

ASSESSMENT OF CORRECTIVE MEASURES REPORT POND E SOLID WASTE PERMIT NO. 617 POSSUM POINT POWER STATION DUMFRIES, VIRGINIA

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for Dominion Energy Services, Inc. Richmond, Virginia

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SIGNATURE PAGE FOR

ASSESSMENT OF CORRECTIVE MEASURES REPORT POND E SOLID WASTE PERMIT NO. 617 POSSUM POINT POWER STATION DUMFRIES, VIRGINIA

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Executive Summary

Haley & Aldrich, Inc., (Haley & Aldrich) prepared this Assessment of Corrective Measures Report (ACM Report) on behalf of Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion Energy) for Pond E at the Possum Point Power Station located in Dumfries, Virginia (Site or Station). Dominion Energy maintains a groundwater monitoring program for Pond E consistent with the requirements of U.S. Environmental Protection Agency's (EPA) "Disposal of Coal Combustion Residuals from Electric Utilities" (CCR Rule; 40 CFR 257 et seq.) as well as the adoption of the CCR Rule by reference to Virginia Solid Waste Management Regulations (Title 9 Virginia Administrative Code Agency 20, Chapter 81, Section 800 et seq.; 9VAC20-81-800). The groundwater monitoring program is also conducted consistent with the requirements of Solid Waste Permit (SWP) No. 617 issued by the Virginia Department of Environmental Quality (VDEQ) on 13 June 2019.

An evaluation of analytical data collected during the second semiannual assessment monitoring event of 2019 identified CCR Rule (federal) Groundwater Protection Standard (GWPS) exceedances for cobalt in several compliance wells (ES-3D, ES-1609, ES-1613, and T-1615S). Dominion Energy therefore initiated an Assessment of Corrective Measures (ACM) on 29 March 2020. An evaluation of analytical data collected during the first semiannual assessment monitoring event of 2020 identified federal GWPS and SWP Groundwater Protection Standard (GPS) exceedances for cobalt in these same compliance wells, SWP GPS exceedances for boron and nickel (in compliance wells ES-3D, ES-1609, ES-1613, and T-1615S), and an SWP GPS exceedance for zinc (in compliance well ES-3D).

A field investigation (Nature and Extent Study [NES]) was completed for Pond E in April 2020 to evaluate the extent of groundwater concentrations for constituents that exceed federal GWPS and SWP GPS. To fulfill the requirements of the ACM and delineate the extent of cobalt, boron, nickel, and zinc exceedances in the vicinity of Pond E, the following field activities were conducted:

- Three new groundwater monitoring wells (ES-1D, ES-7, and ES-7D) were installed downgradient
 of Pond E to further delineate the horizontal and vertical extent of GWPS/GPS exceedances and
 confirm groundwater flow direction. The monitoring wells are also located in proximity to the
 Site boundary.
 - A protective eagle's nest buffer (radius of 660 feet) is located in the area downgradient of Pond E. As such, new monitoring wells could not be installed within the boundaries of the eagle's nest buffer. Due to these access limitations, the NES wells were installed as close to downgradient of existing compliance wells as possible, without encroaching upon the eagle's nest buffer boundary.
- Once the new wells were developed, the three new monitoring wells, seven existing compliance
 wells, two existing VSWMR sentinel wells, and one existing observation well were sampled in
 accordance with the "Groundwater Monitoring Plan" for Ponds ABC, D, and E (Golder
 Associates, Inc. [Golder], 2019a); and
- A comprehensive round of groundwater elevation measurements was collected to produce potentiometric surface maps.

Analytical data generated as part of the NES indicated that cobalt, boron, nickel, and zinc impacts in the vicinity of Pond E exist in select monitoring wells. The results confirmed that cobalt impacts (exceedances of the federal GWPS and SWP background-based GPS of 6 micrograms per liter $[\mu g/L]$ and



 $5~\mu g/L$, respectively) continue to be detected at compliance wells ES-1609, ES-3D, and T-1615S. During the NES, the cobalt concentration detected in compliance well ES-1613 was below both the GWPS and the SWP GPS. Cobalt was detected above the federal GWPS and SWP GPS in NES well ES-7 and above the SWP GPS but below the federal GWPS in NES well ES-1. It is noted that the cobalt concentration detected in NES well ES-7 (89.2 $\mu g/L$) may be a result of the limited saturated thickness of the shallow aquifer and thin water column. Cobalt was not detected above the GWPS/GPS in the remaining compliance wells, VSWMR sentinel wells, or NES wells.

Boron was detected at concentrations above the SWP background-based GPS of 250 μ g/L at compliance wells ES-1609, ES-3D, ES-1613, and T-1615S and at concentrations slightly exceeding the GPS in NES wells ES-1 and ES-7. Boron was not detected above the SWP GPS in the remaining compliance wells, VSWMR sentinel wells, or NES wells. It should be noted that the SWP GPS for boron is not a risk-based concentration, but rather a background-based concentration that is not intended to be protective of environmental risk. The EPA has classified boron as a non-carcinogenic constituent and established a risk-based concentration for boron in tapwater (drinking water), referred to as the Tapwater Regional Screening Level (RSL). The Tapwater RSL for boron is 4,000 μ g/L (based on a hazard quotient of 1.0). The RSL represents the level of a constituent below which there is no known or expected risk to human health. None of the detected boron concentrations exceed the EPA's risk based Tapwater RSL of 4,000 μ g/L.

Nickel was detected at concentrations above the SWP background-based GPS of 5 μ g/L at compliance wells ES-1609, ES-3D, ES-1613; NES wells ES-1 and ES-7; and VSWMR sentinel well ED-22RA. The nickel concentration detected in NES well ES-7 may be a result of the limited saturated thickness of the shallow aquifer and thin water column. Nickel was not detected above the GWPS/GPS in the remaining compliance wells, VSWMR sentinel well, or NES wells. It is noted that the laboratory analytical result for the sample collected from compliance well T-1615S was reported as non-detect with a laboratory method detection limit (MDL) and reporting limit (RL) above the SWP GPS. The elevated MDL/RL was a result of laboratory dilution (200x) required due to high sodium and calcium content in the sample. Similar to boron, the SWP GPS for nickel is not a risk-based concentration, but rather a background-based concentration. The Tapwater RSL for nickel is 390 μ g/L (based on a hazard quotient of 1.0). None of the detected nickel concentrations (or the MDL/RL reported for T-1615S) exceed the EPA's risk-based Tapwater RSL.

Zinc was detected during the NES at a concentration above the SWP background-based GPS (50 μ g/L) in compliance well ES-3D and NES well ES-1. Zinc was not detected above the SWP GPS in the remaining compliance wells, VSWMR sentinel wells, or NES wells. The SWP GPS for nickel is not a risk-based concentration, but rather a background-based concentration. The Tapwater RSL for nickel is 6,000 μ g/L (based on a hazard quotient of 1.0). None of the detected nickel concentrations exceed the EPA's risk-based Tapwater RSL.

A review of historical groundwater trends for cobalt, boron, nickel, and zinc indicate that the groundwater constituent concentrations have generally remained stable and/or decreased since CCR material removal began in 2016. It is noted that cobalt concentrations in compliance well ES-1613 were historically detected at concentrations above 20 μ g/L; however, since source removal activities began in 2016, concentrations have steadily decreased. During the NES, the cobalt concentration detected in well ES-1613 (4.8 μ g/L) was below both the GWPS (6 μ g/L) and the SWP background-based GPS (5 μ g/L) and represents the lowest reported concentration since 2016. Additionally, nickel concentrations in compliance well ES-1613 were historically detected at concentrations ranging from approximately 20



 μ g/L to 30 μ g/L; however, since source removal activities began in 2016, concentrations have steadily decreased. During the NES, the nickel concentration detected in well ES-1613 (6.3 μ g/L) was only slightly above the background based SWP background-based GPS of 5 μ g/L.

CCR material was removed from Pond E beginning in 2016. In August 2019, the VDEQ confirmed CCR removal and an over excavation of a minimum of 6 inches was completed consistent with the Unit's closure plan and SWP No. 617. As such, for purposes of this ACM, source removal alternatives were not evaluated, and the focus of the assessment is groundwater. Groundwater represented by the compliance wells, VSWMR sentinel wells, and NES wells is not used for any potable or non-potable purposes in the vicinity of Pond E. Thus, there are no complete exposure pathways to groundwater. The closest private water supply wells located downgradient from Pond E are over 1 mile from the Unit and located across another hydraulic divide (i.e., Quantico Creek). There are a few existing private water supply wells west of Pond E; however, they are sidegradient of the Site, and across another hydraulic divide (i.e., unnamed creek that flows to Quantico Creek). Potable water is supplied to the facility and surrounding properties by a municipal water supply system. Based on this information, there is no human exposure risk to groundwater at the Site or in the surrounding area.

Supporting these findings are recent data collected for surface water monitoring conducted in accordance with SWP No. 617. Specifically, surface water analytical data collected from four sample locations downgradient of Pond E indicate no exceedances of applicable surface water quality criteria for cobalt, boron, nickel, or zinc. The surface water analytical results were also less than the respective GPS. These data indicate that surrounding surface water is not being impacted above relevant screening levels because of potential groundwater to surface water exchange.

The results from the NES indicate that residual impacts in groundwater are limited horizontally and vertically to Dominion property and, with the exception of cobalt, are present at concentrations less than EPA risk-based tapwater screening values. In addition, no off-site migration of cobalt, boron, nickel, or zinc has been detected. This ACM Report evaluates the following three remedial alternatives to address residual impacts in groundwater downgradient of Pond E:

- Alternative 1 Natural Recovery;
- Alternative 2 In-situ Groundwater Treatment; and
- Alternative 3 Hydraulic Control with Ex-situ Treatment.

Given the lack of groundwater receptors, negligible risk to human health and the environment, the removal of CCR material (along with an over excavation of a minimum of 6 inches), and the groundwater quality trends following CCR removal, the evaluation of remedial alternatives suggests that natural recovery (e.g., concentration attenuation via natural diffusion and dispersion controlled mechanisms) is likely the most appropriate remedial alternative. Future studies prior to formal remedy selection may be necessary to validate natural recovery mechanisms and timeframes.

Given the elevated cobalt detections and limited aquifer thickness observed in NES well ES-7, additional sampling is recommended to confirm the detections and evaluate water quality for cobalt over time. Additional wells within the eagle's nest buffer outside of the breeding season may also provide additional information regarding the water quality to the southwest of Pond E.

Prior to selecting a formal remedy, Dominion Energy will arrange a public meeting with interested and affected parties to discuss the results of this report and solicit comments. The meeting will be conducted at least 30 days prior to selecting a formal remedy in accordance with the CCR Rule. Following the public



meeting, Dominion Energy will prepare a revised or amended ACM Report (in accordance with 9VAC20-81-260) to include public participation information.			



Table of Contents

(continued)				Page	
List List	of Tab of Figu			i viii viii ix	
1.	Intro	oductio	on	1	
	1.1 1.2	PURPO CCR RI	OSE ULE AND VSWMR REQUIREMENTS	2	
2.	Back	kground	d	3	
	2.1 2.2 2.3 2.4	LAND GEOLO		3 3 4 4 5	
3.	Grou	undwat	ter Monitoring and Quality	7	
4.	Natı	ure and	l Extent Study	10	
	4.1 4.2 4.3 4.4 4.5 4.6	GROU GROU INVES ^T DATA	INSTALLATION NDWATER SAMPLING NDWATER LEVEL MONITORING TIGATION-DERIVED WASTE MANAGEMENT USABILITY AND QA/QC RESULTS EVALUATION	10 11 12 12 13 14	
5.	Natı	ure and	Extent of Constituents of Concern	16	
	5.1	BORO 5.1.1 5.1.2	N Nature of Boron Extent of Boron	16 16 17	
	5.2	COBAL 5.2.1 5.2.2	LT Nature of Cobalt Extent of Cobalt	18 18 19	
	5.3	NICKE 5.3.1 5.3.2	L Nature of Nickel Extent of Nickel	20 20 21	
	5.4	ZINC 5.4.1	Nature of Zinc	22 22	



Table of Contents

(cont	inued)			Page
		5.4.2	Extent of Zinc	23
6.	Iden	tificati	on and Screening of Technologies	25
	6.1		ECTIVE ACTION OBJECTIVES	25
	6.2	CCR RI	EMOVAL	25
	6.3		NDWATER REMEDIAL ALTERNATIVES	26
		6.3.1	Alternative 1 – Natural Recovery	26
		6.3.2 6.3.3	Alternative 2 – In-situ Groundwater Treatment Alternative 3 – Hydraulic Control with Ex-situ Treatment	27 27
		0.5.5	Alternative 5 Tryaradile Control With Ex 3rta Treatment	21
7.	Corr	ective	Measure Evaluation	28
	7.1	THRES	HOLD CRITERIA - 40 CFR PART 257.97(B)	28
		7.1.1	Human Health and Environment Protection - 40 CFR Part 257.97(b)(1)	28
		7.1.2	GWPS/GPS Attainment- 40 CFR Part 257.97(b)(2)	29
		7.1.3	Source Control - 40 CFR Part 257.97(b)(3)	29
		7.1.4	Contaminated Material Removal - 40 CFR Part 257.97(b)(4)	29
		7.1.5	Waste Management - 40 CFR Part 257.97(b)(5)	29
	7.2		ICING CRITERION 1 - 40 CFR PART 257.97(C)(1)	30
		7.2.1	Risk Reduction - 40 CFR Part 257.97 (c)(1)(i)	30
		7.2.2	Residual Risks - 40 CFR Part 257.97 (c)(1)(ii)	30
		7.2.3	Long-Term Management - 40 CFR Part 257.97 (c)(1)(iii)	31
		7.2.4	Short-term Risks - 40 CFR Part 257.97 (c)(1)(iv)	31
		7.2.5 7.2.6	Time to Full Protection - 40 CFR Part 257.97 (c)(1)(v)	31 32
		7.2.7	Potential for Exposure - 40 CFR Part 257.97 (c)(1)(vi) Long-term Reliability - 40 CFR Part 257.97(c)(1)(vii)	32
		7.2.7	Remedy Replacement Potential 40 CFR Part 257.97(c)(1)(viii)	33
	7.3		ICING CRITERION 2 - 40 CFR PART 257.97(C)(2)	33
	7.5	7.3.1	Release Reduction – 40 CFR Part 257.97(c)(2)(i)	33
		7.3.2	Treatment Technologies - 40 CFR Part 257.97(c)(2)(ii)	33
	7.4		ICING CRITERION 3 - 40 CFR PART 257.97(C)(3)	34
		7.4.1	Technology Difficulty - 40 CFR Part 257.97(c)(3)(i)	34
		7.4.2	Technology Reliability - 40 CFR Part 257.97(c)(3)(ii)	34
		7.4.3	Permitting - 40 CFR Part 257.97(c)(3)(iii)	35
		7.4.4	Equipment and Specialist Availability - 40 CFR Part 257.97(c)(3)(iv)	35
		7.4.5	Treatment, Storage, and Disposal Capacity - 40 CFR Part 257.97(c)(3)(iv)	35
	7.5	BALAN	ICING CRITERION 4 - 40 CFR PART 257.97(D)	36
	7.6	ORDE	R OF MAGNITUDE COST EVALUATION	36
8.	Sum	mary a	and Conclusions	38
Refe	erence	S		39



Table of Contents

(continued)

Appendix A – Boring Logs and Well Construction Logs

Appendix B – Field Documentation

Appendix C – Laboratory Analytical Reports

Appendix D – Investigation Derived Waste Disposal Documentation

Appendix E – Data Usability Summary Reports

Appendix F – Groundwater Trend Graphs



List of Tables

Table No.	Title
1	Groundwater Elevation Data Summary
2	Well Construction Details Summary
3	Summary of Nature and Extent Study Groundwater Results
4	Summary of First Quarter and Second Quarter 2020 Surface Water Results – Boron, Cobalt, Nickel, Zinc
5	Corrective Measures Evaluation Summary

List of Figures

Figure No.	Title
1	Site Locus
2	Surrounding Land Use
3	Geologic Cross-Section A-A'
4	Groundwater Contour Map
5	Boron Groundwater Isoconcentration Map
6	Cobalt Groundwater Isoconcentration Map
7	Nickel Groundwater Isoconcentration Map
8	Zinc Groundwater Isoconcentration Map
9	Conceptual Overview of Corrective Measures Alternative 2 and Alternative 3 Locations



List of Abbreviations

Abbreviation Definition

μg/L micrograms per liter

ACM Assessment of Corrective Measures

ACM Report Assessment of Corrective Measures Report

AMSL above mean sea level

AWS Air, Water, & Soil Laboratories, Inc.

bgs below ground surface
cm/s centimeters per second
CCR Coal Combustion Residuals
CFR Code of Federal Regulations

DMME Virginia Department of Mines, Minerals and Energy

Dominion Energy Virginia Electric and Power Company d/b/a Dominion Energy Virginia

Eh electro-potential

EPA United States Environmental Protection Agency

GMP Groundwater Monitoring Plan

Golder Associates, Inc.

GWPS or GPS groundwater protection standard

Haley & Aldrich Haley & Aldrich, Inc.

 h_L head loss i_{gw} gradient

IDW investigation-derived waste

K hydraulic conductivity
Kd adsorption constant

L length

L/Kg Liter per kilogram

MCL Maximum Contaminant Level

MDL method detection limit

MS/MSD matrix spike/matrix spike duplicate

mV millivolt

n_e effective porosity

NES Nature and Extent Study
NTU nephelometric turbidity unit

Pace Pace Analytical, LLC



POTW publicly owned treatment works

PRB permeable reactive barrier

QA/QC quality assurance/quality control

RL reporting limit

RSL U.S. EPA Regional Screening Level

Site or Station Possum Point Power Station
SSI Statistically Significant Increase

SWP Solid Waste Permit

VAWQS Virginia Water Quality Standards

Unit Pond E V volt

VDEQ Virginia Department of Environmental Quality

VELAP Virginia Environmental Laboratory Accreditation Program

V_{gw} groundwater velocity

VPDES Virginia Pollutant Discharge Elimination System
VSWMR Virginia Solid Waste Management Regulations



1. Introduction

Haley & Aldrich, Inc. (Haley & Aldrich) prepared this Assessment of Corrective Measures Report (ACM Report) on behalf of Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion Energy) for Pond E at the Possum Point Power Station, Solid Waste Permit (SWP) No. 617, located in Dumfries, Virginia (Site or Station). A Site location map is included as Figure 1. Pond E (referred to as Unit in this report) is considered an inactive Coal Combustion Residuals (CCR) surface impoundment and is therefore subject to the following regulations:

- Applicable provisions of the U.S. Environmental Protection Agency's (EPA) "Disposal of Coal Combustion Residuals from Electric Utilities" (CCR Rule; Federal Register Vol. 80, No. 74, 2302-21501), as published on 17 April 2015 (40 CFR 257 et seq.);
- Applicable provisions of EPA's CCR Rule amendment (Federal Register Vol. 81, No. 151, 51802-51808), as published on 5 August 2016;
- Applicable provisions of EPA's CCR Rule amendment (Federal Register Vol. 83, No. 146, 36435-36456), as published on 30 July 2018; and
- Adoption of the CCR Rule by reference to Virginia Solid Waste Management Regulations (VSWMR) January 27, 2016 (Title 9 Virginia Administrative Code Agency 20, Chapter 81, Section 800 et seq.; 9VAC20-81-800).

As an inactive CCR surface impoundment in Virginia, the Unit is also subject to regulation under the VSWMR (9VAC20-81) and is operated by Dominion Energy under SWP No. 617, which was issued by the Virginia Department of Environmental Quality (VDEQ) on 13 June 2019.

Cobalt was detected in compliance wells at concentrations exceeding the established CCR Rule (federal) Groundwater Protection Standard (GWPS) during the second semiannual assessment monitoring event of 2019, as reported in the "2019 CCR and VSWMR Annual Groundwater Monitoring and Corrective Action Report, Possum Point Power Station, Pond E" (Golder Associates, Inc. [Golder], 2020). As a result of this GWPS exceedance, Dominion Energy conducted a nature and extent field investigation (hereinafter referred to as the Nature and Extent Study [NES]) in accordance with 40 CFR Part 257.95(g)(1) and an assessment of corrective measures (ACM) in accordance with 40 CFR Part 257.96. The NES and ACM were also conducted in accordance with SWP No. 617 and 9VAC81-260. The CCR Rule requires that the ACM be completed within 90 days unless a demonstration of need for additional time based on Site-specific conditions or circumstances. Pursuant to 40 CFR Part 257.96(a), a demonstration of need for a 60-day extension was completed for Pond E on 24 June 2020. A copy of the extension certification will be included in the Unit's 2020 annual groundwater monitoring and corrective action report.

Cobalt was also detected at concentrations exceeding the federal GWPS and the SWP Groundwater Protection Standard (GPS) (established on 2 April 2020) during the first semiannual assessment monitoring event of 2020. Boron, nickel, and zinc were detected at concentrations exceeding the SWP GPS (established on 2 April 2020), as reported to VDEQ on 1 May 2020. The boron, nickel, and zinc SWP GPS are based on Site-specific background values. As a result of the SWP GPS exceedances, the NES also evaluated the extent of boron, nickel, and zinc groundwater concentrations, and an ACM was initiated in accordance with SWP No. 617 and 9VAC20-81-260.



Corrective measures must be assessed and taken to prevent further releases, to remediate any releases, and to restore affected areas to their original condition in accordance with the CCR Rule. In 2016, excavation of the contents of Pond E began. In August 2019, the VDEQ confirmed all CCR was removed and a minimum of 6 inches of subsurface soils excavated in conformance with the Unit's closure plan and SWP No. 617.

1.1 PURPOSE

The purpose of this ACM Report is to summarize the results of the NES and evaluate potential corrective measures for addressing the Site's reported GWPS/GPS exceedances.

1.2 CCR RULE AND VSWMR REQUIREMENTS

In accordance with 40 CFR Part 257.95(g)(1), the NES conducted at the Site in April 2020 included the following elements:

- Installing three additional monitoring wells in proximity to the property boundary and for delineation purposes;
- Collecting data on the nature and extent of the release, including information on the constituents detected at concentrations exceeding the GWPS and the levels at which they are present; and
- Sampling the seven existing compliance wells, two existing VSWMR sentinel wells, one existing
 observation well, and three new wells installed/sampled as part of the determination of the
 nature and extent of contamination.

The NES was also conducted pursuant to the requirements in SWP No. 617 and consistent with VDEQ NES and ACM guidance for addressing GPS exceedances at solid waste facilities.

As noted above, source removal and an over excavation of a minimum of 6 inches at Pond E has already been completed as confirmed by VDEQ in August 2019. Several common corrective measures alternatives (such as hydraulic control, in-situ treatment, and natural recovery) were considered to address residual groundwater impacts associated with the Unit (further detail is provided in Sections 6 and 7). In general accordance with 40 CFR 257.96, each of the corrective measures alternatives presented in this ACM Report have been evaluated in light of the following elements:

- An analysis of the effectiveness of the corrective measures alternative based on the performance, reliability, ease of implementation, and potential impacts of the alternative;
- A discussion of the time required to complete the corrective measures alternative; and
- A discussion of the institutional requirements, such as permits that may be required, to implement the corrective measures alternative.

To comply with the requirements of the CCR Rule, as well as SWP No. 617, Haley & Aldrich has prepared this combined CCR and VSWMR ACM Report on behalf of Dominion Energy. This version of the report has been prepared in accordance with existing CCR Rule requirements and deadlines. Given current COVID-19 public gathering restrictions, the VSWMR requirement to hold a public meeting prior to submitting the ACM Report is unachievable at this time. Once the public meeting has been held, this ACM Report will be revised or amended to include the required public participation information.



2. Background

2.1 SITE DESCRIPTION AND SITE HISTORY

The Site is owned and operated by Dominion Energy and is located at 19000 Possum Point Road in Prince William County, Dumfries, Virginia. As shown on Figure 1, the Station is located immediately north of the confluence of Quantico Creek and the Potomac River. The Unit is located on the Station property north of Quantico Creek and Possum Point Road, west of its intersection with Cockpit Point Road.

Throughout the Station's operational timeline, it has operated up to six power generating units. Two units are currently active: Unit 5 (heavy oil) and Unit 6 (combined cycle). Two of the former coal-powered generating units (Units 3 and 4) that were converted from coal to natural gas in 2003, and the two former coal-powered generating units (Units 1 and 2) have been retired. Historically, the Station stored CCR in one clay-lined impoundment (Pond D) and four unlined impoundments (Ponds A, B, C, and E).

Pond E construction began in 1967 and covered approximately 35.6 acres. Beginning in 1968, Pond E was used as a water treatment pond to manage low-volume wastewaters including CCR. In the late 1970s, the eastern portion of Pond E was modified to accommodate the construction of a new Metals Pond. The first Metals Pond was constructed in 1979. A second Metals Pond was constructed north of the first Metals Pond in the early 1990s. The placement of CCR into Pond E ended in 2003 and in 2016, contents of former Pond E began to be excavated and consolidated into Pond D. The excavation effort was completed in 2017 and VDEQ confirmed removal of CCR and over-excavation of a minimum of 6 inches of subsurface soils in a letter dated 30 August 2019.

2.2 LAND USE

The Station property is used for industrial purposes. The land use of the eastern portion of the Station property is zoned as "M-1 Heavy Industrial" and the western portion of the Station property is zoned as "A-1 Agricultural." The Pond E area is classified as "A-1 Agricultural." As shown on Figure 2, surrounding properties immediately north and west of the Site consist of land zoned as "PMR Planned Mixed Residential" and generally consist of undeveloped parcels or private residential developments. More residential properties exist further west of the Site, across Quantico Creek. Land south of the Site, across Quantico Creek, is classified as "FED Federal" and falls under the jurisdiction of the federal government.

Surrounding surface water bodies include the Potomac River to the east of the Site, Quantico Creek to the south, and Possum Point Creek west of the Site. Stream channels in the area flow in a general easterly direction towards the Potomac River. The tidal range for Potomac River at the mouth of Quantico Creek adjacent to the Site is variable and averages approximately 1.5 feet with a typical river elevation range of 0.0 feet above mean sea level (AMSL) at low tide to 1.5 feet AMSL at high tide (NOAA, 2020). Based on a review of the Virginia Department of Mines, Minerals and Energy (DMME) interactive geologic map, one industrial water supply well is located at the Station. The well was installed in 1946 and is located approximately 4,200 feet south-southeast of Pond E. Information provided for the well indicates that it was installed to a total depth of 601.5 feet with a recorded water level of 56 feet below grade. According to Station personnel, this well is inactive (Golder, 2019a).



The Site and its immediate surrounding area are serviced by a municipal water supply. The closest residential water supply wells located downgradient from Pond E are over 1 mile west of the Unit, across a hydraulic divide (i.e., Quantico Creek). There are a few existing private water supply wells west of Pond E; however, they are sidegradient of the Site, and across another hydraulic divide (i.e., unnamed creek that flows to Quantico Creek). Based on this information, none of the identified potable wells are expected to be affected by Pond E.

2.3 GEOLOGY

The Station is situated in the northwestern portion of the Virginia Coastal Plain Physiographic Province and as documented in the "Groundwater Monitoring Plan" for Ponds ABC, D, and E:

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 (Kp) Formation and Tertiary (Tl) to Quaternary (Q) fluvial-deltaic sediments mapped as lower Tertiary terrace deposits (Tl), and the Charles City (Q), Shirley (Q), and Tabb (Q) 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. (Golder, 2019a, pg. 6)

Geologic drilling activities performed at the Station have produced multiple soil boring logs that assist with the understanding of the sediment deposition. The top of the Potomac Confining Unit, described as a hard-desiccated clay with very low permeability, has been observed in many of the boring locations. This sediment layer is considered to be a confining unit that underlies the upper Potomac Aquifer and is understood to be present across the entire study area, as shown on the cross-section A-A' of Figure 3. Therefore, the upper aquifer beneath the study area is physically and hydrologically separated from the lower Potomac Aquifer. Portions of the Site, specifically north of Possum Point Road, have shown thicker deposits of the Cretaceous Potomac Formation sands overlying the confining unit.

2.4 HYDROGEOLOGY

The Site hydrogeology consists of one primary water-bearing unit comprised of interbedded materials generally reflecting a fluvial/estuarine depositional environment. These Quaternary/Tertiary and Cretaceous sediments make up the unconfined upper Potomac Aquifer that overlies the Potomac Confining Unit. The Pond E compliance groundwater monitoring network currently monitors this granular soil within the upper Potomac Aquifer. As documented in the in the "Groundwater Monitoring Plan" for Ponds ABC, D, and E:

Locally, perched water tables are present in the upper sections of the uppermost aquifer sediments. These perched water tables are not hydraulically connected by saturated sediments in the uppermost aquifer. Because the perched water tables (where observed) are present at a higher elevation than the impoundments, monitoring of these perched water tables is not required under the CCR Rule or the VSWMR. (Golder, 2019a, pg. 7)



The groundwater in the uppermost aquifer beneath Pond E generally flows in a south-southwest direction. Groundwater measurements collected in April 2020 from wells screened in the uppermost aquifer in the vicinity of Pond E indicate that the depth to groundwater is between 51 and 17 feet depending on topographic elevation. The saturated thickness of the uppermost aquifer is observed to lessen as it flows downgradient, ranging from approximately 40 to 20 feet throughout the Pond E study area.

2.4.1 Potentiometric Surface Evaluation

Static water level data collected on 15 April 2020 are summarized in Table 1. Using the groundwater contours presented on Figure 4, the average hydraulic gradient for Pond E's compliance network formation in the study area was calculated using the algorithm below. Two flow directions were averaged in the upper Potomac Aquifer to calculate a representative gradient. The spatial distribution of groundwater elevations in the Potomac Formation is indicative of a generally low gradient across Pond E.

Area	Starting Head (Elevation feet AMSL)	Ending Head (Elevation feet AMSL)	Distance (feet)	Calculated Gradient (unitless)	Average Gradient (unitless)		
NES, April 2020							
Pond E -	30	1	1595	0.0182	0.0176		
Upper Potomac	20	1	1112	0.0171	0.0176		

$$i_{gw} = \binom{h_L}{L}$$

Where: i_{qw} = gradient

 h_L = head loss (elevation difference) L = length (horizontal distance)

The algorithm below was used to calculate the average rate of groundwater flow (V_{gw}) in the compliance network formation beneath Pond E. An estimated average effective porosity value of 20% is representative for the sediments comprising the Potomac Formation (USEPA, 2000). The estimated average hydraulic conductivity value for the formation (Golder, 2019a) along with the calculated gradient is shown in the following table.

Area	Average Gradient (unitless)	Effective Porosity	Hydraulic Conductivity (cm/s)	Groundwater Velocity (feet/year)		
NES, April 2020						
Pond E - Upper Potomac	0.0176	0.20	2.01E-04	18.3		

Notes: cm/s = centimeter per second

feet/year = feet per year

$$V_{gw} = K i \left(\frac{1}{n_o} \right)$$



Where: V_{gw} = Groundwater velocity K = Hydraulic conductivity i = Hydraulic gradient n_e = Effective porosity

As indicated, the estimated average groundwater flow rate in the upper Potomac Aquifer beneath Pond E is approximately 18.3 feet per year. The calculated flow rates for the NES sampling event conducted in 2020 are consistent with previous calculations for the area.



3. Groundwater Monitoring and Quality

Groundwater monitoring occurs in compliance with applicable sections of the CCR Rule (40 CFR Part 257) and VSWMR (9VAC20-81). The following sections provide an overview of the CCR and VSWMR groundwater monitoring program activities conducted to date for Pond E.

Golder prepared a "Groundwater Monitoring Plan" (GMP) for Ponds ABC, D, and E on behalf of Dominion Energy to satisfy the requirements of the CCR Rule and the SWP (Golder, 2019a). The GMP presents the design of the groundwater monitoring system, groundwater sampling and analysis procedures, and groundwater statistical analysis methods.

The Pond E groundwater monitoring compliance network consists of two upgradient/background wells (ED-24R and ED-26) and five downgradient monitoring wells (ES-3D, ES-1609, ES-1613, T-1615D, and T-1615S) designed to monitor the uppermost aquifer beneath the Unit. The Station also maintains two VSWMR wells (ED-22RA and ED-23R) that are used as sentinel wells. The monitoring well locations are shown on Figure 4.

The CCR Detection Monitoring Program for Pond E was initiated in November 2016. Thirteen rounds of baseline/background samples were collected by December 2018 in accordance with 40 CFR Part 257.94(b). The initial Detection Monitoring Program compliance sampling event was conducted in March 2019.

SWP No. 617 was issued by the VDEQ on 13 June 2019 and included closure, groundwater monitoring, and surface water monitoring requirements for Pond E. Dominion Energy submitted the "Pond E Closure by Removal Report" and Engineer Certification to VDEQ on 25 June 2019.

The results of the baseline sampling events were compared to background values, using statistical methods to determine if downgradient concentrations were present at levels above background, called Statistically Significant Increases (SSIs). The results of this analysis indicated SSIs and a notification of SSI over the CCR Unit's background concentrations under the Detection Monitoring Program were placed in the operating record in July 2019. The SSIs triggered the transition to the Assessment Monitoring Program.

A copy of the "Initial CCR Groundwater Monitoring and Corrective Action Report" (Golder, 2019b) was placed in the operating record on 30 August 2019. During the Assessment Monitoring phase, CCR groundwater monitoring well samples were collected and subsequently analyzed for parameters listed in Appendix III and Appendix IV of the CCR Rule and the constituents and parameters listed in the Unit's solid waste permit. On 30 December 2019, the federal GWPS for the Unit were established.

The "Pond E Facility Background Determination Report" (Golder, 2019c) and proposed SWP GPS were submitted to the VDEQ on 15 August 2019. The VDEQ issued a letter on 30 August 2019 verifying source removal and an over excavation of a minimum of 6 inches was conducted in accordance with the Unit's closure plan. In April 2020, SWP GPS were approved by VDEQ for detected Appendix IV constituents in accordance with 40 CFR Part 257.95(h) and for boron and constituents listed in Permit Module XI.F.2 of the Unit's solid waste permit. Because the Commonwealth of Virginia adopted by reference the 4 October 2016 version of 40 CFR Part 257 into 9VAC20-81-800 of the VSWMR, amendments to 40 CFR Part 257 Subpart D after 4 October 2016 have not been incorporated into 9VAC20-81-800, and health-



based GWPS are not applicable to the Virginia CCR Rule under 9VAC20-81-800. Two sets of groundwater protection standards were therefore established (Federal GWPS and SWP GPS) as follows:

- 1. For constituents with an established Maximum Contaminant Level (MCL), the MCL was used.
- For constituents for which a health-based GWPS has been adopted under the 30 July 2018 Phase 1, Part 1 amendment to the CCR Rule, the health-based GWPS was used for the Federal CCR Rule GWPS.
- 3. Under 9VAC20-81-800, for constituents for which an MCL has not been established, the background concentration for the constituent was used for GPS.
- 4. For constituents with background levels higher than the MCL or health-based GWPS, the background concentration was used for GWPS/GPS.

The following constituent was detected in Pond E groundwater monitoring program wells at concentrations exceeding the established GWPS/GPS during the 2019 second semiannual sampling event:

Pond E 2019 2 nd Semi-Annual Sampling Event Appendix IV Constituents Exceeding GWPS/GPS				
Well ID Cobalt				
ES-3D	X			
ES-1609	X			
ES-1613	Х			
T-1615S	Х			

The federal GWPS exceedances were documented in the CCR Rule required Groundwater Protection Exceedance Notification which was placed in the operating record in January 2020.

Accordingly, Dominion Energy initiated an NES to characterize the release of cobalt in groundwater in accordance with 40 CFR Part 257.95(g)(1) and initiated an assessment of corrective measures for cobalt per 40 CFR Part 257.96. The NES for cobalt in Pond E is presented and discussed in Section 4 of this ACM Report.



The following constituents were detected in Pond E groundwater monitoring program wells at concentrations exceeding the established GWPS/GPS during the 2020 first semi-annual sampling event:

Pond E 2020 1 st Semi-Annual Sampling Event Appendix IV Constituents, VSWMR Metals (and Boron) Exceeding GWPS/GPS							
Well ID	Well ID Boron Cobalt Nickel Zinc						
ES-3D	Х	Х	Х	Х			
ES-1609	Х	Х	Х				
ES-1613	Х	Х	Х				
T-1615S	Х	Х	Х				

As a result of the SWP GPS exceedances, Dominion Energy submitted an exceedance of GPS notification to the VDEQ on 1 May 2020. The GWPS exceedances were documented in the CCR Rule required Groundwater Protection Standard Exceedance Notification which was placed in the operating record in May 2020.

As previously mentioned, an NES and assessment of corrective measures was initiated for cobalt under the CCR Rule and in accordance with SWP No. 617. In accordance with 9VAC20-81-260, Dominion Energy also initiated an NES to characterize the concentrations of boron, nickel, and zinc in groundwater and initiated an assessment of corrective measures for boron, nickel, and zinc. A discussion of the NES for boron, nickel, and zinc in Pond E is provided in Section 4 of this ACM Report.



4. Nature and Extent Study

This section summarizes field activities conducted in April 2020 to characterize the nature and extent of impacts from constituents listed in Section 3 that exceeded federal GWPS and/or SWP GPS in the Pond E groundwater monitoring program network wells. The NES was conducted in accordance with 40 CFR 257.95(g)(1) and 9VAC20-81-260. The scope of work for this investigation included the following:

- Three new groundwater monitoring wells (ES-1D, ES-7, and ES-7D) were installed downgradient
 of Pond E to further delineate the horizontal and vertical extent of GWPS/GPS exceedances and
 confirm groundwater flow direction. The monitoring wells are also located in close proximity to
 the Site boundary.
- Once the new wells were developed, the three new monitoring wells, seven existing compliance wells, two existing VSWMR sentinel wells, and one existing observation well were sampled.
- A comprehensive round of groundwater elevation measurements was collected from the 13
 existing and new wells to produce potentiometric surface maps.

The following sections summarize the investigation activities and results.

4.1 WELL INSTALLATION

Based on a review of historical characterization information, compliance monitoring data, and location accessibility, three new groundwater monitoring wells were installed as part of the NES for Pond E. The new well locations are shown on Figure 4. It should be noted that new monitoring wells could not be installed within the boundaries of the protective eagle's nest buffer (radius of 660 feet) in the area downgradient of Pond E. Due to these access limitations, the NES wells were installed as close to downgradient of existing compliance wells as possible, without encroaching upon the eagle's nest buffer boundary.

- Monitoring well ES-1D was installed downgradient of Pond E, sidegradient of compliance well ES-1613, and adjacent to existing observation well ES-1 to provide vertical delineation of boron, cobalt, nickel, and zinc. The well was screened approximately 12 feet into the uppermost confining layer, below the saturated sands in which ES-1 is screened.
- Monitoring well ES-7 was installed downgradient of Pond E, as close to downgradient of compliance wells ES-3D, ES-1609, and ES-1613 as possible to provide horizontal delineation of boron, cobalt, nickel, and zinc. The well was screened in sand deposit above the Potomac confining layer.
- Monitoring well ES-7D was installed adjacent to new monitoring well ES-7 to provide vertical delineation of boron, cobalt, nickel, and zinc. The well was screened approximately 10 feet into the uppermost confining layer, below the sand stratum in which ES-7 is screened.

Monitoring wells ES-7/7D were installed just upgradient of a small swale that discharges directly into Quantico Creek.

Haley & Aldrich subcontracted Cascade Drilling, LP, of New Ellington, South Carolina, to advance the three well locations using sonic drilling techniques. Continuous soil samples were collected to the terminal depth at each location to ensure that any water-bearing zones could be identified, and screened intervals appropriately designed. Soil samples were described using visual-manual methods



and classified in general accordance with the Unified Soils Classification System. The boring logs and well installation logs for the NES wells are presented in Appendix A. Well construction details are summarized in Table 2. Additional details regarding the well installations are provided below.

ES-1D was installed to a total depth of 50 feet below ground surface (bgs) with a screened interval from 45 feet bgs to 50 feet bgs. The well is located adjacent to ES-1, near the southeastern boundary of Pond E and on the opposite side of Possum Point Road as shown on Figure 4. The upper portion of the lithology was observed to include interbedded alluvial sediments to approximately 28.5 feet bgs. A graygreen clay representative of the Potomac confining unit was observed to a depth of approximately 47.5 feet bgs. The lower portion of the screen interval consists of clayey sand lenses within the confining unit.

ES-7 was installed to a total depth of 22 feet bgs with a screened interval from 17 feet bgs to 22 feet bgs. The well is located approximately 500 feet west of ES-1, south of the Pond E boundary, and adjacent to the eagle's nest protective buffer as shown on Figure 4. The lithology was observed to include interbedded alluvial sediments to approximately 20.5 feet bgs. A gray clay layer was observed through the lower portion of the screen interval.

ES-7D was installed to a total depth of 48 feet bgs with a screened interval from 43 feet bgs to 48 feet bgs. The well is located adjacent to ES-7, approximately 500 feet west of ES-1, and adjacent to the eagle's nest protective buffer as shown on Figure 4. The upper portion of the lithology was observed to include interbedded alluvial sands, silts, and clays to approximately 34.0 feet bgs. A gray-green clay representative of the Potomac confining unit was observed to a depth of approximately 60.0 feet bgs and the screen interval was installed within this confining unit.

Monitoring wells ES-1D, ES-7, and ES-7D were developed using a submersible pump to remove any fine sediment from the well and to connect the well screen to the formation. Development at ES-1D was continued until the water flowing from the well was sediment free and non-turbid. Approximately 50 gallons of purge water were removed from ES-1D during development. Due to the lithology's low permeability, monitoring wells ES-7 and ES-7D did not produce as much water during the development process as ES-1D. Approximately 30 gallons of purge water were removed from the combined wells. The development water from all three monitoring wells was containerized in two 55-gallon drums for offsite disposal.

Following installation and development of ES-1D, ES-7, and ES-7D, the well locations were surveyed by D&M Surveyors, PC, a Virginia-licensed surveyor based in Tappahannock, Virginia. Survey information is included in Table 2.

4.2 GROUNDWATER SAMPLING

From 7 April through 16 April 2020, the Pond E compliance monitoring wells and VSWMR sentinel wells were sampled as part of the NES in accordance with 40 CFR Part 257.95(g)(1)(iv) and the VSWMR. In addition, the newly installed groundwater monitoring wells ES-1D, ES-7, and ES-7D were sampled to characterize the nature and extent of GWPS/GPS exceedances identified in the Pond E compliance monitoring wells.

Samples were collected using low-flow/low stress sampling methodology. The compliance monitoring wells were purged and sampled using dedicated bladder pumps. The newly installed monitoring wells do not have dedicated bladder pumps; therefore, a submersible bladder pump was used for sampling.



Proper decontamination procedures were implemented when a submersible pump was used. Prior to purging, the depth to water in each well was measured using an electronic water level meter. Each sample collected was field analyzed for general water quality parameters (pH, specific conductivity, temperature, dissolved oxygen, oxidation-reduction potential, and turbidity) using calibrated multiparameter water quality meters. The low-flow sampling logs for the sampling event are provided in Appendix B.

All compliance wells and VSWMR sentinel wells were sampled for the analysis of Appendix III and Appendix IV list constituents in accordance with 40 CFR Part 257.95(d)(1) as well as the VSWMR and Virginia Pollutant Discharge Elimination System (VPDES) constituents listed in the Unit's SWP. Existing observation well ES-1 and newly installed well ES-1D were analyzed for the same suite of constituents. Substantial drawdown was observed at new wells ES-7 and ES-7D during the low-flow purging process resulting in very low sample volume and turbid discharge. Given the low volume of water produced at these two well locations, sufficient bottleware was collected for the analysis of total boron, cobalt, nickel, and zinc only. Given the elevated turbidities associated with ES-7 and ES-7D (371 and 477 nephelometric units [NTUs], respectively), samples were also collected for the analysis of dissolved boron, cobalt, nickel, and zinc (field filtered for ES-7 and lab-filtered for ES-7D). At the time of sample collection, the well screens at these two locations were not fully submerged.

Quality assurance/quality control (QA/QC) samples (1 matrix spike/matrix spike duplicate [MS/MSD], 1 field blank, and 1 equipment blank) were collected as well. Samples were packed on ice in coolers and submitted for analysis under standard chain of custody protocol to Pace Analytical Services (Pace) of Greensburg, Pennsylvania, and Asheville, North Carolina, and Air, Water, & Soil Laboratories, Inc., (AWS) of Richmond, Virginia. Both analytical laboratories are Virginia Environmental Laboratory Accreditation Program (VELAP)-accredited laboratories for the analyses – Pace (VELAP ID Nos. 9526 and 460222) and AWS (VELAP ID. No 460021). The laboratory analytical reports are provided in Appendix C. The groundwater analytical results are presented in Table 3.

4.3 GROUNDWATER LEVEL MONITORING

A synoptic round of water levels was collected from Pond E wells during the NES to support groundwater flow estimates. A summary of the groundwater elevation data is provided in Table 1.

Groundwater generally flows in a south-southwesterly direction from the Unit to the surface water body (Quantico Creek) along the Stations' southern property boundary. Groundwater contours and flow directions in the upper aquifer are presented on Figure 4.

4.4 INVESTIGATION-DERIVED WASTE MANAGEMENT

Solid and liquid investigation-derived waste (IDW) generated during the assessment process was containerized in 55-gallon drums, labelled, and staged in a Station-designated location near Pond D. Five drums containing soil-cuttings and two drums containing groundwater were generated. Two waste characterization samples were collected to profile the IDW. The IDW was loaded and transported to Giant Resource Recovery of Sumter, South Carolina on 15 June 2020. The waste characterization results, profile, and disposal manifest are included in Appendix D.



4.5 DATA USABILITY AND QA/QC RESULTS

Following receipt of the laboratory analytical data, the analytical results were validated in accordance with the following EPA guidance:

- National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA, 2017); and
- Evaluation of Radiochemical Data Usability (Paar, 1997).

In summary, the validated analytical data were used herein according to the qualifiers presented. The analytical laboratory results were found to comply with the data quality objectives for the project and the guidelines specified by analytical method. Based on a review of the analytical reports, the data are 100% useable. The data usability summary reports are provided in Appendix E. Any qualifiers applied to analytical results based on validation are included in the project data table (Table 3).

The reported phenolics concentration in sentinel well ED-22RA and the lead and boron concentrations in sentinel well ED-24R were qualified based on matrix spike recovery being outside of the acceptance limits. MS/MSD data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. The phenolics, lead, and boron results were UJ qualified, indicating that the compounds were not detected above the reported sample quantitation limits; however, the reported limits are estimated. The sulfate concentrations in both ED-22RA and ED-24R and the chloride and fluoride concentrations in ED-24R were J-qualified (indicating that that results were estimated) based on MS recovery being outside the acceptance limits. Barium and calcium concentrations in ED-24R were also qualified (J-, indicating the result is estimated but may be biased low) due to MS recovery outside of acceptance limits.

The boron concentration from compliance well ED-26 and the tin concentration from compliance well T-1615S were U-qualified during data validation because of method blank contamination. Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Based on boron and tin detections in the method blank, the compliance well sample results were U-qualified, indicating that the compounds were analyzed for but not detected.

The nickel and zinc concentrations from well ED-26 were U-qualified because of equipment blank contamination. Equipment blanks are prepared in the field to identify contamination that may have been introduced while decontaminating sampling equipment. Based on nickel and zinc detections in the equipment blank, the compliance well sample results were U-qualified, indicating that the compounds were analyzed for but not detected. It is noted that the original laboratory results reported for nickel and zinc were all below the applicable SWP GPS.

Data validation for the dissolved nickel concentrations reported for NES wells ES-7 and ES-7D resulted in qualified data (J-, indicating the result is estimated but may be biased low) due to low MSD percent recovery. The dissolved zinc concentrations reported for ES-7 and ES-7D were also qualified (J- and UJ, respectively) due to low MSD percent recovery. The UJ-qualifier indicates that the compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated.



The combined radium-226 and -228 results for compliance wells ES-1613, ES-3D, T-1615D and NES well ES-1 were J-qualified (indicating results are estimated) during data validation to account for corrected combined isotope calculations.

The laboratory analytical reports for the sample collected from compliance well T-1615S included several non-detect results for select Appendix IV and VSWMR constituents with laboratory MDLs and/or RLs above the applicable SWP GPS and/or federal GWPS. The elevated MDLs/RLs were a result of laboratory dilution (200x) required due to high sodium and calcium content in the sample. Of the constituents with GWPS/GPS exceedances (boron, cobalt, and nickel) reported previously from this well, the laboratory dilution only affected the result for nickel.

As outlined in Section 4.2, given the low volume of water produced and elevated turbidities observed at NES wells ES-7 and ES-7D during sampling, samples were collected for totals metals analysis in addition to dissolved analysis (field filtered for ES-7 and lab-filtered for ES-7D). The reported laboratory analytical concentrations for the dissolved metals from each of the wells were similar to the reported totals concentrations.

Field QA/QC samples for the sampling event included one field blank, one equipment blank, and one MS/MSD. The QA/QC samples were analyzed for the same constituents as the groundwater samples and validated. The analytical results for the field blank and equipment blank are provided in Table 3, along with the field sample results. The MS/MSD results are provided in the analytical laboratory reports included as Appendix C.

4.6 DATA EVALUATION

The following GWPS/GPS exceedances were identified in Pond E monitoring wells as outlined in the following table:

Pond E Nature and Extent Study					
Detected Constituent	GWPS/GPS (μg/L)	Monitoring Well ID	Concentration (μg/L)		
	QL (250)	ES-1609	1,160		
		ES-1613	2,200		
		ES-3D	732		
Boron		T-1615S	767 J		
		ES-1	288		
		ES-7	264 (total) 261 (dissolved)		
		ES-1609	21.8		
		ES-3D	35.3		
Cobalt	6 / QL (5)	T-1615S	22.4		
Coduit	3, 45(3)	ES-1	5.8		
		ES-7	89.2 (total) 82.3 (dissolved)		



Pond E Nature and Extent Study					
Detected Constituent	GWPS/GPS (μg/L)	Monitoring Well ID	Concentration (μg/L)		
		ES-1609	15.5		
		ES-1613	6.3		
Nickel		ES-3D	26.4		
Wicker	QL (5)	ES-1	21.1		
		ES-7	69.4 (total) 60.7 J- (dissolved)		
		ED-22RA	5.6		
Zino	QL (50)	ES-3D	203		
Zinc		ES-1	75.3		

Notes:

μg/L = micrograms per liter

QL = quantitation limit

J = value is estimated

J- = result is an estimated quantity, but the result may be biased low.

No GWPS/GPS exceedances were identified in the upgradient compliance wells ED-24R and ED-26, downgradient compliance well T-1615D, NES wells ES-1D and ES-7D, or VSWMR sentinel well ED-23R.



5. Nature and Extent of Constituents of Concern

The following summarizes the chemical nature and extent of the detected CCR Appendix IV constituents and VSWMR constituents that exceeded their respective federal GWPS or SWP background-based GPS for the Unit.

As detailed above, boron, cobalt, nickel, and zinc were detected in select Pond E wells above their respective GWPS/GPS. Plan view isoconcentration maps for each constituent are provided as Figures 5, 6, 7, and 8, respectively. The cross-section provided on Figure 3 depicts the vertical concentration of each constituent as well.

5.1 BORON

5.1.1 Nature of Boron

Boron is a naturally occurring element that can be found extensively in nature. Boron is classified as a nonmetal and is typically found in the environment combined with oxygen in compounds called borates. The main uses of borates in the United States include glass and ceramics, soaps, bleaches, detergents, fire retardants, and pesticides. Boron is mined and produced globally and in the United States, primarily in California. Biologically, boron plays an important role as an essential micronutrient in plants. Exposure to large amounts of boron over short periods of time can affect the stomach, intestines, liver, kidney, and brain. Animal studies have shown effects of boron on the male reproductive system. No evidence of cancer was found in a study in which mice were given boric acid in the diet throughout their lifetime (ATSDR, 2010).

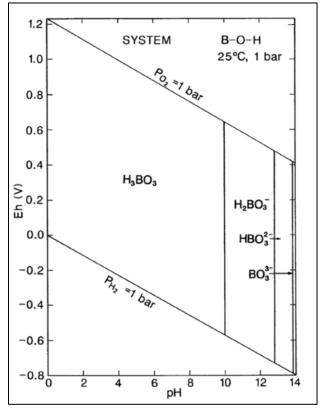


Figure A: Boron Eh-pH diagram for boron species Brookins 1988.



Boron is one of the most mobile metals associated with CCR material in groundwater. The various species of boron throughout the pH and electro-potential (Eh) range found in most aquifer systems is presented in Figure A. Within pH ranges of 6 to 8 (the pH range of most groundwater) the predominate form of boron is relatively inert boric acid. Boron can adsorb to many different mineral and soil surfaces (such as kaolinite and illite clay) forming weak, labile bonds (Parks and Edwards, 2005). The mobility of boron in groundwater is generally a function of the amount of fine-grained materials and the presence of certain iron and aluminum oxides, which decrease mobility (Bouwer, 1973).

5.1.2 Extent of Boron

Boron was detected during the NES at concentrations exceeding the SWP background-based GPS in compliance wells ES-1609, ES-1613, ES-3D, and T-1615S. The boron concentrations detected in these wells were generally consistent with the assessment monitoring results from 2019. No boron SWP GPS exceedances were detected in any of the remaining compliance wells or VSWMR sentinel wells. Boron was detected at concentrations slightly exceeding the SWP GPS in shallow NES wells ES-1 and ES-7 (which were installed as close to downgradient of the compliance wells as possible and close to Dominion Energy's southern property boundary as shown on Figure 5). Boron was not detected above the SWP GPS in the collocated deep NES wells ES-1D and ES-7D, respectively.

A summary of historical detections of boron in groundwater samples collected from Pond E wells is presented in Appendix F-1. The SWP background-based GPS for boron of 250 μ g/L became effective on 2 April 2020. The SWP GPS was exceeded at four compliance wells and the two shallow NES wells. It should be noted that the GPS for boron is not a risk-based concentration, but rather a background-based concentration that is not intended to be protective of actual risk. The EPA has classified boron as a non-carcinogenic constituent and established a risk-based concentration for boron in tapwater (drinking water), referred to as the Tapwater Regional Screening Level (RSL). The Tapwater RSL for boron is 4,000 μ g/L (based on a hazard quotient of 1.0). The RSL represents the level of a constituent below which there is no known or expected risk to health. As shown in Appendix F-1, all historical boron concentrations in Pond E wells have been below the Tapwater RSL value.

A review of surface water analytical data collected by others in accordance with SWP No. 617 from Quantico Creek was conducted to further evaluate the extent of boron concentrations in the vicinity of Pond E. Quantico Creek is located south of and downgradient of Pond E. The solid waste permit requires sampling of four locations (PP-01 through PP-04) downgradient of Pond E and a comparison of analytical data to applicable Virginia Water Quality Standards (VAWQS) or to SWP GPS where VAWQS do not exist. Samples were collected by EnviroScience, Inc. on 24 March 2020 and the results were reported to the VDEQ in the First Quarter 2020 Surface Water Monitoring Report (EnviroScience, 2020). A second round of samples was collected on 23 June 2020 and the results will be reported to the VDEQ in the forthcoming Second Quarter 2020 Surface Water Monitoring Report. A summary table is included as Table 4. The surface water sample locations and reported boron concentrations are shown on Figure 5. As shown on the figure, boron was not detected in any of the surface water sample locations downgradient of Pond E during either sampling event.

While exceedances of the SWP background-based GPS for boron have been observed in Pond E wells, none of the reported concentrations exceed the EPA risk-based Tapwater RSL of 4,000 μ g/L. This information, coupled with the lack of boron detections in surface water immediately downgradient of the Unit, indicate that the extent of boron in the uppermost aquifer beneath Pond E has been adequately delineated and off-site impacts are not a concern.



5.2 COBALT

5.2.1 Nature of Cobalt

Cobalt is a naturally occurring element that can be found extensively in nature in water, air, rocks, plants, and soil. Cobalt is classified as a transition metal and is typically found in the environment combined with other elements like oxygen, sulfur and arsenic. Cobalt is primarily used in combination with other metals to form alloys used in industrial and military applications, including gas turbine aircraft engines. In the United States, cobalt is imported or obtained from scrap recycling. Biologically, cobalt as a component of cyanocobalamin (vitamin B12) plays an essential role in the health of animals and humans. The Recommended Dietary Allowance of vitamin B12 is 2.4 micrograms per day, which contains 0.1 micrograms of cobalt. Short- and long-term exposure of rats to high levels of cobalt in food or drinking water results in effects on the blood, liver, kidneys, and heart (ATSDR, 2004).

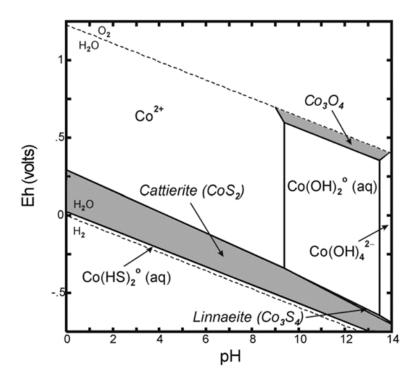


Figure B: Eh-pH diagram showing dominant aqueous species of cobalt (Co) and Eh-pH region (shaded areas) where the solubilities of cobalt solids have been exceeded [diagram was calculated at 25 °C and a concentration of 10 12 mol/L total dissolved cobalt in the presence of dissolved chloride, nitrate, carbonate, and sulfate.]; adopted from Krupka and Serne (2002).

The aqueous speciation of cobalt and potential formation of cobalt-related minerals under a spectrum of the Eh, pH, and sulfide-producing conditions are shown in Figure B. Under neutral pH (pH between 6 and 8) and non-sulfidogenic conditions, Co²⁺ is expected to be the dominated species in the aqueous phase. Under sulfide-producing conditions, cobalt sulfide minerals (e.g., CoS₂) may form and precipitate. Cobalt has also been reported to adsorb to sulfide minerals or form co-precipitation in sulfide minerals (EPRI, 2015).



The adsorption of cobalt in sediments and soils is largely controlled by the presence of iron and manganese oxide and clay minerals. The adsorption behavior of cobalt is closely linked to its oxidation state, and the environmental availability of natural and man-made organic complexants. Under cobalt adsorption, studies show that cobalt is moderately to highly adsorbed on minerals in the absence of organic complexants. At near neutral and basic pH environments and absence of organic complexants, cobalt exhibits high adsorption affinity for oxidized minerals. The adsorption constant (Kd) values commonly reported in the literature range from 10^3 to 10^5 Liter/Kilogram (L/Kg). Sheppard et al. (2009) evaluated a large set of cobalt sorption and desorption data and summarized the geometric mean Kd values for various soil types and conditions as follows: sand Kd = 260 L/Kg, loam Kd = 810 L/Kg, clay Kd = 3,800 L/Kg, organic matter Kd = 87 L/Kg, and Kd for soils with pH ≤ 5 = 12 L/Kg. The extent of adsorption is greatly influenced by pH; generally, the degree of adsorption increases with pH.

Cobalt adsorption due to surface bound humic acid is weak and dominated by ion exchange (Zachara et al., 1994). It has also been found that the surface-bound humic acid functional moieties on aquifer solids increased cobalt adsorption on all mineral sorbents by 10 to 60%. The largest increase in cobalt adsorption occurs in the pH range from 4.5 to 6.5, where the humic acid adsorption is the greatest.

5.2.2 Extent of Cobalt

Cobalt was detected during the NES at concentrations exceeding the federal GWPS and SWP GPS in compliance wells ES-1609, ES-3D, and T-1615S and NES well ES-7. Cobalt was detected at a concentration exceeding the SWP background-based GPS but below the federal GWPS in NES well ES-1. The cobalt concentrations detected in the compliance wells were generally consistent with the assessment monitoring results from 2019. The cobalt concentrations detected in NES well ES-7 (89.2 μ g/L total, 82.3 μ g/L dissolved) may be a result of the limited saturated thickness of the shallow aquifer and thin water column. No cobalt GWPS/GPS exceedances were detected in any of the remaining compliance wells and VSWMR sentinel wells or in deep NES wells ES-1D and ES-7D.

A summary of historical detections of cobalt in groundwater samples collected from Pond E wells is presented in Appendix F-2. The federal GWPS (based on the health-based Tapwater RSL) for cobalt became effective on 30 December 2019. The background-based SWP GPS for cobalt because effective on 2 April 2020. A review of the historical cobalt concentrations indicates that the GWPS/GPS has been exceeded in compliance wells ES-1609, ES-1613, ES-3D, and T-1615S. As shown in Appendix F-2, concentrations in compliance well ES-1613 were historically detected at concentrations above 20 μ g/L; however, since source removal activities began in 2016, concentrations have steadily decreased. During the NES, the cobalt concentration detected in well ES-1613 (4.8 μ g/L) was below both the GWPS (6 μ g/L) and the background based SWP GPS (5 μ g/L). Cobalt concentrations in the other compliance wells have remained relatively stable since source removal activities were completed.

A review of the available surface water analytical data collected from locations PP-01 through PP-04 in accordance with SWP No. 617 from Quantico Creek was conducted to further evaluate the extent of cobalt concentrations in the uppermost aquifer beneath Pond E. The surface water sample locations and reported cobalt concentrations are shown on Figure 6, and the analytical results are summarized in Table 4. As shown on the figure, cobalt was detected in each of the surface water sample locations at concentrations less than laboratory reporting limit, which is well below the applicable VAWQS of 5 μ g/L (based on the SWP GPS).

Based on the groundwater results presented herein, coupled with the low level concentrations reported in downgradient surface water samples, the vertical and horizontal extent of cobalt in the uppermost aquifer beneath Pond E has been adequately delineated, and the data do not indicate any off-Site cobalt



impacts associated with the on-Site cobalt groundwater concentrations. While the highest cobalt concentration detected during the NES was reported in NES well ES-7, the reported concentration may be a result of the limited saturated thickness of the shallow aquifer and thin water column.

5.3 NICKEL

5.3.1 Nature of Nickel

Nickel is a naturally occurring element that can be found extensively in nature, including in soils and volcanic dust. Nickel is classified as a transition metal and is typically found in the environment combined with oxygen or sulfur as oxides or sulfides. Nickel compounds that are soluble in water include nickel chloride, nickel nitrate, and nickel sulfate; less-soluble nickel compounds include nickel oxide and nickel subsulfide. Nickel is primarily used in combination with other metals to form alloys used to make stainless steel, coins, jewelry, and for industrial uses, including heat exchangers and valves. Nickel in the United States is obtained from recycling nickel alloys or is imported primarily from Canada and Russia. Biologically, nickel plays an important role as an essential micronutrient in animals. Oral exposure of humans to high levels of soluble nickel compounds through the environment is extremely unlikely. Because humans have only rarely been exposed to high levels of nickel in water or food, most of the data on harmful effects of nickel is based on animal studies. Eating or drinking levels of nickel much greater than the levels typically found in food and water have been reported to produce lung disease in dogs and rats and to affect the stomach, liver, kidneys, blood, and immune system in rats and mice, as well as their reproduction and development (ATSDR, 2005a).

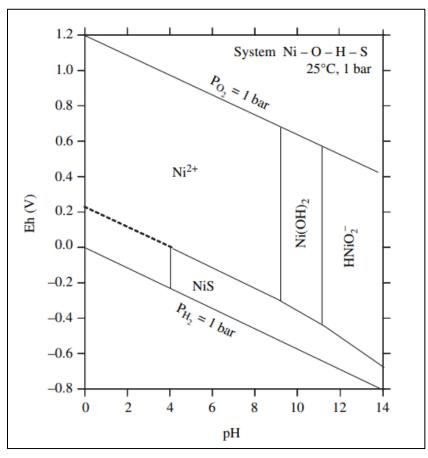


Figure C: Nickel Eh-pH diagram for Ni-O-H-S system Nieminen et al. 2007.



The various species of nickel throughout the pH and Eh range are presented in Figure C. Groundwater pH range is generally between 6 and 8, and the range of oxidation-reduction potential is generally negative and above -200 millivolts (mV) (-0.2 volts [V] in Figure C). These conditions would be consistent with low dissolved oxygen concentrations and high dissolved iron concentrations in groundwater. In most soils, nickel is bound to ion exchange sites, is specifically adsorbed, or adsorbed on or coprecipitated with aluminum and iron oxyhydroxides (Nieminen et al., 2007). Within these environments, nickel is generally immobile. In the presence of organic-rich soils, where humic acids are formed by the decomposition of organic materials, nickel may be quite mobile because of the formation of nickel-ligand complexes in the aqueous phase (Nieminen et al., 2007).

5.3.2 Extent of Nickel

Nickel was detected during the NES at concentrations above the SWP background-based GPS in compliance wells ES-1609, ES-1613, and ES-3D and VSWMR sentinel well ED-22RA. The nickel concentrations detected in these wells were generally consistent with the assessment monitoring results from 2019. Nickel was also detected at concentrations above the SWP GPS in NES wells ES-1 and ES-7. The nickel concentrations detected in NES well ES-7 (69.4 μ g/L total, 60.7 J- μ g/L dissolved) may be a result of the limited saturated thickness of the shallow aquifer and thin water column. Nickel was not detected above the SWP background-based GPS in the remaining compliance wells, VSWMR sentinel well, or deep NES wells.

A summary of historical detections of nickel in groundwater samples collected from Pond E wells is presented in Appendix F-3. The SWP background-based GPS for nickel of 5 μ g/L became effective on 2 April 2020. The GPS for nickel is not a risk-based concentration, but rather a background-based concentration that is not intended to be protective of actual risk. The EPA has classified nickel as a non-carcinogenic constituent and established a risk based Tapwater RSL for nickel. The Tapwater RSL for nickel is 390 μ g/L (based on a hazard quotient of 1.0). The RSL represents the level of a constituent below which there is no known or expected risk to health. As shown in Appendix F-3, all historical nickel concentrations in Pond E wells have been well below the Tapwater RSL value. Additionally, concentrations in compliance well ES-1613 were historically detected at concentrations ranging from approximately 20 μ g/L to 30 μ g/L; however, since source removal activities began in 2016, concentrations have steadily decreased. During the NES, the nickel concentration detected in well ES-1613 (6.3 μ g/L) was only slightly above the background based SWP GPS (5 μ g/L). Nickel concentrations in the other compliance wells have remained relatively stable since source removal activities were completed.

A review of the available surface water analytical data collected by others from locations PP-01 through PP-04 in accordance with SWP No. 617 from Quantico Creek was conducted to further evaluate the extent of nickel concentrations in the uppermost aquifer beneath Pond E. The surface water sample locations and reported nickel concentrations are shown on Figure 7, and the analytical results are summarized in Table 4. As shown on the figure, nickel was detected in each of the surface water sample locations at concentrations less than the laboratory reporting limit, which is well below the applicable VAWQS (based on the Aquatic Life Freshwater Criteria and ranging from 12 μ g/L to 24 μ g/L, depending on specific hardness). The reported surface water results are also below the established SWP background-based GPS of 5 μ g/L.



While exceedances of the SWP background-based GPS for nickel have been observed in Pond E wells, none of the reported concentrations exceed the EPA risk-based Tapwater RSL of 390 μ g/L. This information, coupled with the available surface water data from locations immediately downgradient of the Unit, indicate that the extent of nickel in the uppermost aquifer beneath Pond E has been adequately delineated and off-Site impacts are not a concern.

