

2019 CCR & VSWMR Annual Groundwater Monitoring and Corrective Action Report

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

Prepared for:



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Project No. 1662150.2004.001

January 22, 2020

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.

Top of Casing	1st Semi-Annual Event 2019 (March 11, 2019)		2nd Semi-Annual Event 2019 (August 26, 2019)	
Elevation (ft/msl)	Depth to Water (ft)	Groundwater Elevation (ft/msl)	Depth to Water (ft)	Groundwater Elevation (ft/msl)
34.08	13.04	21.04	16.82	17.26
23.63	22.80	0.83	22.49	1.14
21.13	21.10	0.03	22.09	-0.96
15.62	12.31	3.31	13.40	2.22
	Elevation (ft/msl) 34.08 23.63 21.13	Top of Casing Elevation (ft/msl)(March Depth to Water (ft)34.0813.0423.6322.8021.1321.10	Top of Casing Elevation (ft/msl) (March 11, 2019) Depth to Water (ft) Groundwater Elevation (ft/msl) 34.08 13.04 21.04 23.63 22.80 0.83 21.13 21.10 0.03	Top of Casing Elevation (ft/msl) (March 11, 2019) (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Augustical) (Au

Notes: ft/msl = Above Mean Sea Level

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
1 st 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
2 nd 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 chainof-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 (μ g/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 μ g/L in the sample collected from ABC-1607 to 211 μ g/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 μ g/L in the sampled collected from ABC-1608 to 190 μ g/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 μ g/L in the sample collected from ABC-1607 to 240 μ g/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 μ g/L in the sample collected from ABC-1602 to 22,300 μ g/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 μ g/L in the sample collected from ABC-1602 to 35,000 μ g/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 μ g/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 μ g/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 μ g/L in the sample collected from ABC-1607 to 22.5 μ g/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 ($0.19 \mu g/L$) and from ABC-1614 ($0.50 \mu g/L$).

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 μ g/L in the sample collected from ABC-1607 to 17.5 μ g/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 μ g/L in the sample collected from ABC-1602 to 17.9 μ g/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 μ g/L in the sample collected from ABC-1607 to 5,470 μ g/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 μ g/L in the sample collected from ABC-1602 to 36,800 μ g/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-1608.

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 μ g/L) and from ABC-1608 (12.2 μ g/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

Department of Environmental Quality (DEQ). 2019. Solid Waste Facility Permit Number 617. June.

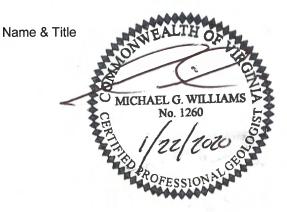
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- Golder. 2019b. Groundwater Monitoring Plan, Possum Point Power Station, Dumfries, Virginia. August 8.
- Golder. 2019c. *Pond ABC Facility Background Determination Report*, Possum Point Power Station, Dumfries, Virginia. August 15.

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



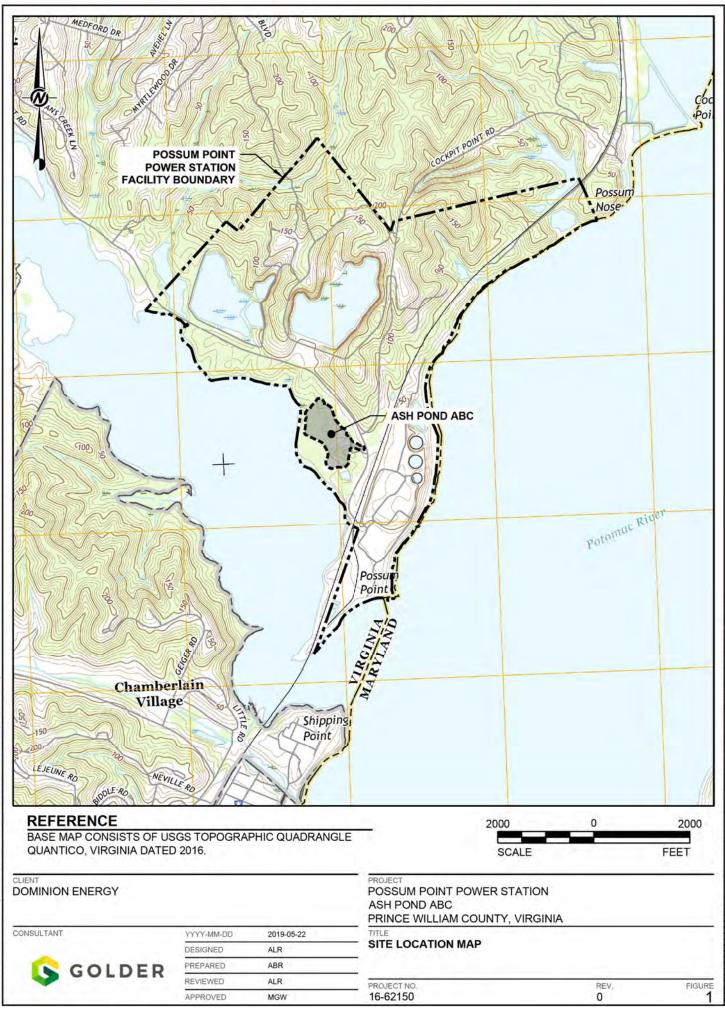
Michael G. Williams, C.P.G. Principal, Senior Hydrogeologist

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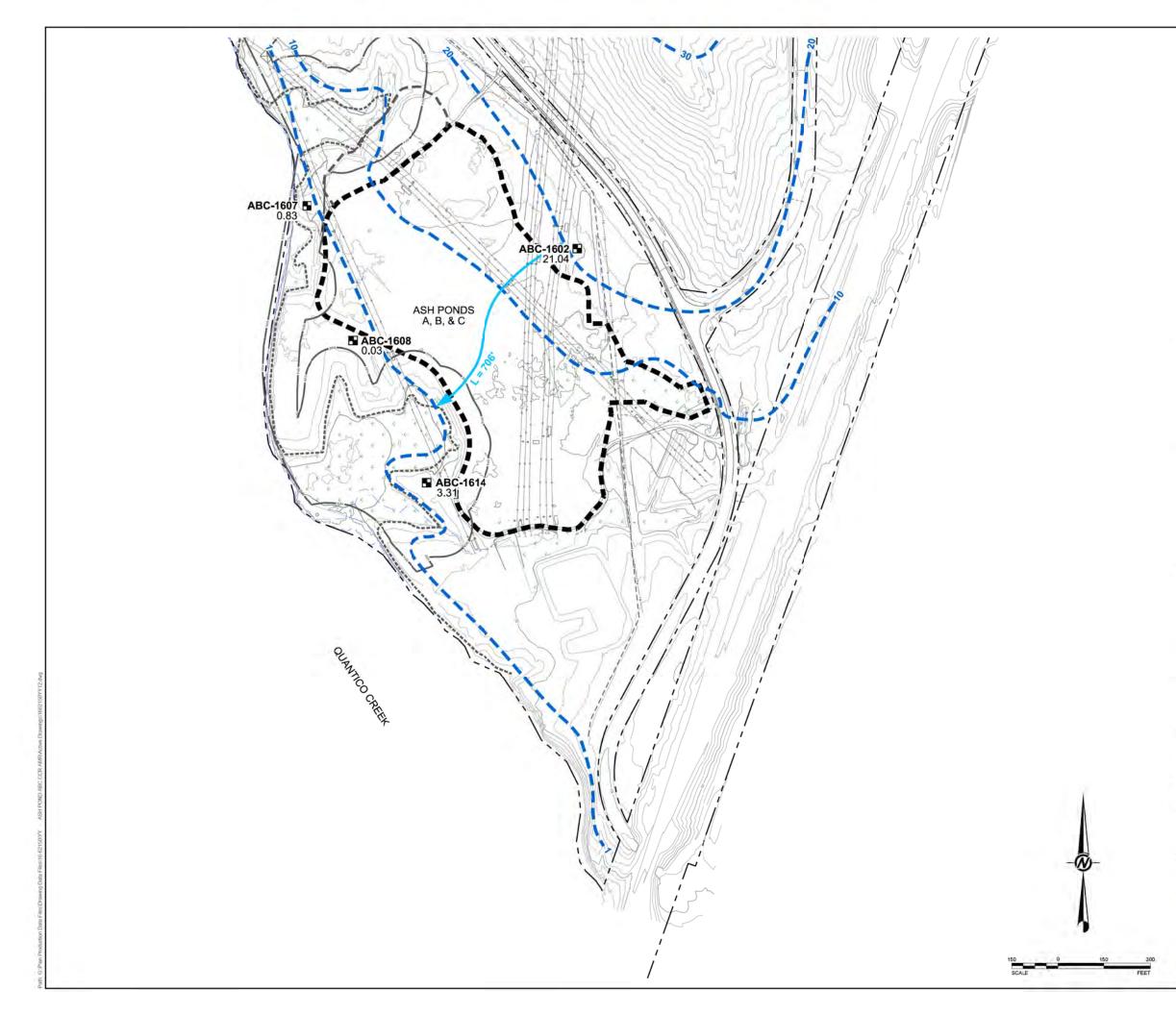
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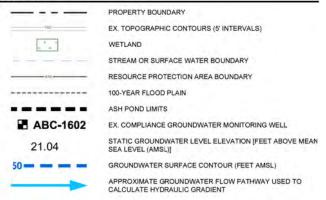
FIGURES



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LEGEND



NOTES

TITLE

- 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.
- 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.

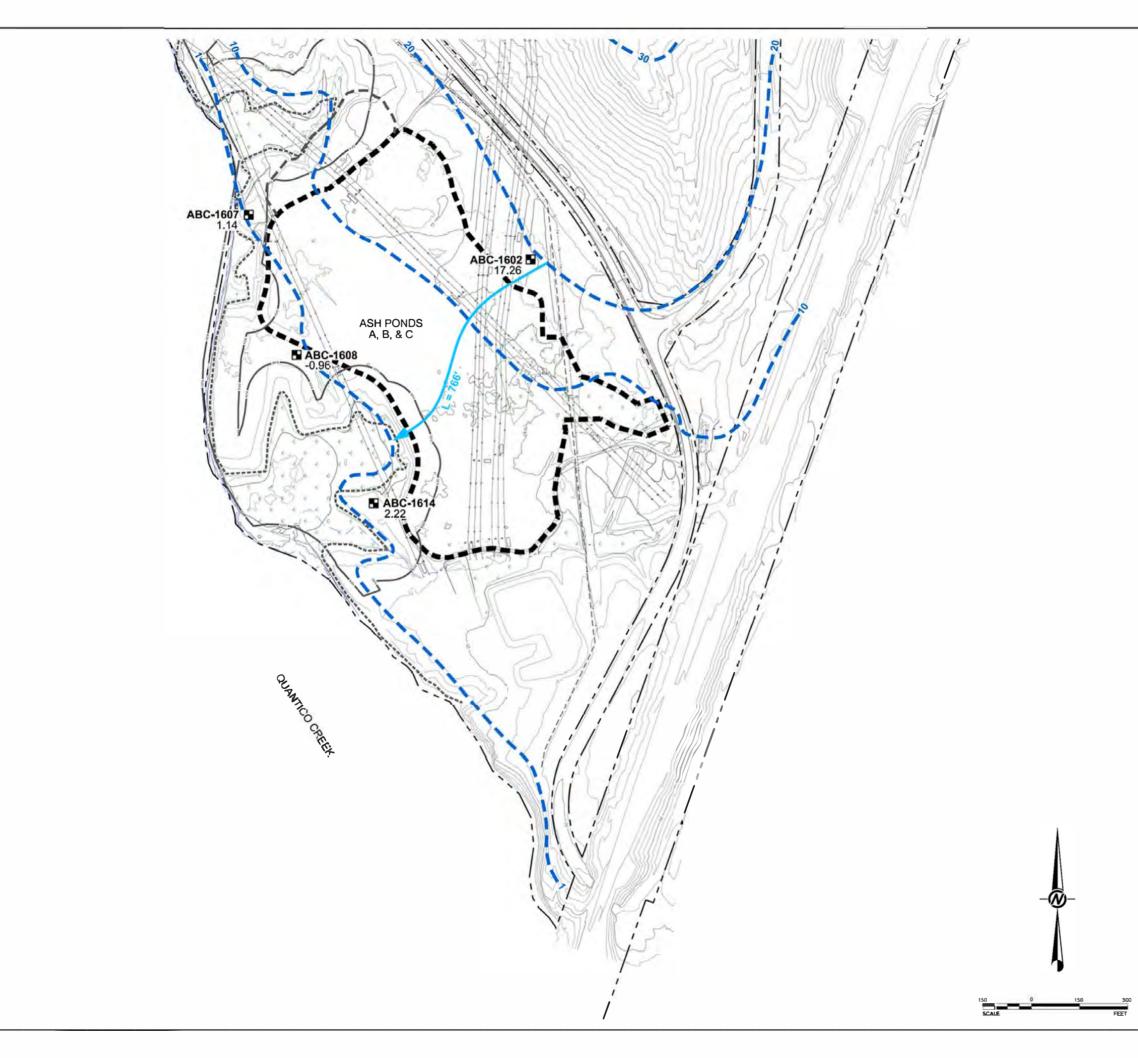
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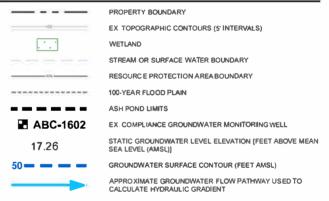
GROUNDWATER SURFACE CONTOUR MAP MARCH 11, 2019



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LEGEND



NOTES

TITLE

- 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 LINE3 3HOW THE WATER TABLE 3HAPE 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

GROUNDWATER SURFACE CONTOUR MAP AUGUST 26, 2019



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

			Up	ogradie	nt Well						Dow	ngradie	ent Wells	S						Lab (QC			Field QC	;	
		Location		ABC-1	602			ABC-1	607			ABC-1	608			ABC-1	614		ABC	-1614 [Duplicat	e		Field Blar	۱k	
		Sample Date		3/11/2	019			3/11/2	019			3/11/2	019			3/11/2	019			3/11/2	019			3/12/2019	9	
Analyte	Unit	Site-Specific Background	ROCIIII	Qual	MDL	RL	Result	Qual	MDL	RL	Result	Qual	MDL	RL	Result	Qual	MDL	RL	Result	Qual	MDL	RL	Result	Qual N	IDL	RL
CCR Appendix III												<u>.</u>						<u> </u>		4						
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	2	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	5	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	C	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
рН	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		C	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	C).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	2	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			-					1
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	-		1					1
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	С		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			1					-

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

Notes: mg/L = milligram per liter

MDL = Method Detection Limit RL = Reporting Limit

 $\mu g/L = microgram per liter$

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

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

					l Ir	pgradient \	الم/٨		1				г	Downgrad	lient Wel	le					1			Field	100			
				Sample ID:	01	ABC-160				ABC-16	607		1	ABC-		10		ABC-16	514			ABC-1607	DUP	Tiele	1 40	Field Bl	ank	
				Sample Date:		08/29/201				08/28/2				08/28/			-	08/28/20				08/28/20	-			08/27/2		
				Campie Date.			-							1		1				1				1				
	Units	Site-Specific	Federal GWPS	Virginia GPS	Result	Qualifier	MDL	RL	Resu	It Qualifier	MDL	RL	Result	Qualifie	er MDL	RL	Result	Qualifier	MDL	RL	Result	Qualifier	MDL	RL	Result	Qualifier	MDL	RL
Parameter Name		Background		.											-													
CCR Appendix III Constituents																												
Boron	µg/L	94.5		*	8.8	J	6.6	50	19	90	6.6	50	220)	6.6	50	240)	6.6	50	200		6.6	50	7.4	1 J+	6.6	50
Calcium	µg/L	7,222			5900		24	100	66	00	24	100	19600)	24	100	35000)	24	100	6700		24	100	< 24	1	24	100
Chloride	mg/L	5.1			2.8		0.60	1.0	12	.2	0.60	1.0	52.8	3	0.60	1.0	17.2	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	< 0.0	50	0.050	0.10	0.064	4 J	0.050	0.10	0.11	1	0.050	0.10	< 0.050		0.050	0.10	< 0.050)	0.050	0.10
рН	SU	3.45-6.23			4.17		0.01	0.01	4.1		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	-	0.50	1.0	27.8		0.50		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	11	18	25.0	25.0	237	7	25.0	25.0	284	1	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		3.0	5.0	< 3.0		3.0		< 3.0		3.0	5.0	< 3.0		3.0	5.0	< 3.(3.0	5.0
Arsenic	µg/L	QL (10)	10	10	< 4.7		4.7	10.0	< 4		4.7	10.0	< 4.7		4.7	10.0	30.1		4.7	10.0			4.7	10.0	< 4.7		4.7	10.0
Barium	µg/L	100.6	2000	2,000	62.1	<u> </u>	1.0	5.0		.1 J+	1.0	5.0	66.2		1.0		211		1.0	5.0			1.0	5.0	1.1	-	1.0	5.0
Beryllium	µg/L	QL (1)	4	4	0.60	J	0.50	1.0	< 0.5		0.50	1.0	< 0.50	-	0.50		< 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	< 0.4	-	0.40	1.0	< 0.40	-	0.40		< 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		1.0	5.0	< 1.0	-	1.0		< 1.0		1.0	5.0	< 1.0		1.0	5.0	< 1.(1.0	5.0
Cobalt	µg/L	24.9	6		11.1		0.050	0.10		.1	0.050		22.5	-		0.10	21.1		0.050	0.10			0.050	0.10	< 0.050		0.050	0.10
Fluoride	mg/L	QL (0.10)	4	4	< 0.050		0.050	0.10	< 0.0		0.050		0.064			0.10	0.11		0.050	0.10			0.050	0.10	< 0.050		0.050	
Lead	µg/L	QL (5)	<u>15**</u> 40	*	0.19		0.050				0.050		0.056			0.10	0.50		0.050		0.000		0.050	0.10	< 0.050		0.050	0.10
Lithium	µg/L	QL (25)	40 2		9.4		0.42	2.5		.6	0.42	2.5	14.2		0.42		17.5		0.42	2.5	4.4		0.42	2.5	< 0.42		0.42	2.5
Mercury Molvbdenum	µg/L µg/L	QL (0.2) QL (5)	100	2	< 0.10 < 0.90		0.10	0.20	< 0.1	.0 J	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
Selenium	µg/L µg/L	QL (5) QL (10)	50	50	< 0.90		4.7	5.0	1 < 4		4.7	5.0	< 4.7		4.7	10.0	1.e < 4.7		4.7	5.0			4.7	5.0	< 0.90		4.7	5.0
Thallium	µg/L µg/L	QL (10)	2	2	< 0.060		4.7	0.10			4.7					0.10	< 0.060		4.7				0.060	0.10	< 0.060		4.7	
Total Radium	pGi/l	3.727	5	5	< 0.000 1.87		1.12	1.12	< 0.00		0.903		< 0.000 1.59			0.912	1.56		1.05	1.05			0.963	0.963	1.33		1.25	
Additional VSWMR Constituents	poi/i	5.121	J	5	1.07		1.12	1.12	1.5	0	0.903	0.903	1.55	,	0.912	0.912	1.50	,	1.05	1.05	1.10		0.905	0.903	1.5	9 0	1.25	1.25
Copper	µg/L			1,300**	4.9	.1	2.1	5.0	< 2	1	2.1	5.0	< 2.1	1	2.1	5.0	< 2.1	1	2.1	5.0	< 2.1		2.1	5.0	< 2.1	1	2.1	5.0
Nickel	µg/L			*	6.2		0.90	5.0		10	0.90	5.0	17.9		0.90		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		2.5	5.0	< 2.5		2.5		< 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	< 0.09		0.090	0.50	< 0.090		0.090		< 0.090		0.090	0.50			0.090	0.50	< 0.090		0.090	0.50
Vanadium	ua/L			*	< 1.3		1.3	5.0	< 1	.3	1.3	5.0	1.9) J	1.3	5.0	2.3	3 J	1.3	5.0	1.3	J	1.3	5.0	< 1.3	3	1.3	5.0
Zinc	µg/L			*	< 3.9		3.9	10.0	19	.5	3.9	10.0	12.2	2	3.9	10.0	5.5		3.9	10.0	18.5		3.9	10.0	7.4	1 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		131	662	85.5		131		135		131	662	31.1		131	662	< 0.13		131	662
Iron	µg/L				280		7.5	50.0	13			50.0	5780		7.5		32800		7.5	50.0		J	7.5	50.0	< 7.5		7.5	50.0
Manganese	µg/L				166		0.14	0.50	17		0.14	0.50	152		-	0.50	348		0.14	0.50			0.14	0.50	< 0.14		0.14	0.50
Phenolics	µg/L				< 50		0.050		< !		0.050		< 50	-		0.050	< 50		0.050	0.050			0.050	0.050	< 50		0.050	0.050
Potassium	µg/L				5470		6.2	50.0	19	-	6.2	50.0	3830	-	6.2	50.0	4250		6.2	50.0			6.2	50.0	< 6.2		6.2	50.0
Sodium	µg/L				7410		14.3	250	142				36800	-		2500	30300		143	2500			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	7 J	0.50	1.0	3.1	1	0.50	1.0	< 0.50	UJ	0.50	1.0	< 0.50	וו	0.50	1.0
Field Parameters					400.0		0.4	0.4	400		0.4	0.4	004.0		0.1	0.4	407.4		0.4	0.1	1 1					1	1	
Conductivity	µS/cm				139.9		0.1	0.1	136		0.1		321.0		-	0.1	497.9		0.1	0.1								
Depth to Water***	ft btoc ma/L				16.82	<u> </u>	0.01	0.01	22.4	-		0.01	22.09		0.01	0.01	13.40		0.01	0.01								
Dissolved Oxygen	g.=				2.90		0.01	0.01	2.2	-	0.01		1.89			0.01	2.5		0.01	0.01								
Groundwater Elevation Oxidation Reduction Potential	ft msl millivolts				332.7		0.01	0.01	219		0.01	0.01	-0.96	-	0.01	0.01	-21.7		0.01	0.01								
Temperature	C				332.7		0.1	0.1	219		0.01	0.1	93.8		0.1	0.1	-21.7		0.1	0.1								
Turbidity	NTU		-		16.11		0.01	0.01	9.1		0.01	0.01	9.53	-	0.01	0.01	9.7		0.01	0.01								
raibidity	UTV				10.11		U.I	U. I	9.	10	U.I	U. I	9.03	<u>ار</u>	0.1	U. I	9.1	1	U.I	U.1						1		

Notes: MDL = Method Detection Limit

RL = Reporting Limit mg/L = Milligram per liter

μg/L = Microgram per liter pCi/L = picoCurie per liter

SU = Standard Units

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

NTU = Nephelometric Turbidity Unit ft btoc = feet below top of casing

ft msl = feet above mean sea level C = Degrees Celsius

ft msl = feet above mean sea level MDC = Minimum Detection Concentration

µS/cm = MicroSiemen per centimeter ft btoc = below top of casing

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

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	Х	
Solid waste facility permit number & facility name	Х	
Name of current owner/operator & type of facility	Х	
Dates LF began operations and was deemed closed (if applicable)	Х	
Date of last waste receipt (if applicable) [2.b]	Х	
Identified if site is lined or unlined [2.b]	Х	
Identified waste disposal method (trench fill/area fill/etc.) [2.b]	Х	
Total site acreage, and acreage used for waste disposal [2.b]	Х	
Adjoining land use described including any aquifer users [2.c]	Х	
Topographic map included as <i>Figure 1</i> [2.a]	Х	
Figure 1 shows facility location, includes a bar scale, and north arrow	Х	
Discuss the type, name & age of the geologic unit(s) on site [2.d]	Х	
Description of general site topography [2.d]	Х	
Name of nearest permanent water body, perennial stream, etc. [2.d]	Х	
Description of the uppermost aquifer [2.d]	Х	
Description of the aquifer type (confined vs unconfined) [2.d]	Х	
Date facility entered detection or phase I monitoring [2.b]	Х	
Date facility entered assessment or phase II monitoring [2.b]	Х	
Identified if the facility monitors groundwater under a variance	Х	
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]	Х	
Identified if all monitoring wells were sampled during the year [2.e]	Х	
Identified reasons for failure to sample (if applicable) [2.e]	N/A	
Identified if any monitoring wells have been abandoned [2.e]	Х	
Identified if any wells require replacement [2.e]	Х	
Included network performance certification statement [2.e]	Х	
Identified groundwater sampling dates during past year [2.f]	Х	
Included site plan drawing as Figure 2 [2.h]	Х	
Figure 2 contains current topographic contours	Х	
Figure 2 contains facility and waste management unit boundaries	Х	
Figure 2 includes all monitoring wells	Х	
Figure 2 includes potentiometric surface contours	Х	
Figure 2 includes groundwater flow direction arrows	Х	
Figure 2 includes all surface water bodies	Х	

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	Х	
Listing of groundwater elevation readings in past year [2.h]	Х	
Table of historical groundwater elevation data as Appendix B	Х	
Calculated rate of groundwater flow (distance/year) [2.h]	Х	
Flow rate calculations included as Appendix C	Х	
Identified the name of the analytical laboratory [2.h]	Х	
Identified whether lab was DCLS certified	Х	
Identified type of analytical methods used [2.h]	Х	
Identified those constituents found above the LOD and LOQ	Х	
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	Х	
Table of prior detected constituent concentrations in each well [2.g] as Appendix F	Х	
Field data sheet copies included as Appendix D	Х	
Laboratory results & certificates of analysis as CDROM in Appendix E	Х	
Included historical summary of laboratory results in Appendix F	Х	
Full list of References	Х	
Copy of this QA/QC checklist	Х	

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
		00/20/2019	10.02	17.20
ABC-1607	23.90	11/02/2016	23.27	0.63
	20.00	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
	20.00	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	0.58
		03/11/2019	22.80	0.23
		08/26/2019	22.60	1.14
		00/20/2019	22.49	1.14
ABC-1608	21.13	11/02/2016	19.22	1.91
ABC-1000	21.15	12/13/2016	20.72	0.41
		01/25/2017	20.86	0.27
		03/06/2017	21.36	-0.23
		04/19/2017	21.30	-0.15
		05/30/2017	20.94	0.19
		07/10/2017	20.94	-0.02
		08/21/2017	21.13	0.02
		06/27/2018	20.46	0.67
		09/19/2018	20.40	-0.39
		12/12/2018	22.16	-1.03
		03/11/2019	21.10	0.03
		08/26/2019	22.09	-0.96
		00/20/2013	22.03	-0.30
ABC-1614	15.62	11/02/2016	12.68	2.94
	10.02	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	12.39	3.22
		06/27/2018	12.40	2.88
		09/19/2018	12.74	2.80
		12/12/2018	12.82	2.64
		03/11/2019	12.96	2.64
		08/26/2019	13.40	2.22
		00/20/2019	13.40	<i>L.LL</i>

Notes:

CCR = Coal Combustion Residuals

VSWMR = Virginia Solid Waste Management Regulations

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:

$$i = \frac{h_L}{L}$$

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:

$$V = \frac{ki}{\theta}$$

Where: V = Groundwater Velocity (cm/s)

k = hydraulic conductivity (cm/s)

i = hydraulic gradient (unitless)

 θ = assumed porosity (unitless)

Area	Hydraulic Conductivity	Contour lines	Flow Length	Average	Assumed	Estimated G	roundwater Velocity
	(k, cm/s)	(feet amsl)	(feet)	Gradient (i)	Porosity (Ø)	(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:

$$i = \frac{h_L}{L}$$

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:

$$V = \frac{ki}{\theta}$$

Where: V = Groundwater Velocity (cm/s)

k = hydraulic conductivity (cm/s)

i = hydraulic gradient (unitless)

 θ = assumed porosity (unitless)

Area	Hydraulic Conductivity	Contour lines	Flow Length	Average	Assumed	Estimated G	roundwater Velocity
	(k, cm/s)	(feet amsl)	(feet)	Gradient (i)	Porosity (Ø)	(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)

