0.050	0.0066	1	09/05/19 18:53	09/06/19 23:30	7440-42-8	
Cadmium	ND	ug/L	1.0	0.40	1	09/05/19 18:53	09/06/19 23:30	7440-43-9	
Calcium	**5.9**	mg/L	0.10	0.024	1	09/05/19 18:53	09/06/19 23:30	7440-70-2	
Chromium	ND	ug/L	5.0	1.0	1	09/05/19 18:53	09/06/19 23:30	7440-47-3	
Copper	**4.9J**	ug/L	5.0	2.1	1	09/05/19 18:53	09/06/19 23:30	7440-50-8	
Molybdenum	ND	ug/L	5.0	0.90	1	09/05/19 18:53	09/06/19 23:30	7439-98-7	
Nickel	**6.2**	ug/L	5.0	0.90	1	09/05/19 18:53	09/06/19 23:30	7440-02-0	
Selenium	ND	ug/L	10.0	4.7	1	09/05/19 18:53	09/06/19 23:30	7782-49-2	
Silver	ND	ug/L	5.0	2.5	1	09/05/19 18:53	09/06/19 23:30	7440-22-4	
Hardness, Total(SM 2340B)	**29700**	ug/L	662	662	1	09/05/19 18:53	09/07/19 13:09		
Vanadium	ND	ug/L	5.0	1.3	1	09/05/19 18:53	09/06/19 23:30	7440-62-2	
Zinc	ND	ug/L	10.0	3.9	1	09/05/19 18:53	09/06/19 23:30	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Cobalt	**11.1**	ug/L	0.10	0.050	1	09/05/19 18:53	09/07/19 09:23	7440-48-4	
Iron	**280**	ug/L	50.0	7.5	1	09/05/19 18:53	09/07/19 09:23	7439-89-6	
Lead	**0.19**	ug/L	0.10	0.050	1	09/05/19 18:53	09/07/19 09:23	7439-92-1	
Lithium	**9.4**	ug/L	2.5	0.42	1	09/05/19 18:53	09/07/19 09:23	7439-93-2	
Manganese	**166**	ug/L	0.50	0.14	1	09/05/19 18:53	09/07/19 09:23	7439-96-5	
Potassium	**5470**	ug/L	50.0	6.2	1	09/05/19 18:53	09/07/19 09:23	7440-09-7	M1
Sodium	**7410**	ug/L	250	14.3	1	09/05/19 18:53	09/07/19 09:23	7440-23-5	M1
Thallium	ND	ug/L	0.10	0.060	1	09/05/19 18:53	09/07/19 09:23	7440-28-0	
Tin	ND	ug/L	0.50	0.090	1	09/05/19 18:53	09/07/19 09:23	7440-31-5	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	ug/L	0.20	0.10	1	09/11/19 10:47	09/11/19 14:59	7439-97-6	
9065 Phenolics, Total	Analytical Method: EPA 9065 Preparation Method: EPA 9065								
Phenolics, Total Recoverable	ND	mg/L	0.050	0.050	1	09/06/19 15:50	09/06/19 19:56	64743-03-9	
9056 IC anions 28 Days	Analytical Method: EPA 9056A								
Chloride	**2.8**	mg/L	1.0	0.60	1		09/03/19 22:21	16887-00-6	M1,R1
Fluoride	ND	mg/L	0.10	0.050	1		09/03/19 22:21	16984-48-8	M1,R1
Sulfate	**41.4**	mg/L	1.0	0.50	1		09/03/19 22:21	14808-79-8	M1,R1
Total Organic Carbon,Asheville	Analytical Method: EPA 9060A								
Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 07:05	7440-44-0	
Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 07:05	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(704)875-9092

ANALYTICAL RESULTS

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-1602 **Lab ID: 92443549001** Collected: 08/29/19 08:57 Received: 08/29/19 13:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon,Asheville	Analytical Method: EPA 9060A								
Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 07:05	7440-44-0	
Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 07:05	7440-44-0	
Mean Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 07:05	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-1607 **Lab ID: 92443549002** Collected: 08/28/19 11:57 Received: 08/29/19 13:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011								
Total Dissolved Solids	**118**	mg/L	25.0	25.0	1		08/30/19 14:04		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Antimony	ND	ug/L	5.0	3.0	1	09/05/19 18:53	09/06/19 23:39	7440-36-0	
Arsenic	ND	ug/L	10.0	4.7	1	09/05/19 18:53	09/06/19 23:39	7440-38-2	
Barium	**54.1**	ug/L	5.0	1.0	1	09/05/19 18:53	09/06/19 23:39	7440-39-3	
Beryllium	ND	ug/L	1.0	0.50	1	09/05/19 18:53	09/07/19 13:24	7440-41-7	
Boron	**0.19**	mg/L	0.050	0.0066	1	09/05/19 18:53	09/06/19 23:39	7440-42-8	
Cadmium	ND	ug/L	1.0	0.40	1	09/05/19 18:53	09/06/19 23:39	7440-43-9	
Calcium	**6.6**	mg/L	0.10	0.024	1	09/05/19 18:53	09/06/19 23:39	7440-70-2	
Chromium	ND	ug/L	5.0	1.0	1	09/05/19 18:53	09/06/19 23:39	7440-47-3	
Copper	ND	ug/L	5.0	2.1	1	09/05/19 18:53	09/06/19 23:39	7440-50-8	
Molybdenum	**1.0J**	ug/L	5.0	0.90	1	09/05/19 18:53	09/06/19 23:39	7439-98-7	
Nickel	**10**	ug/L	5.0	0.90	1	09/05/19 18:53	09/06/19 23:39	7440-02-0	
Selenium	ND	ug/L	10.0	4.7	1	09/05/19 18:53	09/06/19 23:39	7782-49-2	
Silver	ND	ug/L	5.0	2.5	1	09/05/19 18:53	09/06/19 23:39	7440-22-4	
Hardness, Total(SM 2340B)	**30800**	ug/L	662	131	1	09/05/19 18:53	09/06/19 23:39		
Vanadium	ND	ug/L	5.0	1.3	1	09/05/19 18:53	09/06/19 23:39	7440-62-2	
Zinc	**19.5**	ug/L	10.0	3.9	1	09/05/19 18:53	09/06/19 23:39	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Cobalt	**8.1**	ug/L	0.10	0.050	1	09/05/19 18:53	09/07/19 10:03	7440-48-4	
Iron	**1350**	ug/L	50.0	7.5	1	09/05/19 18:53	09/07/19 10:03	7439-89-6	
Lead	**0.085J**	ug/L	0.10	0.050	1	09/05/19 18:53	09/07/19 10:03	7439-92-1	
Lithium	**4.6**	ug/L	2.5	0.42	1	09/05/19 18:53	09/07/19 10:03	7439-93-2	
Manganese	**170**	ug/L	0.50	0.14	1	09/05/19 18:53	09/07/19 10:03	7439-96-5	
Potassium	**1910**	ug/L	50.0	6.2	1	09/05/19 18:53	09/07/19 10:03	7440-09-7	
Sodium	**14200**	ug/L	2500	143	10	09/05/19 18:53	09/09/19 23:58	7440-23-5	
Thallium	ND	ug/L	0.10	0.060	1	09/05/19 18:53	09/07/19 10:03	7440-28-0	
Tin	ND	ug/L	0.50	0.090	1	09/05/19 18:53	09/07/19 10:03	7440-31-5	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	ug/L	0.20	0.10	1	09/11/19 10:47	09/11/19 15:37	7439-97-6	
9065 Phenolics, Total	Analytical Method: EPA 9065 Preparation Method: EPA 9065								
Phenolics, Total Recoverable	ND	mg/L	0.050	0.050	1	09/06/19 15:50	09/06/19 19:57	64743-03-9	
9056 IC anions 28 Days	Analytical Method: EPA 9056A								
Chloride	**12.2**	mg/L	1.0	0.60	1		09/03/19 23:04	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/03/19 23:04	16984-48-8	
Sulfate	**30.9**	mg/L	1.0	0.50	1		09/03/19 23:04	14808-79-8	
Total Organic Carbon,Asheville	Analytical Method: EPA 9060A								
Total Organic Carbon	**20.3**	mg/L	1.0	0.50	1		09/06/19 13:21	7440-44-0	M1
Total Organic Carbon	**19.5**	mg/L	1.0	0.50	1		09/06/19 13:21	7440-44-0	M1

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-1607 **Lab ID: 92443549002** Collected: 08/28/19 11:57 Received: 08/29/19 13:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon,Asheville	Analytical Method: EPA 9060A								
Total Organic Carbon	**19.8**	mg/L	1.0	0.50	1		09/06/19 13:21	7440-44-0	M1
Total Organic Carbon	**19.9**	mg/L	1.0	0.50	1		09/06/19 13:21	7440-44-0	M1
Mean Total Organic Carbon	**19.9**	mg/L	1.0	0.50	1		09/06/19 13:21	7440-44-0	M1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-1608 **Lab ID: 92443549003** Collected: 08/28/19 13:11 Received: 08/29/19 13:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011								
Total Dissolved Solids	**237**	mg/L	25.0	25.0	1		08/30/19 14:04		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Antimony	ND	ug/L	5.0	3.0	1	09/05/19 18:53	09/06/19 23:42	7440-36-0	
Arsenic	ND	ug/L	10.0	4.7	1	09/05/19 18:53	09/06/19 23:42	7440-38-2	
Barium	**66.2**	ug/L	5.0	1.0	1	09/05/19 18:53	09/06/19 23:42	7440-39-3	
Beryllium	ND	ug/L	1.0	0.50	1	09/05/19 18:53	09/07/19 13:27	7440-41-7	
Boron	**0.22**	mg/L	0.050	0.0066	1	09/05/19 18:53	09/06/19 23:42	7440-42-8	
Cadmium	ND	ug/L	1.0	0.40	1	09/05/19 18:53	09/06/19 23:42	7440-43-9	
Calcium	**19.6**	mg/L	0.10	0.024	1	09/05/19 18:53	09/06/19 23:42	7440-70-2	
Chromium	ND	ug/L	5.0	1.0	1	09/05/19 18:53	09/06/19 23:42	7440-47-3	
Copper	ND	ug/L	5.0	2.1	1	09/05/19 18:53	09/06/19 23:42	7440-50-8	
Molybdenum	**1.7J**	ug/L	5.0	0.90	1	09/05/19 18:53	09/06/19 23:42	7439-98-7	
Nickel	**17.9**	ug/L	5.0	0.90	1	09/05/19 18:53	09/06/19 23:42	7440-02-0	
Selenium	ND	ug/L	10.0	4.7	1	09/05/19 18:53	09/06/19 23:42	7782-49-2	
Silver	ND	ug/L	5.0	2.5	1	09/05/19 18:53	09/06/19 23:42	7440-22-4	
Hardness, Total(SM 2340B)	**85500**	ug/L	662	131	1	09/05/19 18:53	09/06/19 23:42		
Vanadium	**1.9J**	ug/L	5.0	1.3	1	09/05/19 18:53	09/06/19 23:42	7440-62-2	
Zinc	**12.2**	ug/L	10.0	3.9	1	09/05/19 18:53	09/06/19 23:42	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Cobalt	**22.5**	ug/L	0.10	0.050	1	09/05/19 18:53	09/07/19 10:11	7440-48-4	
Iron	**5780**	ug/L	50.0	7.5	1	09/05/19 18:53	09/07/19 10:11	7439-89-6	
Lead	**0.056J**	ug/L	0.10	0.050	1	09/05/19 18:53	09/07/19 10:11	7439-92-1	
Lithium	**14.2**	ug/L	2.5	0.42	1	09/05/19 18:53	09/07/19 10:11	7439-93-2	
Manganese	**152**	ug/L	0.50	0.14	1	09/05/19 18:53	09/07/19 10:11	7439-96-5	
Potassium	**3830**	ug/L	50.0	6.2	1	09/05/19 18:53	09/07/19 10:11	7440-09-7	
Sodium	**36800**	ug/L	2500	143	10	09/05/19 18:53	09/10/19 00:02	7440-23-5	
Thallium	ND	ug/L	0.10	0.060	1	09/05/19 18:53	09/07/19 10:11	7440-28-0	
Tin	ND	ug/L	0.50	0.090	1	09/05/19 18:53	09/07/19 10:11	7440-31-5	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	ug/L	0.20	0.10	1	09/11/19 10:47	09/11/19 15:39	7439-97-6	
9065 Phenolics, Total	Analytical Method: EPA 9065 Preparation Method: EPA 9065								
Phenolics, Total Recoverable	ND	mg/L	0.050	0.050	1	09/06/19 15:50	09/06/19 19:57	64743-03-9	
9056 IC anions 28 Days	Analytical Method: EPA 9056A								
Chloride	**52.8**	mg/L	1.0	0.60	1		09/03/19 23:19	16887-00-6	
Fluoride	**0.064J**	mg/L	0.10	0.050	1		09/03/19 23:19	16984-48-8	
Sulfate	**27.8**	mg/L	1.0	0.50	1		09/03/19 23:19	14808-79-8	
Total Organic Carbon,Asheville	Analytical Method: EPA 9060A								
Total Organic Carbon	**0.93J**	mg/L	1.0	0.50	1		09/06/19 09:05	7440-44-0	
Total Organic Carbon	**1.1**	mg/L	1.0	0.50	1		09/06/19 09:05	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-1608 **Lab ID: 92443549003** Collected: 08/28/19 13:11 Received: 08/29/19 13:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon,Asheville	Analytical Method: EPA 9060A								
Total Organic Carbon	**0.94J**	mg/L	1.0	0.50	1		09/06/19 09:05	7440-44-0	
Total Organic Carbon	**0.94J**	mg/L	1.0	0.50	1		09/06/19 09:05	7440-44-0	
Mean Total Organic Carbon	**0.97J**	mg/L	1.0	0.50	1		09/06/19 09:05	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-1614 **Lab ID: 92443549004** Collected: 08/28/19 13:02 Received: 08/29/19 13:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011								
Total Dissolved Solids	**284**	mg/L	33.3	33.3	1		08/30/19 14:04		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Antimony	ND	ug/L	5.0	3.0	1	09/05/19 18:53	09/06/19 23:46	7440-36-0	
Arsenic	**30.1**	ug/L	10.0	4.7	1	09/05/19 18:53	09/06/19 23:46	7440-38-2	
Barium	**211**	ug/L	5.0	1.0	1	09/05/19 18:53	09/06/19 23:46	7440-39-3	
Beryllium	ND	ug/L	1.0	0.50	1	09/05/19 18:53	09/07/19 13:30	7440-41-7	
Boron	**0.24**	mg/L	0.050	0.0066	1	09/05/19 18:53	09/06/19 23:46	7440-42-8	
Cadmium	ND	ug/L	1.0	0.40	1	09/05/19 18:53	09/06/19 23:46	7440-43-9	
Calcium	**35.0**	mg/L	0.10	0.024	1	09/05/19 18:53	09/06/19 23:46	7440-70-2	
Chromium	ND	ug/L	5.0	1.0	1	09/05/19 18:53	09/06/19 23:46	7440-47-3	
Copper	ND	ug/L	5.0	2.1	1	09/05/19 18:53	09/06/19 23:46	7440-50-8	
Molybdenum	**1.6J**	ug/L	5.0	0.90	1	09/05/19 18:53	09/06/19 23:46	7439-98-7	
Nickel	**15.5**	ug/L	5.0	0.90	1	09/05/19 18:53	09/06/19 23:46	7440-02-0	
Selenium	ND	ug/L	10.0	4.7	1	09/05/19 18:53	09/06/19 23:46	7782-49-2	
Silver	ND	ug/L	5.0	2.5	1	09/05/19 18:53	09/06/19 23:46	7440-22-4	
Hardness, Total(SM 2340B)	**135000**	ug/L	662	131	1	09/05/19 18:53	09/06/19 23:46		
Vanadium	**2.3J**	ug/L	5.0	1.3	1	09/05/19 18:53	09/06/19 23:46	7440-62-2	
Zinc	**5.5J**	ug/L	10.0	3.9	1	09/05/19 18:53	09/06/19 23:46	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Cobalt	**21.1**	ug/L	0.10	0.050	1	09/05/19 18:53	09/07/19 10:18	7440-48-4	
Iron	**32800**	ug/L	50.0	7.5	1	09/05/19 18:53	09/07/19 10:18	7439-89-6	
Lead	**0.50**	ug/L	0.10	0.050	1	09/05/19 18:53	09/07/19 10:18	7439-92-1	
Lithium	**17.5**	ug/L	2.5	0.42	1	09/05/19 18:53	09/07/19 10:18	7439-93-2	
Manganese	**348**	ug/L	0.50	0.14	1	09/05/19 18:53	09/07/19 10:18	7439-96-5	
Potassium	**4250**	ug/L	50.0	6.2	1	09/05/19 18:53	09/07/19 10:18	7440-09-7	
Sodium	**30300**	ug/L	2500	143	10	09/05/19 18:53	09/10/19 00:06	7440-23-5	
Thallium	ND	ug/L	0.10	0.060	1	09/05/19 18:53	09/07/19 10:18	7440-28-0	
Tin	ND	ug/L	0.50	0.090	1	09/05/19 18:53	09/07/19 10:18	7440-31-5	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	ug/L	0.20	0.10	1	09/11/19 10:47	09/11/19 15:41	7439-97-6	
9065 Phenolics, Total	Analytical Method: EPA 9065 Preparation Method: EPA 9065								
Phenolics, Total Recoverable	ND	mg/L	0.050	0.050	1	09/06/19 15:50	09/06/19 19:57	64743-03-9	
9056 IC anions 28 Days	Analytical Method: EPA 9056A								
Chloride	**17.2**	mg/L	1.0	0.60	1		09/04/19 23:49	16887-00-6	
Fluoride	**0.11**	mg/L	0.10	0.050	1		09/04/19 23:49	16984-48-8	
Sulfate	**38.5**	mg/L	1.0	0.50	1		09/04/19 23:49	14808-79-8	
Total Organic Carbon,Asheville	Analytical Method: EPA 9060A								
Total Organic Carbon	**3.1**	mg/L	1.0	0.50	1		09/06/19 09:34	7440-44-0	
Total Organic Carbon	**3.2**	mg/L	1.0	0.50	1		09/06/19 09:34	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-1614 **Lab ID: 92443549004** Collected: 08/28/19 13:02 Received: 08/29/19 13:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon,Asheville	Analytical Method: EPA 9060A								
Total Organic Carbon	**3.1**	mg/L	1.0	0.50	1		09/06/19 09:34	7440-44-0	
Total Organic Carbon	**3.0**	mg/L	1.0	0.50	1		09/06/19 09:34	7440-44-0	
Mean Total Organic Carbon	**3.1**	mg/L	1.0	0.50	1		09/06/19 09:34	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-Duplicate **Lab ID: 92443549005** Collected: 08/28/19 12:17 Received: 08/29/19 13:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011								
Total Dissolved Solids	**120**	mg/L	25.0	25.0	1		08/30/19 14:04		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Antimony	ND	ug/L	5.0	3.0	1	09/05/19 18:53	09/06/19 23:49	7440-36-0	
Arsenic	ND	ug/L	10.0	4.7	1	09/05/19 18:53	09/06/19 23:49	7440-38-2	
Barium	**54.5**	ug/L	5.0	1.0	1	09/05/19 18:53	09/06/19 23:49	7440-39-3	
Beryllium	ND	ug/L	1.0	0.50	1	09/05/19 18:53	09/07/19 13:33	7440-41-7	
Boron	**0.20**	mg/L	0.050	0.0066	1	09/05/19 18:53	09/06/19 23:49	7440-42-8	
Cadmium	ND	ug/L	1.0	0.40	1	09/05/19 18:53	09/06/19 23:49	7440-43-9	
Calcium	**6.7**	mg/L	0.10	0.024	1	09/05/19 18:53	09/06/19 23:49	7440-70-2	
Chromium	ND	ug/L	5.0	1.0	1	09/05/19 18:53	09/06/19 23:49	7440-47-3	
Copper	ND	ug/L	5.0	2.1	1	09/05/19 18:53	09/06/19 23:49	7440-50-8	
Molybdenum	ND	ug/L	5.0	0.90	1	09/05/19 18:53	09/06/19 23:49	7439-98-7	
Nickel	**10.2**	ug/L	5.0	0.90	1	09/05/19 18:53	09/06/19 23:49	7440-02-0	
Selenium	ND	ug/L	10.0	4.7	1	09/05/19 18:53	09/06/19 23:49	7782-49-2	
Silver	ND	ug/L	5.0	2.5	1	09/05/19 18:53	09/06/19 23:49	7440-22-4	
Hardness, Total(SM 2340B)	**31100**	ug/L	662	131	1	09/05/19 18:53	09/06/19 23:49		
Vanadium	**1.3J**	ug/L	5.0	1.3	1	09/05/19 18:53	09/06/19 23:49	7440-62-2	
Zinc	**18.5**	ug/L	10.0	3.9	1	09/05/19 18:53	09/06/19 23:49	7440-66-6	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Cobalt	**8.0**	ug/L	0.10	0.050	1	09/05/19 18:53	09/07/19 10:26	7440-48-4	
Iron	**768**	ug/L	50.0	7.5	1	09/05/19 18:53	09/07/19 10:26	7439-89-6	
Lead	ND	ug/L	0.10	0.050	1	09/05/19 18:53	09/07/19 10:26	7439-92-1	
Lithium	**4.4**	ug/L	2.5	0.42	1	09/05/19 18:53	09/07/19 10:26	7439-93-2	
Manganese	**166**	ug/L	0.50	0.14	1	09/05/19 18:53	09/07/19 10:26	7439-96-5	
Potassium	**1880**	ug/L	50.0	6.2	1	09/05/19 18:53	09/07/19 10:26	7440-09-7	
Sodium	**15200**	ug/L	2500	143	10	09/05/19 18:53	09/10/19 00:09	7440-23-5	
Thallium	ND	ug/L	0.10	0.060	1	09/05/19 18:53	09/07/19 10:26	7440-28-0	
Tin	ND	ug/L	0.50	0.090	1	09/05/19 18:53	09/07/19 10:26	7440-31-5	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	ug/L	0.20	0.10	1	09/11/19 10:47	09/11/19 15:48	7439-97-6	
9065 Phenolics, Total	Analytical Method: EPA 9065 Preparation Method: EPA 9065								
Phenolics, Total Recoverable	ND	mg/L	0.050	0.050	1	09/06/19 15:50	09/06/19 19:58	64743-03-9	
9056 IC anions 28 Days	Analytical Method: EPA 9056A								
Chloride	**13.1**	mg/L	1.0	0.60	1		09/05/19 00:03	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		09/05/19 00:03	16984-48-8	
Sulfate	**34.7**	mg/L	1.0	0.50	1		09/05/19 00:03	14808-79-8	
Total Organic Carbon,Asheville	Analytical Method: EPA 9060A								
Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 12:31	7440-44-0	
Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 12:31	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(704)875-9092