5.4 ZINC

5.4.1 Nature of Zinc

Zinc is a common naturally occurring element that can be found extensively in nature in water, air, rocks, plants, and soil. It is typically found in the environment combined with other elements like oxygen, sulfur and chlorine to form zinc compounds. Zinc is primarily used in combination with other metals to form alloys for industrial applications, including use as a protective coating for iron and steel. Zinc is mined in the United States as well as imported from other countries. Biologically, zinc plays an important role as an essential nutrient in animals and humans. The Recommended Dietary Allowance of zinc is 11 milligrams per day for men and 8 milligrams per day for women. Exposure to large amounts of zinc can cause stomach cramps, anemia, and changes in cholesterol levels (ATSDR, 2005b).

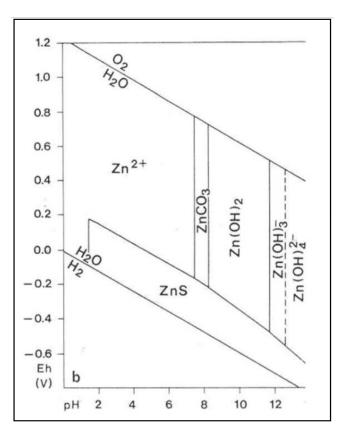


Figure D: Eh-pH diagram for the system of Zn-O2-CO2-S-H2O, at 25oC and 1 atm (Salomans & Förstner, 1984)

The aqueous speciation of zinc and potential formation of zinc-related minerals under a spectrum of Eh and pH conditions are shown above (Figure D). The pH range of typical groundwater is generally between 6 and 8. The range of oxidation-reduction potential is generally above -200 mV. Under anaerobic sulfide-producing conditions, zinc sulfide may form and precipitate. In basic aqueous solution,



zinc hydroxide or zinc carbonate minerals may form and precipitate. Soluble Zn²⁺ is expected in neutral/acidic pH and oxic/mildly reducing environments. In addition, zinc can be removed from the soil solution phase and from groundwater by co-precipitation with iron and manganese oxyhydroxides.

Zinc is known to have high adsorption affinity for metal oxides (iron, manganese, and aluminum oxides). The extent of zinc adsorption to aquifer solids is greatly influenced by pH; generally, the degree of adsorption increases with pH. For example, adsorption to hydrous ferric oxides is negligible below pH 5; adsorption then gradually increases with pH; the efficiency of adsorption is optimal when pH is higher than 7.5 (Gaillardet et al., 2003). The Kd values reported in the literature range widely, from 0.1 to 10⁵ L/Kg with a median value of approximately 10³ (USEPA, 2005). Ohio EPA (2005) suggested that, for groundwater pH between 5 and 9, Kd values for soils with more than 30% fines may be approximately 10³ or higher; however, when the content of fines is lower than 10%, the representative Kd value may be as low as approximately 10.

5.4.2 Extent of Zinc

Zinc was detected during the NES at a concentration above the SWP background-based GPS in compliance well ES-3D. The nickel concentration detected in this well was generally consistent with the assessment monitoring results from 2019. Nickel was also detected at a concentration above the SWP GPS in NES wells ES-1. Zinc was not detected above the SWP background-based GPS in the remaining compliance wells, VSWMR sentinel wells, or NES wells.

A summary of historical detections of zinc in groundwater samples collected from Pond E wells is presented in Appendix F-4. The SWP background-based GPS for zinc of $50~\mu g/L$ became effective on 2 April 2020. The GPS for zinc is not a risk-based concentration, but rather a background-based concentration that is not intended to be protective of actual risk. The EPA has classified nickel as a non-carcinogenic constituent and established a risk based Tapwater RSL for zinc. The Tapwater RSL for zinc is $6,000~\mu g/L$ (based on a hazard quotient of 1.0). The RSL represents the level of a constituent below which there is no known or expected risk to health. As shown in Appendix F-4, all historical zinc concentrations in Pond E wells have been well below the Tapwater RSL value.

A review of the available surface water analytical data collected by others from locations PP-01 through PP-04 in accordance with SWP No. 617 from Quantico Creek was conducted to further evaluate the extent of zinc concentrations in the uppermost aquifer beneath Pond E. The surface water sample locations and reported zinc concentrations are shown on Figure 8, and the analytical results are summarized in Table 4. As shown on the figure, zinc was not detected in any of the surface water sample locations.

While limited exceedances of the SWP background-based GPS for zinc have been observed in Pond E wells, none of the reported concentrations exceed the EPA risk-based Tapwater RSL of 6,000 μ g/L. This information, coupled with the available surface water data from locations immediately downgradient of the Unit, indicate that the extent of zinc in the uppermost aquifer beneath Pond E has been adequately delineated and off-Site impacts are not a concern.

Groundwater represented by the compliance wells, VSWMR sentinel wells, and NES wells is not used for any potable or non-potable purposes in the vicinity of the Unit. Therefore, there are no complete exposure pathways to the groundwater at the wells. As indicated in Section 2.2, the closest private water supply wells located downgradient from Pond E are over 1 mile from the Unit and are located



across a hydraulic divide (i.e., Quantico Creek). There are a few existing private water supply wells located in closer proximity to the Site but they are located to the west of Pond E, sidegradient of the Unit, and across another hydraulic divide (i.e., unnamed creek that flows to Quantico Creek). Potable water is supplied to the facility and surrounding properties by a municipal water supply system. Based on this information, there is no human exposure risk to groundwater ingestion at the Site. In addition, surface water monitoring conducted in accordance with current SWP No. 617 indicate that negligible impact to surrounding surface water is occurring based on potential groundwater to surface water exchange.

Although boron, cobalt, nickel, and zinc were detected in wells at concentrations greater than the GWPS/GPS, there are no complete exposure pathways to groundwater at the Site monitoring wells.



6. Identification and Screening of Technologies

The purpose of this ACM Report is to identify, develop, and evaluate potential corrective measures to be taken at Pond E to prevent further releases and to remediate CCR impacts in groundwater associated with the CCR Unit. Source material has already been removed from the Unit, along with over excavation of a minimum of 6 inches, and removal actions were acknowledged by VDEQ in a letter on 30 August 2019 verifying source removal in accordance with the Unit's closure plan.

6.1 CORRECTIVE ACTION OBJECTIVES

In accordance with 40 CFR Part 267.97(b) and/or 9VAC20-81-260.C.3.c, the groundwater corrective measures to be considered must meet, at a minimum, the following threshold criteria:

- 1. Be protective of human health and the environment;
- 2. Attain the GWPS/GPS;
- 3. Control the source(s) of releases to reduce or eliminate, to the maximum extent feasible, further releases of constituents of concern to the environment;
- 4. Remove as much of the contaminated material from the environment that was released from the CCR unit as is feasible, considering factors such as avoiding inappropriate disturbance of sensitive ecosystems; and,
- 5. Comply with standards (regulations) for waste management.

The groundwater corrective measures were also evaluated using the following balancing criteria:

- 1. Long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful;
- 2. Effectiveness of the remedy in controlling the source to reduce further releases;
- 3. Technical and logistical challenges required to implement the corrective measures, including practical considerations such as equipment availability and disposal facility capacity; and
- 4. Degree to which community concerns are addressed by a potential remedy(s).

Balancing criteria 1 through 3 also take into consideration various sub-criteria which are outlined in Sections 7.2, 7.3, and 7.4, respectively.

6.2 CCR REMOVAL

As noted above, the CCR material was removed and over excavation of a minimum of 6 inches was completed (and verified by the VDEQ in 2019) in accordance with the CCR Rule and SWP No. 617. As such, this ACM Report focuses only on the mitigation of residual groundwater impacts.

While acknowledging the significance of the CCR removal (i.e., source material) in the overall corrective measures for the unit, this ACM Report focuses on the groundwater.



6.3 GROUNDWATER REMEDIAL ALTERNATIVES

Corrective measures such as hydraulic control, in-situ treatment, and natural recovery are commonly identified as potential corrective measures alternatives for CCR impacts in groundwater. Natural recovery is evaluated when the source has been removed and groundwater concentrations are steady or decreasing below GWPS/GPS. Hydraulic control and/or in-situ treatment are typically considered if there are ongoing releases (i.e., remaining source material), a complete groundwater pathway or receptors, and/or if current groundwater concentrations exceed the associated risk-based screening values or GWPS/GPS in downgradient locations. As previously indicated, the source (i.e., CCR material) was already removed along with over excavation of a minimum of 6 inches, thereby eliminating the possibility of future releases. In addition, there are no complete exposure pathways to groundwater at the Site monitoring wells and no groundwater receptors are identified downgradient of Pond E. Groundwater trends indicate that the groundwater constituent concentrations have generally remained stable and/or decreased since CCR material removal in 2016. Further, surface water monitoring results indicate that negligible impact to surrounding surface water is occurring based on potential groundwater to surface water exchange.

While there are no impacts to surface water above relevant screening levels and groundwater trends have remained relatively stable since CCR removal, boron, cobalt, nickel, and zinc GWPS/GPS exceedances were detected in several downgradient compliance, VSWMR sentinel, and NES wells. For boron, nickel, and zinc; however, none of the reported concentrations exceed the applicable risk-based EPA Tapwater RSLs. Cobalt has been detected at concentrations exceeding the federal GWPS (based on the risk-based Tapwater RSL) in compliance wells and recently installed NES well ES-7. It should be noted that the cobalt concentrations detected in downgradient NES well ES-7 (89.2 μ g/L total, 82.3 μ g/L dissolved) may be a result of the limited saturated thickness of the shallow aquifer and thin water column. No cobalt federal GWPS exceedances were detected in any of the remaining compliance wells, VSWRM sentinel wells, or NES wells.

Given the reasons outlined above, this ACM Report specifically evaluates the following alternatives to address the residual groundwater impacts of Appendix IV constituents and the constituents and parameters listed in the Unit's solid waste permit above their established GWPS/GPS:

- Alternative 1 Natural Recovery;
- Alternative 2 In-situ Groundwater Treatment; and
- Alternative 3 Hydraulic Control with Ex-situ Treatment.

The three remedial alternatives are described in the following sections.

6.3.1 Alternative 1 – Natural Recovery

Natural recovery incorporates natural destructive and non-destructive mechanisms to reduce the Site-specific constituents in groundwater. Natural recovery is demonstrated using one or more lines of evidence that the natural capacity of an aquifer can reduce constituent concentrations through a series of biological, chemical, and/or physical subsurface interactions over time without human intervention. Attenuation mechanisms for inorganic constituents generally consist of physical and chemical processes such as dispersion, dilution, sorption, and/or precipitation, and biological processes including microbial oxidation or reduction reactions. Natural recovery can serve as a primary remedial strategy or a secondary strategy following an active in-situ or ex-situ treatment method. Demonstrating natural



recovery involves long-term monitoring of select groundwater monitoring wells for specific constituents of concern.

6.3.2 Alternative 2 – In-situ Groundwater Treatment

In-situ groundwater treatment would address Site-related constituents through in-situ injection of groundwater amendments downgradient of Pond E or through the installation of a permeable reactive barrier (PRB). Since the CCR material has already been removed and depletion of Site-related constituents in groundwater is already anticipated, active remediation (injections or PRB replenishment) would cease in the future. Bench scale and pilot testing would be required to estimate the actual length of time needed for active remediation. Following the installation of in-situ treatment system (via a trench or injection wells), periodic amendment injections or periodic replenishment of the treatment reagents within the PRB, as well as groundwater sampling to monitor system performance, would be expected. Laboratory testing would be required to confirm an effective and appropriate reagent for use in in-situ treatment prior to implementation.

6.3.3 Alternative 3 – Hydraulic Control with Ex-situ Treatment

A shallow (approximately 30 feet deep) collection trench would be installed to hydraulically control the downgradient migration of constituents. The large volume of effluent could require ex-situ treatment (likely ion exchange or reverse osmosis). Both treatment systems are complex with ongoing operation and maintenance and would generate a secondary waste stream – including regeneration/replacement of ion exchange media or concentration of reject water from a reverse osmosis system. Approvals and permitting would be required for discharge of treated groundwater. Implementation of a hydraulic control system would require a detailed design effort with pilot testing, such as pumping tests and additional groundwater modeling, to verify the hydraulic capture zone. Bench scale testing may be required to design the water treatment system.

Once implemented, depletion of Site-related constituents in groundwater would allow the concentration of constituents to attenuate and pumping would cease over time, once constituent levels are less than GWPS/GPS. Following the installation of hydraulic controls and water treatment, operation, and maintenance of the system as well as groundwater sampling to monitor system performance, would be expected.

This assessment meets the requirements promulgated in 40 CFR Part 257.96, which require the assessment to evaluate the effectiveness of potential corrective measures in meeting the requirements and objectives of the remedy as described under 40 CFR Part 257.97.



7. Corrective Measure Evaluation

In accordance with 40 CFR Part 257.97, corrective measures must meet, at a minimum, the five threshold criteria listed in Section 6.1 and the balancing (evaluation) criteria listed in 40 CFR Part 257.97(c), as outlined in the following sections. The threshold criteria listed below (except for that listed in Section 7.1.4) are also required per the VSWMR for remedy selection in 9VAC20-81-260.C.3.c.

Table 5 includes a graphical summary comparing the corrective measures alternatives to the threshold/balancing criteria; green denoting the most favorable result, yellow denoting a neutrally preferred result, and red denoting the least preferred result. Figure 9 depicts the conceptual locations/layout of Alternatives 2 and 3. It is assumed the existing monitoring well network (as shown on Figure 4) and up to two new monitoring well locations would be used for monitoring under all three alternatives.

7.1 THRESHOLD CRITERIA - 40 CFR PART 257.97(B)

7.1.1 Human Health and Environment Protection - 40 CFR Part 257.97(b)(1)

The constituents in groundwater above their GWPS/GPS in their current state are not expected to pose a risk to human health via groundwater ingestion given the Unit's location in an industrial area, the limited access to the area, and the lack of drinking water receptors within the downgradient vicinity of Pond E as documented in Section 2.2 and Section 5. While boron, nickel, and zinc have been detected at concentrations that exceed the background-based GPS, they do not exceed applicable EPA risk-based levels (Tapwater RSLs). Cobalt was detected above the federal GWPS (based on the risk-based Tapwater RSL) but surface water monitoring conducted in accordance with current SWP No. 617 indicates that negligible impact to surrounding surface water is occurring because of potential groundwater to surface water exchange. Accordingly, Alternative 1 meets the threshold criterion of being protective to human health and the environment as implementation of those alternatives would provide a further barrier between the uppermost aquifer groundwater and surface water.

If Alternative 1 is selected, periodic groundwater monitoring events to document the natural recovery processes and that the concentrations of Site-related constituents are stable or decreasing will continue. If Site-related constituents are no longer stable or increasing, Alternatives 2 and 3 could be implemented at a later date.

The table below depicts the overall outcome of comparing the alternatives against this criterion, with green denoting the most favorable result, yellow denoting a neutrally preferred result, and red denoting the least preferred result.

Threshold Criteria	Alternative 1	Alternative 2	Alternative 3
	Natural Recovery	In-situ Groundwater	Hydraulic Control with
		Treatment	Ex-situ Treatment
Human Health and			
Environment			
Protection			



7.1.2 GWPS/GPS Attainment- 40 CFR Part 257.97(b)(2)

Removal of the CCR material eliminated additional CCR-related constituents from entering the subsurface. Under Alternative 1, residual CCR-related constituents present in groundwater will be addressed through concentration attenuation via natural diffusion, bioattenuation, and dispersion over time. Under Alternative 2 or Alternative 3, groundwater treatment or collection followed by treatment will also reduce residual CCR-related constituents present in the groundwater. Therefore, source removal with Alternatives 1, 2 or 3 meets the threshold criterion of attaining the GWPS/GPS.

Threshold Criteria	Alternative 1	Alternative 2	Alternative 3
	Natural Recovery	In-situ Groundwater	Hydraulic Control with
		Treatment	Ex-situ Treatment
GWPS/GPS Attainment			

7.1.3 Source Control - 40 CFR Part 257.97(b)(3)

Complete removal of CCR material (along with over excavation of a minimum of 6 inches) located from within the boundaries Pond E is the ultimate source control measure and has already been completed.

Threshold Criteria	Alternative 1	Alternative 2	Alternative 3
	Natural Recovery	In-situ Groundwater	Hydraulic Control with
		Treatment	Ex-situ Treatment
Source Control			

7.1.4 Contaminated Material Removal - 40 CFR Part 257.97(b)(4)

With the removal of the CCR material and over-excavated subsurface soils, additional contamination to the surrounding environment would not occur. Therefore, the closure by removal, with any of the groundwater remedial alternatives presented, meets this threshold requirement.

	Alternative 1	Alternative 2	Alternative 3
Threshold Criteria	Natural Recovery	In-situ Groundwater Treatment	Hydraulic Control with Ex-situ Treatment
Contaminated Material Removal			

7.1.5 Waste Management - 40 CFR Part 257.97(b)(5)

The source was already removed; no further waste management is required for Alternative 1. Any waste generated during sampling procedures will be managed in accordance with regulatory requirements as outlined in the Unit's GMP. No additional permits are anticipated for these activities.

Alternative 2 would require limited waste management for cuttings generated during well installation. Alternative 3 would require on-going waste management and treatment, prior to discharge or disposal, to manage the estimated water collection in the trench.



	Alternative 1	Alternative 2	Alternative 3
Threshold Criteria	Natural Recovery	In-situ Groundwater Treatment	Hydraulic Control with Ex-situ Treatment
Waste Management			

7.2 BALANCING CRITERION 1 - 40 CFR PART 257.97(C)(1)

This balancing criterion takes into consideration the following sub-criteria relative to the long-term and short-term effectiveness of the remedy, along with the anticipated success of the remedy.

7.2.1 Risk Reduction - 40 CFR Part 257.97 (c)(1)(i)

Given the lack of potable or non-potable wells in the area, coupled with limited access to the area, the constituents in groundwater above their GWPS/GPS in their current state do not currently pose an exposure risk to human health via groundwater ingestion or direct contact. In addition, given the lack of surface water impacts downgradient of the Unit, the residual groundwater impacts do not pose a risk. Alternative 1, which would include periodic groundwater monitoring, will address potential future risks and return the Site to maximum beneficial use.

Alternative 2 may further reduce the risk in groundwater but is less favorable as it would require bench scale tests to confirm proposed amendments would not pose any additional risk. Alternative 3 may also further reduce the risk by addressing potential future risks by intercepting groundwater prior to potential surface water discharges.

Balancing Criteria	Alternative 1	Alternative 2	Alternative 3
	Natural Recovery	In-situ Groundwater	Hydraulic Control with
		Treatment	Ex-situ Treatment
Risk Reduction			

7.2.2 Residual Risks - 40 CFR Part 257.97 (c)(1)(ii)

Further releases are not anticipated to occur following Unit closure and implementation of the proposed groundwater remedies because the CCR and a minimum of 6 inches of subsurface soils were removed. Given the lack of potable or non-potable wells in the area, coupled with limited access to the area, the constituents in groundwater above their GWPS/GPS in their current state do not pose a risk to human health via groundwater ingestion or direct contact. In addition, given the lack of surface water impacts downgradient of the Unit, the residual groundwater impacts do not pose a risk.

Balancing Criteria	Alternative 1	Alternative 2	Alternative 3
	Natural Recovery	In-situ Groundwater	Hydraulic Control with
		Treatment	Ex-situ Treatment
Residual Risks			



7.2.3 Long-Term Management - 40 CFR Part 257.97 (c)(1)(iii)

Following removal of CCR material and over excavation of 6 inches of subsurface soils, long-term management (including monitoring, operation, and maintenance) for Alternative 1 is the most favorable as it would be limited to periodic groundwater monitoring to verify natural recovery of the CCR-related constituents in groundwater. The concentrations are expected to stabilize and decrease over time. The Unit's SWP No. 617 also includes a requirement for surface water monitoring to determine if there is any impact to surrounding surface water that may be occurring because of potential groundwater to surface water exchange.

Long-term management for Alternative 2 is considered less favorable than Alternative 1 as it would include long-term sampling, like Alternative 1, but could also include additional treatment events during the remediation life cycle. Alternative 3 is considered the least favorable as it would require continuous long-term management while the hydraulic control system operates. This would include maintenance of the trench, pumps, and treatment system.

	Alternative 1	Alternative 2	Alternative 3
	Aiternative 1	Alternative Z	Alternative 5
Balancing Criteria	Natural Recovery	In-situ Groundwater	Hydraulic Control with
		Treatment	Ex-situ Treatment
Long-Term			
Management			

7.2.4 Short-term Risks - 40 CFR Part 257.97 (c)(1)(iv)

No short-term risks are anticipated based on the current groundwater concentrations as discussed in Section 5 of this report. Alternative 1 is considered the most favorable for short-term risks as there are no other environmental or community risks related to implementing the corrective measure.

Alternative 2 is considered less favorable due to temporary construction risks associated with implementing in-situ treatment, potential adverse effects from treatment amendments (such as changes in groundwater pH), and the potential for multiple rounds of injection or PRB material refresh work within the 660 feet radius eagle's nest buffer at the Site. Alternative 3 is considered the least favorable for short-term risk due to construction required for implementation (noise and emissions from heavy equipment) and the need to conduct work within the 660 feet radius eagle's nest buffer at the Site.

Balancing Criteria	Alternative 1	Alternative 2	Alternative 3
	Natural Recovery	In-situ Groundwater	Hydraulic Control with
		Treatment	Ex-situ Treatment
Short-Term Risks			

7.2.5 Time to Full Protection - 40 CFR Part 257.97 (c)(1)(v)

The source removal was completed as documented in the "Pond E Closure by Removal Report" and associated Engineer Certification submitted to VDEQ on 1 August 2019. Following closure and restoration of Pond E, groundwater and surface water monitoring will be performed to verify the groundwater concentrations are stable or decreasing over time under Alternative 1.



Alternative 1 is expected to reduce the concentrations below the GWPS over time. Alternative 2, in-situ treatment, relies on the natural hydraulic gradient to move contaminants through the treatment zone and would be expected to operate for a shorter duration although, depending upon the treatment train, may present other complications and require subsequent treatment events. Alternative 3 would address Site-related constituents in groundwater migrating downgradient from the Unit, ensuring groundwater migrating downgradient is captured prior to reaching the compliance sampling locations (surface water), but would continue to operate over time in order to maintain the control and additional protection.

Balancing Criteria	Alternative 1	Alternative 2	Alternative 3
	Natural Recovery	In-situ Groundwater	Hydraulic Control with
		Treatment	Ex-situ Treatment
Time to full Protection			

7.2.6 Potential for Exposure - 40 CFR Part 257.97 (c)(1)(vi)

Given the previously completed CCR and subsurface soils removal and lack of downgradient receptors, no ongoing potential exposure to remaining wastes for humans and the environment is anticipated under Alternative 1. As indicated in Section 2.2, the closest private water supply wells located downgradient of Pond E are located across a hydraulic divide (Quantico Creek). Based on this information, coupled with the fact that potable water is supplied to the Station, and surrounding areas and access to the area is limited, there is no complete human exposure pathway to Site-related constituents via groundwater ingestion.

Alternatives 2 and 3 would further reduce the potential for direct groundwater exposure but are considered less favorable as the pathway is already considered closed and implementation of Alternative 2 or 3 could increase risk of exposure to treatment materials or wastewater.

Balancing Criteria	Alternative 1	Alternative 2	Alternative 3
	Natural Recovery	In-situ Groundwater	Hydraulic Control with
		Treatment	Ex-situ Treatment
Potential for Exposure			

7.2.7 Long-term Reliability - 40 CFR Part 257.97(c)(1)(vii)

The long-term reliability is expected to be high because the source of groundwater impacts (i.e., the CCR material) was removed from Ponds E. With the CCR material (and a minimum of 6 inches of subsurface soils) no longer in place, the attenuation of any residual groundwater impacts will continue under Alternative 1. Future studies prior to formal remedy selection may be necessary to validate natural recovery mechanisms and timeframes. No additional engineering and/or institutional controls, apart from post removal monitoring, are anticipated.

Alternative 3 is considered a reliable, proven technology with long-term reliability and thus also considered favorably for this criterion. Implementation of Alternative 2 is considered less favorable and would require bench scale and pilot scale testing to confirm treatability of cobalt and associated long-term reliability.



Balancing Criteria	Alternative 1	Alternative 2	Alternative 3
	Natural Recovery	In-situ Groundwater	Hydraulic Control with
		Treatment	Ex-situ Treatment
Long-Term Reliability			

7.2.8 Remedy Replacement Potential 40 CFR Part 257.97(c)(1)(viii)

The extent of residual impacts is limited; therefore, Alternative 1 is considered the most favorable with no need to supplement the natural recovery remedy for groundwater. Periodic monitoring data would be used to document if the impacts are stable or decreasing and to evaluate the need for additional corrective measures over time.

Alternatives 2 and 3 are both considered viable remedial alternatives and with current Site concentrations, the need to replace any of the proposed alternatives is not anticipated.

	Alternative 1	Alternative 2	Alternative 3		
Balancing Criteria	Natural Recovery	In-situ Groundwater	Hydraulic Control with		
	Natural Recovery	Treatment	Ex-situ Treatment		
Remedy Replacement					
Potential					

7.3 BALANCING CRITERION 2 - 40 CFR PART 257.97(C)(2)

This balancing criterion takes into consideration the ability of the corrective measures to control a future release and the extensive treatment technologies that will be required.

7.3.1 Release Reduction – 40 CFR Part 257.97(c)(2)(i)

No further releases will occur following the already completed removal of the CCR material.

	Alternative 1	Alternative 2	Alternative 3		
Balancing Criteria	Natural Bosovory	In-situ Groundwater	Hydraulic Control with		
	Natural Recovery	Treatment	Ex-situ Treatment		
Release Reduction					

7.3.2 Treatment Technologies - 40 CFR Part 257.97(c)(2)(ii)

With the completed removal of CCR material, Alternative 1 is most favorable as it is anticipated to be implemented without any additional groundwater treatment technologies. Periodic monitoring data would be used to document if the impacts are stable or decreasing and to evaluate the need for additional corrective measures over time.

Alternative 2 would include in-situ technology while Alternative 3 would include groundwater collection and treatment technology (as needed to meet discharge or disposal requirements).



	Alternative 1	Alternative 2	Alternative 3		
Balancing Criteria	Notural Bosovory	In-situ Groundwater	Hydraulic Control with		
	Natural Recovery	Treatment	Ex-situ Treatment		
Treatment					
Technologies					

7.4 BALANCING CRITERION 3 - 40 CFR PART 257.97(C)(3)

This balancing criterion takes into consideration the technical and logistical challenges required to implement the corrective measures, including practical considerations such as equipment availability and disposal facility capacity.

7.4.1 Technology Difficulty - 40 CFR Part 257.97(c)(3)(i)

The CCR was already removed and Dominion Energy has experience with post removal monitoring, implemented following closure of its CCR and solid waste management units. This experience, in combination with the wells already installed at the Site, will reduce difficulty in implementing Alternative 1 as the corrective measure.

Alternatives 2 and 3 are less favorable due to anticipated difficulties implementing the technologies, particularly when compared to Alternative 1. Both Alternatives 2 and 3 would require work to be conducted within the eagle's nest buffer (radius of 660 feet) in the area downgradient of Pond E which could require access and/or time or year limitations. Alternative 2 is further complicated by the need to run a bench scale test and pilot study prior to implementation to confirm the appropriate treatment agents are selected and effective.

	Alternative 1	Alternative 2	Alternative 3	
Balancing Criteria	Natural Recovery	In-situ Groundwater	Hydraulic Control with	
	Natural Necovery	Treatment	Ex-situ Treatment	
Technology Difficulty				

7.4.2 Technology Reliability - 40 CFR Part 257.97(c)(3)(ii)

Alternative 1 is considered a reliable technology as natural recovery mechanisms for the site-specific inorganic constituents involve proven physical mechanisms, including dilution, dispersion, and sorption. Natural recovery has been used at multiple Superfund, Resource Conservation and Recovery Act Corrective Action sites and Underground Storage Tank sites (EPA, 1999). The inherent porous nature of sediments in the aquifer across the Site readily promote dilution and dispersion mechanisms. The lithologic features, coupled with the groundwater flow regime, have already established predictable and reliable mechanisms that contribute to attenuation of inorganic constituents. Additionally, the minimization of continued contaminant mass loading to the aquifer (i.e., CCR removal) would ultimately improve the reliability of a natural recovery remedy.

Alternative 3 is also considered a reliable, proven technology with hydraulic control and treatment used at multiple sites. Implementation of Alternative 2 is considered less favorable and would require bench scale and pilot scale testing to confirm treatability of Site-related constituents.



	Alternative 1	Alternative 2	Alternative 3	
Balancing Criteria	Natural Bosovory	In-situ Groundwater	Hydraulic Control with	
	Natural Recovery	Treatment	Ex-situ Treatment	
Technology Reliability				

7.4.3 Permitting - 40 CFR Part 257.97(c)(3)(iii)

No permits are anticipated for Alternative 1 other than a modified SWP to incorporate the corrective action. Post removal groundwater and surface water monitoring will be conducted in accordance with the Unit's GMP (Golder, 2019a) and SWP No. 617.

Alternatives 2 and 3 would likely require additional permits for injection of amendments, installation of a PRB, or and installation of a trench, respectively, both near the eagle's nest buffer and adjacent water bodies.

	Alternative 1	Alternative 2	Alternative 3		
Balancing Criteria	Natural Recovery	In-situ Groundwater	Hydraulic Control with		
	ivatural necovery	Treatment	Ex-situ Treatment		
Permitting					

7.4.4 Equipment and Specialist Availability - 40 CFR Part 257.97(c)(3)(iv)

The removal process has already been completed; no specialty remediation equipment or specialists will be needed for Alternative 1. Alternatives 2 and 3 would both specific equipment and specialists.

Alternative 2 may require specialists for determining amendment quantities and injection procedures or PRB quantities. Alternative 3 may require special equipment for a one-pass trench, collection system, and treatment system installation.

Balancing Criteria	Alternative 1	Alternative 2	Alternative 3		
	Natural Recovery	In-situ Groundwater	Hydraulic Control with		
	ivatural necovery	Treatment	Ex-situ Treatment		
Equipment and					
Specialist Availability					

7.4.5 Treatment, Storage, and Disposal Capacity - 40 CFR Part 257.97(c)(3)(iv)

The removal process has already been completed; no further need for treatment, storage, or disposal are anticipated for CCR material. Alternative 1 would not require any additional treatment, storage, or disposal capacity. Amendments would need to be stored on-site for Alternative 2. For Alternative 3, the ex-situ treatment system may generate a concentrated waste stream which could require off-site transportation and disposal that the other alternatives would not require.



		Alternative 1	Alternative 2	Alternative 3		
	Balancing Criteria	Notural Decovery	In-situ Groundwater			
		Natural Recovery	Treatment	Ex-situ Treatment		
Treatment, Storage, and Disposal Capacity						

7.5 BALANCING CRITERION 4 - 40 CFR PART 257.97(D)

This balancing criterion takes into consideration the degree to which community concerns are addressed by a potential remedial action. The fourth category, community concerns, was considered as part of the recent legislative process. Specifically, CFR Part 257.96 of the CCR Rule requires a facility to complete a written assessment of corrective measures, place that assessment in the operating record, and then hold a public meeting to discuss the results of the corrective action assessment at least 30 days before selecting a remedy. This ACM Report meets the criterion of the written assessment of corrective measures and will be placed in the operating record as required by the CCR Rule. A revised or amended ACM Report will be submitted following the public meeting to satisfy VSWMR requirements specified in 9VAC20-81-260.

7.6 ORDER OF MAGNITUDE COST EVALUATION

Costs are not considered part of the threshold and balancing criteria in accordance with Parts 257.96-97 of the CCR Rule. However, an understanding of the potential costs associated with the proposed corrective measure is considered helpful for future spend forecasting. Costs for each alternative are currently estimated to be as follows:

- Alternative 1, Natural Recovery: Assuming no additional work related to CCR removal is required
 and up to two new monitoring locations (within the eagle nest buffer) are installed for
 monitoring, it is estimated that costs associated over a 30-year time frame will be approximately
 \$530,000 (using Net Present Value). This cost assumes up to 13 sample locations, sampled two
 times per year, and associated data summaries.
- Alternative 2, In-Situ Treatment: Over a 30-year time frame this cost would be approximately \$2,200,000 (using Net Present Value). This cost assumes installation of an injected PRB, two amendment applications, and sampling two times per year, and associated data summaries. Costs are estimated for a 30-year time frame as bench scale and pilot testing would be required to confirm active remediation time and monitoring may be required to extend beyond the active remediation time period.
- Alternative 3, Hydraulic Control with Ex-Situ Treatment: Over a 30-year time frame this cost would be approximately \$10,500,000 (using Net Present Value) which accounts for order of magnitude estimates for design, equipment, installation, and annual operations and maintenance costs. This cost assumes installation of a 2,200 feet long trench that would be 2 feet wide by 30 feet deep, a system to convey groundwater to treatment area, and a treatment system. This assumes water needs to be disposed of off-site but costs could be decreased if a permit to discharge to the local publicly owned treatment works (POTW) can be obtained. This alternative would also include sampling two times per year, and associated data summaries.



hese costs are considered order of magnitude estimates and intended to be used for planning purposes nly.	



8. Summary and Conclusions

This ACM Report describes the additional assessment (NES) conducted to evaluate the nature and extent of GWPS/GPS exceedances, and summarizes how the corrective measures alternatives for groundwater presented herein address the threshold and balancing criteria. CCR material and a minimum of 6 inches of subsurface soils in Pond E have already been removed. Following the removal of the source, any residual groundwater impacts that remain above GWPS/GPS could be addressed through the three alternatives presented in this report.

Given the elevated cobalt detections and limited aquifer thickness observed in well ES-7, additional sampling is recommended to confirm the detections and evaluate water quality for cobalt over time. Additional wells within the eagle's nest buffer outside of the breeding season may also provide additional information regarding the water quality to the southwest of Pond E.

Based on the assessment of the alternatives with the available information and given the groundwater concentrations on-site coupled with negligible impact in surface water, Alternative 1 (natural recovery) would address any remaining impacts through concentration attenuation via natural diffusion and dispersion-controlled mechanisms with a high likelihood of reliability and low risk. Future studies prior to formal remedy selection may be necessary to validate natural recovery mechanisms and time frames. Alternatives 2 (in situ groundwater treatment) and 3 (hydraulic control with ex situ treatment) would likely address remaining impacts as well but require additional equipment, technology, permitting, waste management, and treatment/storage capacity. Alternatives 2 and 3 also have additional short-term risks and lower long-term reliability when compared to Alternative 1.

Prior to a formal remedy selection, Dominion Energy will arrange a public meeting with interested and affected parties to discuss the results of this report and solicit comments. The meeting will be conducted at least 30 days prior to selecting a formal remedy in accordance with the CCR Rule. Following the public meeting, Dominion Energy will submit to VDEQ a revised or amended ACM Report (in accordance with 9VAC20-81-260) to include the required public participation information.



References

- ATSDR. 2004. Toxicological Profile for Cobalt. Agency for Toxic Substances and Disease Registry. April 2004. Available at: https://www.atsdr.cdc.gov/ToxProfiles/tp.asp?id=373&tid=64
- 2. ATSDR, 2005a. Toxicological Profile for Nickel. Agency for Toxic Substances and Disease Registry. August 2005. Available at: https://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=245&tid=44
- 3. ATSDR. 2005b. Toxicological Profile for Zinc. Agency for Toxic Substances and Disease Registry. August 2005. Available at: https://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=302&tid=54
- 4. ATSDR, 2010. Toxicological Profile for Boron. Agency for Toxic Substances and Disease Registry. November 2010. Available at: https://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=453&tid=80
- Bouwer, HH. 1973. Renovating secondary effluent by groundwater recharge with infiltration basins. In Recycling treated municipal wastewater and sludge through forest and cropland.
 Sopper, WE and Kardos, LT., eds. University Park, The Pennsylvania State University Press, p164-175.
- 6. Brookins, DG.,1988. Boron. In: Eh-pH Diagrams for Geochemistry. Springer, Berlin, Heidelberg.
- 7. Dominion Energy Services, Inc., 2020. Possum Point Power Station, Solid Waste Permit No. 617: 2020 1st Semi-Annual GPS Statistically Significant Increases (SSI) Notification
- 8. Electric Power Research Institute (EPRI), 2015. Monitored Natural Attenuation for Inorganic Constituents in Coal Combustion Residuals. Technical Report 3002006285. August.
- 9. EnviroScience, Inc., 2020. First Quarter 2020 Surface Water Monitoring Report, Possum Point Power Station, Dumfries, Virginia. June.
- 10. Gaillardet, J., Viers, J. and Dupré, B. 2003. Trace elements in river waters, pp. 225 272. In Surface and Ground water, weathering and soils (ed. J.I. Drever) Vol. 5, Treatise on Geochemistry (eds. H.D. Holland and K.K. Turekian). ElsevierPergamon, Oxford, UK.
- 11. Golder Associates, Inc., 2019a. Groundwater Monitoring Plan, Possum Point Power Station, CCR Impoundments A, B, C, D, & E. August.
- 12. Golder Associates, Inc., 2019b. Initial CCR Groundwater Monitoring and Corrective Action Report, Ash Ponds ABC, Possum Point Power Station, Fluvanna County, Virginia. August 1.
- 13. Golder Associates, Inc., 2019c. Pond E Facility Background Determination Report, Possum Point Power Station, Dumfries, Virginia. August 15.
- 14. Golder Associates, Inc. 2020. 2019 CCR & VSWMR Annual Groundwater Monitoring and Corrective Action Report, Possum Point Power Station, Ponds ABC, Solid Waste Permit No. 617. January 22.



- 15. Krupka, K.M. and Serne, R.J., 2002. Geochemical Factors Affecting the Behavior of Antimony, Cobalt, Europium, Technetium, and Uranium in Vadose Zone Sediments (No. PNNL-14126). Pacific Northwest National Lab. (PNNL), Richland, WA (United States). Available at: https://pdfs.semanticscholar.org/b0bc/b8448bb4509658340bba0ab852c88390acf6.pdf
- 16. Nieminen, TM, Ukonmaanaho, LI, Rausch, N, and Shotyk, W., 2007. Biogeochemistry of Nickel and Its Release into the Environment, Metal Ions in Life Sciences, Volume 2.
- 17. NOAA, 2020. Center for Operational Oceanographic Products and Services, Quantico, VA Station ID: 8634689. Available at https://tidesandcurrents.noaa.gov/noaatideannual.html?id=8634689
- 18. Ohio Environmental Protection Agency (Ohio EPA). 2005. Vadose Zone Modeling in RCRA Closure. January.
- 19. Paar, 1997. Paar, J.G., & Porterfield, D.R. (1997). Evaluation of Radiochemical Data Usability. (ES/ER/MS--5). United States
- 20. Parks, JL. and Edwards, MM. 2005. Boron in the Environment. Critical Reviews in Environmental Science and Technology, v.35, p81-114
- 21. Salomans, W. and Förstner, U. 1984. Metals in the Hydrocycle. Springer-Verlag, Berlin, Germany. 349pp.
- 22. Sheppard, S., Long, J., Sanipelli, B. and Sohlenius, G., 2009. Solid/liquid partition coefficients (Kd) for selected soils and sediments at Forsmark and Laxemar-Simpevarp (No. SKB-R--09-27). Swedish Nuclear Fuel and Waste Management Co.
- 23. U.S. Environmental Protection Agency, 1999. OSWER Directive Number 9200.4-17P. Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites. 21 April 1999.
- 24. U.S. Environmental Protection Agency, 2000. BIOCHLOR, Natural Attenuation Decision Support System User's Manual, Version 1.0. January 2000.
- 25. U.S. Environmental Protection Agency, 2005. Partitioning Coefficients for Metals in Surface Water, Soil, and Waste. EPA/600/R-05/074. July.
- 26. U.S. Environmental Protection Agency, 2015. EPA, 2015. Federal Register. Volume 80. No. 74. April 17, 2015. Part II. Environmental Protection Agency. 40 CFR Parts 257 and 261. Hazardous and Solid Waste Management System, Disposal of Coal Combustion Residuals from Electric Utilities, Final Rule. April.
- 27. U.S. Environmental Protection Agency, 2017. National Functional Guidelines for Inorganic Superfund Methods Data Review. January.
- 28. VSWMR, 2016. Virginia Solid Waste Management Regulations ((9VAC20-81 et seq.). January.



29.	Zachara, J.M., Resch, C.T., and Smith, S.C., 1994. Influence of Humic Substances on Co2+ Sorption by a Subsurface Mineral Separate and Its Mineralogic Components. Geochimica et Cosmochimica Acta, 58:553-566.
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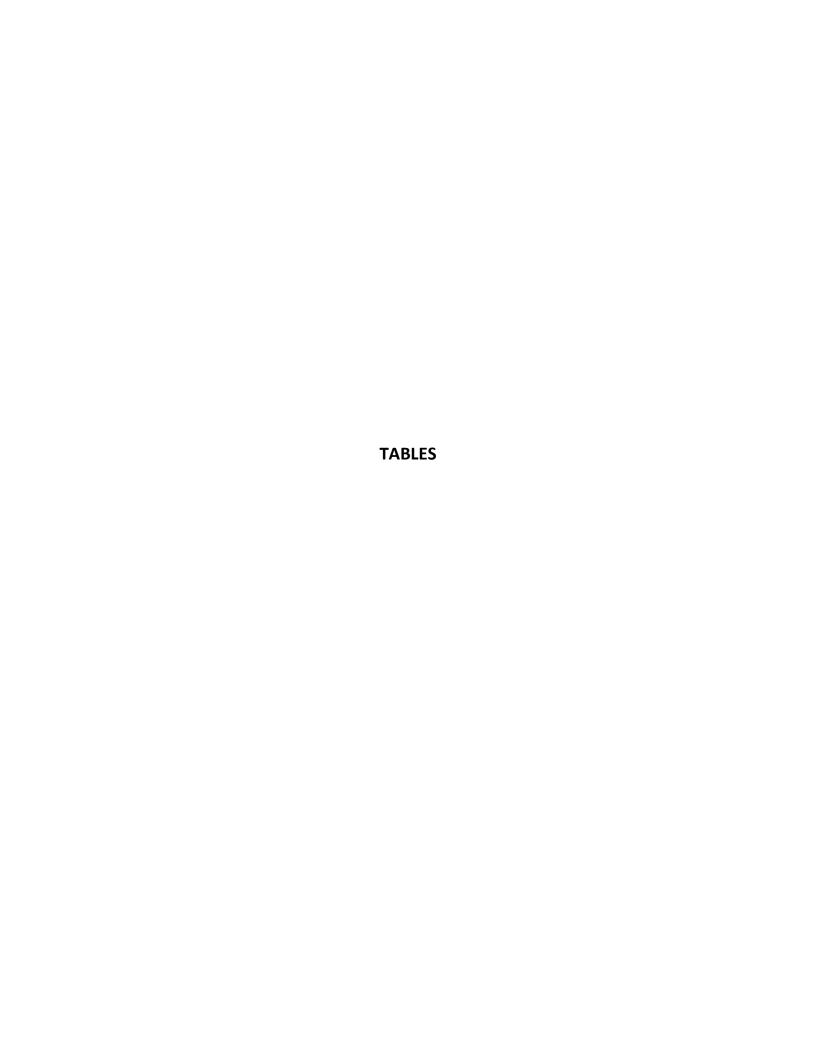


TABLE 1 GROUNDWATER ELEVATION DATA SUMMARY POSSUM POINT POWER STATION DUMFRIES, VIRGINIA

Well Location/Status	Well ID	Date of Measurement	Reference Point Elevation (ft NAVD 88)	Depth to Water (ft btoc)	Static Water Level Elevation (ft NAVD 88)	
Pond E						
	ED-26	4/15/2020	89.86	51.42	38.44	
	ED-24R	4/15/2020	74.96	25.45	49.51	
	ES-3D	4/15/2020	22.86	22.69	0.17	
Compliance Wells	ES-1609	4/15/2020	23.26	22.98	0.28	
	ES-1613	4/15/2020	26.01	26.46	-0.45	
	T-1615D	4/15/2020	25.81	22.40	3.41	
	T-1615S	4/15/2020	25.92	22.58	3.34	
VSWMR Sentinel	ED-22RA	4/15/2020	26.89	25.64	1.25	
Wells	ED-23R	4/15/2020	27.80	24.12	3.68	
	ES-1	4/15/2020	27.38	17.17	10.21	
NES Wells	ES-1D	4/15/2020	28.91	21.76	7.15	
INES WEIIS	ES-7	4/15/2020	25.85	23.80	2.05	
	ES-7D	4/15/2020	25.59	47.30	-21.71	

Abbreviations and Notes:

- 1. Well construction details provided in this table are for existing compliance wells, Virginia Solid Waste Management Regulation (VSWMR) sentinel wells, and the new Nature and Extent Study (NES) wells installed in April 2020.
- 2. Compliance well and sentinel well construction details as provided in Appendix B of the 2019 CCR & VSWMR Annual Groundwater Monitoring and Corrective Action Report, Possum Point Power Station, Pond E (Golder, January 2020).

ID = identification

ft = feet

btoc = below top of casing

NAVD 88 = North American Vertical Datum of 1988

Vertical Datum: Vertical Control provided by client (NAVD88)

DUMFRIES, VIRGINIA

POSSUM POINT POWER STATION

Well Location/Status	Well ID	Installation Date	Installed By	Well Depth/Boring (ft bgs)	Grout (ft bgs)	Bentonite (ft bgs)	Sand Pack (ft bgs)	Screen Length (ft)	Screen Interval (ft bgs)	Well Diameter (in)	Ground Surface Elevation (ft)	TOC Elevation (ft)	Northing	Easting
Pond E														
	ED-26	6/3/1987	GAI	82.5	0.0 - 51.0	51.0 - 57.0	57.0 - 82.5	20.0	60.0 - 80.0	2.0	NA	89.86	6,887,418.23	11,828,483.36
	ED-24R	9/12/2006	GES	65.9	0.0 - 46.0	46.0 - 49.0	49.0 - 63.0	10.0	53.0 - 63.0	2.0	NA	74.96	6,888,456.19	11,830,510.56
	ES-3D	10/7/2016	GAI	41.9	0.0 - 3.0	3.0 - 30.0	30.0 - 40.0	5.0	35.0 - 40.0	2.0	NA	22.86	6,885,435.18	11,827,824.58
Compliance Wells	ES-1609	10/17/2016	GAI	42.3	0.0 - 3.0	3.0 - 30.0	30.0 - 41.0	5.0	35.0 - 40.0	2.0	20.97	23.26	6,885,370.98	11,828,211.65
	ES-1613	10/14/2016	GAI	45.3	0.0 - 3.0	3.0 - 28.0	28.0 - 44.0	5.0	38.0 - 43.0	2.0	23.76	26.01	6,885,232.43	11,828,557.44
	T-1615D	10/15/2016	GAI	65.8	0.0 - 3.0	3.0 - 43.0	43.0 - 62.6	5.0	57.6 - 62.6	2.0	23.68	25.81	6,886,001.26	11,827,773.70
	T-1615S	10/16/2016	GAI	34.0	0.0 - 3.0	3.0 - 17.0	17.0 - 32.0	5.0	26.0 - 32.0	2.0	23.61	25.92	6,885,991.85	11,827,770.82
VSWMR Sentinel	ED-22RA	9/22/2016	GAI	34.8	0.0 - 3.0	3.0 - 21.0	21.0 - 31.0	5.0	26.0 - 31.0	2.0	23.78	26.89	6,886,088.09	11,827,283.54
Wells	ED-23R	3/8/2004	URS	63.2	NA	NA	NA	10.0	50.0 - 60.0	2.0	27.80	27.80	6,886,089.40	11,827,283.44
Existing NES Well	ES-1	12/26/1984	Law Engineering	28.0	0.0 - 13.0	13.0 - 16.0	16.0 - 28.0	12.0	16.0 - 28.0	2.0	27.38	27.38	6,884,763.13	11,828,936.92
	ES-1D	4/8/2020	Haley & Aldrich	50.0	0.0 - 40.0	40.0 - 43.0	43.0 - 50.0	5.0	45.0 - 50.0	2.0	25.59	28.91	6,884,766.33	11,828,954.94
New NES Wells	ES-7	4/7/2020	Haley & Aldrich	22.0	0.0 - 10.0	10.0 - 15.0	15.0 - 22.0	5.0	17.0 - 22.0	2.0	22.87	25.85	6,884,858.97	11,828,459.12
	ES-7D	4/9/2020	Haley & Aldrich	48.0	0.0 - 35.0	35.0 - 41.0	41.0 - 48.0	5.0	43.0 - 48.0	2.0	22.99	25.59	6,884,865.20	11,828,467.82

Abbreviations and Notes:

1. Well construction details provided in this table are for existing compliance wells, Virginia Solid Waste Management Regulations (VSWMR) sentinel wells, an existing Nature and Extent (NES) well, and the new NES wells installed in April 2020.

3. New NEW wells ES-1D, ES-7, and ES-7D elevations and Northing and Easting information based on a survey completed by D&M Surveyors on 15 April 2020.

bgs = below ground surface

ft = feet

Horizontal Datum: Horizontal Control provided by client, Virginia State Plan Coordinate System (NAD83)

ID = identification

in = inches

NA = not available

Vertical Datum: Vertical Control provided by client (NAVD88)

^{2.} Compliance well, sentinel well and existing NES well construction details as provided in Table 1 and Appendix A of the Groundwater Monitoring Plan, Possum Point Power Station, CCR Impoundments A, B, C, D, & E (Golder, August 2019) and Appendix B of the 2019 CCR & VSWMR Annual Groundwater Monitoring and Corrective Action Report, Possum Point Power Station, Pond E (Golder, January 2020).

POSSUM POINT POWER STATION DUMFRIES, VIRGINIA

					Upg	radient Co	mpliance Wells									Downgradient	Complianc	e Wells						
Well ID		CCD		ED-	-24R		EI	D-26		ES	5-1609		ES	-1613		E	S-3D		T-:	L615S		T-1	L615D	
Sample Name		CCR	SWP GPS	ED-24R-	20200413	3	ED-26-	20200414		ES-1609	9-20200408	3	ES-1613	3-20200408	3	ES-3D-	20200408		T-1615S	-2020041	0	T-16150	-2020041	0
Sample Date	Units	GWPS		04/13	3/2020		04/1	4/2020		04/0	08/2020		04/0	08/2020		04/0	08/2020		04/1	0/2020		04/1	.0/2020	
					7			7			7			_			_			_			_	
					MDL	7		M	R		MDL	군		MDL	교		MDL	귒		MDL	Ζ		MDI	군
Appendix III Compounds																								
Boron, Total	ug/L	NA	QL (250)	125 UJ	12.8	125.	25 U	25.0	250	1160	51.0	500	2200	76.5	750	732	25.5	250	767 J	510	5000	< 51.0	51.0	500
Calcium, Total	ug/L	NA	NA	1700 J-	103	1000	7470 J	1030	10000	22700	412	4000	36000	619	6000	15000	206	2000	13700 J	4120	40000	18000	412	4000
Chloride, Total	mg/L	NA	NA	2.3 J	0.60	1.0	2.1	0.60	1.0	190	2.4	4.0	157	1.8	3.0	92.6	0.60	1.0	218	3.0	5.0	77.5	0.60	1.0
Fluoride, Total	ug/L	4000	4000	60 J	50.0	100	277	50.0	100	74.0 J	50.0	100	144	50.0	100	221	50.0	100	114	50.0	100	210	50.0	100
pH, Field	pH units	NA	NA	5.04	NA	NA	6.09	NA	NA	5.04	NA	NA	5.28	NA	NA	5.08	NA	NA	5.43	NA	NA	5.60	NA	NA
Sulfate, Total	mg/L	NA	NA	2.7 J	0.50	1.0	2.0	0.50	1.0	86.1	0.50	1.0	96.6	0.50	1.0	114	1.0	2.0	27.3	0.50	1.0	1.5	0.50	1.0
Total Dissolved Solids (TDS)	mg/L	NA	NA	58.0	25.0	25.0	89.0	25.0	25.0	504	25.0	25.0	516	25.0	25.0	407	25.0	25.0	492	50.0	50.0	204	25.0	25.0
	1116/ -	1471	1471	30.0	20.0	23.0	03.0	23.0	23.0	30-1	23.0	23.0	310	23.0	23.0	107	23.0	23.0	132	30.0	30.0	20-7	23.0	23.0
Appendix IV Compounds	,,	6		. 0.55	0.55	2.5	.044	0.44	0.50	.044	0.11	0.50	.0.44	0.44	0.50	0.461	0.44	0.50	. 22.0	22.0	100	. 2. 2	2.2	400
Antimony, Total	ug/L	6	6	< 0.55	0.55	2.5	< 0.11	0.11	0.50	< 0.11	0.11	0.50	< 0.11	0.11	0.50	0.16 J	0.11	0.50	< 22.0	22.0	100	< 2.2	2.2	10.0
Arsenic, Total	ug/L	10	10	< 0.30	0.30	0.50	0.12	0.060	0.10	0.39	0.060	0.10	0.28	0.060	0.10	0.71	0.060	0.10	< 12.0	12.0	20.0	< 1.2	1.2	2.0
Barium, Total	ug/L	2000	2000	13.5 J-	0.30	1.5	25.9	0.060	0.30	84.1	0.060	0.30	160	0.060	0.30	47.0	0.060	0.30	133	12.0	60.0	101	1.2	6.0
Beryllium, Total	ug/L	4	4	< 0.25	0.25	0.50	0.11	0.050	0.10	1.0	0.050	0.10	0.35	0.050	0.10	0.76	0.050	0.10	< 10.0	10.0	20.0	< 1.0	1.0	2.0
Cadmium, Total	ug/L	5	5	< 0.35	0.35	0.40	< 0.070	0.070	0.080	< 0.070	0.070	0.080	< 0.070	0.070	0.080	0.79	0.070	0.080	< 14.0	14.0	16.0	< 1.4	1.4	1.6
Chromium, Total	ug/L	100	100	2.7	2.1	2.5	< 0.42	0.42	0.50	< 0.42	0.42	0.50	< 0.42	0.42	0.50	0.55	0.42	0.50	< 84.0	84.0	100	< 8.4	8.4	10.0
Cobalt, Total	ug/L	6	QL (5)	0.34 J	0.25	0.50	< 0.050	0.050	0.10	21.8	0.050	0.10	4.8	0.050	0.10	35.3	0.050	0.10	22.4	10.0	20.0	< 1.0	1.0	2.0
Fluoride, Total	ug/L	4000	4000	60 J	50.0	100	277	50.0	100	74.0 J	50.0	100	144	50.0	100	221	50.0	100	114	50.0	100	210	50.0	100
Lead, Total	ug/L	15	QL (5)	0.50 UJ	0.25	0.50	0.17	0.050	0.10	< 0.050	0.050	0.10	0.078 J	0.050	0.10	0.051 J	0.050	0.10	< 10.0	10.0	20.0	< 1.0	1.0	2.0
Lithium, Total	ug/L	40	QL (25)	< 2.1	2.1	12.5	12.5	0.42	2.5	13.0	0.42	2.5	20.1	0.42	2.5	16.9	0.42	2.5	< 84.0	84.0	500	15.3 J	8.4	50.0
Mercury, Total	ug/L	2	2	< 0.10	0.10	0.20	< 0.10	0.10	0.20	< 0.10	0.10	0.20	< 0.10	0.10	0.20	< 0.10	0.10	0.20	< 0.10	0.10	0.20	< 0.10	0.10	0.20
Molybdenum, Total	ug/L	100	QL (10)	< 0.50	0.50	2.5	< 0.10	0.10	0.50	< 0.10	0.10	0.50	< 0.10	0.10	0.50	0.17 J	0.10	0.50	< 20.0	20.0	100	< 2.0	2.0	10.0
Selenium, Total	ug/L	50	50	< 0.40	0.40	2.5	< 0.080	0.080	0.50	< 0.080	0.080	0.50	< 0.080	0.080	0.50	0.20 J	0.080	0.50	< 16.0	16.0	100	< 1.6	1.6	10.0
Thallium, Total	ug/L	2	2	< 0.30	0.30	0.50	< 0.060	0.060	0.10	0.067 J	0.060	0.10	< 0.060	0.060	0.10	< 0.060	0.060	0.10	< 12.0	12.0	20.0	< 1.2	1.2	2.0
Radium-226 & 228	pCi/L	5	5	0.351 U ± 0.544	1.02	1.02	0.726 U ± 0.579	0.933	0.933	2.85 ± 0.849	0.960	0.960	2.3 J ± 0.868	1.06	1.06	1.93 J ± 0.827	1.31	1.31	3.43 ± 0.945	0.868	0.868	0.905 J ± 0.475	0.634	0.634
Additional VSWMR Constituents																								
Copper, Total	ug/L	NA	1300	0.96	0.23	0.50	< 0.23	0.23	0.50	< 0.23	0.23	0.50	< 0.23	0.23	0.50	2.4	0.23	0.50	< 46.0	46.0	100	< 4.6	4.6	10.0
Nickel, Total	ug/L	NA	QL (5)	1.3	0.11	0.50	0.50 U	0.50	0.50	15.5	0.11	0.50	6.3	0.11	0.50	26.4	0.11	0.50	< 22.0	22.0	100	< 2.2	2.2	10.0
Silver, Total	ug/L	NA	QL (5)	< 0.050	0.050	0.40	< 0.050	0.050	0.40	< 0.050	0.050	0.40	0.61	0.050	0.40	< 0.050	0.050	0.40	< 10.0	10.0	80.0	< 1.0	1.0	8.0
Tin, Total	ug/L	NA	10.1	< 0.090	0.090	0.50	< 0.090	0.090	0.50	< 0.090	0.090	0.50	< 0.090	0.090	0.50	< 0.090	0.090	0.50	100 U	18.0	100	< 1.8	1.8	10.0
Vanadium, Total	ug/L	NA	QL (5)	0.28 J	0.12	0.30	< 0.12	0.12	0.30	< 0.12	0.12	0.30	0.15 J	0.12	0.30	1.1	0.12	0.30	< 24.0	24.0	60.0	< 2.4	2.4	6.0
Zinc, Total	ug/L	NA	QL (50)	4.4 J	1.1	5.0	5.0 U	5.0	5.0	31.6	1.1	5.0	5.5	1.1	5.0	203	1.1	5.0	< 226	226	1000	< 22.6	22.6	100
Former VPDES Constituents																								
Phenolics, Total	mg/L	NA	NA	< 0.0050	0.0050	0.020	< 0.0050	0.0050	0.020	< 0.0050	0.0050	0.020	< 0.0050	0.0050	0.020	< 0.0050	0.0050	0.020	< 0.0050	0.0050	0.020	< 0.0050	0.0050	0.020
Potassium, Total	ug/L	NA	NA	2400	61.9	500	5240	310	2500	6620	6.2	50.0	6210	6.2	50.0	3590	6.2	50.0	3880 J	1240	10000	11900	124	1000
Iron, Total	ug/L	NΔ	NA	109	7.5	50.0	2790	374	2500	19500	7.5	50.0	35700	7.5	50.0	5540	7.5	50.0	9440 J	1500	10000	11200	150	1000
Manganese, Total	ug/L	NA	NA	9.7	0.14	0.50	78.3	0.14	0.50	774	14.0	50.0	917	7.0	25.0	857	14.0	50.0	234	28.0	100	297	2.8	10.0
Hardness, Total	ug/L	NA	NA	9070	70.1	541	10200 J	3500	27000	120000	7010	54100	175000	3500	27000	53000 J	7010	54100	36000 J	14000	108000	96700	1400	10800
Sodium, Total	ug/L	NA	NA	1990 J	143	2500	1880 J	714	12500	107000	1430	25000	55200	714	12500	75600	1430	25000	142000	2850	50000	8870	285	5000
Total Organic Carbon (TOC)	mg/L	NA	NA	< 0.50	0.50	1.0	< 0.50	0.50	1.0	< 0.50	0.50	1.0	0.73 J	0.50	1.0	0.80 J	0.50	1.0	2.8	0.50	1.0	< 0.50	0.50	1.0
Chromium VI (Hexavalent), Total	mg/L	NA	NA	< 0.005	0.005	0.005	< 0.005	0.005	0.005	< 0.005	0.005	0.005	< 0.005	0.005	0.005	< 0.005	0.005	0.005	< 0.005	0.005	0.005	< 0.005	0.005	0.005
, , , , , , , , , , , , , , , , , , ,	6/ L	INA	14/7	` 0.003	0.005	0.000	\ 0.003	0.000	0.003	` 0.005	0.000	0.003	. 0.005	0.003	0.005	` 0.005	0.003	0.000	` 0.005	0.000	0.003	` 0.005	0.000	0.003
Inorganics, Dissolved			25.5																					
Boron, Dissolved	ug/L	NA	250	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	=	NA	NA	-	NA	NA	-	NA	NA
Cobalt, Dissolved	ug/L	6	5	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA
Nickel, Dissolved	ug/L	NA	5	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA
Zinc, Dissolved	ug/L	NA	50	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA

					Upg	radient Cor	mpliance Wells									Downgradien	t Compliand	ce Wells						
Well ID		CCD		E	D-24R			ED-26		E	S-1609		E:	S-1613		1	ES-3D		T-	-1615S		T-	-1615D	
Sample Name		CCR	SWP GPS	ED-24F	ED-24R-20200413 04/13/2020			5-20200414		ES-160	9-20200408	3	ES-161	3-20200408	3	ES-3D	-20200408		T-1615	S-20200410)	T-1615	D-2020041	.0
Sample Date	Units	GWPS		04/	13/2020		04,	/14/2020		04/	08/2020		04/	08/2020		04/	08/2020		04/	10/2020		04/	10/2020	
Field Parameters																								!
Temperature	Deg C	NA	NA	14.45	NA	NA	13.38	NA	NA	15.36	NA	NA	15.36	NA	NA	15.28	NA	NA	14.86	NA	NA	14.74	NA	NA
Dissolved Oxygen, Field	mg/L	NA	NA	3.43	NA	NA	1.85	NA	NA	3.79	NA	NA	3.89	NA	NA	4.35	NA	NA	4.31	NA	NA	2.03	NA	NA
Conductivity, Field	mS/cm	NA	NA	0.041	NA	NA	0.089	NA	NA	0.879	NA	NA	0.829	NA	NA	0.621	NA	NA	1.005	NA	NA	0.323	NA	NA
ORP, Field	mv	NA	NA	288.1	NA	NA	74.4	NA	NA	141.4	NA	NA	104.4	NA	NA	179.2	NA	NA	166.5	NA	NA	129.8	NA	NA
Turbidity, Field	NTU	NA	NA	6.72	NA	NA	14.9	NA	NA	0.59	NA	NA	0.8	NA	NA	1.79	NA	NA	0.5	NA	NA	7.5	NA	NA

ABBREVIATIONS AND NOTES:

<: not detected, value is the method detection limit; any method detection limits above GWPS/GPS are due to matrix interference as reported by the laboratory

J: value is estimated

J-: result is an estimated quantity, but the result may be biased low

U: Not detected

UJ: Not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation

CCR: Coal Combustion Residuals

GWPS/GPS: Groundwater Protection Standard

MDL: Method Detection Limit

NA: Not Applicable/Not Available

ORP: Oxidation Reduction Potential QA/QC: Quality Assurance/Quality Control

RL: Reporting Limit (laboratory)

QL: Quantitation limit

VPDES: Virginia Pollutant Discharge Elimination System

Deg C: Degrees Celsius

mg/L: milligrams per liter

mS/cm: milliSiemens per centimeter

mv: millivolts

NTU: Nephelometric Turbidity Unit

pCi/L: picoCuries per liter ug/L: micrograms per liter

SWP: Solid Waste Permit No. 617

VSWMR: Virginia Solid Waste Management Regulations

Bold indicates a detected concentration.

Blue shading indicates a concentration greater than the CCR GWPS and the SWP GPS.

Green shading indicates a concentration greater than the SWP GPS.