Date: <u>3/11/2019</u>



WELL GAUGING LOG

Project Name: PPT - Pond ABC App TT

Sampler(s): M. Antal

Equipment: U.L. Indicator

Project No./Task No.: 1662(50, 2000

	Personnel		DTW	DTB		Well C	ondition Summ	ary	
Well ID	(initials)	Time	(feet)	(feet)	Protective Casing	Well Casing	Label	Lock	Pad Condition
ABC-1602	MA	1246	13.04	-		OK Damaged	Ø OK □ Inadequate	I Yes □ No	OK Damaged
ABC-1607	MA	1047	22.80	-	I OK □ Damaged	✓ OK□ Damaged	I OK □ Inadequate	⊿T Yes □ No	✓ OK□ Damaged
ABC-1608	MA	1126	21.10	-	I∕ OK □ Damaged	TOK Damaged	☐ OK□ Inadequate	I⊉ Yes □ No	1 OK Damaged
ABC-1614	MA	1413	12.31	-	✓ OK□ Damaged	I OK □ Damaged	イ OK □ Inadequate	√ Yes □ No	☑ OK□ Damaged
					OKDamaged	OKDamaged	OKInadequate	□ Yes □ No	□ OK □ Damaged
					OKDamaged	OKDamaged	OKInadequate	□ Yes □ No	OKDamaged
					OKDamaged	OKDamaged	OKInadequate	□ Yes □ No	□ OK □ Damaged
					OKDamaged	OKDamaged	OKInadequate	□ Yes □ No	□ OK □ Damaged
					OKDamaged	OKDamaged	OKInadequate	□ Yes □ No	□ OK □ Damaged
					OKDamaged	OKDamaged	OKInadequate	□ Yes □ No	□ OK □ Damaged
					OKDamaged	OKDamaged	□ OK□ Inadequate	□ Yes □ No	□ OK □ Damaged
					OKDamaged	OKDamaged	□ OK□ Inadequate	□ Yes □ No	OKDamaged
					OKDamaged	OKDamaged	□ OK□ Inadequate	□ Yes □ No	OKDamaged
					OKDamaged	OKDamaged	□ OK□ Inadequate	□ Yes □ No	OKDamaged
					OKDamaged	OKDamaged	OKInadequate	□ Yes □ No	OKDamaged
					OKDamaged	OKDamaged	OKInadequate	□ Yes □ No	OKDamaged
					OKDamaged	OKDamaged	OKInadequate	□ Yes □ No	OKDamaged

Observations/Notes:

Signature:

m Haylor Huler Mou QA/QC Signature:_

12019 Mr 3/11 Date: 3/18 2019 Date:_ 1 Page of

1	() GO	LDEF	MICR	OPURGE S/	AMPLING	LOG	Date: Weather:		19
	Project Name: Event: Well ID: Well Diameter:	ABC BY ABC-1	nt Power Statio	E 15A19	Project No. Sampler(s): Id Calibratior Initial Depth	Completed:	1667 (50.2 M.Anta 0945 13.04		
	Depth to Bottom: Equipment Used:	WL Indica VSI (cp (feet Turbidity Met Turbidity Met Peristaltic Pu MP-10 Contro	ter mp	mn Thickness Air Tank	pr	Dedicated B	•
	Time (5 minute int.) Stabilization 1253 1256 1259 1305 1305 1307 1315	рH (s.u.) +/- 0.1 4.56 4.43 4.43 4.43 4.43 4.43	Sp. Cond. (uS/cm)° ^C +/- 3% (46.7 (46.7 (46.7 (46.7 (46.7) (47.2) (47.2) (47.2)	Turbidity (NTU) if >10, +/- 10% 3.40 3.23 4.07 4.96 5.60 4.32	Dissolved Oxygen (mg/L) +/- 10% 3.93 3.60 3.47 3.37 3.37 3.37 3.63	Temp. (°C) +/- 1°C [4.0 [4.] [4.] [4.] (4.] (4.] (4.] (4.] (4.3	ORP (mV) +/-10 mV 223.3 249.2 268.4 278.5 288.7 300.0	DTW (feet) <0.3 feet 13.24 13.30 13.25 13.21 (3.24 (3.24) 13.20	Flow Rate (mL/min) <500 200 200 200 200
	Purge Cycle (End Purge volume (ga Total Purge Volun Purge Observation	llons) prior to ne (Gallons): ns (color, odo	stabilization m ~ 2.0	onitoring (3/8" I.I	D. Tube: Vol:	Management		2.00 Storage) VO.1[p
17	Sample Time: Sample Group(s)/	1307	в, Са,	Chloride	, Sulfei	Field Filtered	(0.45um): Side, TDS	Yes	No
	Other Observation Sampler Signature			oblems:	Date: Date:	3/11/19 3/15/	// 9	Page	of

í.	Project Name: Event:		HP III. 2	25419-0	Project No. Campler(s)		1662150. M. Anta	2000	_
	Well ID:	ABC-1	607			n Completed:	0945		
	Well Diameter:	2.0	inches		Initial Dept		22.80		feet
	Depth to Bottom:			feet			3:		feet
	Equipment Used:		tor KCIAMINKIG?	Turbidity Me		Air Tank		Dedicated Bl	
		In-Situ		MP-10 Contr		MP-15 Cor		Non-dedicate	a Bh
					Dissolved	1 1			
	Time (5 minute int.)	рН (о.u.)	Sp. Cond.	Turbidity	Oxygen	Temp.	ORP	DTW	Flow Rat
	(5 minute int.) Stabilization	(S.U.) +/- 0.1	(uS/cm) ^{oC} +/- 3%	(NTU) if >10, +/- 10%	(mg/L) +/- 10%	(°C) +/- 1°C	(mV) +/- 10 mV	(feet) <0.3 feet	(mL/min <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-					SAMPL			
		4.89	151.5	5.54	2.09	19.5	121.5	24.32	200
						ľ			
									-
	g								
									Ŷ
	Purge Cycle (End	25/5	SPC @	72	psi	Flow Rate (m	ul/min End):	200	
	Purge volume (ga			-					~0.18
	Total Purge Volum		1				: Polytank		1
	Purge Observatio	ns (color, odo	r, turbidity, she	en): Clear					
		ne: 104			0	- pi			
	Sample Time:	1105				Field Filtered	(0.45um):	Yes	No No
	Sample Group(s)/		BCOD	Keule	n El		The all	. 10	
	Sample Group(s)	Analyte(S).	Diald	m sura	e, Flui	orae,	10, chio	rior	
	Other Observatior	ns / Equipmer	t Operation Pro	oblems:					
	Sampler Signature	e: Mich	1 aug		Date:	3/11/19	1	Page	of
	QA/QC Signature	m	^	1- 1	1. A	- 10-	110		-

	GO	LDEF	MICRO	OPURGE SA	AMPLING	LOG	Date: Weather:		9
Proie	ect Name:		nt Power Statio	n	Project No.	/Task No :	1662150		925
Ever				SA19 + CCR			M Antol	ran	
Well		ARC	1608				- 11(17) [G]		_
		The				n Completed:			
	Diameter:	2.0	inches		Initial Dept		21.10		feet
	h to Bottom:			feet		Imn Thicknes	s:	-	feet
Equi	pment Used:	WL Indica	tor CSIANIA:EZ	Turbidity Me	ter	🗌 Air Tank		Dedicated Bl	•
			-			Compress		Non-dedicate	ed BP
		In-Situ		MP-10 Contr		MP-15 Co	ntroller Box	└┘	
	Time	рН	Sp. Cond.	Turbidity	Dissolved Oxygen	Temp.	ORP	DTW	Flow Rat
(5	minute int.)	(S.U.)	(uS/cm)⁰ ^C	(NTU)	(mg/L)	(°C)	(mV)	(feet)	(mL/min
	tabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
	133	5.50	324.5	16.93	3.86	13.8	123,5	21.93	200
	136	5.46	326.0	6.88	2.70	13.9	102.4	22.00	200
	139	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	Z00
)	145	5.48	331.0	7.29	(.35	13.9	83.5	22.02	200
	1147-					SAMPL			
	154	5,52	330.3	4.24	2.28	13.9	77.9	21.75	200
	<i>↓ ≤ /</i>				0.00				
•									
Purg	e Cycle (End): 246	sec @	20	psi	Flow Rate (n	nl/min End):	_200	
Purg	e volume (ga	illons) prior to	stabilization m	onitoring (3/8" I.			mp x 0.006 gal/ft):		~ 0.1
Tota	Purge Volur	ne (Gallons):	~2.0		Purge Water	r Managemen	t polytank	Storage	
Purg	e Observatio	ns (color, odo	r, turbidity, she	en): Clear				U -	
PU	rge tir	ne: 112	8		0	- 1			
	J ple Time:	1147				Field Filtered	1 (0 45µm):	☐ Yes	No No
	-		0	011				12.2.2.1	
Sam	ple Group(s)	/Analyte(s):	boron,	alcium, C	hloride	2, Sulta	te, Fluori	de, TDS	
Othe	r Observatio	ns / Equipmer	nt Operation Pre	oblems:					
			·						
		.01	100-		_	31.10			
Sam	pler Signatur	e: Marm	1 ans		Date:	3/1/19		Page	of
QA/0	QC Signature	· Wona	alar		Data	24440	<u> </u>	19	
			$- \frac{1}{N}$		Date:	211111			

🖒 GO	LDEF	MICRO	OPURGE SA	AMPLING	LOG	Date: Weather:	3/11/19 C(oud	4505
Project Name: Event:		nt Power Statio	n 25A19	Project No. Sampler(s)		1662150. M. Antal		
Well ID:	ABC-	1614	. Fie	eld Calibration	n Completed:	0945		
Well Diameter:	2.0	inches		Initial Depth	n to Water:	12.31		feet
Depth to Bottom:			feet	Water Colu	ımn Thicknes	s:		feet
Equipment Used:			Turbidity Me		🗌 Air Tank		Dedicated Bl	adder Pump
	YSI NO	52161110515	3 Peristaltic Pu	mp	Compress		Non-dedicate	ed BP
	🗌 In-Situ	-	MP-10 Contro	oller Box	MP-15 Co	ntroller Box		
Time	pН	Sp. Cond.	Turbidity	Dissolved Oxygen	Temp.	ORP	DTW	Flow Rate
(5 minute int.)	(S.U.)	(uS/cm) ^{₀C}	(NTU)	(mg/L)	(°C)	(mV)	(feet)	(mL/min)
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
[420	0.50	2014	155.23	7.40	13.9	17.1	13,43	200
1423	6.17	307.7	107.57	7,87	13.9	(8.7	13.12	200
1426	6.3/	581.7	63.16	5.11	13.9	1.6	14.41	200
1929	6.41	392.1	35.57	3.99	14.0	-0.7	14.68	200
1452	6.23	400.1	20.22	3.04	14.1	-6.3	14.10	200
1435	6.22	906.7	25.82	2.53	(4.0	-11.5	14.66	200
1438	6.10	401.6	24.43	1.88	14.1	-13.2	14.85	200
1441	6.18	408.2	24.45	2.16	14.	-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	[4.]	- 15,]	19.50	200
1450	6.15	401.3	16.53	1.40	[4.]	-15,]	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	- [4,]	14.92	200
1459	6.14	395.0	16.95	1.66	[4.]	~13.2	(4.81	200
1502	6.14	393.7	13.71	1.61	[4,]	-13.2	14.81	200
1505	6.14	392.1	13.8	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 (r	nl/min End):	200	
			onitoring (3/8" I.	D. Tube: Vol	=Depth to Pu	mp x 0.006 gal/ft):		~0.13
Total Purge Volur						nt: polytank	•	
Purge Observatio					sample			
Purge him			Signily	Stordy	()	hurbidityat	start of e	Inop Orange a
Sample Time:	1510				Field Filtered	1	Yes	No
	(Apolyto(a))					chias		60-1111
Sample Group(s) B, Ca, C	hlonole	JSulfate	e, fluorid	e, TDS	70 [SANDY SAN	pied est	De lat M
Other Observation	ns / Equipmer	nt Operation Pr	oblems:	MSIN	15D Sam	pied @ ABC	2-1614	
Sampler Signatur	e: Micin	1 and	-	Date:	3/11/19		_ Page	1 of 2
QA/QC Signature	: Môna	" Mayle	?	Date:	3/15/1	1	-	

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	LDEF	-				weather.	<u>cloudy</u>	<u> </u>
oject Name:		nt Power Static		Project No./	Task No.:	1662150	2000	
ent:	4 4 4	APPIT		Sampler(s):		M.Antal		
ell ID:	ABC-1	614	- CCR Fie	eld Calibration	Completed:			
ell Diameter:	2.0	inches		Initial Depth	to Water:	12.3		feet
pth to Bottom:			feet		mn Thicknes	s:		feet
uipment Used:	W WL Indica	tor C M MINZIS			Air Tank		Dedicated Bl	
			3 Peristaltic Pu		MP-15 Cor		Non-dedicate	ed BP
	1		1	Dissolved				
Time	рН	Sp. Cond.	Turbidity	Oxygen	Temp.	ORP	DTW	Flow Rate
5 minute int.) Stabilization	(S.U.) +/- 0.1	(uS/cm)⁰ ^C +/- 3%	(NTU) if >10, +/- 10%	(mg/L) +/- 10%	(°C) +/- 1°C	(mV) +/- 10 mV	(feet) <0.3 feet	(mL/min) <500
1510			-SAMP	16		.,		
MS -								
MSD -								
1536	6.19	370.1	23.55	2.06	14.7	-12,9	14.53	200
•					-			
							,	
								- 100
			L					
rge Cycle (End	<u>): 24</u>	<u>6 sec</u> @	20	psi	Flow Rate (m	nl/min End):	200	
		-	nonitoring (3/8" I.	D. Tube: Vol:	=Depth to Pu	mp x 0.006 gal/ft):		NO.13
tal Purge Volu						t folytank.	stomae	
rge Observatio	ons (color, odo	or, turbidity, she	een):	Frap.	sample		J	
urgetim	e: 1415		Slightly	cloudy	t	highturbidit	4 2t starte	ofpurgeli
imple Time:	1510				Field Filtered	l (0.45um):	Yes	No No
mple Group(s)	Analyte(s)	Blac	blonda	ul Cato	Anai	to me		
pic croup(s)	", indiyio(3).	- vj uje	hloride, s		yainer k	ACJIV		
	-							
her Observatio	ns / Equipmer	nt Operation P	oblems:	MSIN	150 Sam	pled @ AB	C-1614	
mpler Signatu	re: M	ran		Date:	3 lull	9	Page	2 of 2
VQC Signature		e M	1		3/15/1			

🖒 GO	LDEF	NICR	OPURGE SA	AMPLING	G LOG	Date: Weather:	<u> </u>	117 1.2 500
								<u> 105</u>
roject Name:	4.0	nt Power Static	1	Project No	./Task No.:	1662150.	5000	
vent:	ABC A	PII 1	<u> SA19</u>	Sampler(s	-	M.Anto	1	
/ell ID:	<u> </u>	cate	_ CCK Fie	eld Calibratio	on Completed:	0945		
ell Diameter:		inches		Initial Dep	th to Water:			feet
epth to Bottom:			feet	Water Col	umn Thickness	:		feet
quipment Used:	WL Indica	tor	🗌 Turbidity Me	ter	🗌 Air Tank		Dedicated E	Bladder Pump
	🗌 YSI		🗌 Peristaltic Pu	Imp	Compresso	r	Non-dedicat	ted BP
	🗌 In-Situ		MP-10 Contr	oller Box	MP-15 Con	troller Box		
Time	рН	Sp. Cond.	Turbidity	Dissolved	Temp.	ORP	DTW	Flow Rat
(5 minute int.)	(S.U.)	(uS/cm) ^{oC}	(NTU)	Oxygen (mg/L)	(°C)	(mV)	(feet)	(mL/min
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1528-					SAMPLE			
·······	T T		1					1
					1 1			
———·· — ··· , , , , , , , , , , , , , ,								1
					++			
					+			
					<u> </u>			
					<u> </u>			
urge Cycle (End	I):	a		psi	Flow Rate (m	l/min End):		<u> </u>
				••	•	np x 0.006 gal/ft):		
otal Purge Volu					er Management			
							ANA A	06.1000
urge Observatio	ns (color, ouc	r, turbiaity, sne	en): puplic		11 1 1 1	- ABC-1602	jsee A	<u>BC-1602</u> 1614
	15-01		leg to	r Samp	lingdet			- CIF
ample Time:	1528				Field Filtered	(0.45um):	Yes	No
ample Group(s)	/Analyte(s):	B.Ca.C	hloride,	sulfate	2 flum	te TDS		
			(~)			- piece		
		<u></u>				· · · · · · · · · · · ·		
ther Observatio	ns / Equipmer	nt Operation Pr	roblems:					
	An-	114.0	-	Date:	3/11/19	1	Page	of
ampler Signatu	e: The	- uno		Date.			1 205	1 OI
ampler Signatu A/QC Signature	0.0.0	.1	1	Date:	3/15/19	2	- 1 age	01

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GC GC	LDEF	R MICR	OPURGE S/	AMPLING	LOG		3-17 sun,	
Project Name:	Possum Poi	nt Power Static	on	Proiect No.	/Task No.:		1,2002	
Event:			CR		-	M. Tayl		
Well ID:		ank Acm			- n Completed:			
Well Diameter:		inches FB	ACM + Pond D		-			feet
Depth to Bottom:		•	CC R feet		- Imn Thickness	:		feet
Equipment Used			-		Air Tank	<u> </u>	Dedicated B	-
			🗌 Peristaltic Pu	mp	Compresso	r	Non-dedicat	ed BP
	🗌 In-Situ		MP-10 Contro	oller Box	MP-15 Con	troller Box		
Time	рН	Sp. Cond.	Turbidity	Dissolved Oxygen	Temp.	ORP	DTW	Flow Rat
(5 minute int.)	(S.U.)	(uS/cm) ^{oC}	(NTU)	(mg/L)	(°C)	(mV)	(feet)	(mL/mir
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1045			SAM	PLFD				
	1							<u> </u>
	+							
	+							
					-		۵.	
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		1						
Purge Cycle (End	·	@		psi	Flow Rate (m	· ·	<u> </u>	
Purge Cycle (Enc Purge volume (ga	·			•	•	· ·	<u> </u>	
Purge volume (ga	allons) prior to	stabilization m	nonitoring (3/8" I.I	D. Tube: Vol	=Depth to Pun	np x 0.006 gal/ft):		
Purge volume (ga Total Purge Volu	allons) prior to me (Gallons):	stabilization m	nonitoring (3/8" I.I	D. Tube: Vol Purge Water	=Depth to Pun Management	np x 0.006 gal/ft):	<u> </u>	
Purge volume (ga Total Purge Volu Purge Observatio	allons) prior to me (Gallons):	or, turbidity, she	nonitoring (3/8" I.I een): C (<i>C</i> (D. Tube: Vol	=Depth to Pun Management	np x 0.006 gal/ft):	n near	 ED-24
Purge volume (ga Total Purge Volu	allons) prior to me (Gallons):	stabilization m	nonitoring (3/8" I.I een): C (<i>C</i> (D. Tube: Vol Purge Water	=Depth to Pun Management	np x 0.006 gal/ft):	n near	ED-24

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

Date: 8/26/19



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

	Personnel		DTW	DTB		Well Co	ondition Summ	ary	
Well ID	(initials)	Time	(feet)	(feet)	Protective Casing	Well Casing	Label	Lock	Pad Condition
ABG-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	V OK Damaged
ABC-1608		1525	22.09	33.80	✓ OK Damaged	OK Damaged	✓ OK Inadequate	V Yes No	✓OK Damaged
ABC-1614		(544	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: <u>Manager</u> QA/QC Signature:

Date: 8/26/19 Date: 8/30/19 of Page

	ſ		MICR	OPURGE S	AMPLING	LOG	Date:	8/29	/19
	GOLD	E D.					Weather:	(lear si	Ky, 70°F
\bigcap	Project Name:	Poss	ium Po.	int P.S.	Project No	/Task No ·	166215	0 2004.	001
\bigcirc	Event:	25 A		SWMR/UPPE			N.Chie	1	
	Well ID:	ABC-	1602				0800 02	8/29/19	
	Well Diameter:	20	inches			h to Water:	16.89	Ulent I	feet
	Depth to Bottom:	32,	15	feet		umn Thicknes		.26	feet
	Equipment Used:	WL Indica	ator	-		🗌 Air Tank		Dedicated Bl	-
			N10288	🗌 Peristaltic Pu	Imp	Compress	or	Non-dedicate	
		🗌 In-Situ 🔟		MP-10 Contr	oller Box	MP-15 Cor	ntroller Box		
	Time	рН	Sp. Cond.	Turbidity	Dissolved Oxygen	Temp.	ORP	DTW	Flow Rate
	(5 minute int.)	(S.U.)	(uS/cm) ^{oC}	(NTU)	(mg/L)	(°C)	(mV)	(feet)	(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	1 38.9	16.38	3.)7	19.2	295.9	16.97	300
	0845	411	140.0	14.24	3,10	15.2	315,3	17.02	300
	0849	4,11	140,1	17,29	3.01	152	ううしょ	18.97	300
	0851	4,13	140,5	16.46	7.88	19,1	ううにろ	16.95	300
	0854	4,17	139.9	16,11	2,90	15,2	332.7	16.96	300
	0857			- SA A	1PLE	D -			
	0934	4,41	141,4	9,18	3.07	16.3	327.8	17.00	300
\bigcirc									
\bigcirc									
	·								
	Purge Cycle (End): 25	5 @	20	psi	Flow Rate (m	nl/min End):	30	0
	Purge volume (ga	Illons) prior to	stabilization m	nonitoring (3/8" I	.D. Tube: Vo	l=Depth to Pu	ump x 0.006 gal/ft):		~0,16
	Total Purge Volur	ne (Gallons):	~0.5	5	Purge Water	Managemen	t on-sife	can fain	ment
	Purge Observatio	ns (color, odo	or, turbidity, she						$\overline{\mathbf{C}}$
	Vusse S	tart: 0	834		5				
	Sample Time:	0857	·	197749		Field Filtered	(0.45um):	Yes	No
	Sample Paramete	ers/Analyte(s)	: 🗆	CCR Appendix	III Constituer	nts	CCR Appendix I	✓ Constituents	
				VPDES Parame	eters: 6010	16020 me	tala 747AL	h gaci	hims (O.FSA
			TI	75,9060 TO	•	Phenolic	Rodium 726	BR har	chome
			of Operation D		MSIMA	A Samo	Ind I a	conex	
	Other Observation		c 26.80			5 Junp	iea here		5
		12º				Øhal	lava		1 /
	Sampler Signatur		. /		Date:	0/21/	17	Page	of
\bigcirc	QA/QC Signature	the	NIRS		Date:	8/30/1	9		

		MICR	OPURGE S	AMPLING	LOG	Date:	8128	3/19
GOLD	FD					Weather	Cloudy	705°F
Project Name:	Poss	im Pai	nt P.S.	Project No	/Task No ·	16621	50.200	4 001
Event:			SUMR/UPPE			N. Chier		1,001
Well ID:	ABC-	1607		eld Calibration			8/28/19	
Well Diameter:	3.0	inches		Initial Dept		27.90	0120111	feet
Depth to Bottom:	35.5	50	feet		umn Thicknes	as:	11.6	-feet
Equipment Used:	WL Indica	ator	- Turbidity Me	ter	🗌 Air Tank		Dedicated B	_
	YSI P	NRYBRI	🗌 Peristaltic Pu	ımp	Compress	sor	Non-dedicat	
	🗌 In-Situ		MP-10 Contr	oller Box	MP-15 Co	ntroller Box		
Time	рН	Sp. Cond.	Turbidity	Dissolved Oxygen	Temp.	ORP	DTW	Flow Rate
(5 minute int.) Stabilization	(S.U.) +/- 0.1	(uS/cm) ^{oC} +/- 3%	(NTU)	(mg/L)	(°C)	(mV)	(feet)	(mL/min)
1133	486	132.5	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	K0,3 feet	<500 200
1136	4.82	1319	10, 57	3.46	17.0	1912	24.19	200
1139	4.76	132.3	38.19	3.08	17.0	198.0	2426	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	201
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	135.2	10.58	2.28	17.0	216.8	24.42	200
1155	4.73	136,5	9.73	ふるろ	17,1	21912	24.40	200
11 57	<u> </u>		9	AMP	LED			
1210	5.26	142.6	7.79	2.41	21.0	216.9	24.75	200
·····								
							· · · · · · · · · · · · · · · · · · ·	
Purge Cycle (End)	25/5	Sec @	20	psi	Flow Rate (m	nl/min End):	200	0
Purge volume (gal	lons) prior to	stabilization m	onitoring (3/8" I.			ump x 0.006 gal/ft):		~0.17
Total Purge Volum				Purge Water	Managemen	ton-site	ontaine	nent
Purge Observation	is (color, odd	or, turbidity, she		grabs				······································
Sample Time:	1157	7			Field Filtered	l (0.45um):	Yes	No
Sample Parameter	s/Analyte(s)	: 🗆	CCR Appendix	III Constituen	ts	CCR Appendix I	V Constituents	
	, ,		VPDES Parame	eters: 6010	16020 mp	tals, 7470 Ha	2056 A	instru
		T	5,9060 T	DC,906	5 Phenol	ics, Radium	226/228,h	ex chrom
Other Observation:			oblems:				/	
NOT to	pamp	29.004	it ; Samp	ited .	ABC-1	Duplicate		
- P								
Sampler Signature	1	ž		Date:	810	28/19	Page	of