ANALYTICAL RESULTS

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-Duplicate **Lab ID: 92443549005** Collected: 08/28/19 12:17 Received: 08/29/19 13:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon,Asheville	Analytical Method: EPA 9060A								
Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 12:31	7440-44-0	
Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 12:31	7440-44-0	
Mean Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 12:31	7440-44-0	

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QUALITY CONTROL DATA

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

QC Batch: 495427 Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

METHOD BLANK: 2669331 Matrix: Water
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	08/30/19 14:05	

LABORATORY CONTROL SAMPLE: 2669332

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	272	109	90-110	

SAMPLE DUPLICATE: 2669333

Parameter	Units	92443188005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	527	540	2	5	

SAMPLE DUPLICATE: 2669334

Parameter	Units	92443549001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	144	140	3	5	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

QC Batch: 497027 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

METHOD BLANK: 2676371 Matrix: Water
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	0.10	09/11/19 14:52	

LABORATORY CONTROL SAMPLE: 2676372

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2.5	2.2	87	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2676373 2676374

Parameter	Units	92443549001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	2.5	2.5	2.0	2.0	81	81	75-125	0	25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

QC Batch: 496271 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010 MET
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

METHOD BLANK: 2673007 Matrix: Water
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	ND	5.0	3.0	09/06/19 23:02	
Arsenic	ug/L	ND	10.0	4.7	09/06/19 23:02	
Barium	ug/L	ND	5.0	1.0	09/06/19 23:02	
Beryllium	ug/L	ND	1.0	0.50	09/07/19 12:48	
Boron	mg/L	ND	0.050	0.0066	09/06/19 23:02	
Cadmium	ug/L	0.47J	1.0	0.40	09/06/19 23:02	
Calcium	mg/L	ND	0.10	0.024	09/06/19 23:02	
Chromium	ug/L	ND	5.0	1.0	09/06/19 23:02	
Copper	ug/L	ND	5.0	2.1	09/06/19 23:02	
Hardness, Total(SM 2340B)	ug/L	ND	662	662	09/07/19 12:48	
Molybdenum	ug/L	ND	5.0	0.90	09/06/19 23:02	
Nickel	ug/L	ND	5.0	0.90	09/06/19 23:02	
Selenium	ug/L	ND	10.0	4.7	09/06/19 23:02	
Silver	ug/L	ND	5.0	2.5	09/06/19 23:02	
Vanadium	ug/L	ND	5.0	1.3	09/06/19 23:02	
Zinc	ug/L	ND	10.0	3.9	09/06/19 23:02	

LABORATORY CONTROL SAMPLE: 2673008

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	450	90	80-120	
Arsenic	ug/L	500	418	84	80-120	
Barium	ug/L	500	505	101	80-120	
Beryllium	ug/L	500	491	98	80-120	
Boron	mg/L	0.5	0.48	97	80-120	
Cadmium	ug/L	500	460	92	80-120	
Calcium	mg/L	5	5.0	100	80-120	
Chromium	ug/L	500	479	96	80-120	
Copper	ug/L	500	475	95	80-120	
Hardness, Total(SM 2340B)	ug/L	33100	32400	98	80-120	
Molybdenum	ug/L	500	434	87	80-120	
Nickel	ug/L	500	461	92	80-120	
Selenium	ug/L	500	440	88	80-120	
Silver	ug/L	250	234	94	80-120	
Vanadium	ug/L	500	477	95	80-120	
Zinc	ug/L	500	440	88	80-120	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2673009 2673010

Parameter	Units	92443188005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	ND	500	500	470	470	94	94	75-125	0	20	
Arsenic	ug/L	ND	500	500	446	445	89	89	75-125	0	20	
Barium	ug/L	107	500	500	630	626	105	104	75-125	1	20	
Beryllium	ug/L	ND	500	500	509	509	102	102	75-125	0	20	
Boron	mg/L	1.3	0.5	0.5	1.8	1.9	109	110	75-125	0	20	
Cadmium	ug/L	ND	500	500	481	480	96	96	75-125	0	20	
Calcium	mg/L	23.4	5	5	29.0	28.9	112	111	75-125	0	20	
Chromium	ug/L	ND	500	500	494	491	99	98	75-125	0	20	
Copper	ug/L	ND	500	500	493	493	99	99	75-125	0	20	
Hardness, Total(SM 2340B)	ug/L	111000	33100	33100	148000	148000	112	111	75-125	0		
Molybdenum	ug/L	5.8	500	500	450	450	89	89	75-125	0	20	
Nickel	ug/L	11.6	500	500	479	480	93	94	75-125	0	20	
Selenium	ug/L	ND	500	500	473	474	95	95	75-125	0	20	
Silver	ug/L	ND	250	250	241	240	96	96	75-125	0	20	
Vanadium	ug/L	ND	500	500	501	502	100	100	75-125	0	20	
Zinc	ug/L	21.9	500	500	474	473	90	90	75-125	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2673011 2673012

Parameter	Units	92443549001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	ND	500	500	468	459	94	92	75-125	2	20	
Arsenic	ug/L	ND	500	500	438	433	87	86	75-125	1	20	
Barium	ug/L	62.1	500	500	586	576	105	103	75-125	2	20	
Beryllium	ug/L	0.60J	500	500	513	505	103	101	75-125	2	20	
Boron	mg/L	0.0088J	0.5	0.5	0.52	0.51	102	100	75-125	2	20	
Cadmium	ug/L	ND	500	500	487	478	97	96	75-125	2	20	
Calcium	mg/L	5.9	5	5	11.1	11.1	104	104	75-125	0	20	
Chromium	ug/L	ND	500	500	503	492	100	98	75-125	2	20	
Copper	ug/L	4.9J	500	500	501	491	99	97	75-125	2	20	
Hardness, Total(SM 2340B)	ug/L	29700	33100	33100	64200	64000	105	104	75-125	0		
Molybdenum	ug/L	ND	500	500	441	432	88	86	75-125	2	20	
Nickel	ug/L	6.2	500	500	482	474	95	94	75-125	2	20	
Selenium	ug/L	ND	500	500	483	469	97	94	75-125	3	20	
Silver	ug/L	ND	250	250	242	238	97	95	75-125	2	20	
Vanadium	ug/L	ND	500	500	497	488	99	97	75-125	2	20	
Zinc	ug/L	ND	500	500	463	452	92	90	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

QC Batch: 496281 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

METHOD BLANK: 2673055 Matrix: Water
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cobalt	ug/L	ND	0.10	0.050	09/07/19 07:40	
Iron	ug/L	ND	50.0	7.5	09/07/19 07:40	
Lead	ug/L	ND	0.10	0.050	09/07/19 07:40	
Lithium	ug/L	ND	2.5	0.42	09/07/19 07:40	
Manganese	ug/L	ND	0.50	0.14	09/07/19 07:40	
Potassium	ug/L	ND	50.0	6.2	09/07/19 07:40	
Sodium	ug/L	ND	250	14.3	09/07/19 07:40	
Thallium	ug/L	ND	0.10	0.060	09/07/19 07:40	
Tin	ug/L	ND	0.50	0.090	09/07/19 07:40	

LABORATORY CONTROL SAMPLE: 2673056

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cobalt	ug/L	10	10.3	103	80-120	
Iron	ug/L	625	649	104	80-120	
Lead	ug/L	50	52.5	105	80-120	
Lithium	ug/L	50	53.0	106	80-120	
Manganese	ug/L	50	51.7	103	80-120	
Potassium	ug/L	625	640	102	80-120	
Sodium	ug/L	625	651	104	80-120	
Thallium	ug/L	10	10.5	105	80-120	
Tin	ug/L	50	50.8	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2673057 2673058

Parameter	Units	92443188005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cobalt	ug/L	16.7	10	10	26.6	26.3	99	96	75-125	1	20	
Iron	ug/L	26000	625	625	26400	25900	74	-5	75-125	2	20	M1
Lead	ug/L	ND	50	50	52.2	53.4	104	107	75-125	2	20	
Lithium	ug/L	12.5	50	50	63.4	58.5	102	92	75-125	8	20	
Manganese	ug/L	752	50	50	733	763	-37	22	75-125	4	20	M6
Potassium	ug/L	6580	625	625	7240	7130	105	87	75-125	2	20	
Sodium	ug/L	116000	625	625	96300	98500	-3160	-2810	75-125	2	20	M6
Thallium	ug/L	ND	10	10	10.7	10.7	106	106	75-125	0	20	
Tin	ug/L	ND	50	50	51.4	50.8	103	102	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2673059 2673060

Parameter	Units	92443549001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cobalt	ug/L	11.1	10	10	21.6	21.5	105	104	75-125	1	20	
Iron	ug/L	280	625	625	1000	1020	115	118	75-125	2	20	
Lead	ug/L	0.19	50	50	53.1	51.6	106	103	75-125	3	20	
Lithium	ug/L	9.4	50	50	62.3	62.2	106	106	75-125	0	20	
Manganese	ug/L	166	50	50	218	220	104	109	75-125	1	20	
Potassium	ug/L	5470	625	625	6250	6090	126	100	75-125	3	20	M1
Sodium	ug/L	7410	625	625	8230	8010	132	96	75-125	3	20	M1
Thallium	ug/L	ND	10	10	10.7	10.4	106	103	75-125	3	20	
Tin	ug/L	ND	50	50	50.5	50.1	101	100	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

QC Batch: 34869 Analysis Method: EPA 9065
QC Batch Method: EPA 9065 Analysis Description: 9065 Phenolics
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

METHOD BLANK: 156873 Matrix: Water
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Phenolics, Total Recoverable	mg/L	ND	0.050	0.050	09/06/19 19:49	

LABORATORY CONTROL SAMPLE: 156874

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	mg/L	0.5	0.42	84	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 156875 156876

Parameter	Units	92443178001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phenolics, Total Recoverable	mg/L	ND	0.5	0.5	0.39	0.36	74	69	80-120	6	20	M1

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QUALITY CONTROL DATA

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

QC Batch: 495640 Analysis Method: EPA 9056A
QC Batch Method: EPA 9056A Analysis Description: 9056 IC anions 28 Days
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

METHOD BLANK: 2670138 Matrix: Water
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	09/03/19 19:27	
Fluoride	mg/L	ND	0.10	0.050	09/03/19 19:27	
Sulfate	mg/L	ND	1.0	0.50	09/03/19 19:27	

LABORATORY CONTROL SAMPLE: 2670139

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	51.7	103	90-110	
Fluoride	mg/L	2.5	2.6	104	90-110	
Sulfate	mg/L	50	50.3	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2670140 2670141

Parameter	Units	92443188005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	194	50	50	248	237	108	86	90-110	5	10	M1
Fluoride	mg/L	ND	2.5	2.5	3.3	2.9	132	116	90-110	13	10	M1,R1
Sulfate	mg/L	85.6	50	50	118	113	66	55	90-110	5	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2670174 2670175

Parameter	Units	92443549001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.8	50	50	45.6	55.0	86	105	90-110	19	10	M1,R1
Fluoride	mg/L	ND	2.5	2.5	1.3	2.1	50	84	90-110	50	10	M1,R1
Sulfate	mg/L	41.4	50	50	72.1	91.6	62	100	90-110	24	10	M1,R1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

QC Batch: 496160 Analysis Method: EPA 9060A
QC Batch Method: EPA 9060A Analysis Description: 9060 TOC, AVL
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

METHOD BLANK: 2672480 Matrix: Water
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mean Total Organic Carbon	mg/L	ND	1.0	0.50	09/06/19 06:12	
Total Organic Carbon	mg/L	ND	1.0	0.50	09/06/19 06:12	
Total Organic Carbon	mg/L	ND	1.0	0.50	09/06/19 06:12	
Total Organic Carbon	mg/L	ND	1.0	0.50	09/06/19 06:12	
Total Organic Carbon	mg/L	ND	1.0	0.50	09/06/19 06:12	

LABORATORY CONTROL SAMPLE: 2672481

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mean Total Organic Carbon	mg/L	25	24.3	97	75-125	
Total Organic Carbon	mg/L	25	24.2	97	75-125	
Total Organic Carbon	mg/L	25	24.4	97	75-125	
Total Organic Carbon	mg/L	25	24.0	96	75-125	
Total Organic Carbon	mg/L	25	24.5	98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2672482 2672483

Parameter	Units	92443549001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mean Total Organic Carbon	mg/L	ND	25	25	30.8	29.4	123	117	75-125	5	25	
Total Organic Carbon	mg/L	ND	25	25	30.4	29.5	122	118	75-125	3	25	
Total Organic Carbon	mg/L	ND	25	25	31.0	29.3	124	117	75-125	5	25	
Total Organic Carbon	mg/L	ND	25	25	30.7	29.4	123	118	75-125	4	25	
Total Organic Carbon	mg/L	ND	25	25	31.0	29.2	124	117	75-125	6	25	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2672484 2672485

Parameter	Units	92443549002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mean Total Organic Carbon	mg/L	19.9	25	25	29.9	35.2	40	61	75-125	16	25	M1
Total Organic Carbon	mg/L	19.5	25	25	30.1	35.2	43	63	75-125	16	25	M1
Total Organic Carbon	mg/L	19.9	25	25	30.0	35.2	41	61	75-125	16	25	M1
Total Organic Carbon	mg/L	20.3	25	25	29.7	35.2	37	60	75-125	17	25	M1
Total Organic Carbon	mg/L	19.8	25	25	29.9	35.1	40	61	75-125	16	25	M1

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(704)875-9092

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-1602 **Lab ID: 92443549001** Collected: 08/29/19 08:57 Received: 08/29/19 13:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.517 ± 0.288 (0.438) C:48% T:NA**	pCi/L	09/20/19 11:45	13982-63-3	
Radium-228	EPA 9320	**1.35 ± 0.473 (0.685) C:81% T:87%**	pCi/L	09/20/19 10:28	15262-20-1	
Total Radium	Total Radium Calculation	**1.87 ± 0.761 (1.12)**	pCi/L	09/23/19 11:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-1607 **Lab ID: 92443549002** Collected: 08/28/19 11:57 Received: 08/29/19 13:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.620 ± 0.226 (0.256) C:90% T:NA**	pCi/L	09/20/19 15:10	13982-63-3	
Radium-228	EPA 9320	**0.959 ± 0.400 (0.647) C:82% T:91%**	pCi/L	09/20/19 10:28	15262-20-1	
Total Radium	Total Radium Calculation	**1.58 ± 0.626 (0.903)**	pCi/L	09/23/19 11:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-1608 **Lab ID: 92443549003** Collected: 08/28/19 13:11 Received: 08/29/19 13:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.703 ± 0.247 (0.269) C:90% T:NA**	pCi/L	09/20/19 11:45	13982-63-3	
Radium-228	EPA 9320	**0.885 ± 0.390 (0.643) C:78% T:92%**	pCi/L	09/20/19 10:28	15262-20-1	
Total Radium	Total Radium Calculation	**1.59 ± 0.637 (0.912)**	pCi/L	09/23/19 11:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-1614 **Lab ID: 92443549004** Collected: 08/28/19 13:02 Received: 08/29/19 13:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.511 ± 0.224 (0.265) C:69% T:NA**	pCi/L	09/20/19 11:45	13982-63-3	
Radium-228	EPA 9320	**1.05 ± 0.468 (0.785) C:84% T:81%**	pCi/L	09/20/19 13:42	15262-20-1	
Total Radium	Total Radium Calculation	**1.56 ± 0.692 (1.05)**	pCi/L	09/23/19 11:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Sample: ABC-Duplicate **Lab ID: 92443549005** Collected: 08/28/19 12:17 Received: 08/29/19 13:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.548 ± 0.226 (0.271) C:76% T:NA**	pCi/L	09/20/19 11:45	13982-63-3	
Radium-228	EPA 9320	**0.613 ± 0.370 (0.692) C:83% T:93%**	pCi/L	09/20/19 13:42	15262-20-1	
Total Radium	Total Radium Calculation	**1.16 ± 0.596 (0.963)**	pCi/L	09/23/19 11:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL - RADIOCHEMISTRY