DUMFRIES, VIRGINIA

DUMFRIES, VIRGINIA

								1	Nature & E	xtent Wells							V	/SWMR Se	ntinel Wells		
Well ID		CCR			ES-1		ES	S-1D			ES-7			ES-7D		ED-	-22RA)-23R	
Sample Name		GWPS	SWP GPS	_	20200415			20200415			7-20200416			-20200416			A-2020040	7		-20200408	
Sample Date	Units	- CW15		04/	15/2020		04/1	5/2020		04	/16/2020		04/	16/2020		04/0	7/2020		04/0	8/2020	
					MDL	_		MDL	_		MDL	_		MDL			MDL	_		MDL	_
Annual division Community					≥	Z		\geq	꿉		≥	Z		>	꿉		\geq	R		>	꿉
Appendix III Compounds	/1	NI A	01 (250)	200	12.0	125	1001	2.00	25.0	264	12.8	125	67.5.1	12.0	125	100	2.0	25.0	10.1.1	2.0	25.0
Boron, Total	ug/L	NA NA	QL (250)	288 9090	12.8	125 2000	18.9 J	2.60 412	25.0 4000	264	NA	125 NA	67.5 J	12.8	125 NA	188 3700	2.6	25.0 200	18.1 J 3660	2.6 20.6	25.0
Calcium, Total Chloride, Total	ug/L	NA NA	NA NA		206 0.60		18200			_			-	NA			20.6				200 1.0
Fluoride, Total	mg/L		NA 4000	76.7 < 50.0	50.0	1.0	10.0 75.0 J	0.60 50.0	1.0	-	NA	NA	-	NA	NA	27.1	0.60 50.0	1.0	2.8	0.60 50.0	
· · · · · · · · · · · · · · · · · · ·	ug/L	4000 NA	4000 NA		NA	100			100		NA	NA	-	NA	NA	< 50.0		100 NA	315		100 NA
pH, Field Sulfate, Total	pH units	NA NA	NA NA	4.46 79.8	0.50	NA 1.0	6.52 8.6	NA 0.50	NA 1.0	6.03	NA NA	NA NA	6.81	NA NA	NA	5.06 60.5 J	NA 0.50	1.0	5.69	NA 0.50	1.0
Total Dissolved Solids (TDS)	mg/L	NA NA	NA NA	268	25.0	25.0	169	25.0	1.0 25.0	_	NA	NA	_	NA	NA NA	178	25.0	25.0	5.6 100	25.0	25.0
, ,	mg/L	INA	INA	208	25.0	25.0	109	25.0	25.0	-	IVA	NA	-	NA	NA	1/6	25.0	25.0	100	25.0	25.0
Appendix IV Compounds		_	_																		
Antimony, Total	ug/L	6	6	< 0.11	0.11	0.50	< 0.11	0.11	0.50	-	NA	NA	-	NA	NA	0.16 J	0.11	0.50	< 0.11	0.11	0.50
Arsenic, Total	ug/L	10	10	0.18	0.060	0.10	0.14	0.060	0.10	-	NA	NA	-	NA	NA	0.27	0.060	0.10	0.14	0.060	0.10
Barium, Total	ug/L	2000	2000	26.9	0.060	0.30	74.6	0.060	0.30	-	NA	NA	-	NA	NA	25.5	0.060	0.30	27.7	0.060	0.30
Beryllium, Total	ug/L	4	4	1.6	0.050	0.10	< 0.050	0.050	0.10	-	NA	NA	-	NA	NA	0.33	0.050	0.10	0.11	0.050	0.10
Cadmium, Total	ug/L	5	5	0.15	0.070	0.080	< 0.070	0.070	0.080	-	NA	NA	-	NA	NA	< 0.070	0.070	0.080	< 0.070	0.070	0.080
Chromium, Total	ug/L	100	100	< 0.42	0.42	0.50	< 0.42	0.42	0.50	-	NA	NA	-	NA	NA	< 0.42	0.42	0.50	< 0.42	0.42	0.5
Cobalt, Total	ug/L	6	QL (5)	5.8	0.050	0.10	0.39	0.050	0.10	89.2	0.25	0.50	2.2	0.25	0.50	5.0	0.050	0.10	0.054 J	0.050	0.10
Fluoride, Total	ug/L	4000	4000	< 50.0	50.0	100	75.0 J	50.0	100	-	NA	NA	-	NA	NA	< 50.0	50.0	100	315	50.0	100
Lead, Total	ug/L	15	QL (5)	< 0.050	0.050	0.10	< 0.050	0.050	0.10	-	NA	NA	-	NA	NA	0.065 J	0.050	0.10	< 0.050	0.050	0.10
Lithium, Total	ug/L	40	QL (25)	2.9	0.42	2.5	13.4	0.42	2.5	-	NA	NA	-	NA	NA	2.4 J	0.42	2.5	8.2	0.42	2.5
Mercury, Total	ug/L	2	2	< 0.10	0.10	0.20	< 0.10	0.10	0.20	-	NA	NA	-	NA	NA	< 0.10	0.10	0.20	< 0.10	0.10	0.20
Molybdenum, Total	ug/L	100	QL (10)	< 0.10	0.10	0.50	1.3	0.10	0.50	-	NA	NA	-	NA	NA	< 0.10	0.10	0.50	< 0.10	0.10	0.50
Selenium, Total	ug/L	50	50	0.17 J	0.080	0.50	< 0.080	0.080	0.50	-	NA	NA	-	NA	NA	< 0.080	0.080	0.50	< 0.080	0.080	0.50
Thallium, Total	ug/L	2	2	0.077 J	0.060	0.10	< 0.060	0.060	0.10	-	NA	NA	-	NA	NA	< 0.060	0.060	0.10	< 0.060	0.060	0.10
Radium-226 & 228	pCi/L	5	5	1.88 J ± 0.772	0.968	0.968	0.651 U ± 0.556	0.854	0.854	-	NA	NA	-	NA	NA	0.852 U ± 0.861	1.44	1.44	0.807 ± 0.475	0.620	0.620
Additional VSWMR Constituents																					
Copper, Total	ug/L	NA	1300	24.4	0.23	0.50	0.47 J	0.23	0.50	-	NA	NA	-	NA	NA	1.4	0.23	0.50	0.49 J	0.23	0.50
Nickel, Total	ug/L	NA	QL (5)	21.1	0.11	0.50	0.87	0.11	0.50	69.4	0.11	0.50	5.0	0.55	2.5	5.6	0.11	0.50	0.48 J	0.11	0.50
Silver, Total	ug/L	NA	QL (5)	< 0.050	0.050	0.40	< 0.050	0.050	0.40	-	NA	NA	-	NA	NA	0.59	0.050	0.40	1.2	0.050	0.40
Tin, Total	ug/L	NA	10.1	< 0.090	0.090	0.50	0.35 J	0.090	0.50	-	NA	NA	-	NA	NA	< 0.090	0.090	0.50	0.093 J	0.090	0.50
Vanadium, Total	ug/L	NA	QL (5)	1.9	0.12	0.30	0.86	0.12	0.30	-	NA	NA	-	NA	NA	0.19 J	0.12	0.30	< 0.12	0.12	0.30
Zinc, Total	ug/L	NA	QL (50)	75.3	1.1	5.0	2.7 J	1.1	5.0	33.4	1.1	5.0	13.7 J	5.6	25.0	24.4	1.1	5.0	2.2 J	1.1	5.0
Former VPDES Constituents																					
Phenolics, Total	mg/L	NA	NA	< 0.0050	0.0050	0.020	< 0.0050	0.0050	0.020	_	NA	NA	_	NA	NA	0.020 UJ	0.0050	0.020	< 0.0050	0.0050	0.020
Potassium, Total	ug/L	NA	NA	3820	61.9	500	8330	61.9	500	_	NA	NA	_	NA	NA	1680	6.2	50.0	5530	6.2	50.0
Iron, Total	ug/L	NA	NA	974	7.5	50.0	3510	74.8	500	_	NA	NA	_	NA	NA	1150	7.5	50.0	5120	7.5	50.0
Manganese, Total	ug/L	NA	NA	164	1.4	5.0	261	1.4	5.0	_	NA	NA	_	NA	NA	82.1	0.14	0.50	68.3	0.14	0.50
Hardness, Total	ug/L	NA	NA	39000	701	5410	77500	1400	10800	_	NA	NA	_	NA	NA	17800	70.1	541	17900	70.1	541
Sodium, Total	ug/L	NA	NA	63100	1430	25000	10900	143	2500	-	NA	NA	-	NA	NA	44200	285	5000	4530	14.3	250
Total Organic Carbon (TOC)	mg/L	NA	NA	0.84 J	0.50	1.0	0.65 J	0.50	1.0	-	NA	NA	-	NA	NA	1.0	0.50	1.0	< 0.50	0.50	1.0
Chromium VI (Hexavalent), Total	mg/L	NA	NA	< 0.005	0.005	0.005	< 0.005	0.005	0.005	-	NA	NA	-	NA	NA	< 0.005	0.005	0.005	< 0.005	0.005	0.005
Inorganics, Dissolved		1	1																		
Boron, Dissolved	ug/L	NA	250	_	NA	NA	_	NA	NA	261	12.8	125	59.7 J	12.8	125	_	NA	NA	_	NA	NA
Cobalt, Dissolved		6	5	_	NA NA	NA NA	_	NA NA	NA	82.3	0.25	0.50	0.88	0.25	0.50	-	NA NA	NA NA	_	NA	NA
	ug/L			_			_									_			_		
Nickel, Dissolved	ug/L	NA NA	5	_	NA	NA	-	NA	NA	60.7 J-	0.55	2.5	2.2 J-	0.55	2.5	-	NA	NA	-	NA	NA
Zinc, Dissolved	ug/L	NA	50		NA	NA	-	NA	NA	30.3 J-	5.6	25.0	5.6 UJ	5.6	25.0	-	NA	NA	-	NA	NA

								١	Nature & E	xtent Wells							V	SWMR Sei	ntinel Wells		
Well ID		CCR			ES-1			ES-1D			ES-7			ES-7D		E	D-22RA		E	D-23R	
Sample Name			SWP GPS	ES-1	-20200415		ES-10	0-20200415		ES-7-	-20200416		ES-7D	-20200416	;	ED-22F	RA-2020040	7	ED-23R	-20200408	
Sample Date	Units	GWPS		04,	/15/2020		04,	/15/2020		04/	/16/2020		04/16/2020			04,	/07/2020		04/0	08/2020	
Field Parameters																					
Temperature	Deg C	NA	NA	13.82	NA	NA	15.27	NA	NA	12.51	NA	NA	13.69	NA	NA	14.30	NA	NA	14.47	NA	NA
Dissolved Oxygen, Field	mg/L	NA	NA	1.20	NA	NA	0.75	NA	NA	5.79	NA	NA	3.99	NA	NA	4.17	NA	NA	2.15	NA	NA
Conductivity, Field	mS/cm	NA	NA	0.472	NA	NA	0.241	NA	NA	0.513	NA	NA	0.383	NA	NA	0.267	NA	NA	0.083	NA	NA
ORP, Field	mv	NA	NA	221.9	NA	NA	-72.6	NA	NA	210.6	NA	NA	88.0	NA	NA	256.0	NA	NA	133.2	NA	NA
Turbidity, Field	NTU	NA	NA	4.39	NA	NA	11.6	NA	NA	371	NA	NA	477	NA	NA	5.70	NA	NA	9.3	NA	NA

ABBREVIATIONS AND NOTES:

<: not detected, value is the method detection limit; any method detection limits above GWPS/GPS are due to matrix interference as reported by the laboratory

J: value is estimated

J-: result is an estimated quantity, but the result may be biased low

U: Not detected

UJ: Not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation

CCR: Coal Combustion Residuals

GWPS/GPS: Groundwater Protection Standard

MDL: Method Detection Limit

NA: Not Applicable/Not Available

ORP: Oxidation Reduction Potential

QA/QC: Quality Assurance/Quality Control RL: Reporting Limit (laboratory)

QL: Quantitation limit

VPDES: Virginia Pollutant Discharge Elimination System

Deg C: Degrees Celsius

mg/L: milligrams per liter

mS/cm: milliSiemens per centimeter

mv: millivolts

NTU: Nephelometric Turbidity Unit

pCi/L: picoCuries per liter

ug/L: micrograms per liter SWP: Solid Waste Permit No. 617

VSWMR: Virginia Solid Waste Management Regulations

Bold indicates a detected concentration.

Blue shading indicates a concentration greater than the CCR GWPS and the SWP GPS.

Green shading indicates a concentration greater than the SWP GPS.

TABLE 3
SUMMARY OF NATURE AND EXTENT STUDY GROUNDWATER RESULTS
POSSUM POINT POWER STATION
DUMFRIES, VIRGINIA

Page	5	of	6
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						Field QA	A/QC		
Well ID		CCR		Q.A	\/QC		QA/	QC	
Sample Name		GWPS	SWP GPS	EB-01-2	20200414		FB-01-20	200409	
Sample Date	Units	GWP3		04/1	4/2020		04/09,	/2020	
					\exists			7	
					MDL	귒		MDL	R
Appendix III Compounds									
Boron, Total	ug/L	NA	QL (250)	3.1 J	2.6	25.0	< 2.6	2.6	25.0
Calcium, Total	ug/L	NA	NA	< 20.6	20.6	200	< 20.6	20.6	200
Chloride, Total	mg/L	NA	NA	< 0.60	0.60	1.0	< 0.60	0.60	1.0
Fluoride, Total	ug/L	4000	4000	< 50.0	50.0	100	< 50.0	50.0	100
pH, Field	pH units	NA	NA	-	NA	NA	-	NA	NA
Sulfate, Total	mg/L	NA	NA	< 0.50	0.50	1.0	0.50 UJ	0.50	1.0
Total Dissolved Solids (TDS)	mg/L	NA	NA	< 25.0	25.0	25.0	< 25.0	25.0	25.0
Appendix IV Compounds									
Antimony, Total	ug/L	6	6	0.14 J	0.11	0.50	< 0.11	0.11	0.50
Arsenic, Total	ug/L	10	10	< 0.060	0.060	0.10	< 0.060	0.06	0.10
Barium, Total	ug/L	2000	2000	0.062 J	0.060	0.30	< 0.060	0.060	0.30
Beryllium, Total	ug/L	4	4	< 0.050	0.050	0.10	< 0.050	0.050	0.10
Cadmium, Total	ug/L	5	5	< 0.070	0.070	0.080	< 0.070	0.070	0.080
Chromium, Total	ug/L	100	100	< 0.42	0.42	0.50	< 0.42	0.42	0.50
Cobalt, Total	ug/L	6	QL (5)	< 0.050	0.050	0.10	< 0.050	0.050	0.10
Fluoride, Total	ug/L	4000	4000	< 50.0	50.0	100	< 50.0	50.0	100
Lead, Total	ug/L	15	QL (5)	< 0.050	0.050	0.10	< 0.050	0.050	0.10
Lithium, Total	ug/L	40	QL (25)	< 0.42	0.42	2.5	< 0.42	0.42	2.5
Mercury, Total	ug/L	2	2	< 0.10	0.10	0.20	< 0.10	0.10	0.20
Molybdenum, Total	ug/L	100	QL (10)	< 0.10	0.10	0.50	< 0.10	0.10	0.5
Selenium, Total	ug/L	50	50	< 0.080	0.080	0.50	< 0.080	0.080	0.50
Thallium, Total	ug/L	2	2	< 0.060	0.060	0.10	< 0.060	0.060	0.10
Radium-226 & 228	pCi/L	5	5	0.706 U ± 0.555	0.984	0.984	0.174 U ± 0.482	0.941	0.941
Additional VSWMR Constituents									
Copper, Total	ug/L	NA	1300	< 0.23	0.23	0.50	< 0.23	0.23	0.50
Nickel, Total	ug/L	NA	QL (5)	0.24 J	0.11	0.50	0.50 U	0.11	0.50
Silver, Total	ug/L	NA	QL (5)	< 0.050	0.050	0.40	< 0.050	0.050	0.40
Tin, Total	ug/L	NA	10.1	< 0.090	0.090	0.50	< 0.090	0.090	0.50
Vanadium, Total	ug/L	NA	QL (5)	< 0.12	0.12	0.30	< 0.12	0.12	0.30
Zinc, Total	ug/L	NA	QL (50)	1.7 J	1.1	5.0	1.7 J	1.1	5.0
Former VPDES Constituents									
Phenolics, Total	mg/L	NA	NA	< 0.0050	0.0050	0.020	< 0.0050	0.0050	0.020
Potassium, Total	ug/L	NA	NA	< 6.2	6.2	50.0	< 6.2	6.2	50.0
Iron, Total	ug/L	NA	NA	< 7.5	7.5	50.0	< 7.5	7.5	50.0
Manganese, Total	ug/L	NA	NA	< 0.14	0.14	0.50	< 0.14	0.14	0.50
Hardness, Total	ug/L	NA	NA	< 70.1	70.1	541	< 70.1	70.1	541
Sodium, Total	ug/L	NA	NA	< 14.3	14.3	250	< 14.3	14.3	250
Total Organic Carbon (TOC)	mg/L	NA	NA	< 0.50	0.5	1.0	< 0.50	0.50	1.0
Chromium VI (Hexavalent), Total	mg/L	NA	NA	< 0.005	0.005	0.005	< 0.005	0.005	0.005
Inorganics, Dissolved	J.								
Boron, Dissolved	ug/L	NA	250	_	NA	NA	_	NA	NA
Cobalt, Dissolved	ug/L ug/L	ΝΑ 6	250 5	-	NA	NA NA	_	NA	NA
Nickel, Dissolved	ug/L ug/L	NA	5	-	NA	NA NA	_	NA	NA
Zinc, Dissolved	ug/L ug/L	NA NA	50	<u>-</u>	NA	NA NA	_	NA	NA
ZITIC, DISSUIVEU	ug/L	INA	JU	<u>-</u>	IVA	IVA		IVA	IVA

						Field QA	A/QC		
Well ID Sample Name Sample Date		CCR GWPS	SWP GPS	EB-01	QA/QC L-20200414 /14/2020		FB-01-	A/QC 20200409 09/2020	
Field Parameters									
Temperature	Deg C	NA	NA	-	NA	NA	-	NA	NA
Dissolved Oxygen, Field	mg/L	NA	NA	-	NA	NA	-	NA	NA
Conductivity, Field	mS/cm	NA	NA	-	NA	NA	-	NA	NA
ORP, Field	mv	NA	NA	-	NA	NA	-	NA	NA
Turbidity, Field	NTU	NA	NA	-	NA	NA	-	NA	NA

ABBREVIATIONS AND NOTES:

<: not detected, value is the method detection limit; any method detection limits above GWPS/GPS are due to matrix interference as reported by the laboratory

J: value is estimated

J-: result is an estimated quantity, but the result may be biased low

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GWPS/GPS: Groundwater Protection Standard

MDL: Method Detection Limit

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ORP: Oxidation Reduction Potential

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VPDES: Virginia Pollutant Discharge Elimination System

Deg C: Degrees Celsius

mg/L: milligrams per liter

mS/cm: milliSiemens per centimeter

mv: millivolts

NTU: Nephelometric Turbidity Unit

pCi/L: picoCuries per liter ug/L: micrograms per liter

SWP: Solid Waste Permit No. 617

VSWMR: Virginia Solid Waste Management Regulations

Bold indicates a detected concentration.

Blue shading indicates a concentration greater than the CCR GWPS and the SWP GPS.

Green shading indicates a concentration greater than the SWP GPS. $\label{eq:GPS} % \begin{center} \begin{cen$

DUMFRIES, VIRGINIA

SUMMARY OF FIRST QUARTER AND SECOND QUARTER 2020 SURFACE WATER RESULTS - BORON, COBALT, NICKEL, ZINC POSSUM POINT POWER STATION

DUMFRIES, VIRGINIA

Location Name		Comparison					PF	-01-20							PP-0	2-20						PP	-03-20							PP-04	-20	
Sample Name		Standard	Comparison	PP-	01-20-Q	Q1	PP-C	1-20-Q	2	PP-01	-20-Q2	-FD	PP-0)2-20-Q	(1	PP-0	02-20-Q2	2	PP-0	3-20-Q1		PP-03	-20-Q1-F	:D	PP-0	3-20-Q2	2	PP-0	4-20-Q	1	PP-C	4-20-Q2
Sample Date	Units	Value	Standard Source	03,	/24/202	0	06/	23/2020)	06/	23/202	0	03/	24/2020	0	06/	23/2020)	03/2	4/2020		03/2	24/2020		06/2	3/2020)	03/2	24/2020)	06/2	23/2020
					MDL	R		MDL	RL		MDL	R		MDL	RL		MDL	7		MDL	RL		MDL	RL		MDL	RL		MDL	Z		MDL
Inorganic Compounds (ug/L)																																
Boron, Dissolved	ug/L	250	GPS	< 63 U	63	100	< 63 U	63	100	< 63 U	63	100	< 63 U	63	100	< 63 U	63	100	< 63 U	63	100	< 63 U	63	100	< 63 U	63	100	< 63 U	63	100	< 63 U	63 100
Cobalt, Dissolved	ug/L	5.0	GPS	0.38 J	0.20	2.0	0.28 J	0.20	2.0	0.28 J	0.20	2.0	0.26 J	0.20	2.0	0.38 J	0.20	2.0	0.24 J	0.20	2.0	0.24 J	0.20	2.0	0.25 J	0.20	2.0	0.30 J	0.20	2.0	0.32 J	0.20 2.0
Nickel, Dissolved	ug/L	12 - 24 *	AL FW Chronic	1.6 J	0.20	2.0	1.4 J	0.20	2.0	3.4	0.20	2.0	1.1 J	0.20	2.0	1.5 J	0.20	2.0	1.1 J	0.20	2.0	2.1	0.20	2.0	1.4 J	0.20	2.0	2.8	0.20	2.0	1.9 J	0.20 2.0
Zinc, Dissolved	ug/L	68 - 140 *	AL FW Chronic	< 5.2 U	5.2	5.2	< 5.9 U	5.9	5.9	< 5.0 U	5.0	5.0	< 4.0 U	4.0	4.0	< 5.1 U	5.1	5.1	< 5.3 U	5.3	5.3	< 5.1 U	5.1	5.1	< 4.8 U	4.8	4.8	< 5.5 U	5.5	5.5	< 5.0 U	5.0 5.0
Other	•	_					•				•	•		•			•			•		•			_			•	•		•	
Hardness (mg/L)	ug/L	NA	NA	81.7	0.17	1.3	52.0	0.17	1.3	51.8	1.3	1.3	117	0.17	1.3	73.0	0.17	1.3	119	0.17	1.3	120	0.17	1.3	73.3	0.17	1.3	120	0.17	1.3	75.3	0.17 1.3

ABBREVIATIONS AND NOTES:

Samples collected by EnviroScience, Inc.; analytical results as provided by Dominion Energy.

<: not detected, value is the method detection limit

J: value is estimated

U: indicates a result < method detection limit

MDL: Method Detection Limit RL: Reporting Limit (laboratory)

ug/L: microgram per liter

GPS = Groundwater Protection Standard (Virginia Solid Waste Permit #618)

AL FW = Aquatic Life Freshwater Criteria

* hardness-specific criteria (range based on criteria calculated from both March and June 2020 sampling events)

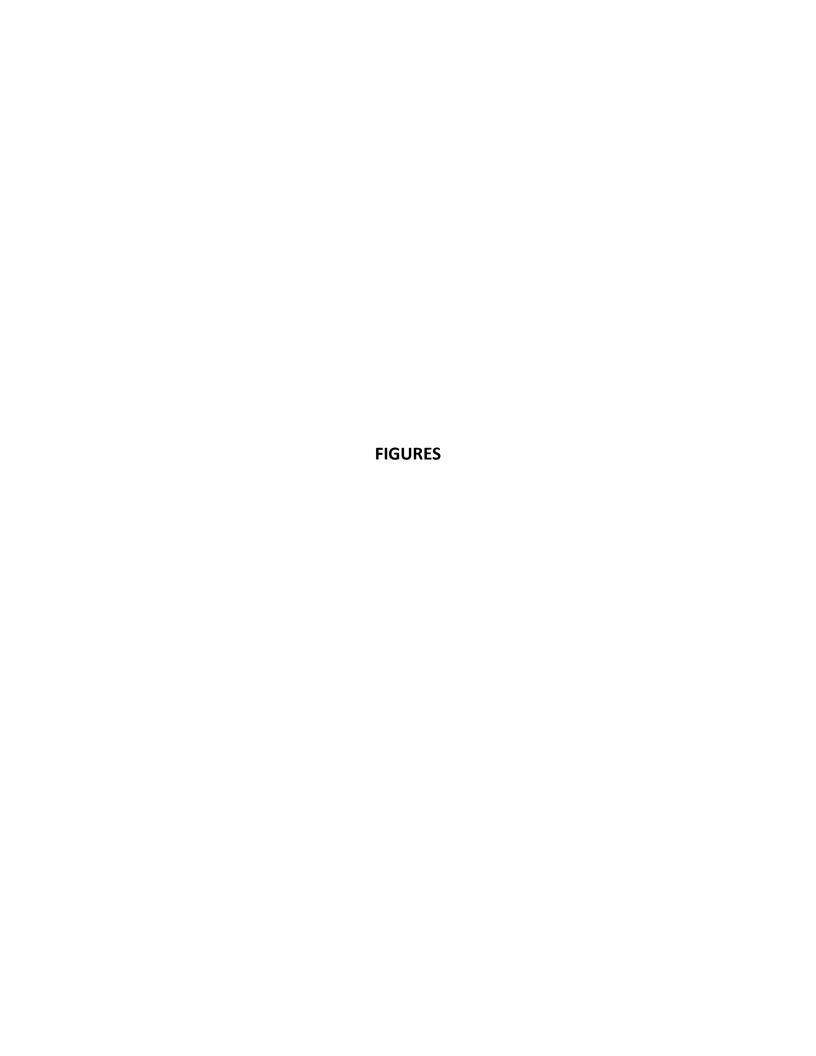
Bold = detected concentration

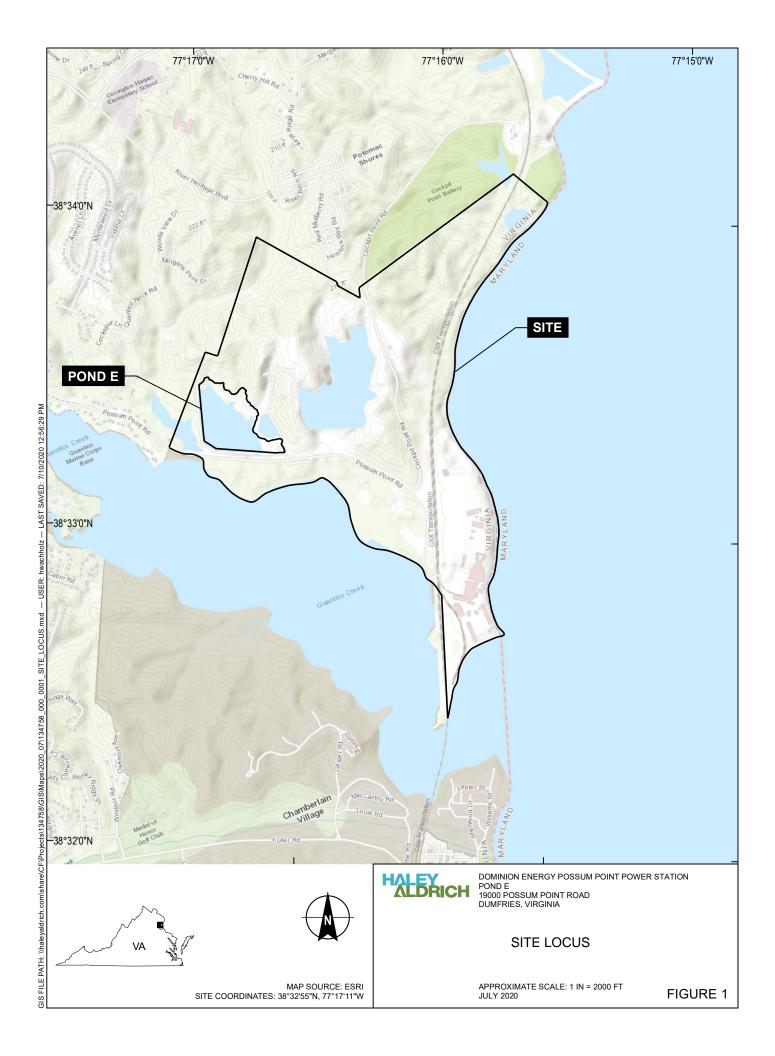
TABLE 5 CORRECTIVE MEASURES EVALUATION SUMMARY POSSUM POINT POWER STATION DUMFRIES, VIRGINIA

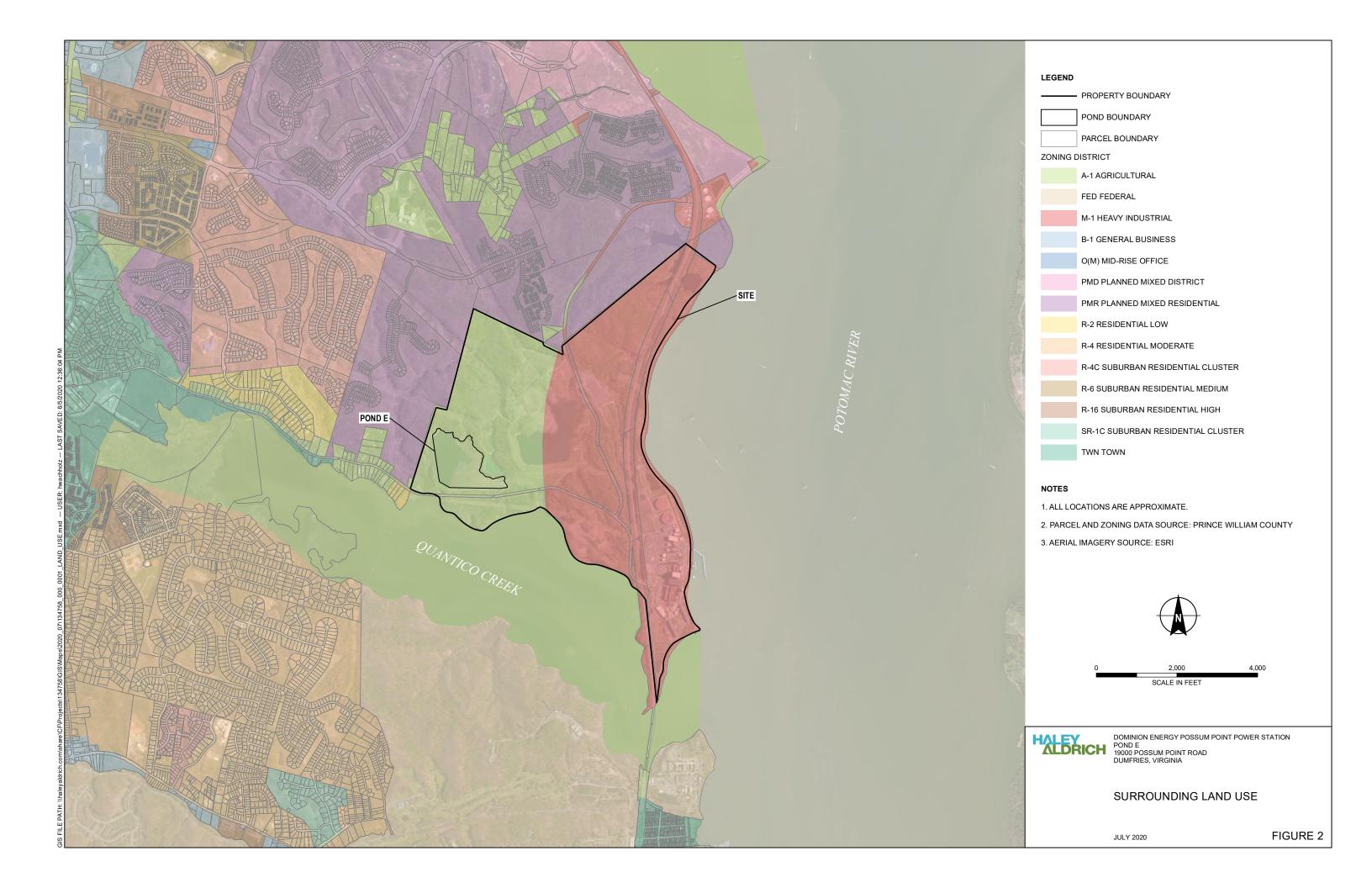
		Alternative 1	Alternative 2	Alternative 3
	Criteria	Natural Recovery	In-situ Groundwater Treatment	Hydraulic Control with Ex-situ Treatment
	Human Health and Environment Protection			
Threshold Criteria	GWPS/GPS Attainment			
	Source Control			
40 CFR PART 257.97(B)	Contaminated Material Removal			
	Waste Management			
	Risk Reduction			
	Residual Risks			
	Long-Term Management			
Balancing Criterion 1	Short-Term Risks			
40 CFR Part 257.97(C)(1)	Time to Full Protection			
	Potential for Exposure			
	Long-Term Reliability			
	Remedy Replacement Potential			
Balancing Criterion 2	Release Reduction			
40 CFR Part 257.97(C)(2)	Treatment Technologies			
	Technology Difficulty			
Dalamaina suitavian 2	Technology Reliability			
Balancing criterion 3	Permitting			
10 (FR Part 75 / 9 /(()(3) F	Equipment and Specialist Availability			
	Treatment, Storage, and Disposal Capacity			

Note:

Green denotes the most preferred result, yellow a neutrally preferred result, and red the least preferred result.



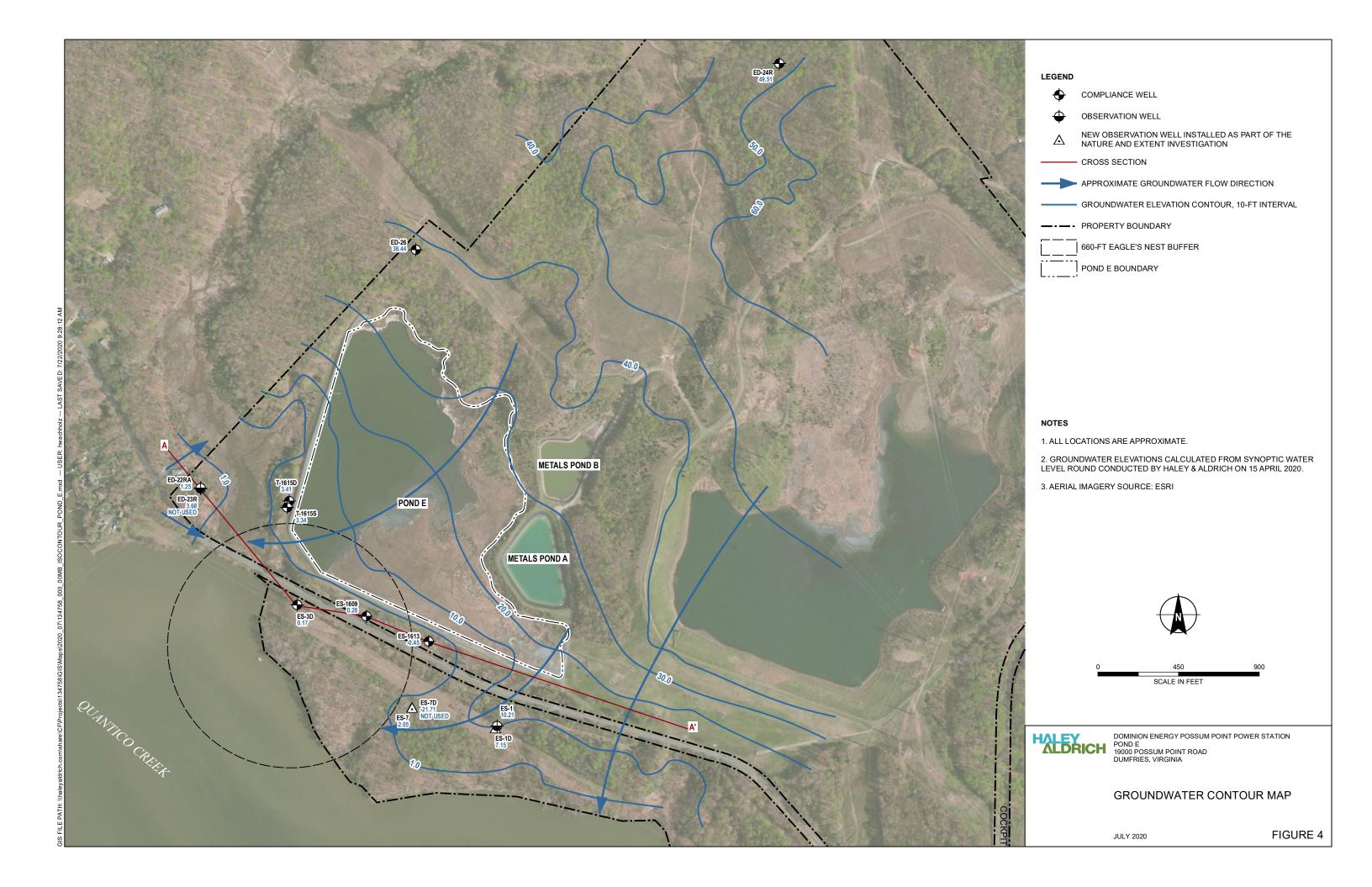


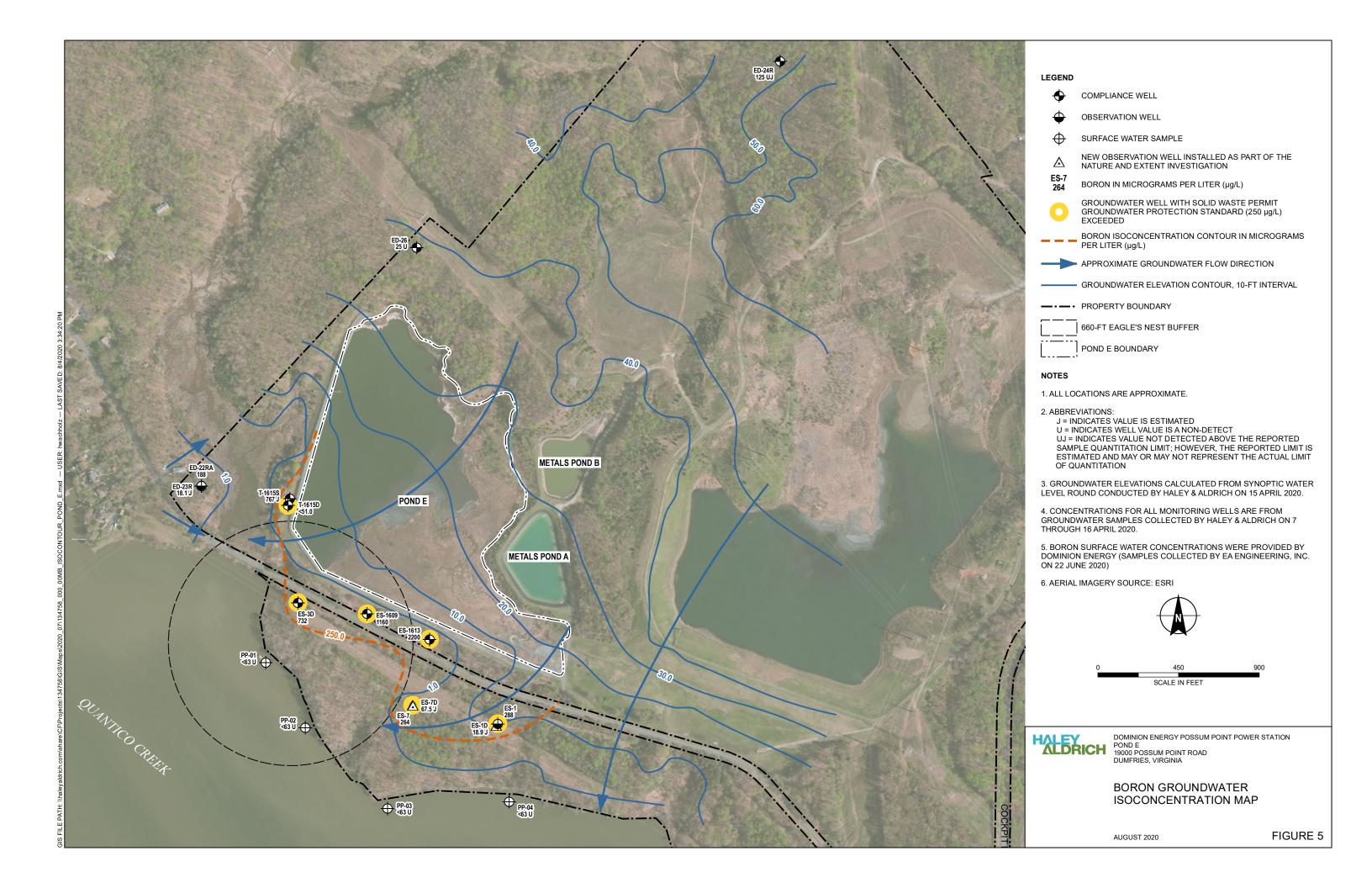


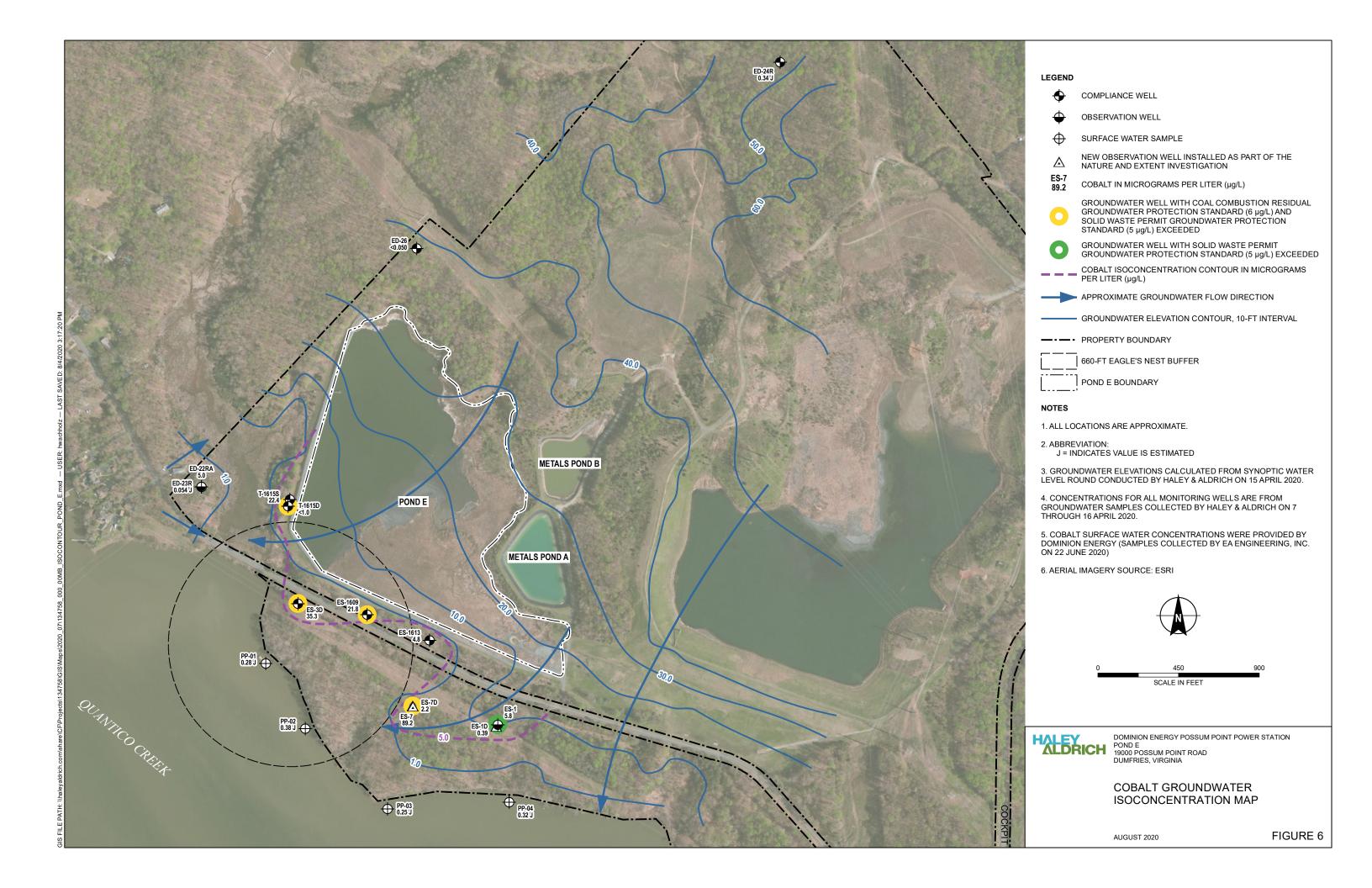
J:\graphics\134660\134660-002-D002.dwg, D002, 8/6/2020 12:10:09 PM,

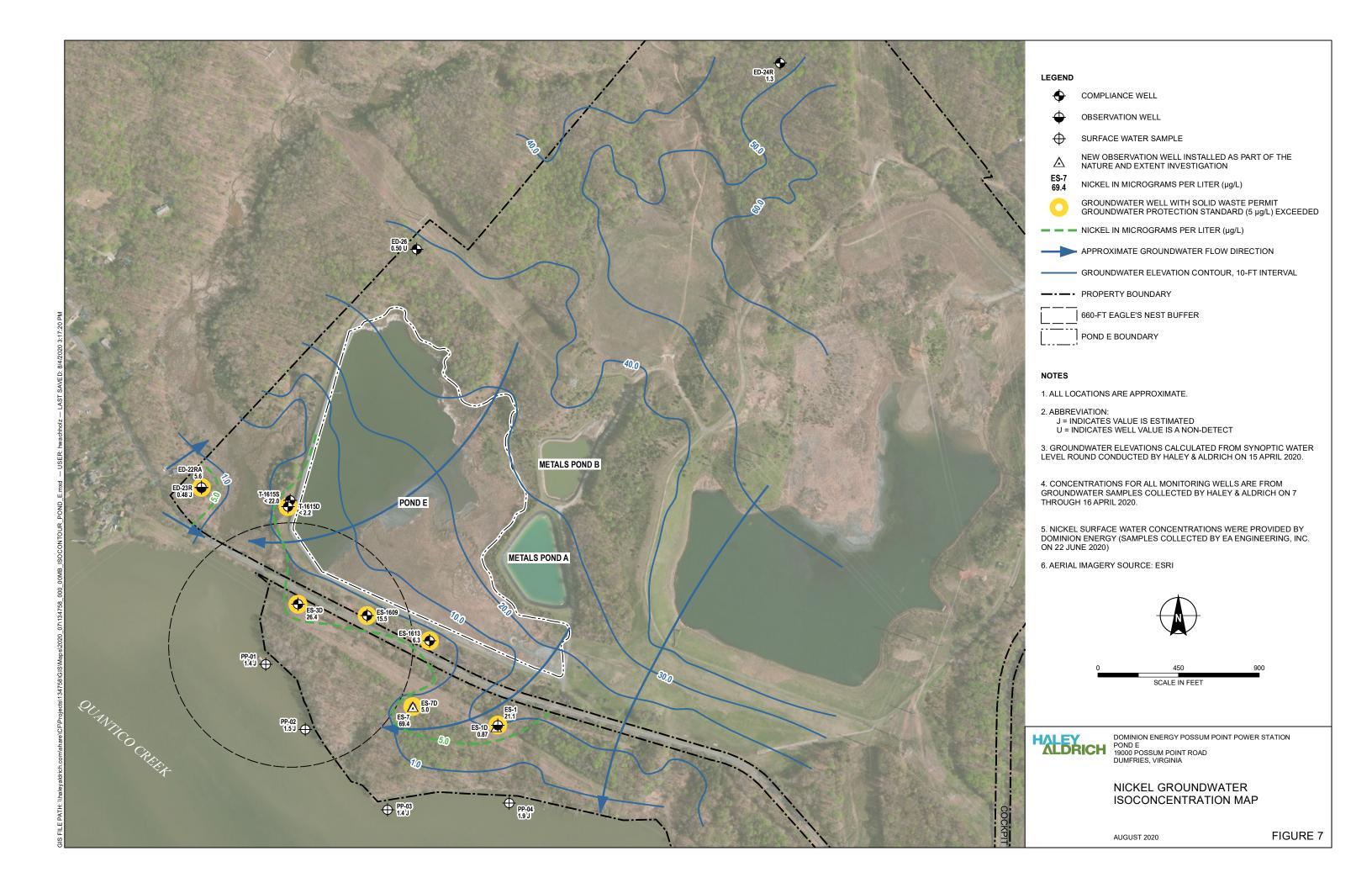
FIGURE 3

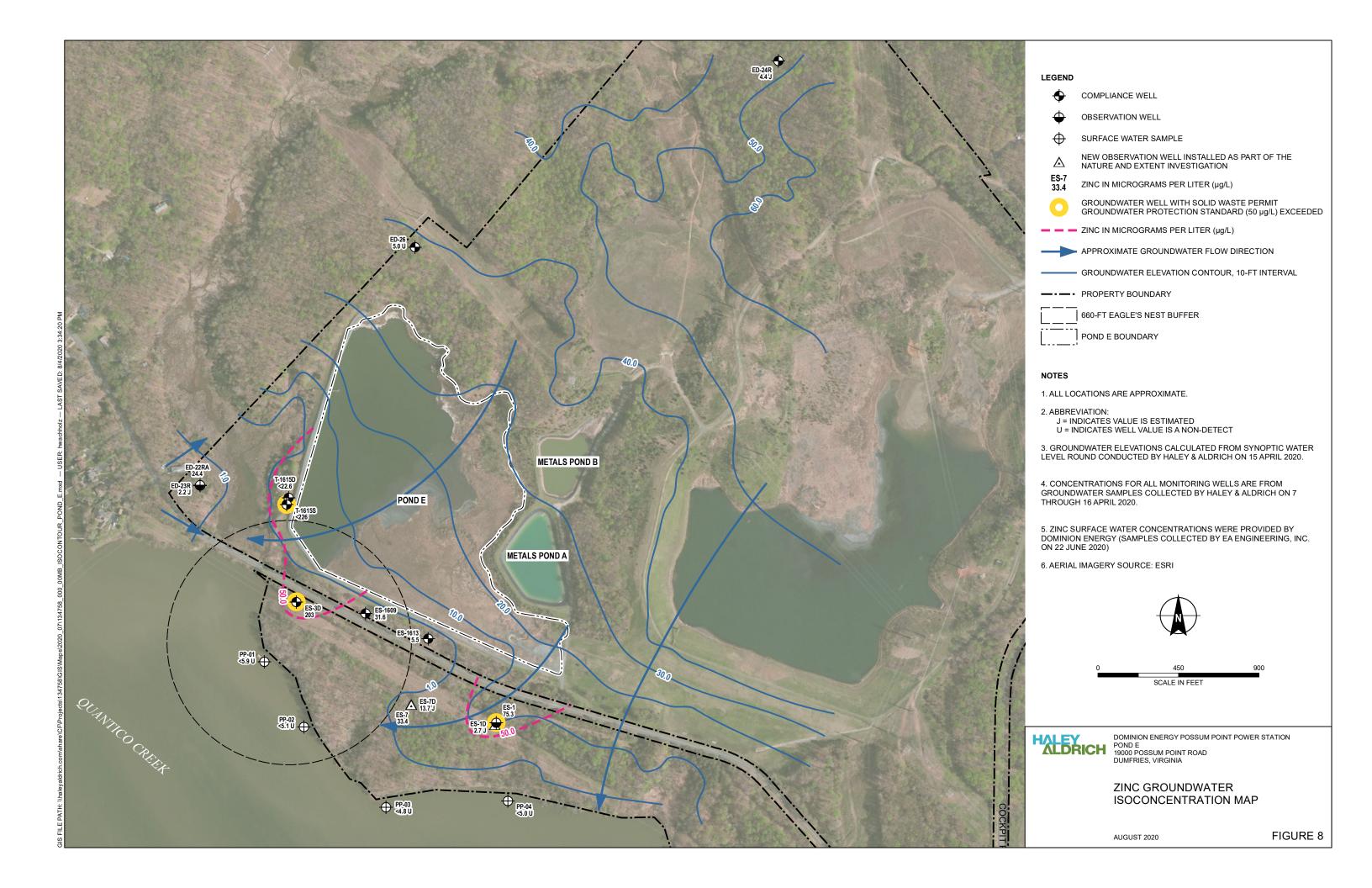
AUGUST 2020

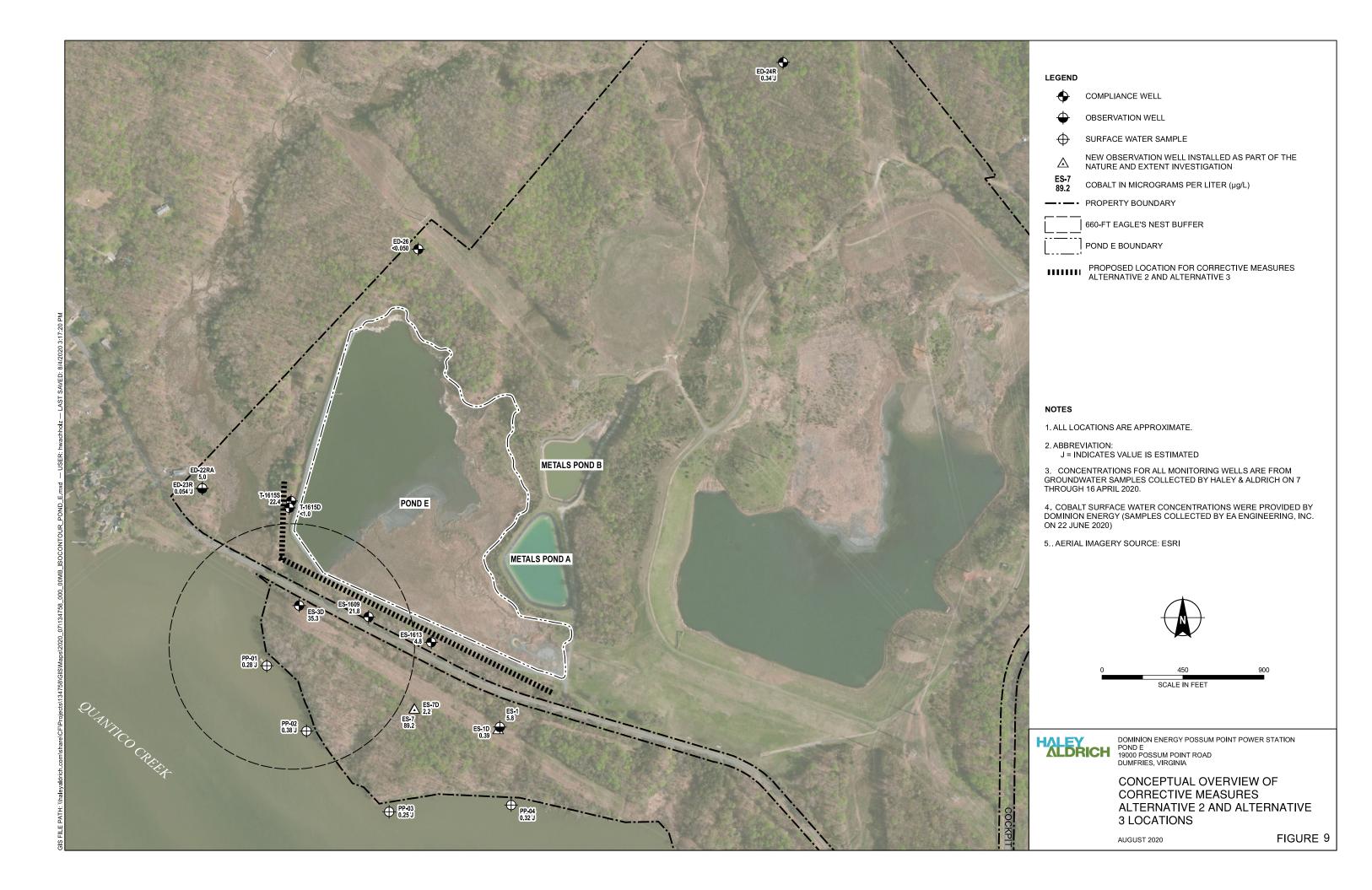












APPENDIX A

Boring Logs and Well Construction Logs

	ΛL	DR	ICH			•	TEST	BORING REPOR	RT			В	orir 	ng N	NO.	_	ES	-1	ט
Proj Clie Con		Dor	sum Pominion cade D	Ener	gy, Inc		es, VA					Star	et N t	lo. 1	08 A	2 Apri	202		
			С	asing	San	npler	Barrel	Drilling Equipmen	t and Pro	ocedures		Fini Drill				•	202 Iffer		
Туре	9		Ov	errid	e So	nic		Rig Make & Model: Trac	k-Moun	ted TSi 150cc		H&/	\ R€	ер.	A. G	ierr	inge	r	
Insid	e Dian	neter (ir	n.)			4		Bit Type: Drill Mud: None				Elev Date			25 NAV	5.6 /D8:	3		
		/eight (´		-		-	Casing: Driven Hoist/Hammer:				Loc	ation	n S	See	Plar	1		_
Ham		all (in.)				-	-	PID Make & Model: N/A	١				E	۷ 6,8 <u>- 11,</u>	<u>828</u>		5		
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol		ISUAL-MANUAL IDENTIFICAT nsity/consistency, color, GROUI structure, odor, moisture, c GEOLOGIC INTERF	P NAME, optional de	max. particle size	;*,	% Coarse pa	Fine	Sar Sar Sar Wedium	Fine	% Fines		Toughness a	
0 -		CR1 84	0.0		25.1 0.5	Topsoi	Topsoil -								70	20			= -
		04	10.0		22.6 3.0	SM -sc	odor, mo	in-orange, silty SAND (SM), moist dense, tan-orange, clayey SAe, no odor, moist	•	,	,			- —		25		_	
5 -					20.1 5.5	SP -		ange, poorly graded SAND (S e, no odor, moist	<u>P), mps</u> =	<0.25 mm, no		_		20	70	10		_	
					18.1 7.5	SM	structure	dense, tan-orange, silty SANI e, no odor, moist					+	+	70	30		-	
10 -		CR2	10.0		16.6 9.0	Cī		stiff, gray, lean CLAY with sar e, no odor, moist	nd (CL), m	nps=<0.25 mm, i	no				35	65			_
		108	20.0		14.6 11.0	sc -		dense, gray-orange, clayey S. e, no odor, moist	AND (SC)	, mps=<0.25 mn	n, no				60	40		-	_
15 -					10.6 15.0	−cī. −		stiff, gray, gravelly lean CLAY e, no odor, moist, sub-rounde		d (CL), mps=3",	 no		-		20	50	_	_	<u>_</u> .
					8.6 17.0	-sc		dense, tan-gray and orange, structure, no odor, moist	clayey SA	ND (SC), mps=<	0.25				70	30			
20		\Ws	ater Lev	el Da	nta			Sample ID	\/\/	ell Diagram			Su.	ımma	arv				_
D:	ate	Time	Elaps	ed _	Dep	th (ft)		O - Open End Rod	Ш	Riser Pipe	Overb	ourde			лі <u>у</u>	60			_
			Time (Bottom Casing	Bottom of Hole		T - Thin Wall Tube U - Undisturbed Sample	<u> </u>	Screen Filter Sand	Rock	Core	•	•		N/A	١.		
4/1	5/20	0723					18.47	S - Split Spoon Sample	\$ 9.°	Cuttings Grout Concrete Bentonite Seal	Samp		No.			ES	-10)	
Fiold	l Tests		1	Dilata	ncv: R	Rapid	S - Slow I	N - None Plastic	itv: N - N	Nonplastic L - Lov	v M - M	edium	Н.	- Hiah					_

Н		DR	ICH				TEST BORING REPORT	F	ile	No.	1 No 1 lo.). 1346 2	60-0 of	ES - 002 2	טנ	
<u></u>	SWC	ة (<u>-</u>	# (1	аш	(ft)	Q	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	_	ave	_	San	d		Fi	eld	Tes
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	(Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity
20 -		CR3 120	20.0 30.0				Similar to above									
25 -							Similar to above, except light tan lense									
30 —		CR4	30.0		-2.9 28.5	- <u>c</u> .	Very stiff, gray-green to brown, sandy lean CLAY (CL), mps=<0.25 mm, no structure, no odor, moist					30	70			
		120	40.0				Note: Sand grains lessen in size with depth									
35 -							Note: Lots of mica, gray-green and brown mottled									
40		CR5 120	40.0 50.0				Note: Fine grains are predominately mica									
45 -																
					-21.9 47.5	-sc -	Dense, gray-green, clayey SAND (SC), mps=<0.25 mm, no structure, no odor, wet					60	40		- †	
	NOTE:	Qail :-	lontific:	tios '	2004 57	vieus	manual methods of the USCS as practiced by Haley & Aldrich, Inc.	L R	Cri	ina	No	<u> </u>		ES-	1D	_

	X	EX	ICH	1			TEST BORING REPORT	F	Bori ile N	No.	1	346	60-0 of	ES -	-1D		
_	WS	o (E	Œ	<u> </u>	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION		avel		Sand	t		F		Test	_
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	(Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strengtn
- 50 - - - - - 55 - -		CR6 120	50.0 60.0		-24.4 50.0	<u>α</u>	Hard, brown and mottled gray, lean CLAY (CL), mps=<0.25 mm, no structure, no odor, moist						100				
- 60 -					34.4 60.0		Bottom of Exploration at 60 ft										
	NOTE	0	1	41			manual methods of the USCS as practiced by Haley & Aldrich, Inc.	Р	ori	חמ	No			ES-	-1D		_

Well No. **OBSERVATION WELL** ES-1D Boring No. INSTALLATION REPORT ES-1D PROJECT Possum Point ACM 134660 H&A FILE NO. Dumfries, Va LOCATION PROJECT MGR. E. Wright CLIENT Dominion Energy FIELD REP. A. Gerringer CONTRACTOR 4/8/2020 Cascade Drilling DATE INSTALLED DRILLER Chris Ruffer WATER LEVEL 21.76 (DTW 4/15/2020) 25.59 Ground El. Alongside ES-1 **Guard Pipe** Location El. Datum NAVD88 Roadway Box SOIL/ROCK **BOREHOLE** Type of protective cover/lock **PADLOCK** CONDITIONS **BACKFILL** Height/Depth of top of guard pipe/roadway box 41.5 in above/below ground surface Height/Depth of top of riser pipe 39.5 in above/below ground surface Type of protective casing: Steel Stick-Up Length 5.0 ft **Inside Diameter** 4x4 in Depth of bottom of guard pipe/roadway box 18.5 in Type of Seals Top of Seal (ft) Thickness (ft) Grout 0.0 40.0 Bentonite 40.0 3.0 43.0 Sand 7.0 See Boring Log See Boring Log L1Sch. 40 PVC Type of riser pipe: Inside diameter of riser pipe Type of backfill around riser Grout, Bentonite, Sand Diameter of borehole 6.0 in Depth to top of well screen 45.0 Type of screen Machine Slotted Sch. 40 PVC 0.01 Screen gauge or size of openings in Diameter of screen in L2 Type of backfill around screen #2 Filter Sand Depth of bottom of well screen 50.0 ft

Bottom of Silt trap

ft +

Depth of bottom of borehole

0.3

Length of silt trap (L3)

(Not to Scale)

50.3

50.3

ft

50.3

Pay length

ft

ft

COMMENTS: Northing: 6884766.33, Easting: 11828954.94, TOC: 28.91

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)

Riser Pay Length (L1)

L3

Length of screen (L2)

Project Client Contractor	Do	ssun																	
	r Cas	min	ion Er	nt ACM, nergy, In ling LP		es, VA					File She Sta	eet rt		1 0	of 7 A	pril	202		
			Casi	ng Sa	mpler	Barrel	Drilling Equipment	t and Pro	ocedures		Fini Dril					prii Ru	202 ffer	U	
уре			Overi	ride S	onic		Rig Make & Model: Trac	k-Moun	ted TSi 150cc		Н&.	A F	₹ер.	. A			ngei		
nside Diam	neter (i	n.)			4		Bit Type: Drill Mud: None				Ele Dat			N	22 AVI	.9 D88	:		
Hammer W	/eight ((lb)				-	Casing: Driven Hoist/Hammer:				Loc	atio	on	Se	ee P	lan			
Hammer Fa	all (in.))				-	PID Make & Model: N/A	1					N 6 E 1			559 <u>459</u>)		
(ft) Slows	(in.)	<u>o</u> (ram	. €	Symbol	v	ISUAL-MANUAL IDENTIFICAT	ION AND	DESCRIPTION		Gra			Sand =	_	-		eld ်	es
Depth Sampler per 6	Sample I & Rec. (i	Sample	Well Diagram	Stratum Change Flew/Denth (#)	USCS Sy	(Der	nsity/consistency, color, GROUF structure, odor, moisture, o GEOLOGIC INTERF	ptional de	escriptions	e*,	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy -	Toughness	Plasticity
0	CR1	0.0		22.4 0.5	Topsoi														
	96	10.	0	0.5	SM	very loos no odor,	se, orange, silty SAND (SM), n moist	1ps=<0.2	5 mm, no struct	ure,					70	30			
5 -				17.9 5.0	<u>c</u> L	Medium	o above, except less sand stiff, light gray to orange, lea ture, no odor, moist	n CLAY ((CL), mps=<0.25 i				_	_	_	100			
10	CR2 84	10. 20.	1//	12.4 10.5	-SM-	Loose, ta no odor,	n to orange, silty SAND (SM), moist	 mps=<0	.25 mm, no stru	 cture,		_			60	40			
15 -				6.9 16.0	SP-	Loose, gr no odor,	ay, poorly graded SAND (SP), dry	 mps=<0	.25 mm, no stru	cture,			_	15	80	5			
20				3.9 19.0	-sc -	Medium	o above, except orange SAND dense, gray to orange, clayey ure, no odor, moist	SAND (S		 mm,		-		10		20			
	W		Level		pth (ft)	to.	Sample ID	We	ell Diagram Riser Pipe				um	mar	•				_
Date	Time		apsed ne (hr.	D-44	Bottor	n Water	O - Open End Rod T - Thin Wall Tube		Screen	Overl Rock			٠,			40 /^			
4/15/20	0737		•	DI Casing	of Hol	20.80	U - Undisturbed Sample	9. 9. 6	Filter Sand Cuttings	Samp		cu	(11)		ľ	N/A			
, -	-						S - Split Spoon Sample	4. A	Grout Concrete Bentonite Seal	Bori		No).			ES	5-7		
ield Tests:	:	1				S - Slow M - Mediur			Nonplastic L - Low I - None L - Low							.n. ! !	iah		

H		E Y	RICH	1			TEST BORING REPORT	F	ile l	No.). 1346 2		002	S-7	
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse 요	avel %	ge .	San Wedium %		% Fines		Longhness eig	Plasticity ea T
20 -		CR3 120	20.0 30.0		2.4 20.5	−CH −	Medium stiff, dark gray, fat CLAY (CH), mps=0.25 mm, no structure, no odor, moist						100			
30 –		CR4 120	30.0 40.0		-6.6 29.5 -8.1 31.0	-cī -	Very stiff, dark red-orange, lean CLAY with sand (CL), mps=<0.25 mm, no structure, no odor, dry to moist Medium dense, orange-tan, clayey SAND with gravel (SC), mps=0.75 mm, no structure, no odor, wet		15			20				
35 -					-10.1 33.0 -12.1 35.0	-GC	Medium dense, green-gray, clayey GRAVEL (GC), mps=2.0 mm, no structure, no odor, moist Very stiff, green-gray and brown, lean CLAY (CL), mps=<0.25 mm, no structure, no odor, moist		55				45 100			
40 –					-17.1 40.0		Bottom of Exploration at 40 ft									
	NOTE	Soil:	lontific:	ation b	ased on	vieuol	manual methods of the USCS as practiced by Haley & Aldrich, Inc.	P	ori	na	No			E	S-7	

HAI FY		OBS	ER	VATION WI	ELL		Well No. ES-7	
ALDRICH	T1	NSTA	LI	ATION REF	PORT		Boring No.	
PROJECT	Possum Point ACM	I ID III			H&A FIL		ES-7	
LOCATION	Dumfries, Va				PROJECT			
CLIENT	Dominion Energy				FIELD RI		erringer	
CONTRACTOR	Cascade Drilling				DATE IN	STALLED 4/7/2		
DRILLER	Chris Ruffer				WATER I	LEVEL 23.80	(DTW 4/15/2020)	
Ground El.	22.8 7 ft	Location	Down	gradient of ES-1613		✓ Guard P	ipe	_
El. Datum	NAVD88					Roadway	=	
SOIL/ROCK	BOREHOLE			Type of protective cove	r/lock	PA	DLOCK	
CONDITIONS	BACKFILL			, r				•
			<u> </u>	Height/Depth of top of above/below ground su		adway box	38.0	in
				Height/Depth of top of above/below ground su			36.0	in
				Type of protective casin	1σ•	Ste	eel Stick-Up	
				Length	-6.		*	ft
				Inside Diameter			-	in
				morat Diameter				
				Depth of bottom of gua	rd pipe/roadw	yay box	22.0	in
				<u>Ty</u> i	pe of Seals Grout	Top of Seal (ft)	Thickness (ft)	
				 B	Bentonite	10.0	5.0	•
See Boring Log	See Boring Log	L1			Sand	15.0	7.0	•
								-
			-	Type of riser pipe:		Sch	. 40 PVC	_
				Inside diameter of r	iser pipe		2.0	in
				Type of backfill aro	und riser	Grout, B	entonite, Sand	_
				Diameter of borehole			6.0	in
		1		Depth to top of well scr	een		17.0	ft
			4	—— Type of screen		Machine Slo	otted Sch. 40 PVC	
				Screen gauge or size	of onenings			in
		L2		Diameter of screen	or openings		-	in
				Type of backfill around	screen	#2 F	ilter Sand	. 111
				Type of backing around	screen	π2 1	nter Sand	
				Depth of bottom of well	screen		22.0	ft
		L3		Bottom of Silt trap			22.3	ft
				Depth of bottom of bore	ehole		22.3	ft
	m of Exploration)				AT * *			
(Numbers refer to de	pth from ground surface in feet)				(Not to Scale)	.		
Ricer	17 ft + Pay Length (L1)	Length	of screen	$\frac{\text{ft}}{\text{n (L2)}} + \frac{0.3}{\text{Length of silt}}$	trap (L3)	= 22.3 Pay le	<u>ft</u> noth	
	rthing: 6884858.97, Easti				up (LJ)	1 ay IC	115611	
	6	0	_,					

F	X	E R	ICH	1		•	TEST	BORING REPOR	RT		E	3or	rinç	g N	lo.		ES	5-7	D	
Pro Clie	-				ACM, [es, VA				l		o. :No				02			
l	ntracto		scade		. ,						Sta			C	9 A	pril				
				Casing	Ť.	npler	Barrel	Drilling Equipment	and Procedures		l	nish iller			9 A	-				
Tyro					,	•		Rig Make & Model: Trac					Rep		hris \. G					
Тур				verric		onic		Bit Type:	K Wounted 131 130cc				tion			3.0				
		meter (i	´			4		Drill Mud: None Casing: Driven				tun			١A٧	D88				
		Veight(Fall(in.)	` ′				-	Hoist/Hammer:			Lo	cati	ion N (ee I 84,8					
1 Iaii			<u> </u>	 				PID Make & Model: N/A			0	1	E 1	11,8	328		8		-	_
(#)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	æ Œ	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	٧	ISUAL-MANUAL IDENTIFICAT	ION AND DESCRIPTION		_	avel	_	San E				ield g		
Depth (ft)	oler F er 6 i	nple tec.	Sample Depth (ft)	Dia	tratu hang Dep	SSy	(De	nsity/consistency, color, GROUF structure, odor, moisture, o	NAME, max. particle size	*,	Coarse	Fine	Coarse	% Medium	Fine	Fines	anc	Toughness	ticity	ngth
۵	Sam	San & R	လ မိ	Well	S	nsc		GEOLOGIC INTERF	PRETATION)		%	% Fi	%	W %	% Fi	% Fi	Dilatancy	Loug	Plasticity	Strength
- 0 -	0)	CR1	0.0			Topsoi	Topsoil -	6 inches												F
-		109	10.0		22.5 0.5	SM	Loose, o	range, silty SAND (SM), mps=	<0.25 mm, no structure, i	10					70	30				
							ouor, mi	Jist												ĺ
-																				ĺ
-					20.0 3.0	-cl	Medium	stiff, orange to gray, lean CLA	V with sand (CI) mns=<	75	┝-	Ļ.	<u> </u>		15	85		_		-
					0.0	52		structure, no odor, moist	With Sana (CL), mps	J.23										ĺ
																				ĺ
- 5 -																				ĺ
																				ĺ
							Note: Lo	ss sand with depth								100				ĺ
-							Note. Le	33 Sana With depth												ĺ
-																				ĺ
							Note: Gr	ay dominat, very little orange												ĺ
-								, , ,												ĺ
- 10 -		CR2	10.0																	ĺ
		102	20.0		12.5 10.5	SM		nn-gray to orange, silty SAND	(SM), mps=<0.25 mm, no		۲-		۲-	۲-	60	40	-	-+	- +	Γ-
							structure	e, no odor, dry to moist												ĺ
-																				ĺ
																				ĺ
																				ĺ
-																				ĺ
- 15 -																				ĺ
																				ĺ
																				ĺ
-																				ĺ
					5.0															ĺ
-					5.0 18.0	SP		ray, poorly graded SAND (SP),	mps=<0.25 mm, no stru	cture,	† -		<u> </u>	15	80	5		-1	_	Γ-
-					2.5		no odor,	ury												ĺ
- 20 -					3.5 19.5	SC -	Medium	dense, gray to orange, clayey	SAND (SC), mps=<0.25 r	nm,	<u> </u>		<u> </u>	10	70	20				
20-		W	ater Le	evel D				Sample ID	Well Diagram			(Sum	nma	ıry					
D	ate	Time		sed	Bottom	oth (ft) Botton	1 ,,,,	O - Open End Rod	Riser Pipe Screen	Overl	burc	den	(ft))		60				
<u> </u>			Time	(nr.)	f Casing	of Hol	e water	T - Thin Wall Tube U - Undisturbed Sample	Filter Sand	Rock			(ft))		N/A	١.			
4/1	.5/20	0738					44.42	S - Split Spoon Sample	🔭 ភំ.វំ Cuttings Grout	Samp	oles									
									Concrete Bentonite Seal	Bori	ng	No	Э.			ES	-7I)		
Field	d Tests	s:	1				S - Slow M - Mediu		ity: N - Nonplastic L - Low rength: N - None L - Low						/ - \/	erv F	Hiah			
*No	te: Ma			e size	(mps) is	determ	ined by d	rect observation within the li	mitations of sampler size							CI y F	ngri			
		NO	<u>πe: S</u>	OII IDE	∌nτiπica	uon ba	sea on v	<u>isual-manual methods of th</u>	ie usus as practiced b	y Hale	yŏ	AIC	ILIC	n, Ir	IC.					