/

MICROPURGE SAMPLING LOG Use ther: CV (a.s.f.72s) Project Name: O LO E R Project No. Task No: (b & & & S.f. y & 0.0) Project Name: O S.f. y & 0.01 + P.S. Project No. Task No: (b & & & S.f. y & 0.0) Event: O LO E R Project No. Task No: (b & & & & S.f. y & 0.01 + 0.0) Well Diameder: O LO In Statistication Field Calibration Completed: (C I & 0.0 & \$0.261/9) Well Diameder: O Lo In Statistication Field Calibration Completed: (C I & 0.0 & \$0.261/9) Well Diameder: O Lo In Statistication Field Calibration Completed: (C I & 0.0 & \$0.261/9) Well Diameder: O Lo Introller Compressor (C I & 0.0 & \$0.261/9) Well Diameder: Well Diameder: (D & 0.0 & \$0.261/9) (M P - 10 & \$0.261/9) Well Diameder: Well Diameder: (D & \$0.0 & \$0.000000000000000000000000000				MICR				Date:	8)28	2/19
Project Name: Project Name: Project No/Task No::		9		MICIN			LUG	Weather:	Overca	st 705
Event: DSA 19 CCUSUMPL(IDSS Sampler(s): N. Chi 'en Well Diameter: AL inches Field Calibration Completed: O. 10 on S(ss/j.9) Well Diameter: AL inches Field Calibration Completed: O. 10 on S(ss/j.9) Depth to Bottom: 33, 80 reet Water Column Thicknes: 2.644 feet Depth to Bottom: 33, 80 reet Water Column Thicknes: D. 10.6 Column Thicknes: D. 10.6 Imate: Imate: Imate: Mathematic Pump Ompressor Non-declated BP Imate: Imate: Imate: Mathematic Pump ORP UTW Flow Rate Imate: Imate: Imate: Mathematic Pump ORP UTW Flow Rate Imate: Ima	\bigcirc			Paind	DS.					
Well Dimeter: ABC-1608 Field Calibration Completed: OT10 on 8(28)/9 Well Diameter:	\bigcirc		<u>10250</u>		1				2004	,001
Well Diameter:			AQC	19 (CP)	1					
Depth to Bottom: 33.50 feet Water Column Thickness: 1.6.4 feet Equipment Used: W. It. Indicator In Trank Depth to Bottom:			ADC-	1600	- Fie		•	01000	8/28/19	
Equipment Used: Will Indicator Indi			- d1 U					<u>d1.16</u>	10.4 cm	feet
Peristatic Pump Compressor Non-dedicated BP In-Stu MP-10 Controller Box Imp Imme pH Sp. Cond. Turbidity Bindute int: (SU.) (SU.) (SU.) Stabilization +/-0.1 (SU.) (SU.) (MVI) Stabilization +/-0.1 (SU.) (MVI) (NVI) (Compressor Imme pH Sp. Cond. Turbidity Dissort (Compressor) (MVI) Stabilization +/-0.1 (SU.) (SU.) (Compressor) (MVI) (Compressor) Stabilization +/-0.1 (SU.) (SU.) (SU.) (SU.) (SU.) (SU.) Stabilization +/-0.1 +/-0.1 +/-0.1 +/-0.1 +/-0.1 +/-0.1 +/-0.1 Sample Cycle (End): AG/H AU.) AJ.4 AJ.0								s:	100 C 100 C	
In-Stau MP-10 Cottroller Box MP-13 Controller Box Image: Controller Box Image: Im		Equipment Used		ator			_			
Time PH Sp. Cond. Turbidity Dissolved Orygen Temp. ORP DTW Flow Rate Stabilization +4.01 +4.3% #1-10, +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% +4.10% <t< td=""><td></td><td></td><td>_ 17</td><td>M102881</td><td></td><td>•</td><td>1</td><td></td><td>Non-dedicate</td><td>ed BP</td></t<>			_ 17	M102881		•	1		Non-dedicate	ed BP
Image pr sp. cond. Image org				<u>~</u>			MP-15 Co	ntroller Box		
(9 minute int) (8.0.) (usign)** (WTU) (minut) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) (*1.10%) <t< td=""><td></td><td>Time</td><td>рН</td><td>Sp. Cond.</td><td>Turbidity</td><td></td><td>Temp.</td><td>ORP</td><td>DTW</td><td>Flow Rate</td></t<>		Time	рН	Sp. Cond.	Turbidity		Temp.	ORP	DTW	Flow Rate
Stabilization +1.0.1 +1.3% if >10, +1.10% +1.10% +1.10mV <0.3 feet						(mg/L)	(°C)	(mV)	(feet)	(mL/min)
1357 5.67 320.18 17.11 3.14 15.6 106.7 53.0 320.1 1300 5.65 320.1 35.34 3.45 15.8 100.7 3202 3202 3201 1303 5.65 320.1 35.34 14.66 3.40 15.6 46.9 33.04 200 1302 5.64 331.7 14.10 1.93 15.6 46.9 33.15 300 1304 5.64 331.7 14.10 1.93 15.6 46.9 33.15 300 1304 5.63 341.0 9.53 1.89 15.6 43.9 33.15 300 1305 5.71 341.6 11.38 3.86 17.4 86.4 23.02 200 1310 5.71 341.6 11.38 3.86 17.4 86.4 23.02 200 1320 5.71 341.6 11.38 3.86 17.4 86.4 23.02 200 1320 5.71 341.6 11.38 3.86 17.4 86.4 23.02 <td< td=""><td>5</td><td></td><td>+/- 0.1</td><td>+/- 3%</td><td></td><td>and the second se</td><td></td><td></td><td></td><td></td></td<>	5		+/- 0.1	+/- 3%		and the second se				
1300 5,65 320.1 35,44 3,45 15,8 100.7 3308 300 1303 5,65 322.3 14.66 3.20 15,6 46.9 33.04 200 1303 5,65 322.3 14.66 3.20 15,6 46.9 33.12 200 1304 5,64 331.7 14.10 1.92 15,6 43.8 33.13 200 1309 5,63 341.0 9.53 1.89 15,6 43.8 33.15 200 1311		1203	3.13	223./	71. dd	4128			2245	
3 3 5,65 3 1,3 14,6 3,40 15,6 46,9 33,04 200 3 0,6 3 3,17 14,10 1,9 15,5 95,1 3 3,13 200 1306 5,64 3,17 14,10 1,9 15,6 93,1 3 3,15 300 1307 5,61 3,41,0 9,53 1,89 15,6 93,8 33,15 300 1311 30 5,71 3,4,6 11,38 3,36 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,36 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,36 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,36 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,36 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,36 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,36 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,36 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,36 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,36 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,36 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,36 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,38 17,4 86,4 33,04 200 1320 5,71 3,4,6 11,38 3,38 17,4 86,4 14,30 400 1320 5,71 3,4,6 11,38 3,38 17,4 14,38 14,39 14,30 400 1320 5,71 3,4,6 11,38 3,58 17,4 14,38 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14,39 14		1200	5.0/		47.4	3,41		8	2302	
1302 5.64 3a1.7 14.10 1.9 15.5 95.3 33.13 300 1309 5.63 3a1.0 9.53 1.89 15.6 93.8 33.15 300 1311		1300	5.65	3201	25:24	2,45			3302	200
1309 6.63 341.0 9.53 1.89 15.6 13.15 30.0 1311		303		322,3	14.00	9.90		96.9	23.04	200
Image: Stample D Image: Stample D Image: Stample D Image: Stample D Image: Stample Time: Imagee: Stample Time: Image: Stample Time:		1506			14.10	1.92			23.12	200
Purge Cycle (End): 6/4 @ 0 psi Flow Rate (ml/min End): %0.16 Purge Cycle (End): 6/4 @ 0 psi Flow Rate (ml/min End): %0.16 Purge Volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/fi): %0.16 %0.16 Purge Volume (gallons): Purge Water Management: 0n-5 ite contaits ment Purge Observations (color, odor, turbidity, sheen): Sample Time: Field Filtered (0.45um): Yes		1309	9,65	921.0	9.59	189	15.6	93.8	3315	200
Purge Cycle (End): 6/4 @ 0 psi Flow Rate (ml/min End): %0.16 Purge Cycle (End): 6/4 @ 0 psi Flow Rate (ml/min End): %0.16 Purge Volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/fi): %0.16 %0.16 Purge Volume (gallons): Purge Water Management: 0n-5 ite contaits ment Purge Observations (color, odor, turbidity, sheen): Sample Time: Field Filtered (0.45um): Yes				224	1 02	SAM	PLE			
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): [^] 0.0 Purge Water Management: <u>On-Site containment</u> Purge Observations (color, odor, turbidity, sheen): Clear grab sample Purge Start: 1243 Sample Time: Site Contain for the second secon		15.20	5.7	329.6	11.28	2.86	17,4	86,4	23,02	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): [^] 0.0 Purge Observations (color, odor, turbidity, sheen): Clear grab sample Purge Start: [^] 0.16 Sample Time: [^] 0.16										
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): [^] 0.0 Purge Water Management: <u>On-Site containment</u> Purge Observations (color, odor, turbidity, sheen): Clear grab sample Purge Start: 1243 Sample Time: Site Contain for the stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): Purge Volume x 0.006 gal/ft):										
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): [^] 0.0 Purge Water Management: <u>On-Site containment</u> Purge Observations (color, odor, turbidity, sheen): Clear grab sample Purge Start: 1243 Sample Time: Site contain for the stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): Purge Volume x 0.006 gal/ft):										
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): [^] 0.0 Purge Water Management: <u>On-Site containment</u> Purge Observations (color, odor, turbidity, sheen): Clear grab sample Purge Start: 1243 Sample Time: Site contain for the stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): Purge Volume x 0.006 gal/ft):										
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): [^] 0.0 Purge Water Management: <u>On-Site containment</u> Purge Observations (color, odor, turbidity, sheen): Clear grab sample Purge Start: 1243 Sample Time: Site Contain for the second secon										
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): [^] 0.0 Purge Water Management: <u>On-Site containment</u> Purge Observations (color, odor, turbidity, sheen): Clear grab sample Purge Start: 1243 Sample Time: Site contain for the stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): Purge Volume x 0.006 gal/ft):										
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): [^] 0.0 Purge Water Management: <u>On-Site containment</u> Purge Observations (color, odor, turbidity, sheen): Clear grab sample Purge Start: 1243 Sample Time: Site contain for the stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): Purge Volume x 0.006 gal/ft):										
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): [^] 0.0 Purge Water Management: <u>On-Site containment</u> Purge Observations (color, odor, turbidity, sheen): Clear grab sample Purge Start: 1243 Sample Time: Site contain for the stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): Purge Volume x 0.006 gal/ft):										
Purge volume (gallons) prior to stabilization monitoring (3/8" I.D. Tube: Vol=Depth to Pump x 0.006 gal/ft): [^] 0.16 Purge Volume (Gallons): [^] 0.16 Purge Water Management: <u>On-Site containment</u> Purge Observations (color, odor, turbidity, she <u>en):</u> Clear grab sample Purge Start: [243 Sample Time: Yes No				11						
Total Purge Volume (Gallons): ^N . 0 ^N . 0 ^{Purge Water Management: <u>On-Site Contain Ment</u> ^{Purge Start: 1243 ^N . 0 ^{Purge Mater Management: <u>On-Site Contain Ment</u> ^{Purge Mater Mat}}}}</sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup>							•	,	20	<u>C</u>
Purge Observations (color, odor, turbidity, sheen): Clear grab grap grap <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>~0.16</td>										~0.16
PurgeStart: 1243 Field Filtered (0.45um): Yes Sample Time: 1311 Field Filtered (0.45um): Yes								ton-site C	ontain	ment
Sample Time: Field Filtered (0.45um):					en): (199	r gra	Dsan	ple		
		rungesta	14.12	18						
		Sample Time:	1311				Field Filtered	(0.45um):	Yes	No
Sample Parameters/Analyte(s); CCR Appendix III Constituents 🗌 CCR Appendix IV Constituents		Sample Paramete	ers/Analyte(s);		CCR Appendix	III Constituen	ts	CCR Appendix IN	/ Constituents	
UPDES Parameters: 6010/6020 metals, 7470 Hg, 9056anion3(CI, F, SO4),					VPDES Parame	eters: 6010	600000			ON CLECA.
TDS, 9060 TOC, 9065 Phenolics, Radium 226/228 (her drome)										and in sur
		•			1	00,000	Streve	incorrection	ablas /	exchroppe
Other Observations / Equipment Operation Problems:		Other Observation	ns / Equipmer	t Operation Pro	blems:		. <u></u>		·	
verin to purily. 20,38++		vepth to	purn	1. 2013	70++		A / -	10		
Sampler Signature: Date: 8/28/19 Page of	\bigcirc	Sampler Signature	: mi	-		Date:	817	8/14	Page	of
QA/QC Signature: Tim Date: 8/30/19	\bigcirc	QA/QC Signature:	the	M		- Date:	8/30/	9		

Project Name:	older ociates	nt Power Static	n	Project No.	/Task No :	11 19:0	0,2004.00	
Event:			coelusumelundi	-		M.Anta	1)/
Well ID:	ABC-11	AA-A					8/28/19	
Well Diameter:	1	inches		Initial Deptl			30	feet
Depth to Bottom:	200		feet		Imn Thicknes			feet
Equipment Used:		or	Turbidity Met		🗋 Air Tank		Dedicated Bla	-
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	V YSINO DS	5 17M102880	Peristaltic Pu	mp	Compresso	r	Non-dedicate	
	🗆 In-Situ 🚞		MP-10 Contro	oller Box	MP-15 Con	troller Box		
Time	рН	Sp. Cond.	Turbidity	Dissolved Oxygen	Temp.	ORP	DTW	Flow Rat
(5 minute int.)	(S.U.)	(uS/cm)⁰ ^c	(NTU)	(mg/L)	(°C)	(mV)	(feet)	(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	(7.0	21.0	14.91	200
1251	6.18	489.2	32.0	4.47	16.6	-2.7	15.3/	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-				SAMPL	F			
1424	6.30	479.1	25.6	2.58	16.7	-37.7	15.95	200
					-			
	0411							
Purge Cycle (En				_psi	•	ml/min End):	200	
Purge volume (g			nonitoring (3/8"		•	•	- ,	NO.13
Total Purge Volu					er Managemei	nt: ONSITE	Containm	ent
Purge Observati		or, turbidity, sh	een): Clear	grab S	ample_			
furge time	2:1245				•	· · · · · · · · · · · · · · · · · · ·		
Sample Time:	1302	•			Field Filtere	d (0.45um):	🗆 Yes	🗹 No
Sample Parame	ters/Analyte(s):	VSWMR Tabl	e 3.1 Column	A VOCs		R Table 3.1 Colu	ımn A Metal
		, 		, fluoride, sulfa	te, TDS, Hg, rai	dium 226/228,	Cr(VI), cyanide, s	ulfide, alkalinil
			hardness, TOC	070 - 05 -	16 - 0		CA 1	-
			Other: 600(6				Juy 105	100,
Other Observation	ons / Equipme	ent Operation F	Problems: PW	enolics, 1	Radium 2	26/228,	hex chrom	e

		1	MICR	OPURGE S/	AMPLING	IOG	, Date:	8/28	119
				Ĩ.		200	Weather:	Cloudy	705°P
	GOLD Project Name:		m foint	f.S.	Project No	/Task No :	1662150	12004	001
	Event:	2541		WMRLUPDES			N. Chien	0.00-11	001
	Well ID:	Prolit	ate ->A	0/	5	,. n Completed:		8/28/19	
	Well Diameter:	2.0	inches			h to Water:	23.90	0120111	feet
	Depth to Bottom:			feet	-	umn Thicknes			_leet
	Equipment Used:	WL Indica	ator			Air Tank		Dedicated B	-
		YSI Pro	055	🗌 Peristaltic Pu	mp	Compress	or	Non-dedicat	
		🗌 In-Situ		MP-10 Contro	oller Box	🔀 MP-15 Co	ntroller Box		<u> </u>
	Time	рН	Sp. Cond.	Turbidity	Dissolved Oxygen	Temp.	ORP	DTW	Flow Rate
	(5 minute int.)	(S.U.)	(uS/cm) ^{oC}	(NTU)	(mg/L)	(°C)	(mV)	(feet)	(mL/min)
	Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
VL	1617 W7	\sim	— SA	MPLEA					
							,		
	*								
3									
2							· · · · · · · · · · · · · · · · · · ·		
	Purge Cycle (End): 25/9		20	psi	Flow Rate (m		20	7
			<u> </u>					90	
						-	ump x 0.006 gal/ft):		
	Total Purge Volun	· · ·			Purge Water	Managemen	t: On-site	containr	nent
	Purge Observation	ns (color, odo	or, turbidity, she	en):					
6									
	Sample Time:	4517	1217			Field Filtered	l (0.45um):	Yes	No
	Sample Paramete		· · · ·	CCR Appendix I	III Constituer		CCR Appendix IN	✓ Constituents	
	Sample Falamete	si Si Analyte (S).							
						bue ine	tals/7470H	3, 9056 90	vions (CL, F, SI
			1	DS, 9060-	10C, 900	5 then	olics, Radiur	n226/228,	1 nexchrome
	Other Observatior	is / Equipmer	nt Operation Pro	oblems:			8		
	Vnolicate	take	n at A	-BC-16	07				
	Sampler Signature	: Ch	-		Date:	81281	A	Page	
			PI	/		0/201	i C	raye.	of
	QA/QC Signature	1m	~us	6	Date:	01301	17		

C

Go Asso	lder ociates	WICh	OPURGE S	AMELING	LUG	Weather:	Cloud	14 70
Project Name:	Possum Po	int Power Stati	on	Project No.	/Task No.:	1662	50.200	4.001
Event:	25A19	ccel us	UMRUPPE	Sampler(s)	:	M.F	Intal	
Well ID:	Field	Blank	FPHILTAR FIL	eld Calibration	n Completed:	0710	on 8/27/1	9
Well Diameter:		inches	1.	Initial Deptl	h to Water:			feet
Depth to Bottom:			feet	Water Colu	ımn Thicknes	s:		- feet
Equipment Used:	🗆 WL Indica	tor	Turbidity Met	er	🗆 Air Tank		Dedicated Bla	adder Pump
	🗆 YSI		Peristaltic Puristaltic	mp	Compresso	or	Non-dedicate	d BP
	🗆 In-Situ		MP-10 Contro	lier Box	MP-15 Cor	itroller Box		
Time	рН	Sp. Cond.	Turbidity	Dissolved Oxygen	Temp.	ORP	DTW	Flow Rat
(5 minute int.)	(S.U.)	(uS/cm)° ^C	(NTU)	(mg/L)	(°C)	(mV)	(feet)	(mL/min
Stabilization	+/- 0.1	+/- 3%	if >10, +/- 10%	+/- 10%	+/- 1°C	+/- 10 mV	<0.3 feet	<500
1050-				SAMPL	Ĕ			
							(ACT)	
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	\	L	<u> </u>				<u> </u>	
Purge Cycle (End		(_psi	Flow Rate (
Purge volume (ga			nonitoring (3/8" l	a:-			gal/ft):	
Total Purge Volui				-	r Managemer			
Purge Observatio	ns (color, od	or, turbidity, sh	een): Clear	grabs	ample to	akenne	ar FD-ZU	TR
using lat			water	0				2
Sample Time:	1030)			Field Filtere	d (0.45um) [.]	🗆 Yes	No No
·		-	VSWMR Table	- 3.1 Column			R Table 3.1 Colu	
Sample Paramet	ers/Analyte(s): —					Cr(VI), cyanide, su	
			hardness, TOC		o, roo, riy, iat	10111 ZZU/ZZÓ,	or(vi), cyanide, st	inide, aikalinii
		V	Other:	B.Ca.Ch	Hurrite	Affred	Gto TAS	3h Ac P
Other Observatio	ns / Fourism	ant Oppreties r	Col	NILMA	afela -	Man II	and george	
other Observatio					netals, 1		9056 ania	rscclyt
The Aner	sen un			- 2000		0 0 0		
TDS,9060	TOC, M	65 Pheno	incs, kadic	m 226/2	28, hex	Chiome		
TDS,9060 Sampler Signatu	-	65 there	incs, kadin	Date:	\$1271	chiome 19	Page	of

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,

Micolo Jasicrowske

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.





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

Eden Certification IDs

205 East Meadow Road Suite A, Eden, NC 27288 North Carolina Drinking Water Certification #: 37738 North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222

North Carolina Wastewater Certification #: 633 Virginia/VELAP Certification #: 460025



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



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



SUMMARY OF DETECTION

Project: ABC CCR App III 1SA19 (A)

Pace Project No.: 92421450

Lab Sample ID	Client Sample ID					
Method	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	



Project: ABC CCR App III 1SA19 (A)

Pace Project No.: 92421450

Sample: ABC-1602	Lab ID:	92421450001	Collected	d: 03/11/19	13:07	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C-2011						
Total Dissolved Solids	132	mg/L	25.0	25.0	1		03/18/19 16:36		D6
6010 MET ICP	Analytical	Method: EPA 6	010D Prep	aration Met	hod: El	PA 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 3	00.0 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	



QUALITY CONTROL DATA

Project: ABC CCR App III	1SA19 (A)					
Pace Project No.: 92421450						
QC Batch: 463576		Analysis M	ethod:	SM 2540C-20)11	
QC Batch Method: SM 2540C-2011		Analysis De	escription:	2540C Total E	Dissolved Solids	
Associated Lab Samples: 92421450	0001					
METHOD BLANK: 2522021		Matrix	x: Water			
Associated Lab Samples: 92421450	0001					
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyz	ed Qualifiers
Total Dissolved Solids	mg/L	NE	25	.0	25.0 03/18/19	16:08
LABORATORY CONTROL SAMPLE:	2522022					
LABORATORY CONTROL SAMPLE:	2522022	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Total Dissolved Solids	mg/L	250	262	105	90-110	
SAMPLE DUPLICATE: 2523124						
		92421440004	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solids	mg/L	337	7 51	9	43	5 D6
SAMPLE DUPLICATE: 2523128						
		92421450001	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers

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.



Project: ABC CCR App III 1SA19 (A)

Pace Project No.: 92421450)											
QC Batch: 464195			Analys	is Method:	E	PA 6010D						
QC Batch Method: EPA 301	0A		Analys	is Descript	tion: 6	010 MET						
Associated Lab Samples: 9	2421450001											
METHOD BLANK: 2524554			N	Aatrix: Wa	ter							
Associated Lab Samples: 9	2421450001											
			Blank		eporting							
Parameter		Units	Resul	t	Limit	MDL		Analyzed	Qua	alifiers		
Boron		mg/L		ND	0.050)3/21/19 20:3				
Calcium		mg/L		ND	0.10	C	0.050 ()3/21/19 20:3	1			
LABORATORY CONTROL SA	MPLE: 25	24555										
			Spike	LCS	6	LCS	% F	Rec				
Parameter		Units	Conc.	Resu	ılt	% Rec	Lin	nits Q	ualifiers	_		
Boron		mg/L	0.5		0.47	94		80-120				
Calcium		mg/L	5		4.6	93		80-120				
MATRIX SPIKE & MATRIX SP	IKE DUPLIC	ATE: 25245	56		2524557							
			MS	MSD								
_		92421443002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	. .
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron	mg/L	0.18	0.5	0.5	0.58	0.61		31 87		-	20	
Calcium	mg/L	22.3	5	5	26.6	28.1	8	36 116	75-125	5	20	
MATRIX SPIKE & MATRIX SP	IKE DUPLIC	ATE: 25245	58		2524559							
			MS	MSD								
		92421445002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual

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.

0.5

5

0.38

6.6

0.42

7.5

74

68

75-125

75-125

83

87

11

13

20 M1

20 M1

ND

3.2

mg/L

mg/L

0.5

5

REPORT OF LABORATORY ANALYSIS

Boron

Calcium

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Project: ABC CCR App III 1SA19 (A)

Pace Project No.: 92421450

QC Batch	n: 4630	694		Analys	is Method:	E	EPA 300.0 Re	ev 2.1 19	993					
QC Batch	n Method: EPA	300.0 Rev 2.1	1993	Analys	is Descript	ion: 3	300.0 IC Anic	ons						
Associate	ed Lab Samples:	9242145000)1											
METHOD) BLANK: 25224	184		N	latrix: Wat	ter								
Associate	ed Lab Samples:	9242145000)1											
				Blank	R	eporting								
	Parameter		Units	Resul	t	Limit	MDL		Analyz	ed	Qua	alifiers		
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.()	0.50 ()3/16/19	09:23				
	TORY CONTROL	. SAMPLE: 2	522485											
				Spike	LCS	;	LCS	% F	Rec					
	Parameter		Units	Conc.	Resu	lt	% Rec	Lin	nits	Qu	alifiers			
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		CATE: 25224	86		2522487								
				MS	MSD									
			92421443002	Spike	Spike	MS	MSD	MS	MS		% Rec		Max	
	Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	: % R	lec	Limits	RPD	RPD	Qua
Chloride		mg/L	16.2	50	50	68.8	69.6	1()5	107	90-110	1	10	
Fluoride		mg/L	0.12	2.5	2.5	3.0	3.1	11	15	118	90-110	2	10	M1
Sulfate		mg/L	44.4	50	50	97.9	98.9	1(07	109	90-110	1	10	
MATRIX S	SPIKE & MATRIX		CATE: 25224	88		2522489								
				MS	MSD									
			92421445002	Spike	Spike	MS	MSD	MS	MS	D	% Rec		Max	
	Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	; % R	lec	Limits	RPD	RPD	Qua
Chloride		mg/L	2.9	50	50	55.7	56.7	1(06	108	90-110	2	10	
Fluoride		mg/L	0.30	2.5	2.5	3.1	3.1	1	11	111	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.

50

50

59.9

60.8

109

110

90-110

1 10

REPORT OF LABORATORY ANALYSIS

Sulfate

mg/L

5.5

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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.



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		

Non Conformance(s): Page: YES / NO of:	PM: PB:		Date/Time:		iature)	Received by/Company: (Signature	teceived by/C		Date/Time:	Dat	ıre)	Kelinquished by/Company: (Signature)	Re
Trip Blank Received: Y N NA HCL MeOH TSP Other	Template: Prelogin:	14DD	3-13-19	T		WWW Company (Signan	antic	1400	3/13/19	3/	- Ch	Monder / Configures	1
	Table #: Acctnum:	0845	11/11/8		ς	bole	Un pr	0845	3/13/19 0	N.S		Munder Colder	10 2
Comments:	MTJL LAB USE ONLY		Date/Time:		iature)	Received by/Company: (Signature)	Received by/C	F	Date/Time:	Dat	ıre)	Relinquished by/Company: (Signature)	Re
Cooler 1 Therm Corr. Factor: <u>Oat</u> oC Cooler 1 Corrected Temp: <u>Oat</u> oC	Courier Pace Courier	l via: PS Client	Samples received via: FEDEX UPS	San	N NA	cpm): Y	Radchem sample(s) screened (<500 cpm):	sample(s) sc	Radchem				1
Therm ID#: 7 N NA Therm ID#: 7 Cooler 1 Temp Upon Receipt: Do SoC	2326426	-	Lab Tracking #:	Lab				Packing Material Used:	Packing N		alos	Level 4 Untra Vicikage	- 75
nfo:	ours): Y N N/A	SHORT HOLDS PRESENT (<72 hours):	ORT HOLDS PR	SHO	None	Dry	Wet Blue		Type of Ice Used:	Hazards:	tions / Possible	stomer Remarks / Special Condit	5
a proved								1.1.1		(0.00		
tolloging motored and	+	× ×	××	X	نر	AN N		1202	3/11/19	6	Civ	ARC -1600	
Lab Sample # / Comments:	Ę	Flui	Chl Sul Flu	Bon	# of Ctns	Time Res	Composite End Date Time	Collected (or Composite-Starting Date Time	Collec Compos Date	Comp / Grab	Matrix *	Customer Sample ID	C
Lead Acetate Strips:	F F	oric S	oric	20		ater (WW), her (OT)	GW), Wastew Vapor (V), Ot	ioassay (B),	(DW), Grou ssue (TS), B	cing Water Air (AR), Ti	x below): Drink L), Wipe (WP),	* 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)	*
s: H Acceptable Y N S: Present Y N	8 g 8 0 ;	le	de e	n		MNo	[] Yes Analysis:	ау []5 Day	Same Day [] Next Day [] 3 Day [] 4 Day [] 5 Day (Expedite Charges Apply)	[] Same Day Day [] 3 Day (Expedite Ch	[] Sa [] 2 Day (Dispose as appropriate [] Return] Archive:] Hold:	222
ble Y N Y N Y N	S C Q					Immediately Packed on Ice: [V Yes [] No Field Filtered (if applicable):	Immediately		A	ate Requir	Turnaround Date Required: Stanclourol T/A	Collected By (signature):	5 2 6
	<i>ω ω</i> ο					: Code:	DW PWS ID #: DW Location Code:			er #:	Purchase Order #: Quote #:	Michael Artal	1
res Present ture Present	Ø 0 0					/onitoring? [] No	Compliance Monitoring? [Ves [] No	tection	fomer 5	oint	Site/Facility ID #: 10.55cm Yoint lower Stachicn	Phone: 5 58-1700	En
® "	0 5				T MET	VA / RICHARD INTE JUNE JUNE I JUNE	TOTAL 1 PT	- DUM	VA 14	2000	1662 150.2000	ASCENTE/	×
Lab Profile/Line:	Lab	Analyses	ium nyai oxiae,			-	1					M. Williams	2 6
 ** 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, (8) ammonium sulfate, (C) ammonium hydroxide (10) TSP (11) Inpreserved (10) Other 	lfuric acid, (3) hydrochloric ac um thiosulfate, (9) hexane, (A reserved (0) Other	nitric acid, (2) su isulfate, (8) sodi (D) TSP (11) Line	ative Types: (1) ol, (7) sodium b ium hydroxide	** Preserv; (6) methan		Site Collection of Address:	450000	reynoi	Site Colle			Conv To: Leynolds	Co Re
Lab Project Manager:	ype ** Lab	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Container	111		Ø	Accounts Reyable	ccounts		8	Averta	W. Lar	Ad
	ALL SHADED ARE/ 92421	ALL SHA						Information:	Billing Information:		Car	Company: Colder Associates	6
ge 12 of					ent ¹⁵	CHAIN-OF-CUSTODY Analytical Request Document Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields	- Complete a	Analytic	STODY is a LEGAL	-OF-CU of-Custody	CHAIN. Chain-	Pace Analytical"	
W0#:92421450 12	-	NIV- Affin Mo	IABLICED			;	5					2	



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 (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,

Micole Masicrowske

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.