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

QC Batch: 360247 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

METHOD BLANK: 1748643 Matrix: Water
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.372 ± 0.173 (0.236) C:90% T:NA	pCi/L	09/20/19 15:10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

QC Batch: 360248 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

METHOD BLANK: 1748645 Matrix: Water
Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.904 ± 0.385 (0.612) C:83% T:83%	pCi/L	09/20/19 10:28	

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QUALIFIERS

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-E	Pace Analytical Services - Eden
PASI-GA	Pace Analytical Services - Atlanta, GA
PASI-PA	Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92443549001	**ABC-1602**	SM 2540C-2011	495427		
92443549002	**ABC-1607**	SM 2540C-2011	495427		
92443549003	**ABC-1608**	SM 2540C-2011	495427		
92443549004	**ABC-1614**	SM 2540C-2011	495427		
92443549005	**ABC-Duplicate**	SM 2540C-2011	495427		
92443549001	**ABC-1602**	EPA 3010A	496271	EPA 6010D	496310
92443549002	**ABC-1607**	EPA 3010A	496271	EPA 6010D	496310
92443549003	**ABC-1608**	EPA 3010A	496271	EPA 6010D	496310
92443549004	**ABC-1614**	EPA 3010A	496271	EPA 6010D	496310
92443549005	**ABC-Duplicate**	EPA 3010A	496271	EPA 6010D	496310
92443549001	**ABC-1602**	EPA 3010A	496281	EPA 6020B	496309
92443549002	**ABC-1607**	EPA 3010A	496281	EPA 6020B	496309
92443549003	**ABC-1608**	EPA 3010A	496281	EPA 6020B	496309
92443549004	**ABC-1614**	EPA 3010A	496281	EPA 6020B	496309
92443549005	**ABC-Duplicate**	EPA 3010A	496281	EPA 6020B	496309
92443549001	**ABC-1602**	EPA 7470A	497027	EPA 7470A	497236
92443549002	**ABC-1607**	EPA 7470A	497027	EPA 7470A	497236
92443549003	**ABC-1608**	EPA 7470A	497027	EPA 7470A	497236
92443549004	**ABC-1614**	EPA 7470A	497027	EPA 7470A	497236
92443549005	**ABC-Duplicate**	EPA 7470A	497027	EPA 7470A	497236
92443549001	**ABC-1602**	EPA 9315	360247		
92443549002	**ABC-1607**	EPA 9315	360247		
92443549003	**ABC-1608**	EPA 9315	360247		
92443549004	**ABC-1614**	EPA 9315	360247		
92443549005	**ABC-Duplicate**	EPA 9315	360247		
92443549001	**ABC-1602**	EPA 9320	360248		
92443549002	**ABC-1607**	EPA 9320	360248		
92443549003	**ABC-1608**	EPA 9320	360248		
92443549004	**ABC-1614**	EPA 9320	360248		
92443549005	**ABC-Duplicate**	EPA 9320	360248		
92443549001	**ABC-1602**	Total Radium Calculation	362615		
92443549002	**ABC-1607**	Total Radium Calculation	362615		
92443549003	**ABC-1608**	Total Radium Calculation	362615		
92443549004	**ABC-1614**	Total Radium Calculation	362615		
92443549005	**ABC-Duplicate**	Total Radium Calculation	362615		
92443549001	**ABC-1602**	EPA 9065	34869	EPA 9065	34892
92443549002	**ABC-1607**	EPA 9065	34869	EPA 9065	34892
92443549003	**ABC-1608**	EPA 9065	34869	EPA 9065	34892
92443549004	**ABC-1614**	EPA 9065	34869	EPA 9065	34892
92443549005	**ABC-Duplicate**	EPA 9065	34869	EPA 9065	34892
92443549001	**ABC-1602**	EPA 9056A	495640		
92443549002	**ABC-1607**	EPA 9056A	495640		
92443549003	**ABC-1608**	EPA 9056A	495640		
92443549004	**ABC-1614**	EPA 9056A	495640		
92443549005	**ABC-Duplicate**	EPA 9056A	495640		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PP - Pond ABC (A)
Pace Project No.: 92443549

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92443549001	**ABC-1602**	EPA 9060A	496160		
92443549002	**ABC-1607**	EPA 9060A	496160		
92443549003	**ABC-1608**	EPA 9060A	496160		
92443549004	**ABC-1614**	EPA 9060A	496160		
92443549005	**ABC-Duplicate**	EPA 9060A	496160		

Pace Analytical®	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☒

Sample Condition Upon Receipt

Client Name: Golder

Project #: **WO# : 92443549**

92443549

Courier: ☐ Commercial ☐ Fed Ex ☐ Pace ☐ UPS ☐ USPS ☐ Other: ☑ Client

Custody Seal Present? ☑ Yes ☐ No Seals Intact? ☑ Yes ☐ No

Date/Initials Person Examining Contents: 8-29-19 RSB

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other

Biological Tissue Frozen? ☐ Yes ☐ No ☐ N/A

Thermometer: ☒ IR Gun ID: T-3 Type of Ice: ☑ Wet ☐ Blue ☐ None

Cooler Temp (°C): 3.0 Correction Factor: Add/Subtract (°C) -0.1

Cooler Temp Corrected (°C): 2.9

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (☐ N/A, water sample)
Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☑ N/A	8.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: WT				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☑ No	☐ N/A	10.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: NMG Date: 9/10/19

Project Manager SRF Review: JM Date: 9/13/19

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project # **WO# : 92443549**

PM: NMG **Due Date: 09/13/19**

CLIENT: 92-Golder

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	6PIN	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1		1	1			2								1					3					2				
2		1	1			2								1					3					2				
3		1	1			2								1					3					2				
4		1	1			2								1					3					2				
5		1	1			2								1					3					2				
6		1	1			2								1					3					2				
7		1	1			2								1					3									
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golder Associates	Report To:	Mike Williams	Attention:	
Address:	2108 W. Laburnum Ave.	Copy To:	Amanda Reynolds	Company Name:	
Suite 200, Richmond, VA 23227				Address:	
Email:	areynolds@golder.com	Purchase Order #:		Pace Quote:	
Phone:	804-358-7900 Fax 804-358-2900	Project Name:	Possum Point - Pond ABC (A)	Pace Project Manager:	nicole.gasiorowski@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	162150.2009.001	Pace Profile #:	7295

Regulatory Agency	
State / Location	VA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	6010/6020 metals	7470 Mercury	9056 Anions (Cl, F, SO4)	TDS	9060 TOC	9065 Phenolics	Radium 226/228	Residual Chlorine (Y/N)	
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																	Requested Analysis Filtered (Y/N)	N	N	N	N	N	N	N		92443549
1	ABC-1602	WT		8/29/19	0857			15.2	10	2	1	4					3		x	x	x	x	x	x	x		All samples 001
2	ABC-1607	WT		8/28/19	1157			17.1	10	2	1	4					3		x	x	x	x	x	x	x		preserved on ice 002
3	ABC-1608	WT		8/28/19	1311			15.6	10	2	1	4					3		x	x	x	x	x	x	x		003
4	ABC-1614	WT		8/29/19	1302			16.9	10	2	1	4					3		x	x	x	x	x	x	x		004
5	ABC-Duplicate	WT		8/28/19	1217			17.1	10	2	1	4					3		x	x	x	x	x	x	x		005
6	ABC-MS	WT		8/29/19	0857			15.2	3	2	1	2					3		x	x	x	x	x	x			001
7	ABC-MSD	WT		8/29/19	0857			15.2	3	2	1	2					3		x	x	x	x	x	x			1
8																											
9																											
10																											
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Nathaniel Chien / Golder	8/28/19	1440							
	Michael Antal / Golder	8/29/19	1340	Rachel Burruss	8-29-19	1340	2.9	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nathaniel Chien / Michael Antal

SIGNATURE of SAMPLER: DATE Signed: 8/29/19

Air Water & Soil Laboratories, Inc.
1941 Reymet Road
Richmond, VA 23237
(804)-358-8295 - Telephone
(804)-358-8297 - Fax

Analysis Detects Report

Client Name: Golder Associates, Inc.
Client Site ID: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

Laboratory Sample ID: **19H1139-01** **Client Sample ID:** **ABC-1607**

Parameter	Samp ID	Reference Method	Sample Results	Qual	DL	LOQ	Dil. Factor	Units
Chromium, Hexavalent	01	SW7196A	0.005		0.005	0.005	1	mg/L

Note that this report is not the "Certificate of Analysis". This report only lists the target analytes that displayed concentrations that exceeded the detection limit specified for that analyte. For a complete listing of all analytes requested and the results of the analysis see the " Certificate of Analysis".

AIR WATER & SOIL LABORATORIES, INC.
1941 Reymet Road ● Richmond, Virginia 23237 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Sample Delivery Group ID Possum Point 1662150

Client Name:	Golder Associates, Inc. 2108 W. Laburnum Ave. Suite 200 Richmond, VA 23227	Date Issued:	9/16/2019 9:02:18AM
Submitted To:	Amanda Reynolds		
Client Site I.D.:	Possum Point PS	Purchase Order:	

Enclosed are the results of analyses for samples received by the laboratory in sample delivery group Possum Point 1662150 . Work orders included in the sample delivery group:

Work Order	Receive Date	Project Number
19H1139	8/28/2019 3:55:00PM	1662150
19H1182	8/29/2019 1:35:00PM	1662150

Ted Soyars

Technical Director

End Notes:
The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

Air Water & Soil Laboratories, Inc.
1941 Reymet Road
Richmond, Virginia 23237
(804)-358-8295 - Telephone
(804)-358-8297 - Fax

Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABC-1607	19H1139-01	Ground Water	08/28/2019 11:57	08/28/2019 15:55
ABC-1608	19H1139-02	Ground Water	08/28/2019 13:11	08/28/2019 15:55
ABC-Duplicate	19H1139-03	Ground Water	08/28/2019 12:17	08/28/2019 15:55
ABC-1614	19H1139-04	Ground Water	08/28/2019 13:02	08/28/2019 15:55
ABC-1602	19H1182-01	Ground Water	08/29/2019 08:57	08/29/2019 13:35

Air Water & Soil Laboratories, Inc.
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Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

Client Sample ID: ABC-1607 **Laboratory Sample ID:** 19H1139-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	DL	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Chromium, Hexavalent	01	18540-29-9	SW7196A	08/29/2019 07:30	08/29/2019 12:00	0.005		0.005	0.005	1	mg/L	MWL

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Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

Client Sample ID: ABC-1608 **Laboratory Sample ID:** 19H1139-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	DL	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Chromium, Hexavalent	02	18540-29-9	SW7196A	08/29/2019 07:30	08/29/2019 12:00	BLOD		0.005	0.005	1	mg/L	MWL

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Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

Client Sample ID: **ABC-Duplicate** **Laboratory Sample ID:** **19H1139-03**

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	DL	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Chromium, Hexavalent	03	18540-29-9	SW7196A	08/29/2019 07:30	08/29/2019 12:00	BLOD		0.005	0.005	1	mg/L	MWL

Air Water & Soil Laboratories, Inc.
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Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

Client Sample ID: ABC-1614 **Laboratory Sample ID:** 19H1139-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	DL	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Chromium, Hexavalent	04	18540-29-9	SW7196A	08/29/2019 07:30	08/29/2019 12:00	BLOD		0.005	0.005	1	mg/L	MWL

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Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

Client Sample ID: ABC-1602 **Laboratory Sample ID:** 19H1182-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	DL	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Chromium, Hexavalent	01	18540-29-9	SW7196A	08/30/2019 08:00	08/30/2019 11:00	BLOD		0.005	0.005	1	mg/L	MWL

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Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

Wet Chemistry Analysis - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BCH0937 - No Prep Wet Chem										
Blank (BCH0937-BLK1)				Prepared & Analyzed: 08/29/2019						
Chromium, Hexavalent	BLOD	0.005	mg/L							
LCS (BCH0937-BS1)				Prepared & Analyzed: 08/29/2019						
Chromium, Hexavalent	0.102	0.005	mg/L	0.100		102	80-120			
Matrix Spike (BCH0937-MS1)	**Source: 19H1135-01**			Prepared & Analyzed: 08/29/2019						
Chromium, Hexavalent	0.026	0.005	mg/L	0.100	BLOD	26.0	80-120			*M1*
Matrix Spike (BCH0937-MS2)	**Source: 19H1156-03**			Prepared & Analyzed: 08/29/2019						
Chromium, Hexavalent	0.005	0.005	mg/L	0.100	0.006	-1.00	80-120			*M1*
Matrix Spike Dup (BCH0937-MSD1)	**Source: 19H1135-01**			Prepared & Analyzed: 08/29/2019						
Chromium, Hexavalent	0.026	0.005	mg/L	0.100	BLOD	26.0	80-120	0.00	20	*M1*
Matrix Spike Dup (BCH0937-MSD2)	**Source: 19H1156-03**			Prepared & Analyzed: 08/29/2019						
Chromium, Hexavalent	0.006	0.005	mg/L	0.100	0.006	0.00	80-120	18.2	20	*M1*
Batch BCH1006 - No Prep Wet Chem										
Blank (BCH1006-BLK1)				Prepared & Analyzed: 08/30/2019						
Chromium, Hexavalent	BLOD	0.005	mg/L							
LCS (BCH1006-BS1)				Prepared & Analyzed: 08/30/2019						
Chromium, Hexavalent	0.101	0.005	mg/L	0.100		101	80-120			
Matrix Spike (BCH1006-MS1)	**Source: 19H1182-01**			Prepared & Analyzed: 08/30/2019						
Chromium, Hexavalent	0.083	0.005	mg/L	0.100	BLOD	83.0	80-120			

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Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

Wet Chemistry Analysis - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BCH1006 - No Prep Wet Chem										
Matrix Spike Dup (BCH1006-MSD1)		**Source: 19H1182-01**		Prepared & Analyzed: 08/30/2019						
Chromium, Hexavalent	0.084	0.005	mg/L	0.100	BLOD	84.0	80-120	1.20	20	

Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			**Preparation Method:**	**No Prep Wet Chem**	
19H1139-01	100 mL / 100 mL	SW7196A	BCH0937	SCH0864	AH90142
19H1139-02	100 mL / 100 mL	SW7196A	BCH0937	SCH0864	AH90142
19H1139-03	100 mL / 100 mL	SW7196A	BCH0937	SCH0864	AH90142
19H1139-04	100 mL / 100 mL	SW7196A	BCH0937	SCH0864	AH90142
19H1182-01	100 mL / 100 mL	SW7196A	BCH1006	SCH0924	AH90144

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Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

Certified Analyses included in this Report

Analyte	Certifications
SW7196A in Non-Potable Water	
Chromium, Hexavalent	VELAP

Code	Description	Cert Number	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2019
NC	North Carolina DENR	495	12/31/2019
VELAP Certificate #4337	NELAC-Virginia Certificate #10503	460021	06/14/2020
WVDEP	West Virginia DEP	350	11/30/2019

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Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

Qualifiers and Definitions

M1	Post digestion spike performed due to matrix interference.
RPD	Relative Percent Difference
Qual	Qualifers
-RE	Denotes sample was re-analyzed
LOD	Limit of Detection
BLOD	Below Limit of Detection
LOQ	Limit of Quantitation
DF	Dilution Factor
TIC	Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.
PCBs, Total	Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.

AIR WATER & SOIL LABORATORIES, INC.

1941 REYMET ROAD
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Chain of Custody
Effective: Nov 15, 2018

CHAIN OF CUSTODY

PAGE 1 OF 1

COMPANY NAME: Golder Associates	INVOICE TO: Accounts Payable	PROJECT NAME/Quote #: A-Pond ABC
CONTACT: Amanda Reynolds	INVOICE CONTACT: Amanda Reynolds	SITE NAME: Possum Point Power Station - Dominion
ADDRESS: 2108 W. Laburnum Ave Richmond VA 23227	INVOICE ADDRESS:	PROJECT NUMBER: 1662150
PHONE #: 804-358-7900	INVOICE PHONE #:	P.O. #:
FAX #: 804-358-2900 EMAIL: areynolds@golder.com		Pretreatment Program:
Is sample for compliance reporting? (YES) NO	Regulatory State: VA Is sample from a chlorinated supply? YES (NO)	PWS I.D. #:
SAMPLER NAME (PRINT): Nathaniel Chien, Mike Antal	SAMPLER SIGNATURE:	Turn Around Time: Circle: (10) 5 Days or __ Day(s)

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other_____

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE): Hexavalent Chromium (by 7196)	COMMENTS
1) ABC-1607	X					8/28/19	1157	1157	GW	1	X	All samples preserved on ice
2) ABC-1608	X					8/28/19	1311	1311	GW	1	X	
3) ABC-Duplicate	X					8/28/19	1217	1217	GW	1	X	
4) ABC-~~1608~~ 1614 NC	X					8/28/19	1302	1302	GW	1	X	
5)												
6)												
7)												
8)												
9)												
10)												

Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol

PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)

RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
Nathaniel Chien	8/28/19 1400		082819 1405
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
	082819 1555	Sarah Endsley	8/28/19 1555
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME

QC Data Package
Level III ☐
Level IV ☐
Level II

LAB USE ONLY Therm ID: 217 COOLER TEMP 2.6 °C
Custody Seals used and intact? (Y) N/E 8/28/19 Received on ice? (Y) N

GA 19H1139
Possum Point PS- Bill to Golder
Recd: 08/28/2019 Due: 09/12/2019

v130325002

AIR WATER & SOIL LABORATORIES, INC.