-		-EX	RICH	1		ı	TEST BORING REPORT	F	Bori ile l Shee	No.	1). 1346 2			-7D	1	
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	well well avel	ge .	San Wedium %	% Fine	% Fines	Dilatancy	Toughness a	Plasticity a	
- 20 -		CR3 120	20.0		2.5 20.5	-CH	no structure, no odor, moist Medium stiff, gray, fat CLAY (CH), mps<0.25 mm, no structure, no odor, moist						100				-
30 -		CR4 114	30.0 40.0	-	-7.5 30.5 -9.5 32.5 -11.0 34.0	_sc _	Medium dense, orange-tan, clayey SAND with gravel (SC), mps=0.75 mm, no structure, no odor, moist Medium dense, green-gray and orange, clayey GRAVEL (GC), mps=2.0 mm, no structure, no odor, moist Very stiff, green-gray and mottled brown, lean CLAY (CL), mps=<0.25		55		5	60	20 45				_
- 35 - - - 40 -		CR5 120	40.0 50.0				mm, no structure, no odor, moist, contains lots of mica Similar to above Note: 4" gravel lense, mps=0.19mm		10				100 90				
- 45 - -							Note: fine mica grains increase in size with depth (43-46 ft) Note: Mottled green-gray and brown										
	NOTE	Salli	lontific-	ties !	naced ar	vieus	manual methods of the USCS as practiced by Haley & Aldrich, Inc.	P	ori	na	No.			ES	-7D		-

ŀ	X	EX	ICH	ı			TEST BORING REPORT	F	ile l	ng No.	1	346	60-0 of	ES -	-7D	
	NS	· · ·	_	Ε	£	ō	VIOLE MANUAL INFINITION AND RECORDER OF	-	avel		San				ield	Test
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	g.		% Fine	% Fines		SS	Plasticity
- 50 - - - - 55 -		CR6 120	50.0 60.0													
- 60 -					37.0 60.0		Bottom of Exploration at 60 ft									
	NOTE	0	la	41			manual methods of the USCS as practiced by Haley & Aldrich, Inc.	_ _	Ori	ng	No			ES-	-7D	

Well No. **OBSERVATION WELL** ES-7D Boring No. INSTALLATION REPORT ES-7D PROJECT Possum Point ACM 134660 H&A FILE NO. Dumfries, Va LOCATION PROJECT MGR. E. Wright CLIENT Dominion Energy FIELD REP. A. Gerringer CONTRACTOR 4/9/2020 Cascade Drilling DATE INSTALLED Chris Ruffer DRILLER WATER LEVEL 47.80 (DTW 4/15/2020) 22,99 Ground El. Downgradient of ES-1613 **Guard Pipe** Location El. Datum NAVD88 Roadway Box SOIL/ROCK **BOREHOLE** Type of protective cover/lock **PADLOCK** CONDITIONS **BACKFILL** Height/Depth of top of guard pipe/roadway box 32.5 in above/below ground surface Height/Depth of top of riser pipe 31.0 in above/below ground surface Type of protective casing: Steel Stick-Up Length 5.0 ft **Inside Diameter** 4x4 in Depth of bottom of guard pipe/roadway box 27.5 in Type of Seals Top of Seal (ft) Thickness (ft) Grout 0.0 35.0 Bentonite 35.0 6.0 41.0 Sand 7.0 See Boring Log See Boring Log L1Sch. 40 PVC Type of riser pipe: Inside diameter of riser pipe Type of backfill around riser Grout, Bentonite, Sand Diameter of borehole 6.0 in Depth to top of well screen 43.0 Type of screen Machine Slotted Sch. 40 PVC 0.01 Screen gauge or size of openings in Diameter of screen in L2 Type of backfill around screen #2 Filter Sand Depth of bottom of well screen 48.0 ft

Bottom of Silt trap

ft +

Depth of bottom of borehole

0.3

Length of silt trap (L3)

(Not to Scale)

48.3

48.3

ft

48.3

Pay length

ft

ft

L3

Northing: 6884865.2, Easting: 11828467.82, TOC: 25.59

Length of screen (L2)

COMMENTS:

(Bottom of Exploration) (Numbers refer to depth from ground surface in feet)

Riser Pay Length (L1)

APPENDIX B

Field Documentation

HA	LEY
Λ	LDRICH

ED-6	QRA
1333	1
Page	05

ALD	RICH			L	OW F	FLOW	SAM	PLIN	G FOR	M		Page of
PROJECT		ACM Groundwa	ater Monitoring								H&A FILE NO.	134660
LOCATION		Possum Point Po	ower Station								PROJECT MGR.	E. Wright
CLIENT		Dominion Energ	gy		- M						FIELD REP	Kyan Blanzen
CONTRACT	TOR	N/A									DATE	09-07-2020
Sampling Da	ıta:	ED-ZQRA	Well Depth	as Built:	Aŗ	oprox.	5ft Well I	Diameter:		2.0 in	Purging Device:	Dedicated Bladder
Well ID:	4	n- aakn	Well Depth	Measured:		_	ft Initial	Depth To Wat	er: 25.6	23 n	Field Parameter	Device: YSI / Hach Turb.
Start time		830	_ Depth To T	op Of Screen:			ft Depth	Of Pump Intal		ft	Tubing Present	In Well: Yes No
Finish Tir	ne: 16°	30	Depth To B	ottom Of Scree	en:		ft Measu	iring Point:	Top of C	Casing	Tubing Type:	Polyethylene
Time	Depth To Water From Casing	Setting (mL/min) or	Purge Rate (mL/min) or	Cumulative Purge Vol. (liters) or	Temp- erature	рН	Conduct-	Dissolved Oxygen	Turbidity	ORP/eH		Comments
(24 hour)	(ft)	(gal/min)	(gal/min)	(gal)	((°C))		(mS/cm)	(mg/L)	(NTU)	(mV)		
Stabilized v		[100 mL/min] to			N/A	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	2 1	T
0831	25.95	15 psi	300 🐃		13.28	4.30	0.2/6	6.19	5.65	2927	No ogor	, clear
0836	28.31	1500	900		13.92	4.76	0.264	6.15	8.12	285.7		
1480	27/2	15	Wel	1 0	7	E 63	0264	N.C.O.	7 = 11	002/		
8 090	27.62	15.ps;	200		14.00	5.02	0,009	\$ 5.22	7.54	283.6		
0915	2005	15.	Nell	0	111/20	FA/	0.267	u in	170	2/2	1	
0770	28.35	15psi	200 Well	No	14.20	5.06	0.001	4.13	6.39	262.3		
1010	28.20	10 -	200	hu		5.06	0.267	4.17	5.70	25/2	v	
1015	00.00	15psi	<		14.30	3.00	0.261	4.17	3.70	256.0	FA mad	1-20200408 @ 1015
1045			W	ollina							としてるる人	1-202001408 (2.1012)
1110		kane-reception	- Resum		olMa -					 		
135			Well	Dry -	ibvid_							
1200			Resure	Sampl	Λο.							
305			Well 1	ru,	7							
1235			esure s	and M								
1445			Well D	CAN A A								
1505		$\sim \rho$	-	molmy								
		•	30.0	J.							Sompling (concluded @1630
										1	2	Vol. ~1.5gal
			-			1				+	1 4.10	3,,

W II AN W INSPIRED
HALEY
ALDOCH
ALDRICH

FA TO

ALD	RICH			L	OW I	FLOW	SAM	PLIN	G FOR	M		Page	1 of 1
PROJECT		ACM Groundwa	ter Monitoring								H&A FILE NO.	134660	
LOCATION		Possum Point Po	ower Station								PROJECT MGR.	E. Wright	
CLIENT		Dominion Energ	у								FIELD REP	RyenBeary	
CONTRACT	OR	N/A									DATE	09-08-2021	
Sampling Da	ta:	ED-23R	Well Depth	as Built:	_ A	рргох. 🕶 63.	Aft Well I	Diameter:		2.0 in	Purging Device:	Dedicated	Bladder
Well ID:			Well Depth	Measured:	- 7	-	ft Initial	Depth To War	ter: 23.	63 ft	Field Parameter	Device: YSI / Had	h Turb.
Start time	100	0	Depth To To	op Of Screen:		4	ft Depth	Of Pump Inta		ft	Tubing Present	Company of the contract of the	□ No
Finish Time:			Depth To B	ottom Of Scree	en:) - (ft Measu	Measuring Point: Top o		asing	Tubing Type:	Polyeth	ylene
Time	Depth To Water From Casing	Secting (mL/mlu) or	Purge Rate (mL/min) or	Cumulative Purge Vol. (liters) or	Temp- erature (°F) or	рН	Conduct-	Dissolved Oxygen	Turbidity	ORP/eH		Comments	
(24 hour) Stabilized v	(ft)	(gal/min) [100 mL/min] to	(gal/min)	(gal)	(°C)	I II/ 013	(mS/cm)	(mg/L)	(NTU)	(mV)			
1005	24.51	30 psi	200	-	N/A	[+/- 0.1] 5. K	[+/-3%] 0.080	[+/- 10%]	[+/- 10%] 73.7	(+/- 10) Q 53,0	0 10	Franci	
1010	24.36	30 psi	200	11-77	14.57	5.36	0.081	345	69.5	188.0	No odor	toggy	
1015	25.05	35 psi	250		14.34	5.48	0.081	2.75	56.0	161.4		and the second second	72.1
1020	26.13	35psi	250		14.40	5.55	0.081	2,52	28.0	158.0	1	HEVERTON THE TAXABLE PARTY.	100.71
	26.64	35 _{psi}	250		14.43	5.67	0.081	2.23	10.1	142.2	no obor, c	laan	
1030	26.71	35051	250		14.44	5.68	0.081	217	9.8	137.0	110 000 1	ACCV.	Caraca I I I Common de la Commo
1035	26.81	35 psi	250		14.47	5.69	0.083	2.15	9.3	133.2	VV		
1036	_			Samol		3.01	0,000		1. 5		FN-338-20	200408 @ 103	6
		· · · · · · · · · · · · · · · · · · ·		300.10	3			The second			sompling		110
											Jov Pring	C011011100 00 1	. 10
											Purge	vol2.0 a	al
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PROJECT		ACM Groundwa	ater Monitoring								H&A FILE NO.	134660	_
LOCATION		Possum Point Po										E. Wright	N. Y
CLIENT		Dominion Energ	gy								FIELD REP	Ryon Beauregard	
CONTRACT	OR	N/A									DATE	0408-2020	
Sampling Da Well ID: Start time Finish Tin	114				_	- -	ft Initial ft Depth	Diameter: Depth To Wa Of Pump Inta	ter: <u>22.</u>	ft	Field Parameter D	Dedicated Bladder Device: YSI / Hach Turb. a Well: Yes \(\sigma \) No	
Time (24 hour) Stabilized y	Depth To Water From Casing (ft)	Setting (mL/min) or (gal/min) [100 mL/min] to	Purge Rate (mL/min) or (gal/min)	Cumulative Purge Vol. (liters) or (gal)	Temperature (°F) or (°C) N/A	pH	Conduct- ivity (mS/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mV)	Tubing Type.	Polyethylene Comments	The state of the state of
(145	22.74	20 051	225		15.43	[+/- 0.1] 5,QI	0.649	[+/- 10%] 16.08	[+/- 10%]	[+/- 10]	1000		
1150	22.78	25psi	250		15.28	5.06	0.644	4.72	5.49	780.2	clear no oc	001	-
1155	aa.91	2502!	250		15,24	5.13	0.634	4.52	4.31				
200	22.91	25,051	250		15.27	5.10	0.630	4.45	2.82	168.9			A
1205	22.92	2505	250		15.23	5.09	0.627	4.28	3.33				
1210	22.93		250		15.27	5.08	0.623	4.48	1.83	175.5			
1215	22.93	25psi	250		15,28				1.79	178.9	W		1
1316	00.10	~ JP51			15,40	5.08	0.621	4.35	1, 11	179.2		20	4
. 410			Zonblw	9				-				0200408 @ 1216	
								-			Sompling (concluded @ 1237	
											tuge vol	. valogal	
		•											-
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ES-1609

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PROJECT		ACM Groundwa	ater Monitoring								H&A FILE NO. 134660	rage / Of f
LOCATION		Possum Point Po	ower Station								PROJECT MGR. E. Wright	1
CLIENT		Dominion Energ	gy								FIELD REP Ryon Bea	in all
CONTRACT	OR	N/A				34-11					DATE ZORO-C	
Sampling Da	ta:		Well Depth	as Built:	A	Approx. 42	ft Well I	Diameter:		2.0 in		dicated Bladder
Well ID:	F	ES-1609	Well Depth	Measured:			ft Initial	Depth To Wa	ter: 22.	72 A		SI / Hach Turb.
Start time	125	5	Depth To T	op Of Screen:			ft Depth	Of Pump Inta	ıke:	ft		Yes □ No
Finish Time: 135		50	Depth To Bottom Of Screen		en:		Never Server	uring Point:	Top of C			Polyethylene
	Depth To	Pump	Purge	Cumulative	Temp-							Conjunitie
Time	Water	Setting	Rate	Purge Vol.	erature		Conduct-	Dissolved		175		
	From Casing	(mL/min) or	(mL/min) or	(liters) or	(°F) or	pH	ivity	Oxygen	Turbidity	ORP/eH	Comments	
(24 hour)	(ft)	(gal/min)	(gal/min)	(gal)	(cc)		(mS/cm)	(mg/L)	(NTU)	(mV)		
Stabilized v	The state of the s	[100 mL/min] to	[500 mL/min]	-	N/A	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]		for the state of
1300	22.93	30 psi	250		15.90	4.04	0.835	17.10	79.2	308.0	slight Marshloganic	odor, clear
1305	22.95	30 psi	250		5.54	5.50	0.825	5.07	60.3	135.9		
1310	22.95	30 psi	250		15.39	5.47	0.850	3.96	12.7	103.0		
1315	32.95	Bopsi	250		15.37	5.20	0.866	3.85	3.20	131,7		
1320	23.96	30 psi	250		15.36	5.12	0.871	3.82	1.18	139.4		
1325	32.96	30ps;	250		15.34	5.09	0.878	3.80	0,70	146,9		
1330	22.96	30 psi	250		15.36	5.04	0.879	3.79	0.59	141.4		
1331		<	Sampl	Ma.			-				ES-1609-20200408	8 3 1331
)							sompling conclude	
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,										Purge vol. ~2.0	
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ES-1613

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PROJECT		ACM Groundwa	ater Monitoring							10 Mg	H&A FILE NO.	134660	1 × mgc V	OI
LOCATION		Possum Point Po	ower Station								PROJECT MGR.	E. Wright	1	
CLIENT		Dominion Energ	у				20				FIELD REP		megens	
CONTRACT	OR	N/A					_				DATE	2020-0		
Sampling Da	ta:		Well Depth	as Built:	A	approx. 45	ft Well I	Diameter:		2.0 in	Purging Device:	D	edicated Bladde	er
Well ID:		ES-1613	Well Depth	Measured:		(a)	ft Initial	Depth To War	ter: 27.3		Field Parameter	-	/SI / Hach Turb	_
Start time:	140	05	Depth To T	op Of Screen:		N#J		Of Pump Inta	TA .	ft	Tubing Present I	10.00	☑ Yes □	
Finish Tin	ne: 15	15	Depth To B	ottom Of Scree	en:	-		ring Point:	Top of C		Tubing Type:	n won.	Polyethylene	140
	Depth To	Pump	Purge	Cumulative	Temp-						I aming Type.		Torycaryicae	=
Time	Water	Setting	Rate	Purge Vol.	erature		Conduct-	Dissolved						
	From Casing	(mL/mm) or	(mL/min) or	(liters) or	(°F) or	pH				000144		Comment	s	
(24 hour)	(ft)	(gal/min)	(gal/min)	(gal)	(CC)		ivity	Oxygen	Turbidity	ORP/eH				
Stabilized w		[100 mL/min] to	[500 mL/min]	(gai)	N/A	[+/- 0.1]	(mS/cm) [+/- 3%]	(mg/L) [+/- 10%]	(NTU) [+/- 10%]	(mV) [+/- 10]				
1410	27.79	30 psi	300		15.83	5.21	0.82	13.67	28.3	178.7	Clear, 10	ador		
415	28.11	30 psi	300		15.56	5.39	0.851	3.88	10.1	124.3	- 1			
420	28.12	30 psi	300		15.47	5.37	0.835	3,91	5.2	114.4				
1425	28.13	30 psi	300		15.46	5.34	0.833	3.86	1.3	109.7			F 7	
430	28.14	30000	300		15.47	5.37	0.833	3.89	0,9	106.9				
440	28.14	30 psi	300		15.37	5,28	0.831	3.85	0.8	105.7		0 11 - 11 11 11		
445	28.15	30 /51	300		15.36	5,28	0.829	3.89	0.8	104.4		77	W. T.	
446			Soupla	la -						Ball	ES-1613-	DANGE	083 141	46
			,	7							Sarpling	condude	181515	5
	0.00										Purge.		1	
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PROJECT		ACM Groundwa	ter Monitoring								H&A FILE NO. 134660	
LOCATION		Possum Point Po	wer Station								PROJECT MGR. E. Wright	
CLIENT		Dominion Energ	у			4					FIELD REP RYSA	Bearregard
CONTRACT	OR	N/A									DATE 203	100410
Sampling Da	ta:		Well Depth	as Built:	A	pprox. 66	ft Well I	Diameter:		2.0 in	Purging Device:	Dedicated Bladder
Well ID:		-1615D	Well Depth	Measured:	10		ft Initial	Depth To Wat	ter: 22	.39 n	Field Parameter Device:	YSI / Hach Turb.
Start time:		1147	Depth To To	op Of Screen:	1	4	ft Depth	Of Pump Intal	20 - 20 - 20	ft	Tubing Present In Well:	☑ Yes □ No
Finish Tin	ne:		Depth To B	ottom Of Scree	en:		ft Measu	iring Point:	Top of Ca	asing	Tubing Type:	Polyethylene
	Depth To	Pump	Purge	Cumulative	Тетр-					1		
Time	Water	Setting	Rate	Purge Vol.	erature	pН	Conduct-	Dissolved				
	From Casing	(mL/min) or	(mL/min) or	(liters) or	(°F) or	pH	ivity	Oxygen	Turbidity	ORP/eH	Comm	ents
(24 hour)	(ft)	(gal/min)	(gal/min)	(gal)	(3)		(mS/cm)	(mg/L)	(NTU)	(mV)		
Stabilized v		[100 mL/min] to	P-100		N/A	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	// -	
1150	22.94	30 psi	225		13.55	5.78	0.375	4.40	19.3	253.6	Clar, no obor	
1155	23.85				14.66	5.42	0.287	2.67	18.5	818.3		
1200	24.05				14.67	5.53		2.50	16.9	168.0		
1205	24.06				14.63	5.53	0.308	2.27	13.4	138.0		
1210	24.13				14.83	5.57	0.318	3.31	9.5	126.5		
1215	24,25		1/		14.75	5.58	0.326	2.15	8.7	133.2		
1550	24.27	V	V		14.74	5.60	0.323	2.03	7.5	129.8		
1551			Samplino								T-1615D-2020	
				3								rchibed B
											Purge Jol. ~	2.5 gal
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PROJECT		ACM Groundwa	ter Monitoring					THE PART			H&A FILE NO.	134660	
LOCATION		Possum Point Po	ower Station								PROJECT MGR.	E. Wright	
CLIENT		Dominion Energ	y				14 - 34				FIELD REP	RBeauce	gord
CONTRACT	OR	N/A									DATE	2020041	0
Sampling Da	ta:		Well Depth	as Built:	A	approx. 34	ft Well I	Diameter:		2.0 in	Purging Device:	De	dicated Bladder
Well ID:		-1615S	Well Depth	Measured:			ft Initial	Depth To Wat	er: 22.	75 A	Field Parameter	Device: YS	SI / Hach Turb.
Start time:			Depth To T	op Of Screen:			ft Depth	Of Pump Intal	ke:	ft	Tubing Present	In Well:	Yes □ No
Finish Tim	ne: 1140)	Depth To B	ottom Of Scree	en:	-	ft Measu	uring Point:	Top of C	asing	Tubing Type:		Polyethylene
	Depth To	Pump	Purge	Cumulative	Temp-								
Time	Water	Setting	Rate	Purge Vol.	erature	pН	Conduct-	Dissolved					
	From Casing	(mL/mm) or	(mL/min) or	(liters) or	(°F) or	pii	ivity	Oxygen	Turbidity	ORP/eH		Comments	
(24 hour)	(ft)	(gal/min	(gal/min)	(gal)	(70)	** L	(mS/cm)	(mg/L)	(NTU)	(mV)			
Stabilized w		[100 mL/min] to	The second second	-	N/A	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]			
1055	23.31	30psi	225		13.09	6.41	0.729	55.29	12.3	3363			
1100	93.83				14.49	5,48	0.997	5.32	5.6	235.0		W. B.	
1105	24.29				14.66	5.43	1050	4.72	3.1	1.931			
1110	24.37				14.63	5.41	1.014	4.51	0.7	176.3	ř.		
1115	24.38				14.66	5.41	1.010	4.41	0.6	172.4	The state of the s		
1150	24.38		-		14.64	5.42	1.007	4.39	0.6	169.6			
1125	24.38	V	V		14.86	5.43	1.005	4.31	0.5	166.5			
1126		500	olma	_							T-16155 -	2020041	08 1126
)								Samolina	conclubed	1140
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PROJECT		ACM Groundwa	ter Monitoring					7			H&A FILE NO.	134660
LOCATION		Possum Point Po	wer Station								PROJECT MGR.	E. Wright
CLIENT		Dominion Energ	у								FIELD REP	A. Gerringer
CONTRACT	OR	N/A								DATE	4-13-20	
Sampling Da	ta:		Well Depth as Built:		Approx. 66		ft Well Diameter:			2.0 in	Purging Device:	Dedicated Bladder
Well ID:	E	D-24R	Well Depth Measured:				ft Initial	Depth To Water	25	5.46 A	Field Parameter	Device: YSI / Hach Turb.
Start time		15	Depth To Top Of Screen:				ft Depth	Of Pump Intake	ft		Tubing Present I	n Well:
Finish Tin	ne:	20	Depth To Bottom Of Scree		n:		ft Measu	ring Point:	Top of C	asing	Tubing Type:	Polyethylene
Time Water From Casing (m (24 frour) (ft) (g		Pump Setting (mL/min) or (gal/min) [100 mL/min] to	Setting Rate mL/min) or (mL/min) or		erature (°F) or (°C) N/A	pH	Conduct- ivity (mS/cm) [+/- 3%]	Dissolved Oxygen (mg/L) [+/- 10%]	Turbidity (NTU) [+/- 10%]	ORP/eH (mV) [+/- 10]	Comments	
1430												
1435	26.30	35, si	300	initial	14.80	5.47	6.047	5.35		225.6		
1440	26.45		V.	1.5	14.13	4.95	0.044	3.97	6.82	244.3		
1445	26.60			3.0	14.04	5.09	0.043	3.84	8.09	250.5		
1450				4.5	14.35	5.16	0.042	3.42	11.11	256.7		
				BOLLO							Battery d	ick, replaced
1505	25.90			RIMON	18.06	5.16	0.042	3.55	15.6	267.7	ı	
1510	26.00			7.5	15,52	5.18	0.042	4.07	8.01	270.1		
1515	26.25			9.0	14.64	5.08	0.041	3.61	9.97	277.0		
1520	26.35	7	7	10.5	14.51	5.05	0.041	3.58	7.15	282.0		
1325	26.45	V	V	11.5	14.45	5.04	0.041	3,43	6.72	1.885		
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well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

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PROJECT		ACM Groundwa	ater Monitoring				THE STATE OF				H&A FILE NO.	134660	zage Oi (_
LOCATION		Possum Point Po	ower Station								PROJECT MGR.	E. Wright		
CLIENT		Dominion Energ	gy								FIELD REP	A. Cre	ringer	
CONTRACT	OR	N/A									DATE	4-14		
Sampling Dat	ta:		Well Depth	as Built:	Ap	prox. 82.5	ft Well I	Diameter:		2.0 in	Purging Device:	De	dicated Bladder	
Well ID:		ED-26	Well Depth	Measured:		2	ft Initial	Depth To Water	5	1.10 ft	Field Parameter	Device: Y	SI / Hach Turb.	
Start time:	10	00	Depth To T	op Of Screen:			ft Depth	Of Pump Intake		e ft	Tubing Present I	n Well:	Yes □ No	
Finish Tim	ne: 121	00	Depth To B	ottom Of Scree	en:		ft Measu	ring Point:	Top of C	asing	Tubing Type:		Polyethylene	
Time	Depth To Water From Casing	Pump Setting (mL/min) or	Purge Rate (mL/min) or	Cumulative Purge Vol. (liters) or	Temp- erature	рН	Conduct-	Dissolved Oxygen	Turbidity	ORP/eH		Comments		The second second
(24 hour) Stabilized w	(ft)	(gal/min) [100 mL/min] to	(gal/min)	(gal)	(°C) N/A	[+/- 0.1]	(mS/cm) [+/- 3%]	(mg/L)	(NTU) [+/- 10%]	(mV) [+/- 10]				
1030	52.3	40 psi	250	initial	13,10	6.93	0.085	7.83	45.8	188.6				
1035	52.50	1	250	1,250	13.09	5.84	0.095	3.45	440	164.4	15-11-11-120			B
1040	52.65			2.500	13.13	5.89	0.096	3.29	315	135.6				3
1045	52.8			3.75	13.26	6.02	0.095	2.29	202	116.3				
1050	52.85			5.0	13.25	6.08	0.095	2.17	110	100.0	Mary:			
1055	52.95			6.25	13.27	6.10	0.694	2.11	54.0	90.4		7		
1100	53.20			7.50	13.28	6.09	0.093	2.08	35.9	85.1				
1105	53.30			8,75	13.31	9.10	0.092	2.03	20.5	79.5				
1110	53.40	V	'n	10.00	13.26	6.09	0.091	1.95	16.5	76.5				
1115	53.50		V	11.25	13.38	•	0.089	1.85	14.9	74.4			AVI	
1120)	Sample													
	·												- Carrie	
														15
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well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

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PROJECT		ACM Groundwa	ter Monitoring								H&A FILE NO.	134660		
LOCATION		Possum Point Po	ower Station								PROJECT MGR.	E. Wright		
CLIENT		Dominion Energ	у								FIELD REP	A. Ger	ringer	
CONTRACT	OR	N/A									DATE	4-15-		
Sampling Da	ta:		Well Depth as Built: A		pprox. 30	ft Well I	Diameter:		2.0 in	Purging Device:	_ D	edicated Bladder		
Well ID:		ES-1	Well Depth Measured:				ft Initial	Depth To Wate	r: <u>17</u> .	14 A	Field Parameter I	Device: Y	SI / Hach Turb.	
Start time: 1110			Depth To T	op Of Screen:		2	ft Depth	Of Pump Intake	a:	ft	Tubing Present In	n Well:	☑ Yes □ No	
Finish Tim	Finish Time: 1236		Depth To B	ottom Of Scree	en:		ft Measu	ring Point:	Top of C	asing	Tubing Type:		Polyethylene	
	Depth To	Pump	Purge	Cumulative	Temp-									
Time	Water	Setting	Rate	Purge Vol.	erature	pН	Conduct-	Dissolved						
	From Casing	g (mL/min) or	(mL/min) or	(liters) or	(°F) or	pH	ivity	Oxygen	Turbidity	ORP/eH		Comment		
(24 hour)	(ft)	(gal/min)	(gal/min)	(gal)	(°C)		(mS/cm)	(mg/L)	(NTU)	(mV)				
Stabilized w		[100 mL/min] to	Y	-	N/A	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]				
1125	17.70	20 051	300	initial	13.61	4.46	0.469	4.67	27.5	250:1				
1130				1.5	13.73		0.471	2.10	28.1	240.4				
1135				3.0	13.76	THE WAY THE COURT	0.471	1.70	23.4	235.5				
1140				4.5	13.76	4.41	0.472	1.39	19.8	226.6				
1145				6.0	13.76	THE RESERVE OF THE PARTY OF THE	0.472	1.33	16.4	225.9				
1150		1		7.5	13.85	4.45	0.472	1.25	6.10	223.2				
1155	4	. 4	4	9.0	13.82	4.46	0.472	1.20	4.39	221.9				
1200	Sand	e												
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well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft, 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

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PROJECT		ACM Groundwa	ter Monitoring								H&A FILE NO.	134660
LOCATION		Possum Point Po	wer Station								PROJECT MGR.	E. Wright
CLIENT		Dominion Energ	у				11				FIELD REP	A. Gerringer
CONTRACT	OR	N/A									DATE	4-15-20
Sampling Da	ta:		Well Depth	as Built:			ft Well D	iameter:	_ 2	in in	Purging Device:	Bledder
Well ID:	Es-	OI	Well Depth	Measured:	_ 5	3.31	ft Initial	Depth To Wate	r: 21.	72 ft	Field Parameter	Device: \\SI
Start time:	12	40	Depth To To	op Of Screen:			ft Depth	Of Pump Intake	e: <u>50</u>	n ft	Tubing Present I	In Well: Yes K No
Finish Tin	inish Time: P4 1500		Depth To B	ottom Of Scree	n:		ft Measu	ring Point:	Top of Ca	asing	Tubing Type:	Poly
	Depth To	Pump	Purge	Cumulative	Temp-							
Time	Water	Setting	Rate	Purge Vol.	erature	pH	Conduct-	Dissolved				
	From Casing	(mL/min) or	(mL/min) or	(liters) or	(°F) or	pii	ivity	Oxygen	Turbidity	ORP/eH		Comments
(24 hour)	(ft)	(gal/min)	(gal/min)	(gal)	(°C)		(mS/cm)	(mg/L)	(NTU)	(mV)		
Stabilized v		[100 mL/min] to	Dec 10 10		N/A	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]		
1250	23.13	34	200	initial	15.80	6.26	0.265	2.43	16.6	142.0		
1255	24.10			1.0	15.61	6.56	0.266	2.24	14.6	118.0		
1300	25.0	- X	150	2.0	15.28	6.55	0.270		27.6	105.0		
1305	25.8	30	150	2.75	15.44	6.66	0.274	2.02	47.9	91.9		
1310	26.4			3.50	15.41	6.42	0.275	1.85	51.2	79.8		
1315	74.95				15.47	6.68	0.272	1.60	54.4	55.1		
1320	27.3			5.00	15.53	6.66	6.270	1.45	48.3	34.2		
1325	27.7			5.75	15.48	6.41	0.267	1.26	54.6	0.1		
1330	28.4			6.50	15.46	6.49	0.265	1.17	38.4	-12.4		
				7.25	15.46	6.53	0.263	1.11	40.2	- 22.6		
1340	28.65			8.00	15.50	6.48	0.259	1.00	32,2	-32,1		
1350	29.10			9.50	15.39	6.52	0.254	0.92	26.8	20.7		
1355	29.40				15.27	6.49	0.252	0.86	70.6	-49.0		
1400	29.60			10.25	15.10	6.53	0.247	0.82	17.0	-56.4		
1405	29.80			11.00	15.28	6.47	0.244	0.81	14.4	-63.9		
1410	30.00	7	4	11.75			7,575	0.75	13.3	-68.5	Werker Transport	
1413	Samae	`		12.50	15.27	4.52	0,741	0.13	11-6	- 12.0		
1113)	Jampe					-		777				

well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft, 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

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PROJECT		ACM Groundwa	nter Monitoring								H&A FILE NO.	134660	01 \
LOCATION		Possum Point Po	ower Station		-2.7		-				PROJECT MGR.	E. Wright	
CLIENT		Dominion Energ	у								FIELD REP	A. Gerringer	
CONTRAC	TOR	N/A				120					DATE	4-15-20	
Sampling Da	ıta:		Well Depth	as Built:			ft Well I	Diameter:		Z in	Purging Device:	Bladder	
Well ID:	_ES	-70	Well Depth	Measured:		52.83	ft Initial	Depth To Wate	r: 4-	7.17 ft	Field Parameter I		
Start time		1310 1515	Depth To T	op Of Screen:			ft Depth	Of Pump Intake	: 5	2 ft	Tubing Present In	· · · · · · · · · · · · · · · · ·	No
Finish Tir	ne: k	BUS 4/14	Depth To B	Bottom Of Scree	en:		ft Measu	ring Point:	Top of Ca	asing	Tubing Type:	Poly	
	Depth To	Pump	Purge	Cumulative	Тетр-								
Time	Water	Setting	Rate	Purge Vol.	erature	pН	Conduct-	Dissolved					
	From Casing	(mL/min) or	(mL/min) or	(liters) or	(°F) or	pii	ivity	Oxygen	Turbidity	ORP/eH		Comments	
(24 hour)	(ft)	(gal/min)	(gal/min)	(gal)	(°C)		(mS/cm)	(mg/L)	(NTU)	(mV)			
Stabilized v		[100 mL/min] to	[500 mL/min]	-	N/A	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]			
1530	47.50	2705:	100	initial	14.16	7.20	0.432	6.53	414	101.2		Crown Lawrence	
1535	47.70	<u> </u>	-	500	13.99	7.27	0.428	4.86	104	44.4			NI/VES
1540	47.90			1,000	13.91	7.28	0.422	5.18	391	35.2			
1545	48.10			1.5	13.89	7.28	0.414	5.31	395	33.6			
1330	48.30			2.0	13.79	7.25	0.400	5.71	380	37.1			
1555	48.60			2.5	13.74	7.16	0.385	5.87	361	47.7			
1600	48.95			3.0	13.70	6.99	0.350	6.00	339	46.6			
1605	49.10			3,5	13.68	6.90	0.334	5.73	315	72.4			
1610	49.30			4.0	13.62	6.77	0.325	5.64	213	88.3			
1615	4990			4.5	13.60	6.75	0.325	5.16	189	99.4			
1620	49.70			5.0	13.66	6.75	0.338	4.67	184	102.3			
1625	49.90	7	- V	5.5	13.75	6.77	0.369	4.51	304	100.0			
1630	50.10			6.0	13.69	6.81	0.383	3.99	477	88.0	Stop pur	ge; return ne	xt
								Ne d			day (4-1	10-20) and tak	ie
		1									a grab sa	mple.	
1000)	Begin So	moling; yo	cy slow	sonl	rate the	rjust t	cleles				J		
1050	Dij; stor	eurst	2000								Grab sa	mple on	
	only fill	two both	iles - total	+ dissolu	ed mela	3					(4-16-20	Q 1000	
											Stay filter n		dded
	well volume =	3.14 (PI) x radius ² x he	eight of water colum	n. 2 in well = 0.	163 gal/ft, 3 in	= 0.367 gal/ft	4 in = 0.653 gal/ft	, 6 in = 1.469 gal	ft, 1 cu. ft. = 7.4	8 gal, 1 gal = 3.7	85 L, 1L = 0.264 gal,	for boron, nickel, 0.5L/min = 0.132 gal/min + 2#	

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ALD	RICH				A WO	CLOW	SAM	PLING	FORM	М		Page	\ of \
PROJECT		ACM Groundwa	ter Monitoring							1	H&A FILE NO.	134660	
LOCATION		Possum Point Po	wer Station							1	PROJECT MGR.	E. Wright	
CLIENT		Dominion Energ	y							1	FIELD REP	A. CLECTION	
CONTRACT	OR	N/A					-2			1	DATE	4.16-20	
Sampling Dat	ta:		Well Depth	as Built:	2-11		ft Well I	Diameter:	2	in	Purging Device:	Bladder	
Well ID:	ES-	7	Well Depth	Measured:		15.15	ft Initial	Depth To Water	r: 23	.37 ft	Field Parameter l	Device: YSI	
Start time:	_1100	5	Depth To T	op Of Screen:	8-0-		ft Depth	Of Pump Intake	»:	ft	Tubing Present I	n Well:	⊠ No
Finish Tim	Finish Time: 1545 Depth To Bottom Of Screen:				ft Measu	ring Point:	Top of Ca	sing	Tubing Type:	Poly			
	Depth To	Pump	Purge	Cumulative	Temp-			4.55					
Time	Water	Setting	Rate	Purge Vol.	erature	pН	Conduct-	Dissolved					- 100
	From Casing	(mL/min) or	(mL/min) or	(liters) or	(°F) or	pH	ivity	Oxygen	Turbidity	ORP/eH		Comments	100.05
(24 hour)	(ft)	(gal/min)	(gal/min)	(gal)	(°C)	Contract of	(mS/cm)	(mg/L)	(NTU)	(mV)			
Stabilized w		[100 mL/min] to			N/A	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]			
1112	23.85	2000	SOMI	initial	12.54	6.35	0.483	11.75	577	211.4			
1120	23,79	4	+	250ml	12.51	6.03	0.513	5.79	371	210.6			
			-										
1125)	Sampl	e											
	Dryat												
	1256 b	egin sampli	y again	, very slo	wpurge	doy	at 1	320					
	1400 be	in samplin	7 1430	dry , 60	4 100	il remov	cc.						
	only Sill	Juo bo	ofthes -	total +	100056	ved me	tals						
	•												
								18.00					
												24	100
				ware on a									
	,											- n Turini II	
												- W	

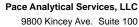
well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

SUMMARY OF WATER LEVEL DATA POSSUM POINT POWER STATION - ACM DUMFRIES, VIRGINIA MEASUREMENT DATE: 4/15/2020

Well Type	Well Identification	Depth to Water (feet below top of casing)	Time Well Gauged	Remarks	Measured By
POND E					
	ED-26	51.42	0830		AG
	ED-24R	25.45	1120		AQ
	ES-3D	22.69	0805		AC
Compliance Wells	ES-1609	22.98	0848		AG
	ES-1613	26.46	0844		AG
1	T-1615D	22.40	0815		AG
	T-1615S	22.58	0814		AG
VSWMR Sentinel Wells	ED-22RA	25.64	0756 10131a		AG
	ED-23R	24.12	0758		AG
N&E Wells	ES-1	17.17	0730		AG
	ES-1D	21.76	6733		AG
	ES-7	23.80	0737		AG
	ES-7D	47.30	6738		AG

APPENDIX C

Laboratory Analytical Reports



Huntersville, NC 28078 (704)875-9092



April 15, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy VSWMR

Pace Project No.: 92472806

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Asheville

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

Sincerely,

Matthew Helton for Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092

Warren Hella

Project Manager

Enclosures

cc: Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy VSWMR

Pace Project No.: 92472806

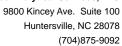
Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS





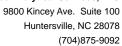
SAMPLE SUMMARY

Project: Dominion Energy VSWMR

Pace Project No.: 92472806

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
92472806001	ED-22RA-20200407	Water	04/07/20 10:15	04/08/20 09:00	

REPORT OF LABORATORY ANALYSIS





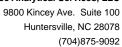
SAMPLE ANALYTE COUNT

Project: Dominion Energy VSWMR

Pace Project No.: 92472806

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory	
92472806001	ED-22RA-20200407	EPA 6020B	BG2	11	PASI-A	
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A	
		SM 5310B-2011	ECH	1	PASI-A	

PASI-A = Pace Analytical Services - Asheville





SUMMARY OF DETECTION

Project: Dominion Energy VSWMR

Pace Project No.: 92472806

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92472806001	ED-22RA-20200407					
EPA 6020B	Copper	1.4	ug/L	0.50	04/09/20 19:21	
EPA 6020B	Iron	1150	ug/L	50.0	04/09/20 19:21	
EPA 6020B	Manganese	82.1	ug/L	0.50	04/09/20 19:21	
EPA 6020B	Nickel	5.6	ug/L	0.50	04/09/20 19:21	
EPA 6020B	Potassium	1680	ug/L	50.0	04/09/20 19:21	
EPA 6020B	Silver	0.59	ug/L	0.40	04/09/20 19:21	
EPA 6020B	Sodium	44200	ug/L	5000	04/09/20 20:55	
EPA 6020B	Hardness, Total(SM 2340B)	17800	ug/L	541	04/09/20 19:21	
EPA 6020B	Vanadium	0.19J	ug/L	0.30	04/09/20 19:21	
EPA 6020B	Zinc	24.4	ug/L	5.0	04/09/20 19:21	
SM 5310B-2011	Nonpurgeable Organic Carbon	1.0	mg/L	1.0	04/10/20 17:47	

REPORT OF LABORATORY ANALYSIS



ANALYTICAL RESULTS

Project: Dominion Energy VSWMR

Pace Project No.: 92472806

Date: 04/15/2020 05:26 PM

Sample: ED-22RA-20200407	Lab ID:	92472806001	Collected	d: 04/07/20	10:15	Received: 04/	08/20 09:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: EF	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Copper	1.4	ug/L	0.50	0.23	1	04/09/20 00:31	04/09/20 19:21	7440-50-8	
Iron	1150	ug/L	50.0	7.5	1	04/09/20 00:31	04/09/20 19:21	7439-89-6	
Manganese	82.1	ug/L	0.50	0.14	1	04/09/20 00:31	04/09/20 19:21	7439-96-5	
Nickel	5.6	ug/L	0.50	0.11	1	04/09/20 00:31	04/09/20 19:21	7440-02-0	
Potassium	1680	ug/L	50.0	6.2	1	04/09/20 00:31	04/09/20 19:21	7440-09-7	
Silver	0.59	ug/L	0.40	0.050	1	04/09/20 00:31	04/09/20 19:21	7440-22-4	
Sodium	44200	ug/L	5000	285	20	04/09/20 00:31	04/09/20 20:55	7440-23-5	
Tin	ND	ug/L	0.50	0.090	1	04/09/20 00:31	04/09/20 19:21	7440-31-5	
Hardness, Total(SM 2340B)	17800	ug/L	541	70.1	1	04/09/20 00:31	04/09/20 19:21		
Vanadium	0.19J	ug/L	0.30	0.12	1	04/09/20 00:31	04/09/20 19:21	7440-62-2	
Zinc	24.4	ug/L	5.0	1.1	1	04/09/20 00:31	04/09/20 19:21	7440-66-6	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	eparatio	n Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Anal	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/15/20 07:50	04/15/20 16:39	108-95-2	M1,R1
5310B WVA Nonpurgeable Organic	,	Method: SM 53							
	Pace Anal	ytical Services	- ASHEVIILE						
Nonpurgeable Organic Carbon	1.0	mg/L	1.0	0.50	1		04/10/20 17:47	7440-44-0	

REPORT OF LABORATORY ANALYSIS



Project: Dominion Energy VSWMR

Pace Project No.: 92472806

Date: 04/15/2020 05:26 PM

QC Batch: 535206 Analysis Method:
QC Batch Method: EPA 3010A Analysis Description:

Laboratory: Pace Analytical Services - Asheville

EPA 6020B

6020 MET

Associated Lab Samples: 92472806001

METHOD BLANK: 2855912 Matrix: Water

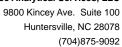
Associated Lab Samples: 92472806001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Copper	ug/L	ND	0.50	0.23	04/10/20 16:40	
Hardness, Total(SM 2340B)	ug/L	ND	541	70.1	04/10/20 16:40	
Iron	ug/L	ND	50.0	7.5	04/10/20 16:40	
Manganese	ug/L	0.38J	0.50	0.14	04/10/20 16:40	BC
Nickel	ug/L	ND	0.50	0.11	04/10/20 16:40	
Potassium	ug/L	ND	50.0	6.2	04/10/20 16:40	
Silver	ug/L	ND	0.40	0.050	04/10/20 16:40	
Sodium	ug/L	ND	250	14.3	04/10/20 16:40	
Tin	ug/L	ND	0.50	0.090	04/10/20 16:40	
Vanadium	ug/L	ND	0.30	0.12	04/10/20 16:40	
Zinc	ug/L	ND	5.0	1.1	04/10/20 16:40	

LABORATORY CONTROL SAMPLE:	2855913					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Copper	ug/L	50	51.3	103	80-120	
Hardness, Total(SM 2340B)	ug/L		4370			
Iron	ug/L	625	658	105	80-120	
Manganese	ug/L	50	51.6	103	80-120	
Nickel	ug/L	50	52.0	104	80-120	
Potassium	ug/L	625	657	105	80-120	
Silver	ug/L	25	26.0	104	80-120	
Sodium	ug/L	625	662	106	80-120	
Tin	ug/L	50	53.0	106	80-120	
Vanadium	ug/L	50	51.9	104	80-120	
Zinc	ug/L	50	52.4	105	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPL	LICATE: 2855	-		2855915							
		02472445004	MS	MSD	MC	MCD	MC	MCD	0/ Doo		May	
5 .		92472115001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Copper	ug/L	372	250	250	603	617	92	98	75-125	2	20	
Hardness, Total(SM 2340B)	ug/L	ND			20700	21400				3	20	
Iron	ug/L	ND	3120	3120	3120	3180	99	101	75-125	2	20	
Manganese	ug/L	ND	250	250	249	259	99	103	75-125	4	20	
Nickel	ug/L	383	250	250	613	630	92	99	75-125	3	20	
Potassium	ug/L	ND	3120	3120	3160	3210	101	103	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.





Project: Dominion Energy VSWMR

Pace Project No.: 92472806

Date: 04/15/2020 05:26 PM

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	CATE: 2855	•		2855915							
Parameter	g Units	02472115001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Silver	ug/L	109	125	125	231	237	98	102	75-125	2	20	
Sodium	ug/L	ND	3120	3120	3160	3220	101	102	75-125	2	20	
Tin	ug/L	ND	250	250	251	259	100	104	75-125	3	20	
Vanadium	ug/L	ND	250	250	249	254	99	102	75-125	2	20	
Zinc	ug/L	404	250	250	635	649	92	98	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.

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



QUALITY CONTROL DATA

Project: Dominion Energy VSWMR

Pace Project No.: 92472806

Date: 04/15/2020 05:26 PM

QC Batch: 536101

QC Batch Method: EPA 420.4 Rev 1.0 1993

Analysis Method: EPA 420.4 Rev 1.0 1993

Analysis Description: 420.4 Phenolics

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92472806001

METHOD BLANK: 2860123 Matrix: Water

Associated Lab Samples: 92472806001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Phenol mg/L ND 0.020 0.0050 04/15/20 16:37

LABORATORY CONTROL SAMPLE: 2860124

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Phenol 0.05 0.048 96 90-110 mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860125 2860126

MS MSD

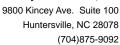
92472806001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Result Result **RPD** RPD Result Conc. % Rec % Rec Limits Qual 0.044 10 M1,R1 Phenol mg/L ND 0.05 0.05 0.049 87 98 90-110 12

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860127 2860128

MS MSD

92473016001 MS MSD MS MSD % Rec Spike Spike Max **RPD** RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits Qual Phenol 90 3 ND 0.05 0.05 0.049 0.051 94 10 mg/L 90-110

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: Dominion Energy VSWMR

Pace Project No.: 92472806

QC Batch: 535285 Analysis Method: SM 5310B-2011

QC Batch Method: SM 5310B-2011 Analysis Description: 5310B WVA Nonpurgeable Organic Carbon

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92472806001

METHOD BLANK: 2856098 Matrix: Water

Associated Lab Samples: 92472806001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Nonpurgeable Organic Carbon mg/L ND 1.0 0.50 04/10/20 13:26

LABORATORY CONTROL SAMPLE: 2856099

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Nonpurgeable Organic Carbon mg/L 25 23.6 94 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2856100 2856101

MSD MS 92472270001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec % Rec **RPD** RPD Qual Result Limits Nonpurgeable Organic 94 mg/L 1.9 25 25 25.4 25.6 95 90-110 10

Carbon

Date: 04/15/2020 05:26 PM

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.



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

QUALIFIERS

Project: Dominion Energy VSWMR

Pace Project No.: 92472806

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.

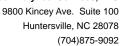
ANALYTE QUALIFIERS

Date: 04/15/2020 05:26 PM

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.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

R1 RPD value was outside control limits.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy VSWMR

Pace Project No.: 92472806

Date: 04/15/2020 05:26 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92472806001	ED-22RA-20200407	EPA 3010A	535206	EPA 6020B	535223
92472806001	ED-22RA-20200407	EPA 420.4 Rev 1.0 1993	536101	EPA 420.4 Rev 1.0 1993	536271
92472806001	ED-22RA-20200407	SM 5310B-2011	535285		

		1	uo Anaiy.ii	Cai		Oocumen AR-CS-03:			Pa	Issuing Authority ace Carolinas Quality	Wanted Street	
1.	horse		a cample	· · · · · · · · · · · · · · · · · · ·								
Ld	oorati	ory receivin Asheville		Eden	Greenwoo	d 🗌	Hu	nters	/ille 🛮	Raleigh 🗌	Mechanic	sville
		Condition Receipt	Client	Name:	+ Aldri	zh		Projec	· WO#	‡:9247	2806	
-	ourler:] Comm	nercial	Fed I		PS USPS		CI	ient	92472			
Cus	tody Se	al Present?	∐Yes	No	Seals Intact?	∐Yes	□No		•	ials Person Examining	Contents: M	-4-8-20
Pac	king Ma	aterial:	Bubble	Wrap [Bubble Bags	None	: 🗌 c	ther		Blological Tissu		
The	rmome	ter: IR Gun ID:	92T061	_	Type of	ce: 🏻	Wet 🔲	Blue	None	□Yes □No []N/A	
Coc	ler Tem	np (°C):	4	Correction Fa	actor: Add/Subtra	ct (°C)	+0.1		T	b a.u. francisca ta	-°C	
		p Corrected (5_						e above freezing to o out of temp criteria. San		ing process
	samples	llated Soil (☐ s originate in a d ☐No			United States: CA	, NY, or SC	C (check ma			ginate from a foreign so I and Puerto Rico)? []		ally,
								-		Comments/Discrep	ancy:	
F	Chain	of Custody Pre	sent?		Yes	□No	□N/A	1.				
	Sample	es Arrived with	in Hold Tim	ne?	Yes	□No	□N/A	2.				*
35	Short I	Hold Time Ana	ılysis (<72 h	r.)?	Yes	ØN ₀	□N/A	3.				
*	Rush T	Turn Around Ti	me Reques	ted?	□Yes	□No	□N/A	4.				
	Sufficie	ent Volume?			Yes	□No	□N/A	5.				
	Correc	t Containers U	sed?		□Yes	□No	□N/A	6.				
	-Pac	ce Containers l	Jsed?		□yes	□No	□N/A	+				
, dans	Contai	iners Intact?			□Yes	□No	□N/A	7.				
	Dissolv	ved analysis: Sa	amples Field	d Filtered?	□Yes	□No	ØN/A	8.				
-	Samol	e Labels Match	COC?		Yes	□No	□N/A	9.		***		
	-Inc	ludes Date/Tin	ne/ID/Analy	ysis Matrix:	W						,	
-		nace in VOA Vi	als (>5-6mr	nl?	Yes	No	□N/A	10.				
	Trip BI	ank Present?			Yes	No	□n/a	11.				20
	Trip BI	ank Custody Se	eals Present	1?	Yes	□No	- N/A					
c	OMMEN	ITS/SAMPLE DIS	SCREPANCY		-					Field Data	Required? \(\text{Ye}\)	s No
_				4				Lot	ID of split con	tainers:		
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Р	erson co	ontacted:			· · · · · · · · · · · · · · · · · · ·		_ Date/T	ime: _			3	
	Project	t Manager SCI	URF Reviev	v:					Date:			

Project Manager SRF Review:

Document Name: Sample Condition Upon Receipt(SCUR) Document Revised: February 7, 2018 Page 1 of 2



Document Name: Sample Condition Upon Receipt(SCUR) Document No.: F-CAR-CS-033-Rev.06

Document Revised: February 7, 2018
Page 1 of 2

Issuing Authority:
Pace Carolinas Quality Office

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

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

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

Project #

WO#:92472806

PM: PTE

Due Date: 04/22/20

CLIENT: 92-Haley VA

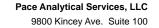
_	item#	BP4U-125 mL Plastic Unpreserved (N/A) (CI-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (CI-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic 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)	- AG35-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGDU-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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		pH Ad	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 #
						_
-:	5.					
			-			

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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			vovce water quality Politiant List: phenolics, potassium, iron, manganese, hardness, and sodium.		VSWMR Metals List: copper, nickel, silver, tin, vanadium, and zinc	ADDITIONAL COMMENTS												ED-22RA-20200407	SAMPLE ID (A-Z, 0-9/,-) Sample IDs MUST BE UNIQUE Waste Waster Product Soil/Solid Oil Wipe Air Tissue Other	Required Client Information MATRIX / CODE Drinking Water D	s and Pace Analytica	s services under this Chain of Custody shall be performed	ğ			Suite 208 Midlethian VA 23114	ass: A Book What Oirola	Company: Haley & Aldrich Inc	Section A	Pace Analytical"
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SIGNATURE of SAMPLER:	PRINT Name of SAMPLER:	SAMPLER NAME AND SIGNATURE	\vdash		4														Sample Depth Start End Circle: (Circle: feet or or inches) Sample End Oppth Oppth Oircle: feet or or inches)			ce Agreement #		3						CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.
AMPLE	AMPLE	NATU			17/20	DATE																2019-22								F-C
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Huntersville, NC 28078 (704)875-9092

April 15, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy CCR Pace Project No.: 92472807

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Asheville

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

Sincerely,

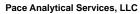
Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092

Project Manager

Enclosures

cc: Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy CCR

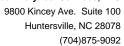
Pace Project No.: 92472807

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Dominion Energy CCR

Pace Project No.: 92472807

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92472807001	ED-22RA-20200407	Water	04/07/20 10:15	04/08/20 09:00



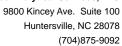
SAMPLE ANALYTE COUNT

Project: Dominion Energy CCR

Pace Project No.: 92472807

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92472807001	ED-22RA-20200407	EPA 6020B	BG2	14	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 9056A	BRJ	3	PASI-A

PASI-A = Pace Analytical Services - Asheville





SUMMARY OF DETECTION

Project: Dominion Energy CCR

Pace Project No.: 92472807

Lab Sample ID	Client Sample ID	5 "		D		0 117
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92472807001	ED-22RA-20200407					
EPA 6020B	Antimony	0.16J	ug/L	0.50	04/09/20 15:37	
EPA 6020B	Arsenic	0.27	ug/L	0.10	04/09/20 15:37	
EPA 6020B	Barium	25.5	ug/L	0.30	04/09/20 15:37	
EPA 6020B	Beryllium	0.33	ug/L	0.10	04/09/20 15:37	
EPA 6020B	Boron	188	ug/L	25.0	04/09/20 15:37	
EPA 6020B	Calcium	3700	ug/L	200	04/09/20 15:37	
EPA 6020B	Cobalt	5.0	ug/L	0.10	04/09/20 15:37	
EPA 6020B	Lead	0.065J	ug/L	0.10	04/09/20 15:37	
EPA 6020B	Lithium	2.4J	ug/L	2.5	04/09/20 15:37	
SM 2540C-2011	Total Dissolved Solids	178	mg/L	25.0	04/10/20 16:26	
EPA 9056A	Chloride	27.1	mg/L	1.0	04/11/20 16:53	
EPA 9056A	Sulfate	60.5	mg/L	1.0	04/11/20 16:53	M1

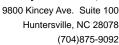


Project: Dominion Energy CCR

Pace Project No.: 92472807

Date: 04/15/2020 01:16 PM

Sample: ED-22RA-20200407	Lab ID:	92472807001	Collected:	04/07/20	10:15	Received: 04/	08/20 09:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA	6020B Prepa	ration Met	nod: EF	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Antimony	0.16J	ug/L	0.50	0.11	1	04/09/20 00:31	04/09/20 15:37	7440-36-0	
Arsenic	0.27	ug/L	0.10	0.060	1	04/09/20 00:31	04/09/20 15:37	7440-38-2	
Barium	25.5	ug/L	0.30	0.060	1	04/09/20 00:31	04/09/20 15:37	7440-39-3	
Beryllium	0.33	ug/L	0.10	0.050	1	04/09/20 00:31	04/09/20 15:37	7440-41-7	
Boron	188	ug/L	25.0	2.6	1	04/09/20 00:31	04/09/20 15:37	7440-42-8	
Cadmium	ND	ug/L	0.080	0.070	1	04/09/20 00:31	04/09/20 15:37	7440-43-9	
Calcium	3700	ug/L	200	20.6	1	04/09/20 00:31	04/09/20 15:37	7440-70-2	
Chromium	ND	ug/L	0.50	0.42	1	04/09/20 00:31	04/09/20 15:37	7440-47-3	
Cobalt	5.0	ug/L	0.10	0.050	1	04/09/20 00:31	04/09/20 15:37	7440-48-4	
₋ead	0.065J	ug/L	0.10	0.050	1	04/09/20 00:31	04/09/20 15:37	7439-92-1	
_ithium	2.4J	ug/L	2.5	0.42	1	04/09/20 00:31	04/09/20 15:37	7439-93-2	
Molybdenum	ND	ug/L	0.50	0.10	1	04/09/20 00:31	04/09/20 15:37	7439-98-7	
Selenium	ND	ug/L	0.50	0.080	1	04/09/20 00:31	04/09/20 15:37	7782-49-2	
Thallium	ND	ug/L	0.10	0.060	1	04/09/20 00:31	04/09/20 15:37	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Prepa	ration Metl	nod: EF	PA 7470A			
	Pace Anal	ytical Services	- Asheville						
Mercury	ND	ug/L	0.20	0.10	1	04/13/20 12:47	04/14/20 18:39	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C-2011						
	Pace Anal	ytical Services	- Asheville						
Total Dissolved Solids	178	mg/L	25.0	25.0	1		04/10/20 16:26		
9056 IC anions 28 Days	•	Method: EPA							
	Pace Anal	ytical Services	- Asheville						
Chloride	27.1	mg/L	1.0	0.60	1		04/11/20 16:53	16887-00-6	
Fluoride	ND	ug/L	100	50.0	1			16984-48-8	M1
Sulfate	60.5	mg/L	1.0	0.50	1		04/11/20 16:53		M1





Project:

Dominion Energy CCR

Pace Project No.:

92472807

QC Batch:

535804

QC Batch Method:

EPA 7470A

Analysis Method:

EPA 7470A

Analysis Description:

7470 Mercury

Laboratory:

Pace Analytical Services - Asheville

Associated Lab Samples: 92472807001

METHOD BLANK:

Matrix: Water

Associated Lab Samples:

92472807001

Parameter

Blank Result Reporting Limit

2.6

2858655

MDL

Analyzed

Qualifiers

Mercury

Mercury

Units ug/L

ND

0.20

0.10 04/14/20 18:34

LABORATORY CONTROL SAMPLE:

Parameter

2858653

Units

ug/L

Spike Conc.

2.5

LCS Result

LCS % Rec % Rec Limits

Qualifiers

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

2858654

MSD Spike

MSD Result

MS % Rec MSD

% Rec

Max RPD

MS Spike

MS Result

80-120

Limits

Qual

Conc.

Conc.

Mercury

92472807001

2.5

2.4

104

98

Parameter Units Result ND ug/L

2.5

2.5

101

% Rec

75-125

RPD

25 3

Date: 04/15/2020 01:16 PM

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.

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



QUALITY CONTROL DATA

Project: Dominion Energy CCR

Pace Project No.: 92472807

Date: 04/15/2020 01:16 PM

QC Batch: 535206 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92472807001

METHOD BLANK: 2855912 Matrix: Water

Associated Lab Samples: 92472807001

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	ND	0.50	0.11	04/10/20 16:40	
Arsenic	ug/L	ND	0.10	0.060	04/10/20 16:40	
arium	ug/L	ND	0.30	0.060	04/10/20 16:40	
Beryllium	ug/L	ND	0.10	0.050	04/10/20 16:40	
oron	ug/L	ND	25.0	2.6	04/10/20 16:40	
admium	ug/L	ND	0.080	0.070	04/10/20 16:40	
alcium	ug/L	ND	200	20.6	04/10/20 16:40	
Chromium	ug/L	ND	0.50	0.42	04/10/20 16:40	
obalt	ug/L	ND	0.10	0.050	04/10/20 16:40	
ead	ug/L	ND	0.10	0.050	04/10/20 16:40	
ithium	ug/L	ND	2.5	0.42	04/10/20 16:40	
lolybdenum	ug/L	ND	0.50	0.10	04/10/20 16:40	
elenium	ug/L	ND	0.50	0.080	04/10/20 16:40	
hallium	ug/L	ND	0.10	0.060	04/10/20 16:40	

LABORATORY CONTROL SAMPLE:	2855913					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	ug/L	50	53.8	108	80-120	
Arsenic	ug/L	10	10.6	106	80-120	
Barium	ug/L	50	51.9	104	80-120	
Beryllium	ug/L	10	10.5	105	80-120	
Boron	ug/L	50	56.1	112	80-120	
Cadmium	ug/L	10	10.5	105	80-120	
Calcium	ug/L	625	665	106	80-120	
Chromium	ug/L	50	51.6	103	80-120	
Cobalt	ug/L	10	10.3	103	80-120	
Lead	ug/L	50	52.0	104	80-120	
Lithium	ug/L	50	52.7	105	80-120	
Molybdenum	ug/L	50	51.3	103	80-120	
Selenium	ug/L	50	53.4	107	80-120	
Thallium	ug/L	10	10.4	104	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.



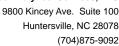
Project: Dominion Energy CCR

Pace Project No.: 92472807

Date: 04/15/2020 01:16 PM

MATRIX SPIKE & MATRIX	SPIKE DUPL	JCATE: 2855	914 MS	MSD	2855915							
		92472115001	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	250	250	256	263	102	105	75-125	3	20	
Arsenic	ug/L	ND	50	50	49.2	51.0	98	102	75-125	4	20	
Barium	ug/L	ND	250	250	250	257	100	103	75-125	3	20	
Beryllium	ug/L	ND	50	50	50.5	51.6	101	103	75-125	2	20	
Boron	ug/L	ND	250	250	258	290	98	111	75-125	12	20	
Cadmium	ug/L	ND	50	50	49.5	50.6	99	101	75-125	2	20	
Calcium	ug/L	ND	3120	3120	3090	3220	99	103	75-125	4	20	
Chromium	ug/L	345	250	250	576	591	92	99	75-125	3	20	
Cobalt	ug/L	ND	50	50	49.6	50.4	99	101	75-125	2	20	
Lead	ug/L	ND	250	250	247	256	99	103	75-125	4	20	
Lithium	ug/L	ND	250	250	256	262	102	105	75-125	2	20	
Molybdenum	ug/L	ND	250	250	241	249	97	100	75-125	3	20	
Selenium	ug/L	ND	250	250	246	256	98	102	75-125	4	20	
Thallium	ug/L	ND	50	50	48.9	51.0	98	102	75-125	4	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: Dominion Energy CCR

Pace Project No.: 92472807

QC Batch: 535634 Analysis Method: SM 2540C-2011

QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92472807001

METHOD BLANK: 2857992 Matrix: Water

Associated Lab Samples: 92472807001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Total Dissolved Solids mg/L ND 25.0 25.0 04/10/20 16:21

LABORATORY CONTROL SAMPLE: 2857993

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units **Total Dissolved Solids** mg/L 251 254 101 90-110

SAMPLE DUPLICATE: 2857994

92472619001 Dup Max Parameter Units Result Result **RPD RPD** Qualifiers 193 **Total Dissolved Solids** mg/L 201 4 25

SAMPLE DUPLICATE: 2857995

Date: 04/15/2020 01:16 PM

92472792004 Dup Max RPD RPD Parameter Units Result Result Qualifiers Total Dissolved Solids 1720 1710 0 25 mg/L

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: Dominion Energy CCR

Pace Project No.: 92472807

Date: 04/15/2020 01:16 PM

QC Batch: 535714 Analysis Method: EPA 9056A

QC Batch Method: EPA 9056A Analysis Description: 9056 IC anions 28 Days

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92472807001

METHOD BLANK: 2858402 Matrix: Water

Associated Lab Samples: 92472807001

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND ND	1.0	0.60	04/11/20 16:23	
Fluoride	ug/L	ND	100	50.0	04/11/20 16:23	
Sulfate	mg/L	ND	1.0	0.50	04/11/20 16:23	

LABORATORY CONTROL SAMPLE:	2858403					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	50	49.2	98	90-110	
Fluoride	ug/L	2500	2600	104	90-110	
Sulfate	mg/L	50	50.0	100	90-110	

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2858	404		2858405							
		92472807001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
D	1.121		- 1	-1 -	_	_	_	_	,	000		01
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	27.1	50	50	77.9	79.7	102	105	90-110	2	10	
Fluoride	ug/L	ND	2500	2500	3010	3100	119	123	90-110	3	10	M1
Sulfate	mg/L	60.5	50	50	102	103	83	86	90-110	1	10	M1

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2858	406		2858407							
			MS	MSD								
		2630821006	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	1.8	50	50	54.3	54.6	105	106	90-110	0	10	
Fluoride	ug/L	ND	2500	2500	2930	2960	114	115	90-110	1	10	M1
Sulfate	mg/L	3.7	50	50	57.2	57.3	107	107	90-110	0	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.