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

Eden Certification IDs

205 East Meadow Road Suite A, Eden, NC 27288 North Carolina Drinking Water Certification #: 37738 North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222

North Carolina Wastewater Certification #: 633 Virginia/VELAP Certification #: 460025



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



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



SUMMARY OF DETECTION

Project: ABC CCR App III 1SA19 (B)

Pace Project No.: 92421443

Lab Sample ID Client Sample ID Method Parameters Qualifiers Result Units Report Limit Analyzed 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 0.10 03/21/19 21:08 mg/L 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 03/14/19 17:50 mg/L 25.0 D6 EPA 6010D Boron 0.18 0.050 03/21/19 21:11 mg/L EPA 6010D Calcium 22.3 0.10 03/21/19 21:11 mg/L 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 0.10 03/16/19 13:07 mg/L 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 03/18/19 16:28 mg/L 25.0 0.19 0.050 EPA 6010D Boron mg/L 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 0.10 03/16/19 13:55 mg/L 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 0.19 0.050 03/21/19 21:39 Boron mg/L 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



Project: ABC CCR App III 1SA19 (B)

Pace Project No.: 92421443

Sample: ABC-1608	Lab ID:	92421443001	Collecte	d: 03/11/19	11:47	Received: 03/	'13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical	Method: SM 28	540C-2011						
Total Dissolved Solids	250	mg/L	25.0	25.0	1		03/14/19 17:50		
6010 MET ICP	Analytical	Method: EPA 6	010D Prep	aration Met	hod: El	PA 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 3	00.0 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	



Project: ABC CCR App III 1SA19 (B)

Pace Project No.: 92421443

Sample: ABC-1614	Lab ID:	92421443002	Collected	d: 03/11/19	15:10	Received: 03/	13/19 14:00 Ma	atrix: Water	
Parameters	Results	Units	Report	MDL	DF	Drepared	Analyzad	CAS No.	Qual
Parameters			Limit		DF	Prepared	Analyzed	CAS NO.	Qual
2540C Total Dissolved Solids	Analytical	Method: SM 25	640C-2011						
Total Dissolved Solids	260	mg/L	25.0	25.0	1		03/14/19 17:50		D6
6010 MET ICP	Analytical	Method: EPA 6	010D Prep	aration Met	hod: El	PA 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 3	00.0 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	



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 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C-2011						
Total Dissolved Solids	323	mg/L	25.0	25.0	1		03/18/19 16:28		
6010 MET ICP	Analytical	Method: EPA 6	010D Prepa	aration Met	hod: El	PA 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 3	00.0 Rev 2.1	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	



Project: ABC CCR App III 1SA19 (B)

Pace Project No.: 92421443

Sample: ABC-1607	Lab ID:	92421443004	Collected	I: 03/11/19	11:05	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C-2011						
Total Dissolved Solids	132	mg/L	25.0	25.0	1		03/14/19 17:50		
6010 MET ICP	Analytical	Method: EPA 6	010D Prepa	aration Met	hod: El	PA 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 3	00.0 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	



Project: ABC CCR Ap Pace Project No.: 92421443	р III 1SA19 (В)					
QC Batch: 463574		Analysis Me	ethod:	SM 2540C-2	011	
QC Batch Method: SM 2540C-2	2011	Analysis De	escription:	2540C Total	Dissolved Solids	
Associated Lab Samples: 9242	1443001, 9242144300	02, 92421443004				
METHOD BLANK: 2522019		Matrix	: Water			
Associated Lab Samples: 9242	1443001, 9242144300	02, 92421443004				
Parameter	Units	Blank Result	Reporting Limit	MDL	Analyz	zed Qualifiers
Total Dissolved Solids	mg/L	ND	25.	0	25.0 03/14/19	17:50
LABORATORY CONTROL SAMPI	LE: 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						
		92421445002	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solids	mg/L	111	10	3	7	5 D6
SAMPLE DUPLICATE: 2523100	1					
		92421443002			Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solids	mg/L	260) 27	5	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.



Project: ABC CCR App III Pace Project No.: 92421443	1SA19 (B)					
QC Batch: 463576		Analysis M	lethod:	SM 2540C-20)11	
QC Batch Method: SM 2540C-2011		Analysis D	escription:	2540C Total D	Dissolved Solids	
Associated Lab Samples: 92421443	003					
METHOD BLANK: 2522021		Matr	ix: Water			
Associated Lab Samples: 92421443	003					
5		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyz	
Total Dissolved Solids	mg/L	N	D 25	.0	25.0 03/18/19	16:08
LABORATORY CONTROL SAMPLE:	2522022					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
						Quaimers
Total Dissolved Solids	mg/L	250	262	105	90-110	
SAMPLE DUPLICATE: 2523124						
		92421440004	1 Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solids	mg/L	33	7 5 [°]	19	43	5 D6
SAMPLE DUPLICATE: 2523128						
		92421450001	l Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
			2 14		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.



Project: ABC CCR App III 1SA19 (B)

QC Batch: 4641	95		Analys	is Method:	E	PA 6010D						
QC Batch Method: EPA	3010A		Analys	is Descript	ion: 6	010 MET						
Associated Lab Samples:	92421443001,	92421443002	92421443	003, 92421	443004							
METHOD BLANK: 25245	54		Ν	Aatrix: Wat	er							
Associated Lab Samples:	92421443001,	92421443002	92421443	003, 92421	443004							
			Blank		eporting							
Parameter		Units	Resul	t	Limit	MDL		Analyzed	Qua	alifiers		
Boron		mg/L		ND	0.050			21/19 20:31				
Calcium		mg/L		ND	0.10	0 0	0.050 03/	21/19 20:31				
LABORATORY CONTROL	SAMPLE: 252	24555										
			Spike	LCS		LCS	% Red					
Parameter		Units	Conc.	Resu	lt	% Rec	Limits	; Qi	ualifiers			
Boron		mg/L	0.5		0.47	94	80)-120				
Calcium		mg/L	5		4.6	93	80)-120				
		ATE: 25245	56		2524557							
MATRIX SPIKE & MATRIX			MS	MSD								
MATRIX SPIKE & MATRIX		0404440000	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
MATRIX SPIKE & MATRIX	ç	2421443002	•		Decult	Result	% Rec	% Rec	Limits	RPD	RPD	Qua
MATRIX SPIKE & MATRIX	g Units	Result	Conc.	Conc.	Result							
			Conc.	Conc. 0.5	0.58	0.61	81	87	75-125	6		

MATRIX SPIKE & MATRIX SP	IKE DUPLICA	TE: 25245	58		2524559							
			MS	MSD								
	9	2421445002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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

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REPORT OF LABORATORY ANALYSIS

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Project: ABC CCR App III 1SA19 (B)

QC Batch: 463694		Analysis Me	ethod:	EPA 300.0 Rev	/ 2.1 1993		
QC Batch Method: EPA 300).0 Rev 2.1 1993	Analysis De	escription:	300.0 IC Anior	S		
Associated Lab Samples: 92	2421443001, 92421443002	2, 92421443003,	92421443004	Ļ			
METHOD BLANK: 2522484		Matrix	: Water				
Associated Lab Samples: 92	2421443001, 92421443002	2, 92421443003,	92421443004	Ļ			
		Blank	Reporting	l			
Parameter	Units	Result	Limit	MDL	Analy	zed	Qualifiers
Chloride	mg/L)	1.0 0	0.60 03/16/19	09:23	
Fluoride	mg/L	ND	0	.10 0.0	050 03/16/19	09:23	
Sulfate	mg/L	ND)	1.0 C	0.50 03/16/19	09:23	
LABORATORY CONTROL SA	MPLE: 2522485						
		Spike	LCS	LCS	% Rec		
Parameter	Units	Conc.	Result	% Rec	Limits	Qualif	iers
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		

Parameter	92 Units	2421443002 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 SPI	KE DUPLICA	TE: 25224	88		2522489							
			MS	MSD					04 D			
	93	2421445002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	

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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.



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		
2421443003	ABC-Duplicate	EPA 300.0 Rev 2.1 1993	463694		
92421443004	ABC-1607	EPA 300.0 Rev 2.1 1993	463694		

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	110		LAB USE ONLY- AF	cal Request Document	OF-CUSTODY Analyti		



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,

Micole Masicrowske

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.





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

Eden Certification IDs

205 East Meadow Road Suite A, Eden, NC 27288 North Carolina Drinking Water Certification #: 37738 North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222

North Carolina Wastewater Certification #: 633 Virginia/VELAP Certification #: 460025



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



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



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 SM 2540C-2011	Field Blank Total Dissolved Solids	254	mg/L	25.0	03/18/19 16:33	



Project: PP Pond D FB App III (H)

Pace Project No.: 92421482

Sample: Field Blank	Lab ID:	92421482001	Collecte	d: 03/12/19	10:45	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical	Method: SM 28	540C-2011						
Total Dissolved Solids	254	mg/L	25.0	25.0	1		03/18/19 16:33		
6010 MET ICP	Analytical	Method: EPA 6	010D Prep	aration Met	hod: El	PA 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 3	00.0 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	



Project: PP	Pond D FB Ap	op III (H)								
Pace Project No.: 924	421482									
QC Batch: 4	63576		Analysis I	Method:	SM 254	0C-2011				
QC Batch Method: S	M 2540C-2011		Analysis [Description:	2540C 1	Total Disso	lved Solids			
Associated Lab Sample	s: 92421482	2001								
METHOD BLANK: 252	22021		Mat	rix: Water						
Associated Lab Sample	s: 92421482	2001								
			Blank	Reportir	-					
Paramete	r	Units	Result	Limit		MDL	Analyz	ed	Qualifiers	
Total Dissolved Solids		mg/L	Ν	1D	25.0	25.0	03/18/19	16:08		
LABORATORY CONTR	OL SAMPLE:	2522022								
Paramete	r	Units	Spike Conc.	LCS Result	LCS % Red		% Rec Limits	Qua	lifiers	
Total Dissolved Solids		mg/L	250	262		105	90-110			
SAMPLE DUPLICATE:	2523124									
			9242144000				Max			
Paramete	r	Units	Result	Result		RPD	RPD		Qualifiers	
Total Dissolved Solids		mg/L	33	37	519	43		5 D6	6	
SAMPLE DUPLICATE:	2523128									
			9242145000	1 Dup			Max			
Paramete	r	Units	Result	Result		RPD	RPD		Qualifiers	
Total Dissolved Solids		mg/L	1;	32	144	9		5 D6	6	
Paramete Total Dissolved Solids SAMPLE DUPLICATE: Paramete	r 2523128	Units	9242145000 Result	Result 37 11 Dup Result	519	RPD	Max RPD		Qualifiers	

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.



Project: PP Pond D FB App III (H)

QC Batch: 46419	5		Analys	is Method:	E	PA 6010D						
QC Batch Method: EPA 3	010A		Analys	is Descript	ion: 6	010 MET						
Associated Lab Samples:	92421482007	1										
METHOD BLANK: 2524554	4		N	latrix: Wa	ter							
Associated Lab Samples:	9242148200	1										
			Blank	R	eporting							
Parameter		Units	Resul	t	Limit	MDL		Analyzed	Qua	alifiers		
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 S	AMPLE: 25	524555										
			Spike	LCS	;	LCS	% Re	ec				
Parameter		Units	Conc.	Resu	lt	% Rec	Limit	s Qı	ualifiers			
Boron		mg/L	0.5		0.47	94	8	0-120				
Calcium		mg/L	5		4.6	93	8	0-120				
MATRIX SPIKE & MATRIX S		CATE: 25245	56		2524557							
			MS	MSD								
		92421443002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qua
Boron	mg/L	0.18	0.5	0.5	0.58		81		75-125	6	20	
Calcium	mg/L	22.3	5	5	26.6	28.1	86	116	75-125	5	20	
MATRIX SPIKE & MATRIX S		CATE: 25245	58		2524559							
			MS	MSD								
		92421445002	Spike	Spike	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	RPD	Max	Qua
Parameter	Units	Result	Conc.	Conc.				0/ 000	Limits			

0.38

6.6

0.42

7.5

0.5

5

74

68

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.

ND

3.2

mg/L

mg/L

0.5

5

REPORT OF LABORATORY ANALYSIS

Boron

Calcium

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11

13

20 M1

20 M1

75-125

75-125

83

87



Project: PP Pond D FB App III (H)

Pace Project No.: 92421482

QC Batch: 463694		Analysis I	Method:	EPA 300.0	Rev 2.1	1993		
QC Batch Method: EPA 300.0 Rev	2.1 1993	Analysis	Description:	300.0 IC Ar	nions			
Associated Lab Samples: 9242148	32001							
METHOD BLANK: 2522484		Mat	rix: Water					
Associated Lab Samples: 9242148	32001							
		Blank	Reporting	1				
Parameter	Units	Result	Limit	MD	L	Analyz	ed	Qualifiers
Chloride	mg/L	N	ID	1.0	0.60	03/16/19 (09:23	
Fluoride	mg/L	Ν	ID C	.10	0.050	03/16/19 (09:23	
l'idollido								
	mg/L			1.0	0.50	03/16/19 (09:23	
Sulfate	mg/L			1.0	0.50	03/16/19 (09:23	
Sulfate	mg/L	N	ID				09:23	
Sulfate	mg/L			1.0 LCS % Rec	0	03/16/19 (09:23 Qualifi	ers
Sulfate LABORATORY CONTROL SAMPLE: Parameter	mg/L 2522485	Spike	LCS	LCS	9 I	% Rec		ers
Sulfate	mg/L 2522485 Units	Spike Conc.	LCS Result	LCS % Rec	9 	% Rec ∟imits		ers

Parameter	Units	92421443002 Result	Spike Conc.	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 SPI	KE DUPLICA	TE: 25224	88		2522489							
			MS	MSD								
	93	2421445002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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: 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.



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		

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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,

Micolo Jasicrowske

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 Huntersville, NC 28078 (704)875-9092

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

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 Marvland Certification #: 308 Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991

North Carolina Certification #: 381 South Carolina Certification #: 98011001 Virginia Certification #: 460204

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

Eden Certification IDs

205 East Meadow Road Suite A, Eden, NC 27288 North Carolina Drinking Water Certification #: 37738 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222

North Carolina Wastewater Certification #: 40

North Carolina Wastewater Certification #: 633 Virginia/VELAP Certification #: 460025



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



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



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



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Lab Sample ID	Client Sample ID					
Method	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	0.473 (0.685) C:81%	pCi/L		09/20/19 10:28	
Total Radium Calculation	Total Radium	T:87% 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		0			
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	pĊi/L		09/20/19 15:10	



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Lab Sample ID	Client Sample ID					
Method	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		
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	pCi/L		09/20/19 11:45	
EPA 9320	Radium-228	(0.269) C:90% T:NA 0.885 ±	pCi/L		09/20/19 10:28	
		0.390 (0.643) C:78% T:92%			55/26/10 10.20	
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	



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Lab Sample ID	Client Sample ID					
Method	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 ±	pCi/L	2000	09/20/19 11:45	
		0.224 (0.265) C:69% T:NA	powe		03/20/13 11.43	
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 ±	pCi/L		09/23/19 11:58	
		0.692	POIL		03/23/13 11.30	
		(1.05)				
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		
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	
			-			



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Lab Sample ID	Client Sample ID					
Method	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	pĊi/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	