1941 REYMET ROAD
RICHMOND, VIRGINIA 23237
(804) 358-8295 PHONE
(804)358-8297 FAX

Chain of Custody
Effective: Nov 15, 2018

CHAIN OF CUSTODY

PAGE 1 OF 1

COMPANY NAME: Golder Associates	INVOICE TO: Accounts Payable	PROJECT NAME/Quote #: A - Pond ABC
CONTACT: Amanda Reynolds	INVOICE CONTACT: A. Reynolds	SITE NAME: Possum Point Power Station Dominion
ADDRESS: 2108 N. Laburnum Ave, Suite 200 Richmond, VA 23223	INVOICE ADDRESS:	PROJECT NUMBER: 1662150
PHONE #: 804-358-7900	INVOICE PHONE #:	P.O. #:
FAX #: 804-358-2900 EMAIL: areynolds@golder.com		Pretreatment Program:
Is sample for compliance reporting? (YES) NO	Regulatory State: VA	Is sample from a chlorinated supply? YES (NO)
		PWS I.D. #:
SAMPLER NAME (PRINT): Nathaniel Chien	SAMPLER SIGNATURE: Nathaniel Chien	Turn Around Time: Circle: (10) 5 Days or __ Day(s)

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other_____

	CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE) Hexavalent Chromium (by 7196)							
1)	ABC-1602	X		N			8/29/19	0857	0857	G-W	1	X							
2)																			
3)																			
4)																			
5)																			
6)																			
7)																			
8)																			
9)																			
10)																			

COMMENTS

Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol

PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)

* All samples preserved on ice

RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
Nathaniel Chien	8/29/19 1335	[signature] 29 AUG 2019	13.35
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME

QC Data Package
Level III ☐
Level IV ☐
Level II

LAB USE ONLY Therm ID: 277 COOLER TEMP 4.9 °C
Custody Seals used and intact? (Y) N) Received on ice? (Y) N)

GA 19H1182
Possum Point PS- Bill to Golder
Recd: 08/29/2019 Due: 09/13/2019

v130325002

Air Water & Soil Laboratories, Inc.
1941 Reymet Road
Richmond, Virginia 23237
(804)-358-8295 - Telephone
(804)-358-8297 - Fax

Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

Sample Conditions Checklist

Samples Received at:	**2.60°C**
How were samples received?	Courier
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Work Order Comments

Air Water & Soil Laboratories, Inc.
1941 Reymet Road
Richmond, Virginia 23237
(804)-358-8295 - Telephone
(804)-358-8297 - Fax

Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:02:18AM

Sample Conditions Checklist

Samples Received at:	**4.40°C**
How were samples received?	Walk In
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Work Order Comments

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

September 24, 2019

Mike Williams
Golder Associates
2108 W Laburnum Ave
Suite 200
Richmond, VA 23227

RE: Project: PP Field Blank (F)
Pace Project No.: 92443179

Dear Mike Williams:
Enclosed are the analytical results for sample(s) received by the laboratory on August 27, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Gasiorowski

Nicole Gasiorowski
nicole.gasiorowski@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Craig LaCosse, Golder Associates Inc.
Rachel Powell, Golder Associates
Amanda Reynolds, Golder Associates
Martha Smith, Golder Associates Inc.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: PP Field Blank (F)
Pace Project No.: 92443179

Atlanta Certification IDs
110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812
North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

Pennsylvania Certification IDs
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Florida: Cert E871149 SEKS WET
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Asheville Certification IDs
2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

Eden Certification IDs
205 East Meadow Road Suite A, Eden, NC 27288
North Carolina Drinking Water Certification #: 37738
North Carolina Wastewater Certification #: 633
Virginia/VELAP Certification #: 460025

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: PP Field Blank (F)
Pace Project No.: 92443179

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92443179001	**FIELD BLANK**	Water	08/27/19 10:30	08/27/19 14:24

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SAMPLE ANALYTE COUNT

Project: PP Field Blank (F)
Pace Project No.: 92443179

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92443179001	**FIELD BLANK**	SM 2540C-2011	SAM1	1	PASI-E
		EPA 6010D	DS	16	PASI-A
		EPA 6020B	SER	9	PASI-A
		EPA 7470A	SOO	1	PASI-A
		EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
		EPA 9065	MWB	1	PASI-GA
		EPA 9056A	CDC	3	PASI-A
		EPA 9060A	ECH	5	PASI-A

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SUMMARY OF DETECTION

Project: PP Field Blank (F)
Pace Project No.: 92443179

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92443179001	**FIELD BLANK**					
SM 2540C-2011	Total Dissolved Solids	45.0	mg/L	25.0	08/29/19 10:59	
EPA 6010D	Barium	1.1J	ug/L	5.0	09/08/19 18:38	
EPA 6010D	Boron	0.0074J	mg/L	0.050	09/08/19 18:38	B
EPA 6010D	Zinc	7.4J	ug/L	10.0	09/08/19 18:38	BC
EPA 9315	Radium-226	0.371 ± 0.268 (0.451) C:96% T:NA	pCi/L		09/20/19 07:11	
EPA 9320	Radium-228	0.957 ± 0.462 (0.802) C:74% T:87%	pCi/L		09/20/19 14:59	
Total Radium Calculation	Total Radium	1.33 ± 0.730 (1.25)	pCi/L		09/23/19 11:58	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PP Field Blank (F)
Pace Project No.: 92443179

Sample: FIELD BLANK **Lab ID: 92443179001** Collected: 08/27/19 10:30 Received: 08/27/19 14:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011								
Total Dissolved Solids	**45.0**	mg/L	25.0	25.0	1		08/29/19 10:59		
6010 MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Antimony	ND	ug/L	5.0	3.0	1	09/05/19 16:10	09/08/19 18:38	7440-36-0	
Arsenic	ND	ug/L	10.0	4.7	1	09/05/19 16:10	09/08/19 18:38	7440-38-2	
Barium	**1.1J**	ug/L	5.0	1.0	1	09/05/19 16:10	09/08/19 18:38	7440-39-3	
Beryllium	ND	ug/L	1.0	0.20	1	09/05/19 16:10	09/08/19 18:38	7440-41-7	
Boron	**0.0074J**	mg/L	0.050	0.0066	1	09/05/19 16:10	09/08/19 18:38	7440-42-8	B
Cadmium	ND	ug/L	1.0	0.40	1	09/05/19 16:10	09/08/19 18:38	7440-43-9	
Calcium	ND	mg/L	0.10	0.024	1	09/05/19 16:10	09/08/19 18:38	7440-70-2	
Chromium	ND	ug/L	5.0	1.0	1	09/05/19 16:10	09/08/19 18:38	7440-47-3	
Copper	ND	ug/L	5.0	2.1	1	09/05/19 16:10	09/08/19 18:38	7440-50-8	
Molybdenum	ND	ug/L	5.0	0.90	1	09/05/19 16:10	09/08/19 18:38	7439-98-7	
Nickel	ND	ug/L	5.0	0.90	1	09/05/19 16:10	09/08/19 18:38	7440-02-0	
Selenium	ND	ug/L	10.0	4.7	1	09/05/19 16:10	09/08/19 18:38	7782-49-2	
Silver	ND	ug/L	5.0	2.5	1	09/05/19 16:10	09/08/19 18:38	7440-22-4	
Hardness, Total(SM 2340B)	ND	ug/L	662	131	1	09/05/19 16:10	09/08/19 18:38		
Vanadium	ND	ug/L	5.0	1.3	1	09/05/19 16:10	09/08/19 18:38	7440-62-2	
Zinc	**7.4J**	ug/L	10.0	3.9	1	09/05/19 16:10	09/08/19 18:38	7440-66-6	BC
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Cobalt	ND	ug/L	0.10	0.050	1	09/05/19 12:25	09/06/19 14:00	7440-48-4	
Iron	ND	ug/L	50.0	7.5	1	09/05/19 12:25	09/06/19 14:00	7439-89-6	
Lead	ND	ug/L	0.10	0.050	1	09/05/19 12:25	09/06/19 14:00	7439-92-1	
Lithium	ND	ug/L	2.5	0.42	1	09/05/19 12:25	09/06/19 14:00	7439-93-2	
Manganese	ND	ug/L	0.50	0.14	1	09/05/19 12:25	09/06/19 14:00	7439-96-5	
Potassium	ND	ug/L	50.0	6.2	1	09/05/19 12:25	09/06/19 14:00	7440-09-7	
Sodium	ND	ug/L	250	14.3	1	09/05/19 12:25	09/06/19 14:00	7440-23-5	
Thallium	ND	ug/L	0.10	0.060	1	09/05/19 12:25	09/06/19 14:00	7440-28-0	
Tin	ND	ug/L	0.50	0.090	1	09/05/19 12:25	09/06/19 14:00	7440-31-5	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	ug/L	0.20	0.10	1	09/03/19 14:35	09/04/19 17:32	7439-97-6	
9065 Phenolics, Total	Analytical Method: EPA 9065 Preparation Method: EPA 9065								
Phenolics, Total Recoverable	ND	mg/L	0.050	0.050	1	09/06/19 15:50	09/06/19 19:54	64743-03-9	
9056 IC anions 28 Days	Analytical Method: EPA 9056A								
Chloride	ND	mg/L	1.0	0.60	1		08/30/19 22:25	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/30/19 22:25	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		08/30/19 22:25	14808-79-8	
Total Organic Carbon,Asheville	Analytical Method: EPA 9060A								
Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 01:04	7440-44-0	
Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 01:04	7440-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: PP Field Blank (F)
Pace Project No.: 92443179

Sample: FIELD BLANK **Lab ID: 92443179001** Collected: 08/27/19 10:30 Received: 08/27/19 14:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon,Asheville	Analytical Method: EPA 9060A								
Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 01:04	7440-44-0	
Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 01:04	7440-44-0	
Mean Total Organic Carbon	ND	mg/L	1.0	0.50	1		09/06/19 01:04	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP Field Blank (F)
Pace Project No.: 92443179

QC Batch: 495138 Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 92443179001

METHOD BLANK: 2667835 Matrix: Water
Associated Lab Samples: 92443179001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	25.0	08/29/19 10:54	

LABORATORY CONTROL SAMPLE: 2667836

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	236	94	90-110	

SAMPLE DUPLICATE: 2667837

Parameter	Units	92443178001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	136	118	14	5	D6

SAMPLE DUPLICATE: 2667838

Parameter	Units	92443193001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	108	116	7	5	D6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP Field Blank (F)
Pace Project No.: 92443179

QC Batch: 495629 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 92443179001

METHOD BLANK: 2670079 Matrix: Water
Associated Lab Samples: 92443179001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	0.10	09/04/19 16:27	

LABORATORY CONTROL SAMPLE: 2670080

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2.5	2.6	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2670081 2670082

Parameter	Units	92443193001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	2.5	2.5	2.3	2.5	90	97	75-125	7	25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP Field Blank (F)
Pace Project No.: 92443179

QC Batch: 496199 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010 MET
Associated Lab Samples: 92443179001

METHOD BLANK: 2672611 Matrix: Water
Associated Lab Samples: 92443179001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	ND	5.0	3.0	09/08/19 18:01	
Arsenic	ug/L	ND	10.0	4.7	09/08/19 18:01	
Barium	ug/L	ND	5.0	1.0	09/08/19 18:01	
Beryllium	ug/L	ND	1.0	0.20	09/08/19 18:01	
Boron	mg/L	0.012J	0.050	0.0066	09/08/19 18:01	
Cadmium	ug/L	ND	1.0	0.40	09/08/19 18:01	
Calcium	mg/L	ND	0.10	0.024	09/08/19 18:01	
Chromium	ug/L	ND	5.0	1.0	09/08/19 18:01	
Copper	ug/L	ND	5.0	2.1	09/08/19 18:01	
Hardness, Total(SM 2340B)	ug/L	ND	662	131	09/08/19 18:01	
Molybdenum	ug/L	ND	5.0	0.90	09/08/19 18:01	
Nickel	ug/L	ND	5.0	0.90	09/08/19 18:01	
Selenium	ug/L	ND	10.0	4.7	09/08/19 18:01	
Silver	ug/L	ND	5.0	2.5	09/08/19 18:01	
Vanadium	ug/L	ND	5.0	1.3	09/08/19 18:01	
Zinc	ug/L	5.0J	10.0	3.9	09/08/19 18:01	BC

LABORATORY CONTROL SAMPLE: 2672612

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	459	92	80-120	
Arsenic	ug/L	500	449	90	80-120	
Barium	ug/L	500	498	100	80-120	
Beryllium	ug/L	500	478	96	80-120	
Boron	mg/L	0.5	0.48	95	80-120	
Cadmium	ug/L	500	467	93	80-120	
Calcium	mg/L	5	4.8	95	80-120	
Chromium	ug/L	500	495	99	80-120	
Copper	ug/L	500	492	98	80-120	
Hardness, Total(SM 2340B)	ug/L	33100	30700	93	80-120	
Molybdenum	ug/L	500	444	89	80-120	
Nickel	ug/L	500	467	93	80-120	
Selenium	ug/L	500	448	90	80-120	
Silver	ug/L	250	236	95	80-120	
Vanadium	ug/L	500	460	92	80-120	
Zinc	ug/L	500	483	97	80-120	BC

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP Field Blank (F)
Pace Project No.: 92443179

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2672613 2672614

Parameter	Units	92443193001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	ND	500	500	483	484	97	97	75-125	0	20	
Arsenic	ug/L	ND	500	500	479	478	96	95	75-125	0	20	
Barium	ug/L	30.7	500	500	548	548	103	103	75-125	0	20	
Beryllium	ug/L	0.25J	500	500	499	500	100	100	75-125	0	20	
Boron	mg/L	0.034J	0.5	0.5	0.53	0.53	100	100	75-125	0	20	
Cadmium	ug/L	ND	500	500	498	498	100	100	75-125	0	20	
Calcium	mg/L	9.8	5	5	14.3	14.4	91	93	75-125	1	20	
Chromium	ug/L	ND	500	500	520	518	104	103	75-125	0	20	
Copper	ug/L	2.2J	500	500	516	516	103	103	75-125	0	20	
Hardness, Total(SM 2340B)	ug/L	38000	33100	33100	68500	68900	92	93	75-125	0		
Molybdenum	ug/L	5.8	500	500	462	463	91	91	75-125	0	20	
Nickel	ug/L	ND	500	500	486	486	97	97	75-125	0	20	
Selenium	ug/L	ND	500	500	505	502	101	100	75-125	0	20	
Silver	ug/L	ND	250	250	249	246	100	99	75-125	1	20	
Vanadium	ug/L	ND	500	500	479	482	96	96	75-125	1	20	
Zinc	ug/L	5.6J	500	500	481	480	95	95	75-125	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP Field Blank (F)
Pace Project No.: 92443179

QC Batch: 496148
QC Batch Method: EPA 3010A
Associated Lab Samples: 92443179001

Analysis Method: EPA 6020B
Analysis Description: 6020 MET

METHOD BLANK: 2672412 Matrix: Water
Associated Lab Samples: 92443179001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cobalt	ug/L	ND	0.10	0.050	09/06/19 13:00	
Iron	ug/L	ND	50.0	7.5	09/06/19 13:00	
Lead	ug/L	ND	0.10	0.050	09/06/19 13:00	
Lithium	ug/L	ND	2.5	0.42	09/06/19 13:00	
Manganese	ug/L	ND	0.50	0.14	09/06/19 13:00	
Potassium	ug/L	ND	50.0	6.2	09/06/19 13:00	
Sodium	ug/L	ND	250	14.3	09/06/19 13:00	
Thallium	ug/L	ND	0.10	0.060	09/06/19 13:00	
Tin	ug/L	ND	0.50	0.090	09/06/19 13:00	

LABORATORY CONTROL SAMPLE: 2672413

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cobalt	ug/L	10	9.0	90	80-120	
Iron	ug/L	625	564	90	80-120	
Lead	ug/L	50	45.6	91	80-120	
Lithium	ug/L	50	45.6	91	80-120	
Manganese	ug/L	50	44.4	89	80-120	
Potassium	ug/L	625	558	89	80-120	
Sodium	ug/L	625	555	89	80-120	
Thallium	ug/L	10	9.1	91	80-120	
Tin	ug/L	50	44.8	90	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2672414 2672415

Parameter	Units	92443193001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cobalt	ug/L	0.31	10	10	8.9	9.0	85	87	75-125	1	20	
Iron	ug/L	1660	625	625	2160	2200	81	87	75-125	2	20	
Lead	ug/L	ND	50	50	44.3	44.7	88	89	75-125	1	20	
Lithium	ug/L	9.9	50	50	52.9	53.8	86	88	75-125	2	20	
Manganese	ug/L	183	50	50	224	227	82	89	75-125	2	20	
Potassium	ug/L	5790	625	625	6240	6430	73	103	75-125	3	20	M1
Sodium	ug/L	15400	625	625	15700	16200	44	128	75-125	3	20	M6
Thallium	ug/L	ND	10	10	8.8	9.0	88	90	75-125	2	20	
Tin	ug/L	ND	50	50	43.4	44.3	87	89	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP Field Blank (F)
Pace Project No.: 92443179

QC Batch: 34869 Analysis Method: EPA 9065
QC Batch Method: EPA 9065 Analysis Description: 9065 Phenolics
Associated Lab Samples: 92443179001

METHOD BLANK: 156873 Matrix: Water
Associated Lab Samples: 92443179001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Phenolics, Total Recoverable	mg/L	ND	0.050	0.050	09/06/19 19:49	

LABORATORY CONTROL SAMPLE: 156874

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	mg/L	0.5	0.42	84	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 156875 156876

Parameter	Units	92443178001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phenolics, Total Recoverable	mg/L	ND	0.5	0.5	0.39	0.36	74	69	80-120	6	20	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP Field Blank (F)
Pace Project No.: 92443179

QC Batch: 495319 Analysis Method: EPA 9056A
QC Batch Method: EPA 9056A Analysis Description: 9056 IC anions 28 Days
Associated Lab Samples: 92443179001

METHOD BLANK: 2668844 Matrix: Water
Associated Lab Samples: 92443179001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	08/30/19 20:14	
Fluoride	mg/L	ND	0.10	0.050	08/30/19 20:14	
Sulfate	mg/L	ND	1.0	0.50	08/30/19 20:14	

LABORATORY CONTROL SAMPLE: 2668845

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	52.1	104	90-110	
Fluoride	mg/L	2.5	2.6	105	90-110	
Sulfate	mg/L	50	52.2	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2668846 2668847

Parameter	Units	92443178001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	37.7	50	50	93.0	94.3	111	113	90-110	1	10	M1
Fluoride	mg/L	ND	2.5	2.5	3.1	3.0	123	118	90-110	4	10	M1
Sulfate	mg/L	62.2	50	50	108	110	92	95	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2668848 2668849

Parameter	Units	92443193001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.8	50	50	60.2	60.3	115	115	90-110	0	10	M1
Fluoride	mg/L	0.36	2.5	2.5	3.1	3.1	110	110	90-110	0	10	
Sulfate	mg/L	13.2	50	50	70.3	70.5	114	115	90-110	0	10	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PP Field Blank (F)
Pace Project No.: 92443179