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QUALIFIERS

Project: Dominion Energy CCR

Pace Project No.: 92472807

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.

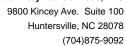
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 04/15/2020 01:16 PM

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy CCR

Pace Project No.: 92472807

Date: 04/15/2020 01:16 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92472807001	ED-22RA-20200407	EPA 3010A	535206	EPA 6020B	535223
92472807001	ED-22RA-20200407	EPA 7470A	535804	EPA 7470A	535863
92472807001	ED-22RA-20200407	SM 2540C-2011	535634		
92472807001	ED-22RA-20200407	EPA 9056A	535714		

Document Revised: February 7, 2018 **Document Name:** Sample Condition Upon Receipt(SCUR) Page 1 of 2 ace Analytical Document No.: Issuing Authority: Pace Carolinas Quality Office F-CAR-CS-033-Rev.06 Laboratory receiving samples: Huntersville 1 Raleigh 🗌 Mechanicsville Asheville Eden Greenwood WO#:92472807 Sample Condition Client Name: Project #: **Upon Receipt** Courler: Fed Ex Client ☐ Commercial Pace No Yes Seals Intact? Yes Date/Initials Person Examining Contents: Mg 4-8-20 **Custody Seal Present?** No Biological Tissue Frozen? None Other Packing Material: Bubble Wrap Bubble Bags ☐Yes ☐No ☐N/A Thermometer: ☑Wet □Blue None Type of Ice: IR Gun ID: Correction Factor: Add/Subtract (°C) +0.1 Temp should be above freezing to 6°C Cooler Temp Corrected (°C): Samples out of temp criteria. Samples on Ice, cooling process

USDA Regulated Soil (N/A, water sample)

Samples Arrived within Hold Time?

Short Hold Time Analysis (<72 hr.)?

Rush Turn Around Time Requested?

Dissolved analysis: Samples Field Filtered?

Headspace in VOA Vials (>5-6mm)?

Trip Blank Custody Seals Present?

COMMENTS/SAMPLE DISCREPANCY

CLIENT NOTIFICATION/RESOLUTION

Project Manager SCURF Review:

Project Manager SRF Review:

Person contacted:

-Includes Date/Time/ID/Analysis Matrix:

Chain of Custody Present?

Sufficient Volume?

Containers Intact?

Trip Blank Present?

Correct Containers Used?

-Pace Containers Used?

Sample Labels Match COC?

Yes No

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?

Yes

Yes

□Yes

Ves

Yes

Yes

Yes

Yes

Yes

Yes \ \ \ No

□No

No

- No

₽No

No

No

□No

□No

No

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DNA

□N/A

√N/A

□N/A

□N/A

Date/Time:

3.

4.

7.

9.

11.

Lot ID of split containers:

Date:

has begun

DId samples originate from a foreign source (internationally,

Comments/Discrepancy:

Field Data Required? Yes No

including Hawall and Puerto Rico)? Yes



Document Name:
Sample Condition Upon Receipt(SCUR)
Document No.:
F-CAR-CS-033-Rev.06

Document Revised: February 7, 2018
Page 1 of 2
Issuing Authority:

Pace Carolinas Quality Office

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

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

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

Project #

WO#:92472807

M: PTE

Due Date: 04/29/20

CLIENT: 92-Haley VA

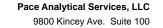
ltem#	BP4U-125 mL Plastic Unpreserved (N/A) (CI-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (CI-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (CI-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (CI-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG35-250 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 Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BPIN	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGDU-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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pH Adjustment Log for Preserved Samples											
Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #					

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

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			App	2	App		12	1	10	9	00	7	6	51	4	ω	2	_	ITEM#		Inc.,	Requ	Phone:	Ema		Address:	Com	Sec	
			Appx IV Metals List: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, and molybdenum.	onones, nacinas, ana sunats.	Appx III Anions & Metals List: boron, calcium,	ADDITIONAL COMMENTS												ED-22RA-20200407	Videter Valeter Valeter Valeter Valeter Valeter Valeter Soll/Solid SAMPLE ID Vipe (A-Z, 0-9 / -) Air Sample IDs MUST BE UNIQUE Tissue Other	Section D Matrix Codes Required Client Information MATRIX / CODE Drinking Water D	Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement #2019-22-Pace by and between Haley Inc., its subsidiaries and affiliates and Pace Analytical Services, Inc.	Requested Due Date/TAT: Standard	804-419-0012 Fax:	Email To: ewright@haleyaldrich.com	Suite 208, Midlothian, VA 23114	1 Park West Circle	Company: Haley & Aldrich, Inc.		Pace Analytical"
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s	P	SAMPLER		1	Halen All	FILIATION												1012	TIME	COLLECTED	in Blanket Sc		Possum F		ch.com				٦.
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Huntersville, NC 28078 (704)875-9092



April 20, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

Pace Analytical Services - Asheville

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

Sincerely,

Taylor Ezell taylor.ezell@pacelabs.com

(704)875-9092 Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy VSWMR-Revised Report

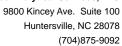
Pace Project No.: 92473016

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92473016001	ED-23R-20200408	Water	04/08/20 10:36	04/09/20 09:25
92473016002	ES-3D-20200408	Water	04/08/20 12:16	04/09/20 09:25
92473016003	ES-1609-20200408	Water	04/08/20 13:31	04/09/20 09:25
92473016004	ES-1613-20200408	Water	04/08/20 14:46	04/09/20 09:25



SAMPLE ANALYTE COUNT

Project: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92473016001	ED-23R-20200408	EPA 6020B	BG2	11	PASI-A
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A
		SM 5310B-2011	ECH	1	PASI-A
92473016002	ES-3D-20200408	EPA 6020B	BG2	11	PASI-A
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A
		SM 5310B-2011	ECH	1	PASI-A
92473016003	ES-1609-20200408	EPA 6020B	BG2	11	PASI-A
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A
		SM 5310B-2011	ECH	1	PASI-A
92473016004	ES-1613-20200408	EPA 6020B	BG2	11	PASI-A
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A
		SM 5310B-2011	ECH	1	PASI-A

PASI-A = Pace Analytical Services - Asheville

(704)875-9092



SUMMARY OF DETECTION

Project: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

Lab Sample ID	Client Sample ID						
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers	
92473016001	ED-23R-20200408						
EPA 6020B	Copper	0.49J	ug/L	0.50	04/14/20 23:22		
EPA 6020B	Iron	5120	ug/L	50.0	04/14/20 23:22		
EPA 6020B	Manganese	68.3	ug/L	0.50	04/14/20 23:22		
EPA 6020B	Nickel	0.48J	ug/L	0.50	04/14/20 23:22		
EPA 6020B	Potassium	5530	ug/L	50.0	04/14/20 23:22		
EPA 6020B	Silver	1.2	ug/L	0.40	04/14/20 23:22		
EPA 6020B	Sodium	4530	ug/L	250	04/14/20 23:22		
EPA 6020B	Tin	0.093J	ug/L	0.50	04/14/20 23:22		
EPA 6020B	Hardness, Total(SM 2340B)	17900	ug/L	541	04/14/20 23:22		
EPA 6020B	Zinc	2.2J	ug/L	5.0	04/14/20 23:22		
2473016002	ES-3D-20200408						
EPA 6020B	Copper	2.4	ug/L	0.50	04/14/20 23:27		
EPA 6020B	Iron	5540	ug/L	50.0	04/14/20 23:27		
EPA 6020B	Manganese	857	ug/L	50.0	04/16/20 14:10		
EPA 6020B	Nickel	26.4	ug/L	0.50	04/14/20 23:27		
EPA 6020B	Potassium	3590	ug/L	50.0	04/14/20 23:27		
EPA 6020B	Sodium	75600	ug/L	25000	04/16/20 14:10		
EPA 6020B	Hardness, Total(SM 2340B)	53000J	ug/L	54100	04/16/20 14:10		
EPA 6020B	Vanadium	1.1	ug/L	0.30	04/14/20 23:27		
EPA 6020B	Zinc	203	ug/L	5.0	04/14/20 23:27		
SM 5310B-2011	Nonpurgeable Organic Carbon	0.80J	mg/L	1.0	04/15/20 15:41		
2473016003	ES-1609-20200408						
EPA 6020B	Iron	19500	ug/L	50.0	04/14/20 23:38		
EPA 6020B	Manganese	774	ug/L	50.0	04/16/20 14:16		
EPA 6020B	Nickel	15.5	ug/L	0.50	04/14/20 23:38		
EPA 6020B	Potassium	6620	ug/L	50.0	04/14/20 23:38		
EPA 6020B	Sodium	107000	ug/L	25000	04/16/20 14:16		
EPA 6020B	Hardness, Total(SM 2340B)	120000	ug/L	54100	04/16/20 14:16		
EPA 6020B	Zinc	31.6	ug/L	5.0			
2473016004	ES-1613-20200408						
EPA 6020B	Iron	35700	ug/L	50.0	04/14/20 23:49		
EPA 6020B	Manganese	917	ug/L	25.0	04/16/20 14:21		
EPA 6020B	Nickel	6.3	ug/L	0.50	04/14/20 23:49		
EPA 6020B	Potassium	6210	ug/L	50.0	04/14/20 23:49		
EPA 6020B	Silver	0.61	ug/L	0.40	04/14/20 23:49		
EPA 6020B	Sodium	55200	ug/L	12500	04/16/20 14:21		
EPA 6020B	Hardness, Total(SM 2340B)	175000	ug/L	27000	04/16/20 14:21		
EPA 6020B	Vanadium	0.15J	ug/L	0.30			
EPA 6020B	Zinc	5.5	ug/L	5.0	04/14/20 23:49		
SM 5310B-2011	Nonpurgeable Organic Carbon	0.73J	mg/L		04/15/20 16:35		



Project: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

Date: 04/20/2020 02:40 PM

Sample: ED-23R-20200408	Lab ID:	92473016001	Collected	d: 04/08/20	10:36	Received: 04/	09/20 09:25 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: EF	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Copper	0.49J	ug/L	0.50	0.23	1	04/14/20 00:54	04/14/20 23:22	7440-50-8	
Iron	5120	ug/L	50.0	7.5	1	04/14/20 00:54	04/14/20 23:22	7439-89-6	
Manganese	68.3	ug/L	0.50	0.14	1	04/14/20 00:54	04/14/20 23:22	7439-96-5	
Nickel	0.48J	ug/L	0.50	0.11	1	04/14/20 00:54	04/14/20 23:22	7440-02-0	
Potassium	5530	ug/L	50.0	6.2	1	04/14/20 00:54	04/14/20 23:22	7440-09-7	
Silver	1.2	ug/L	0.40	0.050	1	04/14/20 00:54	04/14/20 23:22	7440-22-4	
Sodium	4530	ug/L	250	14.3	1	04/14/20 00:54	04/14/20 23:22	7440-23-5	
Tin	0.093J	ug/L	0.50	0.090	1	04/14/20 00:54	04/14/20 23:22	7440-31-5	
Hardness, Total(SM 2340B)	17900	ug/L	541	70.1	1	04/14/20 00:54	04/14/20 23:22		
Vanadium	ND	ug/L	0.30	0.12	1	04/14/20 00:54	04/14/20 23:22	7440-62-2	
Zinc	2.2J	ug/L	5.0	1.1	1	04/14/20 00:54	04/14/20 23:22	7440-66-6	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	paratio	n Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Anal	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/15/20 07:50	04/15/20 16:42	108-95-2	
5310B WVA Nonpurgeable Organic	Analytical	Method: SM 53	310B-2011						
	Pace Anal	ytical Services	- Asheville						
Nonpurgeable Organic Carbon	ND	mg/L	1.0	0.50	1		04/15/20 14:10	7440-44-0	



Project: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

Date: 04/20/2020 02:40 PM

Sample: ES-3D-20200408	Lab ID:	92473016002	Collected	i: 04/08/20	12:16	Received: 04/	09/20 09:25 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: EF	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Copper	2.4	ug/L	0.50	0.23	1	04/14/20 00:54	04/14/20 23:27	7440-50-8	
Iron	5540	ug/L	50.0	7.5	1	04/14/20 00:54	04/14/20 23:27	7439-89-6	
Manganese	857	ug/L	50.0	14.0	100	04/14/20 00:54	04/16/20 14:10	7439-96-5	
Nickel	26.4	ug/L	0.50	0.11	1	04/14/20 00:54	04/14/20 23:27	7440-02-0	
Potassium	3590	ug/L	50.0	6.2	1	04/14/20 00:54	04/14/20 23:27	7440-09-7	
Silver	ND	ug/L	0.40	0.050	1	04/14/20 00:54	04/14/20 23:27	7440-22-4	
Sodium	75600	ug/L	25000	1430	100	04/14/20 00:54	04/16/20 14:10	7440-23-5	
Tin	ND	ug/L	0.50	0.090	1	04/14/20 00:54	04/14/20 23:27	7440-31-5	
Hardness, Total(SM 2340B)	53000J	ug/L	54100	7010	100	04/14/20 00:54	04/16/20 14:10		
Vanadium	1.1	ug/L	0.30	0.12	1	04/14/20 00:54	04/14/20 23:27	7440-62-2	
Zinc	203	ug/L	5.0	1.1	1	04/14/20 00:54	04/14/20 23:27	7440-66-6	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	eparatio	n Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Anal	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/15/20 07:50	04/15/20 16:44	108-95-2	
5310B WVA Nonpurgeable Organic	Analytical	Method: SM 53	310B-2011						
	Pace Analy	ytical Services	- Asheville						
Nonpurgeable Organic Carbon	0.80J	mg/L	1.0	0.50	1		04/15/20 15:41	7440-44-0	



Project: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

Date: 04/20/2020 02:40 PM

Sample: ES-1609-20200408	Lab ID:	92473016003	Collected	1: 04/08/20	13:31	Received: 04/	09/20 09:25 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: El	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Copper	ND	ug/L	0.50	0.23	1	04/14/20 00:54	04/14/20 23:38	7440-50-8	
Iron	19500	ug/L	50.0	7.5	1	04/14/20 00:54	04/14/20 23:38	7439-89-6	
Manganese	774	ug/L	50.0	14.0	100	04/14/20 00:54	04/16/20 14:16	7439-96-5	
Nickel	15.5	ug/L	0.50	0.11	1	04/14/20 00:54	04/14/20 23:38	7440-02-0	
Potassium	6620	ug/L	50.0	6.2	1	04/14/20 00:54	04/14/20 23:38	7440-09-7	
Silver	ND	ug/L	0.40	0.050	1	04/14/20 00:54	04/14/20 23:38	7440-22-4	
Sodium	107000	ug/L	25000	1430	100	04/14/20 00:54	04/16/20 14:16	7440-23-5	
Tin	ND	ug/L	0.50	0.090	1	04/14/20 00:54	04/14/20 23:38	7440-31-5	
Hardness, Total(SM 2340B)	120000	ug/L	54100	7010	100	04/14/20 00:54	04/16/20 14:16		
Vanadium	ND	ug/L	0.30	0.12	1	04/14/20 00:54	04/14/20 23:38	7440-62-2	
Zinc	31.6	ug/L	5.0	1.1	1	04/14/20 00:54	04/14/20 23:38	7440-66-6	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	eparatio	on Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Anal	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/15/20 07:50	04/15/20 16:47	108-95-2	
5310B WVA Nonpurgeable Organic	Analytical	Method: SM 53	310B-2011						
	Pace Anal	ytical Services	- Asheville						
Nonpurgeable Organic Carbon	ND	mg/L	1.0	0.50	1		04/15/20 16:05	7440-44-0	



Project: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

Date: 04/20/2020 02:40 PM

Sample: ES-1613-20200408	Lab ID:	92473016004	Collected	d: 04/08/20	14:46	Received: 04/	09/20 09:25 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: EF	PA 3010A			
	Pace Analy	ytical Services	- Asheville						
Copper	ND	ug/L	0.50	0.23	1	04/14/20 00:54	04/14/20 23:49	7440-50-8	
Iron	35700	ug/L	50.0	7.5	1	04/14/20 00:54	04/14/20 23:49	7439-89-6	
Manganese	917	ug/L	25.0	7.0	50	04/14/20 00:54	04/16/20 14:21	7439-96-5	
Nickel	6.3	ug/L	0.50	0.11	1	04/14/20 00:54	04/14/20 23:49	7440-02-0	
Potassium	6210	ug/L	50.0	6.2	1	04/14/20 00:54	04/14/20 23:49	7440-09-7	
Silver	0.61	ug/L	0.40	0.050	1	04/14/20 00:54	04/14/20 23:49	7440-22-4	
Sodium	55200	ug/L	12500	714	50	04/14/20 00:54	04/16/20 14:21	7440-23-5	
Tin	ND	ug/L	0.50	0.090	1	04/14/20 00:54	04/14/20 23:49	7440-31-5	
Hardness, Total(SM 2340B)	175000	ug/L	27000	3500	50	04/14/20 00:54	04/16/20 14:21		
Vanadium	0.15J	ug/L	0.30	0.12	1	04/14/20 00:54	04/14/20 23:49	7440-62-2	
Zinc	5.5	ug/L	5.0	1.1	1	04/14/20 00:54	04/14/20 23:49	7440-66-6	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	paratio	n Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Analy	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/15/20 07:50	04/15/20 16:48	108-95-2	
5310B WVA Nonpurgeable Organic	Analytical	Method: SM 53	310B-2011						
	Pace Analy	ytical Services	- Asheville						
Nonpurgeable Organic Carbon	0.73J	mg/L	1.0	0.50	1		04/15/20 16:35	7440-44-0	



Project: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

Date: 04/20/2020 02:40 PM

QC Batch: 535965 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473016001, 92473016002, 92473016003, 92473016004

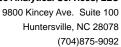
METHOD BLANK: 2859498 Matrix: Water
Associated Lab Samples: 92473016001, 92473016002, 92473016003, 92473016004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Copper	ug/L	ND	0.50	0.23	04/14/20 21:46	
Hardness, Total(SM 2340B)	ug/L	ND	541	70.1	04/14/20 21:46	
Iron	ug/L	ND	50.0	7.5	04/14/20 21:46	
Manganese	ug/L	ND	0.50	0.14	04/14/20 21:46	
Nickel	ug/L	ND	0.50	0.11	04/14/20 21:46	
Potassium	ug/L	9.9J	50.0	6.2	04/14/20 21:46	
Silver	ug/L	ND	0.40	0.050	04/14/20 21:46	
Sodium	ug/L	ND	250	14.3	04/14/20 21:46	
Tin	ug/L	ND	0.50	0.090	04/14/20 21:46	
Vanadium	ug/L	ND	0.30	0.12	04/14/20 21:46	
Zinc	ug/L	ND	5.0	1.1	04/14/20 21:46	

LABORATORY CONTROL SAMPLE:	2859499					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Copper	ug/L	50	51.0	102	80-120	
Hardness, Total(SM 2340B)	ug/L		4140			
Iron	ug/L	625	637	102	80-120	
Manganese	ug/L	50	49.4	99	80-120	
Nickel	ug/L	50	49.7	99	80-120	
Potassium	ug/L	625	619	99	80-120	
Silver	ug/L	25	24.2	97	80-120	
Sodium	ug/L	625	625	100	80-120	
Tin	ug/L	50	48.9	98	80-120	
Vanadium	ug/L	50	49.9	100	80-120	
Zinc	ug/L	50	50.1	100	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPI	LICATE: 2859	500 MS	MSD	2859501										
		92473135001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max				
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual			
Copper	ug/L	5.8	50	50	55.1	55.6	99	100	75-125	1	20				
Hardness, Total(SM 2340B)	ug/L	40400			42500	42900				1	20				
Iron	ug/L	143	625	625	767	771	100	101	75-125	1	20				
Manganese	ug/L	3.8	50	50	51.9	51.8	96	96	75-125	0	20				
Nickel	ug/L	0.30J	50	50	48.9	49.0	97	97	75-125	0	20				
Potassium	ug/L	2250	625	625	2770	2780	83	86	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.





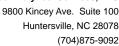
Project: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

Date: 04/20/2020 02:40 PM

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2859500					2859501							
_	92473135001		MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Silver	ug/L	ND	25	25	23.5	23.9	94	96	75-125	2	20	
Tin	ug/L	6.7	50	50	53.8	54.3	94	95	75-125	1	20	
Vanadium	ug/L	1.1	50	50	51.0	51.6	100	101	75-125	1	20	
Zinc	ug/L	4.0J	50	50	56.8	54.8	106	102	75-125	4	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: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

Date: 04/20/2020 02:40 PM

QC Batch: 536101 Analysis Method: EPA 420.4 Rev 1.0 1993

QC Batch Method: EPA 420.4 Rev 1.0 1993 Analysis Description: 420.4 Phenolics

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473016001, 92473016002, 92473016003, 92473016004

METHOD BLANK: 2860123 Matrix: Water

Associated Lab Samples: 92473016001, 92473016002, 92473016003, 92473016004

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Phenol mg/L ND 0.020 0.0050 04/15/20 16:37

LABORATORY CONTROL SAMPLE: 2860124

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Phenol 0.05 0.048 96 90-110 mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860125 2860126

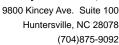
MSD MS 92472806001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result **RPD** RPD Result Conc. Conc. Result % Rec % Rec Limits Qual 10 M1,R1 Phenol mg/L ND 0.05 0.05 0.044 0.049 87 98 90-110 12

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860127 2860128

MS MSD

92473016001 MS MSD MS MSD % Rec Spike Spike Max **RPD** RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits Qual Phenol ND 0.05 0.05 0.049 0.051 90 94 3 10 mg/L 90-110

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: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

QC Batch: 536300 Analysis Method: SM 5310B-2011

QC Batch Method: SM 5310B-2011 Analysis Description: 5310B WVA Nonpurgeable Organic Carbon

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473016001, 92473016002, 92473016003, 92473016004

METHOD BLANK: 2860785 Matrix: Water

Associated Lab Samples: 92473016001, 92473016002, 92473016003, 92473016004

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Nonpurgeable Organic Carbon mg/L ND 1.0 0.50 04/15/20 13:21

LABORATORY CONTROL SAMPLE: 2860786

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Nonpurgeable Organic Carbon mg/L 25 24.4 97 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860787 2860788

MS MSD

92473016001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Result RPD Result Conc. Conc. % Rec % Rec Limits **RPD** Qual Nonpurgeable Organic ND mg/L 25 25 24.4 24.5 97 97 90-110 10

Carbon

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860789 2860790

MS MSD

92473553001 Spike Spike MS MSD MS MSD % Rec Max % Rec RPD Parameter Units Result Conc. Conc. Result Result % Rec Limits **RPD** Qual Nonpurgeable Organic ND 25 25 24.9 98 99 mg/L 24.8 90-110 0 10

Carbon

Date: 04/20/2020 02:40 PM

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.



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

QUALIFIERS

Project: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

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.

ANALYTE QUALIFIERS

Date: 04/20/2020 02:40 PM

- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- R1 RPD value was outside control limits.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy VSWMR-Revised Report

Pace Project No.: 92473016

Date: 04/20/2020 02:40 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92473016001	ED-23R-20200408	EPA 3010A	535965	EPA 6020B	535984
92473016002	ES-3D-20200408	EPA 3010A	535965	EPA 6020B	535984
92473016003	ES-1609-20200408	EPA 3010A	535965	EPA 6020B	535984
92473016004	ES-1613-20200408	EPA 3010A	535965	EPA 6020B	535984
92473016001	ED-23R-20200408	EPA 420.4 Rev 1.0 1993	536101	EPA 420.4 Rev 1.0 1993	536271
92473016002	ES-3D-20200408	EPA 420.4 Rev 1.0 1993	536101	EPA 420.4 Rev 1.0 1993	536271
92473016003	ES-1609-20200408	EPA 420.4 Rev 1.0 1993	536101	EPA 420.4 Rev 1.0 1993	536271
92473016004	ES-1613-20200408	EPA 420.4 Rev 1.0 1993	536101	EPA 420.4 Rev 1.0 1993	536271
92473016001	ED-23R-20200408	SM 5310B-2011	536300		
92473016002	ES-3D-20200408	SM 5310B-2011	536300		
92473016003	ES-1609-20200408	SM 5310B-2011	536300		
92473016004	ES-1613-20200408	SM 5310B-2011	536300		

		Pace Analytical*	Sample Cond	ocumen	on Receipt(5 t No.:	CUR)		ent Revised: Februa Page 1 of 2 Issuing Authority ce Carolinas Quality	:	
Lak	orat	ory receiving samples: Asheville Eden	Greenwood		3-Rev.06 Hun	itersi	ville 🖳	Raleigh	Mechanic	:sville
Co	Upon urler:		Y A cl PS □USPS □Othe		h □Clie	_	# WO#	: 9247 	'3016 	
No.			eals Intact?	 Yes	∏No		924730 Date/Initi	16 als Person Examining	Contents: EA	14/9/20
The	mom	eter: DIR Gun ID: 92T061	Bubble Bags Type of I		wet □BI	her ue	None	Blological Tissu Yes No		
Cool	ler Tei	mp (°C): <u>@ .3 , /-3</u> Correction Fa	ctor: Add/Subtra	ct (°C) _	+0.1	_		e above freezing to out of temp criteria. Sai		ling process
Did s	sample	ulated Soil (N/A, water sample) s originate in a quarantine zone within the	United States: CA	, NY, or So	C (check map)s)?	DId samples orig including Hawall	inate from a foreign so and Puerto Rico}? Comments/Discrep	Yes 🛮 No	nally,
	Chair	of Custody Present?	☑Yes	□No	□N/A	1.				
	Samp	oles Arrived within Hold Time?	Yes	□No	□N/A	2.				
7-		Hold Time Analysis (<72 hr.)?	☐Yes	No	□N/A	3.				3
72	Rush	Turn Around Time Requested?	□Yes	ŪŃ₀	□N/A	4.				
	Suffic	cient Volume?	Ves	□No	□N/A	5.				
		ect Containers Used?	☑Yes	□No	□N/A	6.				
		ace Containers Used?	Ū√es	□No	□n/A	-				
robecom	-	ainers Intact?	ŪÝes □v	□No	□N/A □N/A	7.		***************************************		
		lved analysis: Samples Field Filtered? Die Labels Match COC?	□Yes □Yes		□N/A	9.				
	-Ir	cludes Date/Time/ID/Analysis Matrix:	WT							
		space in VOA Vials (>5-6mm)?	□Yes	PNo	□N/A	10.				
		Blank Present?	□Yes	□No	ØN/A	11.				
l	Trip	Blank Custody Seals Present?	□Yes	□No	ØŃ/A					
C	OMME	INTS/SAMPLE DISCREPANCY		8				Field Data	Required? \(\square\)	es LNo
-						Lo	ot ID of split con	tainers:		
CLI	ENT N	OTIFICATION/RESOLUTION								
P	erson	contacted:			_ Date/Ti	me:			2	
	Proje	ct Manager SCURF Review:	Marie Control Control	_			_ Date:			

Project Manager SRF Review:



Sample Condition Upon Receipt(SCUR)

Document No.: F-CAR-CS-033-Rev.06 Page 1 of 2

Issuing Authority:
Pace Carolinas Quality Office

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

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

Project #

W0#:92473016

PM: PTE

Due Date: 04/23/20

CLIENT: 92-Haley VA

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)	BP45-125 mL Plastic H2SO4 (pH < 2) (CI-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (CI-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (CI-)	AG15-1 liter Amber H2SO4 (pH < 2)	AG35-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGDU-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1						X								1					3										
2						X								/					3										
3						1			-					1					7										
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		pH Ad	justment Log for Pres	erved Samples		
Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #
						-

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

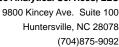


CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: | of 1

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Sec		Section B								S	Section C	ပ								220 V	Villiam F	itt Way	Pittsbu	ırgh, P.	4 15238	220 William Pitt Way, Pittsburgh, PA 15238 (Pace Energy)	_
Red		Required Project Information:	oject l	Inforn	mation:					드	Invoice Information:	forma	tion:							1700	Elm Stre	et SE -	Minne	apolis,	1700 Elm Street SE - Minneapolis, MN 55414	4	
Con	Company: Haley & Aldrich, Inc.	Report To: Wright, Erin	Vrigh	ht, E	irin					ď	Attention:								Γ	7726	7726 Moller Road - Indianapolis, IN 46268	toad - Ir	dianap	olis, IN	46268		
Add	Address: 1 Park West Circle	Copy To:	Chatt	terto	Chatterton, Kelly	<u>></u>				0	Company Name	Name	65							REGULATORY AGENCY	TORY	AGEN	5				
	Suite 208, Midlothian, VA 23114		chat	terto	kchatterton@haleya	-	drich.com			₹	Address:								T	NPDES	ES		GROL	GROUND VT (TER	TER	DRINKING	100
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Phone:	804-419-0012 Fax:	H&A Client Name: Dominion Energ	me:	E	ninion	Energy	y: Possum Point	n Point		ă 2	Pace Project		taylor	taylor.ezell@pacelabs.com	Dace	elabs.	com			Site Location	cation			T			
Red	Requested Due Date/TAT: Standard	H&A Project #:	#	134660	099					ď	Pace Profile #:	# 0	TBD (TBD (9362?)	2				Γ	S	STATE:		\$	1			
Pace Inc.,	Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement #2019-22-Pace by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Pace Analytical Services, Inc.	accordance of	with te	suus	and con	ditionswi	thin Blank	t Service Agr	eement #2019	-22-Pace	by and b	petwee	n Haley	& Aldri	ť,			Seque	sted /	Requested Analysis Filtered (Y/N)	Filtere	N/A) p		L			
	Section D Required Client Information MATRIX / CODE	odes	(fiell of	(AWC			COLL	COLLECTED				"	reser	Preservatives	, s	Î N/A						\vdash					
****		MM ≈ 200 c	see valid codes	-GRAB C=CC		Collection	tion	Sar	Sample Depth		s					1			()		-			(N/A)			
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-	ED-23R-2020 DH08	-	5	5	_	4-8-20	350			İ	\vdash		\vdash	L	_	+	-	1		F	F	\vdash	t	-	6	100	
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VS	VSWMR Metals List: copper, nickel, silver, tin, vanadium, and zinc	Andy		2	Cherringer	200	H+A		92-8-h	3	1730		ω	13	X	E.	3	Zer	enmayare	1	20	8	7	5.0	\$	X	
Spot Not	VWCB Water Quality Pollutant List: phenolics, potassium, iron, manganese, hardness, and sodium.																										
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#5	#2 Compliance Wells and Sentinel Wells									-)	U	7)											zo odily		







April 17, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy CCR Pace Project No.: 92473019

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

Pace Analytical Services - Asheville

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

Sincerely,

Matthew Helton for

Warren Hella

Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092

Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy CCR

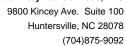
Pace Project No.: 92473019

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Dominion Energy CCR

Pace Project No.: 92473019

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92473019001	ED-23R-20200408	Water	04/08/20 10:36	04/09/20 09:25
92473019002	ES-3D-20200408	Water	04/08/20 12:16	04/09/20 09:25
92473019003	ES-1609-20200408	Water	04/08/20 13:31	04/09/20 09:25
92473019004	ES-1613-20200408	Water	04/08/20 14:46	04/09/20 09:25



SAMPLE ANALYTE COUNT

Project: Dominion Energy CCR

Pace Project No.: 92473019

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92473019001	ED-23R-20200408	EPA 6020B	BG2	14	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	NAL	1	PASI-A
		EPA 9056A	BRJ	3	PASI-A
92473019002	ES-3D-20200408	EPA 6020B	BG2, JOR	14	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	NAL	1	PASI-A
		EPA 9056A	BRJ	3	PASI-A
92473019003	ES-1609-20200408	EPA 6020B	BG2	14	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	NAL	1	PASI-A
		EPA 9056A	BRJ	3	PASI-A
92473019004	ES-1613-20200408	EPA 6020B	BG2	14	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	NAL	1	PASI-A
		EPA 9056A	BRJ	3	PASI-A

PASI-A = Pace Analytical Services - Asheville

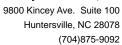


SUMMARY OF DETECTION

Project: Dominion Energy CCR

Pace Project No.: 92473019

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92473019001	ED-23R-20200408					
EPA 6020B	Arsenic	0.14	ug/L	0.10	04/15/20 00:00	
EPA 6020B	Barium	27.7	ug/L	0.30	04/15/20 00:00	
EPA 6020B	Beryllium	0.11	ug/L	0.10	04/15/20 00:00	
EPA 6020B	Boron	18.1J	ug/L	25.0	04/15/20 00:00	
EPA 6020B	Calcium	3660	ug/L	200	04/15/20 00:00	
EPA 6020B	Cobalt	0.054J	ug/L	0.10	04/15/20 00:00	
EPA 6020B	Lithium	8.2	ug/L	2.5	04/15/20 00:00	
SM 2540C-2011	Total Dissolved Solids	100	mg/L	25.0	04/12/20 16:56	
EPA 9056A	Chloride	2.8	mg/L	1.0	04/11/20 17:38	
EPA 9056A	Fluoride	315	ug/L	100	04/11/20 17:38	
EPA 9056A	Sulfate	5.6	mg/L	1.0	04/11/20 17:38	
2473019002	ES-3D-20200408					
EPA 6020B	Antimony	0.16J	ug/L	0.50	04/15/20 00:05	
EPA 6020B	Arsenic	0.71	ug/L	0.10	04/15/20 00:05	
EPA 6020B	Barium	47.0	ug/L	0.30	04/15/20 00:05	
EPA 6020B	Beryllium	0.76	ug/L	0.10	04/15/20 00:05	
EPA 6020B	Boron	732	ug/L	250	04/16/20 14:26	
EPA 6020B	Cadmium	0.79	ug/L	0.080	04/15/20 00:05	
EPA 6020B	Calcium	15000	ug/L	2000	04/16/20 00:18	
EPA 6020B	Chromium	0.55	ug/L	0.50	04/15/20 00:05	
EPA 6020B	Cobalt	35.3	ug/L	0.10	04/15/20 00:05	
EPA 6020B	Lead	0.051J	ug/L	0.10	04/15/20 00:05	
EPA 6020B	Lithium	16.9	ug/L	2.5	04/15/20 00:05	
EPA 6020B	Molybdenum	0.17J	ug/L	0.50	04/15/20 00:05	
EPA 6020B	Selenium	0.20J	ug/L	0.50	04/15/20 00:05	
SM 2540C-2011	Total Dissolved Solids	407	mg/L	25.0	04/12/20 16:56	
EPA 9056A	Chloride	92.6	mg/L	1.0	04/11/20 17:53	
EPA 9056A	Fluoride	221	ug/L	100	04/11/20 17:53	
EPA 9056A	Sulfate	114	mg/L	2.0	04/12/20 09:42	
2473019003	ES-1609-20200408					
EPA 6020B	Arsenic	0.39	ug/L	0.10	04/15/20 00:27	
EPA 6020B	Barium	84.1	ug/L	0.30	04/15/20 00:27	
EPA 6020B	Beryllium	1.0	ug/L	0.10	04/15/20 00:27	
EPA 6020B	Boron	1160	ug/L	500	04/16/20 14:32	
EPA 6020B	Calcium	22700	ug/L	4000	04/16/20 14:32	
EPA 6020B	Cobalt	21.8	ug/L	0.10	04/15/20 00:27	
EPA 6020B	Lithium	13.0	ug/L		04/15/20 00:27	
EPA 6020B	Thallium	0.067J	ug/L	0.10	04/15/20 00:27	
SM 2540C-2011	Total Dissolved Solids	504	mg/L	25.0	04/12/20 16:56	
EPA 9056A	Chloride	190	mg/L	4.0	04/12/20 09:57	
EPA 9056A	Fluoride	74.0J	ug/L	100	04/11/20 18:08	
EPA 9056A	Sulfate	86.1	mg/L	1.0	04/11/20 18:08	
2473019004	ES-1613-20200408					
EPA 6020B	Arsenic	0.28	ug/L	0.10	04/15/20 00:37	
EPA 6020B	Barium	160	ug/L	0.30	04/15/20 00:37	
EPA 6020B	Beryllium	0.35	ug/L	0.10	04/15/20 00:37	





SUMMARY OF DETECTION

Project: Dominion Energy CCR

Pace Project No.: 92473019

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92473019004	ES-1613-20200408					
EPA 6020B	Boron	2200	ug/L	750	04/16/20 14:37	
EPA 6020B	Calcium	36000	ug/L	6000	04/16/20 14:37	
EPA 6020B	Cobalt	4.8	ug/L	0.10	04/15/20 00:37	
EPA 6020B	Lead	0.078J	ug/L	0.10	04/15/20 00:37	
EPA 6020B	Lithium	20.1	ug/L	2.5	04/15/20 00:37	
SM 2540C-2011	Total Dissolved Solids	516	mg/L	25.0	04/12/20 16:56	
EPA 9056A	Chloride	157	mg/L	3.0	04/12/20 10:13	
EPA 9056A	Fluoride	144	ug/L	100	04/11/20 18:23	
EPA 9056A	Sulfate	96.6	mg/L	1.0	04/11/20 18:23	



Project: Dominion Energy CCR

Pace Project No.: 92473019

Date: 04/17/2020 12:44 PM

Sample: ED-23R-20200408	Lab ID:	92473019001	Collected:	04/08/20	10:36	Received: 04/	09/20 09:25 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical I	Method: EPA 6	020B Prepa	ration Metl	nod: EF	PA 3010A			
	Pace Analy	tical Services	- Asheville						
Antimony	ND	ug/L	0.50	0.11	1	04/14/20 00:54	04/15/20 00:00	7440-36-0	
Arsenic	0.14	ug/L	0.10	0.060	1	04/14/20 00:54	04/15/20 00:00	7440-38-2	
Barium	27.7	ug/L	0.30	0.060	1	04/14/20 00:54	04/15/20 00:00	7440-39-3	
Beryllium	0.11	ug/L	0.10	0.050	1	04/14/20 00:54	04/15/20 00:00	7440-41-7	
Boron	18.1J	ug/L	25.0	2.6	1	04/14/20 00:54	04/15/20 00:00	7440-42-8	
Cadmium	ND	ug/L	0.080	0.070	1	04/14/20 00:54	04/15/20 00:00	7440-43-9	
Calcium	3660	ug/L	200	20.6	1	04/14/20 00:54	04/15/20 00:00	7440-70-2	
Chromium	ND	ug/L	0.50	0.42	1	04/14/20 00:54	04/15/20 00:00	7440-47-3	
Cobalt	0.054J	ug/L	0.10	0.050	1	04/14/20 00:54	04/15/20 00:00	7440-48-4	
_ead	ND	ug/L	0.10	0.050	1	04/14/20 00:54	04/15/20 00:00	7439-92-1	
_ithium	8.2	ug/L	2.5	0.42	1	04/14/20 00:54	04/15/20 00:00	7439-93-2	
Molybdenum	ND	ug/L	0.50	0.10	1	04/14/20 00:54	04/15/20 00:00	7439-98-7	
Selenium	ND	ug/L	0.50	0.080	1	04/14/20 00:54	04/15/20 00:00	7782-49-2	
Thallium	ND	ug/L	0.10	0.060	1	04/14/20 00:54	04/15/20 00:00	7440-28-0	
7470 Mercury	Analytical I	Method: EPA 7	470A Prepa	ration Meth	nod: EP	PA 7470A			
•	Pace Analy	tical Services	- Asheville						
Mercury	ND	ug/L	0.20	0.10	1	04/13/20 12:47	04/14/20 19:05	7439-97-6	
2540C Total Dissolved Solids	Analytical I	Method: SM 25	540C-2011						
	Pace Analy	tical Services	- Asheville						
Total Dissolved Solids	100	mg/L	25.0	25.0	1		04/12/20 16:56		
9056 IC anions 28 Days	Analytical I	Method: EPA 9	056A						
	•	tical Services							
Chloride	2.8	mg/L	1.0	0.60	1		04/11/20 17:38	16887-00-6	
Fluoride	315	ug/L	100	50.0	1		04/11/20 17:38		
Sulfate	5.6	mg/L	1.0	0.50	1		04/11/20 17:38		

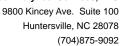


Project: Dominion Energy CCR

Pace Project No.: 92473019

Date: 04/17/2020 12:44 PM

Sample: ES-3D-20200408	Lab ID:	92473019002	Collected:	04/08/20	12:16	Received: 04/	09/20 09:25 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical N	Method: EPA 6	020B Prepa	ration Met	nod: EF	PA 3010A			
	Pace Analy	tical Services	- Asheville						
Antimony	0.16J	ug/L	0.50	0.11	1	04/14/20 00:54	04/15/20 00:05	7440-36-0	
Arsenic	0.71	ug/L	0.10	0.060	1	04/14/20 00:54	04/15/20 00:05	7440-38-2	
Barium	47.0	ug/L	0.30	0.060	1	04/14/20 00:54	04/15/20 00:05	7440-39-3	
Beryllium	0.76	ug/L	0.10	0.050	1	04/14/20 00:54	04/15/20 00:05	7440-41-7	
Boron	732	ug/L	250	25.5	10	04/14/20 00:54	04/16/20 14:26	7440-42-8	
Cadmium	0.79	ug/L	0.080	0.070	1	04/14/20 00:54	04/15/20 00:05	7440-43-9	
Calcium	15000	ug/L	2000	206	10	04/14/20 00:54	04/16/20 00:18	7440-70-2	
Chromium	0.55	ug/L	0.50	0.42	1	04/14/20 00:54	04/15/20 00:05	7440-47-3	
Cobalt	35.3	ug/L	0.10	0.050	1	04/14/20 00:54	04/15/20 00:05	7440-48-4	
_ead	0.051J	ug/L	0.10	0.050	1	04/14/20 00:54	04/15/20 00:05	7439-92-1	
_ithium	16.9	ug/L	2.5	0.42	1	04/14/20 00:54	04/15/20 00:05	7439-93-2	
Molybdenum	0.17J	ug/L	0.50	0.10	1	04/14/20 00:54	04/15/20 00:05	7439-98-7	
Selenium	0.20J	ug/L	0.50	0.080	1	04/14/20 00:54	04/15/20 00:05	7782-49-2	
Γhallium	ND	ug/L	0.10	0.060	1	04/14/20 00:54	04/15/20 00:05	7440-28-0	
7470 Mercury	Analytical N	Method: EPA 7	470A Prepa	ration Metl	nod: EP	'A 7470A			
	Pace Analy	tical Services	- Asheville						
Mercury	ND	ug/L	0.20	0.10	1	04/13/20 12:47	04/14/20 19:13	7439-97-6	
2540C Total Dissolved Solids	Analytical N	Method: SM 25	40C-2011						
	Pace Analy	tical Services	- Asheville						
Total Dissolved Solids	407	mg/L	25.0	25.0	1		04/12/20 16:56		
9056 IC anions 28 Days	Analytical N	Method: EPA 9	056A						
	Pace Analy	tical Services	- Asheville						
Chloride	92.6	mg/L	1.0	0.60	1		04/11/20 17:53	16887-00-6	
Fluoride	221	ug/L	100	50.0	1		04/11/20 17:53	16984-48-8	
Sulfate	114	mg/L	2.0	1.0	2		04/12/20 09:42	14808-79-8	





Project: Dominion Energy CCR

Pace Project No.: 92473019

Date: 04/17/2020 12:44 PM

Sample: ES-1609-20200408	Lab ID:	92473019003	Collected	d: 04/08/20	13:31	Received: 04/	09/20 09:25 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prep	aration Met	hod: Ef	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Antimony	ND	ug/L	0.50	0.11	1	04/14/20 00:54	04/15/20 00:27	7440-36-0	
Arsenic	0.39	ug/L	0.10	0.060	1	04/14/20 00:54	04/15/20 00:27	7440-38-2	
Barium	84.1	ug/L	0.30	0.060	1	04/14/20 00:54	04/15/20 00:27	7440-39-3	
Beryllium	1.0	ug/L	0.10	0.050	1	04/14/20 00:54	04/15/20 00:27	7440-41-7	
Boron	1160	ug/L	500	51.0	20	04/14/20 00:54	04/16/20 14:32	7440-42-8	
Cadmium	ND	ug/L	0.080	0.070	1	04/14/20 00:54	04/15/20 00:27	7440-43-9	
Calcium	22700	ug/L	4000	412	20	04/14/20 00:54	04/16/20 14:32	7440-70-2	
Chromium	ND	ug/L	0.50	0.42	1	04/14/20 00:54	04/15/20 00:27	7440-47-3	
Cobalt	21.8	ug/L	0.10	0.050	1	04/14/20 00:54	04/15/20 00:27	7440-48-4	
_ead	ND	ug/L	0.10	0.050	1	04/14/20 00:54	04/15/20 00:27	7439-92-1	
_ithium	13.0	ug/L	2.5	0.42	1	04/14/20 00:54	04/15/20 00:27	7439-93-2	
Molybdenum	ND	ug/L	0.50	0.10	1	04/14/20 00:54	04/15/20 00:27	7439-98-7	
Selenium	ND	ug/L	0.50	0.080	1	04/14/20 00:54	04/15/20 00:27	7782-49-2	
Γhallium	0.067J	ug/L	0.10	0.060	1	04/14/20 00:54	04/15/20 00:27	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	470A Prep	aration Met	hod: EF	PA 7470A			
	Pace Anal	ytical Services	- Asheville						
Mercury	ND	ug/L	0.20	0.10	1	04/13/20 12:47	04/14/20 19:15	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 25	40C-2011						
	Pace Anal	ytical Services	- Asheville						
Total Dissolved Solids	504	mg/L	25.0	25.0	1		04/12/20 16:56		
9056 IC anions 28 Days	Analytical	Method: EPA 9	056A						
	Pace Anal	ytical Services	- Asheville						
Chloride	190	mg/L	4.0	2.4	4		04/12/20 09:57	16887-00-6	
Fluoride	74.0J	ug/L	100	50.0	1		04/11/20 18:08	16984-48-8	
Sulfate	86.1	mg/L	1.0	0.50	1		04/11/20 18:08	14808-79-8	

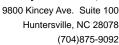


Project: Dominion Energy CCR

Pace Project No.: 92473019

Date: 04/17/2020 12:44 PM

Sample: ES-1613-20200408	Lab ID: 9	92473019004	Collected	d: 04/08/20	14:46	Received: 04/	09/20 09:25 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical N	Method: EPA 6	020B Prepa	aration Met	hod: EF	PA 3010A			
	Pace Analy	tical Services	- Asheville						
Antimony	ND	ug/L	0.50	0.11	1	04/14/20 00:54	04/15/20 00:37	7440-36-0	
Arsenic	0.28	ug/L	0.10	0.060	1	04/14/20 00:54	04/15/20 00:37	7440-38-2	
Barium	160	ug/L	0.30	0.060	1	04/14/20 00:54	04/15/20 00:37	7440-39-3	
Beryllium	0.35	ug/L	0.10	0.050	1	04/14/20 00:54	04/15/20 00:37	7440-41-7	
Boron	2200	ug/L	750	76.5	30	04/14/20 00:54	04/16/20 14:37	7440-42-8	
Cadmium	ND	ug/L	0.080	0.070	1	04/14/20 00:54	04/15/20 00:37	7440-43-9	
Calcium	36000	ug/L	6000	619	30	04/14/20 00:54	04/16/20 14:37	7440-70-2	
Chromium	ND	ug/L	0.50	0.42	1	04/14/20 00:54	04/15/20 00:37	7440-47-3	
Cobalt	4.8	ug/L	0.10	0.050	1	04/14/20 00:54	04/15/20 00:37	7440-48-4	
_ead	0.078J	ug/L	0.10	0.050	1	04/14/20 00:54	04/15/20 00:37	7439-92-1	
_ithium	20.1	ug/L	2.5	0.42	1	04/14/20 00:54	04/15/20 00:37	7439-93-2	
Molybdenum	ND	ug/L	0.50	0.10	1	04/14/20 00:54	04/15/20 00:37		
Selenium	ND	ug/L	0.50	0.080	1	04/14/20 00:54	04/15/20 00:37		
Γhallium	ND	ug/L	0.10	0.060	1	04/14/20 00:54	04/15/20 00:37	7440-28-0	
7470 Mercury	Analytical N	Лethod: EPA 7	470A Prepa	aration Met	hod: EF	PA 7470A			
•	Pace Analy	tical Services	- Asheville						
Mercury	ND	ug/L	0.20	0.10	1	04/13/20 12:47	04/14/20 19:18	7439-97-6	
2540C Total Dissolved Solids	Analytical N	Method: SM 25	540C-2011						
	Pace Analy	tical Services	- Asheville						
Total Dissolved Solids	516	mg/L	25.0	25.0	1		04/12/20 16:56		
9056 IC anions 28 Days	Analytical N	Method: EPA 9	056A						
tota io amono zo bajo	•	tical Services							
Chloride	157	mg/L	3.0	1.8	3		04/12/20 10:13	16887-00-6	
Fluoride	144	ug/L	100	50.0	1		04/11/20 18:23		
Sulfate	96.6	mg/L	1.0	0.50	1		04/11/20 18:23		





Project: Dominion Energy CCR

Pace Project No.: 92473019

Date: 04/17/2020 12:44 PM

QC Batch: 535804 Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473019001, 92473019002, 92473019003, 92473019004

METHOD BLANK: 2858652 Matrix: Water
Associated Lab Samples: 92473019001, 92473019002, 92473019003, 92473019004

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury ug/L ND 0.20 0.10 04/14/20 18:34

LABORATORY CONTROL SAMPLE: 2858653

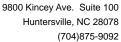
Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Mercury ug/L 2.5 2.6 104 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2858654 2858655

MS MSD

92472807001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec % Rec **RPD** RPD Qual Result Limits ND Mercury ug/L 2.5 2.5 2.5 2.4 101 98 75-125 3 25

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: Dominion Energy CCR

Pace Project No.: 92473019

Date: 04/17/2020 12:44 PM

QC Batch: 535965 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Laboratory: Pace Analytical Services - Asheville

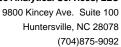
Associated Lab Samples: 92473019001, 92473019002, 92473019003, 92473019004

METHOD BLANK: 2859498 Matrix: Water
Associated Lab Samples: 92473019001, 92473019002, 92473019003, 92473019004

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	ND ND	0.50	0.11	04/14/20 21:46	
Arsenic	ug/L	ND	0.10	0.060	04/14/20 21:46	
Barium	ug/L	ND	0.30	0.060	04/14/20 21:46	
Beryllium	ug/L	ND	0.10	0.050	04/14/20 21:46	
Boron	ug/L	ND	25.0	2.6	04/14/20 21:46	
Cadmium	ug/L	ND	0.080	0.070	04/14/20 21:46	
Calcium	ug/L	ND	200	20.6	04/14/20 21:46	
Chromium	ug/L	ND	0.50	0.42	04/14/20 21:46	
Cobalt	ug/L	ND	0.10	0.050	04/14/20 21:46	
Lead	ug/L	ND	0.10	0.050	04/14/20 21:46	
Lithium	ug/L	ND	2.5	0.42	04/14/20 21:46	
Molybdenum	ug/L	ND	0.50	0.10	04/14/20 21:46	
Selenium	ug/L	ND	0.50	0.080	04/14/20 21:46	
Thallium	ug/L	ND	0.10	0.060	04/14/20 21:46	

LABORATORY CONTROL SAMPLE:	2859499					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	ug/L	50	51.1	102	80-120	
Arsenic	ug/L	10	10.0	100	80-120	
Barium	ug/L	50	49.8	100	80-120	
Beryllium	ug/L	10	10	100	80-120	
Boron	ug/L	50	50.1	100	80-120	
Cadmium	ug/L	10	9.9	99	80-120	
Calcium	ug/L	625	629	101	80-120	
Chromium	ug/L	50	49.3	99	80-120	
Cobalt	ug/L	10	10	100	80-120	
Lead	ug/L	50	48.9	98	80-120	
Lithium	ug/L	50	49.3	99	80-120	
Molybdenum	ug/L	50	49.4	99	80-120	
Selenium	ug/L	50	49.0	98	80-120	
Thallium	ug/L	10	9.8	98	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.





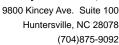
Project: Dominion Energy CCR

Pace Project No.: 92473019

Date: 04/17/2020 12:44 PM

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 2859			2859501							
Parameter	9 Units	2473135001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	RPD	Max RPD	Qual
Farameter	Offics	. ———— -				Resuit	% Kec	% Kec	LIIIIIIS			
Antimony	ug/L	0.18J	50	50	50.8	50.8	101	101	75-125	0	20	
Arsenic	ug/L	0.26	10	10	10.5	10.4	102	102	75-125	0	20	
Barium	ug/L	16.4	50	50	65.5	66.3	98	100	75-125	1	20	
Beryllium	ug/L	ND	10	10	9.8	10	98	99	75-125	1	20	
Boron	ug/L	40.6	50	50	80.8	80.1	80	79	75-125	1	20	
Cadmium	ug/L	ND	10	10	9.8	9.9	98	99	75-125	2	20	
Chromium	ug/L	1.5	50	50	49.7	49.8	96	97	75-125	0	20	
Cobalt	ug/L	0.078J	10	10	9.8	9.8	98	98	75-125	0	20	
Lead	ug/L	0.21	50	50	47.9	48.7	95	97	75-125	2	20	
Lithium	ug/L	1.2J	50	50	49.2	50.1	96	98	75-125	2	20	
Molybdenum	ug/L	0.55	50	50	50.5	50.8	100	100	75-125	0	20	
Selenium	ug/L	0.080J	50	50	47.8	48.1	95	96	75-125	1	20	
Thallium	ug/L	ND	10	10	9.6	9.7	96	97	75-125	1	20	

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Dominion Energy CCR Project:

Pace Project No.: 92473019

QC Batch: 535752 Analysis Method: SM 2540C-2011

QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids

> Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473019001, 92473019002, 92473019003, 92473019004

METHOD BLANK: Matrix: Water

Associated Lab Samples: 92473019001, 92473019002, 92473019003, 92473019004

mg/L

Blank Reporting

MDL Qualifiers Parameter Units Result Limit Analyzed Total Dissolved Solids ND 25.0 25.0 04/12/20 16:56

LABORATORY CONTROL SAMPLE: 2858536

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units **Total Dissolved Solids** mg/L 251 266 106 90-110

SAMPLE DUPLICATE: 2858537

92472792021 Dup Max Parameter Units Result Result **RPD RPD** Qualifiers 1780 **Total Dissolved Solids** 1780 0 mg/L 25

SAMPLE DUPLICATE: 2858538

Date: 04/17/2020 12:44 PM

92473043001 Dup Max RPD RPD Parameter Units Result Result Qualifiers Total Dissolved Solids 640 630 2 mg/L 25

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: Dominion Energy CCR

Pace Project No.: 92473019

Date: 04/17/2020 12:44 PM

QC Batch: 535714 Analysis Method: EPA 9056A

QC Batch Method: EPA 9056A Analysis Description: 9056 IC anions 28 Days

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473019001, 92473019002, 92473019003, 92473019004

METHOD BLANK: 2858402 Matrix: Water

Associated Lab Samples: 92473019001, 92473019002, 92473019003, 92473019004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	04/11/20 16:23	
Fluoride	ug/L	ND	100	50.0	04/11/20 16:23	
Sulfate	mg/L	ND	1.0	0.50	04/11/20 16:23	

LABORATORY CONTROL SAMPLE: 2858403 Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Chloride mg/L 50 49.2 98 90-110 Fluoride ug/L 2500 2600 104 90-110 Sulfate mg/L 50 50.0 100 90-110

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2858	404		2858405							
			MS	MSD								
		92472807001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	27.1	50	50	77.9	79.7	102	105	90-110	2	10	
Fluoride	ug/L	ND	2500	2500	3010	3100	119	123	90-110	3	10	M1
Sulfate	mg/L	60.5	50	50	102	103	83	86	90-110	1	10	M1

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2858	406		2858407							
			MS	MSD								
		2630821006	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	1.8	50	50	54.3	54.6	105	106	90-110	0	10	
Fluoride	ug/L	ND	2500	2500	2930	2960	114	115	90-110	1	10	M1
Sulfate	mg/L	3.7	50	50	57.2	57.3	107	107	90-110	0	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.



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

QUALIFIERS

Project: Dominion Energy CCR

Pace Project No.: 92473019

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.

ANALYTE QUALIFIERS

Date: 04/17/2020 12:44 PM

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy CCR

Pace Project No.: 92473019

Date: 04/17/2020 12:44 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
92473019001	ED-23R-20200408	EPA 3010A	535965	EPA 6020B	535984
92473019002	ES-3D-20200408	EPA 3010A	535965	EPA 6020B	535984
92473019003	ES-1609-20200408	EPA 3010A	535965	EPA 6020B	535984
92473019004	ES-1613-20200408	EPA 3010A	535965	EPA 6020B	535984
92473019001	ED-23R-20200408	EPA 7470A	535804	EPA 7470A	535863
92473019002	ES-3D-20200408	EPA 7470A	535804	EPA 7470A	535863
92473019003	ES-1609-20200408	EPA 7470A	535804	EPA 7470A	535863
92473019004	ES-1613-20200408	EPA 7470A	535804	EPA 7470A	535863
92473019001	ED-23R-20200408	SM 2540C-2011	535752		
92473019002	ES-3D-20200408	SM 2540C-2011	535752		
92473019003	ES-1609-20200408	SM 2540C-2011	535752		
92473019004	ES-1613-20200408	SM 2540C-2011	535752		
92473019001	ED-23R-20200408	EPA 9056A	535714		
92473019002	ES-3D-20200408	EPA 9056A	535714		
92473019003	ES-1609-20200408	EPA 9056A	535714		
92473019004	ES-1613-20200408	EPA 9056A	535714		

	87	Do Sample Cond	cument		scur)	Docum	ent Revised: February Page 1 of 2	7, 2018		
	Pace Analytical"	D	ocumen	t No.:	000111		Issuing Authority:			
		F-CA	R-CS-03	3-Rev.06		Pac	e Carolinas Quality Of	ice		
Lai	boratory receiving samples: Asheville Eden	Greenwood		Hur	ntersvi	ille 🗹	Raleigh	Mechani	csville[
	Sample Condition Upon Receipt Hale	Y A A l.d.	riz	h F		# WO#	:9247		9	
7.2	ourler: Uffed Ex Ui Commercial Pace	PS USPS Other		□Clie	ent	924730	 			
Cust	tody Seal Present? TYes No S	ieals Intact?	∐4Yes	□No		Date/Initia	als Person Examining Cor	tents: EH	14/9/2	0
	rmometer:/	Bubble Bags	□None	e O	ther	□None	Blological Tissue F ☐Yes ☐No ☐N			
	☑IR Gun ID: 92T061		-+ (9C)			C CCC + 42 (27 4) Z				
Cool	oler Temp (°C): <u>© ,3, /-3</u> Correction Fa	ictor: Add/Subtrac	er (°C) _	+0.1	<u> —</u> т		e above freezing to 6°C ut of temp criteria. Sampl		iling process	
	OA Regulated Soil (N/A, water sample) samples originate in a quarantine zone within the Yes No	United States: CA,	NY, or So	C (check map			nate from a foreign source and Puerto Rico)? Yes Comments/Discrepance	₽No	nally,	
ŀ	Chair of Custodi Dunganta	₽Yes			1.		Commency Macrepant	γ.		
+	Chain of Custody Present?	☑Yes ☑Yes	□No	□N/A						
	Samples Arrived within Hold Time? Short Hold Time Analysis (<72 hr.)?	Yes	□No ⊌No	□N/A □N/A	3.					
	Rush Turn Around Time Requested?	Yes	₩ ₀	□N/A	4.		***************************************			
	Sufficient Volume?	☑ Yes	□No	□N/A	5.					
Ī	Correct Containers Used?	☑ Yes	□No	□N/A	6.					
	-Pace Containers Used?	∐√les	□No	□n/a						
	Containers Intact?	Ū√es —	□No	□N/A	7.					emantic con tra
-	Dissolved analysis: Samples Field Filtered? Sample Labels Match COC?	□Yes □Yes	□No □No	ØN/A □N/A	9.					
	SALIDAR RANGO ITTUTAT COOL									
	-Includes Date/Time/ID/Analysis Matrix:	WT								
	Headspace in VOA Vials (>5-6mm)?	□Ves	PINO	□N/A	10.					
	Trip Blank Present?	□Yes	□No	ØN/A	11.					
L	Trip Blank Custody Seals Present?	□Yes	□No	ØŃ/A						j.
-	OMMENTS/SAMPLE DISCREPANCY		6				Fleid Data Red	quired?	es 🗌 No	
_		•			Lot	ID of split cont	ainers:			y
CLIE	ENT NOTIFICATION/RESOLUTION									5
_	The second secon									
Pe	erson contacted:			Date/Ti	me: _					6
	Project Manager SCURF Review:					Date:				
	Project Manager SRF Review:					Date:				



Document Name: Sample Condition Upon Receipt(SCUR)

> Document No.: F-CAR-CS-033-Rev.06

Document Revised: February 7, 2018 Page 1 of 2

Issuing Authority:
Pace Carolinas Quality Office

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

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

Project # WO#: 92473019

PM. PTF

Due Date: 04/30/20

CLIENT: 92-Haley VA

	Rem#	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) (CI-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (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 NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGDU-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	-
1			1		1		X																							
2		1	1		1		X																							
3	3	1	1		1		X																							
4			1		1		X																	-						
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		pH Ad	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 #

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.





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

ō Page:

																		L							
Section A	Section B								တ္တ	Section C	O								100 VVII	am Pitt	way, r	Ittsburg	Ju, PA	5238 (Pa	ZZU WIIIIam Pitt Way, Pittsburgn, PA 15238 (Pace Energy)
Required Client Information:	Required Project Information:	ject In	forma	ation:	_	-			Ī	Invoice Information:	ormatio	:u:						-	1700 EI	n Stree	SE - N	inneap	olis, MN	1700 Elm Street SE - Minneapolis, MN 55414	
. 1	Report To: Wright, Erin	Vright	f, Eri	_		_			¥	Attention:									7726 Moller Road - Indianapolis, IN 46268	oller Ros	ad - Indi	anapol	s, IN 46	1268	
Address: 1 Park West Circle	Copy To: C	hatte	rton,	Chatterton, Kelly					ပိ	Company Name:	Name:							믮	REGULATORY AGENCY	DRY A	GENC				
Suite 208, Midlothian, VA 23114	K	chatte	erton	kchatterton@haleya	ya drich.con	Com			Ą	Address:								LI	NPDES			ROUN	GROUND VT.TER	H.	DRINKING
ö	BSA #:		2	2019-22-Pa	-Pace	_			Pac Re	Pace Quote								디	UST	L		RCRA	LI 4	1	
Fax:	H&A Client Name: Dominion Energy: Possum Point	e: D	omin	non En	ergy: Po:	ssum Pc	ii		Ma	Pace Project Manager:	1	taylor.ezell@pacelabs.com	zell@r	acela	bs.co	El		"	Site Location	tion			-		
Requested Due Date/TAT: Standard	H&A Project #:	#. 1	134660	00		_			Pag	Pace Profile #:	#	TBD (9362?)	362?)					Т	ST	STATE:	7	2			
Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement #2019-22-Pace by and between Haley & Aldrich, its subsidiaries and affiliates and Pace Analytical Services, Inc.	in accordance w Inc.	vith ten	ms an	d condition	ons within E	slanket Sen	rice Agreeme	nt #2019-22	-Pace t	y and be	etween	Haley &	Aldrich,	_		Re	queste	d An	Requested Analysis Filtered (Y/N)	Itered	(N/N)				
Section D Matrix Codes Required Client Information MATRIX / CODE	des		(AIMC		8	COLLECTED	Ω				٦ ۾	Preservatives	atives		ÎN/A	_									
Drinking Water Water Waster Water Product Product Soil/Solid	W W W	see valid codes) 	σ	Collection		Sample Depth								-	isij sig		mpined					(N/X) €		
Sample IDs MUST BE UNIQUE Tissue #			S) BAYT BJAMAS	DATE		E SE	Start Depth (Circle: (feet or or inches) ii	End Depth (Circle: feet or inches)	SAMPLE TEMP AT C	Unpreserved	FONH PSS ² H	HCI	NaOH S ₂ S ₂ S ₉	Methanol Other	tesT sisylsnA	Appx III Anions & Meta	Total Dissolved Solids	3adium 226 & 228 Co					Residual Chlorine	Ce Proje	724730/9 Pace Project No./ Lab
1 ED-23R- 20200408	3	שר	7	4-8-20		354			┝	F	\vdash			\vdash		-	-	×	\vdash	L	L	F	-	9	15
2 ES-3D-20200408	3	ر ا	7	10	-20 1216	91										×	X	×						0	7
3 ES-1609 - 20200408	3) ۲س	C	4-8-24	26 133	31										X	×	X					H	300	23
4 ES-1613-20200408	3	7 10	S	4-8-20		1446			Н					\vdash		×	X	×						00	50
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ADDITIONAL COMMENTS		REL	INOU	RELINQUISHED BY /		AFFILIATION		DATE		TIME			AC	CEPTE	ACCEPTED BY / AFFILIATION	AFFILI	ATION		DATE	=	TIME		SAM	SAMPLE CONDITIONS	SNOIL
Appx III Anions & Metals List: boron, calcium, chloride, fluoride, and sulfate.		30		Ş	Haley	ley a Al	il briet	4-8-20		1736	3	3	Ö	X	asvired	3	are	શ)	00h/h		935	0 2	NN	**	1 to
Appx IV Metals List: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride,						\vdash			\vdash		\vdash									+		1	+	\prod	
And lithium, mercury, and molybdenum. One	-					-	1		-		\dashv			1	1					\dashv		_	-		
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20						š	SIGNATURE of SAMPLER:	SAMPLE	è:	5	1Cc	\nearrow	2/2	k		(MM/	DATE Signed (MM/DD/YY):	2	Š	22				C SE SULY 2016	meS
#1 Compliance Wells and Sentinel Wells)		S .:												







April 20, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy CCR Pace Project No.: 92473551

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 14, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

Pace Analytical Services - Asheville

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

Sincerely,

Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092 Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy CCR

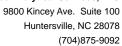
Pace Project No.: 92473551

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Dominion Energy CCR

Pace Project No.: 92473551

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92473551001	ED-24R-20200413	Water	04/13/20 15:30	04/14/20 09:55



SAMPLE ANALYTE COUNT

Project: Dominion Energy CCR

Pace Project No.: 92473551

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92473551001	ED-24R-20200413	EPA 6020B	JOR	14	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	JNS	1	PASI-A
		EPA 9056A	BRJ	3	PASI-A

PASI-A = Pace Analytical Services - Asheville



SUMMARY OF DETECTION

Project: Dominion Energy CCR

Pace Project No.: 92473551

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers						
92473551001	ED-24R-20200413	ED-24R-20200413										
EPA 6020B	Barium	13.5	ug/L	1.5	04/16/20 19:50	M1						
EPA 6020B	Calcium	1700	ug/L	1000	04/16/20 19:50	M1						
EPA 6020B	Chromium	2.7	ug/L	2.5	04/16/20 19:50							
EPA 6020B	Cobalt	0.34J	ug/L	0.50	04/16/20 19:50							
SM 2540C-2011	Total Dissolved Solids	58.0	mg/L	25.0	04/17/20 16:16							
EPA 9056A	Chloride	2.3	mg/L	1.0	04/16/20 04:05	M1,R1						
EPA 9056A	Fluoride	60.0J	ug/L	100	04/16/20 04:05	M1,R1						
EPA 9056A	Sulfate	2.7	mg/L	1.0	04/16/20 04:05	M1,R1						

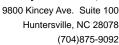


Project: Dominion Energy CCR

Pace Project No.: 92473551

Date: 04/20/2020 04:31 PM

Sample: ED-24R-20200413	Lab ID:	92473551001	Collected	: 04/13/20	15:30	Received: 04/	14/20 09:55 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical I	Method: EPA 6	020B Prepa	ration Met	hod: EF	PA 3010A			
	Pace Analy	tical Services	- Asheville						
Antimony	ND	ug/L	2.5	0.55	5	04/15/20 01:08	04/16/20 19:50	7440-36-0	
Arsenic	ND	ug/L	0.50	0.30	5	04/15/20 01:08	04/16/20 19:50	7440-38-2	
Barium	13.5	ug/L	1.5	0.30	5	04/15/20 01:08	04/16/20 19:50	7440-39-3	M1
Beryllium	ND	ug/L	0.50	0.25	5	04/15/20 01:08	04/16/20 19:50	7440-41-7	
Boron	ND	ug/L	125	12.8	5	04/15/20 01:08	04/16/20 19:50	7440-42-8	M1
Cadmium	ND	ug/L	0.40	0.35	5	04/15/20 01:08	04/16/20 19:50	7440-43-9	
Calcium	1700	ug/L	1000	103	5	04/15/20 01:08	04/16/20 19:50	7440-70-2	M1
Chromium	2.7	ug/L	2.5	2.1	5	04/15/20 01:08	04/16/20 19:50	7440-47-3	
Cobalt	0.34J	ug/L	0.50	0.25	5	04/15/20 01:08	04/16/20 19:50	7440-48-4	
Lead	ND	ug/L	0.50	0.25	5	04/15/20 01:08	04/16/20 19:50	7439-92-1	M1
Lithium	ND	ug/L	12.5	2.1	5	04/15/20 01:08	04/16/20 19:50	7439-93-2	
Molybdenum	ND	ug/L	2.5	0.50	5	04/15/20 01:08	04/16/20 19:50	7439-98-7	
Selenium	ND	ug/L	2.5	0.40	5	04/15/20 01:08	04/16/20 19:50	7782-49-2	
Thallium	ND	ug/L	0.50	0.30	5	04/15/20 01:08	04/16/20 19:50	7440-28-0	
7470 Mercury	Analytical I	Method: EPA 7	470A Prepa	ration Met	nod: EF	PA 7470A			
	Pace Analy	tical Services	- Asheville						
Mercury	ND	ug/L	0.20	0.10	1	04/20/20 10:40	04/20/20 15:55	7439-97-6	
2540C Total Dissolved Solids	Analytical I	Method: SM 25	540C-2011						
	Pace Analy	tical Services	- Asheville						
Total Dissolved Solids	58.0	mg/L	25.0	25.0	1		04/17/20 16:16		
9056 IC anions 28 Days	Analytical	Method: EPA 9	056A						
,		tical Services							
Chloride	2.3	mg/L	1.0	0.60	1		04/16/20 04:05	16887-00-6	M1,R1
Fluoride	60.0J	ug/L	100	50.0	1		04/16/20 04:05		M1,R1
Sulfate	2.7	mg/L	1.0	0.50	1		04/16/20 04:05		M1,R1





Dominion Energy CCR Project:

Pace Project No.: 92473551

QC Batch:

537073 QC Batch Method: EPA 7470A Analysis Method:

EPA 7470A

Analysis Description:

7470 Mercury

Laboratory:

Pace Analytical Services - Asheville

0.10

Associated Lab Samples: 92473551001

METHOD BLANK:

Matrix: Water

Associated Lab Samples: 92473551001

Parameter

LABORATORY CONTROL SAMPLE:

Parameter

ND

Blank Result Reporting Limit

MDL

Analyzed

04/20/20 15:50

Qualifiers

Mercury

2864578

Units

ug/L

Spike

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Mercury

Units ug/L

Conc. 2.5

0.20

80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

2864579

MSD

MS

MS

MSD Result

MS % Rec

MSD % Rec

% Rec

Max RPD

2

25

Qual

Mercury

92473551001 Parameter Units Result ND ug/L

Spike Spike Conc. Conc. 2.5 2.5

Result 2.8

2864580

2.8

2.8

114

114

Limits 111 75-125

RPD

Date: 04/20/2020 04:31 PM

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.