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Parameters Results Units Emrit Limit ML prepared Analyzed CAS No. Qual 2540C Total Dissolved Solids 144 mg/l 25.0 25.0 1 08/30/19 14:04 K 6010 MET ICP Analytical Method: EPA 6010D Preparation Method: EPA 3010A 09/06/19 23:0 740:36-0 Ansenic ND ug/l 5.0 3.0 1 09/05/19 18:53 09/06/19 23:0 740:38-0 Bartum 62.1 ug/l 5.0 1.0 1 09/05/19 18:53 09/06/19 23:0 740:38-0 Bartum 62.1 ug/l 5.0 1.0 1 09/05/19 18:53 09/07/19 13:09 740:48-0 Cadmium ND ug/l 5.0 0.00 1 09/05/19 18:53 09/06/19 23:03 740:38-0 Cadmium ND ug/l 5.0 0.00 1 09/05/19 18:53 09/06/19 23:03 740:49-2 Cadmium ND ug/l 5.0 0.90 1 09/05/19 18:53	Sample: ABC-1602	Lab ID:	92443549001	Collected:	08/29/19	08:57	Received: 08/	29/19 13:40 Ma	atrix: Water	
Total Dissolved Solids 1 08/30/19 14:04 6010 MET LCP Analytical Method: EPA 6010D Preparation EVA 3010A Antimory ND ug/L 5.0 3.0 1 08/06/19 18:35 09/06/19 18:35 09/06/19 18:35 09/06/19 18:30 7440-38-0 Arsencio DD ug/L 5.0 1.0 0.005/19 18:53 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06/19 18:30 09/06	Parameters	Results	Units		MDL	DF	Prepared	Analyzed	CAS No.	Qual
Oriol METICP Analytical Method: EPA 6010D Preparation Method: EPA 3010A Antimony Arsenic ND ugL 5.0 3.0 1 09/05/19 85.3 09/06/19 23.0 7440-38-2 Barium 06.00 ugL 5.0 1.0 09/05/19 85.3 09/06/19 23.0 7440-38-2 Beryllium 0.600 ugL 1.0 0.560 1 09/05/19 85.3 09/06/19 23.0 7440-38-2 Cadmium 5.3 mgL 0.060 1.0 09/05/19 85.3 09/06/19 23.0 7440-47-2 Cadmium ND ugL 5.0 0.1 1 09/05/19 85.3 09/06/19 23.0 7440-67-2 Coronium ND ugL 5.0 0.80 1 09/05/19 18.53 09/06/19 23.0 7440-67-2 Coronium ND ugL 5.0 0.80 1 09/05/19 18.53 09/06/19 23.0 7440-46-4 Koronium<	2540C Total Dissolved Solids	Analytical	Method: SM 2	540C-2011						
Antimony Arsenic ND ug/L 5.0 3.0 1 09/05/19 18:53 09/06/19 23:30 7440-38-0 Arsenic ND ug/L 10.0 4.7 1 09/05/19 18:53 09/06/19 23:30 7440-38-0 Barjuim 0.60J ug/L 1.0 0.506 1 09/05/19 18:53 09/06/19 23:30 7440-43-9 Berylitum 0.600 ug/L 1.0 0.406 1 09/05/19 18:53 09/06/19 23:30 7440-43-9 Cadmium 5.9 mg/L 0.10 0.404 1 09/05/19 18:53 09/06/19 23:30 7440-47-3 Cadmium ND ug/L 5.0 2.1 1 09/05/19 18:53 09/06/19 23:30 7440-47-3 Copper 4.3J ug/L 5.0 0.90 1 09/05/19 18:53 09/06/19 23:30 7440-47-3 ND ug/L 5.0 0.90 1 09/05/19 18:53 09/06/19 23:30 7440-62-2 Steinium ND ug/L 5.0 2.5 1 <td>Total Dissolved Solids</td> <td>144</td> <td>mg/L</td> <td>25.0</td> <td>25.0</td> <td>1</td> <td></td> <td>08/30/19 14:04</td> <td></td> <td></td>	Total Dissolved Solids	144	mg/L	25.0	25.0	1		08/30/19 14:04		
Asenic ND org/L 100 4.7 1 09005/1918.53 09006/1923.30 7440-38-3 Barium 62.1 ug/L 5.0 1.0 1 09005/1918.53 09006/1923.30 7440-41-7 Boron 0.0088J mg/L 0.050 0.0066 1 0905/1918.53 0906/1923.30 7440-41-7 Cadmium ND ug/L 1.0 0.0264 1 0905/1918.53 0906/1923.30 7440-43-3 Cadmium ND ug/L 5.0 2.1 1 0905/1918.53 0906/1923.30 7440-47-3 Chromium ND ug/L 5.0 0.10 1 0905/1918.53 0906/1923.30 7440-67-8 Chromium ND ug/L 5.0 0.30 1 0905/1918.53 0906/1923.30 7440-67-8 Steir ND ug/L 5.0 0.30 1 0905/1918.53 0906/1923.30 7440-62-8 Steir ND ug/L 5.0 0905/1918.53 09007/191092.3 </td <td>6010 MET ICP</td> <td>Analytical</td> <td>Method: EPA 6</td> <td>010D Prepa</td> <td>ration Met</td> <td>hod: EF</td> <td>PA 3010A</td> <td></td> <td></td> <td></td>	6010 MET ICP	Analytical	Method: EPA 6	010D Prepa	ration Met	hod: EF	PA 3010A			
Barium 62.1 up 5.0 1.0 1 0907191 18:53 0907191 23:30 7440-43-9 Beryllium 0.0608 mg/L 0.050 0.00661 09051191 18:53 0907191 23:30 7440-43-9 Cadmium ND ug/L 1.0 0.040 1 09051191 18:53 090611923:30 7440-43-9 Cadmium ND ug/L 5.0 0.10 1 09051191 18:53 090611923:30 7440-43-9 Cadmium ND ug/L 5.0 0.10 1 09051191 18:53 090611923:30 7440-64-3 Copper 4.9 ug/L 5.0 0.90 1 090511918:53 090611923:30 7440-62-3 Molydenum ND ug/L 1.0 0.417 1 090511918:53 0907119123:30 7440-62-2 Steinium ND ug/L 5.0 2.5 1 090511918:53 0907119123:30 7440-62-2 Steinium ND ug/L 5.0 0.55 1 090519	Antimony	ND	ug/L	5.0	3.0	1	09/05/19 18:53	09/06/19 23:30	7440-36-0	
Berylliom 0.60.J ug/L 1.0 0.006 1 0906/19 18:53 0906/19 23:30 7440-41-7 Boron ND ug/L 1.0 0.006 1 0906/19 18:53 0906/19 23:30 7440-43-9 Calcium 5.9 mg/L 0.10 0.024 1 0905/19 18:53 0906/19 23:30 7440-47-7 Chornium ND ug/L 5.0 1.0 1 0905/19 18:53 0906/19 23:30 7440-670-2 Chornium ND ug/L 5.0 0.90 1 0905/19 18:53 0906/19 23:30 7440-670-2 Storer 6.2 ug/L 5.0 0.90 1 0905/19 18:53 0906/19 23:30 7440-670-2 Storer ND ug/L 5.0 0.90 1 0905/19 18:53 0906/19 23:30 7440-620 Storer ND ug/L 5.0 0.90 1 0905/19 18:53 0906/19 23:30 7440-620 Storer ND ug/L 5.0 1.3 0905/19 18	Arsenic	ND	ug/L	10.0	4.7	1	09/05/19 18:53	09/06/19 23:30	7440-38-2	
Boron 0.0068.J mg/L 0.050 0.0068 1 0906/19 18:53 0906/19 23:30 7440-42-8 Cadmium 5.9 mg/L 0.10 0.024 1 0905/19 18:53 0906/19 23:30 7440-74-2 Chromium ND ug/L 5.0 0.10 0.024 1 0905/19 18:53 0906/19 23:30 7440-74-7 Copper 4.9 ug/L 5.0 0.10 1 0905/19 18:53 0906/19 23:30 7440-74-7 Copper 4.9 ug/L 5.0 0.90 1 0905/19 18:53 0906/19 23:30 7440-74-7 Nickel 6.2 ug/L 1.0 4.7 1 0905/19 18:53 0906/19 23:30 7440-42-4 Belenium ND ug/L 6.0 2.5 1 0905/19 18:53 0906/19 23:30 7440-72-4 Stor ND ug/L 5.0 1.3 1 0905/19 18:53 0907/19 102:33 7440-42-4 Vanadium ND ug/L 5.0 7.5 <td></td> <td>62.1</td> <td>ug/L</td> <td>5.0</td> <td>1.0</td> <td>1</td> <td>09/05/19 18:53</td> <td>09/06/19 23:30</td> <td>7440-39-3</td> <td></td>		62.1	ug/L	5.0	1.0	1	09/05/19 18:53	09/06/19 23:30	7440-39-3	
Cadimium 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 1.1 1 09/05/19 18:53 09/06/19 23:30 7440-70-2 Copper 4.9J ug/L 5.0 0.90 1 09/05/19 18:53 09/06/19 23:30 7440-60-8 ND ug/L 5.0 0.90 1 09/05/19 18:53 09/06/19 23:30 7440-62-8 Silver ND ug/L 5.0 0.5 1 09/05/19 18:53 09/06/19 23:30 7440-62-8 Silver ND ug/L 5.0 2.7 1 09/05/19 18:53 09/06/19 23:30 7440-62-8 Vanadium ND ug/L 5.0 1.3 1 09/05/19 18:53 09/07/19 23:30 7440-62-8 Vanadium ND ug/L 5.0 2.8 0.9 2.3 7440-62-8 2.3 Vanadium ND ug/L 0.0 <td>Beryllium</td> <td>0.60J</td> <td>ug/L</td> <td>1.0</td> <td>0.50</td> <td>1</td> <td>09/05/19 18:53</td> <td>09/07/19 13:09</td> <td>7440-41-7</td> <td></td>	Beryllium	0.60J	ug/L	1.0	0.50	1	09/05/19 18:53	09/07/19 13:09	7440-41-7	
Calcium 5.9 mg/L 0.10 0.024 1 09/05/19 18:53 09/06/19 23:0 7440-70-2 Chromium ND ug/L 5.0 2.1 1 09/05/19 18:53 09/06/19 23:0 7440-50-8 Molyddenum ND ug/L 5.0 0.21 1 09/05/19 18:53 09/06/19 23:0 7440-50-8 ND ug/L 5.0 0.90 1 09/05/19 18:53 09/06/19 23:0 7440-50-8 ND ug/L 6.0 0.90 1 09/05/19 18:53 09/06/19 23:0 7440-50-8 Stein ND ug/L 6.0 2.5 1 09/05/19 18:53 09/06/19 23:0 7440-62-2 Stein ND ug/L 5.0 1.3 1 09/05/19 18:53 09/06/19 23:0 7440-62-2 Vanadium ND ug/L 0.10 0.05 1 09/05/19 18:53 09/06/19 23:0 7440-62-2 Cobalt 11.1 ug/L 0.10 0.05 1 09/05/19 18:53 09/07/19 09:2 7440-64-2 Inniu ug/L 0.10 0.05	Boron	0.0088J	mg/L	0.050	0.0066	1	09/05/19 18:53	09/06/19 23:30	7440-42-8	
Chromium ND ug/L 5.0 1.0 1 0905/19 18:53 0906/19 23:30 7440-47-3 Copper 4.9.0 ug/L 5.0 2.1 1 0905/19 18:53 0906/19 23:30 7440-45-8 Nickel 6.2 ug/L 5.0 0.90 1 0905/19 18:53 0906/19 23:30 7440-52-8 Nickel 6.2 ug/L 5.0 0.90 1 0905/19 18:53 0906/19 23:30 7440-52-8 Silver ND ug/L 6.2 662 1 0905/19 18:53 0906/19 23:30 7440-52-2 Vanadium ND ug/L 5.0 1.3 1 0905/19 18:53 0906/19 23:30 7440-62-2 Star ND ug/L 0.10 0.50 1 0905/19 18:53 0907/19 09:23 7440-82-2 Star ND ug/L 0.10 0.50 1 0905/19 18:53 0907/19 09:23 7440-84-3 Star 11.1 ug/L 0.10 0.50 1 090	Cadmium	ND	ug/L	1.0	0.40	1	09/05/19 18:53	09/06/19 23:30	7440-43-9	
Copper 4.9.J ug/L 5.0 2.1 1 09/05/19 18:53 09/06/19 23:30 7440-50-8 Molydenum ND ug/L 5.0 0.90 1 09/05/19 18:53 09/06/19 23:30 7440-50-8 Nickel 6.2 ug/L 10.0 4.7 1 09/05/19 18:53 09/06/19 23:30 742-49-2 Steinium ND ug/L 6.62 6.2 1 09/05/19 18:53 09/06/19 23:30 7440-62-2 Atraness, Total(SM 2340B) 29700 ug/L 6.62 6.2 1 09/05/19 18:53 09/06/19 23:30 7440-62-2 Vanadium ND ug/L 5.0 1.3 1 09/05/19 18:53 09/07/19 09:23 7440-66-8 6020 Rest Rankytical Method: EPA 6020F Preparation Method: EPA 300 1 09/05/19 18:53 09/07/19 09:23 7440-48-4 Iron 280 ug/L 5.0 7.1 09/05/19 18:53 09/07/19 09:23 7440-48-4 Iron 94 ug/L 5.0 <th< td=""><td>Calcium</td><td>5.9</td><td>mg/L</td><td>0.10</td><td>0.024</td><td>1</td><td>09/05/19 18:53</td><td>09/06/19 23:30</td><td>7440-70-2</td><td></td></th<>	Calcium	5.9	mg/L	0.10	0.024	1	09/05/19 18:53	09/06/19 23:30	7440-70-2	
Molybdenum ND ug/L 5.0 0.90 1 09/05/19 18:53 09/06/19 23:30 7439-88-7 Nickel 6.2 ug/L 5.0 0.90 1 09/05/19 18:53 09/06/19 23:30 7430-02-0 Silver ND ug/L 5.0 2.5 1 09/05/19 18:53 09/06/19 23:30 7440-62-2 Vanadium ND ug/L 5.0 2.5 1 09/05/19 18:53 09/06/19 23:30 7440-62-2 Vanadium ND ug/L 5.0 1.3 1 09/05/19 18:53 09/06/19 23:30 7440-62-2 Vanadium ND ug/L 0.10 0.50 1 09/05/19 18:53 09/07/19 09:23 7440-82-2 Vanadium ND ug/L 0.10 0.50 1 09/05/19 18:53 09/07/19 09:23 7439-85-6 Gobalt 11.1 ug/L 0.10 0.50 1 09/05/19 18:53 09/07/19 09:23 7439-85-6 Lead 0.19 ug/L 0.10 0.60	Chromium	ND	ug/L	5.0	1.0	1	09/05/19 18:53	09/06/19 23:30	7440-47-3	
Nickel 6.2 ug/L 5.0 0.90 1 09/05/19 18:50 09/05/19 23:00 7420-20- Selenium ND ug/L 10.0 4.7 1 09/05/19 18:50 09/06/19 23:00 7440-22-0 Birdness, Total(SM 2340B) 29700 ug/L 5.0 2.3 0 09/05/19 18:50 09/06/19 23:00 7440-22-0 Vanadium ND ug/L 5.0 1.3 1 09/05/19 18:53 09/07/19 09:23 7440-24-2 G20 MET ICPMS Analytical KETA EVA Distant 1 09/05/19 18:53 09/07/19 09:23 7440-84-3 Iron 280 ug/L 5.00 7.5 1 09/05/19 18:53 09/07/19 09:23 7439-92-1 Lead 0.19 ug/L 0.10 0.050 1 09/05/19 18:53 09/07/19 09:23 7439-92-1 Lead 0.9 ug/L 0.10 0.050 1 09/05/19 18:53 09/07/19 09:23 7440-84-5 Lead ug/L 0.10 0.50 0.14		4.9J	ug/L	5.0	2.1	1	09/05/19 18:53	09/06/19 23:30	7440-50-8	
Selenium ND ug/L 1.0.0 4.7 1 09/05/19 18:53 09/06/19 2.30 7782-49-2 Silver ND ug/L 5.0 2.5 1 09/05/19 18:53 09/06/19 2.30 7440-22-4 Hardness, Total(SM 2340B) 29700 ug/L 5.0 1.3 1 09/05/19 18:53 09/06/19 2.30 7440-62-2 Zinc ND ug/L 5.0 1.3 1 09/05/19 18:53 09/07/19 09:23 7440-66-6 6020 MET ICPMS Analytical 0.10 0.050 1 09/05/19 18:53 09/07/19 09:23 7439-89-6 Lad 0.19 ug/L 0.10 0.050 1 09/05/19 18:53 09/07/19 09:23 7439-89-2 Lad 0.19 ug/L 0.10 0.50 1 09/05/19 18:53 09/07/19 09:23 7439-89-2 Lad ug/L 0.50 0.14 1 <td< td=""><td>Molybdenum</td><td>ND</td><td>ug/L</td><td>5.0</td><td>0.90</td><td>1</td><td>09/05/19 18:53</td><td>09/06/19 23:30</td><td>7439-98-7</td><td></td></td<>	Molybdenum	ND	ug/L	5.0	0.90	1	09/05/19 18:53	09/06/19 23:30	7439-98-7	
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 09/06/19 23:30 7440-66-2 Zinc ND ug/L 1.0 3.9 1 09/05/19 18:53 09/07/19 09/05/19 7440-66-2 6020 MET ICPMS Analytical Method: EPA 6020B Preparation Method: EPA 3010A 7440-48-4 740-48-4 Iron 280 ug/L 5.00 7.5 1 09/05/19 18:53 09/07/19 23 7439-89-6 Lead 0.19 ug/L 0.10 0.50 1 09/05/19 18:53 09/07/19 23 7439-89-6 Lead 0.19 ug/L 0.50 0.42 1 09/05/19 18:53 09/07/19 23 7439-89-5 Potassium 94 ug/L 0.50 0.42 1 09/05/19 18:53 0	Nickel	6.2	ug/L	5.0	0.90	1	09/05/19 18:53	09/06/19 23:30	7440-02-0	
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 G020 MET ICPMS Analytical Method: EPA 6020B Preparation Wethod: EPA 3010A 7440-68-4 Cobalt 11.1 ug/L 5.00 7.5 1 09/05/19 18:53 09/07/19 09:23 7440-48-4 Iron 280 ug/L 5.00 7.5 1 09/05/19 18:53 09/07/19 09:23 7440-48-4 Iron 9.4 ug/L 0.50 1 09/05/19 18:53 09/07/19 09:23 7439-89-6 Lead 0.19 ug/L 0.50 0.41 1 09/05/19 18:53 09/07/19 09:23 7439-89-7 Manganese 166 ug/L 0.50 0.41 1 09/05/19 18:53 09/07/19 09:23 7439-93-2 Manganese 166 ug/L 0.50 0.41 1 09/05/19 18:53 09/07/19 09:23 7440-62-7 M1 Sodium 7410 <t< td=""><td>Selenium</td><td>ND</td><td>ug/L</td><td>10.0</td><td>4.7</td><td>1</td><td>09/05/19 18:53</td><td>09/06/19 23:30</td><td>7782-49-2</td><td></td></t<>	Selenium	ND	ug/L	10.0	4.7	1	09/05/19 18:53	09/06/19 23:30	7782-49-2	
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 1.0 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: EFA S010A Cobalt 11.1 ug/L 0.10 0.050 1 09/05/19 18:53 09/07/19 09:23 7440-86-6 Lead 0.19 ug/L 0.10 0.050 1 09/05/19 18:53 09/07/19 09:23 7439-89-2 Lead 0.19 ug/L 0.10 0.050 1 09/05/19 18:53 09/07/19 09:23 7439-89-2 Lithium 94 ug/L 0.50 0.42 1 09/05/19 18:53 09/07/19 09:23 7439-93-2 Manganese 166 ug/L 0.50 0.42 1 09/05/19 18:53 09/07/19 09:23 7440-23-5 M1 Sodium 7410 ug/L 0.10 0.60 1 09/05/19 18:53 <th0< td=""><td>Silver</td><td>ND</td><td>ug/L</td><td>5.0</td><td>2.5</td><td>1</td><td>09/05/19 18:53</td><td>09/06/19 23:30</td><td>7440-22-4</td><td></td></th0<>	Silver	ND	ug/L	5.0	2.5	1	09/05/19 18:53	09/06/19 23:30	7440-22-4	
Zinc ND ug/L 1.0. 3.9 1 90/05/19 18:53 90/06/19 23:30 7440-66-6 6020 MET ICPMS Analytical Webs: EPA 6020 Preparation EPA 4020 Preparation 90/05/19 18:53 90/07/19 09:23 7439-89-2 7439-89-2 Cobalt 11.1 ug/L 0.10 0.050 1 90/05/19 18:53 90/07/19 09:23 7439-89-2 7439-89-2 Lead 0.19 ug/L 0.50 0.14 1 90/05/19 18:53 90/07/19 09:23 7439-89-2 7439-89-2 Manganese 166 ug/L 0.50 0.14 1 90/05/19 18:53 90/07/19 09:23 7440-28-7 M1 Sodium 7410 ug/L 250 0.4.2 1 09/05/19 18:53 90/07/19 09:23 7440-28-7 M1 Sodium 7410 ug/L 250 1.4 91 09/05/19 18:53 90/07/19 09:23 7440-28-7 M1 Sodium ND ug/L 0.10 0.60 1 09/05/19 18:53 90/07/19 09	Hardness, Total(SM 2340B)	29700	ug/L	662	662	1	09/05/19 18:53	09/07/19 13:09		
GO20 MET ICPMS Analytical Wethod: EPA 6020F Preparation Wethod: EPA 3010A Cobalt 1.1 ug/L 0.10 0.050 1 09/05/19 18:53 09/07/19 09:23 7440-48-4 Iron 280 ug/L 0.10 0.050 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 7439-92-2 Lithium 9.4 ug/L 2.5 0.42 1 09/05/19 18:53 09/07/19 09:23 7439-92-2 Manganese 166 ug/L 0.50 0.41 1 09/05/19 18:53 09/07/19 09:23 7440-98-7 Potassium 5470 ug/L 50.0 6.2 1 09/05/19 18:53 09/07/19 09:23 7440-28-0 Thallium ND ug/L 0.50 0.40 1 09/05/19 18:53 09/07/19 09:23 7440-28-0 Tin ND ug/L 0.50 0.40 1 09/05/19 18:53 09/07/19 09:23 7440-28-0	Vanadium	ND	ug/L	5.0	1.3	1	09/05/19 18:53	09/06/19 23:30	7440-62-2	
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 2.5 0.42 1 09/05/19 18:53 09/07/19 09:23 7439-89-6 Manganese 166 ug/L 2.5 0.42 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 7440-97-7 M1 Sodium 7410 ug/L 250 14.3 1 09/05/19 18:53 09/07/19 09:23 7440-23-5 M1 Thallum ND ug/L 0.10 0.600 1 09/05/19 18:53 09/07/19 09:23 7440-34-5 Tot ND ug/L 0.10 0.600 1 09/05/19 18:53 09/07/19 09:23 7440-34-5 Tot ND ug/L	Zinc	ND	ug/L	10.0	3.9	1	09/05/19 18:53	09/06/19 23:30	7440-66-6	
Iron 280 ug/L 50.0 7.5 1 09/05/19 91.853 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 7439-93-2 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 7439-93-2 Potassium 5470 ug/L 0.50 0.14 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 7440-23-5 M1 Thallium ND ug/L 0.50 0.90 1 09/05/19 18:53 09/07/19 05	6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	ration Met	hod: EF	PA 3010A			
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 Maganese 166 ug/L 0.50 0.14 1 09/05/19 18:53 09/07/19 09:23 7439-93-2 Maganese 5470 ug/L 0.50 0.14 1 09/05/19 18:53 09/07/19 09:23 7440-03-7 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 0.50 0.60 1 09/05/19 18:53 09/07/19 09:23 7440-23-5 M1 Thallium ND ug/L 0.50 0.60 1 09/05/19 18:53 09/07/19 09:23 7440-24-5 M1 Thallium ND ug/L 0.20 0.10 1 09/05/19 18:53 09/07/19 09:23 7439-97-6 MSC	Cobalt	11.1	ug/L	0.10	0.050	1	09/05/19 18:53	09/07/19 09:23	7440-48-4	
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 250 14.3 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 0.60 1 09/05/19 18:53 09/07/19 09:23 7440-23-5 M1 Tin ND ug/L 0.10 0.60 1 09/05/19 18:53 09/07/19 09:33 7440-28-0 9055 Phenolics, Total Analytical Method: EPA 707-0 Preparation Method: EPA 9065 Preparation Method: EPA 9065 1 09/11/19 10.4 09/11/19 10.4 09/03/19 22.1 16887-00-6 M1, R1 9056 IC anions 28 Days Analytical Method: EPA	Iron	280	ug/L	50.0	7.5	1	09/05/19 18:53	09/07/19 09:23	7439-89-6	
Manganese 166 ug/L 0.50 0.14 1 09/05/19 18:53 09/07/19 09:23 7439-96-5 M1 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 7440-23-5 M1 Thallium ND ug/L 0.10 0.060 1 09/05/19 18:53 09/07/19 09:23 7440-23-5 M1 Trin ND ug/L 0.50 0.090 1 09/05/19 18:53 09/07/19 09:23 7440-23-5 Toto MD ug/L 0.50 0.090 1 09/05/19 18:55 09/07/19 09:23 7440-31-5 Toto ND ug/L 0.20 0.10 1 09/11/19 10:47 09/11/19 14:59 7439-97-6 Pobe5 Phenolics, Total Recoverable ND mg/L 0.50 0.50 1 0	Lead	0.19	ug/L	0.10	0.050	1	09/05/19 18:53	09/07/19 09:23	7439-92-1	
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 7440-23-5 M1 Thallium ND ug/L 0.50 0.90 1 09/05/19 18:53 09/07/19 09:23 7440-23-5 M1 Trin ND ug/L 0.50 0.90 1 09/05/19 18:53 09/07/19 09:23 7440-31-5 7470 Mercury Analytical Method: EPA 7470A Preparation Method: EPA 7470A reparation Method: EPA 7470A 0.90 1 09/11/19 10:47 09/11/19 14:59 7439-97-6 1439-97-6 9055 Phenolics, Total Analytical Method: EPA 9065 Preparation Method: EPA 9065 1 09/06/19 15:50 09/06/19 19:56 64743-03-9 9056 IC anions 28 Days Analytical Method: EPA 9056 1 09/03/19 22:21 <	Lithium	9.4	ug/L	2.5	0.42	1	09/05/19 18:53	09/07/19 09:23	7439-93-2	
Sodium Thallium Thallium Tin 7410 ug/L ug/L 250 14.3 1 09/05/19 18:53 09/07/19 09:23 7440-23-5 M1 Thallium Tin ND ug/L 0.10 0.060 1 09/05/19 18:53 09/07/19 09:23 7440-23-5 M1 7470 Mercury Analytical Webod: EPA 7470 A Preparation Method: EPA 7470 A Preparation Method: EPA 7470 A 1 09/05/19 18:53 09/07/19 09:23 7440-23-5 M1 Mercury Analytical Webod: EPA 7470 A Preparation Method: EPA 7470 A 1 09/05/19 18:53 09/07/19 09:23 7440-23-5 M1 9065 Phenolics, Total Analytical Webod: EPA 9055 Preparation Method: EPA 9056 1 09/06/19 15:50 09/06/19 19:56 64743-03-9 9056 I C anions 28 Days Analytical Webod: EPA 9056 1 09/03/19 22:21 16887-00-6 M1, R1 Fluoride ND mg/L 1.0 0.50 1 09/03/19 22:21 16887-09-6 M1, R1 Sulfate 41.4 mg/L	Manganese	166	ug/L	0.50	0.14	1	09/05/19 18:53	09/07/19 09:23	7439-96-5	
Thallium Tin ND ug/L ND 0.10 ug/L 0.10 0.50 0.060 1 09/05/19 18:53 09/07/19 09:23 7440-28-0 7440-31-5 7470 Mercury Analytical Method: EPA 7470 A Preparation Method: EPA 7470 A 09/01/19 10:47 09/01/19 09:23 7440-31-5 Mercury ND ug/L 0.20 0.10 1 09/01/19 10:47 09/11/19 14:59 7439-97-6 9065 Phenolics, Total Analytical Method: EPA 9065 Preparation Method: EPA 9065 0.50 1 09/06/19 15:50 09/06/19 19:56 64743-03-9 9056 IC anions 28 Days Analytical Method: EPA 9056K Intervention Method: EPA 9056A Intervention Method: EPA 9056A Intervention Method: EPA 9056A 1 09/03/19 22:21 16887-00-6 M1, R1 Fluoride 2.8 mg/L 1.0 0.60 1 09/03/19 22:21 16887-00-6 M1, R1 Sulfate ND mg/L 1.0 0.50 1 09/03/19 22:21 16887-00-6 M1, R1 Total Organic Carbon, Asheville Analytical Method: EPA 9056J 1 09/03/19 22:21 16887-09-6 M1, R1 Total Organic Carbon ND mg/L	Potassium	5470	ug/L	50.0	6.2	1	09/05/19 18:53	09/07/19 09:23	7440-09-7	M1
Thallium ND ug/L 0.10 0.60 1 09/05/19 18:53 09/07/19 09:23 7440-28-0 Tin ND ug/L 0.50 0.50 0.900 1 09/05/19 18:53 09/07/19 09:23 7440-28-0 7470 Mercury Analytical Werber: EPA 7470 Preparatorian Verber: Werber: Verber: Verbe	Sodium	7410	ug/L	250	14.3	1	09/05/19 18:53	09/07/19 09:23	7440-23-5	M1
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 Werket: EPA 7470 Mercury ND ug/L 0.20 0.10 1 09/07/19 09:23 7440-31-5 Mercury ND ug/L 0.20 0.10 1 09/01/19 10:47 09/01/19 14:59 7439-97-6 9065 Phenolics, Total Analytical Werket: EPA 9065 Preparator Werket 0.050 0.050 1 09/06/19 15:50 09/06/19 19:56 64743-03-9 9056 IC anions 28 Days Analytical Werket: EPA 9056 Ind 0.600 1 09/03/19 22:21 16887-00-6 M1,R1 Fluoride 2.8 mg/L 1.0 0.600 1 09/03/19 22:21 16887-00-6 M1,R1 Sulfate MD mg/L 1.0 0.500 1 09/03/19 22:21 16887-00-6 M1,R1 Sulfate MD mg/L 1.0 0.500 1 09/03/19 22:21 16887-00-6 M1,R1 Total Organic Carbon, Asheville MD mg/L 1.0 0.500 1 09/06/19 07:05	Thallium	ND	-	0.10	0.060	1	09/05/19 18:53	09/07/19 09:23	7440-28-0	
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 Preparator Method: EPA 9065 EPA 9065 0.906/19 15:50 09/06/19 19:56 64743-03-9 9056 IC anions 28 Days Analytical Method: EPA 9056 Image: Method: EPA 9056 Image: Method: EPA 9056 Image: Method: EPA 9056 Image: Method: EPA 9067 <	Tin	ND	-	0.50	0.090	1	09/05/19 18:53	09/07/19 09:23	7440-31-5	
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 EPA 9056A EPA 9056A EPA 9056A EPA 9056A EPA 9056A MD 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 16887-00-6 M1, R1 Sulfate Analytical Method: EPA 9060A 09/03/19 22:21 16887-00-6 M1, R1 Total Organic Carbon, Asheville Analytical Method: EPA 9060A 09/03/19 22:21 14808-79-8 M1, R1 Total Organic Carbon ND mg/L 1.0 0.50 1 09/06/19 07:05 7440-44-0	7470 Mercury	Analytical	Method: EPA 7	470A Prepa	ration Met	hod: EF	PA 7470A			
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 EPA 9056A EPA 9050 1 09/03/19 22:21 16887-00-6 M1, R1 Fluoride 2.8 mg/L 0.10 0.050 1 09/03/19 22:21 16887-00-6 M1, R1 Sulfate ND mg/L 0.10 0.050 1 09/03/19 22:21 16984-48-8 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	Mercury	ND	ug/L	0.20	0.10	1	09/11/19 10:47	09/11/19 14:59	7439-97-6	
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	9065 Phenolics, Total	Analytical	Method: EPA 9	065 Prepara	ation Meth	od: EPA	9065			
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 16887-00-6 M1,R1 Sulfate 41.4 mg/L 1.0 0.50 1 09/03/19 22:21 16984-48-8 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 <td>Phenolics, Total Recoverable</td> <td>ND</td> <td>mg/L</td> <td>0.050</td> <td>0.050</td> <td>1</td> <td>09/06/19 15:50</td> <td>09/06/19 19:56</td> <td>64743-03-9</td> <td></td>	Phenolics, Total Recoverable	ND	mg/L	0.050	0.050	1	09/06/19 15:50	09/06/19 19:56	64743-03-9	
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 16984-48-8 M1, R1 Total Organic Carbon, Asheville Analytical Method: EPA 9060A EPA 9060A VD mg/L 1.0 0.50 1 09/06/19 07:05 7440-44-0	9056 IC anions 28 Days	Analytical	Method: EPA 9	056A						
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 16984-48-8 M1, R1 Total Organic Carbon, Asheville Analytical Method: EPA 9060A EPA 9060A VD mg/L 1.0 0.50 1 09/06/19 07:05 7440-44-0	Chloride	2.8	mg/L	1.0	0.60	1		09/03/19 22:21	16887-00-6	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 V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V V <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td>			-							-
Total Organic Carbon ND mg/L 1.0 0.50 1 09/06/19 07:05 7440-44-0			-							-
5	Total Organic Carbon, Asheville	Analytical	Method: EPA 9	9060A						
5	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				

REPORT OF LABORATORY ANALYSIS



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-1602	Lab ID:	92443549001	Collecte	d: 08/29/19	08:57	Received: 08	/29/19 13:40 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon, Asheville	Analytical	Method: EPA 9	060A						
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	



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-1607	Lab ID:	92443549002	Collected	d: 08/28/19	9 11:57	Received: 08/	/29/19 13:40 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C-2011						
Total Dissolved Solids	118	mg/L	25.0	25.0	1		08/30/19 14:04		
6010 MET ICP	Analytical	Method: EPA 6	010D Prep	aration Met	hod: EF	PA 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 6	020B Prepa	aration Met	hod: EF	PA 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			
Tin	ND	ug/L	0.50	0.090	1	09/05/19 18:53			
7470 Mercury	Analytical	Method: EPA 7	470A Prepa	aration Met	hod: EF	PA 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 9	065 Prepar	ation Meth	od: 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 9	056A						
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		
Sulfate	30.9	mg/L	1.0	0.50	1		09/03/19 23:04		
Total Organic Carbon, Asheville	Analytical	Method: EPA 9	060A						
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		M1
Total Organic Carbon	19.5	mg/L	1.0	0.50	1		09/00/19 13:21	1440-44-0	

REPORT OF LABORATORY ANALYSIS



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-1607	Lab ID:	92443549002	Collecte	d: 08/28/19	11:57	Received: 08	/29/19 13:40 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon, Asheville	Analytical	Method: EPA 9	060A						
Total Organic Carbon	19.8	mg/L	1.0	0.50	1		09/06/19 13:21	7440-44-0	M1
Total Organic Carbon Mean Total Organic Carbon	19.9 19.9	mg/L mg/L	1.0 1.0	0.50 0.50	1 1		09/06/19 13:21 09/06/19 13:21	7440-44-0 7440-44-0	M1 M1



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-1608	Lab ID:	92443549003	Collected:	08/28/1	9 13:11	Received: 08/	29/19 13:40 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C-2011						
Total Dissolved Solids	237	mg/L	25.0	25.0	1		08/30/19 14:04		
6010 MET ICP	Analytical	Method: EPA 6	010D Prepa	ration Me	thod: EF	PA 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		
Beryllium	ND	ug/L	1.0	0.50	1	09/05/19 18:53	09/07/19 13:27		
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 6	020B Prepa	ration Me	thod: EF	PA 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			
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 7	470A Prepa	ration Met	thod: EF	PA 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 9	065 Prepara	ation Meth	od: 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 9	056A						
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		
Sulfate	27.8	mg/L	1.0	0.50	1		09/03/19 23:19		
Total Organic Carbon, Asheville		Method: EPA 9	060A						
Total Organic Carbon	0.93J	mg/L	1.0	0.50	1		09/06/19 09:05	7440-44-0	
0		-							
Total Organic Carbon	1.1	mg/L	1.0	0.50	1		09/06/19 09:05	1440-44-0	

REPORT OF LABORATORY ANALYSIS



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-1608	Lab ID:	92443549003	Collecte	Collected: 08/28/19 13:11			Received: 08/29/19 13:40 Matrix: Wa				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual		
Total Organic Carbon, Asheville	Analytical	Method: EPA 9	060A								
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			



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-1614	Lab ID:	92443549004	Collected:	08/28/19	9 13:02	Received: 08/	29/19 13:40 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C-2011						
Total Dissolved Solids	284	mg/L	33.3	33.3	1		08/30/19 14:04		
6010 MET ICP	Analytical	Method: EPA 6	010D Prepa	ration Me	thod: EF	PA 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 6	020B Prepa	ration Met	thod: EF	PA 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			
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		
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 7	470A Prepa	ration Met	hod: EF	PA 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 9	065 Prepara	tion Meth	od: 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 9	056A						
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		
Sulfate	38.5	mg/L	1.0	0.50	1		09/04/19 23:49		
Total Organic Carbon, Asheville	Analytical	Method: EPA 9	060A						
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	
0		0	-					-	

REPORT OF LABORATORY ANALYSIS



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-1614	Lab ID:	92443549004	Collecte	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 9	060A								
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			



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-Duplicate	Lab ID:	92443549005	Collected	08/28/1	9 12:17	Received: 08/	/29/19 13:40 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytica	Method: SM 28	540C-2011						
Total Dissolved Solids	120	mg/L	25.0	25.0	1		08/30/19 14:04		
6010 MET ICP	Analytica	Method: EPA 6	010D Prepa	ration Me	thod: EF	PA 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			
6020 MET ICPMS	Analytica	Method: EPA 6	020B Prepa	ration Me	thod: EF	PA 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			
Sodium	15200	ug/L	2500	143	10	09/05/19 18:53			
Thallium	ND	ug/L	0.10	0.060	1	09/05/19 18:53			
Tin	ND	ug/L	0.50	0.090	1	09/05/19 18:53			
7470 Mercury	Analytica	I Method: EPA 7	470A Prepa	ration Met	thod: EF	PA 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	Analytica	I Method: EPA 9	065 Prepara	ation Meth	od: 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	Analytica	Method: EPA 9	056A						
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		
Sulfate	34.7	mg/L	1.0	0.000	1		09/05/19 00:03		
Total Organic Carbon, Asheville	Analytica	Method: EPA 9	060A						
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		
e-game earbon				5.00	•		20,00,10 12.01		

REPORT OF LABORATORY ANALYSIS



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-Duplicate	Lab ID:	92443549005	Collected	Collected: 08/28/19 12:17			/29/19 13:40 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon, Asheville	Analytical	Method: EPA 9	060A						
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	



Project: PP - Pond ABC	(A)						
Pace Project No.: 92443549							
QC Batch: 495427		Analysis M	ethod:	SM 2540C-20)11		
QC Batch Method: SM 2540C-201	11	Analysis De	escription:	2540C Total D	Dissolved Solids		
Associated Lab Samples: 9244354	49001, 924435490	02, 92443549003,	92443549004,	92443549005	5		
METHOD BLANK: 2669331		Matrix	: Water				
Associated Lab Samples: 9244354	49001, 924435490	02, 92443549003,	92443549004,	92443549005	5		
		Blank	Reporting				
Parameter	Units	Result	Limit	MDL	Analy	zed	Qualifiers
Total Dissolved Solids	mg/L	NE	25.	0	25.0 08/30/19	14:05	
LABORATORY CONTROL SAMPLE:	2669332	Spike	LCS	LCS	% Rec		
Parameter	Units	Conc.	Result	% Rec	Limits	Qua	lifiers
Total Dissolved Solids	mg/L	250	272	109	90-110		
SAMPLE DUPLICATE: 2669333							
		92443188005	Dup		Max		
Parameter	Units	Result	Result	RPD	RPD		Qualifiers
Total Dissolved Solids	mg/L	527	' 54	0	2	5	
SAMPLE DUPLICATE: 2669334							
		92443549001	Dup		Max		
Parameter	Units	Result	Result	RPD	RPD		Qualifiers
			14		3		

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.