QC Batch: 496159
QC Batch Method: EPA 9060A
Associated Lab Samples: 92443179001

Analysis Method: EPA 9060A
Analysis Description: 9060 TOC, AVL

METHOD BLANK: 2672474 Matrix: Water
Associated Lab Samples: 92443179001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mean Total Organic Carbon	mg/L	ND	1.0	0.50	09/05/19 20:48	
Total Organic Carbon	mg/L	ND	1.0	0.50	09/05/19 20:48	
Total Organic Carbon	mg/L	ND	1.0	0.50	09/05/19 20:48	
Total Organic Carbon	mg/L	ND	1.0	0.50	09/05/19 20:48	
Total Organic Carbon	mg/L	ND	1.0	0.50	09/05/19 20:48	

LABORATORY CONTROL SAMPLE: 2672475

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mean Total Organic Carbon	mg/L	25	24.4	97	75-125	
Total Organic Carbon	mg/L	25	24.2	97	75-125	
Total Organic Carbon	mg/L	25	24.4	97	75-125	
Total Organic Carbon	mg/L	25	24.4	97	75-125	
Total Organic Carbon	mg/L	25	24.5	98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2672476 2672477

Parameter	Units	92443193001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mean Total Organic Carbon	mg/L	0.57J	25	25	43.1	43.7	170	172	75-125	1	25	M1
Total Organic Carbon	mg/L	0.57J	25	25	43.0	43.2	170	171	75-125	1	25	M1
Total Organic Carbon	mg/L	0.55J	25	25	43.0	44.1	170	174	75-125	3	25	M1
Total Organic Carbon	mg/L	0.58J	25	25	43.8	43.9	173	173	75-125	0	25	M1
Total Organic Carbon	mg/L	0.56J	25	25	42.7	43.4	168	171	75-125	2	25	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2672478 2672479

Parameter	Units	92443188005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mean Total Organic Carbon	mg/L	26.4	25	25	44.1	44.0	71	71	75-125	0	25	M1
Total Organic Carbon	mg/L	25.9	25	25	43.8	44.4	72	74	75-125	1	25	M1
Total Organic Carbon	mg/L	26.5	25	25	44.4	43.9	72	70	75-125	1	25	M1
Total Organic Carbon	mg/L	27.0	25	25	44.1	44.1	68	68	75-125	0	25	M1
Total Organic Carbon	mg/L	26.0	25	25	44.2	43.8	73	71	75-125	1	25	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PP Field Blank (F)
Pace Project No.: 92443179

Sample: FIELD BLANK **Lab ID: 92443179001** Collected: 08/27/19 10:30 Received: 08/27/19 14:24 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.371 ± 0.268 (0.451) C:96% T:NA**	pCi/L	09/20/19 07:11	13982-63-3	
Radium-228	EPA 9320	**0.957 ± 0.462 (0.802) C:74% T:87%**	pCi/L	09/20/19 14:59	15262-20-1	
Total Radium	Total Radium Calculation	**1.33 ± 0.730 (1.25)**	pCi/L	09/23/19 11:58	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL - RADIOCHEMISTRY

Project: PP Field Blank (F)
Pace Project No.: 92443179

QC Batch: 360247 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 92443179001

METHOD BLANK: 1748643 Matrix: Water
Associated Lab Samples: 92443179001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.372 ± 0.173 (0.236) C:90% T:NA	pCi/L	09/20/19 15:10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL - RADIOCHEMISTRY

Project: PP Field Blank (F)
Pace Project No.: 92443179

QC Batch: 360248 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 92443179001

METHOD BLANK: 1748645 Matrix: Water
Associated Lab Samples: 92443179001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.904 ± 0.385 (0.612) C:83% T:83%	pCi/L	09/20/19 10:28	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: PP Field Blank (F)
Pace Project No.: 92443179

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-E	Pace Analytical Services - Eden
PASI-GA	Pace Analytical Services - Atlanta, GA
PASI-PA	Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
BC	The same analyte was detected in an associated blank at a concentration above 1/2 the reporting limit but below the laboratory reporting limit.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PP Field Blank (F)
Pace Project No.: 92443179

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92443179001	**FIELD BLANK**	SM 2540C-2011	495138		
92443179001	**FIELD BLANK**	EPA 3010A	496199	EPA 6010D	496267
92443179001	**FIELD BLANK**	EPA 3010A	496148	EPA 6020B	496197
92443179001	**FIELD BLANK**	EPA 7470A	495629	EPA 7470A	495735
92443179001	**FIELD BLANK**	EPA 9315	360247		
92443179001	**FIELD BLANK**	EPA 9320	360248		
92443179001	**FIELD BLANK**	Total Radium Calculation	362615		
92443179001	**FIELD BLANK**	EPA 9065	34869	EPA 9065	34892
92443179001	**FIELD BLANK**	EPA 9056A	495319		
92443179001	**FIELD BLANK**	EPA 9060A	496159		

Pace Analytical®	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☒

Sample Condition Upon Receipt

Client Name: Golder

Project #: **WO# : 92443179**

92443179

Courier: ☐ Commercial ☑ Fed Ex ☐ UPS ☐ USPS ☑ Pace ☐ Other: ☐ Client

Custody Seal Present? ☑ Yes ☐ No Seals Intact? ☑ Yes ☐ No

Date/Initials Person Examining Contents: 8-27-19

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other

Biological Tissue Frozen? RSB ☐ Yes ☐ No ☐ N/A

Thermometer: ☒ IR Gun ID: T-3 Type of Ice: ☑ Wet ☐ Blue ☐ None

Cooler Temp (°C): 3.8 Correction Factor: Add/Subtract (°C) 0.1

Cooler Temp Corrected (°C): 3.7

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (☐ N/A, water sample)
Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☑ N/A	8.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	☑ Yes	☐ No	☐ N/A	9.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☑ No	☑ N/A	10.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: Date/Time:

Project Manager SCURF Review: NMG Date: 9/10/19

Project Manager SRF Review: ACP Date: 091019

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project # **WO#:92443179**

PM: NMG **Due Date: 09/11/19**

CLIENT: 92-Golder

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1		1	1			2								1				3						2	DPIN			
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A — Required Client Information:

Company:	Golder Associates
Address:	2108 W. Laburnum Ave.
	Suite 200, Richmond, VA 23227
Email:	arreynolds@golder.com
Phone: 804-358-7400	Fax 804-358-2900
Requested Due Date:	Standard Turnaround Time

Section B — Required Project Information:

Report To:	Mike Williams
Copy To:	Amanda Reynolds
Purchase Order #:	
Project Name:	Possum Point - Field Blank (F)
Project #:	1911226/1662150

Section C — Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	nicole.gasiorowski@pacelabs.com,
Pace Profile #:	7295

Regulatory Agency:

State / Location: VA

Requested Analysis Filtered (Y/N): Y/N: N N N N N N N

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: 6010/6020 metals	7470 Mercury	9056 Anions (Cl, F, SO4)	TDS	9060 TOC	9065 Phenolics	Radium 226/228	Residual Chlorine (Y/N)	92443179
1	—	WT																X	X	X	X	X	X	X		* All samples
2	FIELD BLANK	WT		8/27/19	1030	—	—	X	10	2	1	4	3					X	X	X	X	X	X	X		preserved on ice
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

001

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature] / Golder	8/27/19	1400	[signature]	8/27	224				
	[signature]	8/27	354	Rachel Burruss	8-27-19	1554	3.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: M. Antal

SIGNATURE of SAMPLER: [signature] DATE Signed: 8/27/19

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
3.7	Y	Y	Y

Air Water & Soil Laboratories, Inc.
1941 Reymet Road
Richmond, VA 23237
(804)-358-8295 - Telephone
(804)-358-8297 - Fax

Analysis Detects Report

Client Name:

Date Issued:

Client Site ID:

Submitted To:

Laboratory Sample ID: **Client Sample ID:**

Parameter	Samp ID	Reference Method	Sample Results	Qual	DL	LOQ	Dil. Factor	Units

There are no reportable results for target analytes in this report.

Note that this report is not the "Certificate of Analysis". This report only lists the target analytes that displayed concentrations that exceeded the detection limit specified for that analyte. For a complete listing of all analytes requested and the results of the analysis see the " Certificate of Analysis".

AIR WATER & SOIL LABORATORIES, INC.
1941 Reymet Road ● Richmond, Virginia 23237 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Sample Delivery Group ID Possum Point 1662150

Client Name:	Golder Associates, Inc.	Date Issued:	9/16/2019 9:09:37AM
	2108 W. Laburnum Ave. Suite 200		
	Richmond, VA 23227		
Submitted To:	Amanda Reynolds		
Client Site I.D.:	Possum Point PS	Purchase Order:	

Enclosed are the results of analyses for samples received by the laboratory in sample delivery group Possum Point 1662150 . Work orders included in the sample delivery group:

Work Order	Receive Date	Project Number
19H1087	8/27/2019 3:55:00PM	1662150

Ted Soyars

Technical Director

End Notes:
The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

Air Water & Soil Laboratories, Inc.
1941 Reymet Road
Richmond, Virginia 23237
(804)-358-8295 - Telephone
(804)-358-8297 - Fax

Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:09:37AM

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Field Blank	19H1087-06	Ground Water	08/27/2019 10:30	08/27/2019 15:55

Air Water & Soil Laboratories, Inc.
1941 Reymet Road
Richmond, Virginia 23237
(804)-358-8295 - Telephone
(804)-358-8297 - Fax

Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:09:37AM

Client Sample ID: **Field Blank** **Laboratory Sample ID:** **19H1087-06**

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	DL	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Chromium, Hexavalent	06	18540-29-9	SW7196A	08/28/2019 07:35	08/28/2019 13:30	BLOD		0.005	0.005	1	mg/L	MWL

Air Water & Soil Laboratories, Inc.
1941 Reymet Road
Richmond, Virginia 23237
(804)-358-8295 - Telephone
(804)-358-8297 - Fax

Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:09:37AM

Wet Chemistry Analysis - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BCH0936 - No Prep Wet Chem										
Blank (BCH0936-BLK1)				Prepared & Analyzed: 08/28/2019						
Chromium, Hexavalent	BLOD	0.005	mg/L							
LCS (BCH0936-BS1)				Prepared & Analyzed: 08/28/2019						
Chromium, Hexavalent	0.102	0.005	mg/L	0.100		102	80-120			
Matrix Spike (BCH0936-MS1)		**Source: 19H1087-01**		Prepared & Analyzed: 08/28/2019						
Chromium, Hexavalent	BLOD	0.005	mg/L	0.100	BLOD		80-120			*M*
Matrix Spike (BCH0936-MS2)		**Source: 19H1088-04**		Prepared & Analyzed: 08/28/2019						
Chromium, Hexavalent	0.005	0.005	mg/L	0.100	BLOD	5.00	80-120			*M*
Matrix Spike Dup (BCH0936-MSD1)		**Source: 19H1087-01**		Prepared & Analyzed: 08/28/2019						
Chromium, Hexavalent	BLOD	0.005	mg/L	0.100	BLOD		80-120		20	*M*
Matrix Spike Dup (BCH0936-MSD2)		**Source: 19H1088-04**		Prepared & Analyzed: 08/28/2019						
Chromium, Hexavalent	0.005	0.005	mg/L	0.100	BLOD	5.00	80-120	0.00	20	*M*

Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			**Preparation Method:**	**No Prep Wet Chem**	
19H1087-06	100 mL / 100 mL	SW7196A	BCH0936	SCH0861	AH90141

Air Water & Soil Laboratories, Inc.
1941 Reymet Road
Richmond, Virginia 23237
(804)-358-8295 - Telephone
(804)-358-8297 - Fax

Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:09:37AM

Certified Analyses included in this Report

Analyte	Certifications
SW7196A in Non-Potable Water	
Chromium, Hexavalent	VELAP

Code	Description	Cert Number	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2019
NC	North Carolina DENR	495	12/31/2019
VELAP Certificate #4337	NELAC-Virginia Certificate #10503	460021	06/14/2020
WVDEP	West Virginia DEP	350	11/30/2019

Air Water & Soil Laboratories, Inc.
1941 Reymet Road
Richmond, Virginia 23237
(804)-358-8295 - Telephone
(804)-358-8297 - Fax

Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:09:37AM

Qualifiers and Definitions

M	Matrix spike recovery is outside established acceptance limits
RPD	Relative Percent Difference
Qual	Qualifers
-RE	Denotes sample was re-analyzed
LOD	Limit of Detection
BLOD	Below Limit of Detection
LOQ	Limit of Quantitation
DF	Dilution Factor
TIC	Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.
PCBs, Total	Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.

AIR WATER & SOIL LABORATORIES, INC.

1941 REYMET ROAD
RICHMOND, VIRGINIA 23237
(804) 358-8295 PHONE
(804)358-8297 FAX

Chain of Custody
Effective: Nov 15, 2018

CHAIN OF CUSTODY

PAGE 1 OF 1

COMPANY NAME: Golder Associates	INVOICE TO: Accounts Payable	PROJECT NAME/Quote #: B-Pond D
CONTACT: Amanda Reynolds	INVOICE CONTACT: A. Reynolds	SITE NAME: Possum Point Power Station- Dem.
ADDRESS: 2108 W. Laburnum Ave, Suite 200, Richmond, VA 23227	INVOICE ADDRESS:	PROJECT NUMBER: 1662150
PHONE #: 804-358-7900	INVOICE PHONE #:	P.O. #:
FAX #: 804-358-2900	EMAIL: Amanda_Reynolds@golder.com	Pretreatment Program:
Is sample for compliance reporting? (YES) NO	Regulatory State: VA	Is sample from a chlorinated supply? YES (NO)
SAMPLER NAME (PRINT): Nathaniel Chien	SAMPLER SIGNATURE: [signature]	Turn Around Time: Circle: (10) 5 Days or __ Day(s)

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other_____

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE): Hexavalent Chromium (by 7196)							
1) SD-1603	X					8/27/19	0913	0913	GW	1	X							
2) SD-1604	X					8/27/19	0945	0945	GW	1	X							
3) ED-1605	X					8/27/19	1113	1113	GW	1	X							
4) Duplicate	X					8/27/19	1132	1132	GW	1	X							
5) ED-1612	X					8/27/19	1253	1253	GW	1	X							
6) Field Blank	X					8/27/19	1030	1030	GW	1	X							
7) ED-24R	X					8/27/19	0948	0948	GW	1	X							
8)																		
9)																		
10)																		

COMMENTS

Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol

PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)

All samples preservation ice ✓

RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
[signature]	8/27/19 1400	[signature]	8-27-19 1417
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
COURIER		[signature] 27 AUG 2019	15:55
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME

QC Data Package
Level III ☐
Level IV ☐
Level II

LAB USE ONLY Therm ID: 277 COOLER TEMP 16.9 °C
Custody Seals used and intact? (Y / N) Received on ice? (Y / N)

GA 19H1087
Possum Point PS- Bill to Golder
Recd: 08/27/2019 Due: 09/11/2019

v130325002

Air Water & Soil Laboratories, Inc.
1941 Reymet Road
Richmond, Virginia 23237
(804)-358-8295 - Telephone
(804)-358-8297 - Fax

Certificate of Analysis

Client Name: Golder Associates, Inc.
Client Site I.D.: Possum Point PS
Submitted To: Amanda Reynolds

Date Issued: 9/16/2019 9:09:37AM

Sample Conditions Checklist

Samples Received at:	**16.90°C**
How were samples received?	Courier
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Work Order Comments

APPENDIX F
HISTORICAL LABORATORY DETECTIONS

Appendix F
Historical Laboratory Detections
Possum Point Power Station, Ponds ABC
Permit No. 617

		Location	ABC-1602	ABC-1607	ABC-1608	ABC-1614	Field Blank
Sample Date	Method	Unit					
Antimony							
11/02-04/2016	SW6020B	µg/L	< 1	< 1	< 1	< 1	< 1
12/12-13/2016	SW6020B	µg/L	< 1	< 1	< 1	< 1	< 0.1
01/25-26/2017	SW6020B	µg/L	< 1	< 1	< 1	< 1	< 0.1
03/06-07/2017	SW6020B	µg/L	< 1	< 1	< 1	< 1	< 0.1
04/19-21/2017	SW6020B	µg/L	< 1	< 1	< 1	< 1	< 0.1
05/30-06/01/2017	SW6020B	µg/L	< 1	< 1	< 1	< 1	< 0.1
07/10-12/2017	SW6020B	µg/L	< 1	< 1	< 1	< 1	< 0.1
08/21-23/2017	SW6020B	µg/L	< 1	< 1	< 1	< 1	< 1
06/27/2018	SW6010D	µg/L	< 3.9	< 3.9	< 3.9	< 3.9	< 3.9
09/19/2018	SW6010D	µg/L	< 3.9	< 3.9	< 3.9	< 3.9	< 3.9
12/12-13/2018	SW6010D	µg/L	< 3.9	< 3.9	< 3.9	< 3.9	< 3.9
08/26-29/2019	SW6010D	µg/L	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Arsenic							
11/02-04/2016	SW6020B	µg/L	< 0.5 U	0.88 J	6.8	25.4	< 0.5
12/12-13/2016	SW6020B	µg/L	< 0.5 U	1.1	49.3	28.1	< 0.05
01/25-26/2017	SW6020B	µg/L	0.63 J	0.98 J	36	37.4	< 0.05
03/06-07/2017	SW6020B	µg/L	< 0.5 U	1.3	24.1	39.5	< 0.05
04/19-21/2017	SW6020B	µg/L	< 0.5 U	1.5 J+	15	32.8	0.4
05/30-06/01/2017	SW6020B	µg/L	< 0.5 U	1.1	11.5	31	0.071 J
07/10-12/2017	SW6020B	µg/L	< 0.5 U	1.5	12.2	31.7	< 0.05
08/21-23/2017	SW6020B	µg/L	< 0.5 U	0.95 J	12.4	36.9	< 0.5
06/27/2018	SW6010D	µg/L	< 5.0	< 5.0	9.6 J	35.4	< 5.0
09/19/2018	SW6010D	µg/L	< 5.0	< 5.0	9.3 J	39.2	< 5.0
12/12-13/2018	SW6010D	µg/L	< 5.0 U	< 5.0 U	< 5.0 U	40.1	< 5.0
08/26-29/2019	SW6010D	µg/L	< 4.7	< 4.7	< 4.7	30.1	< 4.7
Barium							
11/02-04/2016	SW6020B	µg/L	52.9	34.1	157	230	< 1.1
12/12-13/2016	SW6020B	µg/L	53 B	33.9 B	150	263	15.8
01/25-26/2017	SW6020B	µg/L	67.3	31.4	132	222	< 0.11
03/06-07/2017	SW6020B	µg/L	77.6	45	125	236	< 0.11
04/19-21/2017	SW6020B	µg/L	81	33.9	89.9	203	< 0.11
05/30-06/01/2017	SW6020B	µg/L	81.4	35.1	95.1	208	< 0.11
07/10-12/2017	SW6020B	µg/L	75.8	31.3	93	243	< 0.11
08/21-23/2017	SW6020B	µg/L	73.3	29.4	96.2	251	< 1.1
06/27/2018	SW6010D	µg/L	82.8	36.0	79.4	235	< 2.5
09/19/2018	SW6010D	µg/L	68.6	33.7	72.2	244	< 2.5
12/12-13/2018	SW6010D	µg/L	68.5	37.5	64.3	204	< 2.5
08/26-29/2019	SW6010D	µg/L	62.1	54.1 J+	66.2	211	1.1 J
Beryllium							
11/02-04/2016	SW6020B	µg/L	0.4 J	0.2 J	< 0.2	0.26 J	< 0.2
12/12-13/2016	SW6020B	µg/L	0.61 B	< 0.2	< 0.2	0.58 B	0.16
01/25-26/2017	SW6020B	µg/L	0.36 J	< 0.2	< 0.2	< 0.2	< 0.02
03/06-07/2017	SW6020B	µg/L	0.7 J	< 0.2	< 0.2	0.28 J	< 0.02
04/19-21/2017	SW6020B	µg/L	0.65 J	< 0.2	< 0.2	< 0.2	< 0.02
05/30-06/01/2017	SW6020B	µg/L	0.76 J	< 0.2	< 0.2	< 0.2	< 0.02
07/10-12/2017	SW6020B	µg/L	0.9 J	< 0.2	< 0.2	< 0.2	< 0.02
08/21-23/2017	SW6020B	µg/L	0.67 J	0.31 J	< 0.2	< 0.2	< 0.2
06/27/2018	SW6010D	µg/L	0.64 J	< 0.50	< 0.50	< 0.50	< 0.2
09/19/2018	SW6010D	µg/L	0.65 J	< 0.50	< 0.50	< 0.50	< 0.2
12/12-13/2018	SW6010D	µg/L	0.54 J	< 0.50	< 0.50	< 0.50	< 0.50
08/26-29/2019	SW6010D	µg/L	0.60 J	< 0.50	< 0.50	< 0.50	< 0.20
Boron							
11/02-04/2016	SW6020B	µg/L	24.6 J	280	234 J	218 J	< 5.7
12/12-13/2016	SW6020B	µg/L	35 B	211 J	230 J	269	< 0.57
01/25-26/2017	SW6020B	µg/L	41.4 J	279	311	251	2.8 J
03/06-07/2017	SW6020B	µg/L	45.3 J	437	339	265	16.3 J
04/19-21/2017	SW6020B	µg/L	18.5 J	277	232 J	194 J	94.9
05/30-06/01/2017	SW6020B	µg/L	93.6 J+	340	284	223 J	66.1
07/10-12/2017	SW6010	µg/L	< 25	275	226	256	< 25
08/21-23/2017	SW6010	µg/L	< 25	256	212	242	< 25
06/27/2018	SW6010D	µg/L	< 25	240	170	240	< 25
09/19/2018	SW6010D	µg/L	< 25	240	210	300	< 25
12/12-13/2018	SW6010D	µg/L	< 25	250	210	240	48 J
03/11-15/2019	SW6010D	µg/L	< 25	190	150	180	< 25
08/26-29/2019	SW6010D	µg/L	8.8 J	190	220	240	7.4 J