800 Kincey Ave. Suite 100 Huntersville, NC 28078 (704)875-9092



QUALITY CONTROL DATA

Project: Dominion Energy CCR

Pace Project No.: 92473551

Date: 04/20/2020 04:31 PM

QC Batch: 536213 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473551001

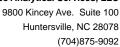
METHOD BLANK: 2860598 Matrix: Water

Associated Lab Samples: 92473551001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers	
Antimony	ug/L	0.33J	0.50	0.11	04/16/20 17:06	BC	
Arsenic	ug/L	ND	0.10	0.060	04/16/20 17:06		
Barium	ug/L	ND	0.30	0.060	04/16/20 17:06		
Beryllium	ug/L	ND	0.10	0.050	04/16/20 17:06		
Boron	ug/L	ND	25.0	2.6	04/16/20 17:06		
Cadmium	ug/L	ND	0.080	0.070	04/16/20 17:06		
Calcium	ug/L	ND	200	20.6	04/16/20 17:06		
Chromium	ug/L	ND	0.50	0.42	04/16/20 17:06		
Cobalt	ug/L	ND	0.10	0.050	04/16/20 17:06		
_ead	ug/L	ND	0.10	0.050	04/16/20 17:06		
_ithium	ug/L	ND	2.5	0.42	04/16/20 17:06		
Molybdenum	ug/L	ND	0.50	0.10	04/16/20 17:06		
Selenium	ug/L	ND	0.50	0.080	04/16/20 17:06		
Thallium	ug/L	ND	0.10	0.060	04/16/20 17:06		

LABORATORY CONTROL SAMPLE:	2860599					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	ug/L	50	53.1	106	80-120	
Arsenic	ug/L	10	10.3	103	80-120	
Barium	ug/L	50	50.9	102	80-120	
Beryllium	ug/L	10	10.0	100	80-120	
Boron	ug/L	50	49.7	99	80-120	
Cadmium	ug/L	10	10.3	103	80-120	
Calcium	ug/L	625	634	102	80-120	
Chromium	ug/L	50	51.0	102	80-120	
Cobalt	ug/L	10	10.1	101	80-120	
Lead	ug/L	50	50.6	101	80-120	
Lithium	ug/L	50	50.3	101	80-120	
Molybdenum	ug/L	50	50.4	101	80-120	
Selenium	ug/L	50	51.5	103	80-120	
Thallium	ug/L	10	10.3	103	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: Dominion Energy CCR

Pace Project No.: 92473551

Date: 04/20/2020 04:31 PM

MATRIX SPIKE & MATRIX	SPIKE DUPLI	CATE: 2860	MS	MSD	2860601							
		92473551001	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	50	50	40.9	43.4	82	87	75-125	6	20	
Arsenic	ug/L	ND	10	10	7.9	8.7	78	86	75-125	10	20	
Barium	ug/L	13.5	50	50	49.8	52.0	73	77	75-125	4	20	M1
Beryllium	ug/L	ND	10	10	7.6	8.0	75	79	75-125	5	20	
Boron	ug/L	ND	50	50	40.8J	47.0J	73	86	75-125		20	M1
Cadmium	ug/L	ND	10	10	7.9	8.6	79	86	75-125	8	20	
Calcium	ug/L	1700	625	625	1970	2120	43	66	75-125	7	20	M1
Chromium	ug/L	2.7	50	50	41.8	43.9	78	83	75-125	5	20	
Cobalt	ug/L	0.34J	10	10	8.3	8.7	79	84	75-125	5	20	
Lead	ug/L	ND	50	50	37.3	39.0	74	78	75-125	4	20	M1
Lithium	ug/L	ND	50	50	39.1	40.8	76	80	75-125	4	20	
Molybdenum	ug/L	ND	50	50	39.4	41.0	79	82	75-125	4	20	
Selenium	ug/L	ND	50	50	38.2	40.1	76	80	75-125	5	20	
Thallium	ug/L	ND	10	10	7.7	8.1	77	80	75-125	5	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: Dominion Energy CCR

Pace Project No.: 92473551

QC Batch: 536807 Analysis Method: SM 2540C-2011

QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473551001

METHOD BLANK: 2863181 Matrix: Water

Associated Lab Samples: 92473551001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Total Dissolved Solids mg/L ND 25.0 25.0 04/17/20 16:13

LABORATORY CONTROL SAMPLE: 2863182

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

SAMPLE DUPLICATE: 2863183

92473694002 Dup Max Parameter Units Result Result **RPD RPD** Qualifiers 67.0 **Total Dissolved Solids** mg/L 6 63.0 25

SAMPLE DUPLICATE: 2863184

Date: 04/20/2020 04:31 PM

92473843004 Dup Max RPD RPD Parameter Units Result Result Qualifiers 25 Total Dissolved Solids 449 mg/L 445 1

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: Dominion Energy CCR

Pace Project No.: 92473551

Date: 04/20/2020 04:31 PM

QC Batch: 536463 Analysis Method:

QC Batch Method: EPA 9056A Analysis Description: 9056 IC anions 28 Days

Laboratory: Pace Analytical Services - Asheville

EPA 9056A

Associated Lab Samples: 92473551001

METHOD BLANK: 2861750 Matrix: Water

Associated Lab Samples: 92473551001

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND ND	1.0	0.60	04/16/20 03:37	
Fluoride	ug/L	ND	100	50.0	04/16/20 03:37	
Sulfate	mg/L	ND	1.0	0.50	04/16/20 03:37	

LABORATORY CONTROL SAMPLE:	2861751					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L		51.8	104	90-110	
Fluoride	ug/L	2500	2270	91	90-110	
Sulfate	ma/l	50	52.7	105	90-110	

MATRIX SPIKE & MATRIX SP	IKE DUPL	LICATE: 2861	752		2861753							
			MS	MSD								
		92473551001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	2.3	50	50	61.0	52.7	117	101	90-110	15	10	M1,R1
Fluoride	ug/L	60.0J	2500	2500	4120	3080	163	121	90-110	29	10	M1,R1
Sulfate	mg/L	2.7	50	50	63.9	54.1	123	103	90-110	17	10	M1,R1

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2861	754		2861755							
			MS	MSD								
		2630891015	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	53.1	52.9	100	100	90-110	0	10	
Fluoride	ug/L	ND	2500	2500	2420	2450	96	97	90-110	1	10	
Sulfate	mg/L	2.3	50	50	53.1	52.9	102	101	90-110	0	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.



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

QUALIFIERS

Project: Dominion Energy CCR

Pace Project No.: 92473551

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.

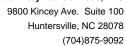
ANALYTE QUALIFIERS

Date: 04/20/2020 04:31 PM

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.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

R1 RPD value was outside control limits.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy CCR

Pace Project No.: 92473551

Date: 04/20/2020 04:31 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92473551001	ED-24R-20200413	EPA 3010A	536213	EPA 6020B	536222
92473551001	ED-24R-20200413	EPA 7470A	537073	EPA 7470A	537132
92473551001	ED-24R-20200413	SM 2540C-2011	536807		
92473551001	ED-24R-20200413	EPA 9056A	536463		

	The Analysical	Sample Condition Up	on Receipt(SCUR)		Page 1 of 2			
	Pace Analytical*	Documen				Issuing Authority:			
		F-CAR-CS-03	3-Rev.06		Pace	e Carolinas Quality	Office	j	
Lai	boratory receiving samples:								
	Asheville Eden	Greenwood	Hur	ntersville	· []	Raleigh	Mechani	csville[
					_				
	Sample Condition Upon Receipt Client Name: Half ut	Aldrich	P	roject#	WO#	:9247	3552	L	
-	urler: Fed Ex U	PS USPS Other:	Clie	ent	9247355				
Cust	tody Seal Present? Yes No S	eals Intact? Yes	TNO		Date/Initia	ls Person Examining	Contents:	K 4-10	420
Pack	ding Material: Bubble Wrap	Bubble Bags None	e 🗌 Ot	her		Biological Tissu	e Frozen?		
The	rmometer:	Type of ice:	Wet DB	ue D	None	Yes No	N/A		
	□IR Gun ID: 92T061	1750 01 1001			10110				
Coo	ler Temp (°C): 1.9 Correction Fa	ctor: Add/Subtract (°C)	+0.1	— тог	an should be	above freezing to 6	s°C		
Cool	ler Temp Corrected (°C):					it of temp criteria. Sar		iling process	
	_/				has begun				
	A Regulated Soil (N/A, water sample) samples originate in a quarantine zone within the Yes No	United States: CA, NY, or So	C (check map		uding Hawall a	nate from a foreign so and Puerto Rico)?	res No	nally,	
}						Comments/Discrepa	ancy:		
-	Chain of Custody Present?	Yes No	□N/A	1.					
l	Samples Arrived within Hold Time?	□¥es □No	□N/A	2.					
- [Short Hold Time Analysis (<72 hr.)?	□Yes □No	□n/a	3.					
	Rush Turn Around Time Requested?	Yes No	□N/A	4.			· ·		
	Sufficient Volume?	Yes No	□N/A	5.					
ı	Correct Containers Used?	ØYes □No	□N/A	6.					
	-Pace Containers Used?	☑Yes □No	□N/A						
-	Containers Intact?	√Yes □No	□N/A	7.		1		-	
	Dissolved analysis: Samples Field Filtered?	☐Yes ☐No	□N/A	8.	-				
	Sample Labels Match COC?	□Yes □No	□N/A	9.			11		
_		*******************************							
	-includes Date/Time/ID/Analysis Matrix:	WT							
	Headspace in VOA Vials (>5-6mm)?	□Yes □No	□N/A	10.					
	Trip Blank Present?	Yes No	□N/A	11.					
	Trip Blank Custody Seals Present?	□Yes □No	DN/A						
L	The blonk custody scalar resent:		Linin	L					
CC	DMMENTS/SAMPLE DISCREPANCY					Field Data	Required?	es No	
		•							
_				Latin	a\$ aultaa.				
CLIE	NT NOTIFICATION/RESOLUTION			בטנוט	of split conta	יב ואוונו			
Pe	erson contacted:		Date/Ti	me:					
	Project Manager SCURF Review:				Date:				
3	Project Manager SRF Review:				Date:				
	alass monotes and treatests								

Document No.: F-CAR-CS-033-Rev.06

Issuing Authority: Pace Carolinas Quality Office

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

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

Project

W0#:92473551

PM: PTE

Due Date: 05/05/20

CLIENT: 92-Haley VA

	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) (CI-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (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 Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGDU-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1	3	3		3		3						=		1															
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		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 #

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.





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

ō Page: /

						_																					
Section A		Section B	gasee			_				٠,	Section C	o u									220 Will	iam Pitt	Way,	Pittsbu	rgh, P/	15238 (220 William Pitt Way, Pittsburgh, PA 15238 (Pace Energy)
Required Client Information:		Required Project Information:	roject	Inform	nation:					-	Invoice Information:	Inform	ation:								1700 EII	n Stree	t SE - I	dinnea	polis, I	1700 Elm Street SE - Minneapolis, MN 55414	
Company: Haley & Aldrich, Inc.		Report To: Wright, Erin	Wrig	Ħ, Ē	Ë	-				_	Attention:	ä								_	7726 Moller Road - Indianapolis, IN 46268	oller Ro	ad - Ind	lianapo	NI 'silo	46268	
Address: 1 Park West Circle		Copy To:	Chat	tertor	Chatterton, Kelly						Company Name:	ny Nan	ne:							뿞	REGULATORY AGENCY	DRY A	GENC	>			
Suite 208, Midlothian, VA 23114	nian, VA 23114		kchat	tterto	kchatterton@haleyaldrich.com	eyaldric	h.com				Address:	,,,						-		니	NPDES	ı		SROU	GROUND VINTER	TER	DRINKING
Email To: ewright@haleyaldrich.com		BSA#:		.,	2019-22-Pace	2-Pace					Pace Quote Reference:	ote e:								니	UST			RCRA	R R		
Phone: 804-419-0012 Fax		H&A Client Name:		Domi	inion Er	ergy: F	Dominion Energy: Possum Point	Point		u 2	ace Pro	ject	taylo	r.eze	taylor.ezell@pacelabs.com	celab	s.con			0"	Site Location	tion		_			
Requested Due Date/TAT:	Standard	H&A Project #:	#	134660	99						Pace Profile #:	file #:	TBD	TBD (9362?)	22)						STATE:	TE:		4	1		
Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Ser Inc., its subsidiaries and affiliates and Pace Analytical Services, Inc.	Custody shall be performed in nd Pace Analytical Services, In	accordance c.	with to	erms a	and condit	ions withi	in Blanket	Service Agre	vice Agreement #2019-22-Pace by and botween Haley & Aldrich,	-22-Pac	by and	d betwe	en Hale	ay & Alc	Jrich,			Req	ueste	d Ans	Requested Analysis Filtered (Y/N)	Itered	(V/N)		L		
Section D Required Client Information	Matrix Codes	des	(fiel of	(AMC)			COLLECT	TED					Preservatives	ervati	sex		ÎN/A							_			
	Drinking Water Water Waste Water Product Soil/Soild	W M M M	see valid codes))=3 8A99=	0	Collection	5	San	Sample Depth	ОГГЕСТІОИ	S									poulgu					(N/A) €		
SAMPLE ID SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE		AR STO) BOD XIBTAM	S) BAYT BJAMAS	DATE		TIME	Start Depth (Circle: feet or inches)	End Depth (Circle: feet or inches)	SAMPLE TEMP AT	# OF CONTAINER	Unpreserved Unpreserved	[€] ONH	NgOH HCI	Na ₂ S ₂ O ₃ Methanol	Other	teeT sisylsnA↓ sppx III xqqA	tei∆ Metals List	Total Dissolved Solids Radium 226 & 228 Co	00 077 N 077 UININN					Residual Chlorine	25 Pace Pr	RAY 3551 Pace Project No.1 Lab
1 ED-24R-20	20200413		13	5	4-13-20	-	1530				T	\vdash		\vdash			F	٠.	×	X				\vdash		0	100
2 ED-242-20	- 20200413 MS		1	_	-	_	_					_		_				×	×	<i>y</i>							
3 ED-24R-20	20200413 MSD		->	-\$	÷	_	- b										1	×	X	0							
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Appx III Anions & Metals List: boron, calcium, chloride, fluoride, and sulfate.	list: boron, calcium, ate.	And	7	777	Skoissaf		11 4 A		4-13-20	3	1730	٥		X	0	2	2	3	7		261.4	9	556	-	6.	6	(www.x
Appx IV Metals List: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium,	idny, arsenic, barium, nium, cobalt, fluoride, lybdenum, selenium,																										
ege thallium.						0)	SAMPLE	NAME A	SAMPLER NAME AND SIGNATURE	TURE															J.	y	tast
16 of 16		Ī						PRINT Nar	PRINT Name of SAMPLER: SIGNATURE of SAMPLER:	LER:	4	1	St.	Secrity	2			DATE	DATE Signed	7	13-27	6		П	ni qmaT	Custod oO belseS (N/Y)	ni zəlqmisi (V/V)
#1 Compliance Wells and Sentinel Wells	Sentinel Wells											V	17	1			1	(MIN/	יודושנ	1)	3		1	1	20 July	2016
	200					_	_																				



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



April 23, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy VSWMR

Pace Project No.: 92473553

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 14, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Asheville

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

Sincerely,

Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092

Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy VSWMR

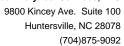
Pace Project No.: 92473553

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Dominion Energy VSWMR

Pace Project No.: 92473553

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92473553001	ED-24R-20200413	Water	04/13/20 15:30	04/14/20 09:55



SAMPLE ANALYTE COUNT

Project: Dominion Energy VSWMR

Pace Project No.: 92473553

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92473553001	ED-24R-20200413	EPA 6020B	BG2	11	PASI-A
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A
		SM 5310B-2011	ECH	1	PASI-A

PASI-A = Pace Analytical Services - Asheville





SUMMARY OF DETECTION

Project: Dominion Energy VSWMR

Pace Project No.: 92473553

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92473553001	ED-24R-20200413					
EPA 6020B	Copper	0.96	ug/L	0.50	04/22/20 16:33	
EPA 6020B	Iron	109	ug/L	50.0	04/22/20 16:33	
EPA 6020B	Manganese	9.7	ug/L	0.50	04/22/20 16:33	
EPA 6020B	Nickel	1.3	ug/L	0.50	04/22/20 16:33	
EPA 6020B	Potassium	2400	ug/L	500	04/22/20 19:27	
EPA 6020B	Sodium	1990J	ug/L	2500	04/22/20 19:27	
EPA 6020B	Hardness, Total(SM 2340B)	9070	ug/L	541	04/22/20 16:33	
EPA 6020B	Vanadium	0.28J	ug/L	0.30	04/22/20 16:33	
EPA 6020B	Zinc	4.4J	ug/L	5.0	04/22/20 16:33	



ANALYTICAL RESULTS

Project: Dominion Energy VSWMR

Pace Project No.: 92473553

Date: 04/23/2020 06:55 AM

Sample: ED-24R-20200413	Lab ID:	92473553001	Collected	1: 04/13/20	15:30	Received: 04/	14/20 09:55 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: EF	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Copper	0.96	ug/L	0.50	0.23	1	04/22/20 02:14	04/22/20 16:33	7440-50-8	
Iron	109	ug/L	50.0	7.5	1	04/22/20 02:14	04/22/20 16:33	7439-89-6	
Manganese	9.7	ug/L	0.50	0.14	1	04/22/20 02:14	04/22/20 16:33	7439-96-5	
Nickel	1.3	ug/L	0.50	0.11	1	04/22/20 02:14	04/22/20 16:33	7440-02-0	
Potassium	2400	ug/L	500	61.9	10	04/22/20 02:14	04/22/20 19:27	7440-09-7	
Silver	ND	ug/L	0.40	0.050	1	04/22/20 02:14	04/22/20 16:33	7440-22-4	
Sodium	1990J	ug/L	2500	143	10	04/22/20 02:14	04/22/20 19:27	7440-23-5	
Tin	ND	ug/L	0.50	0.090	1	04/22/20 02:14	04/22/20 16:33	7440-31-5	
Hardness, Total(SM 2340B)	9070	ug/L	541	70.1	1	04/22/20 02:14	04/22/20 16:33		
Vanadium	0.28J	ug/L	0.30	0.12	1	04/22/20 02:14	04/22/20 16:33	7440-62-2	
Zinc	4.4J	ug/L	5.0	1.1	1	04/22/20 02:14	04/22/20 16:33	7440-66-6	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	paratio	n Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Anal	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/20/20 09:55	04/20/20 13:48	108-95-2	
5310B WVA Nonpurgeable Organic	Analytical	Method: SM 53	310B-2011						
-	Pace Anal	ytical Services	- Asheville						
Nonpurgeable Organic Carbon	ND	mg/L	1.0	0.50	1		04/15/20 22:44	7440-44-0	



Project: Dominion Energy VSWMR

Pace Project No.: 92473553

QC Batch: 537477
QC Batch Method: EPA 3010A

Analysis Method: EPA 6020B

Analysis Description: 6020 MET

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473553001

METHOD BLANK: 2866333

Date: 04/23/2020 06:55 AM

Matrix: Water

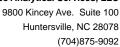
Associated Lab Samples: 92473553001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Copper	ug/L	ND ND	0.50	0.23	04/22/20 12:37	
Hardness, Total(SM 2340B)	ug/L	ND	541	70.1	04/22/20 12:37	
Iron	ug/L	ND	50.0	7.5	04/22/20 12:37	
Manganese	ug/L	ND	0.50	0.14	04/22/20 12:37	
Nickel	ug/L	ND	0.50	0.11	04/22/20 12:37	
Potassium	ug/L	7.2J	50.0	6.2	04/22/20 12:37	
Silver	ug/L	ND	0.40	0.050	04/22/20 12:37	
Sodium	ug/L	ND	250	14.3	04/22/20 12:37	
Tin	ug/L	ND	0.50	0.090	04/22/20 12:37	
Vanadium	ug/L	ND	0.30	0.12	04/22/20 12:37	
Zinc	ug/L	ND	5.0	1.1	04/22/20 12:37	

LABORATORY CONTROL SAMPLE:	2866334					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Copper	ug/L	50	52.8	106	80-120	
Hardness, Total(SM 2340B)	ug/L		4390			
Iron	ug/L	625	626	100	80-120	
Manganese	ug/L	50	52.6	105	80-120	
Nickel	ug/L	50	52.5	105	80-120	
Potassium	ug/L	625	663	106	80-120	
Silver	ug/L	25	25.5	102	80-120	
Sodium	ug/L	625	652	104	80-120	
Tin	ug/L	50	51.4	103	80-120	
Vanadium	ug/L	50	51.7	103	80-120	
Zinc	ug/L	50	51.8	104	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPI	LICATE: 2866	335 MS	MSD	2866336							
		92473553001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Copper	ug/L	0.96	50	50	53.9	54.1	106	106	75-125	0	20	
Hardness, Total(SM 2340B)	ug/L	9070			13800	13600				1	20	
Iron	ug/L	109	625	625	735	739	100	101	75-125	1	20	
Manganese	ug/L	9.7	50	50	61.9	62.3	104	105	75-125	1	20	
Nickel	ug/L	1.3	50	50	53.6	53.6	105	105	75-125	0	20	
Potassium	ug/L	2400	625	625	3010	2970	99	92	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.





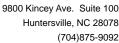
Project: Dominion Energy VSWMR

Pace Project No.: 92473553

Date: 04/23/2020 06:55 AM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 2866	335 MS	MSD	2866336							
Parameter	9 Units	2473553001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Silver	ug/L	ND	25	25	26.0	26.1	104	104	75-125		20	
Sodium	ug/L	1990J	625	625	2660	2640	108	105	75-125	1	20	
Tin	ug/L	ND	50	50	52.3	52.4	104	105	75-125	0	20	
Vanadium	ug/L	0.28J	50	50	52.8	53.3	105	106	75-125	1	20	
Zinc	ug/L	4.4J	50	50	55.0	56.4	101	104	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.





Project: Dominion Energy VSWMR

Pace Project No.: 92473553

QC Batch: 537059

QC Batch Method: EPA 420.4 Rev 1.0 1993

Analysis Method:

EPA 420.4 Rev 1.0 1993

Analysis Description: 420.4 Phenolics

Laboratory:

Pace Analytical Services - Asheville

Associated Lab Samples: 92473553001

METHOD BLANK: 2864517

Phenol

Date: 04/23/2020 06:55 AM

Matrix: Water

Associated Lab Samples: 92473553001

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Phenol mg/L ND 0.020 0.0050 04/20/20 13:38

LABORATORY CONTROL SAMPLE: 2864518

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units 0.05 0.050 101 90-110 mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2864519 2864520

MS MSD

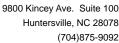
92473041001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Result Result % Rec % Rec **RPD** RPD Qual Result Conc. Limits 10 M1 Phenol mg/L ND 0.05 0.05 0.059 0.060 110 111 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2864521 2864522

MS MSD

92473553001 MS MSD MS MSD % Rec Spike Spike Max **RPD** RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits Qual Phenol 94 9 ND 0.05 0.05 0.047 0.051 102 10 mg/L 90-110

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.





Dominion Energy VSWMR Project:

Pace Project No.: 92473553

QC Batch: 536300 Analysis Method: SM 5310B-2011

QC Batch Method: SM 5310B-2011 Analysis Description: 5310B WVA Nonpurgeable Organic Carbon

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473553001

METHOD BLANK: 2860785 Matrix: Water

Associated Lab Samples: 92473553001

> Blank Reporting MDL Qualifiers Parameter Units Result Limit Analyzed

Nonpurgeable Organic Carbon ND 1.0 0.50 04/15/20 13:21 mg/L

LABORATORY CONTROL SAMPLE: 2860786

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Nonpurgeable Organic Carbon 25 24.4 97 90-110 mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860787 2860788

MSD MS 92473016001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Result Result **RPD** RPD Result Conc. % Rec % Rec Limits Qual Nonpurgeable Organic ND mg/L 25 25 24.4 24.5 97 97 90-110 0 10

mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860789 2860790 MS MSD 92473553001 Spike Spike MS MSD MS MSD % Rec Max % Rec RPD Parameter Units Result Conc. Conc. Result Result % Rec Limits **RPD** Qual Nonpurgeable Organic ND 25 25 24.8 24.9 98 99 90-110 10 0

Carbon

Date: 04/23/2020 06:55 AM

Carbon

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.



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

QUALIFIERS

Project: Dominion Energy VSWMR

Pace Project No.: 92473553

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.

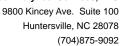
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 04/23/2020 06:55 AM

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy VSWMR

Pace Project No.: 92473553

Date: 04/23/2020 06:55 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92473553001	ED-24R-20200413	EPA 3010A	537477	EPA 6020B	537485
92473553001	ED-24R-20200413	EPA 420.4 Rev 1.0 1993	537059	EPA 420.4 Rev 1.0 1993	537103
92473553001	ED-24R-20200413	SM 5310B-2011	536300		

Document Revised: February 7, 2018 Document Name: Sample Condition Upon Receipt(SCUR) Page 1 of 2 ace Analytical Document No.: Issuing Authority: F-CAR-CS-033-Rev.06 Pace Carolinas Quality Office Laboratory receiving samples: Raleigh Mechanicsville Asheville Eden Greenwood Huntersville WO#:92473553 Sample Condition Client Name: Courler: Fed Ex Client Other: Commercial SR 4-14-8 No Yes Seals Intact? No **Custody Seal Present?** Yes Date/initials Person Examining Contents: Bubble Wrap Bubble Bags Biological Tissue Frozen? Packing Material: None Other Yes No NA Thermometer: Type of Ice: ₩et Blue None 92T061 IR Gun ID: Correction Factor: Add/Subtract (°C) __+0.1 Cooler Temp (°C): Temp should be above freezing to 6°C Cooler Temp Corrected (°C): Samples out of temp criteria. Samples on Ice, cooling process has begun USDA Regulated Soil (N/A, water sample) Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? DId samples originate from a foreign source (internationally, ☐Yes ☐No including Hawall and Puerto Rico)? Yes Comments/Discrepancy: Chain of Custody Present? Ves □No □N/A □N/A 2. Samples Arrived within Hold Time? Ves No Short Hold Time Analysis (<72 hr.)? DNO □N/A 3. Rush Turn Around Time Requested? ☐Yes No □N/A 4. Yes □N/A Sufficient Volume? □No 6. Correct Containers Used? Yes □No □N/A □No □N/A -Pace Containers Used? **☑**Yes Yes No □N/A Containers Intact? Dissolved analysis: Samples Field Filtered? Yes □No DN/A 8. □N/A 9. Sample Labels Match COC? Ves □No -Includes Date/Time/ID/Analysis Matrix: DNO 10. Headspace in VOA Vials (>5-6mm)? □N/A Trip Blank Present? No □N/A 11. Trip Blank Custody Seals Present? □No DNYA Yes Field Data Required? Yes No COMMENTS/SAMPLE DISCREPANCY

CLIENT NOTIFICATION/RESOLUTION	·	
8 		
Person contacted:	Date/Time:	
Project Manager SCURF Review:	Date:	
Project Manager SRF Review:	Date:	

Lot ID of split containers:



Sample Condition Upon Receipt(SCUR)

Document No.:
F-CAR-CS-033-Rev.06

Page 1 of 2 Issuing Authority: Pace Carollnas Quality Office

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

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

Project #

WO#: 92473553

PM: PTE

Due Date: 04/28/20

CLIENT: 92-Haley VA

Rem#	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) (CI-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (CI-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (CI-)	AG15-1 liter Amber H2SO4 (pH < 2)	AG35-250 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 Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGDU-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	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#
					_	

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

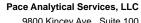
Pace Analytical

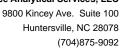


CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: / of /

Section A		Section B								Section C	on C								ZZO WIIII	am Pitt v	vay, Ріш	spurgu,	PA 1523	220 William Pitt Way, Pittsburgn, PA 15238 (Pace Energy)	lergy)
Required Client Information:		Required Project Information:	roject l	Inform	nation:					Invoic	Invoice Information:	nation:						-	1700 Elm Street SE - Minneapolis, MN 55414	Street	SE - Min	neapoli	s, MN 55	414	
Company: Haley & Aldrich, Inc.		Report To: Wright, Erin	Wrigh	ht, Ei	rin					Attention:	ion:								7726 Moller Road - Indianapolis, IN 46268	ler Road	d - Indiar	apolis,	IN 46268		
Address: 1 Park West Circle		Copy To:	Chatt	tertor	Chatterton, Kelly	_				Сотр	Company Name:	me:						S.	REGULATORY AGENCY	RY AG	ENCY				
Suite 208, Midlothian, VA 23114	an, VA 23114		kchat	tterto	kchatterton@haleyaldrich.com	aldrich.co	EI.			Address:	SS:								NPDES	ı	GR	OUND	GROUND VT.TER	DR	DRINKING V
Email To: ewright@haleyaldrich.com		BSA#:			2019-22-Pade	Pace				Pace Quote	huote								UST	니		RCRA	LI		
Phone: 804-419-0012 Fax:		H&A Client No	ame:	Dom	H&A Client Name: Dominion Energy; Possum Poin	rgy: Poss	sum Poin			Pace Project Manager:	roject er:		taylor.ezell@pacelabs.com	(@pac	elabs	com		0)	Site Location	ion	-				
Requested Due Date/TAT:	Standard	H&A Project #:	#	134660	099					Pace P	Pace Profile #:	TBD	TBD (9362?)	23)					STATE	Œ:	7				
Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement #2019-22-Pace by and between Haley & Aldrich, its subsidiaries and affiliates and Pace Analytical Services, Inc.	ustody shall be performed in Pace Analytical Services, In	accordance	with te	erms a	and condition	ns within Bla	nket Service	Agreement #	2019-22-	ace by a	nd betw	reen Hal	ey & Ald	rich,			Sednes	ted Ana	Requested Analysis Filtered (Y/N)	tered ((N/A				
Section D Required Client Information	Matrix Codes MATRIX / CODE	odes	(fiel o	(AM		Sol	COLLECTED					Presu	Preservatives	les les	¶N/A	A									
	Drinking Water Water Waste Water Product Soil/Soild	W W S	see valid codes	DD=D BARD=	8 -	Collection		Sample Depth	ОПЕСТІОЙ						l:							(N/A) €			
SAMPLE ID SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE) BOD XIRT	NPLE TYPE (G			Start Depth (Circle: feet		P € % % ′	PF CONTAINER	SO ₄ breserved	O3	НО	sO _s O _s fonsdi		nalysis Test MR Metals List	B Water Quality I					sidual Chlorine	01	12/7353 Pace Project No. Lab	150 July 190
FD-24R-	200,00413		VM 5	AAS C	DATE 4-i3-2ο	TIME	. <u>E</u>	les) inches)	-	_		NH		4000	410	_	_			+	\pm	Res		<u>.</u>	
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ADDITIONAL COMMENTS	OMMENTS		RE	ELING	RELINQUISHED BY / AFFILIATION	Y / AFFILIA	TION	1	DATE	-	TIME		0	ACCE	тер	3Y / AF	ACCEPTED BY / AFFILIATION	7	DATE		TIME		SAMPLE	SAMPLE CONDITIONS	SN
VSWMR Metals List: copper, nickel, silver, tin, vanadium, and zinc	rf, nickel, silver, tin,	And	1	3	region	17	V	4	4-13-20	LI	36	S	3	Notio	7	\mathcal{Z}	8		02.614		356	1.9	X	<u> </u>	_
VWCB Water Quality Pollutant List: phenolics, potassium, iron, manganese, hardness, and sodium.	ant List: phenolics, e, hardness, and							++																	
age 'a						SAM	PLER NAI	SAMPLER NAME AND SIGNATURE	SNATUR													Э.	y		10811
15 of ⁻							PRIN.	PRINT Name of SAMPLER:	AMPLE	[نیر ا	And	7	sectory	350			DATE Signed	pe				ui dmə	Custod) oO bels: (N/Y)		(V/V)
15							SIGN	ATURE of SAMPLER:	AMPLE	نہ	\mathcal{J}'	3	1	7		=	(MM/DD/YY):	7	-13-50	9		ī	es a	2016	IBC
#2 Compliance Wells and Sentinel Wells	sentinel Wells										,)												







April 23, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy CCR

Pace Project No.: 92473799

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 15, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

Pace Analytical Services - Asheville

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

Sincerely,

Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092

Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy CCR

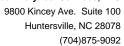
Pace Project No.: 92473799

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Dominion Energy CCR

Pace Project No.: 92473799

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92473799001	ED-26-20200414	Water	04/14/20 11:20	04/15/20 09:30
92473799002	EB-01-20200414	Water	04/14/20 16:30	04/15/20 09:30



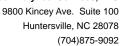
SAMPLE ANALYTE COUNT

Project: Dominion Energy CCR

Pace Project No.: 92473799

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92473799001	ED-26-20200414	EPA 6020B	BG2	14	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	JNS	1	PASI-A
		EPA 9056A	BRJ	3	PASI-A
92473799002	EB-01-20200414	EPA 6020B	BG2	14	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	JNS	1	PASI-A
		EPA 9056A	BRJ	3	PASI-A

PASI-A = Pace Analytical Services - Asheville





SUMMARY OF DETECTION

Project: Dominion Energy CCR

Pace Project No.: 92473799

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92473799001	ED-26-20200414					
EPA 6020B	Arsenic	0.12	ug/L	0.10	04/22/20 13:43	
EPA 6020B	Barium	25.9	ug/L	0.30	04/22/20 13:43	
EPA 6020B	Beryllium	0.11	ug/L	0.10	04/22/20 13:43	
EPA 6020B	Boron	9.6J	ug/L	25.0	04/22/20 13:43	
EPA 6020B	Calcium	7470J	ug/L	10000	04/22/20 13:02	
EPA 6020B	Lead	0.17	ug/L	0.10	04/22/20 13:43	
EPA 6020B	Lithium	12.5	ug/L	2.5	04/22/20 13:43	
SM 2540C-2011	Total Dissolved Solids	89.0	mg/L	25.0	04/18/20 10:28	
EPA 9056A	Chloride	2.1	mg/L	1.0	04/16/20 05:01	
EPA 9056A	Fluoride	277	ug/L	100	04/16/20 05:01	
EPA 9056A	Sulfate	2.0	mg/L	1.0	04/16/20 05:01	
92473799002	EB-01-20200414					
EPA 6020B	Antimony	0.14J	ug/L	0.50	04/22/20 12:47	
EPA 6020B	Barium	0.062J	ug/L	0.30	04/22/20 12:47	
EPA 6020B	Boron	3.1J	ug/L	25.0	04/22/20 12:47	



ANALYTICAL RESULTS

Project: Dominion Energy CCR

Pace Project No.: 92473799

Date: 04/23/2020 08:38 AM

Sample: ED-26-20200414	Lab ID:	92473799001	Collected	: 04/14/20	11:20	Received: 04/	15/20 09:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA 6	6020B Prepa	ration Met	nod: EF	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Antimony	ND	ug/L	0.50	0.11	1	04/22/20 02:14	04/22/20 13:43	7440-36-0	
Arsenic	0.12	ug/L	0.10	0.060	1	04/22/20 02:14	04/22/20 13:43	7440-38-2	
Barium	25.9	ug/L	0.30	0.060	1	04/22/20 02:14	04/22/20 13:43	7440-39-3	
Beryllium	0.11	ug/L	0.10	0.050	1	04/22/20 02:14	04/22/20 13:43	7440-41-7	
Boron	9.6J	ug/L	25.0	2.6	1	04/22/20 02:14	04/22/20 13:43	7440-42-8	
Cadmium	ND	ug/L	0.080	0.070	1	04/22/20 02:14	04/22/20 13:43	7440-43-9	
Calcium	7470J	ug/L	10000	1030	50	04/22/20 02:14	04/22/20 13:02	7440-70-2	
Chromium	ND	ug/L	0.50	0.42	1	04/22/20 02:14	04/22/20 13:43	7440-47-3	
Cobalt	ND	ug/L	0.10	0.050	1	04/22/20 02:14	04/22/20 13:43	7440-48-4	
ead	0.17	ug/L	0.10	0.050	1	04/22/20 02:14	04/22/20 13:43	7439-92-1	
ithium	12.5	ug/L	2.5	0.42	1	04/22/20 02:14	04/22/20 13:43	7439-93-2	
Nolybdenum	ND	ug/L	0.50	0.10	1	04/22/20 02:14	04/22/20 13:43	7439-98-7	
Selenium	ND	ug/L	0.50	0.080	1	04/22/20 02:14	04/22/20 13:43	7782-49-2	
-hallium	ND	ug/L	0.10	0.060	1	04/22/20 02:14	04/22/20 13:43	7440-28-0	
470 Mercury	Analytical	Method: EPA 7	470A Prepa	ration Met	nod: EF	'A 7470A			
	Pace Anal	ytical Services	- Asheville						
Mercury	ND	ug/L	0.20	0.10	1	04/20/20 10:40	04/20/20 16:25	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C-2011						
	Pace Anal	ytical Services	- Asheville						
Total Dissolved Solids	89.0	mg/L	25.0	25.0	1		04/18/20 10:28		
9056 IC anions 28 Days	Analytical	Method: EPA 9	056A						
	Pace Anal	ytical Services	- Asheville						
Chloride	2.1	mg/L	1.0	0.60	1		04/16/20 05:01	16887-00-6	
Fluoride	277	ug/L	100	50.0	1		04/16/20 05:01	16984-48-8	
Sulfate	2.0	mg/L	1.0	0.50	1		04/16/20 05:01	14808-79-8	



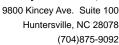
ANALYTICAL RESULTS

Project: Dominion Energy CCR

Pace Project No.: 92473799

Date: 04/23/2020 08:38 AM

Sample: EB-01-20200414	Lab ID: 92	2473799002	Collected:	04/14/20	16:30	Received: 04/	15/20 09:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical Me	ethod: EPA 6	020B Prepa	ration Meth	nod: EF	A 3010A			
	Pace Analytic	cal Services	- Asheville						
Antimony	0.14J	ug/L	0.50	0.11	1	04/22/20 02:14	04/22/20 12:47	7440-36-0	
Arsenic	ND	ug/L	0.10	0.060	1	04/22/20 02:14	04/22/20 12:47	7440-38-2	
Barium	0.062J	ug/L	0.30	0.060	1	04/22/20 02:14	04/22/20 12:47	7440-39-3	
Beryllium	ND	ug/L	0.10	0.050	1	04/22/20 02:14	04/22/20 12:47	7440-41-7	
Boron	3.1J	ug/L	25.0	2.6	1	04/22/20 02:14	04/22/20 12:47	7440-42-8	
Cadmium	ND	ug/L	0.080	0.070	1	04/22/20 02:14	04/22/20 12:47	7440-43-9	
Calcium	ND	ug/L	200	20.6	1	04/22/20 02:14	04/22/20 12:47	7440-70-2	
Chromium	ND	ug/L	0.50	0.42	1	04/22/20 02:14	04/22/20 12:47	7440-47-3	
Cobalt	ND	ug/L	0.10	0.050	1	04/22/20 02:14	04/22/20 12:47	7440-48-4	
_ead	ND	ug/L	0.10	0.050	1	04/22/20 02:14	04/22/20 12:47	7439-92-1	
_ithium	ND	ug/L	2.5	0.42	1	04/22/20 02:14	04/22/20 12:47	7439-93-2	
Molybdenum	ND	ug/L	0.50	0.10	1	04/22/20 02:14	04/22/20 12:47	7439-98-7	
Selenium	ND	ug/L	0.50	0.080	1	04/22/20 02:14	04/22/20 12:47	7782-49-2	
Thallium	ND	ug/L	0.10	0.060	1	04/22/20 02:14	04/22/20 12:47	7440-28-0	
7470 Mercury	Analytical Me	ethod: EPA 7	470A Prepa	ration Meth	nod: EP	A 7470A			
-	Pace Analytic	cal Services	- Asheville						
Mercury	ND	ug/L	0.20	0.10	1	04/20/20 10:40	04/20/20 16:28	7439-97-6	
2540C Total Dissolved Solids	Analytical Me	ethod: SM 25	40C-2011						
	Pace Analytic	cal Services	- Asheville						
Total Dissolved Solids	ND	mg/L	25.0	25.0	1		04/18/20 10:28		
9056 IC anions 28 Days	Analytical Me	ethod: EPA 9	056A						
•	Pace Analytic	cal Services	- Asheville						
Chloride	ND	mg/L	1.0	0.60	1		04/16/20 05:15	16887-00-6	
Fluoride	ND	ug/L	100	50.0	1		04/16/20 05:15	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		04/16/20 05:15		





Project:

Dominion Energy CCR

Pace Project No.:

92473799

QC Batch:

537073

QC Batch Method: EPA 7470A Analysis Method:

EPA 7470A

Analysis Description:

7470 Mercury

Laboratory:

Pace Analytical Services - Asheville

92473799001, 92473799002 Associated Lab Samples:

METHOD BLANK:

Matrix: Water

Associated Lab Samples:

92473799001, 92473799002

Blank

Reporting

Result

Limit

MDL Analyzed Qualifiers

Mercury

Mercury

ug/L

Units

Units

ug/L

ND

0.20

0.10 04/20/20 15:50

LABORATORY CONTROL SAMPLE: Parameter

Parameter

2864578

Spike Conc.

2.5

LCS Result

LCS % Rec

114

% Rec Limits

Qualifiers

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

2864579

ND

2.5

MSD

MS

2.8

2864580

MSD

2.8

MS

MSD

111

% Rec

Max

Mercury

Date: 04/23/2020 08:38 AM

92473551001 Parameter Units Result

ug/L

MS Spike Conc.

2.5

Spike Conc.

Result Result 2.8

% Rec 114 % Rec

80-120

Limits 75-125

RPD RPD

Qual 25 2

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: Dominion Energy CCR

Pace Project No.: 92473799

Date: 04/23/2020 08:38 AM

QC Batch: 537477 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473799001, 92473799002

METHOD BLANK: 2866333 Matrix: Water

Associated Lab Samples: 92473799001, 92473799002

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	ND	0.50	0.11	04/22/20 12:37	
Arsenic	ug/L	ND	0.10	0.060	04/22/20 12:37	
Barium	ug/L	ND	0.30	0.060	04/22/20 12:37	
Beryllium	ug/L	ND	0.10	0.050	04/22/20 12:37	
Boron	ug/L	ND	25.0	2.6	04/22/20 12:37	
Cadmium	ug/L	ND	0.080	0.070	04/22/20 12:37	
Calcium	ug/L	ND	200	20.6	04/22/20 12:37	
Chromium	ug/L	ND	0.50	0.42	04/22/20 12:37	
Cobalt	ug/L	ND	0.10	0.050	04/22/20 12:37	
Lead	ug/L	ND	0.10	0.050	04/22/20 12:37	
Lithium	ug/L	ND	2.5	0.42	04/22/20 12:37	
Molybdenum	ug/L	ND	0.50	0.10	04/22/20 12:37	
Selenium	ug/L	ND	0.50	0.080	04/22/20 12:37	
Thallium	ug/L	ND	0.10	0.060	04/22/20 12:37	

LABORATORY CONTROL SAMPLE:	2866334					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	ug/L	50	54.4	109	80-120	
Arsenic	ug/L	10	10.5	105	80-120	
Barium	ug/L	50	51.7	103	80-120	
Beryllium	ug/L	10	10.5	105	80-120	
Boron	ug/L	50	52.4	105	80-120	
Cadmium	ug/L	10	10.4	104	80-120	
Calcium	ug/L	625	660	106	80-120	
Chromium	ug/L	50	52.9	106	80-120	
Cobalt	ug/L	10	10.4	104	80-120	
Lead	ug/L	50	51.9	104	80-120	
Lithium	ug/L	50	52.5	105	80-120	
Molybdenum	ug/L	50	52.4	105	80-120	
Selenium	ug/L	50	51.4	103	80-120	
Thallium	ug/L	10	10.3	103	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.



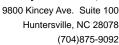
Project: Dominion Energy CCR

Pace Project No.: 92473799

Date: 04/23/2020 08:38 AM

MATRIX SPIKE & MATRIX	SPIKE DUPL	LICATE: 2866	335 MS	MSD	2866336							
Parameter	Units	92473553001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L		50	50	54.9	54.2	109	108	75-125		20	
Arsenic	ug/L	ND	10	10	10.2	10.3	101	103	75-125	1	20	
Barium	ug/L	17.2	50	50	70.0	69.8	106	105	75-125	0	20	
Beryllium	ug/L	0.19	10	10	10.8	10.7	106	105	75-125	1	20	
Boron	ug/L	6.1J	50	50	60.7	64.1	109	116	75-125	5	20	
Cadmium	ug/L	ND	10	10	10.5	10.5	105	105	75-125	0	20	
Calcium	ug/L	2140	625	625	2930	2920	126	123	75-125	1	20	M6
Chromium	ug/L	2.2	50	50	54.7	55.1	105	106	75-125	1	20	
Cobalt	ug/L	0.37	10	10	11.0	11.0	106	106	75-125	0	20	
Lead	ug/L	0.11	50	50	52.4	52.7	105	105	75-125	0	20	
Lithium	ug/L	1.4J	50	50	54.2	53.5	106	104	75-125	1	20	
Molybdenum	ug/L	ND	50	50	52.3	52.8	105	106	75-125	1	20	
Selenium	ug/L	0.19J	50	50	51.4	51.0	102	102	75-125	1	20	
Thallium	ug/L	ND	10	10	10.4	10.5	104	104	75-125	0	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: Dominion Energy CCR

Pace Project No.: 92473799

QC Batch: 536983 Analysis Method: SM 2540C-2011

QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473799001, 92473799002

METHOD BLANK: 2864284 Matrix: Water

Associated Lab Samples: 92473799001, 92473799002

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Total Dissolved Solids mg/L ND 25.0 25.0 04/18/20 10:26

LABORATORY CONTROL SAMPLE: 2864285

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units **Total Dissolved Solids** mg/L 251 268 107 90-110

SAMPLE DUPLICATE: 2864286

92472992107 Dup Max Parameter Units Result Result **RPD RPD** Qualifiers 115 **Total Dissolved Solids** mg/L 110 4 25

SAMPLE DUPLICATE: 2864287

Date: 04/23/2020 08:38 AM

92472791014 Dup Max RPD RPD Parameter Units Result Result Qualifiers Total Dissolved Solids 718 740 mg/L 3 25

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: Dominion Energy CCR

Pace Project No.: 92473799

Date: 04/23/2020 08:38 AM

QC Batch: 536463 Analysis Method: EPA 9056A

QC Batch Method: EPA 9056A Analysis Description: 9056 IC anions 28 Days

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473799001, 92473799002

METHOD BLANK: 2861750 Matrix: Water

Associated Lab Samples: 92473799001, 92473799002

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	04/16/20 03:37	
Fluoride	ug/L	ND	100	50.0	04/16/20 03:37	
Sulfate	mg/L	ND	1.0	0.50	04/16/20 03:37	

LABORATORY CONTROL SAMPLE:	2861751					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L		51.8	104	90-110	
Fluoride	ug/L	2500	2270	91	90-110	
Sulfate	mg/L	50	52.7	105	90-110	

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2861	752		2861753							
			MS	MSD								
		92473551001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	2.3	50	50	61.0	52.7	117	101	90-110	15	10	M1,R1
Fluoride	ug/L	60.0J	2500	2500	4120	3080	163	121	90-110	29	10	M1,R1
Sulfate	mg/L	2.7	50	50	63.9	54.1	123	103	90-110	17	10	M1,R1

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2861	754		2861755							
			MS	MSD								
		2630891015	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	53.1	52.9	100	100	90-110	0	10	
Fluoride	ug/L	ND	2500	2500	2420	2450	96	97	90-110	1	10	
Sulfate	mg/L	2.3	50	50	53.1	52.9	102	101	90-110	0	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.



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

QUALIFIERS

Project: Dominion Energy CCR

Pace Project No.: 92473799

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.

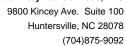
ANALYTE QUALIFIERS

Date: 04/23/2020 08:38 AM

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

R1 RPD value was outside control limits.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy CCR

Pace Project No.: 92473799

Date: 04/23/2020 08:38 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92473799001	ED-26-20200414	EPA 3010A	537477	EPA 6020B	537485
92473799002	EB-01-20200414	EPA 3010A	537477	EPA 6020B	537485
92473799001	ED-26-20200414	EPA 7470A	537073	EPA 7470A	537132
92473799002	EB-01-20200414	EPA 7470A	537073	EPA 7470A	537132
92473799001	ED-26-20200414	SM 2540C-2011	536983		
92473799002	EB-01-20200414	SM 2540C-2011	536983		
92473799001	ED-26-20200414	EPA 9056A	536463		
92473799002	EB-01-20200414	EPA 9056A	536463		

Document Revised: February 7, 2018 Document Name: Sample Condition Upon Receipt(SCUR) Page 1 of 2 ace Analytical Issuing Authority: Document No.: Pace Carolinas Quality Office F-CAR-CS-033-Rev.06 Laboratory receiving samples: Huntersville 4 Raleigh Mechanicsville Greenwood Asheville Eden Sample Condition Client Name: Project #: Fed Ex Courler: Commercial Pace Yes MO Yes Seals Intact? **Custody Seal Present?** Date/Initials Person Examining Contents: EH 4/15/20 Bubble Bags Biological Tissue Frozen? Packing Material: Bubble Wrap ☐Yes ☐No ☐N/A Type of Ice: None ☑IR Gun ID: _ 92T061 Correction Factor: Add/Subtract (°C) +0.1 Temp should be above freezing to 6°C Samples out of temp criteria. Samples on ice, cooling process has begun Did samples originate from a foreign source (internationally, including Hawall and Puerto Rico)? Yes Comments/Discrepancy: □N/A No □N/A 2. 3. Yes □N/A □Yes □N/A 4. □N/A Yes □No 5. Wes No □N/A Ves □No □N/A Wes No □N/A



Sample Condition Upon Receipt(SCUR)

Document No.: F-CAR-CS-033-Rev.06 Page 1 of 2

Issuing Authority:

Pace Carolinas Quality Office

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

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

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

Project #

W0#:92473799

PM: PTE

Due Date: 05/06/20

CLIENT: 92-Haley VA

tem#	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) (CI-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP42-125 mL Plastic 2N 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)	AG35-250 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 Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1	X	1		1		X																							
2	1	1		7		X																		1					
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12	1		+	-	1	1	1	+	+	_	1	-	1	1	1	-	\dashv	+	+		+	\dashv	-	X	4	\dashv	+	_	
	7				7	1	7	7			/		V	/	1								L	1	1				

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

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



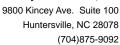


CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

ð

Section A	Š	Section B							o	Section C	Ö								220 W	Illiam Pit	t Way,	Pittsb	urgh, PA	15238 (F	220 William Pitt Way, Pittsburgh, PA 15238 (Pace Energy)
Required Client Information:	Rec	Required Project Information:	oject In	nformati	ou:				_	Invoice Information:	nforma	tion:							1700 [Im Stree	et SE -	Minne	apolis, N	1700 Elm Street SE - Minneapolis, MN 55414	
Company: Haley & Aldrich, Inc.	Rei	Report To: Wright, Erin	Wright	t, Erin					∢	Attention:					l	l	l	r	7726 1	7726 Moller Road - Indianapolis IN 46268	ad - In	dianar	NI silo	46268	
Address: 1 Park West Circle	S	Copy To: (Chatterton, Kelly	erton,	Kelly				0	Company Name:	y Nam	::						<u>K</u>	GULA	REGULATORY AGENCY	GENC	>			
Suite 208, Midlothian, VA 23114	114	<u> </u>	chatte	erton(@haleya	kchatterton@haleyaldrich.com	티		⋖	Address:								-	NPDES	S.		CARO	GROLIND VT. TER	455	CINIXINICO
Email To: ewright@haleyaldrich.com	BS	BSA#:		20	2019-22-Pace	ace			α α	ace Quot	9 .							T	UST	. 		, ₂	RCRA	į	
Phone: 804-419-0012 Fax:	H8/	H&A Client Name:		omini	on Ener	Dominion Energy: Possum P	m Point		ā ≥	Pace Project		taylor	taylor.ezell@pacelabs.com	Dace	labs.c	mo			Site Location			_			
Requested Due Date/TAT: Standard	H8.	H&A Project #:	# 1.	134660					ă.	Pace Profile #:	#	TBD (TBD (9362?)					Т	S	STATE:	>	Z A	-		
Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement #2019-22-Pace by and between Haley & Aldrich, its subsidiaries and affiliates and Pace Analytical Services, Inc.	berformed in ac	ccordance	with ten	ms and	conditions	within Blan	ket Service Ag	reement #2019	-22-Pace	by and	betwee	ın Haley	y & Aldric	ť,		ď	senbe	ted Ar	alysis	Requested Analysis Filtered (Y/N)	(N/N)				
Section D Required Client Information	Matrix Codes MATRIX / CODE	SS H	(fiel of	(4MC		COLL	COLLECTED				"	Preser	Preservatives	္ခ	↑ N/A										
\$ \$ \$ 6 % C	Drinking Water Water Waste Water Product Soil/Solid	W W M M	see valid codes	=GKAB C=C	Coll	Collection	S Q	Sample Depth		s					1	ıls List	(Sat)	bənidr					(N/A)		
UNIQUE	Wipe Air Tissue Other	AAR			ц-14-20 DATE)	TIME	Start Depth (Circle: feet or inches)	End Depth (Circle: feet or inches)	TA 9MBT BJ9MAS	# OF CONTAINER	^⁵ OS ^² H	HCI HNO ³	HO _B N s _{Os} S _s bN	Methanol	Other Test	Mets Metslell xqq	ppx IV Metals List otal Dissolved Solids	adium 226 & 228 Cor					Residual Chlorine	S S	Pace Project No./ Lab
1 ED-26-20200414	اط	3	10	2	MURA	1120			İ	l	L	\vdash	-		-	+-	+	4 >	t	\downarrow	1	t	土	00	10
2 EB-01-20200414	ブー	د	270		MYNGBO.	1620									Н	X	1	×			-	t	1	8	6
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ADDITIONAL COMMENTS			RELI	Nauis	HED BY /	RELINQUISHED BY / AFFILIATION	NO	DATE		TIME	4		Ā	CCEPT	ED BY	/ AFFII	ACCEPTED BY / AFFILIATION		DATE	<u> </u>	TIME		S	SAMPLE CONDITIONS	ADITIONS
Appx III Anions & Metals List: boron, calcium, chloride, fluoride, and sulfate.	salcium,	7	M	Andi	Cieringe	nh.	HAM	4.14.20	<u> </u>	255	25	3	3	2	B	2	The	ace	4.15	5-30	930	M	0	Š	1
Appx IV Metals List: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium,	s, barium, , fluoride, elenium,																					++			
age age						SAMPL	SAMPLER NAME AND SIGNATURE	ND SIGNAT	URE														+	Je	
: 17							PRINT Na	PRINT Name of SAMPLER:	ER	A	1	1	216.00	,								Т		(N)	
of 17							SIGNATU	SIGNATURE of SAMPLER:	Ë	إو	10	15	2	7		DAT	DATE Signed	B .	11.19.70	7 %		Τ	Temp	suO bəlsə(\Y)	ample
#1 Compliance Wells and Sentinel Wells	slls									1	∛`	1	_		1	AIM)	יווחח		-	P		1	Ŧ	of your bo	







April 23, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy VSWMR

Pace Project No.: 92473800

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 15, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Asheville

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

Sincerely,

Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092

Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy VSWMR

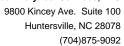
Pace Project No.: 92473800

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Dominion Energy VSWMR

Pace Project No.: 92473800

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92473800001	ED-26-20200414	Water	04/14/20 11:20	04/15/20 09:30
92473800002	EB-01-20200414	Water	04/14/20 16:30	04/15/20 09:30



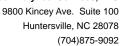
SAMPLE ANALYTE COUNT

Project: Dominion Energy VSWMR

Pace Project No.: 92473800

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92473800001	ED-26-20200414	EPA 6020B	BG2	11	PASI-A
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A
		SM 5310B-2011	ECH	1	PASI-A
92473800002	EB-01-20200414	EPA 6020B	BG2	11	PASI-A
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A
		SM 5310B-2011	ECH	1	PASI-A

PASI-A = Pace Analytical Services - Asheville





SUMMARY OF DETECTION

Project: Dominion Energy VSWMR

Pace Project No.: 92473800

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92473800001	ED-26-20200414					
EPA 6020B	Iron	2790	ug/L	2500	04/22/20 20:13	
EPA 6020B	Manganese	78.3	ug/L	0.50	04/22/20 18:36	
EPA 6020B	Nickel	0.24J	ug/L	0.50	04/22/20 18:36	
EPA 6020B	Potassium	5240	ug/L	2500	04/22/20 20:13	
EPA 6020B	Sodium	1880J	ug/L	12500	04/22/20 20:13	
EPA 6020B	Hardness, Total(SM 2340B)	10200J	ug/L	27000	04/22/20 20:13	
EPA 6020B	Zinc	1.8J	ug/L	5.0	04/22/20 18:36	
92473800002	EB-01-20200414					
EPA 6020B	Nickel	0.24J	ug/L	0.50	04/22/20 12:52	
EPA 6020B	Zinc	1.7J	ug/L	5.0	04/22/20 12:52	



ANALYTICAL RESULTS

Project: Dominion Energy VSWMR

Pace Project No.: 92473800

Date: 04/23/2020 08:38 AM

Sample: ED-26-20200414	Lab ID:	92473800001	Collected	d: 04/14/20	11:20	Received: 04/	15/20 09:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: EF	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Copper	ND	ug/L	0.50	0.23	1	04/22/20 02:14	04/22/20 18:36	7440-50-8	
Iron	2790	ug/L	2500	374	50	04/22/20 02:14	04/22/20 20:13	7439-89-6	
Manganese	78.3	ug/L	0.50	0.14	1	04/22/20 02:14	04/22/20 18:36	7439-96-5	
Nickel	0.24J	ug/L	0.50	0.11	1	04/22/20 02:14	04/22/20 18:36	7440-02-0	
Potassium	5240	ug/L	2500	310	50	04/22/20 02:14	04/22/20 20:13	7440-09-7	
Silver	ND	ug/L	0.40	0.050	1	04/22/20 02:14	04/22/20 18:36	7440-22-4	
Sodium	1880J	ug/L	12500	714	50	04/22/20 02:14	04/22/20 20:13	7440-23-5	
Tin	ND	ug/L	0.50	0.090	1	04/22/20 02:14	04/22/20 18:36	7440-31-5	
Hardness, Total(SM 2340B)	10200J	ug/L	27000	3500	50	04/22/20 02:14	04/22/20 20:13		
Vanadium	ND	ug/L	0.30	0.12	1	04/22/20 02:14	04/22/20 18:36	7440-62-2	
Zinc	1.8J	ug/L	5.0	1.1	1	04/22/20 02:14	04/22/20 18:36	7440-66-6	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	eparatio	n Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Anal	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/20/20 09:55	04/20/20 13:54	108-95-2	
5310B WVA Nonpurgeable Organic	Analytical	Method: SM 53	310B-2011						
	Pace Anal	ytical Services	- Asheville						
Nonpurgeable Organic Carbon	ND	mg/L	1.0	0.50	1		04/20/20 20:38	7440-44-0	



ANALYTICAL RESULTS

Project: Dominion Energy VSWMR

Pace Project No.: 92473800

Date: 04/23/2020 08:38 AM

Sample: EB-01-20200414	Lab ID:	92473800002	Collected	d: 04/14/20	16:30	Received: 04/	15/20 09:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: EF	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Copper	ND	ug/L	0.50	0.23	1	04/22/20 02:14	04/22/20 12:52	7440-50-8	
Iron	ND	ug/L	50.0	7.5	1	04/22/20 02:14	04/22/20 12:52	7439-89-6	
Manganese	ND	ug/L	0.50	0.14	1	04/22/20 02:14	04/22/20 12:52	7439-96-5	
Nickel	0.24J	ug/L	0.50	0.11	1	04/22/20 02:14	04/22/20 12:52	7440-02-0	
Potassium	ND	ug/L	50.0	6.2	1	04/22/20 02:14	04/22/20 12:52	7440-09-7	
Silver	ND	ug/L	0.40	0.050	1	04/22/20 02:14	04/22/20 12:52	7440-22-4	
Sodium	ND	ug/L	250	14.3	1	04/22/20 02:14	04/22/20 12:52	7440-23-5	
Tin	ND	ug/L	0.50	0.090	1	04/22/20 02:14	04/22/20 12:52	7440-31-5	
Hardness, Total(SM 2340B)	ND	ug/L	541	70.1	1	04/22/20 02:14	04/22/20 12:52		
Vanadium	ND	ug/L	0.30	0.12	1	04/22/20 02:14	04/22/20 12:52	7440-62-2	
Zinc	1.7J	ug/L	5.0	1.1	1	04/22/20 02:14	04/22/20 12:52	7440-66-6	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	paratio	n Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Anal	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/20/20 09:55	04/20/20 13:54	108-95-2	
5310B WVA Nonpurgeable Organic	Analytical	Method: SM 53	310B-2011						
	Pace Anal	ytical Services	- Asheville						
Nonpurgeable Organic Carbon	ND	mg/L	1.0	0.50	1		04/20/20 21:14	7440-44-0	



QUALITY CONTROL DATA

Project: Dominion Energy VSWMR

Pace Project No.: 92473800

Date: 04/23/2020 08:38 AM

QC Batch: 537477 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473800001, 92473800002

METHOD BLANK: 2866333 Matrix: Water

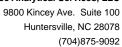
Associated Lab Samples: 92473800001, 92473800002

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Copper	ug/L	ND ND	0.50	0.23	04/22/20 12:37	
Hardness, Total(SM 2340B)	ug/L	ND	541	70.1	04/22/20 12:37	
Iron	ug/L	ND	50.0	7.5	04/22/20 12:37	
Manganese	ug/L	ND	0.50	0.14	04/22/20 12:37	
Nickel	ug/L	ND	0.50	0.11	04/22/20 12:37	
Potassium	ug/L	7.2J	50.0	6.2	04/22/20 12:37	
Silver	ug/L	ND	0.40	0.050	04/22/20 12:37	
Sodium	ug/L	ND	250	14.3	04/22/20 12:37	
Tin	ug/L	ND	0.50	0.090	04/22/20 12:37	
√anadium	ug/L	ND	0.30	0.12	04/22/20 12:37	
Zinc	ug/L	ND	5.0	1.1	04/22/20 12:37	

LABORATORY CONTROL SAMPLE:	2866334					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Copper	ug/L	50	52.8	106	80-120	
Hardness, Total(SM 2340B)	ug/L		4390			
Iron	ug/L	625	626	100	80-120	
Manganese	ug/L	50	52.6	105	80-120	
Nickel	ug/L	50	52.5	105	80-120	
Potassium	ug/L	625	663	106	80-120	
Silver	ug/L	25	25.5	102	80-120	
Sodium	ug/L	625	652	104	80-120	
Tin	ug/L	50	51.4	103	80-120	
Vanadium	ug/L	50	51.7	103	80-120	
Zinc	ug/L	50	51.8	104	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2866	335 MS	MSD	2866336							
		92473553001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Copper	ug/L	0.96	50	50	53.9	54.1	106	106	75-125	0	20	
Hardness, Total(SM 2340B)	ug/L	9070			13800	13600				1	20	
Iron	ug/L	109	625	625	735	739	100	101	75-125	1	20	
Manganese	ug/L	9.7	50	50	61.9	62.3	104	105	75-125	1	20	
Nickel	ug/L	1.3	50	50	53.6	53.6	105	105	75-125	0	20	
Potassium	ug/L	2400	625	625	3010	2970	99	92	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.