Project:	PP - Pond AB	C (A)											
Pace Project No.:	92443549												
QC Batch:	497027			Analy	/sis Metho	od:	EPA 7470A						
QC Batch Method:	EPA 7470A			Analy	/sis Desci	ription:	7470 Mercu	ıry					
Associated Lab Sar	mples: 92443	549001, 924	4354900	2, 9244354	9003, 924	443549004	, 924435490	05					
METHOD BLANK:	2676371				Matrix: V	Vater							
Associated Lab Sar	mples: 92443	549001, 924	4354900	2, 9244354	9003, 924	443549004	, 924435490	05					
				Blai	nk	Reporting							
Parar	neter	U	Inits	Res	ult	Limit	MD	L	Analyzed	d Qı	ualifiers		
Mercury		u	ıg/L		ND	0.2	20	0.10	09/11/19 14	1:52			
LABORATORY CO	NTROL SAMPL	E: 267637	2										
				Spike	L	CS	LCS	%	6 Rec				
Parar	neter	U	Inits	Conc.	Re	esult	% Rec	L	imits	Qualifiers			
Mercury		u	ıg/L	2	.5	2.2	8	7	80-120				
MATRIX SPIKE & N	ATRIX SPIKE	DUPLICATE:	: 2676;	373		267637	4						
				MS	MSD								
		92443	549001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r I	Jnits R	esult	Conc.	Conc.	Result	Result	% Red	c % Rec	Limits	RPD	RPD	Qual
T aramete	· · · ·												

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.



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 Sam	ples: 92443549001, 92443549002, 9	92443549003, 92443549004	4, 92443549005

METHOD BLANK: 2673007

Matrix: Water

		Blank	Reporting			
Parameter	Units	Result	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
				90	80-120	
Antimony	ug/L		450			
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	

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.



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

MATRIX SPIKE & MATRIX SP	IKE DUPLIC	ATE: 2673	009		2673010							
			MS	MSD								
	92	2443188005	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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 SP	IKE DUPLI	CATE: 2673	011		2673012							
			MS	MSD								
	1	92443549001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	

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



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

METHOD BLANK: 2673055

QC Batch:	4962	281	Analysis Method:	EPA 6020B
QC Batch Method:	EPA	3010A	Analysis Description:	6020 MET
Associated Lab Sam	ples:	92443549001, 9	2443549002, 92443549003, 92443549004	4, 92443549005

Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

		Blank	Reporting			
Parameter	Units	Result	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	

Matrix: Water

LABORATORY CONTROL SAMPLE: 2673056

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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 DUPLIC	CATE: 2673	057		2673058							
Parameter	g Units	2443188005 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	

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



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 2673	059		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		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 M	1
Sodium	ug/L	7410	625	625	8230	8010	132	96	75-125	3	20 M	1
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	

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.



Project:	PP - Pond AB	C (A)											
Pace Project No.:	92443549												
QC Batch:	34869			Anal	ysis Metho	od:	EPA 9065						
QC Batch Method:	EPA 9065			Anal	ysis Descr	ription:	9065 Phenolics						
Associated Lab Sar	mples: 92443	354900	1, 9244354900	2, 9244354	19003, 924	443549004,	924435490	05					
METHOD BLANK:	156873				Matrix: V	Vater							
Associated Lab Sar	nples: 92443	354900	1, 9244354900	2, 9244354	19003, 924	443549004,	924435490	05					
				Bla	nk	Reporting							
Parameter Units		Res	ult	Limit	MD	L	Analyzed	l Q	ualifiers				
Phenolics, Total Re	coverable		mg/L		ND	0.05	50	0.050	09/06/19 19	:49			
LABORATORY CO		E·1	56874										
LABORATORT OU		,	50074	Spike	1.0	CS	LCS	%	Rec				
Parar	neter		Units	Conc.		sult	% Rec		imits	Qualifiers			
Phenolics, Total Re	coverable		mg/L	0	.5	0.42	8	4	80-120				
MATRIX SPIKE & N			CATE: 1568	75		156876							
		201 21	0,112. 1000	MS	MSD	100010							
		1	92443178001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r l	Jnits	Result	Conc.	Conc.	Result	Result	% Red	c % Rec	Limits	RPD	RPD	Qual
Phenolics, Total Recoverable	I	ng/L	ND	0.5	0.5	0.39	0.36		74 69	80-120	6	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.



Project: Pace Project No.:	PP - Pond ABC (A 92443549)										
QC Batch:	495640		Anal	ysis Metho	d: I	EPA 9056A						
QC Batch Method:	EPA 9056A		Anal	ysis Descri	ption:	9056 IC ani	ons 28 Da	ays				
Associated Lab Sar	mples: 92443549	001, 9244354900)2, 9244354	19003, 924	43549004,	924435490	05					
METHOD BLANK:	2670138			Matrix: W	ater							
Associated Lab Sar	nples: 92443549	001, 9244354900)2, 9244354	19003, 924-	43549004,	924435490	05					
			Bla	nk	Reporting							
Parar	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	alifiers		
Chloride		mg/L		ND	1.	0	0.60	09/03/19 19:	27			
Fluoride		mg/L		ND	0.1	0	0.050 0	09/03/19 19:	27			
Sulfate		mg/L		ND	1.	0	0.50 (09/03/19 19	27			
LABORATORY CO	NTROL SAMPLE:	2670139										
Parar		Units	Spike Conc.	LC Res		LCS % Rec		Rec nits	Qualifiers			
Chloride		mg/L		50	51.7	10	3	90-110		_		
Fluoride		mg/L		.5	2.6	10		90-110				
Sulfate		mg/L	Ę	50	50.3	10	1	90-110				
MATRIX SPIKE & N	ATRIX SPIKE DUP	LICATE: 2670	140		2670141							
			MS	MSD								
		92443188005	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	194	50	50	248	237	108	3 86	90-110	5	10	M1
Fluoride	mg/L	ND	2.5	2.5	3.3	2.9	132	2 116	90-110	13	10	M1,R1
Sulfate	mg/L	85.6	50	50	118	113	66	6 55	90-110	5	10	M1
MATRIX SPIKE & N	ATRIX SPIKE DUP	LICATE: 2670	174		2670175							
			MS	MSD								
		92443549001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	2.8	50	50	45.6	55.0	86	6 105	90-110	19	10	M1,R1
Fluoride	mg/L		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	2 100	90-110	24	10	M1,R1

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REPORT OF LABORATORY ANALYSIS



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 Sam	ples: 92443549	01, 92443549002, 92443549003, 92443549004	4, 92443549005

METHOD BLANK: 2672480

Matrix: Water

Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005

		Blank	Reporting			
Parameter	Units	Result	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

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2672	2482 MS	MSD	2672483							
		92443549001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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 SP	-		MS	MSD	2672485		MG	MCD	0/ Dee			
Parameter	Units	92443549002 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			25	25	29.9	35.2	40	61	75-125	16	25	
Mean Total Organic Carbon Total Organic Carbon	mg/L mg/L	19.9	25 25	25 25	29.9 30.1	35.2 35.2	40 43	63	75-125	16	25 25	
Total Organic Carbon	mg/L	19.9	25 25	25 25	30.0	35.2	41	61	75-125	16	25	
Total Organic Carbon	mg/L	20.3	25	25	29.7	35.2	37	60	75-125	17	25	
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



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-1602 PWS:	Lab ID: 92443 Site ID:	549001 Collected: 08/29/19 08:57 Sample Type:	Received:	08/29/19 13:40	Matrix: Water	
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	5 13982-63-3	
Radium-228	EPA 9320	1.35 ± 0.473 (0.685) C:81% T:87%	pCi/L	09/20/19 10:28	3 15262-20-1	
Total Radium	Total Radium Calculation	1.87 ± 0.761 (1.12)	pCi/L	09/23/19 11:58	3 7440-14-4	



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-1607 PWS:	Lab ID: 92443 Site ID:	549002 Collected: 08/28/19 11:57 Sample Type:	Received:	08/29/19 13:40	Matrix: Water	
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	3 15262-20-1	
Total Radium	Total Radium Calculation	1.58 ± 0.626 (0.903)	pCi/L	09/23/19 11:58	3 7440-14-4	



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-1608 PWS:	Lab ID: 92443 Site ID:	549003 Collected: 08/28/19 13:11 Sample Type:	Received:	08/29/19 13:40	Matrix: Water	
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	5 13982-63-3	
Radium-228	EPA 9320	0.885 ± 0.390 (0.643) C:78% T:92%	pCi/L	09/20/19 10:28	3 15262-20-1	
Total Radium	Total Radium Calculation	1.59 ± 0.637 (0.912)	pCi/L	09/23/19 11:58	3 7440-14-4	



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-1614 PWS:	Lab ID: 92443 Site ID:	549004 Collected: 08/28/19 13:02 Sample Type:	Received:	08/29/19 13:40	Matrix: Water	
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	5 13982-63-3	
Radium-228	EPA 9320	1.05 ± 0.468 (0.785) C:84% T:81%	pCi/L	09/20/19 13:42	2 15262-20-1	
Total Radium	Total Radium Calculation	1.56 ± 0.692 (1.05)	pCi/L	09/23/19 11:58	3 7440-14-4	



Project: PP - Pond ABC (A)

Pace Project No.: 92443549

Sample: ABC-Duplicate PWS:	Lab ID: 92443 Site ID:	549005 Collected: 08/28/19 12:17 Sample Type:	Received:	08/29/19 13:40	Matrix: Water	
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	5 13982-63-3	
Radium-228	EPA 9320	0.613 ± 0.370 (0.692) C:83% T:93%	pCi/L	09/20/19 13:42	2 15262-20-1	
Total Radium	Total Radium Calculation	1.16 ± 0.596 (0.963)	pCi/L	09/23/19 11:58	3 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project:	PP - Pond ABC (A	۹)					
Pace Project No.:	92443549						
QC Batch:	360247	Analysis Method:	EPA 9315				
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium				
Associated Lab Sa	Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005						
METHOD BLANK: 1748643 Matrix: Water							
Associated Lab Sa	Associated Lab Samples: 92443549001, 92443549002, 92443549003, 92443549004, 92443549005						
Para	meter	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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QUALITY CONTROL - RADIOCHEMISTRY

Project:	PP - Pond ABC (A	A)			
Pace Project No.:	92443549				
QC Batch:	360248	Analysis Method:	EPA 9320		
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228		
Associated Lab Sar	mples: 92443549	9001, 92443549002, 92443549003, 9244354900	92443549005		
METHOD BLANK:	1748645	Matrix: Water			
Associated Lab Sa	mples: 92443549	0001, 92443549002, 92443549003, 9244354900	92443549005		
Para	meter	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.



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-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.	
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- M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
- R1 RPD value was outside control limits.



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
2443549002	ABC-1607	EPA 3010A	496271	EPA 6010D	496310
2443549003	ABC-1608	EPA 3010A	496271	EPA 6010D	496310
2443549004	ABC-1614	EPA 3010A	496271	EPA 6010D	496310
2443549005	ABC-Duplicate	EPA 3010A	496271	EPA 6010D	496310
2443549001	ABC-1602	EPA 3010A	496281	EPA 6020B	496309
2443549002	ABC-1607	EPA 3010A	496281	EPA 6020B	496309
2443549003	ABC-1608	EPA 3010A	496281	EPA 6020B	496309
2443549004	ABC-1614	EPA 3010A	496281	EPA 6020B	496309
2443549005	ABC-Duplicate	EPA 3010A	496281	EPA 6020B	496309
2443549001	ABC-1602	EPA 7470A	497027	EPA 7470A	497236
2443549002	ABC-1607	EPA 7470A	497027	EPA 7470A	497236
2443549003	ABC-1608	EPA 7470A	497027	EPA 7470A	497236
2443549004	ABC-1614	EPA 7470A	497027	EPA 7470A	497236
2443549005	ABC-Duplicate	EPA 7470A	497027	EPA 7470A	497236
2443549001	ABC-1602	EPA 9315	360247		
2443549002	ABC-1607	EPA 9315	360247		
2443549003	ABC-1608	EPA 9315	360247		
2443549004	ABC-1614	EPA 9315	360247		
2443549005	ABC-Duplicate	EPA 9315	360247		
2443549001	ABC-1602	EPA 9320	360248		
2443549002	ABC-1607	EPA 9320	360248		
2443549003	ABC-1608	EPA 9320	360248		
2443549004	ABC-1614	EPA 9320	360248		
92443549005	ABC-Duplicate	EPA 9320	360248		
2443549001	ABC-1602	Total Radium Calculation	362615		
2443549002	ABC-1607	Total Radium Calculation	362615		
2443549003	ABC-1608	Total Radium Calculation	362615		
2443549004	ABC-1614	Total Radium Calculation	362615		
92443549005	ABC-Duplicate	Total Radium Calculation	362615		
2443549001	ABC-1602	EPA 9065	34869	EPA 9065	34892
2443549002	ABC-1607	EPA 9065	34869	EPA 9065	34892
2443549003	ABC-1608	EPA 9065	34869	EPA 9065	34892
2443549004	ABC-1614	EPA 9065	34869	EPA 9065	34892
2443549005	ABC-Duplicate	EPA 9065	34869	EPA 9065	34892
2443549001	ABC-1602	EPA 9056A	495640		
2443549002	ABC-1607	EPA 9056A	495640		
2443549003	ABC-1608	EPA 9056A	495640		
2443549004	ABC-1614	EPA 9056A	495640		
92443549005	ABC-Duplicate	EPA 9056A	495640		



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"	Sample Conditio	nent Name: n Upon Rece Iment No.:	ipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2 Issuing Authority:
<i></i> /		S-033-Rev.06	5	Pace Carolinas Quality Office
Laborator y receiving samples: Asheville Eden	Greenwood] +	luntersville	Raleigh Mechanicsville
Sample Condition Upon Receipt	eγ		Project #:	WO#:92443549
Courier: Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commercial Commerc	PS USPS Other:	<u> </u>	Client	92443549
Custody Seal Present? Yes No	Seals Intact? 🛛 🏹	es 🗆 N	0	Date/Initials Person Examining Contents: 8-29-19
Packing Material: Bubble Wrap Thermometer: A IR Gun ID: <u>1-3</u>	Bubble Bags IN Type of Ice:		Other]Blue 🔲 No	Biological Tissue Frozen? RSB
Cooler Temp (°C): <u>3</u> , <u>Correction Fa</u> Cooler Temp Corrected (°C): <u>2</u> , <u>9</u> USDA Regulated Soil (<u>N/A</u> , water sample) Did samples originate in a quarantine zone within the Yes No	ctor: Add Subtract)(°C	- <u>LZ</u> EI	ha ha aps)? Did sa	should be above freezing to 6°C Samples out of temp criteria. Samples on ice, cooling process s begun mples originate from a foreign source (internationally,
	1		includ	ing Hawaii and Puerto Rico)? Yes No
Chain of Custody Present?			1	Comments/Discrepancy:
Samples Arrived within Hold Time?			1.	141
	Yes No		2.	
Short Hold Time Analysis (<72 hr.)?	Yes No		3.	
Rush Turn Around Time Requested?	Ves 🕅 No	D □N/A	4.	án.
Sufficient Volume?	Ves No		5.	and the second se
Correct Containers Used? -Pace Containers Used?	Øyes □No Øyes □No		6.	
Containers Intact?	Yes No		7.	
Dissolved analysis: Samples Field Filtered?	□yēs □No		8.	
Sample Labels Match COC?			9.	
-Includes Date/Time/ID/Analysis Matrix:	NI .			
Headspace in VOA Vials (>5-6mm)?	Yes No		10.	
Trip Blank Present?	Yes No		10.	
Trip Blank Custody Seals Present?	Yes No			
COMMENTS/SAMPLE DISCREPANCY				Field Data Required? Yes No
CLIENT NOTIFICATION/RESOLUTION			Lot ID of sp	olit containers:
Person contacted:		_ Date/Tir	ne:	
Project Manager SCURF Review:	NM			Date: 9/10/19
Project Manager SRF Review:	ett.	//		Date: 9/13/19 Dece 20 of

Page 39 of 41

Pace Analytical"	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
- I door thaiyinda	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.

Project # WO#: 92443549

CLIENT: 92-Golder

Due Date: 09/13/19

PM: NMG

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg **Bottorn half of box is to list number of bottle

	eserved (N/A) (CI-)	eserved (N/A)	eserved (N/A)	erved (N/A)	l (pH < 2) (CI-)	(pH < 2)	etate & NaOH (>9)	(pH > 12) (CI-)	s jar Unpreserved	erved (N/A) (CI-)	< 2)	eserved (N/A) (CI-)	pH < 2)	(pH < 2)	· NH4CI (N/A)(CI-)		N/A)		V)	tit (N/A)	as kit (N/A)	V/A – lab)	N/A - lab)		04 (9.3-9.7)	erved vials (N/A)	(N/A)	ved vials (N/A)
Item#	BP4U-125 mL Plastic Unpre	BP3U-250 mL Plastic Unple	BP2U-500 mL Plastic Unple	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO	BP3N-250 mL plastic HNO3	BP42-125 mL Plastic ZN Ace	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (CI-)	AG1H-1 liter Amber HCI (pH	AG3U-250 mL Amber Unpre	AG1S-1 liter Amber H2SO4	AG3S-250 mL Amber H2SO4	AG3A(DG3A)-250 mL Ambe	DG9H-40 mL VOA HCI (N/A	VG9T-40 mL VOA Na2S2O3 N	NG9U-40 mL VOA Unp (N/A	DG9P-40 mL VOA H3PO4 (N	VOAK (6 vials per kit)-5035 s	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterlle Plastic (N	SP2T-250 mL Sterile Plastic	6PIN	BP3A-250 mL Plastic (NH2)290	AGOU-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials	DG9U-40 mL Amber Unpreserved vials (N/A)
1		1	1		\backslash	X	\backslash							N					3					X				
3		1	1	_		X	$\langle \rangle$	Y			1			1	V				3					X	1			
4	Y	1	1		1	X	X							N	1				3					X				
5	V	1	1		V	X	V						V	X				1.1	3					X				
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6		1	1	Ì		X	V							M				- 1	3					5				
7	V	1	1	1		X								X	$\langle \rangle$			1	3					1		-		
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12		1	-		1	X	X	1			Y		X	X	Y	-	-		-	-	-			Y	V			

Sample ID	Type of Preservative	pH upon receipt	justment Log for Pres			
		pri upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #
						1

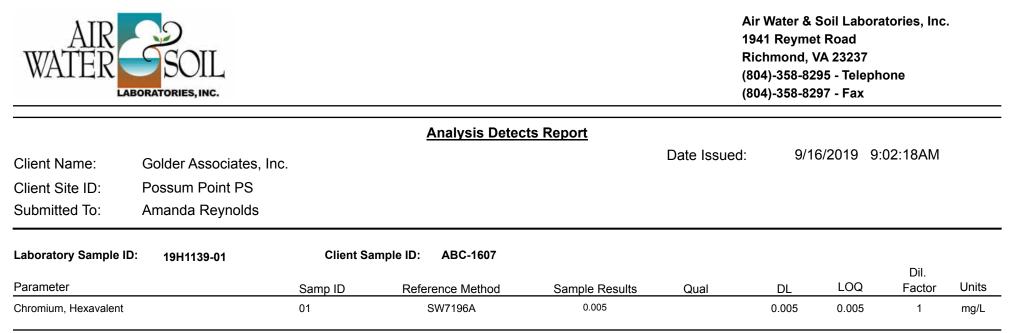
Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

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CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Полотоки сонструкций Полотоки	Section C Invoice Information:	
Полнании социальной	00:	Page: 1 Of 1
Product all all all all all all all all all al	ny Name: s:	
Propert Manger. Page Project Manger. Process R & Res Propert Manger. Process R & Res Propert Manger. Process R & Res Process R & Res R Marrier Process R Marrie	uote:	Regulatory Agency
Варинализации Варинал	nicole.gasiorowski@pacelap	State / Location
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ABC-1602 Wr SCAPA	۲۵۱ ۱۹۹۵ ۱۹۹۵ ۱۹۹۹ ۱۹۹۹ ۱۹۹۹ ۱۹۹۹ ۱۹۹۹ ۱	udium 226/228 sidual Chlorine (Y/V)
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N PRINT Name of SAMPLER: I'M IT I'VI'DI A		
2. Jan and	Ichcel Anter Burgsigned	LEWP in C Cooler Cooler (Υ/Ν) Cooler (Υ/Ν) TEMP in C

41



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".



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	9:02:18AM
	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				
19H1139	8/28/2019 3:55:00PM	1662150				
19H1182	8/29/2019 1:35:00PM	1662150				

201415

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.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Air Water & Soil Laboratories, Inc.







Client Site I.D.:

Submitted To:

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.

Possum Point PS

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



Client Name: Client Site I.D.: Submitted To:	lient Site I.D.: Possum Point PS ubmitted To: Amanda Reynolds						Da	d:	9/16/20	I			
Client Sample ID:	ABC-1607					Laborator	ry Sample ID:	19H1	139-01				
Parameter		Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	DL	LOQ	DF	Units	Analyst
Wet Chemistry Analys	sis												
Chromium, Hexavaler	it	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



Client Name: Client Site I.D.: Submitted To:	Golder Ass Possum Po Amanda Re	oint PS	C.		<u>Certificate c</u>	of Analysis	Da	ite Issue	d:	9/16/20	19 9	9:02:18AM	l
Client Sample ID:	ABC-1608					Laborator	ry Sample ID:	19H1	139-02				
Parameter		Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	DL	LOQ	DF	Units	Analyst
Wet Chemistry Analys	is												
Chromium, Hexavalen	t	02	18540-29-9	SW7196A	08/29/2019 07:30	08/29/2019 12:00	BLOD		0.005	0.005	1	mg/L	MWL



Client Name: Client Site I.D.: Submitted To:	Golder Associates, In Possum Point PS Amanda Reynolds	C.		<u>Certificate c</u>	of Analysis	Da	ate Issue	d:	9/16/20	19 9	9:02:18AN	I
Client Sample ID:	ABC-Duplicate				Laborator	y Sample ID:	19H1	139-03				
Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	DL	LOQ	DF	Units	Analyst
Wet Chemistry Analys	sis											
Chromium, Hexavalen	t 03	18540-29-9	SW7196A	08/29/2019 07:30	08/29/2019 12:00	BLOD		0.005	0.005	1	mg/L	MWL



Client Name: Client Site I.D.: Submitted To:	Golder Ass Possum Po Amanda Re	oint PS	C.		<u>Certificate c</u>	of Analysis	Da	ite Issue	d:	9/16/20	19 9	9:02:18AM	
Client Sample ID:	ABC-1614					Laborator	ry Sample ID:	19H1	139-04				
Parameter		Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	DL	LOQ	DF	Units	Analyst
Wet Chemistry Analys	sis												
Chromium, Hexavalen	t	04	18540-29-9	SW7196A	08/29/2019 07:30	08/29/2019 12:00	BLOD		0.005	0.005	1	mg/L	MWL



Client Name: Client Site I.D.: Submitted To:	Golder Ass Possum Po Amanda Ro	oint PS	C.		<u>Certificate c</u>	of Analysis	Da	ate Issue	d:	9/16/20	19 9	9:02:18AM	I
Client Sample ID:	ABC-1602					Laborator	ry Sample ID:	19H1	182-01				
Parameter		Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	DL	LOQ	DF	Units	Analyst
Wet Chemistry Analys	is												
Chromium, Hexavalen	t	01	18540-29-9	SW7196A	08/30/2019 08:00	08/30/2019 11:00	BLOD		0.005	0.005	1	mg/L	MWL



Client Name:	Golder Associates	Inc.		<u>Ce</u>	ertificate o	of Analysis	<u> </u>	Date Issue	d:	9/16/2019	9:02:18AM
Client Site I.D.:	Possum Point PS	,									
	Amanda Reynolds										
Submitted To:	Amanua Reynolus)									
										Wet Chemistry	Analysis - Quality Control
										Air Wate	r & Soil Laboratories, Inc.
Analyte		Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
	Batch BCH09	37 - No Pre	p Wet Chem								
Blank (BCH0937-BLK1)					Prepared & Analy	zed: 08/29/2019					
Chromium, Hexavaler		BLOD	0.005	mg/L							
LCS (BCH0937-BS1)					Prepared & Analy	zed: 08/29/2019					
Chromium, Hexavaler	nt	0.102	0.005	mg/L	0.100		102	80-120			
Matrix Spike (BCH0937-	MS1)	Sourc	e: 19H1135-01		Prepared & Analy	zed: 08/29/2019					
Chromium, Hexavaler	nt	0.026	0.005	mg/L	0.100	BLOD	26.0	80-120			M1
Matrix Spike (BCH0937-	MS2)	Sourc	e: 19H1156-03	6	Prepared & Analy	zed: 08/29/2019					
Chromium, Hexavaler	nt	0.005	0.005	mg/L	0.100	0.006	-1.00	80-120			M1
Matrix Spike Dup (BCH0	0937-MSD1)	Sourc	e: 19H1135-01		Prepared & Analy	zed: 08/29/2019					
Chromium, Hexavaler	nt	0.026	0.005	mg/L	0.100	BLOD	26.0	80-120	0.00	20	M1
Matrix Spike Dup (BCH0			e: 19H1156-03		Prepared & Analy	zed: 08/29/2019					
Chromium, Hexavaler	nt	0.006	0.005	mg/L	0.100	0.006	0.00	80-120	18.2	20	M1
	Batch BCH10	06 - No Pre	p Wet Chem								
Blank (BCH1006-BLK1)					Prepared & Analy	zed: 08/30/2019					
Chromium, Hexavaler	nt	BLOD	0.005	mg/L							
LCS (BCH1006-BS1)					Prepared & Analy	zed: 08/30/2019					
Chromium, Hexavaler	nt	0.101	0.005	mg/L	0.100		101	80-120			
Matrix Spike (BCH1006-	MS1)	Sourc	e: 19H1182-01		Prepared & Analy	zed: 08/30/2019					
Chromium, Hexavaler	nt	0.083	0.005	mg/L	0.100	BLOD	83.0	80-120			



				Ce	rtificate o	of Analysi	is				
Client Name:	Golder Associa	ites, Inc.					-	Date Issue	ed:	9/16/2019	9:02:18AM
Client Site I.D	.: Possum Point I	PS									
Submitted To:		olds									
										Wet Chemistry	Analysis - Quality Contr
										Air Water	& Soil Laboratories, In
Analyte		Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
-	Batch BC	H1006 - No Pre	p Wet Chem								
Matrix Spike Dup	(BCH1006-MSD1)		e: 19H1182-01		Prepared & Ana	lyzed: 08/30/2019)				
Chromium, He>	kavalent	0.084	0.005	mg/L	0.100	BLOD	84.0	80-120	4.00		
							04.0	00-120	1.20	20	
	— Analytical Summ	ary —					04.0	00-120	1.20	20	
Sample ID	— Analytical Summ Preparation Factors Initial / Final	nary — Metho	d	Bato	h ID	Sequence ID		ation ID	1.20	20	
	Preparation Factors Initial / Final	-	d		ch ID Daration Method:		Calibr		1.20	20	
	Preparation Factors Initial / Final	-	-	Prep		Sequence ID	Calibr		1.20	20	
Wet Chemistry Ana	Preparation Factors Initial / Final	Metho	96A	Prep BCH	paration Method:	Sequence ID No Prep Wet	Calibr	ation ID	1.20	20	
Wet Chemistry Ana 19H1139-01	Preparation Factors Initial / Final alysis 100 mL / 100 mL	Metho SW71	96A 96A	Prep BCH BCH	paration Method:	Sequence ID No Prep Wet SCH0864	Calibr Chem AH9	ation ID 0142 0142	1.20	20	
Wet Chemistry Ana 19H1139-01 19H1139-02	Preparation Factors Initial / Final alysis 100 mL / 100 mL 100 mL / 100 mL	Metho SW719 SW719	96A 96A 96A	Prep BCH BCH BCH	Daration Method: 10937 10937	Sequence ID No Prep Wet SCH0864 SCH0864	Calibr Chem AH9 AH9 AH9	ation ID 0142 0142	1.20	20	



Certificate of Analysis Date Issued: Client Name: Golder Associates, Inc. 9/16/2019 9:02:18AM Client Site I.D.: Possum Point PS Submitted To: Amanda Reynolds **Certified Analyses included in this Report** Analyte Certifications SW7196A in Non-Potable Water VELAP Chromium, Hexavalent Description Cert Number Code Expires Maryland DE Drinking Water MdDOE 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



		Certificate	of Analysis			
Client Na	ime:	Golder Associates, Inc.		Date Issued:	9/16/2019	9:02:18AM
Client Sit	e I.D.:	Possum Point PS				
Submitte	d To:	Amanda Reynolds				
		Qualifiers and	I Definitions			
M1	Post digesti	on spike performed due to matrix interference.				
RPD	Relative Perc	ent Difference				
Qual	Qualifers					
-RE	Denotes sam	ple was re-analyzed				
LOD	Limit of Deteo	tion				
BLOD	Below Limit o	f Detection				
LOQ	Limit of Quan	titation				
DF	Dilution Facto	r				
TIC	library. A TIC	entified Compounds are compounds that are identified by comparing the analyte mass spe spectral match is reported when the pattern is at least 75% consistent with the published are calculated using an internal standard response factor of 1.	•			
PCBs, Tota	Total PCB	are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262	, and 1268.			