Appendix F
Historical Laboratory Detections
Possum Point Power Station, Ponds ABC
Permit No. 617

		Location	ABC-1602	ABC-1607	ABC-1608	ABC-1614	Field Blank
Sample Date	Method	Unit					
Cadmium							
11/02-04/2016	SW6020B	µg/L	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
12/12-13/2016	SW6020B	µg/L	< 0.6	< 0.6	< 0.6	< 0.6	< 0.06
01/25-26/2017	SW6020B	µg/L	< 0.6	< 0.6	< 0.6	< 0.6	< 0.06
03/06-07/2017	SW6020B	µg/L	< 0.6	< 0.6	< 0.6	< 0.6	< 0.06
04/19-21/2017	SW6020B	µg/L	< 0.6	< 0.6	< 0.6	< 0.6	< 0.06
05/30-06/01/2017	SW6020B	µg/L	< 0.6	< 0.6	< 0.6	< 0.6	< 0.06
07/10-12/2017	SW6020B	µg/L	< 0.6	< 0.6	< 0.6	< 0.6	< 0.06
08/21-23/2017	SW6020B	µg/L	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
06/27/2018	SW6010D	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
09/19/2018	SW6010D	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
12/12-13/2018	SW6010D	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
08/26-29/2019	SW6010D	µg/L	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40
Calcium							
11/02-04/2016	SW6020B	µg/L	4700	33100	19100	68400	< 1030
12/12-13/2016	SW6020B	µg/L	5000 B	22500	29800	78900	1910
01/25-26/2017	SW6020B	µg/L	5570	18600	29000	62200	< 103
03/06-07/2017	SW6020B	µg/L	6070	19100	28600	59600	< 103
04/19-21/2017	SW6020B	µg/L	6280	14800	22500	53900	< 103
05/30-06/01/2017	SW6020B	µg/L	5430	15100	21700	55900	< 103
07/10-12/2017	SW6020B	µg/L	5800	15000	21900	63100	< 103
08/21-23/2017	SW6020B	µg/L	6380	13900	23600	60500	< 1030
06/27/2018	SW6010D	µg/L	6300	13100	16300	50300	< 50
09/19/2018	SW6010D	µg/L	5400	11100	19000	49900	< 50
12/12-13/2018	SW6010D	µg/L	5600	7400	17900	34900	< 50
03/11-15/2019	SW6010D	µg/L	5900	6200	12600	22300	< 50
08/26-29/2019	SW6010D	µg/L	5900	6600	19600	35000	< 24
Chloride							
11/02-04/2016	SW9056A	mg/L	5.0	17.4	59.5	19.1	< 0.10
12/12-13/2016	SW9056	mg/L	5.1	14.4	47.0	15.0	< 2.5
01/25-26/2017	SW9056A	mg/L	3.1	16.6	53.1	16.0	< 0.10
03/06-07/2017	SW9056A	mg/L	3.6	15.9	53.1	14.6	< 0.10
04/19-21/2017	SW9056A	mg/L	2.6	16.8	56.9	15.5	< 0.50
05/30-06/01/2017	SW9056A	mg/L	2.6	16.7	54.9	18.1	< 0.50
07/10-12/2017	SW9056A	mg/L	2.5	16.9	53.8	19.3	< 0.50
08/21-23/2017	SW9056A	mg/L	2.8	17.4	60.2	20.0	< 0.50
06/27/2018	E300	mg/L	2.4	19.5	54.1	20.3	< 0.50
09/19/2018	E300	mg/L	2.6	17.0	54.9	24.5	< 0.50
12/12-13/2018	E300	mg/L	2.7	15.7	50.9	17.9	0.61 J
03/11-15/2019	E300	mg/L	2.7	11.1	55.4	16.2	< 0.60
08/26-29/2019	SW9056A	mg/L	2.8	12.2	52.8	17.2	< 0.60
Chromium							
11/02-04/2016	SW6020B	µg/L	< 1	< 1	2 J	1.1 J	< 1
12/12-13/2016	SW6020B	µg/L	< 1	< 1	< 1	< 1	2.3
01/25-26/2017	SW6020B	µg/L	< 1	< 1	< 1	< 1	1.8
03/06-07/2017	SW6020B	µg/L	1.1 B	< 1	< 1	2.3 B	0.61
04/19-21/2017	SW6020B	µg/L	< 1	1 J+	< 1	< 1	0.12 J
05/30-06/01/2017	SW6020B	µg/L	< 1	< 1	< 1	< 1	< 0.1
07/10-12/2017	SW6020B	µg/L	< 1	< 1	< 1	< 1	0.12 J
08/21-23/2017	SW6020B	µg/L	< 1	< 1	< 1	1.2 J	< 1
06/27/2018	SW6010D	µg/L	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
09/19/2018	SW6010D	µg/L	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
12/12-13/2018	SW6010D	µg/L	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
08/26-29/2019	SW6010D	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chromium VI							
11/02-04/2016	SW7196	µg/L	< 10	< 10	< 10	< 10	< 10
12/12-13/2016	SW7196	µg/L	< 10	< 10	17 ^	< 10	< 10
01/25-26/2017	SW7196A	µg/L	6 ^	< 5	< 5	< 5	< 5
03/06-07/2017	SW7196A	µg/L	< 5	< 5	< 5	< 5	< 5
04/19-21/2017	SW7196A	µg/L	< 5	< 5	< 5	< 5	< 5
05/30-06/01/2017	SW7196A	µg/L	< 5	< 5	< 5	< 5	< 5
07/10-12/2017	SW7196A	µg/L	< 5	< 5	< 5	< 5	< 5
08/21-23/2017	SW7196A	µg/L	< 5	< 5	< 5	< 5	< 5
06/27/2018	SW7196A	µg/L	< 5	< 5	< 5	0.006 (ND)	< 5
09/19/2018	SW7196A	µg/L	< 5	< 5	< 5	< 5	< 5
12/12-13/2018	SW7196A	µg/L	< 5	< 5	26	< 5	< 5
08/26-29/2019	SW7196A	µg/L	< 5	5 R	< 5	< 5	< 5

Appendix F
Historical Laboratory Detections
Possum Point Power Station, Ponds ABC
Permit No. 617

		Location	ABC-1602	ABC-1607	ABC-1608	ABC-1614	Field Blank
Sample Date	Method	Unit					
Cobalt							
11/02-04/2016	SW6020B	µg/L	3.5	8.3	36.1	17.3	< 0.1
12/12-13/2016	SW6020B	µg/L	5.7	7.6	36.4	19.2	0.46
01/25-26/2017	SW6020B	µg/L	9.2	7.8	35.4	17.1	0.018 J
03/06-07/2017	SW6020B	µg/L	11	10.2	36	19.2	< 0.01
04/19-21/2017	SW6020B	µg/L	13.6	7.6	28.5	18.5	< 0.01
05/30-06/01/2017	SW6020B	µg/L	15.3	7.9	27.7	21.2	< 0.01
07/10-12/2017	SW6020B	µg/L	18.4	7.5	30	25.9	< 0.01
08/21-23/2017	SW6020B	µg/L	18.8 J+	7.8	30.6	25	0.1 J
06/27/2018	SW6010D	µg/L	9.8	6.8	21.8	20.9	< 2.5
09/19/2018	SW6010D	µg/L	9.9	6.9	22.2	21.8	< 2.5
12/12-13/2018	SW6010D	µg/L	10	6.5	21.0	17.8	< 2.5
08/26-29/2019	SW6020B	µg/L	11.1	8.1	22.5	21.1	< 0.050
Copper							
11/02-04/2016	SW6020B	µg/L	1.3 J	< 1.2	1.9 J	< 1.2	< 1.2
12/12-13/2016	SW6020B	µg/L	2.4 B	1.3 B	< 1.2	< 1.2	0.85
01/25-26/2017	SW6020B	µg/L	10.1	< 1.2	< 1.2	< 1.2	0.59
03/06-07/2017	SW6020B	µg/L	16	< 1.2	< 1.2	< 1.2	< 0.12
04/19-21/2017	SW6020B	µg/L	17.5 J+	< 1.2	< 1.2	2.7 J+	0.17 J
05/30-06/01/2017	SW6020B	µg/L	14.4	< 1.2	< 1.2	1.3 J+	0.13 J
07/10-12/2017	SW6020B	µg/L	13.6	< 1.2	< 1.2	< 1.2	< 0.12
08/21-23/2017	SW6020B	µg/L	12.9	< 1.2	< 1.2	< 1.2	< 1.2
06/27/2018	SW6020A	µg/L	7.6	0.35 J	0.75 J	1.5	0.67 J
09/19/2018	SW6020A	µg/L	6.9	0.22 J+	0.22 J	0.29 J+	0.64 J
12/12-13/2018	SW6020B	µg/L	5.8	0.52	< 0.23	< 0.23	1.4
08/26-29/2019	SW6010D	µg/L	4.9 J	< 2.1	< 2.1	< 2.1	< 2.1
Fluoride							
11/02-04/2016	SW9056A	mg/L	0.035 J	0.028 J	0.064 J	0.15	< 0.020
12/12-13/2016	SW9056	mg/L	0.093	0.063	0.23	0.23	< 0.025
01/25-26/2017	SW9056A	mg/L	< 0.020	< 0.020	0.15	0.12	< 0.020
03/06-07/2017	SW9056A	mg/L	< 0.020	< 0.020	0.091 J	0.10	< 0.020
04/19-21/2017	SW9056A	mg/L	< 0.050	< 0.050	0.098 J	0.13	< 0.050
05/30-06/01/2017	SW9056A	mg/L	< 0.050	< 0.050	0.12	0.14	< 0.050
07/10-12/2017	SW9056A	mg/L	< 0.050	< 0.050	0.093 J	0.14	< 0.050
08/21-23/2017	SW9056A	mg/L	< 0.050	< 0.050	0.10	0.16	< 0.050
06/27/2018	E300	mg/L	< 0.050	< 0.050	< 0.050	0.077 J	< 0.050
09/19/2018	E300	mg/L	< 0.050	< 0.050	0.086 J	0.12	< 0.050
12/12-13/2018	E300	mg/L	< 0.050	0.053 J	0.14	0.10	< 0.050
03/11-15/2019	E300	mg/L	< 0.050	< 0.050	0.11	0.12	< 0.050
08/26-29/2019	SW9056A	mg/L	< 0.050	< 0.050	0.064 J	0.11	< 0.050
Hardness							
11/02-04/2016	SW6020B	mg/L	23.8	118	97.4	259	< 5.41
12/12-13/2016	SW6020B	mg/L	24.9 B	79.8	154	289	8.33
01/25-26/2017	SW6020B	mg/L	28.5	67.8	145	228	< 0.541
03/06-07/2017	SW6020B	mg/L	30.6	71.7	139	220	< 0.541
04/19-21/2017	SW6020B	mg/L	32.6	56.1	105	199	< 0.541
05/30-06/01/2017	SW6020B	mg/L	28.7	55.8	102	210	< 0.541
07/10-12/2017	SW6020B	mg/L	30	55.5	104	235	< 0.541
08/21-23/2017	SW6020B	mg/L	31.8	53	109	226	< 5.41
06/27/2018	E200.7	mg/L	34.6	50.5	78	187	< 0.662
09/19/2018	E200.7	mg/L	27.9	42.1	82.1	189	< 0.662
12/12-13/2018	E200.7	mg/L	27.5	33.1	79.2	126	< 0.662
08/26-29/2019	SW6010D	mg/L	29.7	30.8	85.5	135	< 0.131
Iron							
11/02-04/2016	SW6020B	µg/L	1230	2330	20400	15100	< 118
12/12-13/2016	SW6020B	µg/L	1890	2770	34000	20900	202
01/25-26/2017	SW6020B	µg/L	1950	2860	29900	19700	< 11.8
03/06-07/2017	SW6020B	µg/L	683	3500	21900	23500	< 11.8
04/19-21/2017	SW6020B	µg/L	188 J	3700	15100	24300	< 11.8
05/30-06/01/2017	SW6020B	µg/L	< 118	3780	15300	28200	< 11.8
07/10-12/2017	SW6020B	µg/L	< 118	3860	14900	37700	< 11.8
08/21-23/2017	SW6020B	µg/L	124 J	4000	15200	37300	< 11.8
06/27/2018	E200.7	µg/L	196	6250	12100	40600	< 25.0
09/19/2018	E200.7	µg/L	117	5280	7710	44600	< 25
12/12-13/2018	E200.7	µg/L	74.2	4500	6310	32100	< 25
08/26-29/2019	SW6020B	µg/L	280	1350 J	5780	32800	< 7.5

Appendix F
Historical Laboratory Detections
Possum Point Power Station, Ponds ABC
Permit No. 617

		Location	ABC-1602	ABC-1607	ABC-1608	ABC-1614	Field Blank
Sample Date	Method	Unit					
Lead							
11/02-04/2016	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
12/12-13/2016	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	0.13
01/25-26/2017	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	< 0.08
03/06-07/2017	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	< 0.08
04/19-21/2017	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	< 0.08
05/30-06/01/2017	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	< 0.08
07/10-12/2017	SW6020B	µg/L	< 0.8	< 0.08	< 0.08	< 0.8	< 0.08
08/21-23/2017	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
06/27/2018	SW6010D	µg/L	< 2.5	< 2.5	< 2.5	2.7 J	< 2.5
09/19/2018	SW6010D	µg/L	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
12/12-13/2018	SW6010D	µg/L	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
08/26-29/2019	SW6020B	µg/L	0.19	0.085 J	0.056 J	0.50	< 0.050
Lithium							
11/02-04/2016	SW6020B	µg/L	10.3 B	5.7 B	17.4 J	25.3	2.2 B
12/12-13/2016	SW6020B	µg/L	9.8 J	1.3 B	15.3 J	22 J	1.2 J
01/25-26/2017	SW6020B	µg/L	10.4 J	3.7 J	18.2 J	26.9	0.22 J
03/06-07/2017	SW6020B	µg/L	11.2 J	4.3 J	20.4 J	27.9	< 0.07
04/19-21/2017	SW6020B	µg/L	10.7 J+	3.9 J+	18.9 J+	25.5	< 0.07
05/30-06/01/2017	SW6020B	µg/L	15 J+	5.3 J+	18.6 J+	25.1	0.078 J
07/10-12/2017	SW6020B	µg/L	10.5 J	4.4 J+	18.4 J	29.2 J+	0.18 J
08/21-23/2017	SW6020B	µg/L	10.4 J	3.2 J	16 J	31.2 J+	< 0.7
06/27/2018	SW6010C	µg/L	9.8	< 2.8	12.2	24.2	< 2.8
09/19/2018	SW6010C	µg/L	10.2	< 4.6	17.5	26.3	< 4.6
12/12-13/2018	SW6020B	µg/L	8.9	3.3	15.0	17.8	< 0.42
08/26-29/2019	SW6020B	µg/L	9.4	4.6	14.2	17.5	< 0.42
Manganese							
11/02-04/2016	SW6020B	µg/L	261	425	283	599	< 1.9
12/12-13/2016	SW6020B	µg/L	285	320	261	720	10.1
01/25-26/2017	SW6020B	µg/L	309	276	238	592	0.6
03/06-07/2017	SW6020B	µg/L	257	309	233	753	< 0.19
04/19-21/2017	SW6020B	µg/L	236	247	183	570	< 0.19
05/30-06/01/2017	SW6020B	µg/L	225	248	186	596	< 0.19
07/10-12/2017	SW6020B	µg/L	219	245	181	670	< 0.19
08/21-23/2017	SW6020B	µg/L	238	239	190	642	< 0.19
06/27/2018	E200.7	µg/L	224	236	149	507	< 2.5
09/19/2018	E200.7	µg/L	187	208	144	533	< 2.5
12/12-13/2018	E200.7	µg/L	180	173	141	373	< 2.5
08/26-29/2019	SW6020B	µg/L	166	170	152	348	< 0.14
Mercury							
11/02-04/2016	SW7470	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
12/12-13/2016	SW7470	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
01/25-26/2017	SW7470	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
03/06-07/2017	SW7470	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
04/19-21/2017	SW7470	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
05/30-06/01/2017	SW7470	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
07/10-12/2017	SW7470	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
08/21-23/2017	SW7470	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
06/27/2018	SW7470A	µg/L	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
09/19/2018	SW7470A	µg/L	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
12/12-13/2018	SW7470A	µg/L	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
08/26-29/2019	SW7470A	µg/L	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Molybdenum							
11/02-04/2016	SW6020B	µg/L	< 1.1	< 1.1	< 1.1	2.5 J	< 1.1
12/12-13/2016	SW6020B	µg/L	< 1.1	< 1.1	2.2 J	3.4 J	< 0.11
01/25-26/2017	SW6020B	µg/L	< 1.1	< 1.1	1.3 J	2.2 J	< 0.11
03/06-07/2017	SW6020B	µg/L	< 1.1	< 1.1	< 1.1	2.5 J	0.26 J
04/19-21/2017	SW6020B	µg/L	< 1.1	< 1.1	< 1.1	1.9 J	< 0.11
05/30-06/01/2017	SW6020B	µg/L	< 1.1	< 1.1	< 1.1	1.7 J	< 0.11
07/10-12/2017	SW6020B	µg/L	< 1.1	< 1.1	< 1.1	1.8 J	< 0.11
08/21-23/2017	SW6020B	µg/L	< 1.1	< 1.1	< 1.1	2.1 J	< 1.1
06/27/2018	SW6010D	µg/L	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
09/19/2018	SW6010D	µg/L	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
12/12-13/2018	SW6010D	µg/L	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
08/26-29/2019	SW6010D	µg/L	< 0.90	1.0 J	1.7 J	1.6 J	< 0.90