QUALITY CONTROL DATA

Project: Dominion Energy VSWMR

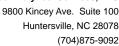
Pace Project No.: 92473800

Date: 04/23/2020 08:38 AM

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	ATE: 2866		MOD	2866336							
Parameter	9 Units	2473553001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Silver	ug/L	ND	25	25	26.0	26.1	104	104	75-125		20	
Sodium	ug/L	1990J	625	625	2660	2640	108	105	75-125	1	20	
Tin	ug/L	ND	50	50	52.3	52.4	104	105	75-125	0	20	
Vanadium	ug/L	0.28J	50	50	52.8	53.3	105	106	75-125	1	20	
Zinc	ug/L	4.4J	50	50	55.0	56.4	101	104	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.

Qualifiers





QUALITY CONTROL DATA

Project: Dominion Energy VSWMR

Pace Project No.: 92473800

Date: 04/23/2020 08:38 AM

QC Batch Method:

QC Batch: 537059

Analysis Method:

Laboratory:

EPA 420.4 Rev 1.0 1993

MDL

Analysis Description:

420.4 Phenolics
Pace Analytical Services - Asheville

Analyzed

Associated Lab Samples: 92473800001, 92473800002

METHOD BLANK: 2864517

Associated Lab Samples: 92473800001, 92473800002

Matrix: Water

EPA 420.4 Rev 1.0 1993

Parameter Units Result Limit

Phenol mg/L ND 0.020 0.0050 04/20/20 13:38

LABORATORY CONTROL SAMPLE: 2864518

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Phenol 0.05 0.050 101 90-110 mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2864519 2864520

MS MSD

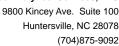
92473041001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Result **RPD** RPD Result Conc. Conc. % Rec % Rec Limits Qual 10 M1 Phenol mg/L ND 0.05 0.05 0.059 0.060 110 111 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2864521 2864522

MS MSD

92473553001 MS MSD MS MSD % Rec Spike Spike Max **RPD** RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits Qual Phenol 94 9 ND 0.05 0.05 0.047 0.051 102 10 mg/L 90-110

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 DATA

Project: Dominion Energy VSWMR

Pace Project No.: 92473800

QC Batch: 537194 Analysis Method: SM 5310B-2011

QC Batch Method: SM 5310B-2011 Analysis Description: 5310B WVA Nonpurgeable Organic Carbon

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473800001, 92473800002

METHOD BLANK: 2865199 Matrix: Water

Associated Lab Samples: 92473800001, 92473800002

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Nonpurgeable Organic Carbon mg/L ND 1.0 0.50 04/20/20 18:36

LABORATORY CONTROL SAMPLE: 2865200

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Nonpurgeable Organic Carbon mg/L 25 25.2 101 90-110

2865201 MS MSD

92473785001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result **RPD** RPD Qual Result % Rec % Rec Limits Nonpurgeable Organic mg/L 5.7 25 25 30.2 30.3 98 98 90-110 0 10

2865202

Carbon

Date: 04/23/2020 08:38 AM

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.



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

QUALIFIERS

Project: Dominion Energy VSWMR

Pace Project No.: 92473800

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.

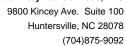
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 04/23/2020 08:38 AM

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy VSWMR

Pace Project No.: 92473800

Date: 04/23/2020 08:38 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92473800001	ED-26-20200414	EPA 3010A	537477	EPA 6020B	537485
92473800002	EB-01-20200414	EPA 3010A	537477	EPA 6020B	537485
92473800001	ED-26-20200414	EPA 420.4 Rev 1.0 1993	537059	EPA 420.4 Rev 1.0 1993	537103
92473800002	EB-01-20200414	EPA 420.4 Rev 1.0 1993	537059	EPA 420.4 Rev 1.0 1993	537103
92473800001	ED-26-20200414	SM 5310B-2011	537194		
92473800002	EB-01-20200414	SM 5310B-2011	537194		

		100)	Sample Cond	ition Up	on Receipt(SCUR)		Page 1 of 2			
		1. A.	ace Analytical"	-	ocument	·		Par	Issuing Authority: ce Carolinas Quality (
	l			F-CA	NR-CS-033	3-KeV.U6		l Pa	ce Carollias Quality	J.IIICE		
Lat	orato	ory receivin Ashevill	ng samples: e Eden	Greenwoo	d 🗌	Hun	itersvil	le 🗹	Raleigh 🗌	Mechanic	sville_	
E-100		Condition Receipt	Client Name:	y Aldr	ich	P	roject i		:9247			
	urler: Comm	ercial		UPS ☐USPS ☐Othe		Clie	ent	924738				
Cust	tody Se	al Present?	∐Yes ∐No	Seals Intact?	∐Yes	□No		Date/Initi	lals Person Examining (Contents:	14-15-20	
Pack	dng Ma	aterial:	Bubble Wrap	Bubble Bags	None	e 🗌 Ot	her		Blological Tissue		20	
		IR Gun ID: _		Type of		wet □BI	lue [None	□Yes □No €]N/A		
Cool	ler Ten	p Corrected	(°C): 3 . Sometime (°C): 3 . Som	Factor: Add/Subtra	ict (°C) _	+0.1	— Тє		e above freezing to 6 out of temp criteria. San		ling process	
Did s	samples	originate in a	quarantine zone within the	he United States: CA	, NY, or SO	C (check map	os)? D in	ld samples origicluding Hawali	inate from a foreign so I and Puerto Rico)? Y Comments/Discrepa	es 🗹 No	nally,	
ŀ									commency storiog			
	Chain	of Custody Pr	esent?	✓Yes	□No	N/A	1.					
			hin Hold Time?		□No	□N/A	3.				CONTROL OF THE PARTY.	
			alysis (<72 hr.)?	☐Yes	₩ No	□N/A	4.					
ł			Time Requested?	/	500000		5.					
ł		ent Volume?	Usad?	☑Yes □Yes	□No □No	□N/A □N/A	6.					
		ct Containers ce Containers			□No	□N/A						
_	Conta	iners Intact?		₩Yes	□No	□N/A	7.					
ninen.			Samples Field Filtered?	□Yes	□No	ØN/A	8.					
		le Labels Mate		Yes	□No	□n/a	9.	-	TO DESCRIPTION OF THE PROPERTY			
	-Inc	cludes Date/T	ime/ID/AnalysIs Matrix:	WT								_
	Heads	space in VOA	Vials (>5-6mm)?	□Yes	₽No	□n/a	10.					
		lank Present?		□Yes	□No	☑N/A	11.					
			Seals Present?	Yes	□No	⊠N/A			Flaid Data	Required?	as DNo	
C	OMME	NTS/SAMPLE E	DISCREPANCY						Field Data	medaneo. 🔲		
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cīī	ENT NO	TIFICATION/R	ESOLUTION	***************************************			Lot	D of split con	tainers:			
LLI		ICATIONA	7									
Р	erson (contacted: _				_ Date/Ti	me:			- · · · · · · · · · · · · · · · · · · ·	e de partir de la companya de la companya de la companya de la companya de la companya de la companya de la co	
	Projec	t Manager S	CURF Review:					Date:				
	Projec	t Manager S	RF Review:					Date:				

Document Name:

Document Revised: February 7, 2018



Document Name: Sample Condition Upon Receipt(SCUR)

Document No.: F-CAR-CS-033-Rev.06 Document Revised: February 7, 2018 Page 1 of 2

Issuing Authority:
Pace Carolinas Quality Office

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

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

Project #

WO#:92473800

PM: PTE

Due Date: 04/29/20

CLIENT: 92-Haley VA

Poweth	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) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (CI-)	AG1H-1 liter Amber HCI (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 NH4Cl (N/A)(CI-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A - lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGOU-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	v
1						1	1	V							1					3										
2						1	V								1					3					1					
3															/										1	1				
4															/								\dashv		7	7				
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9						Z						Ž		Z	Z	Z									7	7				
10					/	1	1	1			\rightarrow	1	1	1	1	1	1			+				+	1	1			\dashv	
11					/	1	1	1	1	\dashv		1		1	7	7	\dashv	\dashv		\dashv		+	\dashv	-	1	7	\dashv		\dashv	
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		рН Ас	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 #

Note: Whenever there is a discrepancy affecting North Carolina compilance 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.



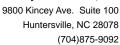


CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

o

Section A	•	Section B							Sec	Section C								22	0 William	Pitt Wa	ay, Pitts	burgh,	PA 1523	220 William Pitt Way, Pittsburgh, PA 15238 (Pace Energy)
Required Client Information:		Required Project Information:	oject In	forma	ation:				Invo	Invoice Information:	rmation	Ë						17	1700 Elm Street SE - Minneapolis, MN 55414	treet SE	- Minn	eapolis	, MN 554	114
Company: Haley & Aldrich, Inc.		Report To: Wright, Erin	Vrigh	t, Eri	'n				Atte	Attention:								77	7726 Moller Road - Indianapolis, IN 46268	- Road -	Indiana	apolis,	N 46268	
Address: 1 Park West Circle		Copy To: (Shatte	erton,	Chatterton, Kelly				Con	Company Name:	Vame:							REGU	REGULATORY AGENCY	Y AGE	NCY			
Suite 208, Midlothian, VA 23114	hian, VA 23114	-3-1	chatt	erton	n@haleya	kchatterton@haleyaldrich.com			Add	Address:								z Ll	NPDES	ᅵ니	GRC	OND \	GROUND VT.TER	DRINKING
Email To: ewright@haleyaldrich.com		BSA #:		2	2019-22-Pace	ace			Pace	Pace Quote Reference:								ᄓ	UST	∟l	œ	RCRA	∟l	
Phone: 804-419-0012 Fax:		H&A Client Name:	me:	Omir	nion Energ	Dominion Energy: Possum P	Point 1		Pace	Project		ylor.ez	taylor.ezell@pacelabs.com	scelab	s.com			Site	Site Location	_				
Requested Due Date/TAT:	Standard	H&A Project #:	#	134660	00				Pace	Profile	# TE	TBD (9362?)	627)						STATE	. 1	NA.			
Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement #2019-22-Pace by and between Haley & Aldrich, its subsidiaries and affiliates and Pace Analytical Services, Inc.	f Custody shall be performed in and Pace Analytical Services, In	accordance c.	with ter	rms an	nd conditions	within Blanke	Service Agree	ment #2019-22	-Pace by	and be	tween	Haley & ,	Aldrich,			Requ	ested	Analys	Requested Analysis Filtered (Y/N)	red (Y/I	2			
Section D Required Client Information	Matrix Codes	des		(AMC)		COLLECTED	CTED				Pre	Preservatives	tives		Î N /A							Γ		
	Drinking Water Water Waste Water Product Soil/Solid	정 장 장 교 교 교	see valid codes t))=3 8ARD=	S S	Collection	Sample Depth								†:		(201)		17			(N/X)		
Sample IDs MUST BE UNIQUE	CONTRACTOR CONTRACTOR	S A S T O		S) BAYT BLAMAS	DATE	TIME	Start Depth (Circle: feet or inches)	End Depth (Circle: feet or or	# OF CONTAINER	Unpreserved	FONH FOS ² H	HCI HCI	_€ O _s S _s bN	Methanol Other	LeaT sisylanA List Test	WCB Water Quality I	Total Organic Carbon					Residual Chlorine	Pace P	Pace Project No./ Lab
1 =0-26-202	41400202	_	2 700	5	4-14-20	0211 0			L	L	\vdash			F	X	×	×	\vdash		L	F	F		100
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ADDITIONAL COMMENTS	COMMENTS		REL	INOU	ISHED BY	RELINQUISHED BY / AFFILIATION	z	DATE	-	TIME			ACC		BY I A	ACCEPTED BY / AFFILIATION	NOL		DATE	F	TIME	-	SAMPLE	SAMPLE CONDITIONS
VSWMR Metals List: copper, nickel, silver, tin, vanadium, and zinc	per, nickel, silver, tin,	And	1	1 7	Jerri 190			V-14-20		1800		2	0	E.	3	Glassoray	2	3	4-12-30	000	30	6	3	>
VWCB Water Quality Pollutant List: phenolics, potassium, iron, manganese, hardness, and	utant List: phenolics,								++															
Pag									-		-					Section 1999							J	1:
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April 23, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy CCR
Pace Project No.: 92473946

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 16, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Asheville

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

Sincerely,

Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092

Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy CCR

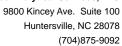
Pace Project No.: 92473946

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222



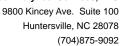


SAMPLE SUMMARY

Project: Dominion Energy CCR

Pace Project No.: 92473946

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92473946001	ES-1-20200415	Water	04/15/20 12:00	04/16/20 09:20
92473946002	ES-1D-20200415	Water	04/15/20 14:15	04/16/20 09:20





SAMPLE ANALYTE COUNT

Project: Dominion Energy CCR

Pace Project No.: 92473946

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92473946001	ES-1-20200415	EPA 6020B	BG2	3	PASI-A
92473946002	ES-1D-20200415	EPA 6020B	BG2	3	PASI-A

PASI-A = Pace Analytical Services - Asheville

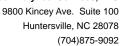


SUMMARY OF DETECTION

Project: Dominion Energy CCR

Pace Project No.: 92473946

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92473946001	ES-1-20200415					
EPA 6020B	Boron	288	ug/L	125	04/22/20 13:38	
EPA 6020B	Nickel	21.1	ug/L	0.50	04/22/20 18:41	
EPA 6020B	Zinc	75.3	ug/L	5.0	04/22/20 18:41	
92473946002	ES-1D-20200415					
EPA 6020B	Boron	18.9J	ug/L	25.0	04/22/20 13:48	
EPA 6020B	Nickel	0.87	ug/L	0.50	04/22/20 13:48	
EPA 6020B	Zinc	2.7J	ug/L	5.0	04/22/20 13:48	





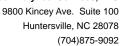
ANALYTICAL RESULTS

Project: Dominion Energy CCR

Pace Project No.: 92473946

Date: 04/23/2020 06:55 AM

Sample: ES-1-20200415	Lab ID:	92473946001	Collecte	d: 04/15/20	12:00	Received: 04/	16/20 09:20 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	,	Method: EPA 6 ytical Services		aration Met	hod: E	PA 3010A			
Boron	288	ug/L	125	12.8	5	04/22/20 02:14	04/22/20 13:38	7440-42-8	
Nickel	21.1	ug/L	0.50	0.11	1	04/22/20 02:14	04/22/20 18:41	7440-02-0	
Zinc	75.3	ug/L	5.0	1.1	1	04/22/20 02:14	04/22/20 18:41	7440-66-6	





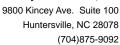
ANALYTICAL RESULTS

Project: Dominion Energy CCR

Pace Project No.: 92473946

Date: 04/23/2020 06:55 AM

Sample: ES-1D-20200415	Lab ID:	92473946002	Collecte	d: 04/15/20	14:15	Received: 04/	16/20 09:20 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	,	Method: EPA 6 ytical Services		aration Met	hod: El	PA 3010A			
Boron	18.9J	ug/L	25.0	2.6	1	04/22/20 02:14	04/22/20 13:48	7440-42-8	
Nickel	0.87	ug/L	0.50	0.11	1	04/22/20 02:14	04/22/20 13:48	7440-02-0	
Zinc	2.7J	ug/L	5.0	1.1	1	04/22/20 02:14	04/22/20 13:48	7440-66-6	





QUALITY CONTROL DATA

Project: Dominion Energy CCR

Pace Project No.: 92473946

QC Batch: 537477 QC Batch Method: EPA 3010A Analysis Method: EPA 6020B

Analysis Description: 6020 MET

Laboratory:

Pace Analytical Services - Asheville

Associated Lab Samples: 92473946001, 92473946002

METHOD BLANK: 2866333

Date: 04/23/2020 06:55 AM

Matrix: Water

Associated Lab Samples: 92473946001, 92473946002

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	ND ND	25.0	2.6	04/22/20 12:37	
Nickel	ug/L	ND	0.50	0.11	04/22/20 12:37	
Zinc	ug/L	ND	5.0	1.1	04/22/20 12:37	

LABORATORY CONTROL SAMPLE: 2866334 LCS Spike LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Boron 50 52.4 105 80-120 ug/L Nickel 80-120 ug/L 50 52.5 105 50 51.8 Zinc ug/L 104 80-120

MATRIX SPIKE & MATRIX S	PIKE DUPLI	CATE: 2866	335		2866336							
			MS	MSD								
	9	92473553001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron	ug/L	6.1J	50	50	60.7	64.1	109	116	75-125	5	20	
Nickel	ug/L	1.3	50	50	53.6	53.6	105	105	75-125	0	20	
Zinc	ug/L	4.4J	50	50	55.0	56.4	101	104	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.



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

QUALIFIERS

Project: Dominion Energy CCR

Pace Project No.: 92473946

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.

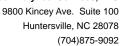
A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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.

Date: 04/23/2020 06:55 AM





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy CCR

Pace Project No.: 92473946

Date: 04/23/2020 06:55 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92473946001	ES-1-20200415	EPA 3010A	537477	EPA 6020B	537485
92473946002	ES-1D-20200415	EPA 3010A	537477	EPA 6020B	537485

Pace Analytical*

Project Manager SRF Review:

Document Name: Sample Condition Upon Receipt(SCUR)

Document No.: F-CAR-CS-033-Rev.06 Document Revised: February 7, 2018 Page 1 of 2

Issuing Authority: Pace Carolinas Quality Office

La	boratory receiving samples: Asheville	Greenwood 🗌	Hunters	ville 🖸	Raleigh	Mechanics ville
	Client Name: Upon Receipt Durler: Commercial Pace Tody Seal Present? View Pace View Power Pace	Seals Intact? Yes	Project	92473946	: 92473	
		Bubble Bags None	Other		Biological Tissu	e Frozen?
ine	rmometer: [DIR Gun ID: 92T061	Type of Ice: 🗹 W	et Blue	None		
Coc	Oler Temp (°C): Correction F Siler Temp Corrected (°C): OA Regulated Soil (© N/A, water sample)	actor: Add/Subtract (°C)	+0.1		above freezing to 6 ut of temp criteria. San	°C nples on Ice, cooling process
	samples originate in a quarantine zone within the	e United States: CA, NY, or SC (nate from a foreign so	
	□Yes ☑No				and Puerto Rico)? Y Comments/Discrepa	
	Chain of Custody Present?	∀yes □No I	□N/A 1.			
100	Samples Arrived within Hold Time?		□N/A 2. □N/A 3.			
	Short Hold Time Analysis (<72 hr.)? Rush Turn Around Time Requested?		□N/A 3.			
	#67 DI 0 32 NI					
	Sufficient Volume?	/	□n/A 5. □n/A 6.			
	Correct Containers Used? -Pace Containers Used?		□n/a 6. □n/a			2
	Containers Intact?	₽Yes □No	□N/A 7.			
	Dissolved analysis: Samples Field Filtered?		☑N/A 8.			
	Sample Labels Match COC?		□N/A 9.			
	-Includes Date/Time/ID/Analysis Matrix:	WT				
	Headspace in VOA Vials (>5-6mm)?		☑N/A 10.			
	Trip Blank Present?	□Yes □No	□N/A 11.			7 h
	Trip Blank Custody Seals Present?	☐Yes ☐No	□ n/a		Fleid Data F	tequired?
_	OMMENTS/SAMPLE DISCREPANCY				Field Data F	required Ties Tivo
-			Lot	ID of split conta	ilners:	
CLI	ENT NOTIFICATION/RESOLUTION		-00	T. Thur Berne		
Ρ	erson contacted:		Date/Time: _			
	Project Manager SCURF Review:			Date: _		

Date: _



Document Name: Sample Condition Upon Receipt(SCUR)

Document No.: F-CAR-CS-033-Rev.06 Document Revised: February 7, 2018 Page 1 of 2

Issuing Authority: Pace Carolinas Quality Office

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

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

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

Project

WO#: 92473946

M. PTE

Due Date: 04/23/20

CLIENT: 92-Haley VA

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) (CI-)	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 NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1						X																						
2																												
3	N																					-			V			
4																								\setminus				
5					\sum	\sum	Z	Z			\angle		7	7	7									\angle	Z			
6					7	/	/						/															\neg
7							7				7		-	/	/									$\overline{}$				
8						abla	\angle						/															
9						$ ag{1}$	\angle						7											/	7			
10					\forall	\forall	\angle																					
11		-			7	\forall	$\langle \cdot \rangle$						/	\angle		\dashv			-					7				
12					7	1							/															

pH Adjustment Log for Preserved Samples												
Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #						
ži												

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.





CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: \ of \

13473846 DRINKING Pace Project No./ Lab 220 William Pitt Way, Pittsburgh, PA 15238 (Pace Energy) Samples Intact (V/V) SAMPLE CONDITIONS 1700 Elm Street SE - Minneapolis, MN 55414 (N/Y) 7726 Moller Road - Indianapolis, IN 46268 GROUND VITTER Custody Saled Cooler RCRA [Residual Chlorine (Y/N) O° ni qmaT 920 グ REGULATORY AGENCY TIME Requested Analysis Filtered (Y/N) L 4-15-20 16/2 STATE: Site Location DATE ☐ NPDES UST reck Klessow/ Have DATE Signed (MM/DD/YY): ACCEPTED BY / AFFILIATION X 2inc × × lickel taylor.ezell@pacelabs.com Analysis Test TN/A Other Methanol Reference:
Pace Project taylor.ezell@ps
Manager:
Pace Profile #: TBD (9362?) Geringe Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement #2019-22-Pace by and between Haley & Aldrich, its subsidiaries and affiliates and Pace Analytical Services, Inc. Na₂S₂O₃ Preservatives HOBN HCI Invoice Information: HNO3 Company Name: *OS^zH ANA Section C TIME 1730 Unpreserved ace Quote Address: # OF CONTAINERS SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION 4-15-20 DATE End Depth (Circle: feet or inches) Sample Depth Start Depth (Circle: feet inches) 1&A Client Name: Dominion Energy: Possum Point COLLECTED H+A RELINQUISHED BY / AFFILIATION TIME 1500 kchatterton@haleyaldrich.com 1415 Collection Info 2019-22-Pace 4-15-20 4-15-20 DATE Andy Cherringer Copy To: Chatterton, Kelly Required Project Information: 134660 Report To: Wright, Erin J **SAMPLE TYPE** (G=GRAB C=COMP) 13 13 H&A Project #: (see valid codes to left) MATRIX CODE Section B BSA #: Matrix Codes
MATRIX / CODE Drinking Water Water Waste Water Product Soil/Solid Air Tissue Other Oil Suite 208, Midlothian, VA 23114 -10-2020B415 Standard ADDITIONAL COMMENTS Email To: ewright@haleyaldrich.com -20200415 (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE Company: Haley & Aldrich, Inc. 804-419-0012 Fax: SAMPLE ID Address: 1 Park West Circle Required Client Information Required Client Information: Requested Due Date/TAT: Section D Section A IT U 10 12 7 2 7 Page 13 of 13 4 9 œ 6 # MHTI

#3 Nature and Extent Wells







April 22, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy CCR Pace Project No.: 92473947

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 16, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

Pace Analytical Services - Asheville

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

Sincerely,

Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092 Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy CCR

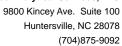
Pace Project No.: 92473947

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Dominion Energy CCR

Pace Project No.: 92473947

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92473947001	ES-1-20200415	Water	04/15/20 12:00	04/16/20 09:20
92473947002	ES-1D-20200415	Water	04/15/20 14:15	04/16/20 09:20



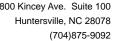
SAMPLE ANALYTE COUNT

Project: Dominion Energy CCR

Pace Project No.: 92473947

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92473947001	ES-1-20200415	EPA 6020B	BG2, JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	JNS	1	PASI-A
		EPA 9056A	CDC	3	PASI-A
92473947002	ES-1D-20200415	EPA 6020B	BG2, JOR	13	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	JNS	1	PASI-A
		EPA 9056A	CDC	3	PASI-A

PASI-A = Pace Analytical Services - Asheville





SUMMARY OF DETECTION

Project: Dominion Energy CCR

Pace Project No.: 92473947

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92473947001	ES-1-20200415					
EPA 6020B	Arsenic	0.18	ug/L	0.10	04/20/20 21:39	
EPA 6020B	Barium	26.9	ug/L	0.30	04/20/20 21:39	
EPA 6020B	Beryllium	1.6	ug/L	0.10	04/20/20 21:39	
EPA 6020B	Cadmium	0.15	ug/L	0.080	04/20/20 21:39	
EPA 6020B	Calcium	9090	ug/L	2000	04/21/20 18:26	
EPA 6020B	Cobalt	5.8	ug/L	0.10	04/20/20 21:39	
EPA 6020B	Lithium	2.9	ug/L	2.5	04/20/20 21:39	
EPA 6020B	Selenium	0.17J	ug/L	0.50	04/20/20 21:39	
EPA 6020B	Thallium	0.077J	ug/L	0.10	04/20/20 21:39	
SM 2540C-2011	Total Dissolved Solids	268	mg/L	25.0	04/19/20 10:07	
EPA 9056A	Chloride	76.7	mg/L	1.0	04/17/20 13:02	
EPA 9056A	Sulfate	79.8	mg/L	1.0	04/17/20 13:02	
2473947002	ES-1D-20200415					
EPA 6020B	Arsenic	0.14	ug/L	0.10	04/20/20 21:50	
EPA 6020B	Barium	74.6	ug/L	0.30	04/20/20 21:50	
EPA 6020B	Calcium	18200	ug/L	4000	04/21/20 18:31	
EPA 6020B	Cobalt	0.39	ug/L	0.10	04/20/20 21:50	
EPA 6020B	Lithium	13.4	ug/L	2.5	04/20/20 21:50	
EPA 6020B	Molybdenum	1.3	ug/L	0.50	04/20/20 21:50	
SM 2540C-2011	Total Dissolved Solids	169	mg/L	25.0	04/19/20 10:07	
EPA 9056A	Chloride	10.0	mg/L	1.0	04/17/20 13:16	
EPA 9056A	Fluoride	75.0J	ug/L	100	04/17/20 13:16	
EPA 9056A	Sulfate	8.6	mg/L	1.0	04/17/20 13:16	



ANALYTICAL RESULTS

Project: Dominion Energy CCR

Pace Project No.: 92473947

Date: 04/22/2020 01:10 PM

Sample: ES-1-20200415	Lab ID:	92473947001	Collected	04/15/20	12:00	Received: 04/	16/20 09:20 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	ration Met	hod: EF	PA 3010A			
	Pace Analy	ytical Services	- Asheville						
Antimony	ND	ug/L	0.50	0.11	1	04/18/20 01:26	04/20/20 21:39	7440-36-0	
Arsenic	0.18	ug/L	0.10	0.060	1	04/18/20 01:26	04/20/20 21:39	7440-38-2	
Barium	26.9	ug/L	0.30	0.060	1	04/18/20 01:26	04/20/20 21:39	7440-39-3	
Beryllium	1.6	ug/L	0.10	0.050	1	04/18/20 01:26	04/20/20 21:39	7440-41-7	
Cadmium	0.15	ug/L	0.080	0.070	1	04/18/20 01:26	04/20/20 21:39	7440-43-9	
Calcium	9090	ug/L	2000	206	10	04/18/20 01:26	04/21/20 18:26	7440-70-2	
Chromium	ND	ug/L	0.50	0.42	1	04/18/20 01:26	04/20/20 21:39	7440-47-3	
Cobalt	5.8	ug/L	0.10	0.050	1	04/18/20 01:26	04/20/20 21:39	7440-48-4	
Lead	ND	ug/L	0.10	0.050	1	04/18/20 01:26	04/20/20 21:39	7439-92-1	
Lithium	2.9	ug/L	2.5	0.42	1	04/18/20 01:26	04/20/20 21:39	7439-93-2	
Molybdenum	ND	ug/L	0.50	0.10	1	04/18/20 01:26	04/20/20 21:39	7439-98-7	
Selenium	0.17J	ug/L	0.50	0.080	1	04/18/20 01:26	04/20/20 21:39	7782-49-2	
Thallium	0.077J	ug/L	0.10	0.060	1	04/18/20 01:26	04/20/20 21:39	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	470A Prepa	ration Met	nod: EF	PA 7470A			
	Pace Analy	ytical Services	- Asheville						
Mercury	ND	ug/L	0.20	0.10	1	04/20/20 10:40	04/20/20 16:39	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C-2011						
	Pace Analy	ytical Services	- Asheville						
Total Dissolved Solids	268	mg/L	25.0	25.0	1		04/19/20 10:07		
9056 IC anions 28 Days	Analytical	Method: EPA 9	056A						
-	Pace Analy	ytical Services	- Asheville						
Chloride	76.7	mg/L	1.0	0.60	1		04/17/20 13:02	16887-00-6	
Fluoride	ND	ug/L	100	50.0	1		04/17/20 13:02	16984-48-8	
Sulfate	79.8	mg/L	1.0	0.50	1		04/17/20 13:02	1/18/18-70-8	



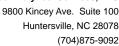
ANALYTICAL RESULTS

Project: Dominion Energy CCR

Pace Project No.: 92473947

Date: 04/22/2020 01:10 PM

Sample: ES-1D-20200415	Lab ID:	92473947002	Collected:	04/15/20	14:15	Received: 04/	16/20 09:20 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	ration Meth	nod: EF	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Antimony	ND	ug/L	0.50	0.11	1	04/18/20 01:26	04/20/20 21:50	7440-36-0	
Arsenic	0.14	ug/L	0.10	0.060	1	04/18/20 01:26	04/20/20 21:50	7440-38-2	
Barium	74.6	ug/L	0.30	0.060	1	04/18/20 01:26	04/20/20 21:50	7440-39-3	
Beryllium	ND	ug/L	0.10	0.050	1	04/18/20 01:26	04/20/20 21:50	7440-41-7	
Cadmium	ND	ug/L	0.080	0.070	1	04/18/20 01:26	04/20/20 21:50	7440-43-9	
Calcium	18200	ug/L	4000	412	20	04/18/20 01:26	04/21/20 18:31	7440-70-2	
Chromium	ND	ug/L	0.50	0.42	1	04/18/20 01:26	04/20/20 21:50	7440-47-3	
Cobalt	0.39	ug/L	0.10	0.050	1	04/18/20 01:26	04/20/20 21:50	7440-48-4	
_ead	ND	ug/L	0.10	0.050	1	04/18/20 01:26	04/20/20 21:50	7439-92-1	
Lithium	13.4	ug/L	2.5	0.42	1	04/18/20 01:26	04/20/20 21:50	7439-93-2	
Molybdenum	1.3	ug/L	0.50	0.10	1	04/18/20 01:26	04/20/20 21:50	7439-98-7	
Selenium	ND	ug/L	0.50	0.080	1	04/18/20 01:26	04/20/20 21:50	7782-49-2	
Thallium	ND	ug/L	0.10	0.060	1	04/18/20 01:26	04/20/20 21:50	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	470A Prepa	ration Meth	nod: EP	'A 7470A			
	Pace Anal	ytical Services	- Asheville						
Mercury	ND	ug/L	0.20	0.10	1	04/20/20 10:40	04/20/20 16:47	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C-2011						
	Pace Anal	ytical Services	- Asheville						
Total Dissolved Solids	169	mg/L	25.0	25.0	1		04/19/20 10:07		
9056 IC anions 28 Days	Analytical	Method: EPA 9	056A						
·	Pace Anal	ytical Services	- Asheville						
Chloride	10.0	mg/L	1.0	0.60	1		04/17/20 13:16	16887-00-6	
Fluoride	75.0J	ug/L	100	50.0	1		04/17/20 13:16	16984-48-8	
Sulfate	8.6	mg/L	1.0	0.50	1		04/17/20 13:16		





Project:

Dominion Energy CCR

Pace Project No.:

92473947

QC Batch: QC Batch Method:

METHOD BLANK:

537073

EPA 7470A

Analysis Method:

EPA 7470A

Analysis Description:

7470 Mercury

Laboratory:

Pace Analytical Services - Asheville

Associated Lab Samples:

92473947001, 92473947002

Matrix: Water

Associated Lab Samples:

92473947001, 92473947002

Reporting

Blank Result

Limit

MDL Analyzed

Qualifiers

Mercury

Mercury

Units ug/L

Units

ug/L

ND

0.20

0.10 04/20/20 15:50

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Date: 04/22/2020 01:10 PM

Parameter

2864578

Spike Conc.

2.5

LCS Result

LCS % Rec % Rec Limits

80-120

Qualifiers

2864579

ND

MSD

92473551001 Units Result

ug/L

Conc.

MSD Result

MS % Rec

MSD % Rec % Rec Limits

Max **RPD**

RPD Qual

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

MS

Spike

Spike Conc.

MS Result

114

Mercury

2.5 2.5 2.8

2.8

2864580

2.8

114

111 75-125

2

25

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: Dominion Energy CCR

Pace Project No.: 92473947

Date: 04/22/2020 01:10 PM

QC Batch: 536961 Analysis Method:
QC Batch Method: EPA 3010A Analysis Description:

Analysis Description: 6020 MET

Laboratory: Pace Analytical Services - Asheville

EPA 6020B

Associated Lab Samples: 92473947001, 92473947002

METHOD BLANK: 2864237 Matrix: Water

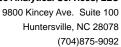
Associated Lab Samples: 92473947001, 92473947002

Accordated Edb Campion.	32473347001, 32473347002					
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	ND	0.50	0.11	04/20/20 13:39	
Arsenic	ug/L	ND	0.10	0.060	04/20/20 13:39	
Barium	ug/L	ND	0.30	0.060	04/20/20 13:39	
Beryllium	ug/L	ND	0.10	0.050	04/20/20 13:39	
Cadmium	ug/L	ND	0.080	0.070	04/20/20 13:39	
Calcium	ug/L	ND	200	20.6	04/20/20 13:39	
Chromium	ug/L	ND	0.50	0.42	04/20/20 13:39	
Cobalt	ug/L	ND	0.10	0.050	04/20/20 13:39	
Lead	ug/L	ND	0.10	0.050	04/20/20 13:39	
Lithium	ug/L	ND	2.5	0.42	04/20/20 13:39	
Molybdenum	ug/L	ND	0.50	0.10	04/20/20 13:39	
Selenium	ug/L	ND	0.50	0.080	04/20/20 13:39	
Thallium	ug/L	ND	0.10	0.060	04/20/20 13:39	
Thallium	•					

LABORATORY CONTROL SAMPLE:	2864238					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	ug/L	50	52.7	105	80-120	
Arsenic	ug/L	10	10.3	103	80-120	
Barium	ug/L	50	52.0	104	80-120	
Beryllium	ug/L	10	9.6	96	80-120	
Cadmium	ug/L	10	10.0	100	80-120	
Calcium	ug/L	625	643	103	80-120	
Chromium	ug/L	50	49.7	99	80-120	
Cobalt	ug/L	10	9.9	99	80-120	
Lead	ug/L	50	51.3	103	80-120	
Lithium	ug/L	50	49.6	99	80-120	
Molybdenum	ug/L	50	50.3	101	80-120	
Selenium	ug/L	50	52.5	105	80-120	
Thallium	ug/L	10	10.2	102	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPLI	CATE: 2864	239		2864240							
			MS	MSD								
	(92474211005	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 ND	50	50	53.0	52.9	106	106	75-125	0	20	
Arsenic	ug/L	0.32	10	10	10.6	10.6	103	103	75-125	0	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.





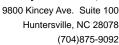
Project: Dominion Energy CCR

Pace Project No.: 92473947

Date: 04/22/2020 01:10 PM

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 2864	239		2864240							
Danamatan		92474211005	MS Spike	MSD Spike	MS	MSD	MS % Date	MSD	% Rec	DDD	Max	Oval
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Beryllium	ug/L	ND	10	10	9.7	9.8	97	97	75-125	0	20	
Cadmium	ug/L	ND	10	10	9.9	9.9	99	98	75-125	1	20	
Chromium	ug/L	0.84	50	50	51.5	50.6	101	99	75-125	2	20	
Cobalt	ug/L	ND	10	10	10.2	10.0	99	97	75-125	2	20	
Lead	ug/L	1.0	50	50	53.4	52.7	105	103	75-125	1	20	
Lithium	ug/L	ND	50	50	51.2	51.0	100	100	75-125	0	20	
Molybdenum	ug/L	ND	50	50	50.2	50.3	100	100	75-125	0	20	
Selenium	ug/L	ND	50	50	50.4	50.2	101	100	75-125	0	20	
Thallium	ug/L	ND	10	10	10.5	10.4	105	104	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.





Project: Dominion Energy CCR

Pace Project No.: 92473947

QC Batch: 537010 Analysis Method: SM 2540C-2011

QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473947001, 92473947002

METHOD BLANK: 2864411 Matrix: Water

Associated Lab Samples: 92473947001, 92473947002

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Total Dissolved Solids mg/L ND 25.0 25.0 04/19/20 10:03

LABORATORY CONTROL SAMPLE: 2864412

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units **Total Dissolved Solids** mg/L 250 268 107 90-110

SAMPLE DUPLICATE: 2864413

 Parameter
 Units
 92472791029 Result
 Dup Result
 Max RPD
 RPD
 Qualifiers

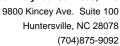
 Total Dissolved Solids
 mg/L
 554
 549
 1
 25 MW

SAMPLE DUPLICATE: 2864414

Date: 04/22/2020 01:10 PM

92474026001 Dup Max RPD RPD Parameter Units Result Result Qualifiers Total Dissolved Solids 898 902 0 mg/L 25

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: Dominion Energy CCR

Pace Project No.: 92473947

Date: 04/22/2020 01:10 PM

QC Batch: 536715 Analysis Method:

QC Batch Method: EPA 9056A Analysis Description: 9056 IC anions 28 Days

Laboratory: Pace Analytical Services - Asheville

EPA 9056A

Associated Lab Samples: 92473947001, 92473947002

METHOD BLANK: 2863008 Matrix: Water

Associated Lab Samples: 92473947001, 92473947002

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND ND	1.0	0.60	04/17/20 10:13	
Fluoride	ug/L	ND	100	50.0	04/17/20 10:13	
Sulfate	ma/L	ND	1.0	0.50	04/17/20 10:13	

LABORATORY CONTROL SAMPLE: 2863009 LCS Spike LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Chloride 104 mg/L 50 51.9 90-110 Fluoride 2500 2400 ug/L 96 90-110 Sulfate 105 mg/L 50 52.4 90-110

MATRIX SPIKE & MATRIX SP	IKE DUPL	JICATE: 2863	010		2863011							
			MS	MSD								
		92474051001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	9.1	50	50	59.6	59.2	101	100	90-110	1	10	
Fluoride	ug/L	ND	2500	2500	2350	2350	93	93	90-110	0	10	
Sulfate	mg/L	2.9	50	50	53.9	53.5	102	101	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.



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

QUALIFIERS

Project: Dominion Energy CCR

Pace Project No.: 92473947

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.

ANALYTE QUALIFIERS

Date: 04/22/2020 01:10 PM

MW Due to matrix interference, achieving a constant weight is not possible.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy CCR

Pace Project No.: 92473947

Date: 04/22/2020 01:10 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92473947001	ES-1-20200415	EPA 3010A	536961	EPA 6020B	536974
92473947002	ES-1D-20200415	EPA 3010A	536961	EPA 6020B	536974
92473947001	ES-1-20200415	EPA 7470A	537073	EPA 7470A	537132
92473947002	ES-1D-20200415	EPA 7470A	537073	EPA 7470A	537132
92473947001	ES-1-20200415	SM 2540C-2011	537010		
92473947002	ES-1D-20200415	SM 2540C-2011	537010		
92473947001	ES-1-20200415	EPA 9056A	536715		
92473947002	ES-1D-20200415	EPA 9056A	536715		

Page 1 of 2 Sample Condition Upon Receipt(SCUR) ace Analytical Issuing Authority: Document No.: Pace Carolinas Quality Office F-CAR-CS-033-Rev.06 Laboratory receiving samples: Mechanicsville Raleigh Huntersville 2 Greenwood Asheville Eden WO#:92473947 Client Name: Upon Receipt Client Courler: Other: ☐ Commercial No No □ Yes Yes Seals Intact? Custody Seal Present? Date/Initials Person Examining Contents: Blological Tissue Frozen? Other Hubble Bags None Packing Material: Bubble Wrap ☐Yes ☐No ☐N/A Thermometer ☑Wet ☐Blue None Type of Ice: 92T061 IR Gun ID: _ Cooler Temp (°C): Correction Factor: Add/Subtract (°C) +0.1 Temp should be above freezing to 6°C Samples out of temp criteria. Samples on Ice, cooling process Cooler Temp Corrected (°C): has begun USDA Regulated Soil (N/A, water sample) DId samples originate from a foreign source (internationally, Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? including Hawall and Puerto Rico)? Yes Yes No Comments/Discrepancy: Yes □N/A 1. □No Chain of Custody Present? WYes □N/A Samples Arrived within Hold Time? 3. No □N/A Yes Short Hold Time Analysis (<72 hr.)? 4. No □N/A Yes Rush Turn Around Time Requested? Wes No □N/A Sufficient Volume? 19 Yes No □N/A Correct Containers Used? □N/A □No Ves -Pace Containers Used? Yes □N/A No Containers Intact? □No ØN/A ☐ Yes Dissolved analysis: Samples Field Filtered? □N/A Yes □No Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: Yes No □N/A Headspace in VOA Vials (>5-6mm)? No N/A 11. Yes Trip Blank Present? PN/A Yes □No Trip Blank Custody Seals Present? field Data Required? Yes No COMMENTS/SAMPLE DISCREPANCY Lot ID of split containers: CLIENT NOTIFICATION/RESOLUTION Date/Time: Person contacted: _

Date: ___

Project Manager SCURF Review:

Project Manager SRF Review:

Document Name:

Document Revisea: repludity /, 2010



Document Name: Sample Condition Upon Receipt(SCUR)

Document No.: F-CAR-CS-033-Rev.06 Document Revised: February 7, 2018 Page 1 of 2

> Issuing Authority: Pace Carolinas Quality Office

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

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

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

Project # WO#: 92473947

PM: PTE

Due Date: 05/07/20

CLIENT: 92-Haley VA

	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) (CI-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP42-125 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)	AG35-250 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 Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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		pH Ad	justment Log for Pres	erved Samples		
Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #
8						-
		*				
			E.			

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.



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

ō Page:

Section A	ŭ	Section B							ŏ	Section C	ပ								220	William	Pitt Wa	y, Pitts	sburgh,	PA 1523	220 William Pitt Way, Pittsburgh, PA 15238 (Pace Energy)	ergy)
Required Client Information:	Ŗ	Required Project Information:	oject I	Inform	nation:				Ē	Invoice Information:	formati	ion:							1700	Elm St	reet SE	-Minn	leapoli	1700 Elm Street SE - Minneapolis, MN 55414	114	
Company: Haley & Aldrich, Inc.		Report To: Wright, Erin	Vrigh	ht, E	rin				¥	Attention:									7726	Moller	Road -	Indiana	apolis,	7726 Moller Road - Indianapolis, IN 46268		
Address: 1 Park West Circle		Copy To: (Chatt	terto	Chatterton, Kelly				3	Company Name:	Name								REGULATORY AGENCY	ATORY	AGE	\C√				
Suite 208, Midlothian, VA 23114	an, VA 23114		chat	tterto	kchatterton@haleyaldrich.com	drich.com			Ą	Address:									₽ □	NPDES	디	GRO	QNNC	GROUND VT.TER	DRIN	DRINKING V
Email To: ewright@haleyaldrich.com		BSA#:			2019-22-Pace	ace			Pa B 8	Pace Quote Reference:									□ UST	_	L	Œ	RCRA	□I		
Phone: 804-419-0012 Fax:	84	A Client Na	me:	Dom	H&A Client Name: Dominion Energy: Possum Point	y: Possur	n Point		Pa W	ce Projec	0.000	aylor.	ezell	taylor.ezell@pacelabs.com	elabs	.com			Site	Site Location		-				
Requested Due Date/TAT:	Standard	H&A Project #:	1	134660	360				g.	Pace Profile #:		TBD (9362?)	9362	6						STATE		5				
Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Servinc. its subsidiaries and affiliates and Pace Analytical Services, Inc.	ustody shall be performed in a Pace Analytical Services, Inc.	accordance	with to	erms	and conditions	within Blank	at Service Agre	ice Agreement #2019-22-Pace by and between Haley & Aldrich,	2-Pace	by and b	etweer	Haley	& Aldr	ich,			Requ	estec	Requested Analysis Filtered (Y/N)	s Filter	ed (Y/I	9				
Section D Required Client Information	Matrix Codes MATRIX / CODE	es Sign	(fiel o	(AMC		COLLE	COLLECTED				0	Preservatives	vativ	Se	I N/A	ÎN/A							Г			
	Drinking Water Water Waste Water Product Soil/Solid	W W W	see valid codes	SERAB C=CC	Collect	Collection	Sam	Sample Depth		•													(N/X) €			
SAMPLE ID Sample IDs MUST BE UNIQUE		A R R P	MATRIX CODE (SAMPLE TYPE (G:	DATE	T E M	Start Depth (Circle: feet or inches)	End Depth (Circle: feet or inches)	SAMPLE TEMP AT C	# OF CONTAINER	⁵OS ^z H	HCI HNO ³	HOaN	Na ₂ S ₂ O ₃	Other Tee	te9T sisylsnA↓ st9M & snoinA III xqqA	tsi⊿ List Metals List	Total Dissolved Solids Radium 226 & 228 Co					Residual Chlorine	0,	PLY 739 9-	2 Lab
1 ES-1-202	0200415		13	J	4-15-20	_			H	-		-		\vdash		X	×	×							100	
2 ES-10-202	-20200415		53	5	65-21-H											×	×	X)	503	_/
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ADDITIONAL COMMENTS	DMMENTS		2	LING	RELINQUISHED BY / AFFILIATION	AFFILIATION	NO	DATE		TIME				ACCE	ACCEPTED BY / AFFILIATION	BY / A	FILIA	NOIL		DATE	F	TIME		SAMPLE	SAMPLE CONDITIONS	s
Appx III Anions & Metals List: calcium, chloride, fluoride, and sulfate.	st: calcium, chloride,	And	7	J	4 erringer	1	H+A	4-15-20		1730	0	S	Q.		3	2	20	9	2/2	200	20	2	6	2	1	
Appx IV Metals List: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lithium, mercurv, molybdenum, selenium	ny, arsenic, barium, ium, cobalt, fluoride, bdenum, selenium																									
and thallium.						SAMPL	SAMPLER NAME AND SIGNATURE	ND SIGNAT	JRE														၁.	19loc	ntact	
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#4 Nature and Extent Wells



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



April 22, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy VSWMR

Pace Project No.: 92473948

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 16, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Asheville

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

Sincerely,

Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092

Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy VSWMR

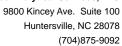
Pace Project No.: 92473948

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Dominion Energy VSWMR

Pace Project No.: 92473948

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92473948001	ES-1-20200415	Water	04/15/20 12:00	04/16/20 09:20
92473948002	ES-1D-20200415	Water	04/15/20 14:15	04/16/20 09:20



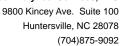
SAMPLE ANALYTE COUNT

Project: Dominion Energy VSWMR

Pace Project No.: 92473948

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92473948001	ES-1-20200415	EPA 6020B	BG2, JOR	9	PASI-A
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A
		SM 5310B-2011	ECH	1	PASI-A
92473948002	ES-1D-20200415	EPA 6020B	BG2, JOR	9	PASI-A
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A
		SM 5310B-2011	ECH	1	PASI-A

PASI-A = Pace Analytical Services - Asheville





SUMMARY OF DETECTION

Project: Dominion Energy VSWMR

Pace Project No.: 92473948

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92473948001	ES-1-20200415					
EPA 6020B	Copper	24.4	ug/L	0.50	04/20/20 21:55	
EPA 6020B	Iron	974	ug/L	50.0	04/20/20 21:55	
EPA 6020B	Manganese	164	ug/L	5.0	04/21/20 18:44	
EPA 6020B	Potassium	3820	ug/L	500	04/21/20 18:44	
EPA 6020B	Sodium	63100	ug/L	25000	04/21/20 18:35	
EPA 6020B	Hardness, Total(SM 2340B)	39000	ug/L	5410	04/21/20 18:44	
EPA 6020B	Vanadium	1.9	ug/L	0.30	04/20/20 21:55	
SM 5310B-2011	Nonpurgeable Organic Carbon	0.84J	mg/L	1.0	04/20/20 21:44	
2473948002	ES-1D-20200415					
EPA 6020B	Copper	0.47J	ug/L	0.50	04/20/20 22:06	
EPA 6020B	Iron	3510	ug/L	500	04/21/20 18:48	
EPA 6020B	Manganese	261	ug/L	5.0	04/21/20 18:48	
EPA 6020B	Potassium	8330	ug/L	500	04/21/20 18:48	
EPA 6020B	Sodium	10900	ug/L	2500	04/21/20 18:48	
EPA 6020B	Tin	0.35J	ug/L	0.50	04/20/20 22:06	
EPA 6020B	Hardness, Total(SM 2340B)	77500	ug/L	10800	04/21/20 18:39	
EPA 6020B	Vanadium	0.86	ug/L	0.30	04/20/20 22:06	
SM 5310B-2011	Nonpurgeable Organic Carbon	0.65J	mg/L	1.0	04/20/20 23:03	



ANALYTICAL RESULTS

Project: Dominion Energy VSWMR

Pace Project No.: 92473948

Date: 04/22/2020 01:10 PM

Sample: ES-1-20200415	Lab ID:	92473948001	Collected	l: 04/15/20	12:00	Received: 04/	16/20 09:20 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: Ef	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Copper	24.4	ug/L	0.50	0.23	1	04/18/20 01:26	04/20/20 21:55	7440-50-8	
Iron	974	ug/L	50.0	7.5	1	04/18/20 01:26	04/20/20 21:55	7439-89-6	
Manganese	164	ug/L	5.0	1.4	10	04/18/20 01:26	04/21/20 18:44	7439-96-5	
Potassium	3820	ug/L	500	61.9	10	04/18/20 01:26	04/21/20 18:44	7440-09-7	
Silver	ND	ug/L	0.40	0.050	1	04/18/20 01:26	04/20/20 21:55	7440-22-4	
Sodium	63100	ug/L	25000	1430	100	04/18/20 01:26	04/21/20 18:35	7440-23-5	
Tin	ND	ug/L	0.50	0.090	1	04/18/20 01:26	04/20/20 21:55	7440-31-5	
Hardness, Total(SM 2340B)	39000	ug/L	5410	701	10	04/18/20 01:26	04/21/20 18:44		
Vanadium	1.9	ug/L	0.30	0.12	1	04/18/20 01:26	04/20/20 21:55	7440-62-2	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	eparatio	on Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Anal	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/20/20 09:55	04/20/20 13:58	108-95-2	
5310B WVA Nonpurgeable Organic	Analytical	Method: SM 53	310B-2011						
	Pace Anal	ytical Services	- Asheville						
Nonpurgeable Organic Carbon	0.84J	mg/L	1.0	0.50	1		04/20/20 21:44	7440-44-0	



ANALYTICAL RESULTS

Project: Dominion Energy VSWMR

Pace Project No.: 92473948

Date: 04/22/2020 01:10 PM

Sample: ES-1D-20200415	Lab ID:	92473948002	Collected	d: 04/15/20	14:15	Received: 04/	16/20 09:20 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: EF	PA 3010A			
	Pace Analy	ytical Services	- Asheville						
Copper	0.47J	ug/L	0.50	0.23	1	04/18/20 01:26	04/20/20 22:06	7440-50-8	
Iron	3510	ug/L	500	74.8	10	04/18/20 01:26	04/21/20 18:48	7439-89-6	
Manganese	261	ug/L	5.0	1.4	10	04/18/20 01:26	04/21/20 18:48	7439-96-5	
Potassium	8330	ug/L	500	61.9	10	04/18/20 01:26	04/21/20 18:48	7440-09-7	
Silver	ND	ug/L	0.40	0.050	1	04/18/20 01:26	04/20/20 22:06	7440-22-4	
Sodium	10900	ug/L	2500	143	10	04/18/20 01:26	04/21/20 18:48	7440-23-5	
Tin	0.35J	ug/L	0.50	0.090	1	04/18/20 01:26	04/20/20 22:06	7440-31-5	
Hardness, Total(SM 2340B)	77500	ug/L	10800	1400	20	04/18/20 01:26	04/21/20 18:39		
Vanadium	0.86	ug/L	0.30	0.12	1	04/18/20 01:26	04/20/20 22:06	7440-62-2	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	paratio	n Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Analy	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/20/20 09:55	04/20/20 13:59	108-95-2	
5310B WVA Nonpurgeable Organic	Analytical	Method: SM 53	310B-2011						
	Pace Analy	ytical Services	- Asheville						
Nonpurgeable Organic Carbon	0.65J	mg/L	1.0	0.50	1		04/20/20 23:03	7440-44-0	



Project: Dominion Energy VSWMR

Pace Project No.: 92473948

Date: 04/22/2020 01:10 PM

QC Batch: 536961 Analysis Method:
QC Batch Method: EPA 3010A Analysis Description:

Analysis Method: EPA 6020B

Analysis Description: 6020 MET

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473948001, 92473948002

METHOD BLANK: 2864237 Matrix: Water

Associated Lab Samples: 92473948001, 92473948002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
		- 				- Qualificity
Copper	ug/L	ND	0.50	0.23	04/20/20 13:39	
Hardness, Total(SM 2340B)	ug/L	ND	541	70.1	04/20/20 13:39	
Iron	ug/L	ND	50.0	7.5	04/20/20 13:39	
Manganese	ug/L	ND	0.50	0.14	04/20/20 13:39	
Potassium	ug/L	ND	50.0	6.2	04/20/20 13:39	
Silver	ug/L	ND	0.40	0.050	04/20/20 13:39	
Sodium	ug/L	ND	250	14.3	04/20/20 13:39	
Tin	ug/L	ND	0.50	0.090	04/20/20 13:39	
Vanadium	ug/L	ND	0.30	0.12	04/20/20 13:39	

LABORATORY CONTROL SAMPLE:	2864238					
_		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Copper	ug/L	50	49.2	98	80-120	
Hardness, Total(SM 2340B)	ug/L		4200			
Iron	ug/L	625	622	100	80-120	
Manganese	ug/L	50	50.6	101	80-120	
Potassium	ug/L	625	647	104	80-120	
Silver	ug/L	25	25.7	103	80-120	
Sodium	ug/L	625	630	101	80-120	
Tin	ug/L	50	51.5	103	80-120	
Vanadium	ug/L	50	51.2	102	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPI	LICATE: 2864	239		2864240							
			MS	MSD								
		92474211005	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Copper	ug/L	1.6	50	50	50.1	49.2	97	95	75-125	2	20	
Hardness, Total(SM 2340B)	ug/L	243000			241000	238000				1	20	
Silver	ug/L	ND	25	25	25.5	25.2	102	101	75-125	1	20	
Tin	ug/L	ND	50	50	50.6	50.3	101	100	75-125	1	20	
Vanadium	ug/L	1.6	50	50	52.9	52.2	103	101	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.

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



QUALITY CONTROL DATA

Project: Dominion Energy VSWMR

Pace Project No.: 92473948

QC Batch Method:

Phenol

Phenol

QC Batch: 537059

EPA 420.4 Rev 1.0 1993

Analysis Method:

EPA 420.4 Rev 1.0 1993

Analysis Description: 420.4 Phenolics

Laboratory:

Pace Analytical Services - Asheville

Associated Lab Samples: 92473948001, 92473948002

METHOD BLANK:

Matrix: Water

Associated Lab Samples: 92473948001, 92473948002

Blank

Result

Reporting Limit

MDL Analyzed Qualifiers

Phenol ND 0.020 0.0050 04/20/20 13:38 mg/L

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

2864518

Units

Units

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Phenol 0.05 0.050 101 90-110 mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

2864519

2864520

MS

Result

0.059

2864522

92473041001 Parameter Units Result

mg/L

MS Spike Conc.

0.05

MSD Spike Conc.

0.05

MSD Result

0.060

MS % Rec

110

MSD % Rec

111

% Rec **RPD** Limits

90-110

Max RPD

Qual

10 M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

Parameter

Date: 04/22/2020 01:10 PM

2864521

MS

ND

92473553001

MSD Spike Spike

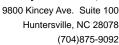
MS MSD MS

MSD % Rec

Max **RPD** RPD Limits

Units Result Conc. Conc. Result Result % Rec % Rec Qual 94 9 ND 0.05 0.05 0.047 0.051 102 10 mg/L 90-110

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.





SM 5310B-2011

Project: Dominion Energy VSWMR

Pace Project No.: 92473948

QC Batch: 537194 Analysis Method:

QC Batch Method: SM 5310B-2011 Analysis Description: 5310B WVA Nonpurgeable Organic Carbon

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473948001, 92473948002

METHOD BLANK: 2865199 Matrix: Water

Associated Lab Samples: 92473948001, 92473948002

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Nonpurgeable Organic Carbon mg/L ND 1.0 0.50 04/20/20 18:36

LABORATORY CONTROL SAMPLE: 2865200

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Nonpurgeable Organic Carbon mg/L 25 25.2 101 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2865201 2865202

MS MSD 92473785001 Spike Spike

92473785001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec **RPD** RPD Qual Result % Rec Limits Nonpurgeable Organic mg/L 5.7 25 25 30.2 30.3 98 98 90-110 0 10

Carbon

Date: 04/22/2020 01:10 PM

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.



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

QUALIFIERS

Project: Dominion Energy VSWMR

Pace Project No.: 92473948

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.

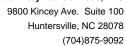
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 04/22/2020 01:10 PM

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy VSWMR

Pace Project No.: 92473948

Date: 04/22/2020 01:10 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92473948001	ES-1-20200415	EPA 3010A	536961	EPA 6020B	536974
92473948002	ES-1D-20200415	EPA 3010A	536961	EPA 6020B	536974
92473948001	ES-1-20200415	EPA 420.4 Rev 1.0 1993	537059	EPA 420.4 Rev 1.0 1993	537103
92473948002	ES-1D-20200415	EPA 420.4 Rev 1.0 1993	537059	EPA 420.4 Rev 1.0 1993	537103
92473948001	ES-1-20200415	SM 5310B-2011	537194		
92473948002	ES-1D-20200415	SM 5310B-2011	537194		

	Sample Condition Upon		Pag	e 1 of 2	
Pace Analytical "	Document N			Authority:	
	F-CAR-CS-033-F	Rev.06	Pace Carolin	as Quality Office	
Laboratory receiving samples: Asheville Eden	Greenwood	Huntersvill	le Ralei	gh Mechanic	sville
Sample Condition Upon Receipt Client Name: Laky	Y Kldoich	Project		2473948	
Courler: Fed Ex U Commercial Pace	PS USPS Other:	Client	92473948		
Custody Seal Present? Yes No S	Seals Intact?	⊠No	Date/Initials Person	Examining Contents:	4/16/20
Packing Material: Bubble Wrap	Bubble Bags None	Other	Blold	gical Tissue Frezen?	8
Thermometera 92T061	Type of Ice:	/et □Blue [Yes	□No □N/A	
	actor: Add/Subtract (°C)	+0.1			
Cooler Temp Corrected (°C): 0-8	_	Te	emp should be above fi Samples out of temp has begun	reezing to 6 C o criteria. Samples on Ice, coo	oling process
USDA Regulated Soil (N/A, water sample) Did samples originate in a quarantine zone within the Yes No	: United States: CA, NY, or SC (check maps)? D	icluding Hawall and Puert	n a foreign source (internatio to Rico)? ☐Yes ☐No nts/Discrepancy:	nally,
			Comme	nts/ Discrepancy.	
Chain of Custody Present?		□N/A 1. □N/A 2.			
Samples Arrived within Hold Time?					
Short Hold Time Analysis (<72 hr.)?					
Rush Turn Around Time Requested?					
Sufficient Volume?	ŪYes □No	□N/A 5.			
Correct Containers Used?	-/-	□N/A 6.			W (9)
-Pace Containers Used?	ØYes □No	□n/A			
Containers Intact?	☐Yes ☐No	□N/A 7.		news and the second	
Dissolved analysis: Samples Field Filtered?	□Yes □No	ØN/A 8.			
Sample Labels Match COC?	ØYes □No	□N/A 9.			
	1119				,
-Includes Date/Time/ID/Analysis Matrix:	70.1				
Headspace in VOA Vials (>5-6mm)?	□Yes □No	□N/A 10.			
Trip Blank Present?	□Yes □No	☑N/A 11.			
Trip Blank Custody Seals Present?	□Yes □No	19N/A		Fleld Data Required?	Yes \(\sum No
COMMENTS/SAMPLE DISCREPANCY					•
	,	Lot	ID of split containers:		
CLIENT NOTIFICATION/RESOLUTION					
Person contacted:		Date/Time: _			
Project Manager SCURF Review:			Date:		-
Project Manager SRF Review:			Date:		-

Document Name:

Domment Revised. February 7, 2020



Sample Condition Upon Receipt(SCUR)

Document No.: F-CAR-CS-033-Rev.06 Document Revised: February 7, 2018
Page 1 of 2

Issuing Authority:
Pace Carolinas Quality Office

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

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

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

Project

WO#: 92473948

PM. PTF

Due Date: 04/30/20

CLIENT: 92-Haley VA

No. and	RPAIL 175 ml District Hospital MVVV (C)	Brau-123 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) (CI-)	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)	AG35-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4C! (N/A)(CI-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGOU-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1							N								1					3									
2	1	J				/	X													3					1	1			
3	1	J				1						/													1	1			
4		1				/								7	7					\exists			7		7	1			
5						Z,	Z	Z	Z			7			1	7									7	7	7	-	
6	1			C. T. S. C.		1	/	/	1	-A		/							Alexandra I						1				074,0575.07
7	1		\dashv		=	1	7	1						7	1			=			\dashv	+	+		7	1			
8	1		Ħ			T	F	P	T					7	7	7				7		-	+	\exists	7	7			
9		1				\angle	Z	7	7			Ž		7	7	7									7	7			
10		1	1				/	1	7			1	1	1	1	1				+		+	1		1	1			
11		1	\dashv	+					1	\dashv		1	\dashv	1	1	7	\dashv	\dashv	\dashv	+	+	+	\dashv	-	1	7	\dashv	+	
12		1	\dashv					7	7			1	-	7	7	1	+	+	\dashv	+	-	1	\dashv	+	1	7	1	+	

pH Adjustment Log for Preserved Samples						
Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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





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

Page: \ of

#5 Nature and Extent Wells



Analysis Detects Report								
Client Name:				Date Issued	l:			
Client Site ID:								
Submitted To:								
Laboratory Sample ID:	Client Sample ID:							
Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
There are no repo	ortable results for target analyt	es 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 200409

Client Name: Haley & Aldrich

Date Issued:

5/12/2020 2:23:02PM

1 Park West Circle, Suite 208

Midlothian, VA 23114

Submitted To: Erin Wright

Client Site I.D.: Possum Point Hex Chrome

Purchase Order:

Enclosed are the results of analyses for samples received by the laboratory in sample delivery group Possum Point 200409. Work orders included in the sample delivery group:

Work Order	Receive Date	Project Number
20D0312	4/8/2020 8:00:00AM	134660
20D0391	4/9/2020 8:00:00AM	134660
20D0471	4/10/2020 7:55:00AM	134660
20D0498	4/10/2020 2:36:00PM	134660
20D0522	4/14/2020 8:00:00AM	134660
20D0590	4/15/2020 8:00:00AM	134660
20D0680	4/16/2020 8:05:00AM	134660

180 Jojus

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.





5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ED-22RA-20200407	20D0312-01	Ground Water	04/07/2020 10:15	04/08/2020 08:00
ED-23R-20200408	20D0391-01	Ground Water	04/08/2020 10:36	04/09/2020 08:00
ES-3D-20200408	20D0391-02	Ground Water	04/08/2020 12:16	04/09/2020 08:00
ES-1609-20200408	20D0391-03	Ground Water	04/08/2020 13:31	04/09/2020 08:00
ES-1613-20200408	20D0391-04	Ground Water	04/08/2020 14:46	04/09/2020 08:00
T-1615S-20200410	20D0498-02	Ground Water	04/10/2020 11:26	04/10/2020 14:36
T-1615D-20200410	20D0498-03	Ground Water	04/10/2020 12:21	04/10/2020 14:36
ED-24R-20200413	20D0522-01	Ground Water	04/13/2020 15:30	04/14/2020 08:00
ED-26-20200414	20D0590-01	Ground Water	04/14/2020 11:20	04/15/2020 08:00
EB-01-20200414	20D0590-03	Ground Water	04/14/2020 16:30	04/15/2020 08:00
ES-1-20200415	20D0680-01	Ground Water	04/15/2020 12:00	04/16/2020 08:05
ES-1D-20200415	20D0680-02	Ground Water	04/15/2020 14:15	04/16/2020 08:05



Client Site I.D.:

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

5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Possum Point Hex Chrome

Submitted To: Erin Wright

Client Sample ID: ED-22RA-20200407 Laboratory Sample ID: 20D0312-01

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter Wet Chemistry Analysis** 01 **BLOD** Chromium, Hexavalent 18540-29-9 SW7196A 04/08/2020 08:30 04/08/2020 09:45 U 1 MWL 0.005 0.005 mg/L



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Client Sample ID: ED-23R-20200408 Laboratory Sample ID: 20D0391-01

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter Wet Chemistry Analysis** 01 **BLOD** Chromium, Hexavalent 18540-29-9 SW7196A 04/09/2020 08:35 04/09/2020 10:15 U 1 MWL 0.005 0.005 mg/L



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Client Sample ID: ES-3D-20200408 Laboratory Sample ID: 20D0391-02

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter Wet Chemistry Analysis** 02 **BLOD** Chromium, Hexavalent 18540-29-9 SW7196A 04/09/2020 08:35 04/09/2020 10:15 U 1 MWL 0.005 0.005 mg/L



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Client Sample ID: ES-1609-20200408 Laboratory Sample ID: 20D0391-03

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter Wet Chemistry Analysis** 03 **BLOD** Chromium, Hexavalent 18540-29-9 SW7196A 04/09/2020 08:35 04/09/2020 10:15 U 1 MWL 0.005 0.005 mg/L



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Client Sample ID: ES-1613-20200408 Laboratory Sample ID: 20D0391-04

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter Wet Chemistry Analysis** 04 **BLOD** Chromium, Hexavalent 18540-29-9 SW7196A 04/09/2020 08:35 04/09/2020 10:15 U 1 MWL 0.005 0.005 mg/L



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Client Sample ID: T-1615S-20200410 Laboratory Sample ID: 20D0498-02

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter Wet Chemistry Analysis** 02 **BLOD** Chromium, Hexavalent 18540-29-9 SW7196A 04/10/2020 14:50 04/10/2020 15:30 U 1 MWL 0.005 0.005 mg/L



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Client Sample ID: T-1615D-20200410 Laboratory Sample ID: 20D0498-03

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter Wet Chemistry Analysis** 03 **BLOD** Chromium, Hexavalent 18540-29-9 SW7196A 04/10/2020 14:50 04/10/2020 15:30 U 1 MWL 0.005 0.005 mg/L



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Client Sample ID: ED-24R-20200413 Laboratory Sample ID: 20D0522-01

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter Wet Chemistry Analysis** 01 **BLOD** Chromium, Hexavalent 18540-29-9 SW7196A 04/14/2020 08:00 04/14/2020 11:20 U 1 MWL 0.005 0.005 mg/L



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Client Sample ID: ED-26-20200414 Laboratory Sample ID: 20D0590-01

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter Wet Chemistry Analysis** 01 **BLOD** Chromium, Hexavalent 18540-29-9 SW7196A 04/15/2020 09:00 04/15/2020 11:00 U 1 MWL 0.005 0.005 mg/L



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Client Sample ID: EB-01-20200414 Laboratory Sample ID: 20D0590-03

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter Wet Chemistry Analysis** 03 **BLOD** Chromium, Hexavalent 18540-29-9 SW7196A 04/15/2020 09:00 04/15/2020 11:00 U 0.005 1 MWL 0.005 mg/L



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Client Sample ID: ES-1-20200415 Laboratory Sample ID: 20D0680-01

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter Wet Chemistry Analysis** 01 **BLOD** Chromium, Hexavalent 18540-29-9 SW7196A 04/16/2020 10:00 04/16/2020 11:30 U 0.005 1 MWL 0.005 mg/L



Client Site I.D.:

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

5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Possum Point Hex Chrome

Submitted To: Erin Wright

Client Sample ID: ES-1D-20200415 Laboratory Sample ID: 20D0680-02

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter Wet Chemistry Analysis** 02 **BLOD** Chromium, Hexavalent 18540-29-9 SW7196A 04/16/2020 10:00 04/16/2020 11:30 U 0.005 1 MWL 0.005 mg/L



Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Date Issued:

5/12/2020 2:23:02PM

Wet Chemistry Analysis - Quality Control

Air Water & Soil Laboratories, Inc.