WATER S	D S	\mathcal{O}	II.											1941 R IOND, VI (804) 358 (804)	RGINI	A 2323 PHON	7 E		Chain e Effective: No	of Custody v 15, 2018	
LABORAT	ORIE	ES.I	NC.				СНА	IN OF	cus	то	DY								PAGE	OF	
COMPANY NAME: Too der	A	-		ates	IN	VOICE TO	: A	coul	1+5	Pa	tible	0	Р	ROJEC	T NAM	E/Quo	ote #:	A-Pe	and AB		
CONTACT: Amanda R		-	Ids		IN	VOICE CO				1	RAND	oids		TE NAM				that	~	Station -L	Inhi
ADDRESS: 2108 W. La	1	rou		Ave Richn	NIN	VOICE AD	DRES	S:			4			ROJEC				215			
PHONE #: 804 -358-740	0					VOICE PH						-	P	O. #:							
FAX #: 804-758-290	0		E	MAIL:	an	eynoks	a	aold	Ler.C	0	m		Р	retreatm	ent Pr	ogram	:				
Is sample for compliance reportin	ng?	YE	SNC		_	ory State:	and the local division in which the local division in which the local division is not the local division in th	1		_	a chlorir	nated s	upply	? YE	s (10	PWS	I.D. #:			
SAMPLER NAME (PRINT):	hai	niel	Ant	al	SA	MPLER S	IGNAT	URE:	north.	an	the	~	T	urn Aro	und T	ime:	Circle:	10	5 Days	or _ Day	(s)
Matrix Codes: WW=Waste Water/Storm Wa	ter G	W=G	round V	Water DW=D	rinking	Water S=Soil	/Solids (OR=Organ	nic A=Air	r WP	=Wipe O	T=Other_							CC	MMENTS	
		Π	ls)			· · · · · · · · · · · · · · · · · · ·						AN	ALYS	IS / (PR	ESER	VATIN	/E)		a second a second	e Codes: N=Nitric /	2004 000
			ed Metals)				site Stop				W								H=Sodium Acid Z=Z	Hydroxide A=Ascor nc Acetate T=Sodiu Ifate M=Methanol	rbic
CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Time	Time Preserved	Matrix (See Codes)	Number of Containers	Hexqualent Chamin								INTERFERE	TE PRESERVATIV NCE CHECKS or P RATE (L/min)	
1) ABC-1607	×					8/28/19	1157	1157	GW.	1	×								X A11:	samples	
2) ABC-1608	X					8/28/19	13/1	1311	GW	1	X								pres	eved on	
3) ABC - Duplicate	×					8/28/19	1217	1217	GW	1	X								ice		
4) ABC-160 1614	X	\square				8/28/19	1302	1302	GW	1	X					-					
5)					_	1000		-	-				0	-			-	-			
6)	-	\square					-	2						-		-	-	-			_
7)	-	\square			-				-			_		-	-		-	-			_
8)	-	\square							-				-			-	-				_
9)	-	\vdash	-											1							_
10) RELINQUISHED: RELINQUISHED: RELINQUISHED:	DAT	TE / T	00	RECEIVED	- 8	Factille	08	DATE /		Leve	el III	ackage	G	SE ONLY Seals use A Ssum				19H1	Receiv	2 °C ed on ice? (M) N)
RELINQUISHED:		TE / T		RECEIVED		CUX YUR Y	<u></u>	BATE /	TIME	Le	evelI	I		ecd: 08				9/12/2	010	age 14 of 1	7

WATER S	P S		I									F	RICHMO	0ND, VI 04) 358	EYMET RGINIA 3-8295 F 358-829	23237 PHONE	7		Chain Effective: No	of Custody vv 15, 2018	
LABORAT	ORIE	ES, I	NC.				CHA	IN OF	CUS	TO	DY								PAGE	OF /	-
COMPANY NAME: Golder	As	500	ia	105	IN	VOICE TO	AC	Cou	nts	Pe	t vu	ble					ote #: 🔥	- F	and A	BC	
	Re					VOICE CC				evi	fold	5	SIT	ENAN	NE: Pa	ssum	Paint			rtion Dom	inie
ADDRESS: 2/03 N. Laburn				ichmond,	VA IN	VOICE AD	DRES	S:		1							1662	150			
PHONE #: 804-358-7	900)	- 16	299		VOICE PH	ONE #	:					P.0). #:							
FAX #: 804 - 258-29	100		E	EMAIL:	arev	noids	nord	Ider.	com	1			Pre	treatm	ent Pro	ogram	:				
Is sample for compliance reportin		-				ry State:	121	1		-	chlorin	nated su	upply?	YE	S (N	0	PWS I.	D. #:			
	1	4	-	101	n sa	MPLER S	IGNAT	URE:	Nathan	mil.	9/h	ic ~	Tu	n Aro	und Ti	me:	Circle:	10	5 Days	or _ Day	(s)
Matrix Codes: WW=Waste Water/Storm Wa	ter G	W=Gr	round	Water DW=	Drinking	Water S=Soi	/Solids (DR=Organ	nic A=Ai	r WP=	Wipe O	T=Other_							CC	MMENTS	
			s)	-		19						AN	ALYSI	S/(PR	ESER	VATIV	/Ε)			ve Codes: N=Nitric A pric Acid S=Sulfuric A	1.00
CLIENT SAMPLE I.D. 1) ABC- / 602 2)	× Grab	Composite	Z 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 	Y Hexevelent Chromium								Acid Z=Z Thiose PLEASE NO INTERFERE	Pydroxide A=Ascort nc Acetate T=Sodiu lifate M=Methanol DTE PRESERVATIVE INCE CHECKS or PL RATE (L/min) Samp/P Enved on	m E(S),
3)								3											10	-6	
4)									1.1)		1							
5)									1			1									
6)	1				-				N							-	-				_
7)	-						-		-	$\left \right $				_	-						_
8)	-								-		-	-	-					_	-		-
9)	-				1							-	-								-
10) RELINQUISHED: 8)2 RELINQUISHED: RELINQUISHED:	9//9 DAT	E / T	TIME	S RECEIV		1 26 AUG :	2019	DATE / /3.3 DATE / DATE /	35 TIME	Leve		ackage	G Po	A ossum	Point	PS-	Bill to (Due: 0	19H Gold	1182 er /2019	2 age 15 of 17	



	Certificate of A	nalysis	
Client Name:	Golder Associates, Inc.	Date Issued:	9/16/2019 9:02:18AM
Client Site I.D.	: Possum Point PS		
Submitted To:	Amanda Reynolds		
	Sample Conditions Checklist		
Samp	ples Received at:	2.60°C	
How	were samples received?	Courier	
Were	Custody Seals used? If so, were they received intact?	Yes	
Are th	he custody papers filled out completely and correctly?	Yes	
Do al	I bottle labels agree with custody papers?	Yes	
Is the	e temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes	
Are a	Il samples within holding time for requested laboratory tests?	Yes	
ls a s	sufficient amount of sample provided to perform the tests included?	Yes	
Are a	Ill samples in appropriate containers for the analyses requested?	Yes	
Were	volatile organic containers received?	No	
Are a	Il volatile organic and TOX containers free of headspace?	NA	
	rip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, 8015 GRO, EPA8021, EPA524, and RSK-175.	NA	
	Ill samples received appropriately preserved? Note that metals containers do not require field preservation but lab ervation may delay analysis.	Yes	
	Work Order Comments		

Work Order Comments



		Certificate of Analysis				
Client Nam	e:	Golder Associates, Inc.		Date Issued:	9/16/2019	9:02:18AM
Client Site	I.D.:	Possum Point PS				
Submitted ⁻	To:	Amanda Reynolds				
		Sample Conditions Checklist				
	Samples Rec	eived at:	4.40°C			
	How were sar	nples received?	Walk In			
	Were Custody	/ Seals used? If so, were they received intact?	Yes			
	Are the custo	dy papers filled out completely and correctly?	Yes			
	Do all bottle la	abels agree with custody papers?	Yes			
	Is the tempera	ature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes			
	Are all sample	es within holding time for requested laboratory tests?	Yes			
	Is a sufficient	amount of sample provided to perform the tests included?	Yes			
	Are all sample	es 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			
		provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, O, EPA8021, EPA524, and RSK-175.	NA			
		es received appropriately preserved? Note that metals containers do not require field preservation but lab nay 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,

Micolo Jasicrowske

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 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

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 Marvland Certification #: 308 Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991

North Carolina Certification #: 381 South Carolina Certification #: 98011001 Virginia Certification #: 460204

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

Eden Certification IDs

205 East Meadow Road Suite A, Eden, NC 27288 North Carolina Drinking Water Certification #: 37738 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222

North Carolina Wastewater Certification #: 40

North Carolina Wastewater Certification #: 633 Virginia/VELAP Certification #: 460025



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



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



SUMMARY OF DETECTION

Project: PP Field Blank (F)

Pace Project No.: 92443179

Lab Sample ID	Client Sample ID	Decell		Demonst L'estit		Qualifiant
Method	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	В
EPA 6010D	Zinc	7.4J	ug/L	10.0	09/08/19 18:38	BC
EPA 9315	Radium-226	0.371 ± 0.268	pCi/L		09/20/19 07:11	
		(0.451) C:96% T:NA				
EPA 9320	Radium-228	0.957 ± 0.462	pCi/L		09/20/19 14:59	
		(0.802) C:74%				
		T:87%				
Total Radium Calculation	Total Radium	1.33 ± 0.730 (1.25)	pCi/L		09/23/19 11:58	



ANALYTICAL RESULTS

Project: PP Field Blank (F)

Pace Project No.: 92443179

Sample: FIELD BLANK	Lab ID:	92443179001	Collected	08/27/1	9 10:30	Received: 08/	/27/19 14:24 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C-2011						
Total Dissolved Solids	45.0	mg/L	25.0	25.0	1		08/29/19 10:59		
6010 MET ICP	Analytical	Method: EPA 6	010D Prepa	ration Me	thod: EF	PA 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	В
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 6	020B Prepa	ration Me	thod: EF	PA 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 7	'470A Prepa	ration Me	thod: EF	PA 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 9	065 Prepara	ation Meth	od: 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 9	056A						
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		
Sulfate	ND	mg/L	1.0	0.50	1		08/30/19 22:25		
Total Organic Carbon, Asheville	Analytical	Method: EPA 9	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		
		iiig/ L	1.0	0.00			00/00/10 01.04	144-0	

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	d: 08/27/19	10:30	Received: 08	/27/19 14:24 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Carbon, Asheville	Analytical	Method: EPA 9	060A						
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	



Project: PP Field Blank (F))					
Pace Project No.: 92443179						
QC Batch: 495138		Analysis N	lethod:	SM 2540C-20)11	
QC Batch Method: SM 2540C-2011		Analysis D	escription:	2540C Total E	Dissolved Solids	
Associated Lab Samples: 92443179	9001					
METHOD BLANK: 2667835		Matri	ix: Water			
Associated Lab Samples: 92443179	9001					
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyz	zed Qualifiers
Total Dissolved Solids	mg/L	NI	D 25	5.0	25.0 08/29/19	10:54
LABORATORY CONTROL SAMPLE:	2667836					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Total Dissolved Solids	mg/L	250	236	94	90-110	
SAMPLE DUPLICATE: 2667837						
		92443178001	- 1		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solids	mg/L	13	6 1	18	14	5 D6
SAMPLE DUPLICATE: 2667838		00440400004	Dur		NA	
Parameter	Units	92443193001 Result	l Dup Result	RPD	Max RPD	Qualifiers

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.



Project:	PP Field Blank (F))										
Pace Project No.:	92443179											
QC Batch:	495629		Analy	sis Metho	d: E	PA 7470A						
QC Batch Method:	EPA 7470A		Analy	Analysis Description:		470 Mercu	ry					
Associated Lab Sar	mples: 92443179	0001										
METHOD BLANK:	2670079			Matrix: W	ater							
Associated Lab Sa	mples: 92443179	0001										
			Blan		Reporting							
Para	meter	Units	Resu	ult	Limit	MDL		Analyze	d Q	ualifiers		
Mercury		ug/L		ND	0.20)	0.10	09/04/19 16	6:27			
LABORATORY CO	NTROL SAMPLE:	2670080										
LABORATORY CO	NTROL SAMPLE:	2670080	Spike	LC	S	LCS	%	Rec				
	NTROL SAMPLE:	2670080 Units	Spike Conc.	LC Res	-	LCS % Rec		Rec imits	Qualifiers			
				Res	-		Li		Qualifiers			
Para	meter	Units ug/L	Conc. 2.	Res	sult	% Rec	Li	imits	Qualifiers			
Para	meter	Units ug/L	Conc. 2.	Res	2.6	% Rec 102		imits				
Para Mercury MATRIX SPIKE & N	MATRIX SPIKE DUF	Units ug/L PLICATE: 2670 92443193001	Conc. 2.3 081 MS Spike	MSD Spike	2.6 2670082 MS	% Rec 102 MSD	Li	imits 80-120 MSD	% Rec	_	Max	
Para	MATRIX SPIKE DUF	Units ug/L PLICATE: 2670 92443193001	Conc. 2.1 081 MS	5 Res	2.6 2670082	% Rec 102		imits 80-120 MSD		RPD	Max RPD	Qual

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.



PP Field Blank (F) Project:

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 Blank Reporting Limit MDL Parameter Units Result Qualifiers Analyzed Antimony ND 5.0 3.0 09/08/19 18:01 ug/L Arsenic ug/L ND 10.0 4.7 09/08/19 18:01 Barium ND ug/L 5.0 1.0 09/08/19 18:01 Beryllium ug/L ND 0.20 09/08/19 18:01 1.0 0.050 Boron mg/L 0.012J 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) ND 662 ug/L 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 ND 10.0 ug/L 4.7 09/08/19 18:01

ND

ND

5.0J

5.0

5.0

10.0

09/08/19 18:01

09/08/19 18:01

09/08/19 18:01

BC

2.5

1.3

3.9

LABORATORY CONTROL SAMPLE: 2672612

ug/L

ug/L

ug/L

Silver

Zinc

Vanadium

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 E	BC

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REPORT OF LABORATORY ANALYSIS

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2672613 2672614 MS MSD 92443193001 Spike Spike MS MSD MS MSD % Rec Max RPD RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits Qual Antimony ug/L ND 500 500 483 484 97 97 75-125 0 20 Arsenic ND 500 500 479 478 96 95 75-125 0 20 ug/L 30.7 500 500 548 548 103 103 75-125 0 20 Barium ug/L 0.25J 500 500 499 500 100 20 Beryllium ug/L 100 75-125 0 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 5 14.3 93 75-125 20 Calcium mg/L 9.8 5 14.4 91 1 ND 500 500 520 518 104 103 75-125 0 20 Chromium ug/L 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 ND 500 500 505 502 101 100 75-125 0 20 ug/L Silver ND 250 250 249 246 100 99 75-125 20 ug/L 1 Vanadium ND 500 500 479 482 96 20 ug/L 96 75-125 1 Zinc 5.6J 500 500 481 480 95 95 75-125 0 20 ug/L

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REPORT OF LABORATORY ANALYSIS

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Project: PP Field Blank (F)

Pace Project No.: 92443179

QC Batch: 496148		Analysis Meth	nod: EPA	6020B		
QC Batch Method: EPA 3010A		Analysis Description:		MET		
Associated Lab Samples: 924431	79001					
METHOD BLANK: 2672412		Matrix:	Water			
Associated Lab Samples: 924431	79001					
		Blank	Reporting			
Parameter	Units	Result	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

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Cobalt	ug/L		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 S		CATE: 2672	414		2672415							
Parameter	g 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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Project:	PP Field Blank (F)										
Pace Project No.:	92443179											
QC Batch:	34869		Analy	sis Metho	od:	EPA 9065						
QC Batch Method:	EPA 9065		Analy	/sis Descr	iption:	9065 Pheno	olics					
Associated Lab Sar	nples: 9244317	9001										
METHOD BLANK:	156873			Matrix: W	Vater							
Associated Lab Sar	nples: 9244317	9001										
_			Blar		Reporting							
Parar	neter	Units	Res	ult	Limit	MD	L	Analyzeo	d C	ualifiers		
Phenolics, Total Re	coverable	mg/L		ND	0.05	0	0.050	09/06/19 19):49			
LABORATORY CO	NTROL SAMPLE:	156874										
			Spike	LC	CS	LCS	%	Rec				
Parar	neter	Units	Conc.	Re	sult	% Rec	Li	imits	Qualifiers			
Phenolics, Total Re	coverable	mg/L	0.	5	0.42	8	4	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DU	PLICATE: 1568	75		156876							
			MS	MSD								
		92443178001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Unit	s Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Phenolics, Total Recoverable	mg/	L ND	0.5	0.5	0.39	0.36	7	74 69	9 80-120) 6	20	M1

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Qualifiers

Qualifiers

% Rec

Limits

90-110

90-110

90-110

Max RPD

10 M1

10 M1

10 1

Qual

RPD

1

4

QUALITY CONTROL DATA

Project: PP Field Pace Project No.: 9244317	()								
QC Batch: 495319			Analy	sis Metho	d: E	EPA 9056A			
QC Batch Method: EPA 90	56A			sis Descri		056 IC anic	ons 28 Da	vs	
	2443179001) -	
METHOD BLANK: 2668844				Matrix: W	ater				
Associated Lab Samples: g	2443179001								
			Blar	ık	Reporting				
Parameter		Units	Res	ult	Limit	MDL	-	Analyze	d
Chloride		mg/L		ND	1.()	0.60 0	8/30/19 2	0:14
Fluoride		mg/L		ND	0.10)	0.050 0	8/30/19 2	0:14
Sulfate		mg/L		ND	1.()	0.50 0	8/30/19 2	0:14
LABORATORY CONTROL SA	MPLE: 26	68845	Spike	LC	s	LCS	% R	ec	
Parameter		Units	Conc.	Res	sult	% Rec	Lim	its	Qua
Chloride		mg/L	5	0	52.1	104		90-110	
Fluoride		mg/L	2.	5	2.6	105	5	90-110	
Sulfate		mg/L	5	0	52.2	104	Ļ	90-110	
MATRIX SPIKE & MATRIX SF		CATE: 2668	846		2668847				
			MS	MSD	20000				
	9	2443178001	Spike	Spike	MS	MSD	MS	MSD	%
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	L
Chloride	mg/L	37.7	50	50	93.0	94.3	111	11	3 9
Fluoride	mg/L	ND	2.5	2.5	3.1	3.0	123	11	
Sulfate	mg/L	62.2	50	50	108	110	92	ę	95 9
MATRIX SPIKE & MATRIX SF		CATE: 2668			2668849				
	٥	2443193001	MS Spike	MSD Spike	MS	MSD	MS	MSD	%
		2440100001	opine	opine					

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

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PP Field Blank (F)

Pace Project No 92443179

е	Project	No.:	92443179

QC Batch: 496159			Analy	sis Metho	od:	EPA	9060A							
QC Batch Method: EPA 9060)A		Analy	sis Desc	ription:	9060	TOC,	AVL						
Associated Lab Samples: 924	44317900)1												
METHOD BLANK: 2672474				Matrix: V	Vater									
Associated Lab Samples: 924	44317900)1												
			Blar	nk	Reporting									
Parameter		Units	Res	ult	Limit		MDI	-	Analyze	ed	Qualifi	ers		
Mean Total Organic Carbon		mg/L		ND		1.0		0.50	09/05/19 2	0:48				
Total Organic Carbon		mg/L		ND	1	1.0		0.50	09/05/19 2	0:48				
Total Organic Carbon		mg/L		ND	1	1.0		0.50	09/05/19 2	0:48				
Total Organic Carbon		mg/L		ND	1	1.0		0.50	09/05/19 2	0:48				
Total Organic Carbon		mg/L		ND	1	1.0		0.50	09/05/19 2	0:48				
LABORATORY CONTROL SAM	IPLE: 2	2672475												
			Spike	L	CS	L	CS	%	Rec					
Parameter		Units	Conc.	Re	esult	%	Rec	Li	mits	Qualifie	S			
Mean Total Organic Carbon		mg/L	2	:5	24.4		97	7	75-125					
Total Organic Carbon		mg/L	2	5	24.2		97	7	75-125					
Total Organic Carbon		mg/L	2	5	24.4		97	7	75-125					
Total Organic Carbon		mg/L	2	:5	24.4		97	7	75-125					
Total Organic Carbon		mg/L	2	5	24.5		98	3	75-125					
MATRIX SPIKE & MATRIX SPI	KE DUPL	ICATE: 2672	476		267247	77								
			MS	MSD										
		92443193001	Spike	Spike	MS	N	ISD	MS	MSD	% Re	С		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Re	esult	% Rec	% Rec	Limit	s RF	D	RPD	Qua
Mean Total Organic Carbon	mg/L	 0.57J	25	25	5 43.1	1	43.7	17	70 17	72 75-1	25	1	25	M1
Total Organic Carbon	mg/L	0.57J	25	25		C	43.2	17			25	1	25	M1
Total Organic Carbon	mg/L	0.55J	25	25	5 43.0	C	44.1	17	70 17	74 75-1	25	3	25	M1
Total Organic Carbon	mg/L	0.58J	25	25	5 43.8	3	43.9	17	73 17	73 75-1	25	0	25	M1
Total Organic Carbon	mg/L	0.56J	25	25	6 42.7	7	43.4	16	58 17	71 75-1	25	2	25	M1
MATRIX SPIKE & MATRIX SPI		ICATE: 2672	478		267247	79								
		2012			201241	5								
			MS	MSD										

		92443188005	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PP Field Blank (F)

Pace Project No.: 92443179

Sample: FIELD BLANK PWS:	Lab ID: 92443 Site ID:	179001 Collected: 08/27/19 10:30 Sample Type:	Received:	08/27/19 14:24	Matrix: Water	
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	9 15262-20-1	
Total Radium	Total Radium Calculation	1.33 ± 0.730 (1.25)	pCi/L	09/23/19 11:58	3 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

PP Field Blank (F)				
92443179				
360247	Analysis Method:	EPA 9315		
EPA 9315	Analysis Description:	9315 Total Radi	um	
mples: 92443179	9001			
1748643	Matrix: Water			
mples: 92443179	0001			
neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
	0.372 ± 0.173 (0.236) C:90% T:NA	pCi/L	09/20/19 15:10	
1	92443179 360247 EPA 9315 nples: 92443179 1748643 nples: 92443179	360247Analysis Method:EPA 9315Analysis Description:nples:924431790011748643Matrix: Waternples:92443179001neterAct ± Unc (MDC) Carr Trac	92443179 360247 Analysis Method: EPA 9315 BPA 9315 Analysis Description: 9315 Total Radii nples: 92443179001 9315 Total Radii 1748643 Matrix: Water nples: 92443179001 meter Act ± Unc (MDC) Carr Trac Units	92443179 360247 Analysis Method: EPA 9315 EPA 9315 Analysis Description: 9315 Total Radium nples: 92443179001 1748643 Matrix: Water nples: 92443179001 neter Act ± Unc (MDC) Carr Trac Units Analyzed

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.



QUALITY CONTROL - RADIOCHEMISTRY

Project:	PP Field Blank (F)					
Pace Project No.:	92443179					
QC Batch:	360248	An	alysis Method:	EPA 9320		
QC Batch Method:	EPA 9320	An	alysis Description:	9320 Radium 228		
Associated Lab Sar	mples: 92443179	001				
METHOD BLANK:	1748645		Matrix: Water			
Associated Lab Sar	mples: 92443179	001				
Parar	meter	Act ± Unc (MDC	C) 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 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.



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		

52	Docum Sample Condition	ient Name: Upon Recei	int(SCUR)	Docu	ment Revised: Febru Page 1 of 2	ary 7, 2018
Pace Analytical*	Docu	ment No.: 5-033-Rev.06		P	Issuing Authority ace Carolinas Quality	
Laboratory receiving samples:						Л
Asheville Eden	Greenwood] F	luntersvill	e 🗌	Raleigh	Mechanicsville
Sample Condition Upon Receipt			Project #:		#:9244	
Courier: Commercial Fed Ex Pace	UPS USPS	_	Client	92443		
Custody Seal Present? Yes No	Seals Intact?	es 🗍 N	lo	L Date/Init	ials Person Examining	Contents: 8-27-19
Packing Material: Bubble Wrap	Bubble Bags	one 🗌	Other		Biological Tissu	EFROZENZ RSB
hermometer:	Type of Ice:			None	Yes No [
Cooler Temp (°C): 3.8 Correction F	actor: Add Subtract)(°C	Del		4.44		
cooler Temp Corrected (°C):	\bigcirc				e above freezing to f out of temp criteria. Sa	5°C nples on ice, cooling process
ISDA Regulated Soil (N/A, water sample) No samples originate in a quarantine zone within the Yes No	e United States: CA, NY, o	r SC (check m	taps)? Did	nas begun samples orig	inate from a foreign sc and Puerto Rico)? []]	urce (internationally,
	1				Comments/Discrepa	ancy:
Chain of Custody Present?	Yes N		1.		(c)	
Samples Arrived within Hold Time?			2.			
Short Hold Time Analysis (<72 hr.)?			3.			
Rush Turn Around Time Requested?			4.			
Sufficient Volume?		-	5.			
Correct Containers Used?	Vyes No		6.			
-Pace Containers Used?			0.			
Containers Intact?			7.			
Dissolved analysis: Samples Field Filtered?			8.			
Sample Labels Match COC?	Yes No		9.			
-Includes Date/Time/ID/Analysis Matrix:	WT					
Headspace in VOA Vials (>5-6mm)?			10.			
Trip Blank Present?			10.			
Trip Blank Custody Seals Present?	Yes No	1				
COMMENTS/SAMPLE DISCREPANCY					Field Data F	lequired? Yes No
			Lot ID of	f split conta	iners:	
CLIENT NOTIFICATION/RESOLUTION						
Person contacted:		Date/Ti	ime:			
Project Manager SCURF Review:	NMG			Date: _	9/10/1	9
Project Manager SRF Review: 1464			_	Date:	91019	Page 21 of

Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
Document No.:	Issuing Authority: Pace Carolinas Quality Office
	Sample Condition Upon Receipt(SCUR)

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

Project # WO#: 92443179

CLIENT: 92-Golder

PM: NMG

Due Date: 09/11/19

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg **Bottorn half of box is to list number of bottle

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (CI-)	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) (CI-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (CI-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (CI-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4CI (N/A)(CI-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na252O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N, A)	VOAK (6 vials per kit)-5035 tit (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)	NIAG	BP3A-250 mL Plastic (NH2)2904 (9.3-9.7)	AGOU-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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2					\backslash		\backslash	1			/													K				
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5	\backslash				/	1							1	\langle	\Box									1		-		
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7	\backslash					1																		1				-
8																								1				
9																			=					1				-
10																								7				-
11							1																	$\overline{\ }$				-
12	V				V																			7				-

		pH Ac	ljustment Log for Pres	erved Samples		
Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #
		1				

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.