Appendix F
Historical Laboratory Detections
Possum Point Power Station, Ponds ABC
Permit No. 617

		Location	ABC-1602	ABC-1607	ABC-1608	ABC-1614	Field Blank
Sample Date	Method	Unit					
Nickel							
11/02-04/2016	SW6020B	µg/L	< 4.5	7.6	23	15.6	< 4.5
12/12-13/2016	SW6020B	µg/L	< 4.5	7.1	24.5	15.5	1.1
01/25-26/2017	SW6020B	µg/L	5.4 B	8	25.2	15.1	1.2
03/06-07/2017	SW6020B	µg/L	7.2	11.3	27.4	16.3	1
04/19-21/2017	SW6020B	µg/L	8.2	8.1	20.6	14.1	< 0.45
05/30-06/01/2017	SW6020B	µg/L	7.5	8.6	21.1	15.6	< 0.45
07/10-12/2017	SW6020B	µg/L	8.9	8.1	21.9	18.8	< 0.45
08/21-23/2017	SW6020B	µg/L	9.9	9.1	22	18.3	< 4.5
06/27/2018	SW6020A	µg/L	6.0	8.4	16.5	16.2	0.13 J
09/19/2018	SW6020A	µg/L	6.2	8.9	18.6	19.7 J+	0.22 J
12/12-13/2018	SW6020B	µg/L	5.5	7.8	16.7	14.2	< 0.11
08/26-29/2019	SW6010D	µg/L	6.2	10	17.9	15.5	< 0.90
pH							
11/02-04/2016	FIELD	SU	5.46	5.66	5.94	6.60	--
12/12-13/2016	FIELD	SU	5.65	5.72	6.35	6.79	--
01/25-26/2017	FIELD	SU	4.98	5.04	5.74	6.19	--
03/06-07/2017	FIELD	SU	4.95	5.24	5.90	6.39	--
04/19-21/2017	FIELD	SU	4.82	5.36	5.86	6.47	--
05/30-06/01/2017	FIELD	SU	4.60	5.34	5.85	6.41	--
07/10-12/2017	FIELD	SU	4.67	5.30	5.81	6.40	--
08/21-23/2017	FIELD	SU	4.73	5.30	5.91	6.44	--
06/27/2018	FIELD	SU	4.70	5.15	5.68	6.37	--
09/19/2018	FIELD	SU	4.59	5.11	5.61	6.29	--
12/12-13/2018	FIELD	SU	4.08	4.67	5.47	6.14	--
03/11-15/2019	FIELD	SU	4.43	4.86	5.48	6.13	--
08/26-29/2019	FIELD	SU	4.17	4.73	5.63	6.06	--
Phenolics							
08/26-29/2019	SW9065	µg/L	< 50	< 50	< 50	< 50	< 50
Potassium							
08/26-29/2019	SW6020B	µg/L	5470	1910	3830	4250	< 6.2
Selenium							
11/02-04/2016	SW6020B	µg/L	< 3.2	< 3.2	< 3.2	< 3.2	< 3.2
12/12-13/2016	SW6020B	µg/L	< 3.2	< 3.2	3.5 J	< 3.2	0.43 J
01/25-26/2017	SW6020B	µg/L	< 3.2	< 3.2	< 3.2	< 3.2	< 0.32
03/06-07/2017	SW6020B	µg/L	< 3.2	< 3.2	< 3.2	< 3.2	< 0.32
04/19-21/2017	SW6020B	µg/L	< 3.2	< 3.2	< 3.2	< 3.2	< 0.32
05/30-06/01/2017	SW6020B	µg/L	< 3.2	< 3.2	< 3.2	< 3.2	< 0.32
07/10-12/2017	SW6020B	µg/L	< 3.2	< 3.2	< 3.2	< 3.2	< 0.32
08/21-23/2017	SW6020B	µg/L	< 3.2	< 3.2	< 3.2	< 3.2	< 3.2
06/27/2018	SW6010D	µg/L	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
09/19/2018	SW6010D	µg/L	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
12/12-13/2018	SW6010D	µg/L	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
08/26-29/2019	SW6010D	µg/L	< 4.7	< 4.7	< 4.7	< 4.7	< 4.7
Silver							
11/02-04/2016	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
12/12-13/2016	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	< 0.08
01/25-26/2017	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	< 0.08
03/06-07/2017	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	< 0.08
04/19-21/2017	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	< 0.08
05/30-06/01/2017	SW6020B	µg/L	1.1 J	< 0.8	< 0.8	< 0.8	< 0.08
07/10-12/2017	SW6020B	µg/L	1.4 J	< 0.8	< 0.8	< 0.8	< 0.08
08/21-23/2017	SW6020B	µg/L	< 0.8	0.85 J	< 0.8	< 0.8	< 0.8
06/27/2018	SW6020A	µg/L	0.16 J	< 0.15	< 0.15	0.29 J	< 0.15
09/19/2018	SW6020A	µg/L	< 0.15	< 0.15	< 0.15	0.91 J	< 0.15
12/12-13/2018	SW6020B	µg/L	0.11 J	< 0.050	< 0.050	0.20 J	< 0.050
08/26-29/2019	SW6010D	µg/L	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
Sodium							
11/02-04/2016	SW6020B	µg/L	7880	22700	40900	25100	302 J
12/12-13/2016	SW6020B	µg/L	9010 B	20300	39600	25200	2240
01/25-26/2017	SW6020B	µg/L	9450	19100	38200	23600	146 J
03/06-07/2017	SW6020B	µg/L	8730	23800	40200	21000	46 J
04/19-21/2017	SW6020B	µg/L	8930	18400	32800	20600	66.1 J
05/30-06/01/2017	SW6020B	µg/L	8090	18400	31500	22500	52 J
07/10-12/2017	SW6020B	µg/L	8550	20000	35200	23500	155 J
08/21-23/2017	SW6020B	µg/L	8330	20000	36300	22900	< 129
06/27/2018	E200.8	µg/L	9240	18100	28300	24400	< 18.4
09/19/2018	E200.8	µg/L	8110	17000	34600	24700	< 18.4
12/12-13/2018	E200.8	µg/L	7490	14900	32000	21500	15.9 J
08/26-29/2019	SW6020B	µg/L	7410	14200	36800	30300	< 14.3

Appendix F
Historical Laboratory Detections
Possum Point Power Station, Ponds ABC
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		Location	ABC-1602	ABC-1607	ABC-1608	ABC-1614	Field Blank
Sample Date	Method	Unit					
Sulfate							
11/02-04/2016	SW9056A	mg/L	25.3	51.9	29.2	58.3	< 0.40
12/12-13/2016	SW9056	mg/L	28.8	41.6	16.1	44.7	< 2.5
01/25-26/2017	SW9056A	mg/L	28.4	44.1	20.9	49.5	< 0.40
03/06-07/2017	SW9056A	mg/L	40.4	40.8	23.8	44.1	< 0.40
04/19-21/2017	SW9056A	mg/L	53.8 J+	41.8	28.2	46.8	0.52 J
05/30-06/01/2017	SW9056A	mg/L	49.1	44.5	27.9	44.4	< 0.50
07/10-12/2017	SW9056A	mg/L	47.9	41.8	28.2	37.8	< 0.50
08/21-23/2017	SW9056A	mg/L	46.5	42.3	29.5	36.7	< 0.50
06/27/2018	E300	mg/L	51.6	40.3	23.5	37.8	< 0.50
09/19/2018	E300	mg/L	44.3	39.6	29.1	34.5	< 0.50
12/12-13/2018	E300	mg/L	47.4	44.9	28.1	39.9	1.0
03/11-15/2019	E300	mg/L	59.7	43.5	31.9	44.4	< 0.50
08/26-29/2019	SW9056A	mg/L	41.4	30.9	27.8	38.5	< 0.50
Thallium							
11/02-04/2016	SW6020B	µg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
12/12-13/2016	SW6020B	µg/L	< 0.2	< 0.2	< 0.2	0.24 J	< 0.02
01/25-26/2017	SW6020B	µg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.02
03/06-07/2017	SW6020B	µg/L	< 0.2	< 0.2	< 0.2	0.28 J	< 0.02
04/19-21/2017	SW6020B	µg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.02
05/30-06/01/2017	SW6020B	µg/L	0.3 J	< 0.2	< 0.2	< 0.2	< 0.02
07/10-12/2017	SW6020B	µg/L	0.31 J	< 0.2	< 0.2	< 0.2	< 0.02
08/21-23/2017	SW6020B	µg/L	< 0.2	0.39 J	< 0.2	< 0.2	< 0.2
06/27/2018	SW6020A	µg/L	0.050 J	0.050 J	0.027 J	0.033 J	< 0.026
09/19/2018	SW6020A	µg/L	0.034 J	0.034 J	< 0.026	< 0.026	< 0.026
12/12-13/2018	SW6020B	µg/L	< 0.060	< 0.060	< 0.060	< 0.060	< 0.060
08/26-29/2019	SW6020B	µg/L	< 0.060	< 0.060	< 0.060	< 0.060	< 0.060
Tin							
11/02-04/2016	SW6020B	µg/L	< 0.7	< 0.7	< 0.7	< 0.7	3.7 J
12/12-13/2016	SW6020B	µg/L	2.5 J	< 0.7	< 0.7	2.4 J	< 0.07
01/25-26/2017	SW6020B	µg/L	< 0.7	< 0.7	< 0.7	< 0.7	1.9
03/06-07/2017	SW6020B	µg/L	4.7 J	2 J	1.6 J	7.3	0.27 J
04/19-21/2017	SW6020B	µg/L	11.4	1.4 J+	2 J+	12.3	< 0.07
05/30-06/01/2017	SW6020B	µg/L	< 0.7	< 0.7	< 0.7	< 0.7	< 0.07
07/10-12/2017	SW6020B	µg/L	< 0.7	< 0.7	< 0.7	< 0.7	1.9
08/21-23/2017	SW6020B	µg/L	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
06/27/2018	SW6020A	µg/L	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
09/19/2018	SW6020A	µg/L	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
12/12-13/2018	SW6020B	µg/L	0.12 J	< 0.090	< 0.090	< 0.090	0.35 J
08/26-29/2019	SW6020B	µg/L	< 0.090	< 0.090	< 0.090	< 0.090	< 0.090
Total Dissolved Solids							
11/02-04/2016	SM2540C	mg/L	116	206	279	389	< 25.0
12/12-13/2016	SM2540C	mg/L	122	173	305	465	< 25.0
01/25-26/2017	SM2540C	mg/L	67.0	200	284	334	< 25.0
03/06-07/2017	SM2540C	mg/L	45.0	145	248	294	< 25.0
04/19-21/2017	SM2540C	mg/L	124 J+	156	254	316	107
05/30-06/01/2017	SM2540C	mg/L	109	139	234	365	36.0
07/10-12/2017	SM2540C	mg/L	113	137	246	321	< 25.0
08/21-23/2017	SM2540C	mg/L	109	137	240	330	< 25.0
06/27/2018	SM2540C	mg/L	126	116	225	321	< 25.0
09/19/2018	SM2540C	mg/L	113	133	213	317	< 25.0
12/12-13/2018	SM2540C	mg/L	117	130	232	244	< 25.0
03/11-15/2019	SM2540C	mg/L	132	132	250	260	254
08/26-29/2019	SM2540C	mg/L	144 J+	118	237	284	45.0
Total Organic Carbon							
11/02-04/2016	SM5310B	mg/L	< 0.50	1.4	2.9	5.9	< 0.50
12/12-13/2016	SM5310B	mg/L	< 0.50	0.94 J	1.8	5.4	< 0.50
01/25-26/2017	SM5310B	mg/L	< 0.50	1.1	2.0	4.2	< 0.50
03/06-07/2017	SM5310B	mg/L	< 0.50	0.87 J	1.5	3.8	< 0.50
04/19-21/2017	SM5310B	mg/L	< 0.50	1.7	3.0	4.1	< 0.50
05/30-06/01/2017	SM5310B	mg/L	< 0.50	0.97 J	1.5	4.1	0.67 J
07/10-12/2017	SM5310B	mg/L	< 0.50	1.1	1.4	4.7	< 0.50
08/21-23/2017	SM5310B	mg/L	< 0.50	0.72 J	1.4	3.8	< 0.50
06/27/2018	SM5310B	mg/L	< 0.50	1.0	1.6	4.6	< 0.50
09/19/2018	SM5310B	mg/L	< 0.50	1.1	1.3	4.6	< 0.50
12/12-13/2018	SM5310B	mg/L	< 0.50	0.93 J	1.4	3.4	< 0.50
08/26-29/2019	SW9060A	mg/L	< 0.50	19.9 J	0.97 J	3.1	< 0.50

Appendix F
Historical Laboratory Detections
Possum Point Power Station, Ponds ABC
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		Location	ABC-1602	ABC-1607	ABC-1608	ABC-1614	Field Blank
Sample Date	Method	Unit					
Total Radium							
11/02-04/2016	CALC	pci/l	2.82 J	1.27 U	1.16 U	1.28 U	0.102 U
12/12-13/2016	CALC	pci/l	1.23 U	0.796 U	0.241 U	0.402 U	0.843 U
01/25-26/2017	CALC	pci/l	1.02 U	0.948 U	0.783 U	0.678 U	0.655 U
03/06-07/2017	CALC	pci/l	1.01 U	1.70	1.26 U	0.588 U	0 U
04/19-21/2017	CALC	pci/l	0.941 U	0.810 U	1.20 U	0.616 U	0.397 U
05/30-06/01/2017	CALC	pci/l	1.63	0.768 U	0.737 U	0.632	0.334 U
07/10-12/2017	CALC	pci/l	2.79	1.28	0.949	0.737 U	0.530 U
08/21-23/2017	CALC	pci/l	1.56	1.09 U	1.56	1.96	0.379 U
06/27/2018	CALC	pci/l	2.73	1.58 U	0.801 U	0.994 U	0.506 U
09/19/2018	RA226RA228	pci/l	1.26	0.852 U	0.731 U	1.42	0.659 U
12/12-13/2018	RA226RA228	pci/l	1.54	0.825 U	0.843 U	1.12	0.570 U
08/26-29/2019	RA226RA228	pci/l	1.87	1.58	1.59	1.56	1.33
Vanadium							
11/02-04/2016	SW6020B	µg/L	< 0.7	< 0.7	2 J	1.4 J	< 0.7
12/12-13/2016	SW6020B	µg/L	< 0.7	0.87 B	< 0.7	< 0.7	0.41 J
01/25-26/2017	SW6020B	µg/L	< 0.7	< 0.7	< 0.7	< 0.7	< 0.07
03/06-07/2017	SW6020B	µg/L	1.2 J	1.3 J	0.89 J	2 J	0.086 J
04/19-21/2017	SW6020B	µg/L	1.2 J+	1.1 J+	< 0.7	1.7 J+	0.13 J
05/30-06/01/2017	SW6020B	µg/L	< 0.7	< 0.7	1.2 J	1 J	< 0.07
07/10-12/2017	SW6020B	µg/L	< 0.7	< 0.7	< 0.7	0.74 J	< 0.07
08/21-23/2017	SW6020B	µg/L	< 0.7	< 0.7	< 0.7	0.7 J	< 0.7
06/27/2018	SW6020A	µg/L	0.34 J	0.76 J	1.1	2.4	< 0.27
09/19/2018	SW6020A	µg/L	< 0.27	< 0.27	0.31 J	0.38 J	< 0.27
12/12-13/2018	SW6020B	µg/L	0.17 J	1.6	0.22 J	0.27 J	< 0.12
08/26-29/2019	SW6010D	µg/L	< 1.3	< 1.3	1.9 J	2.3 J	< 1.3
Zinc							
11/02-04/2016	SW6020B	µg/L	< 24	< 24	< 24	< 24	< 24
12/12-13/2016	SW6020B	µg/L	< 24	< 24	< 24	< 24	3.6 J
01/25-26/2017	SW6020B	µg/L	< 24	< 24	< 24	< 24	< 2.4
03/06-07/2017	SW6020B	µg/L	< 24	25.4 J	< 24	< 24	< 2.4
04/19-21/2017	SW6020B	µg/L	< 24	< 24	< 24	< 24	< 2.4
05/30-06/01/2017	SW6020B	µg/L	< 24	< 24	< 24	< 24	< 2.4
07/10-12/2017	SW6020B	µg/L	< 24	< 24	< 24	< 24	< 2.4
08/21-23/2017	SW6020B	µg/L	< 24	< 24	< 24	< 24	< 24
06/27/2018	SW6020A	µg/L	4.9 J	13.9	10.9	8.4	< 1.9
09/19/2018	SW6020A	µg/L	6.1 J+	13.1	15.5 J+	8.2	2.3 J+
12/12-13/2018	SW6020B	µg/L	4.1 J	15.2	13.8	5.0 J	1.6 J
08/26-29/2019	SW6010D	µg/L	< 3.9	19.5	12.2	5.5 J	7.4 J

Notes: µg/L = Microgram per liter
mg/L = Milligram per liter
µS/cm = MicroSiemen per centimeter
SU = Standard Units
C= Degrees Celsius
pci/L = picoCurie per liter
ntu = nephelometric turbidity unit
J = Estimated concentration
J+ = Potential bias high
U = Not detected at the indicated Minimum Detectable Concentration
-- = Not Sampled

APPENDIX G
DATA VALIDATION FORMS

APPENDIX G.1
1ST SEMI-ANNUAL GROUNDWATER MONITORING EVENT DATA VALIDATION FORM (MARCH 2019)

Project Name: Possum Point Power Station - Ash Pond ABC - CCR Compliance

Project Reference Number: 1662150.2004.001

Sampling Event Date: March 11, 2019

Review Date: 04/18/2019 *Initials:* ALR

Review Date: 05/30/2019 *Initials:* RIP

Person(s) performing the review are to initial each item on this form as acknowledgement of data acceptance, or as acknowledgement of a review issue. In the case of the latter, a brief explanation should follow the applicable item.

Golder Associates Inc. has reviewed the laboratory certificates of analysis, chain-of-custody form, and laboratory provided sample group quality assurance and quality control data for the above referenced sample group to identify potential bias or inaccuracy, in general accordance with the following United States Environmental Protection Agency (EPA) and Department of Energy (DOE) documents:

- National Functional Guidelines for Organic Superfund Methods Data Review, January 2017;
- National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017;
- US Department of Energy Evaluation of Radiochemical Data Usability, April 1997; and
- Sampling and Analysis Plan for US Department of Energy Office of Legacy Management Sites.

COMMON ACRONYMS:

- MS = matrix spike
- MSD = matrix spike duplicate
- LCS = laboratory control spike
- RPD = relative percent difference
- MB = method blank
- DUP = duplicate
- FB = field blank
- VSWMR = Virginia Solid Waste Management Regulations
- J = estimated
- ND and/or U= not detected
- COC = chain of custody
- QC = quality control
- µg/L = micrograms per liter
- mg/L = milligrams per liter
- EPA = United States Environmental Protection Agency
- pCi/L = picocuries per liter

COMPLIANCE ANALYTE LIST

☐ Historical VPDES Parameters: _____

☒ CCR Appendix III to Part 257

☐ CCR Appendix IV to Part 257

☐ VSWMR Phase II Parameters: _____

☐ Other: _____

Note: Pace Package No.: 92421450, 92421443, 92421482

1.0 CHAIN OF CUSTODY (COC) REVIEW

Yes COC was properly signed by all parties.

Yes Correct project name and number are on the form.

Yes Sample receipt condition at laboratory was acceptable.

Yes Each sample and blank submitted for analysis appears in the data report.

Note: _____

2.0 SAMPLE HOLDING TIMES

Yes Holding times for extraction *and/or* analysis were met for each analytical method.

Review Criteria		
Method	**Analytes**	**Holding Time**
EPA 300	Chloride, Fluoride, Sulfate	28 days
EPA 6000 series	Metals, except mercury	6 months
SM 2540C	TDS	7 days

Notes: _____

3.0 LABORATORY QUALITY CONTROL REVIEW

Yes Laboratory analyzed at least one internal blank for each method, where applicable.

Yes Laboratory blanks were interference free.

Notes: _____

NA Surrogate recoveries are provided for each analytical method, where applicable.

NA Surrogate recoveries for each method are within the acceptable limits.

Notes: _____

NA Tracer and carrier yields are provided for each analytical method, where applicable (Radiochemical Data Only).

NA Tracer and carrier yields for each method are within the acceptable limits (Radiochemical Data Only).

Notes: _____

Yes MS/MSD/LCS/RPD data results are provided for each analytical method.

See Note MS/MSD/LCS/RPD recoveries for each method are within the acceptable limits.

Notes: The following table presents recoveries and relative percent differences (RPDs) that were outside of QC limits for the associated sample delivery group (analytical batch). In accordance with EPA guidance for evaluation of spike recoveries, the associated samples may be qualified estimated high (J+), estimated low (J-), non-detect estimated (UJ), or unusable (R) using professional judgement

to evaluate the spike recovery. Post-digestion spike recovery will be evaluated for MS/MSD qualification purposes where provided. As presented, no data qualification is recommended.

In accordance with EPA guidance for evaluation of RPDs, the associated samples may be qualified estimated (J or UJ) using professional judgement to evaluate the RPD. As presented, no data qualification is recommended.

Parameter	Recovery Outside QC Limits	Batch	Associated Qualified Sample(s)	Validator Qualifier
Total Dissolved Solids	RPD	463576	--	--
Boron	MS	464195	--	--
Calcium	MS	464195	--	--
Fluoride	MS, MSD	463694	--	--
Total Dissolved Solids	RPD	463574	--	--

NA Minimum Detectable Concentrations (MDCs) are provided for radiological samples.

NA Radiological samples reported below their respective MDC have been qualified with a "U."

Notes: _____

4.0 ANALYTE LISTS/METHODS

Yes The proper number of constituents are present for each analyte list as identified above (including detects where applicable).

Yes Proper EPA SW-846 analytical methods were used for analysis.

Notes: _____

5.0 OUTLIER EVALUATION

Yes Analytical results have been evaluated for variances +/- 25% compared to the average of the most recent 8 data points.

Yes Analytical results with variances >25% have been evaluated for trends.

Yes If no trends were identified for analytical results with variances >25%, a data quality review (DQR) was conducted for suspect analytical results identified as possible outliers. DQR results summarized below.

Analyte	Location	DQR identified issues?	Re-analysis requested?	Outlier Identification
Total Dissolved Solids	Field Blank	High blank detection. RPD is outside of acceptable laboratory QC limits.	Laboratory DQR requested; no QC or data entry issues found - out of hold analysis performed	Original result reported per client request. Associated samples qualified J+ per EPA guidance.

6.0 DATA REPORTING

See Note Trip; field and/or equipment; and laboratory blank results have all been reported and the detected constituents in these blanks, if any, have been qualified using professional judgement where detected in other samples.

Notes: The following table presents field blank detections and associated samples that have been qualified. In accordance with EPA guidance, associated samples have been evaluated using professional judgement. Inorganic data less than 10X the blank concentration may be qualified if the detection is not considered part of a visual data trend and is not consistent with recent historical data (i.e. the highest concentration reported over the last 8 sampling events). Organic data corresponding to blank contamination may be qualified if the detection is not considered part of a visual data trend and is not consistent with recent historical data. Additionally, associated samples for organic common lab contaminants (acetone, MC, and MEK) may be qualified if the results are 2X greater than the detected blank concentration. Associated samples may be qualified estimated high (J+), estimated low (J-), non-detect estimated (UJ) or unusable (R). As presented below, data qualification is not recommended.

Sample ID	Parameter	Blank Detection (mg/L)	Associated Qualified Sample(s)	Validator Qualifier
Field Blank	Total Dissolved Solids	254	ABC-1602	J+

Yes It is clear from the laboratory report that samples have or have not been diluted during analysis, and if the samples have been diluted, the result is reported as a multiple of the dilution (*e.g.*, a sample diluted 10x resulting in an analytical detection of 1.0 should be reported as 10).

Yes The report provides the reporting limit for each constituent.

Yes The proper reporting limits have been used (*e.g*. NC Solid Waste Section approved PQLs, or VA DEQ Permit approved detection limits, as appropriate).

Notes: _____

7.0 FIELD DUPLICATE PRECISION

Yes Field duplicate sample results were within control limits of 20% relative percent difference for sample results greater than 5 times the quantitation limit. When one or both results were less than 5 times the quantitation limit, the difference between the two results was less than twice the reporting limit.

Notes: The following table presents field duplicates and their associated parent samples that were not within control limits. In accordance with EPA guidance, sample results with field duplicate imprecison may be qualified estimated (J) or non-detect estimated (UJ). As presented below, data qualification is recommended.

Parameter	Associated Samples	Parent Sample Result (mg/L)	Duplicate Sample Result (mg/L)	Re-analysis Requested?	Outlier Identification
Total Dissolved Solids	ABC-1614/ ABC-1614 DUP	260	323	Laboratory DQR requested; no QC or data entry issues found – no re-analysis performed	Both parent and duplicate sample qualified estimated (J)

APPENDIX G.2
2ND SEMI-ANNUAL GROUNDWATER MONITORING EVENT DATA VALIDATION FORM (AUGUST 2019)

Project Name: Possum Point Power Station - Ash Pond ABC

Project Reference Number: 1662150.2004.001

Sampling Event Date: August 27-29, 2019

Review Date: 9/25/2019 & 10/4/2019 *Initials:* ALR

Review Date: 12/23/2019 *Initials:* RIP

Person(s) performing the review are to initial each item on this form as acknowledgement of data acceptance, or as acknowledgement of a review issue. In the case of the latter, a brief explanation should follow the applicable item.

Golder Associates Inc. has reviewed the laboratory certificates of analysis, chain-of-custody form, and laboratory provided sample group quality assurance and quality control data for the above referenced sample group to identify potential bias or inaccuracy, in general accordance with the following United States Environmental Protection Agency (EPA) and Department of Energy (DOE) documents:

- National Functional Guidelines for Organic Superfund Methods Data Review, January 2017;
- National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017;
- US Department of Energy Evaluation of Radiochemical Data Usability, April 1997; and
- Sampling and Analysis Plan for US Department of Energy Office of Legacy Management Sites.

COMMON ACRONYMS:

- MS = matrix spike
- MSD = matrix spike duplicate
- LCS = laboratory control spike
- RPD = relative percent difference
- MB = method blank
- DUP = duplicate
- FB = field blank
- VSWMR = Virginia Solid Waste Management Regulations
- J = estimated
- ND and/or U= not detected
- COC = chain of custody
- QC = quality control
- µg/L = micrograms per liter
- mg/L = milligrams per liter
- EPA = United States Environmental Protection Agency
- pCi/L = picocuries per liter

COMPLIANCE ANALYTE LIST

☒ Historical VPDES Parameters: Hardness, Iron, Manganese, Potassium, Sodium, Phenols, Total Organic Carbon

☒ CCR Appendix III to Part 257

☒ CCR Appendix IV to Part 257

☒ VSWMR Phase II Parameters: Copper, Nickel, Silver, Tin, Vanadium, Zinc

☒ Other: Hexavalent Chromium

Note: Pace Package Nos.: 92443549, 92443179; AWS Work Orders: 19H1139, 19H1182, 19H1087

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1.0 CHAIN OF CUSTODY (COC) REVIEW

Yes COC was properly signed by all parties.

Yes Correct project name and number are on the form.

See Note Sample receipt condition at laboratory was acceptable.

Yes Each sample and blank submitted for analysis appears in the data report.

Note: Hexavalnet Chromium samples from 8.27.19 received at 16.9°C. Lab deemed acceptable after cooling process.

2.0 SAMPLE HOLDING TIMES

Yes Holding times for extraction *and/or* analysis were met for each analytical method.

Review Criteria		
Method	**Analytes**	**Holding Time**
EPA 9056A	Chloride, Fluoride,Sulfate, Nitrate	28 days
EPA 6000 series	Metals, except Mercury	6 months
EPA 7470	Mercury	28 days
EPA 9000 series	Radium-226 & Radium-228	6 months
SM2340B	Hardness	6 months
SM 2540C	TDS	7 days
EPA 9060	Total Organic Carbon	7 days
EPA 9065	Phenolics	28 days
EPA 7196	Hexavalent Chromium	24 hours (unpreserved)

Notes: _____

3.0 LABORATORY QUALITY CONTROL REVIEW

Yes Laboratory analyzed at least one internal blank for each method, where applicable.

See Note Laboratory blanks were interference free.

Notes: The following table presents method blank detections and their associated sample delivery groups (SDG; batch). In accordance with EPA guidance, associated samples within the same batch have been evaluated using professional judgement. Inorganic data less than 10X the blank concentration may be qualified if the detection is not considered part of a visual data trend and is not consistent with recent historical data (i.e. the highest concentration reported over the last 8 sampling events). Organic data corresponding to blank contamination may be qualified if the detection is not considered part of a visual data trend and is not consistent with recent historical data. Additionally, associated samples for organic common lab contaminants (acetone, MC, and MEK) may be qualified if the results are 2X greater than the detected blank concentration. Associated samples may be qualified estimated high (J+), estimated low (J-), non-

detect estimated (UJ) or unusable (R). As presented below, data qualification is recommended.

Parameter	Method Blank Detection (µg/L)	Batch	Associated Qualified Sample(s)	Validator Qualifier
Cadmium	0.47 J	496271	--	--
Radium-226	0.372 (pCi/L)	360247	--	--
Radium-228	0.904 (pCi/L)	360248	Field Blank	J
Boron	12.0 J	496199	Field Blank	J+
Zinc	5.0 J	496199	Field Blank	J+

NA Surrogate recoveries are provided for each analytical method, where applicable.

NA Surrogate recoveries for each method are within the acceptable limits.

Notes: _____

Yes Tracer and carrier yields are provided for each analytical method, where applicable (Radiochemical Data Only).

Yes Tracer and carrier yields for each method are within the acceptable limits (Radiochemical Data Only).

Notes: _____

Yes MS/MSD/LCS/RPD data results are provided for each analytical method.

See Note MS/MSD/LCS/RPD recoveries for each method are within the acceptable limits.

Notes: The following table presents recoveries and relative percent differences (RPDs) that were outside of QC limits for the associated sample delivery group (analytical batch). In accordance with EPA guidance for evaluation of spike recoveries, the associated samples may be qualified estimated high (J+), estimated low (J-), non-detect estimated (UJ), or unusable (R) using professional judgement to evaluate the spike recovery. Post-digestion spike recovery will be evaluated for MS/MSD qualification purposes where provided. As presented, no data qualification is recommended.

In accordance with EPA guidance for evaluation of RPDs, the associated samples may be qualified estimated (J or UJ) using professional judgement to evaluate the RPD. As presented, no data qualification is recommended.

Parameter	Recovery Outside QC Limits	Batch	Associated Qualified Sample(s)	Validator Qualifier
Iron	MS, MSD	496281	--	--
Manganese	MS, MSD	496281	--	--
Sodium	MS, MSD	496281	--	--
Potassium	MS	496281	--	--
Phenolics	MS, MSD	34869	--	--
Chloride	MS, MSD, RPD	495640	--	--
Fluoride	MS, MSD, RPD	495640	--	--
Sulfate	MS, MSD, RPD	495640	--	--
Total Organic Carbon	MS, MSD	496160	--	--
Total Dissolved Solids	RPD	495138	--	--
Potassium	MS	496148	--	--
Sodium	MS, MSD	496148	--	--
Chloride	MS, MSD	495319	--	--
Fluoride	MS, MSD	495319	--	--
Sulfate	MS, MSD	495319	--	--
Total Organic Carbon	MS, MSD	496159	--	--
Hexavalent Chromium	MS, MSD	BCH0937	--	--
Hexavalent Chromium	MS, MSD	BCH0936	--	--

Yes Minimum Detectable Concentrations (MDCs) are provided for radiological samples.

Yes Radiological samples reported below their respective MDC have been qualified with a “U.”

Notes: _____

Parameter	Associated Samples Below MDC
Radium-226	Field Blank
Radium-228	Duplicate
Total Radium	--

4.0 ANALYTE LISTS/METHODS

Yes The proper number of constituents are present for each analyte list as identified above (including detects where applicable).

Yes Proper EPA SW-846 analytical methods were used for analysis.

Notes: _____

5.0 OUTLIER EVALUATION

Yes — Analytical results have been evaluated for variances +/- 25% compared to the average of the most recent 8 data points.

Yes — Analytical results with variances >25% have been evaluated for trends.

Yes — If no trends were identified for analytical results with variances >25%, a data quality review (DQR) was conducted for suspect analytical results identified as possible outliers. DQR results summarized below.

Analyte	Location	DQR identified issues?	Re-analysis requested?	Outlier Identification
Total Organic Carbon	ABC-1607	High concentration reported	No	Qualified as estimated based on duplicate precision failure
Lead	ABC-1602, ABC-1607, ABC-1608	New estimated detections	No	New detection likely due to lower MDL

6.0 DATA REPORTING

See Note — Trip; field and/or equipment; and laboratory blank results have all been reported and the detected constituents in these blanks, if any, have been qualified using professional judgement where detected in other samples.

Notes: The following table presents field blank detections and associated samples that have been qualified. In accordance with EPA guidance, associated samples have been evaluated using professional judgement. Inorganic data less than 10X the blank concentration may be qualified if the detection is not considered part of a visual data trend and is not consistent with recent historical data (i.e. the highest concentration reported over the last 8 sampling events). Organic data corresponding to blank contamination may be qualified if the detection is not considered part of a visual data trend and is not consistent with recent historical data. Additionally, associated samples for organic common lab contaminants (acetone, MC, and MEK) may be qualified if the results are 2X greater than the detected blank concentration. Associated samples may be qualified estimated high (J+), estimated low (J-), non-detect estimated (UJ) or unusable (R). As presented below, data qualification is recommended.

Sample ID	Parameter	Blank Detection (µg/L)	Associated Qualified Sample(s)	Validator Qualifier
Field Blank	Barium	1.1	ABC-1607	J+
	Boron	7.4 J	--	--
	Total Dissolved Solids	0.045	ABC-1602	J+
	Zinc	7.4 J	--	--
	Radium-228	0.957 (pCi/L)	--	--
	Total Radium	1.33 (pCi/L)	--	--

Yes It is clear from the laboratory report that samples have or have not been diluted during analysis, and if the samples have been diluted, the result is reported as a multiple of the dilution (*e.g.*, a sample diluted 10x resulting in an analytical detection of 1.0 should be reported as 10).

Yes The report provides the reporting limit for each constituent.

Yes The proper reporting limits have been used (*e.g.* NC Solid Waste Section approved PQLs, or VA DEQ Permit approved detection limits, as appropriate).

Notes: _____

7.0 FIELD DUPLICATE PRECISION

Yes Field duplicate sample results were within control limits of 20% relative percent difference for sample results greater than 5 times the quantitation limit. When one or both results were less than 5 times the quantitation limit, the difference between the two results was less than twice the reporting limit.

Notes: The following table presents field duplicates and their associated parent samples that were not within control limits. In accordance with EPA guidance, sample results with field duplicate imprecison may be qualified estimated (J) or non-detect estimated (UJ). As presented below, data qualification is recommended.

Parameter	Associated Samples	Parent Sample Result (µg/L)	Duplicate Sample Result (µg/L)	Re-analysis Requested?	Outlier Identification
Iron	ABC-1607/ ABC-1607 DUP	1,350	768	No	Both parent and duplicate qualified as estimated (J)
Total Organic Carbon	ABC-1607/ ABC-1607 DUP	19,900	500	No	Parent qualified as estimated (J) and duplicate qualified as estimated non-detect (UJ)