						12	11	10	9	8	7	σ	ch	4	ω	N	-	ITEM #			Request	Email:	Suite 20	Compan	Section A Required	
					ADDITIONAL COMMENTS											FIELD BLANK		SAMPLE ID One Character per box. (A-Z, 0-91, -) Sample Ids must be unique	σs		ed Due Date Shanda Far Twind Sund	Email: Areynelds & Joe Defico M	0, Richmond, VA 23227	V: Golder Associates	Section A Required Client Information:	
			0	- all	RELING											WT	WT	Tissue To To The Sector To The Sector To	CODE		Project #: 1 9 11		Loby IO: Amound o		Section B Required Project Information:	
			M	6	UISHEE	1	-									8		SAMPLETYPE (G=GRAB	C=COMP)		Possu		ANDE	e Willia	Inform	
(0 7	SAMP		0	older	RELINQUISHED BY / AFFILIATION											DEDI NIC		START	0		n Point - Fie		_	13.	ation:	
PRINT Name of SAMPLER: SIGNATURE of SAMPLER:	SAMPLER NAME AND SIGNATURE			No	ATION											- 06		DATE	COLLECTED	1012	n Point - Field Blank (F)		Reyno 12.2			
of SAMPL	AND SIGN		2/27	61/2/18	DATE											1		TIME			3					
	ATUR	-	-	191					-		14.		15			Xio		SAMPLE TEMP AT COLLECT # OF CONTAINERS	ION		0 0		ÞO	Þ	= 0	usio
MAnita	m	-	755	NOVI	TIME											140		Unpreserved H2SO4	1		Pace Project Manager:	Pace Quote:	Company Name: Address:	Attention:	Section C Invoice Information:	dy is a Lo
tal			Kac	2												5		HNO3 HCI	Preservatives	C671	t Manager:		ame:		rmation:	The Chalin-di-Custody is a LEGAL DUCUMENT. All relevant fields must be completed accurately.
Ŷ			hel	ACA.	ACCEPTED BY / AFFILIATION				-									NaOH Na2S2O3 Methanol	atives		nico					CUMENT
4			20		D BY /											- 1		Other	-	Ц	le.gasiorowski@pacelabs.com					. All F
			W		AFFILL			1	-					1		×	×	Analyses Test 6010/6020 metals	Y/N		vski@p					eleva
DATE Signed:			IUI		TION								11		-	-	×	7470 Mercury	N	7	acela					nt fie
Signe	1		A			-	-	_		-	_	-	-		-	-	××	9056 Anions (CI, F, SO4)	N	eques	os.con					ds m
<u>я</u> А			4					-		-	-		-		-	-	-	TDS 9060 TOC	NN	ted A	ŋ,					lust
7	F		2	\propto											:	× >	×	9065 Phenolics	Viv	nalys						be co
な			27-19	27	DATE											× >	×	Radium 226/228	N	Requested Analysis Filtered (Y/N)			μ			omplete
			155	224	TIME		-			-	-				-					d (Y/N)		10				d accu
	-	-	-1->	+																1				F		rately.
TEMP in C	1		2.7							_		_	_		1			Residual Chlorine (Y/N)	1		State	Regula		· age ·		ľ
Received or ce Y/N)	1		4		SAMPLE								T		10	200	XA A	92	1	VA	State / Location	Regulatory Agency		-		
Custody ealed			4	-	E CONDITIONS									-W	E.	Ser	2	44	1	3	ion	ency				
Cooler (Y/N) Samples	-	-		-	NONS										0 61 -	selling 10-	Sundes	Ptic MSD	×					9	*	
ntact Y/N)		1			1										1		n	2	-	1				-		



		Analysis Detec	ts Report					
Client Name:				Date Issued	:			
Client Site ID:								
Submitted To:								
Laboratory Sample ID:	Client Sa	mple 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".



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 19H1087 Receive Date 8/27/2019 3:55:00PM Project Number 1662150

TEOSOJAS

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.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Air Water & Soil Laboratories, Inc.







Submitted To:

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

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



Client Name: Client Site I.D.: Submitted To:	Golder Asso Possum Po Amanda Re	int PS	C.		<u>Certificate c</u>	of Analysis	Da	ite Issue	d:	9/16/20	19	9:09:37AM	
Client Sample ID:	Field Blank					Laborator	ry Sample ID:	19H1	087-06				
Parameter		Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	DL	LOQ	DF	Units	Analyst
Wet Chemistry Analys	sis												
Chromium, Hexavalen	t	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

Client Name:	Golder Associa	tes Inc		<u>C</u>	ertificate	of Analysis	<u>5</u>	Date Issue	ed:	9/16/2019	9:09:37AM
Client Site I.D.:	Possum Point I										
Submitted To:	Amanda Reyno	-									
oublinited to.											
										Wet Chemistry	Analysis - Quality Control
										Air Wate	r & Soil Laboratories, Inc.
Analyte		Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
	Batch BC	H0936 - No Pre	ep Wet Chem								
Blank (BCH0936-BL	K1)		-		Prepared & Ana	lyzed: 08/28/2019					
Chromium, Hexav	alent	BLOD	0.005	mg/L		-					
LCS (BCH0936-BS1))				Prepared & Ana	lyzed: 08/28/2019					
Chromium, Hexav	alent	0.102	0.005	mg/L	0.100		102	80-120			
Matrix Spike (BCH0	936-MS1)	Sourc	ce: 19H1087-01	1	Prepared & Ana	lyzed: 08/28/2019					
Chromium, Hexav	alent	BLOD	0.005	mg/L	0.100	BLOD		80-120			М
Matrix Spike (BCH0	936-MS2)	Sourc	ce: 19H1088-04	1	Prepared & Ana	lyzed: 08/28/2019					
Chromium, Hexav	alent	0.005	0.005	mg/L	0.100	BLOD	5.00	80-120			М
Matrix Spike Dup (B	CH0936-MSD1)	Sourc	ce: 19H1087-01	1	Prepared & Ana	lyzed: 08/28/2019					
Chromium, Hexav	alent	BLOD	0.005	mg/L	0.100	BLOD		80-120		20	М
Matrix Spike Dup (B		Sourc	ce: 19H1088-04	4	Prepared & Ana	lyzed: 08/28/2019					
Chromium, Hexav	alent	0.005	0.005	mg/L	0.100	BLOD	5.00	80-120	0.00	20	М
	Analytical Summ	ary —									
Sample ID	Preparation Factors Initial / Final	Metho	od	Ва	itch ID	Sequence ID	Calibr	ration ID	_		
Wet Chemistry Analys	sis			Pr	eparation Method:	No Prep Wet Ch	iem				
19H1087-06	100 mL / 100 mL	SW71	96A	BC	CH0936	SCH0861	AHS	00141			



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

		Certificate of Ana	alvsis			
Client Name:	Golder Associates, Inc.			Date Issued:	9/16/2019	9:09:37AM
Client Site I.D.:	Possum Point PS					
Submitted To:	Amanda Reynolds					
Certified Analyse	s included in this Report					
Analyte		Certifications				
SW7196A in Non-Pot	able Water					
Chromium, Hexavaler	ht	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 #4	337 NELAC-Virginia Certificate #1050	3 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

		Certi	ficate of Analysis			
Client Na	ame:	Golder Associates, Inc.		Date Issued:	9/16/2019	9:09:37AM
Client Sit	e I.D.:	Possum Point PS				
Submitte	d To:	Amanda Reynolds				
		Qua	lifiers and Definitions			
Μ	Matrix spike	recovery is outside established acceptance limits				
RPD	Relative Perc	ent Difference				
Qual	Qualifers					
-RE	Denotes sam	ple was re-analyzed				
LOD	Limit of Dete	tion				
BLOD	Below Limit c	f Detection				
LOQ	Limit of Quan	titation				
DF	Dilution Factor	r				
TIC	library. A TIC	entified Compounds are compounds that are identified by comparing the ana spectral match is reported when the pattern is at least 75% consistent with t I are calculated using an internal standard response factor of 1.				
PCBs, Tota	I Total PCB	s are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 125	4, 1260, 1262, and 1268.			

WATER S	e S	\mathcal{C}	Π											OND, V 304) 35	EYMET IRGINIA 8-8295 P)358-829	2323 HON	7 E		Chain Effective: N	of Custody ov 15, 2018	5
LABORAT	ORIE	ES,I	NC.				CHA	IN OF	CUS	то	DY						46		PAGE	OF	
COMPANY NAME: Golder	AS	50	Cit	ates	IN	VOICE TO	Acc	unt	5 Pa	v	a 670	0			T NAME			B-	Pond	0	
CONTACT: Amanda Re	VAC	010	15		_	VOICE CO					Ids		SI	TE NAI	ME: Po	Su	mB		Paver S	tetion	Domi
ADDRESS: 2108 W. Laburow	-		mite	o. Richmond.		VOICE AD			1.1						T NUME						
PHONE #: 804-368-790	0	9		VA 232	¥ IN	VOICE PH	ONE #	:			1		Ρ.	D. #:		1.3					
FAX #: 804-268 -290	0	-				da-Revi			add	er.	com		Pr	etreatm	nent Pro	gram	1:				
Is sample for compliance reporti	ng?	YE				ory State:	A		ple from			nated s	upply?	YE	ES NO	2	PWS	5 I.D. #:			
SAMPLER NAME (PRINT): No	th.	ani	iel	Chien	SA	AMPLER S	IGNAT	URE:	Adam	M.	9lh	-	Tu	rn Aro	und Tir	ne:	Circle	10	5 Days	or	Day(s)
Matrix Codes: WW=Waste Water/Storm Wa	ter G	W=G	round	Water DW=D	rinking	Water S=Soil	Solids C	OR=Organ	nic A=Air	WP	=Wipe O	T=Other_							CC	MMENT	S
			Is)									AN	ALYS	S/(PF	RESERN		/E)			ve Codes: N=N pric Acid S=Sul	
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	HE Xa VEIRAH Chromium (by 7196	N.							Acid Z=2 Thios	Hydroxide A=, inc Acetate T=; ilfate M=Metha DTE PRESERV, ENCE CHECKS RATE (L/min)	Sodium nol
1) <u>5D-1603</u>	X					8/27/19	0913	(8)3	OW	1	X	-					-	_		ample	
2) 5 D-1604	X					8127119	0945	0445	OW	1	X						-		PLAT	vado	n
3) ED-160'5	X		\vdash			01710	1113	1119	Chi	1	X			-			-	-	104	0	
4) Duplicate	X	-				81 7/10	1122	122	AN	1	X						-	-	1		
6) Field Blank	X					8/27/19	1030	1030	GW	1	X						-	-			
7) EP24R	X					8/27/19	0948	0748	GW	1	X					-					
8)						al-one	- uru	0.0			~										
9)						The second				51	-	1				1			1		
10)																					
RELINQUISHED: RELINQUISHED: RELINQUISHED:	DAT	E / .		RECEIVED	X	RT AUG 20		DATE /	TIME	Leve			Custody GA Pos	Seals use	r Ther ed and intac Point P /27/201	S- B	ill to (19H1 Golder 99/11/2	r	Page 8 o	



	Certificate of Analys	sis	
Client Name:	Golder Associates, Inc.	Date Issued:	9/16/2019 9:09:37AM
Client Site I.D.	Possum Point PS		
Submitted To:	Amanda Reynolds		
	Sample Conditions Checklist		
Samp	les Received at:	16.90°C	
How	vere samples received?	Courier	
Were	Custody Seals used? If so, were they received intact?	Yes	
Are th	e 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 al	I samples within holding time for requested laboratory tests?	Yes	
ls a si	ufficient amount of sample provided to perform the tests included?	Yes	
Are al	I samples in appropriate containers for the analyses requested?	Yes	
Were	volatile organic containers received?	No	
Are al	I volatile organic and TOX containers free of headspace?	NA	
	ip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, 015 GRO, EPA8021, EPA524, and RSK-175.	ΝΑ	
	I samples received appropriately preserved? Note that metals containers do not require field preservation but lab rvation may delay analysis.	Yes	
	Work Order Comments		

APPENDIX F HISTORICAL LABORATORY DETECTIONS

		Location	ABC-1602	ABC-1607	ABC-1608	ABC-1614	Field Blank
Sample Date	Method	Unit	ABO 1002	AB0 1007	AB0 1000	AB0 1014	
Antimony	moulou	0					
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						n	
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	014/60000		04.0.1	200	004	010	~ 5 7
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
							40 1
12/12-13/2018	SW6010D	µg/L	< 25	250	210	240	48 J
	SW6010D SW6010D SW6010D	μg/L μg/L μg/L	< 25 < 25 8.8 J	250 190 190	210 150 220	240 180 240	48 J < 25 7.4 J

		Location	ABC-1602	ABC-1607	ABC-1608	ABC-1614	Field Blank
Sample Date	Method	Unit	7.20 1002	7.20 1001	7.20 1000	7120 1014	Tiola Blaint
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	014/00005		1700	00/00	10100		(000
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 08/21-23/2017	SW6020B	µg/L	5800 6380	15000 13900	21900 23600	63100 60500	< 103 < 1030
	SW6020B	µg/L					
06/27/2018 09/19/2018	SW6010D SW6010D	µg/L	6300 5400	13100 11100	16300 19000	50300 49900	< 50 < 50
		µg/L					
12/12-13/2018	SW6010D	μg/L	5600	7400	17900	34900	< 50
03/11-15/2019 08/26-29/2019	SW6010D SW6010D	µg/L	5900 5900	6200 6600	12600 19600	22300 35000	< 50 < 24
	SW6010D	µg/L	5900	0000	19600	35000	< <u>24</u>
Chloride 11/02-04/2016	SW9056A	mg/L	5.0	17.4	59.5	19.1	< 0.10
12/12-13/2016	SW9056A SW9056	mg/L	5.0	17.4	47.0	15.0	< 2.5
01/25-26/2017	SW9056A	mg/L	3.1	14.4	53.1	16.0	< 0.10
03/06-07/2017	SW9056A SW9056A	mg/L	3.6	15.9	53.1	14.6	< 0.10
04/19-21/2017	SW9056A SW9056A	mg/L	2.6	16.8	56.9	14.0	< 0.10
05/30-06/01/2017	SW9056A 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	0110000,1	<u>g</u> / _	2.0		02.0		0.00
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

		Location	ABC-1602	ABC-1607	ABC-1608	ABC-1614	Field Blank
Sample Date	Method	Unit	//201002				
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	CW/CO20D		4.2.1	< 1.0	101	< 1.0	- 10
11/02-04/2016 12/12-13/2016	SW6020B SW6020B	µg/L	1.3 J 2.4 B	< 1.2 1.3 B	1.9 J < 1.2	< 1.2 < 1.2	< 1.2 0.85
01/25-26/2017	SW6020B SW6020B	µg/L	<u>2.4 B</u> 10.1	< 1.2	< 1.2	< 1.2	0.85
01/25-26/2017	SW6020B SW6020B	μg/L μg/L	10.1	< 1.2	< 1.2	< 1.2	< 0.12
04/19-21/2017	SW6020B	μg/L μg/L	17.5 J+	< 1.2	< 1.2	2.7 J+	0.17 J
04/19-21/2017	SW6020B	μg/L μg/L	14.4	< 1.2	< 1.2	1.3 J+	0.17 J
07/10-12/2017	SW6020B	μg/L μg/L	13.6	< 1.2	< 1.2	< 1.2	< 0.12
08/21-23/2017	SW6020B	µg/L µg/L	12.9	< 1.2	< 1.2	< 1.2	< 1.2
06/27/2018	SW6020B	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	014/00000		00.0	440	07.4	050	15.44
11/02-04/2016	SW6020B	mg/L	23.8	118	97.4	259	< 5.41
12/12-13/2016 01/25-26/2017	SW6020B SW6020B	mg/L mg/L	24.9 B 28.5	79.8 67.8	154 145	289 228	8.33 < 0.541
		0					
03/06-07/2017 04/19-21/2017	SW6020B SW6020B	mg/L mg/L	30.6 32.6	71.7 56.1	139 105	220 199	< 0.541 < 0.541
04/19-21/2017	SW6020B	mg/L	28.7	55.8	103	210	< 0.541
07/10-12/2017	SW6020B	mg/L	30	55.5	102	235	< 0.541
08/21-23/2017	SW6020B	mg/L	31.8	53	104	235	< 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		<u> </u>					
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

		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		10					
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 SW6020B	µg/∟ µg/L	10.5 J	4.4 J+ 3.2 J	16 J	29.2 J+ 31.2 J+	< 0.7
06/27/2018	SW6020B	µg/∟ µg/L	9.8	< 2.8	12.2	24.2	< 2.8
09/19/2018	SW6010C	µg/∟ µg/L	10.2	< 4.6	17.5	24.2	< 4.6
	SW6010C						< 0.42
12/12-13/2018 08/26-29/2019		µg/L	<u>8.9</u> 9.4	3.3	15.0	17.8	< 0.42
	SW6020B	µg/L	9.4	4.6	14.2	17.5	< 0.42
Manganese	014/00000	4	004	105	000	500	
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		F 3 ' - 1					
11/02-04/2016	SW6020B	µg/L	< 1.1	< 1.1	< 1.1	2.5 J	< 1.1
12/12-13/2016		μg/L	< 1.1	< 1.1	2.2 J	3.4 J	< 0.11
	SVV6UZUR	~ J' L		< 1.1	1.3 J	2.2 J	< 0.11
01/25-26/2017	SW6020B SW6020B	ug/l	< 1.1				
01/25-26/2017	SW6020B	µg/L µg/l	< 1.1 < 1 1			25.1	0.26.1
03/06-07/2017	SW6020B SW6020B	µg/L	< 1.1	< 1.1	< 1.1	2.5 J	0.26 J
03/06-07/2017 04/19-21/2017	SW6020B SW6020B SW6020B	μg/L μg/L	< 1.1 < 1.1	< 1.1 < 1.1	< 1.1 < 1.1	1.9 J	< 0.11
03/06-07/2017 04/19-21/2017 05/30-06/01/2017	SW6020B SW6020B SW6020B SW6020B	μg/L μg/L μg/L	< 1.1 < 1.1 < 1.1	< 1.1 < 1.1 < 1.1	< 1.1 < 1.1 < 1.1	1.9 J 1.7 J	< 0.11 < 0.11
03/06-07/2017 04/19-21/2017 05/30-06/01/2017 07/10-12/2017	SW6020B SW6020B SW6020B SW6020B SW6020B SW6020B SW6020B	μg/L μg/L μg/L μg/L μg/L	< 1.1 < 1.1 < 1.1 < 1.1	< 1.1 < 1.1 < 1.1 < 1.1	< 1.1 < 1.1 < 1.1 < 1.1	1.9 J 1.7 J 1.8 J	< 0.11 < 0.11 < 0.11
03/06-07/2017 04/19-21/2017 05/30-06/01/2017 07/10-12/2017 08/21-23/2017	SW6020B SW6020B SW6020B SW6020B SW6020B SW6020B	μg/L μg/L μg/L μg/L μg/L	< 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 1.1	< 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 1.1	< 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 1.1	1.9 J 1.7 J 1.8 J 2.1 J	< 0.11 < 0.11 < 0.11 < 1.1
03/06-07/2017 04/19-21/2017 05/30-06/01/2017 07/10-12/2017 08/21-23/2017 06/27/2018	SW6020B SW6020B SW6020B SW6020B SW6020B SW6020B SW6020B SW6010D	μg/L μg/L μg/L μg/L μg/L μg/L	< 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 2.5	< 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 2.5	< 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 2.5	1.9 J 1.7 J 1.8 J 2.1 J < 2.5	< 0.11 < 0.11 < 0.11 < 1.1 < 2.5
03/06-07/2017 04/19-21/2017 05/30-06/01/2017 07/10-12/2017 08/21-23/2017 06/27/2018 09/19/2018	SW6020B SW6010D	μg/L μg/L μg/L μg/L μg/L μg/L μg/L	<1.1 <1.1 <1.1 <1.1 <1.1 <2.5 <2.5	< 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 2.5 < 2.5	< 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 2.5 < 2.5	1.9 J 1.7 J 1.8 J 2.1 J < 2.5 < 2.5	<0.11 <0.11 <0.11 <1.1 <2.5 <2.5
03/06-07/2017 04/19-21/2017 05/30-06/01/2017 07/10-12/2017 08/21-23/2017 06/27/2018	SW6020B SW6020B SW6020B SW6020B SW6020B SW6020B SW6020B SW6010D	μg/L μg/L μg/L μg/L μg/L μg/L	< 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 2.5	< 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 2.5	< 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 1.1 < 2.5	1.9 J 1.7 J 1.8 J 2.1 J < 2.5	< 0.11 < 0.11 < 0.11 < 1.1 < 2.5

		Location	ABC-1602	ABC-1607	ABC-1608	ABC-1614	Field Blank
Sample Date	Method	Unit	ABC-1002	ABC-1007	ABC-1000	ABC-1014	
Nickel	Wethod	Onit					
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 12/12-13/2018	SW6020A SW6020B	µg/L	6.2 5.5	8.9 7.8	18.6 16.7	19.7 J+ 14.2	0.22 J < 0.11
08/26-29/2019	SW6020B	μg/L μg/L	6.2	10	17.9	14.2	< 0.90
pH	3000100	µg/∟	0.2	10	17.5	15.5	< 0.30
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		< 50	< 50	< 50	< 50	< 50
Potassium	3119005	µg/L	< 50	< 50	< 50	< 50	< 50
08/26-29/2019	SW6020B	µg/L	5470	1910	3830	4250	< 6.2
Selenium	3000208	µg/∟	5470	1910	3030	4230	< 0.2
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	CIMCOOOD		< 0.0	< 0.0	< 0.0	< 0.0	< 0.0
11/02-04/2016 12/12-13/2016	SW6020B	µg/L	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
12/12-13/2016 01/25-26/2017	SW6020B SW6020B	μg/L μg/L	< 0.8 < 0.8	< 0.8 < 0.8	< 0.8 < 0.8	< 0.8 < 0.8	< 0.08 < 0.08
	014/00005	10,	< 0.8		< 0.8	< 0.8	
03/06-07/2017 04/19-21/2017	SW6020B SW6020B	μg/L 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				1	1		
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 07/10-12/2017	SW6020B SW6020B	µg/L	8090	18400 20000	31500	22500	52 J 155 J
07/10-12/2017 08/21-23/2017	SW6020B SW6020B	µg/L	8550 8330	20000	35200 36300	23500 22900	< 129
06/27/2018	E200.8	μg/L μg/L	9240	18100	28300	22900	< 129
09/19/2018	E200.8	μg/L μg/L	8110	17000	34600	24400	< 18.4
12/12-13/2018	E200.8	μg/L μg/L	7490	14900	32000	21500	15.9 J
08/26-29/2019	SW6020B	µg/L	7410	14200	36800	30300	< 14.3
00.20 20/2010	01100200	P9′⊏		11200	00000	00000	

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		Location	ABC-1602	ABC-1607	ABC-1608	ABC-1614	Field Blank
Sample Date	Method	Unit	ABO 1002	7.50-1007	7.30-1000	7.50-1014	
Sulfate		Jint		1	•		1
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 07/10-12/2017	SW6020B	µg/L	0.3 J 0.31 J	< 0.2	< 0.2	< 0.2	< 0.02
07/10-12/2017 08/21-23/2017	SW6020B SW6020B	µg/L		< 0.2 0.39 J	< 0.2	< 0.2	< 0.02 < 0.2
		µg/L	< 0.2		< 0.2 0.027 J	< 0.2 0.033 J	
06/27/2018 09/19/2018	SW6020A SW6020A	µg/L	0.050 J 0.034 J	0.050 J 0.034 J	< 0.027 J	< 0.026	< 0.026 < 0.026
12/12-13/2018	SW6020A SW6020B	μg/L μg/L	< 0.060	< 0.034 J	< 0.026	< 0.026	< 0.026
08/26-29/2019	SW6020B	µg/L	< 0.060	< 0.060	< 0.060	< 0.060	< 0.060
Tin	01100208	µg/L	4 0.000	40.000	40.000	40.000	40.000
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 03/11-15/2019	SM2540C SM2540C	mg/L	<u>117</u> 132	130	232	244	< 25.0
03/11-15/2019 08/26-29/2019	SM2540C SM2540C	mg/L mg/L	132 144 J+	132 118	250 237	260 284	254 45.0
Total Organic Carbon	310120400	mg/∟	144 JT	110	231	204	40.0
11/02-04/2016	SM5310B	mg/L	< 0.50	1.4	2.9	5.9	< 0.50
12/12-13/2016	SM5310B 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
		mg/L	< 0.50	0.97 J	1.5	4.1	0.67 J
05/30-06/01/2017	SM5310B		0.00				< 0.50
05/30-06/01/2017 07/10-12/2017	SM5310B SM5310B		< 0.50	1.1	1.4	4.7	
07/10-12/2017	SM5310B	mg/L	< 0.50 < 0.50	1.1 0.72 J	1.4 1.4	4.7	
07/10-12/2017 08/21-23/2017	SM5310B SM5310B	mg/L mg/L	< 0.50	0.72 J	1.4	3.8	< 0.50
07/10-12/2017 08/21-23/2017 06/27/2018	SM5310B SM5310B SM5310B	mg/L mg/L mg/L		0.72 J 1.0	1.4 1.6	3.8 4.6	
07/10-12/2017 08/21-23/2017	SM5310B SM5310B	mg/L mg/L	< 0.50 < 0.50	0.72 J	1.4	3.8	< 0.50 < 0.50

		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: $\mu g/L =$ Microgram per liter

mg/L = Milligram per liter $\mu S/cm = MicroSiemen per centimeter$

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

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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

Review Date: 05/30/2019

Initials: <u>ALR</u> 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

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

- 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

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.
- <u>Yes</u> 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:

<u>NA</u> Surrogate recoveries are provided for each analytical method, where applicable.

<u>NA</u> Surrogate recoveries for each method are within the acceptable limits.

Notes:

- <u>NA</u> Tracer and carrier yields are provided for each analytical method, where applicable (Radiochemical Data Only).
- <u>NA</u> 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 gualification 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 gualification 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

- <u>Yes</u> 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.
- <u>Yes</u> 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

- <u>See Note</u> 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+

- <u>Yes</u> 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).
- <u>Yes</u> The report provides the reporting limit for each constituent.
- <u>Yes</u> 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

- <u>Yes</u> 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: <u>The following table presents field duplicates and their associated parent samples that were not</u> 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)

https://golderassociates.sharepoint.com/sites/104138/reports/2019-08-01 ppt pond abc ccr amr/appendices/appendix m - initial dmp/2019-04-18 ppt pond abc ccr data review.docx



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

Review Date: <u>12/23/2019</u>

Initials: <u>ALR</u>

Initials: <u>RIP</u>

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: <u>Hardness, Iron, Manganese, Potassium, Sodium, Phenols, Total</u> Organic Carbon
- CCR Appendix III to Part 257
- CCR Appendix IV to Part 257
- VSWMR Phase II Parameters: <u>Copper, Nickel, Silver, Tin, Vanadium, Zinc</u>
- Other: <u>Hexavalent Chromium</u>

Note: Pace Package Nos.: 92443549, 92443179; AWS Work Orders: 19H1139, 19H1182, 19H1087

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.

<u>See Note</u> Sample receipt condition at laboratory was acceptable.

- Yes Each sample and blank submitted for analysis appears in the data report.
- Note: <u>Hexavalnet Chromium samples from 8.27.19 received at 16.9°C</u>. 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.

<u>See Note</u> 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 may be qualified if the detection is not contamination may be qualified if the detection is not consistent with recent historical data corresponding to blank contamination may be qualified if the detection is not consistent with recent historical data trend and is not consistent with recent historical data trend and is not consistent with recent historical data trend and is not consistent with recent historical data trend and is not consistent with recent historical data trend and is not consistent with recent historical 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+

<u>NA</u> Surrogate recoveries are provided for each analytical method, where applicable.

<u>NA</u> Surrogate recoveries for each method are within the acceptable limits.

Notes:

<u>Yes</u> 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 gualification is recommended.

QUALITY ASSURANCE & QUALITY CONTROL LABORATORY DATA REVIEW

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

<u>Yes</u> 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

- <u>Yes</u> 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.
- <u>Yes</u> 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

- <u>See Note</u> 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.

QUALITY ASSURANCE & QUALITY CONTROL LABORATORY DATA REVIEW

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)		

- <u>Yes</u> 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.
- <u>Yes</u> 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

- <u>Yes</u> 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: <u>The following table presents field duplicates and their associated parent samples that were not</u> 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)

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