				Spike	Source		%REC		RPD	
Analyte	Result	LOQ	Units	Level	Result	%REC	Limits	RPD	Limit	Qual
Batch I	BDD0211 - No Pre	p Wet Chem								
Blank (BDD0211-BLK1)				Prepared & Analy	yzed: 04/08/2020					
Chromium, Hexavalent	ND	0.005	mg/L							U
LCS (BDD0211-BS1)				Prepared & Analy	yzed: 04/08/2020					
Chromium, Hexavalent	0.102	0.005	mg/L	0.100		102	80-120			
Matrix Spike (BDD0211-MS1)	Source	ce: 20D0312-0	1	Prepared & Analy	yzed: 04/08/2020					
Chromium, Hexavalent	0.082	0.005	mg/L	0.100	BLOD	82.0	80-120			
Matrix Spike Dup (BDD0211-MSD1)	Source	ce: 20D0312-0	1	Prepared & Analy	yzed: 04/08/2020					
Chromium, Hexavalent	0.082	0.005	mg/L	0.100	BLOD	82.0	80-120	0.00	20	
Batch I	BDD0269 - No Pre	p Wet Chem	1							
Blank (BDD0269-BLK1)				Prepared & Analy	yzed: 04/09/2020					
Chromium, Hexavalent	ND	0.005	mg/L							U
LCS (BDD0269-BS1)				Prepared & Analy	yzed: 04/09/2020					
Chromium, Hexavalent	0.103	0.005	mg/L	0.100		103	80-120			
Matrix Spike (BDD0269-MS1)	Sourc	ce: 20D0391-0	1	Prepared & Analy	yzed: 04/09/2020					
Chromium, Hexavalent	0.089	0.005	mg/L	0.100	BLOD	89.0	80-120			
Matrix Spike Dup (BDD0269-MSD1)	Sourc	ce: 20D0391-0	1	Prepared & Analy	yzed: 04/09/2020					
Chromium, Hexavalent	0.086	0.005	mg/L	0.100	BLOD	86.0	80-120	3.43	20	
Batch I	BDD0367 - No Pre	p Wet Chem	1							
Blank (BDD0367-BLK1)				Prepared & Analy	yzed: 04/14/2020					
Chromium, Hexavalent	ND	0.005	mg/L							U



Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Date Issued:

5/12/2020 2:23:02PM

Wet Chemistry Analysis - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch I	BDD0367 - No Pro		n							
LCS (BDD0367-BS1)				Prepared & Anal	yzed: 04/14/2020					
Chromium, Hexavalent	0.101	0.005	mg/L	0.100		101	80-120			
Matrix Spike (BDD0367-MS1)	Sour	ce: 20D0522-0	01	Prepared & Anal	yzed: 04/14/2020					
Chromium, Hexavalent	0.108	0.005	mg/L	0.100	BLOD	108	80-120			
Matrix Spike Dup (BDD0367-MSD1)	Sour	ce: 20D0522-0	01	Prepared & Anal	yzed: 04/14/2020					
Chromium, Hexavalent	0.103	0.005	mg/L	0.100	BLOD	103	80-120	4.74	20	
Batch I	BDD0468 - No Pre	ep Wet Cher	n							
Blank (BDD0468-BLK1)				Prepared & Anal	yzed: 04/10/2020					
Chromium, Hexavalent	ND	0.005	mg/L							U
LCS (BDD0468-BS1)				Prepared & Anal	yzed: 04/10/2020					
Chromium, Hexavalent	0.099	0.005	mg/L	0.100		99.0	80-120			
Matrix Spike (BDD0468-MS1)	Sour	ce: 20D0471-0	03	Prepared & Anal	yzed: 04/10/2020					
Chromium, Hexavalent	0.094	0.005	mg/L	0.100	BLOD	94.0	80-120			
Matrix Spike (BDD0468-MS2)	Sour	ce: 20D0498-0	01	Prepared & Anal	yzed: 04/10/2020					
Chromium, Hexavalent	0.090	0.005	mg/L	0.100	BLOD	90.0	80-120	<u> </u>		<u> </u>
Matrix Spike Dup (BDD0468-MSD1)	Sour	ce: 20D0471-0	03	Prepared & Anal	yzed: 04/10/2020					
Chromium, Hexavalent	0.094	0.005	mg/L	0.100	BLOD	94.0	80-120	0.00	20	
Matrix Spike Dup (BDD0468-MSD2)	Sour	ce: 20D0498-0)1	Prepared & Anal	yzed: 04/10/2020					
Chromium, Hexavalent	0.091	0.005	mg/L	0.100	BLOD	91.0	80-120	1.10	20	



Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Date Issued:

5/12/2020 2:23:02PM

Wet Chemistry Analysis - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch	BDD0480 - No Pre	p Wet Chem								
Blank (BDD0480-BLK1)				Prepared & Anal	yzed: 04/15/2020					
Chromium, Hexavalent	ND	0.005	mg/L							U
LCS (BDD0480-BS1)				Prepared & Anal	yzed: 04/15/2020					
Chromium, Hexavalent	0.099	0.005	mg/L	0.100		99.0	80-120			
Matrix Spike (BDD0480-MS1)	Source	e: 20D0590-03	i	Prepared & Anal	yzed: 04/15/2020					
Chromium, Hexavalent	0.102	0.005	mg/L	0.100	BLOD	102	80-120			
Matrix Spike Dup (BDD0480-MSD1)	Source	e: 20D0590-03	i	Prepared & Anal	yzed: 04/15/2020					
Chromium, Hexavalent	0.105	0.005	mg/L	0.100	BLOD	105	80-120	2.90	20	
Batch	BDD0504 - No Pre	p Wet Chem								
Blank (BDD0504-BLK1)				Prepared & Anal	yzed: 04/16/2020					
Chromium, Hexavalent	ND	0.005	mg/L							U
LCS (BDD0504-BS1)				Prepared & Anal	yzed: 04/16/2020					
Chromium, Hexavalent	0.103	0.005	mg/L	0.100		103	80-120			
Matrix Spike (BDD0504-MS1)	Source	e: 20D0680-01		Prepared & Anal	yzed: 04/16/2020					
Chromium, Hexavalent	0.093	0.005	mg/L	0.100	BLOD	93.0	80-120			
Matrix Spike Dup (BDD0504-MSD1)	Source	e: 20D0680-01		Prepared & Anal	yzed: 04/16/2020					
Chromium, Hexavalent	0.094	0.005	mg/L	0.100	BLOD	94.0	80-120	1.07	20	



Client Name: Haley & Aldrich

Possum Point Hex Chrome Client Site I.D.:

Erin Wright Submitted To:

Certificate of Analysis

Date Issued: 5/12/2020 2:23:02PM

Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis	5		Preparation Method:	No Prep Wet Chem	
20D0312-01	100 mL / 100 mL	SW7196A	BDD0211	SDD0191	AD00032
20D0391-01	100 mL / 100 mL	SW7196A	BDD0269	SDD0239	AD00043
20D0391-02	100 mL / 100 mL	SW7196A	BDD0269	SDD0239	AD00043
20D0391-03	100 mL / 100 mL	SW7196A	BDD0269	SDD0239	AD00043
20D0391-04	100 mL / 100 mL	SW7196A	BDD0269	SDD0239	AD00043
20D0522-01	100 mL / 100 mL	SW7196A	BDD0367	SDD0417	AD00075
20D0498-02	100 mL / 100 mL	SW7196A	BDD0468	SDD0405	AD00070
20D0498-03	100 mL / 100 mL	SW7196A	BDD0468	SDD0405	AD00070
20D0590-01	100 mL / 100 mL	SW7196A	BDD0480	SDD0446	AD00076
20D0590-03	100 mL / 100 mL	SW7196A	BDD0480	SDD0446	AD00076
20D0680-01	100 mL / 100 mL	SW7196A	BDD0504	SDD0452	AD00078
20D0680-02	100 mL / 100 mL	SW7196A	BDD0504	SDD0452	AD00078



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Certified Analyses included in this Report

Analyte Certifications

SW7196A in Non-Potable Water

Chromium, Hexavalent VELAP

Code	Description	Laboratory ID	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2020
NC	North Carolina DENR	495	12/31/2020
NCDOH	North Carolina Department of Health	51714	07/31/2020
NJDEP	New Jersey DEP	VA015	06/30/2020
PADEP	NELAC-Pennsylvania Certificate #005	68-03503	10/31/2020
VELAP	NELAC-Virginia Certificate #10637	460021	06/14/2020
WVDEP	West Virginia DEP	350	11/30/2020



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Qualifiers and Definitions

U Analyte was not detected and is reported as less than the DL or as defined by the client. The DL has been adjusted for any dilution or

concentration of the sample.

RPD Relative Percent Difference

Qual Qualifers

-RE Denotes sample was re-analyzed

LOD Limit of Detection

BLOD Below Limit of Detection

LOQ Limit of Quantitation

DF Dilution Factor

TIC Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral

library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are

estimated and are calculated using an internal standard response factor of 1.



Chain of Custody Form #: F1331 Rev. 2.0

Effective: Jun 28, 2016

LABORAT	ORI	ES,	INC.				CHA	IN OI	- CUS	310	DY								PAGE OF
COMPANY NAME: Haley &	Ald	rich			IN	VOICE TO	D: AF	5				5 %	PI	ROJEC	T NAM	E: P	ossı	ım Po	oint Hex Chrome
CONTACT: Erin Wright					i IN	VOICE CO	ONTAC	T: ar	@hale	eyalro	drich.c	com	S	TE NA	ME:				
ADDRESS: 1 Park West Circle, Sui	te 20	8			IN	VOICE A	DRES	S:					Р	ROJE	CT NU	MBER	₹:		
PHONE #: (804) 419-0010					IN	VOICE PH	IONE #	# :						O. #:					
FAX #:			72	EMAIL:		ht@haleya							1.67		ment P	rogra	m.		
Is sample for compliance reporti	na?	Y	ES	NO	<u> </u>	Is sample			nated	SUDD	lv2	YES	NO I	Circai	nent i	rogra	_	S I.D.	#-
SAMPLER NAME (PRINT): Ru	100	^	Be	Pannea	SA	AMPLER S						///		ırn Aro	und Ti	me:	1 000	01.0.	Tr.
Matrix Codes: WW=Waste Water/Storm Wa	ter G	W=C	round	Water DW=	Drinking	Water S=Soi	l/Solids (OR=Orga	nic A=Ai	ir WP	-Wipe C	Of Other	GW			- 4			COMMENTS
	T			100					Τ	П			LYSIS	/ (PRE	SERV	ATIVE	=)		Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid
OUENT CAMPLE LD			ssolved Meta	Jate	Fime	Date	ime		s)	ners									H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol
CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop D	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	Cr VI SW7196								PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)
1) ED-22RA-20200407	X					4-7-20	1015		GW	1	X								P
2)									GW	1	Х							15	
3)									GW	1	Χ		4			ŕ			1.00
4)									GW	1	X			100	400				a harmonia si si si si si si si si si si si si si
5)									GW	1	X							7	
6)									GW	1	X							F	
7)									GW	1	X	1,000		5					
8)						4			GW	1	X		art lab						
9)							1		GW	1	X			W. Francisco					No Seal
10)	-	1.5							GW	1	X	16							on Ice
RELINQUISHED: RELINQUISHED: 2020	DAT	76	TIME	RECEIVE	D:	312 4/8/	20 08	DATE /		Q Level Level	Ш	Package	LAB		only ey & um Po		rich	1	20D0312 ome
RELINQUISHED:	ДАТ	Ε/	TIME	RECEIVE	D:	4/8/2		OBOU					7	Reco	l: 04/0	08/20	20	Due	204/16/2020 Page 23 of 36



Chain of Custody Form #: F1331

Rev. 2.0 Effective: Jun 28, 2016

LABORA	TORI	ES,	INC.				CHA	IN OF	- CUS	SIC	DY								PAGE OF
COMPANY NAME: Haley	& Ald	rich			IN	VOICE TO	: AF)					F	ROJEC	T NAM	E: F	ossu	ım Po	int Hex Chrome
CONTACT: Erin Wright					IN	VOICE CO	NTAC	T: ap	@hale	eyalr	drich.c	com	5	SITE N	ME:				
ADDRESS: 1 Park West Circle, S	uite 20	08			IN	VOICE AD	DRES	S:					F	ROJE	CT NU	MBEF	₹:		
PHONE #: (804) 419-0010					IN	VOICE PH	ONE #	:					_	P.O. #:					
FAX #:			E	EMAIL:	ewria	ht@haleya	ldrich.c	om					_	retreat	ment F	Progra	am.		
Is sample for compliance repor	ting?	Y	'ES	NO		Is sample			inated	suni	nlv?	YES .	NO I	Totroat	mone i	rogic	_	S I.D.	#-
SAMPLER NAME (PRINT): 🥻	yas	B	eav	regar	SA	AMPLER S						/\	ll .	urn Arc	und Ti	me:	11 44	01.0.	
Matrix Codes: WW=Waste Water/Storm V												11							COMMENTS
		T	als)							T		ANAI	LYSIS	/ (PRE	SERV	'ATIV	E)		Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid
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									H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)
1)ED-23R-20200908	X					0408-A080			GW	1	X						T		TVATE (Emily)
2)E5-30-20200408	X					6408-30A0			GW	1	Х						\Box		
3)E5-1609-20200408	X					0408-2020			GW	1	Х						\Box		,
4) ES-1613-20200408	X					0408-2020			GW	1	X						\Box		
5)								A S	GW	1	Х								
6)									GW	1	Х								
7)								-	GW	1	Х								
8)									GW	1	X								
9)				10					GW	1	X	er de-					\Box		No seal
10)									GW	1	X						\Box		on icc
RELINQUISHED: Ada Doick RELINQUISHED:	4/8/	29	TIME TIME		SM	4/9	120	DATE /	60	Leve	el III	Package	Н	use c	& Al		h	20	R TEMP <u>♣.2</u> °C D0391
RELINQUISHED:	DAT	ΓΕ / ·	TIME	RECEIVE	D:			DATE /	TIME										17/20 Page 24 of 36



Chain of Custody Form #: F1331

Rev. 2.0 Effective: Jun 28, 2016

LABORATO	RIE	S, I	NC.				CHAI	N OF	CUS	TOI	ΟY	_							PAGEOF
COMPANY NAME: Haley & A	Aldri	ich		175	IN	OICE TO	: AP						PF	ROJECT	T NAME	: P	ossu	m Poi	nt Hex Chrome
CONTACT: Erin Wright					IN	OICE CO	NTAC	Т: <u>ар</u>	@haley	yalrd	lrich.co	<u>om</u>	SI	TE NA	ME:				
ADDRESS: 1 Park West Circle, Suite	208	3			IN	OICE AD	DRESS	S:					PI	ROJEC	T NUI	MBER			
PHONE #: (804) 419-0010					IN	OICE PH	ONE#	:					P.	O. #:				Ē	
FAX #:				EMAIL:	ewrigh	t@haleyal	ldrich.c	<u>om</u>					Pi	etreatr	nent P	rogran	m:		
Is sample for compliance reporting	ıg?	Υ	ES	NO		Is sample	from a	chlori	nated s	upp	ly?	YES 1	10				PWS	S I.D. #	#:
SAMPLER NAME (PRINT): R	ya	v B	Xa	negar	SA	MPLER S	IGNAT	URE:	Ryan	Be	angs!	SV.	Τι	ırn Aro	und Tir	ne:			
Matrix Codes: WW=Waste Water/Storm Water	er G	W=G	round	Water DW=	Drinking	Water S=Soil	/Solids C	R=Organ	nic A=Air	WP=	Wipe O	T=Other							COMMENTS
			d Metals)									ANAL	YSIS	/ (PRE	SERV	ATIVE	Ē)		Preservative Codes: N=Nitric Ac C=Hydrochloric Acid S=Sulfuric A H=Sodium Hydroxide A=Ascorb Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol
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	Cr VI SW7196								PLEASE NOTE PRESERVATIVE(INTERFERENCE CHECKS or PUI RATE (L/min)
1) ABC-1602-20200409	X					20200409	1016	30	GW	1	Х								
2) ABC-1614-20200409	X					90500HO9	1216		GW	1	Х								
3) ABC-1607-20200409	У					P010060E	1416		GW	1	Х								
4) FD-01-20200409	X					50506A0d	1001		GW	1	Х								
5) FB-01-20200409	X					20200409	1630		GW	1	X						\square		
6)									GW	1	Х						\sqcup		
7)									GW	1	Х			-75			\sqcup		
8)									GW	1	Х						\vdash		. //>
9)								*	GW	1	X			-33					NO seal
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NOUISHED	DAT	TE /	TIME	RECEIVE	JOLE DE			DATE /	D 755				5		1 Poin 04/10/				6/20/2020



Chain of Custody Form #: F1331 Rev. 2.0

Effective: Jun 28, 2016

LABORATO	RIE	S, I	NC.				CHAI	N OF	CUS'	TOE	ŊΥ	5					- 4		PAGE	OF
COMPANY NAME: Haley & A	۱dri	ch			IN/	OICE TO:	AP	ì		1		, F	PF	ROJEC	Г NAME	: P	ossu	ım Poi	int Hex Chro	ome
CONTACT: Erin Wright					IN	OICE CO	NTACT	Г: ар	@haley	alrd	rich.co	<u>m</u>	SI	TE NA	ME:					
ADDRESS: 1 Park West Circle, Suite	208	}			IN/	OICE ADI	DRESS	S:					PF	ROJEC	T NUN	ИBER		4		
PHONE #: (804) 419-0010					IN	VOICE PH	ONE #:						P.	O. #:				7		
FAX #:			E	EMAIL:	<u>ewrigh</u>	nt@haleyal	drich.c	<u>om</u>					// Pr	etreati	ment P	rograr	n:			
Is sample for compliance reportin	ıg?	ΥI	ΞS	NO		Is sample	from a	chlorin	ated s	upp	y?	YES N	V				PW	S I.D.	#:	
SAMPLER NAME (PRINT): 🤾	Ja.	n (Bec	wylge	SA	MPLER SI	GNATI	URE:	Ryer	\sqrt{z}	Um	M	Tu	ırn Aro	und Tir	ne:				
Matrix Codes: WW=Waste Water/Storm Water	er G	W=G	round	Water DW=	Orinking	Water S=Soil/	Solids O	R=Organ	ic A=Air	WP=	Wipe O	-Other		_						MENTS
			(S)									ANAL	YSIS	/ (PRE	SERV	ATIVE	Ξ)		The state of the s	odes: N=Nitric Acid
CLIENT SAMPLE I.D.		osite	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)	per of Containers	Cr VI SW7196								Acid Z=Zinc Ac Thiosulfate	roxide A=Ascorbic cetate T=Sodium M=Methanol
	Grab	Composite	Field F	Сотр	Сотр			Time		Number of									INTERFERENCE	PRESERVATIVE(S), E CHECKS or PUMP E (L/min)
1) ABC-1608-20200410	1		Ш			20200410	0831		GW	1	Х		9				\square			
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3) T-1615D-20200410	X	-	\vdash			80200410	1001		GW	1	X				-		\vdash			
4)	-	 	\vdash				-		GW	1	X									
5)	-	\vdash							GW	1	X			1			\vdash			
6) 7)	-	\vdash							GW	1	X			†			H		-	
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				V										vecu.	04/10	, 2020			√130 020002	age 26 of 36



Chain of Custody Form #: F1331

Rev. 2.0 Effective: Jun 28, 2016

LABORATO	ORII	ES, I	NC.				CHA	IN OF	CUS	TO	DY								PAGE OF 1
COMPANY NAME: Haley & A	Aldr	ich			IN	VOICE TO	: AP)			_		PR	OJEC	T NAMI	E: F	Poss	um Po	int Hex Chrome
CONTACT: Erin Wright					IN	VOICE CC	NTAC	Т: ар	@hale	yalr	drich.c	<u>om</u>	SI	TE NA	ME:				
ADDRESS: 1 Park West Circle, Suit	e 20	8			IN	VOICE AD	DRES	S:					PF	OJEC	T NUI	MBE	R :	1346	060
PHONE #: (804) 419-0010					IN	VOICE PH	ONE #	:					P.0	D. #:					
FAX #:				EMAIL:	ewrigh	nt@haleya	ldrich.c	om					Pre	etreatr	nent P	rogra	am:		
Is sample for compliance reporting	ng?	Y	ES	NO		Is sample	from a	chlori	nated s	supp	ly?	YES I	NO				PW	/S I.D.	#:
SAMPLER NAME (PRINT): And	14 (ne	rrin	10	SA	MPLER S	IGNAT	URE:	Co	23	m	<u></u>	Tu	rn Aro	und Ti	me:	Sta	ndar d	
Matrix Codes: WW=Waste Water/Storm Wat	ter G	W=G	round	Water DW=	Drinking	Water S=Soil	/Solids C	R=Organ	nic A=Ai	r WP	=Wipe C	T=Other							COMMENTS
			als)									ANA	LYSIS /	(PRE	SERV	ATIV	'E)		Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid
CLIENT SAMPLE I.D.			Field Filtered (Dissolved Metals)	itart Date	Start Time	r itop Date	or Stop Time	ved	Codes)	Containers									H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol
	Grab	Composite	Field Filtered	Composite Start Date	Composite S	Grab Date or Composite Stop Date	Grab Time or Composite Sto	Time Preserved	Matrix (See Codes)	Number of C	Cr VI SW7196					ė			PLEASE NOTE PRESERVATIVE(S). INTERFERENCE CHECKS or PUMP RATE (L/min)
1) ED-24R-20200413	X					4-13-20	1530		GW	1	X								
2) ED-24R-20200413 MS	×					1			GW	1	X								•
3) ED-ZYR-ZOZOOHI3MSD	×					+	4		GW	1	X								
4)	\bot	_	Н						GW	1	X								
5)	4	_							GW	1	X								
6)	4	_							GW	1	X								
7)	_								GW	1	X								
8)	\perp								GW	1	X								
9)	\perp								GW	1	X								Noseal
10) RELINQUISHED: ()									GW	1	X								on ice
RELINQUISHED 4/13	3/20		TIME	RECEIVE	Ever		te <	DATE /	TIME	Leve	1111	Package	LABU	На	aley d		ldri		20D0522
RELINQUISHED:	DAT	TE /	TIME	RECEIVE		4/14		DATE /		1									
	ŲΑΙ	<u> </u>	INIE	RECEIVE				DAIE /	INC					Re	cd: 0	4/14/	202	0 Du	Page 27 of 36



Chain of Custody Form #: F1331 Rev. 2.0

Effective: Jun 28, 2016

LABORAT	ORI	IES,	INC.			-	CHA	IN O	F CUS	STC	DY								PAGE OF
COMPANY NAME: Haley &	Ald	rich			IN	VOICE TO	D: AF)			-		Р	ROJEC	T NAM	1E:	Possu	ım Po	int Hex Chrome
CONTACT: Erin Wright					IN	VOICE CO	ONTAC	T: <u>a</u> r	o@hale	eyalı	drich.	com	S	ITE N	AME:	-			
ADDRESS: 1 Park West Circle, Sui	ite 20	08			IN	VOICE A	DDRES	S:							CT NL	IMBE	R· I	1711	1.1.2
PHONE #: (804) 419-0010					IN	VOICE PH	HONE #	# :						O. #:				34	660
FAX #:				EMAIL:	ewria	ht@haleya	aldrich.	com							ment	Drogr		-	
Is sample for compliance reporti	ng?	Y	'ES	NO	***************************************	Is sample	-		inated	CUD	nlv2	YES		lellea	ment	Piogi		0.1.0	
SAMPLER NAME (PRINT): A									nialeu	Sup	P	163	NO				PVVS	S I.D.	#:
	_		10	rringer		AMPLER S				01	to	N	Ti	ırn Ard	ound T	ime:			
Matrix Codes: WW=Waste Water/Storm Wa	iter C	3W=(Ground	d Water DW=	Drinking	Water S=Soi	I/Solids (OR=Orga	nic A=A	Ir WF	=Wipe	OT=Other		***************************************					COMMENTS
			Field Filtered (Dissolved Metals)	5 2								ANA	LYSIS	/ (PRI	SER	/ATI\	/E)		Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid
		1	Me									T		T	T	T	TT		H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium
			ed										1						Thiosulfate M=Methanol
			Solv	ate	Start Time	Date	Time			ers									
CLIENT SAMPLE I.D.			Dis	T C	L T	O d	P T	-	des	Container			1						
			b	Sta	Sta	or Sto	Sto	Ş	ပိ	16									
		ite	tere	oite	ite	ite e	ite	ese	ee	of	196					1			
	1	Ö		od	od	D S S	Tir	P) ×	ber	W2								
	Grab	Composite	ielo	Composite Start Date	Composite	Grab Date or Composite Stop	Grab Time or Composite Stop	Time Preserved	Matrix (See Codes)	Number of	Cr VI SW7196								PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP
1) ED-26-20200414	×	_	╫	0	0	4.14.20	100	<u> </u>		Z			+	_		-	++		RATE (L/min)
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3) EB-01-20200414	×	T		A		4.14.20			GW	1	X		-		_	+	++		
4)	T					111100	1650		GW	1	X		1		_	+	++		
5)									GW	1	X					1.	++		
6)									GW	1	X				-	+	++		
7)									GW	1	X					 	++	-	
8)									GW	1	X						++		
9)	_								GW	1	X						++		No seal
10) RELINQUISHED									GW	1	X						\top		on Ice
100 97			TIME 700	RECEIVED TIB		120		DATE /		Q	C Data	Package	LAB	JSE O	NLY		CO	OLE	R TEMP 0.7 °C
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			A.	R51		4/15/			800	Leve	IV						it Hex		Come
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														Ke	cu: U	4/13/	2020	Due	e: 04/2 Page 28 of 36
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Chain of Custody Form #: F1331 Rev. 2.0

Effective: Jun 28, 2016

LABORATO	RIE	S, II	NC.				CHAI	N OF	CUS'	TOI	YC		101 140						PAGE \ OF \
COMPANY NAME: Haley & A	ldri	ch			INV	OICE TO:	AP						PRO	JECT	NAME	: Po	ssur	m Poi	nt Hex Chrome
CONTACT: Erin Wright					INV	OICE CO	NTACT	Г: ар(@haley	alrd	lrich.co	<u>m</u>	SIT	E NAM	ΛE:				
ADDRESS: 1 Park West Circle, Suite	208				INV	OICE AD	DRESS	S:					PR	OJEC.	TNUN	BER:	İ	1346	60
PHONE #: (804) 419-0010					INV	OICE PH	ONE #:						P.C	. #:				(4	
FAX #:			E	MAIL:	ewrigh	t@haleyal	drich.c	<u>om</u>			li .		Pre	treatm	nent P	rogran	n:		
Is sample for compliance reportin	g?	Y	ES I	NO		Is sample	from a	chlorin	nated s	upp	ly?	YES N	10				PWS	S I.D. :	#:
SAMPLER NAME (PRINT): And		0	erring		SA	MPLER SI	GNAT	URE:	Cl	A	~		Tur	n Arou	ınd Tin	ne: S	Stan	.dar &	-
Matrix Codes: WW=Waste Water/Storm Water					Orinking '	Water S=Soil	Solids O	R=Organ	ic A=Air	WP=	Wipe O	Γ=Other							COMMENTS
			ls)									ANAL	YSIS /	(PRE	SERV	ATIVE	:)		Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid
			d Meta																H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol
CLIENT SAMPLE I.D.			d (Dissolve	Start Date	Start Time	or Stop Date	or Stop Time	ıved	(Codes)	Containers			¥						
	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite	Grab Date or Composite Stop [Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of	Cr VI SW7196								PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)
1) ES-1-20200415	×					4-15-20	1200		GW	1	X								
2) ES-1D-20200415	X					4-15-20	1415		GW	1	X								
3)									GW	1	X						\dashv		
4)									GW	1	X						\dashv		
5)									GW	1	X						-		
6)									GW	1	X								
7)									GW	1	X						3.0		
8)									GW	1	X								no seul
9)									GW	1	X					_			on ree
10)									GW	1	X							0015	FR TEMP 3.3 °C
RELINQUISHED:	5-1	20	TIME	RECEIVE	DIA A	5()		HUSIO DATE	TIME Ph	Leve		Package		Hale	y & m Po		ich		20D0680
RELINQUISHED:			TIME	RECEIVE	D:	W. C.		DATE /	Illu	M	20								04/23/Page 29 of 36



Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Date Issued:

5/12/2020 2:23:02PM

Sample Conditions Checklist

Samples Received at:	0.20°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	No
Are the custody papers filled out completely and correctly?	No
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Work Order Comments

No turn around time selected on chain of custody. Logged as 5 day. Erin Wright notified via email. RJM 04/08/2020 0838.



Certificate of Analysis

Haley & Aldrich Client Name:

Client Site I.D.: Possum Point Hex Chrome

Erin Wright Submitted To:

Date Issued: 5/12/2020 2:23:02PM

Sample Conditions Checklist

Samples Received at:	2.20°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	No
Are the custody papers filled out completely and correctly?	No
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Work Order Comments

5 day TAT as per Erin Wright. SWS 4/9/20



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Timouto of Analysis

Sample Conditions Checklist

Samples Received at:	0.90°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	No
Are the custody papers filled out completely and correctly?	No
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Work Order Comments

As per Erin Wright, samples logged on a 5-day TAT. SWS 4/10/20



Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Date Issued:

5/12/2020 2:23:02PM

Sample Conditions Checklist

Samples Received at:	6.40°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	No
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Work Order Comments

As per Erin Wright, samples are to be analyzed on a 5-day TAT. SWS 4/10/20 1439



Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Date Issued:

5/12/2020 2:23:02PM

Sample Conditions Checklist

Samples Received at:	0.90°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	No
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Work Order Comments



Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Date Issued:

5/12/2020 2:23:02PM

Sample Conditions Checklist

Samples Received at:	0.70°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	No
Are the custody papers filled out completely and correctly?	No
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Work Order Comments

No turn around time selected on chain of custody. Erin Wright notified via email. RJM $04/15/2020\ 0848$.



5/12/2020 2:23:02PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point Hex Chrome

Submitted To: Erin Wright

Sample Conditions Checklist

Samples Received at:	3.30°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	No
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Work Order Comments





April 22, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy CCR
Pace Project No.: 92474190

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 17, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Asheville

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

Sincerely,

Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092 Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy CCR

Pace Project No.: 92474190

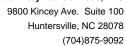
Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS





SAMPLE SUMMARY

Project: Dominion Energy CCR

Pace Project No.: 92474190

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
92474190001	ES-7D-20200416	Water	04/16/20 10:00	04/17/20 09:09	
92474190002	ES-7-20200416	Water	04/16/20 11:25	04/17/20 09:09	

REPORT OF LABORATORY ANALYSIS



SAMPLE ANALYTE COUNT

Project: Dominion Energy CCR

Pace Project No.: 92474190

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92474190001	ES-7D-20200416	EPA 6020B	JOR	4	PASI-A
		EPA 6020B	JOR	4	PASI-A
92474190002	ES-7-20200416	EPA 6020B	JOR	4	PASI-A
		EPA 6020B	JOR	4	PASI-A

PASI-A = Pace Analytical Services - Asheville





SUMMARY OF DETECTION

Project: Dominion Energy CCR

Pace Project No.: 92474190

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92474190001	ES-7D-20200416					
EPA 6020B	Boron	67.5J	ug/L	125	04/20/20 13:50	
EPA 6020B	Cobalt	2.2	ug/L	0.50	04/20/20 13:50	
EPA 6020B	Nickel	5.0	ug/L	2.5	04/20/20 13:50	
EPA 6020B	Zinc	13.7J	ug/L	25.0	04/20/20 13:50	
EPA 6020B	Boron, Dissolved	59.7J	ug/L	125	04/20/20 10:54	
EPA 6020B	Cobalt, Dissolved	0.88	ug/L	0.50	04/20/20 10:54	
EPA 6020B	Nickel, Dissolved	2.2J	ug/L	2.5	04/20/20 10:54	
2474190002	ES-7-20200416					
EPA 6020B	Boron	264	ug/L	125	04/20/20 14:11	
EPA 6020B	Cobalt	89.2	ug/L	0.50	04/20/20 14:11	
EPA 6020B	Nickel	69.4	ug/L	0.50	04/20/20 13:55	
EPA 6020B	Zinc	33.4	ug/L	5.0	04/20/20 13:55	
EPA 6020B	Boron, Dissolved	261	ug/L	125	04/20/20 10:59	M1
EPA 6020B	Cobalt, Dissolved	82.3	ug/L	0.50	04/20/20 10:59	M1
EPA 6020B	Nickel, Dissolved	60.7	ug/L	2.5	04/20/20 10:59	M1
EPA 6020B	Zinc, Dissolved	30.3	ug/L	25.0	04/20/20 10:59	M1

REPORT OF LABORATORY ANALYSIS



ANALYTICAL RESULTS

Project: Dominion Energy CCR

Pace Project No.: 92474190

Date: 04/22/2020 01:32 PM

Sample: ES-7D-20200416	Lab ID:	92474190001	Collected	d: 04/16/20	10:00	Received: 04/	/17/20 09:09 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: El	PA 3010A			
	Pace Anal	tical Services	- Asheville						
Boron	67.5J	ug/L	125	12.8	5	04/18/20 01:26	04/20/20 13:50	7440-42-8	
Cobalt	2.2	ug/L	0.50	0.25	5	04/18/20 01:26	04/20/20 13:50	7440-48-4	
Nickel	5.0	ug/L	2.5	0.55	5	04/18/20 01:26	04/20/20 13:50	7440-02-0	
Zinc	13.7J	ug/L	25.0	5.6	5	04/18/20 01:26	04/20/20 13:50	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: El	PA 3010A			
	Pace Analy	tical Services	- Asheville						
Boron, Dissolved	59.7J	ug/L	125	12.8	5	04/19/20 14:11	04/20/20 10:54	7440-42-8	
Cobalt, Dissolved	0.88	ug/L	0.50	0.25	5	04/19/20 14:11	04/20/20 10:54	7440-48-4	
Nickel, Dissolved	2.2J	ug/L	2.5	0.55	5	04/19/20 14:11	04/20/20 10:54	7440-02-0	
Zinc, Dissolved	ND	ug/L	25.0	5.6	5	04/19/20 14:11	04/20/20 10:54	7440-66-6	



ANALYTICAL RESULTS

Project: Dominion Energy CCR

Pace Project No.: 92474190

Date: 04/22/2020 01:32 PM

Sample: ES-7-20200416	Lab ID:	92474190002	Collected	d: 04/16/20	11:25	Received: 04/	17/20 09:09 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical I	Method: EPA 6	020B Prepa	aration Met	hod: El	PA 3010A			
	Pace Analy	tical Services	- Asheville						
Boron	264	ug/L	125	12.8	5	04/18/20 01:26	04/20/20 14:11	7440-42-8	
Cobalt	89.2	ug/L	0.50	0.25	5	04/18/20 01:26	04/20/20 14:11	7440-48-4	
Nickel	69.4	ug/L	0.50	0.11	1	04/18/20 01:26	04/20/20 13:55	7440-02-0	
Zinc	33.4	ug/L	5.0	1.1	1	04/18/20 01:26	04/20/20 13:55	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical I	Method: EPA 6	020B Prepa	aration Met	hod: El	PA 3010A			
	Pace Analy	tical Services	- Asheville						
Boron, Dissolved	261	ug/L	125	12.8	5	04/19/20 14:11	04/20/20 10:59	7440-42-8	M1
Cobalt, Dissolved	82.3	ug/L	0.50	0.25	5	04/19/20 14:11	04/20/20 10:59	7440-48-4	M1
Nickel, Dissolved	60.7	ug/L	2.5	0.55	5	04/19/20 14:11	04/20/20 10:59	7440-02-0	M1
Zinc, Dissolved	30.3	ug/L	25.0	5.6	5	04/19/20 14:11	04/20/20 10:59	7440-66-6	M1



QUALITY CONTROL DATA

Project: Dominion Energy CCR

Pace Project No.: 92474190

Date: 04/22/2020 01:32 PM

QC Batch: 536961
QC Batch Method: EPA 3010A

Analysis Method: EPA 6020B

Analysis Description: 6020 MET

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92474190001, 92474190002

METHOD BLANK: 2864237 Matrix: Water

Associated Lab Samples: 92474190001, 92474190002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	ND .	25.0	2.6	04/20/20 13:39	
Cobalt	ug/L	ND	0.10	0.050	04/20/20 13:39	
Nickel	ug/L	ND	0.50	0.11	04/20/20 13:39	
Zinc	ug/L	ND	5.0	1.1	04/20/20 13:39	

LABORATORY CONTROL SAMPLE:	2864238					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Boron	ug/L	50	49.1	98	80-120	
Cobalt	ug/L	10	9.9	99	80-120	
Nickel	ug/L	50	49.6	99	80-120	
Zinc	ug/L	50	50.1	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2864239					2864240							
			MS	MSD								
	9	92474211005	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron	ug/L	ND	50	50	73.6	71.0	99	93	75-125	4	20	
Cobalt	ug/L	ND	10	10	10.2	10.0	99	97	75-125	2	20	
Nickel	ug/L	0.94	50	50	49.5	48.7	97	96	75-125	2	20	
Zinc	ug/L	5.2	50	50	53.9	53.5	97	97	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



QUALITY CONTROL DATA

Project: Dominion Energy CCR

Pace Project No.: 92474190

Date: 04/22/2020 01:32 PM

QC Batch: 537046 Analysis Method: EPA 6020B

QC Batch Method: EPA 3010A Analysis Description: 6020 MET Dissolved

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92474190001, 92474190002

METHOD BLANK: 2864503 Matrix: Water

Associated Lab Samples: 92474190001, 92474190002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analvzed	Qualifiers
Boron, Dissolved	ug/L	ND	25.0	2.6	04/20/20 10:07	
Cobalt, Dissolved	ug/L	ND	0.10	0.050	04/20/20 10:07	
Nickel, Dissolved	ug/L	ND	0.50	0.11	04/20/20 10:07	
Zinc, Dissolved	ug/L	ND	5.0	1.1	04/20/20 10:07	

LABORATORY CONTROL SAMPLE:	2864504	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Boron, Dissolved	ug/L	50	47.5	95	80-120	
Cobalt, Dissolved	ug/L	10	9.6	96	80-120	
Nickel, Dissolved	ug/L	50	47.8	96	80-120	
Zinc, Dissolved	ug/L	50	50.4	101	80-120	

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 2864	505		2864506							•
		0.474400000	MS	MSD	140	MOD	140	MOD	0/ D			
	g	2474190002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron, Dissolved	ug/L	261	50	50	279	246	37	-30	75-125	13	20	M1
Cobalt, Dissolved	ug/L	82.3	10	10	86.2	77.6	39	-47	75-125	10	20	M1
Nickel, Dissolved	ug/L	60.7	50	50	101	91.6	80	62	75-125	9	20	M1
Zinc, Dissolved	ug/L	30.3	50	50	72.3	67.5	84	74	75-125	7	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.



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

QUALIFIERS

Project: Dominion Energy CCR

Pace Project No.: 92474190

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.

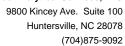
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 04/22/2020 01:32 PM

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy CCR

Pace Project No.: 92474190

Date: 04/22/2020 01:32 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92474190001	ES-7D-20200416	EPA 3010A	536961	EPA 6020B	536974
92474190002	ES-7-20200416	EPA 3010A	536961	EPA 6020B	536974
92474190001	ES-7D-20200416	EPA 3010A	537046	EPA 6020B	537049
92474190002	ES-7-20200416	EPA 3010A	537046	EPA 6020B	537049

Pace Analytical®

Document Name: Sample Condition Upon Receipt(SCUR)

Document No.: F-CAR-CS-033-Rev.06 Document Revised: February 7, 2018

Page 1 of 2 Issuing Authority: Pace Carolinas Quality Office

La	boratory receiving samples: Asheville	Greenwoo	d 🔲	Hu	nters	ville 🔃	Raleigh [Mechanics ville
	Sample Condition Upon Receipt ourler: Client Name: Fed Ex Pace	UPS USPS		Cli	Projec ent		: 9247 	
Cus	tody Seal Present? Yes No	Seals Intact?	∐Yes	□No		Date/initia	als Person Examining	Contents: ANY 4-17-18
Coo	DA Regulated Soil (N/A, water sample) samples originate in a quarantine zone within	Bubble Bags Type of I n Factor: Add/Subtra the United States: CA	ct (°C)	wet □E +0.1	-	□None Temp should be □Samples or has begun Did samples origi	Biological Tissu Yes No 6 above freezing to 6 t of temp criteria. San	e Frozen? N/A S°C nples on ice, cooling process urce (internationally,
	YesfNo					incidding riewan	Comments/Discrep	
	Chain of Custody Present?	Ves	□No	□N/A	1.		2 7	11
	Samples Arrived within Hold Time?	Yes	□No	□N/A	2.			\ \
	Short Hold Time Analysis (<72 hr.)?	□Yes	No	□N/A	3.			
	Rush Turn Around Time Requested?	Yes	No	□N/A	4.	9		
	Sufficient Volume?	Yes	□No	□N/A	5.			
	Correct Containers Used?	□Yes		□N/A	6.			
	-Pace Containers Used?	✓Ves	□No	□n/A				
12	Containers Intact?	☐Yes	□No	□N/A	7.			
	Dissolved analysis: Samples Field Filtered?	□Yes	□No	□n/A	8.			
	Sample Labels Match COC?	Yes	□No	□n/a	9.		***************************************	
	-Includes Date/Time/ID/Analysis Matrix	c						_
	Headspace in VOA Vials (>5-6mm)?	Yes	□No	ØN/A	10.			
	Trip Blank Present?	□Yes	No	□N/A	11.			
	Trip Blank Custody Seals Present?	Yes	□No	□N/A				
c	OMMENTS/SAMPLE DISCREPANCY					2	Field Data	Required? Yes No
_						t ID of split cont	alners:	
CLI	ENT NOTIFICATION/RESOLUTION						onters.	-
- Р	erson contacted:			Date/Ti	me:			
	Project Manager SCURF Review:					Date:		-
	Project Manager SRF Review:					Date:		



Document Name: Sample Condition Upon Receipt(SCUR)

Document No.: F-CAR-CS-033-Rev.06

Document Revised: February 7, 2018
Page 1 of 2

Issuing Authority: Pace Carolinas Quality Office

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

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

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

Project #

WO#: 92474190

PM: PTE

Due Date: 04/24/20

CLIENT: 92-Haley VA

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) (CI-)	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-)	AG15-1 liter Amber H2SO4 (pH < 2)	AG35-250 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 Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	ar.	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1						X																						
2		-(-				X																						
3						/											711											
4			-			1																						
5	7				7	7	7	Z			7		7	7	7									Z	Z			
6	/				/	/	/	/			/				/									/				
7	7				7	1	/	/	_		/	_	1	1	1	_					_	_		7	1			
8						7	7						/	/	/									/	/			
9						/	/						/	/	/									/	/			
10						/	/	/						/										/				
11			-			/	/				/		/	/	/			-						/	/			
12					/	/	/	/			/		/							3								

		pH Ad	justment Log for Pres	erved Samples		
Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #
					2 2	
		7				

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.

The

dissolved metals bottle for

Andy

Jernager

五五

92-91-H

1730

8

250 DATE

OF

TIME 6

SAMPLE CONDITIONS

DATE

TIME

ACCEPTED BY / AFFILIATION

SAMPLER NAME AND SIGNATURE

SIGNATURE of SAMPLER: PRINT Name of SAMPLER:

かっていってん

DATE Signed (MM/DD/YY):

4-16-20

Temp in °C

Custody

Sealed Coole (Y/N)

Samples Intact (Y/N)

RELINQUISHED BY / AFFILIATION

ADDITIONAL COMMENTS

ES-70-20200416 needs to

12 11 6 00

6

6

lab filtered.

ITEM#

(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

SAMPLE ID

Drinking Water Water Waste Water Product Soil/Solid

(see valid codes to left)

(G=GRAB C=COMP)

Collection Info

Sample Depth

COLLECTED

Preservatives

Y/N.

OTARECE PASS

MATRIX CODE

SAMPLE TYPE

Start
Depth
(Circle: feet or inches)

End Depth (Circle: feet or inches)

Unpreserved H₂SO₄ HNO₃

HCI NaOH Na₂S₂O₃

Methanol Other

↓Analysis Test**↓**

(Total + Dissolved)

(Total + Dissolve &

Zinc (Total + Dissolved

Cobalt (Total Dissolve

Residual Chlorine (Y/N)

Pace Project No./ Lab

OF CONTAINERS

SAMPLE TEMP AT COLLECTION

ES-70-20200416 ES-7-20200416

13 13

2

4-16-20 4-16-20 DATE

1125

1000

12

×

× ×

×

X ×

TIME

Ç

Required Client Information

Matrix Codes
MATRIX / CODE



CHAIN-OF-CUSTODY / Analytical Request Document

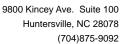
Page:

>

of.

	(N/N)	Requested Analysis Filtered (Y/N)	Requested /	Pace by and between Haley & Aldrich,	in Blanket Service Agreement #2019-22-	Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement #2019-22-Pace by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Pace Analytical Services, Inc.	Pace's services under this Chain of Custody shall be performed in a Inc., its subsidiaries and affiliates and Pace Analytical Services, Inc.	Pace's services under this Cha Inc., its subsidiaries and affilia
	< P	STATE:		Pace Profile #: TBD (9362?)		H&A Project #: 134660	Standard	Requested Due Date/TAT:
	, /	Site Location	abs.com	Pace Project taylor.ezell@pacelabs.com	Possum Point	H&A Client Name: Dominion Energy: Possum Point	Fax:	Phone: 804-419-0012 Fax:
	☐ RCRA ☐	□ ust □		Pace Quote Reference:		BSA#: 2019-22-Pace	yaldrich.com	Email To: ewright@haleyaldrich.com
TER DRINKING V	GROUND _,TER	☐ NPDES ☐		Address:	ch.com	kchatterton@haleyaldrich.com	Suite 208, Midlothian, VA 23114	Suite 208, Mic
	GENCY	REGULATORY AGENCY		Company Name:		Copy To: Chatterton, Kelly	Sircle	Address: 1 Park West Circle
46268	7726 Moller Road - Indianapolis, IN 46268	7726 Moller Ro		Attention:		Report To: Wright, Erin	h, Inc.	Company: Haley & Aldrich, Inc.
VIN 55414	1700 Elm Street SE - Minneapolis, MN 55414	1700 Elm Stree		Invoice Information:		Required Project Information:		Required Client Information:
220 William Pitt Way, Pittsburgh, PA 15238 (Pace Energy)	tt Way, Pittsburgh, PA	220 William Pit		Section C		Section B		Section A
e 14 ol 14		curately.	ilds must be completed ac	The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.	The Chain-of-Custody is	ALDRICH	Analytical www.pacellabs.com	Pace Analytical www.pacelebs.com







May 11, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy CCR
Pace Project No.: 92472859

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory between April 08, 2020 and April 16, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

Pace Analytical Services - Greensburg

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

Sincerely,

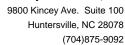
Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092

Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich







CERTIFICATIONS

Project: Dominion Energy CCR

Pace Project No.: 92472859

Pace Analytical Services Pennsylvania

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 Florida: Cert E871149 SEKS WET

Guam Certification Hawaii Certification Idaho Certification Illinois Certification Indiana Certification Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020 Maryland Certification #: 308

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

Missouri Certification #: 235

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



SAMPLE SUMMARY

Project: Dominion Energy CCR

Pace Project No.: 92472859

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92472859001	ED-22RA-20200407	Water	04/07/20 10:15	04/08/20 09:00
92473024001	ED-23R20200408	Water	04/08/20 10:36	04/09/20 09:25
92473024002	ES-3D-20200408	Water	04/08/20 12:16	04/09/20 09:25
92473024003	ES-1609-20200408	Water	04/08/20 13:31	04/09/20 09:25
92473024004	ES-1613-20200408	Water	04/08/20 14:46	04/09/20 09:25
92473420003	T-1615D-20200410	Water	04/10/20 12:21	04/11/20 10:26
92473420002	T-1615S-20200410	Water	04/10/20 11:26	04/11/20 10:26
92473542001	ED-24R-20200413	Water	04/13/20 15:30	04/14/20 09:55
92473787001	ED-26-20200414	Water	04/14/20 11:20	04/15/20 09:30
92473787002	EB-01-20200414	Water	04/14/20 16:30	04/15/20 09:30
92473949001	ES-1-20200415	Water	04/15/20 12:00	04/16/20 09:20
92473949002	ES-1D-20200415	Water	04/15/20 14:15	04/16/20 09:20



SAMPLE ANALYTE COUNT

Project:

Dominion Energy CCR

Pace Project No.: 92472859

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92472859001	ED-22RA-20200407	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92473024001	ED-23R20200408	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92473024002	ES-3D-20200408	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92473024003	ES-1609-20200408	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92473024004	ES-1613-20200408	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2473420003	T-1615D-20200410	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2473420002	T-1615S-20200410	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92473542001	ED-24R-20200413	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92473787001	ED-26-20200414	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2473787002	EB-01-20200414	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2473949001	ES-1-20200415	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
92473949002	ES-1D-20200415	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA





SAMPLE ANALYTE COUNT

Project: Dominion Energy CCR

Pace Project No.: 92472859

Analytes Lab ID Sample ID Method Reported **Analysts** Laboratory

PASI-PA = Pace Analytical Services - Greensburg



SUMMARY OF DETECTION

Project: Dominion Energy CCR

Pace Project No.: 92472859

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92472859001	ED-22RA-20200407					
EPA 903.1	Radium-226	-0.190 ±	pCi/L	C	04/28/20 16:52	
		0.480 (1.05) C:NA				
		T:88%				
EPA 904.0	Radium-228	0.852 ± 0.715	pCi/L	C	04/27/20 17:47	
		(1.44)				
		C:65%				
Total Radium Calculation	Total Radium	T:70% 0.852 ±	pCi/L	(04/29/20 09:55	
Total Radiam Galodiation	rotal readam	0.861	PO#2		7 1/20/20 00:00	
		(1.44)				
2473024001	ED-23R20200408					
EPA 903.1	Radium-226	0.286 ±	pCi/L	C	04/29/20 13:53	
		0.338 (0.531)				
		C:NA T:88%				
EPA 904.0	Radium-228	0.521 ± 0.334	pCi/L	C	04/28/20 12:42	
		(0.620)				
		C:72%				
Total Radium Calculation	Total Radium	T:87% 0.807 ±	pCi/L	C	04/30/20 09:05	
Total Radiam Galodiation	rotal readam	0.475	PO#2		3 1700720 00.00	
		(0.620)				
2473024002	ES-3D-20200408					
EPA 903.1	Radium-226	0.106 ± 0.327	pCi/L	C	04/29/20 13:53	
		(0.634)				
		C:NA T:90%				
EPA 904.0	Radium-228	1.82 ± 0.760	pCi/L	C	04/28/20 16:38	
		(1.31)				
		C:75%				
Total Radium Calculation	Total Radium	T:74% 1.93 ±	pCi/L	C	04/30/20 09:05	
		0.827	F =			
		(1.31)				
92473024003	ES-1609-20200408					
EPA 903.1	Radium-226	0.959 ± 0.542	pCi/L	C	04/29/20 13:53	
		(0.607)				
	D 11 000	C:NA T:87%	0:"	_	24/00/00 : 5 5 5	
EPA 904.0	Radium-228	1.89 ± 0.653	pCi/L	C	04/28/20 16:38	
		(0.960)				
		C:75% T:78%				
Total Radium Calculation	Total Radium	1:78% 2.85 ±	pCi/L	C	04/30/20 09:05	
		0.849	F = " =			
		(0.960)				



SUMMARY OF DETECTION

Project: Dominion Energy CCR

Pace Project No.: 92472859

Lab Sample ID	Client Sample ID	Result	Llaita	Donort Limit	Anglyzad	Ovalifiana
Method	Parameters —	<u>Result</u>	Units	Report Limit	Analyzed	Qualifiers
92473024004	ES-1613-20200408					
EPA 903.1	Radium-226	0.727 ± 0.588 (0.854) C:NA T:87%	pCi/L		04/29/20 13:53	
EPA 904.0	Radium-228	1.57 ± 0.639 (1.06) C:74% T:82%	pCi/L		04/28/20 16:38	
Total Radium Calculation	Total Radium	2.30 ± 0.868 (1.06)	pCi/L		04/30/20 09:05	
2473420003	T-1615D-20200410					
EPA 903.1	Radium-226	0.262 ± 0.310 (0.487) C:NA T:102%	pCi/L		05/05/20 13:06	
EPA 904.0	Radium-228	0.643 ± 0.360 (0.634) C:72% T:91%	pCi/L		05/01/20 16:06	
Total Radium Calculation	Total Radium	0.905 ± 0.475 (0.634)	pCi/L		05/05/20 14:46	
2473420002	T-1615S-20200410					
EPA 903.1	Radium-226	1.71 ± 0.718 (0.587) C:NA T:85%	pCi/L		05/05/20 13:06	
EPA 904.0	Radium-228	1.72 ± 0.614 (0.868) C:72% T:75%	pCi/L		05/01/20 16:06	
Total Radium Calculation	Total Radium	3.43 ± 0.945 (0.868)	pCi/L		05/05/20 14:46	
2473542001	ED-24R-20200413					
EPA 903.1	Radium-226	0.258 ± 0.305 (0.479) C:NA T:101%	pCi/L		05/05/20 16:11	
EPA 904.0	Radium-228	0.0929 ± 0.451 (1.02) C:76% T:68%	pCi/L		05/04/20 11:04	
Total Radium Calculation	Total Radium	0.351 ± 0.544 (1.02)	pCi/L		05/05/20 17:27	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Dominion Energy CCR

Pace Project No.: 92472859

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
			Office	- Roport Limit		- Qualifiers
92473787001	ED-26-20200414	0.470				
EPA 903.1	Radium-226	0.178 ± 0.349	pCi/L		05/07/20 11:39	
		(0.637)				
EPA 904.0	Radium-228	C:NA T:85% 0.548 ±	pCi/L		05/05/20 16:30	
EFA 904.0	Raululli-220	0.462	pc//L		05/05/20 16.30	
		(0.933) C:70%				
		T:80%				
Total Radium Calculation	Total Radium	0.726 ±	pCi/L		05/07/20 13:55	
		0.579 (0.933)				
2473787002	EB-01-20200414	(* * * * * * * * * * * * * * * * * * *				
EPA 903.1	Radium-226	0.109 ±	pCi/L		05/07/20 11:59	
		0.262	•			
		(0.506) C:NA T:93%				
EPA 904.0	Radium-228	0.597 ±	pCi/L		05/05/20 16:31	
		0.489 (0.984)				
		C:69%				
Fatal Dadium Calculation	Total Dadissa	T:78% 0.706 ±	- C:/I		05/07/00 40-55	
Total Radium Calculation	Total Radium	0.706 ± 0.555	pCi/L		05/07/20 13:55	
		(0.984)				
2473949001	ES-1-20200415					
EPA 903.1	Radium-226	-0.0581 ±	pCi/L		05/08/20 14:05	
		0.470 (0.968)				
		C:NA T:88%				
EPA 904.0	Radium-228	1.88 ± 0.613	pCi/L		05/06/20 12:59	
		(0.822)				
		C:69% T:82%				
Total Radium Calculation	Total Radium	1.88 ±	pCi/L		05/08/20 15:14	
		0.772 (0.968)				
2473949002	ES-1D-20200415	(0.000)				
EPA 903.1	Radium-226	0.000 ±	pCi/L		05/08/20 14:05	
		0.340	•			
		(0.706) C:NA				
	.	T:107%				
EPA 904.0	Radium-228	0.651 ± 0.440	pCi/L		05/06/20 12:59	
		(0.854)				
		C:74% T:87%				
Total Radium Calculation	Total Radium	0.651 ±	pCi/L		05/08/20 15:14	
		0.556	F			
		(0.854)				

REPORT OF LABORATORY ANALYSIS

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Project: Dominion Energy CCR

Pace Project No.: 92472859

Sample: ED-22RA-20200407 PWS:	Lab ID: 924728 Site ID:	59001 Collected: 04/07/20 10:15 Sample Type:	Received:	04/08/20 09:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Se	ervices - Greensburg		-		
Radium-226	EPA 903.1	-0.190 ± 0.480 (1.05) C:NA T:88%	pCi/L	04/28/20 16:52	2 13982-63-3	
	Pace Analytical Se	ervices - Greensburg				
Radium-228	EPA 904.0	0.852 ± 0.715 (1.44) C:65% T:70%	pCi/L	04/27/20 17:47	7 15262-20-1	
	Pace Analytical Se	ervices - Greensburg				
Total Radium	Total Radium Calculation	0.852 ± 0.861 (1.44)	pCi/L	04/29/20 09:55	7440-14-4	



Project: Dominion Energy CCR

Pace Project No.: 92472859

Sample: ED-23R20200408 PWS:	Lab ID: 92473 Site ID:	024001 Collected: 04/08/20 10:36 Sample Type:	Received:	04/09/20 09:25	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	Services - Greensburg				
Radium-226	EPA 903.1	0.286 ± 0.338 (0.531) C:NA T:88%	pCi/L	04/29/20 13:53	3 13982-63-3	
	Pace Analytical S	Services - Greensburg				
Radium-228	EPA 904.0	0.521 ± 0.334 (0.620) C:72% T:87%	pCi/L	04/28/20 12:42	2 15262-20-1	
	Pace Analytical S	Services - Greensburg				
Total Radium	Total Radium Calculation	0.807 ± 0.475 (0.620)	pCi/L	04/30/20 09:0	5 7440-14-4	



Project: Dominion Energy CCR

Pace Project No.: 92472859

Sample: ES-3D-20200408 PWS:	Lab ID: 9247302 Site ID:	24002 Collected: 04/08/20 12:16 Sample Type:	Received:	04/09/20 09:25	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Se	rvices - Greensburg				
Radium-226	EPA 903.1	0.106 ± 0.327 (0.634) C:NA T:90%	pCi/L	04/29/20 13:53	3 13982-63-3	
	Pace Analytical Se	rvices - Greensburg				
Radium-228	EPA 904.0	1.82 ± 0.760 (1.31) C:75% T:74%	pCi/L	04/28/20 16:38	3 15262-20-1	
	Pace Analytical Se	rvices - Greensburg				
Total Radium	Total Radium Calculation	1.93 ± 0.827 (1.31)	pCi/L	04/30/20 09:05	5 7440-14-4	



Project: Dominion Energy CCR

Pace Project No.: 92472859

Sample: ES-1609-20200408 PWS:	Lab ID: 924730 Site ID:	D24003 Collected: 04/08/20 13:31 Sample Type:	Received:	04/09/20 09:25	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	ervices - Greensburg				
Radium-226	EPA 903.1	0.959 ± 0.542 (0.607) C:NA T:87%	pCi/L	04/29/20 13:53	3 13982-63-3	
	Pace Analytical S	ervices - Greensburg				
Radium-228	EPA 904.0	1.89 ± 0.653 (0.960) C:75% T:78%	pCi/L	04/28/20 16:38	3 15262-20-1	
	Pace Analytical S	ervices - Greensburg				
Total Radium	Total Radium Calculation	2.85 ± 0.849 (0.960)	pCi/L	04/30/20 09:05	5 7440-14-4	



Project: Dominion Energy CCR

Pace Project No.: 92472859

Sample: ES-1613-20200408 PWS:	Lab ID: 92473 Site ID:	024004 Collected: 04/08/20 14:46 Sample Type:	Received:	04/09/20 09:25	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	Services - Greensburg				
Radium-226	EPA 903.1	0.727 ± 0.588 (0.854) C:NA T:87%	pCi/L	04/29/20 13:53	3 13982-63-3	
	Pace Analytical S	Services - Greensburg				
Radium-228	EPA 904.0	1.57 ± 0.639 (1.06) C:74% T:82%	pCi/L	04/28/20 16:38	8 15262-20-1	
	Pace Analytical S	Services - Greensburg				
Total Radium	Total Radium Calculation	2.30 ± 0.868 (1.06)	pCi/L	04/30/20 09:0	5 7440-14-4	



Project: Dominion Energy CCR

Pace Project No.: 92472859

Sample: T-1615D-20200410 PWS:	Lab ID: 9247 3 Site ID:	3420003 Collected: 04/10/20 12:21 Sample Type:	Received:	04/11/20 10:26	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 903.1	0.262 ± 0.310 (0.487) C:NA T:102%	pCi/L	05/05/20 13:06	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	0.643 ± 0.360 (0.634) C:72% T:91%	pCi/L	05/01/20 16:06	5 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.905 ± 0.475 (0.634)	pCi/L	05/05/20 14:46	7440-14-4	



Project: Dominion Energy CCR

Pace Project No.: 92472859

Sample: T-1615S-20200410 PWS:	Lab ID: 9247 Site ID:	3420002 Collected: 04/10/20 11:26 Sample Type:	Received:	04/11/20 10:26	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 903.1	1.71 ± 0.718 (0.587) C:NA T:85%	pCi/L	05/05/20 13:06	6 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	1.72 ± 0.614 (0.868) C:72% T:75%	pCi/L	05/01/20 16:06	5 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	$3.43 \pm 0.945 (0.868)$	pCi/L	05/05/20 14:46	7440-14-4	



Project: Dominion Energy CCR

Pace Project No.: 92472859

Sample: ED-24R-20200413 PWS:	Lab ID: 9247354 Site ID:	2001 Collected: 04/13/20 15:30 Sample Type:	Received:	04/14/20 09:55	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Ser	vices - Greensburg				
Radium-226	EPA 903.1	0.258 ± 0.305 (0.479) C:NA T:101%	pCi/L	05/05/20 16:11	1 13982-63-3	
	Pace Analytical Ser	vices - Greensburg				
Radium-228	EPA 904.0	0.0929 ± 0.451 (1.02) C:76% T:68%	pCi/L	05/04/20 11:04	1 15262-20-1	
	Pace Analytical Ser	vices - Greensburg				
Total Radium	Total Radium Calculation	0.351 ± 0.544 (1.02)	pCi/L	05/05/20 17:27	7 7440-14-4	



Project: Dominion Energy CCR

Pace Project No.: 92472859

Sample: ED-26-20200414 PWS:	Lab ID: 9247378 7 Site ID:	7001 Collected: 04/14/20 11:20 Sample Type:	Received:	04/15/20 09:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Serv	vices - Greensburg				
Radium-226	EPA 903.1	0.178 ± 0.349 (0.637) C:NA T:85%	pCi/L	05/07/20 11:39	13982-63-3	
	Pace Analytical Serv	vices - Greensburg				
Radium-228	EPA 904.0	0.548 ± 0.462 (0.933) C:70% T:80%	pCi/L	05/05/20 16:30	15262-20-1	
	Pace Analytical Serv	vices - Greensburg				
Total Radium	Total Radium Calculation	0.726 ± 0.579 (0.933)	pCi/L	05/07/20 13:55	7440-14-4	



Project: Dominion Energy CCR

Pace Project No.: 92472859

Sample: EB-01-20200414 PWS:	Lab ID: 9247378 Site ID:	7002 Collected: 04/14/20 16:30 Sample Type:	Received:	04/15/20 09:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Ser	vices - Greensburg				
Radium-226	EPA 903.1	0.109 ± 0.262 (0.506) C:NA T:93%	pCi/L	05/07/20 11:59	13982-63-3	
	Pace Analytical Ser	vices - Greensburg				
Radium-228	EPA 904.0	0.597 ± 0.489 (0.984) C:69% T:78%	pCi/L	05/05/20 16:31	15262-20-1	
	Pace Analytical Ser	vices - Greensburg				
Total Radium	Total Radium Calculation	0.706 ± 0.555 (0.984)	pCi/L	05/07/20 13:55	7440-14-4	



Project: Dominion Energy CCR

Pace Project No.: 92472859

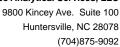
Sample: ES-1-20200415 PWS:	Lab ID: 92473 Site ID:	949001 Collected: 04/15/20 12:00 Sample Type:	Received:	04/16/20 09:20	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	ervices - Greensburg				
Radium-226	EPA 903.1	-0.0581 ± 0.470 (0.968) C:NA T:88%	pCi/L	05/08/20 14:05	5 13982-63-3	
	Pace Analytical S	ervices - Greensburg				
Radium-228	EPA 904.0	1.88 ± 0.613 (0.822) C:69% T:82%	pCi/L	05/06/20 12:59	9 15262-20-1	
	Pace Analytical S	ervices - Greensburg				
Total Radium	Total Radium Calculation	1.88 ± 0.772 (0.968)	pCi/L	05/08/20 15:14	4 7440-14-4	



Project: Dominion Energy CCR

Pace Project No.: 92472859

Sample: ES-1D-20200415 PWS:	Lab ID: 9247 Site ID:	3949002 Collected: 04/15/20 14:15 Sample Type:	Received:	04/16/20 09:20	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 903.1	0.000 ± 0.340 (0.706) C:NA T:107%	pCi/L	05/08/20 14:05	5 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	0.651 ± 0.440 (0.854) C:74% T:87%	pCi/L	05/06/20 12:59	9 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.651 ± 0.556 (0.854)	pCi/L	05/08/20 15:14	7440-14-4	





Project: Dominion Energy CCR

Pace Project No.: 92472859

QC Batch: 392068 Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

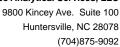
Associated Lab Samples: 92473024001, 92473024002, 92473024003, 92473024004

METHOD BLANK: 1898462 Matrix: Water
Associated Lab Samples: 92473024001, 92473024002, 92473024003, 92473024004

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-228 0.414 ± 0.359 (0.717) C:65% T:79% pCi/L 04/28/20 12:40

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: Dominion Energy CCR

Pace Project No.: 92472859

QC Batch: 391988 Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92472859001

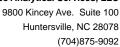
METHOD BLANK: 1897906 Matrix: Water

Associated Lab Samples: 92472859001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.167 ± 0.476 (0.884) C:NA T:76%
 pCi/L
 04/28/20 16:52

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: Dominion Energy CCR

Pace Project No.: 92472859

QC Batch: 392067 Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

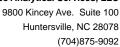
Associated Lab Samples: 92473024001, 92473024002, 92473024003, 92473024004

METHOD BLANK: 1898454 Matrix: Water

Associated Lab Samples: 92473024001, 92473024002, 92473024003, 92473024004

ParameterAct \pm Unc (MDC) Carr TracUnitsAnalyzedQualifiersRadium-226-0.165 \pm 0.418 (0.917) C:NA T:74%pCi/L04/29/20 13:53

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: Dominion Energy CCR

Pace Project No.: 92472859

QC Batch: 392492 Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92473420002, 92473420003

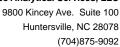
METHOD BLANK: 1900828 Matrix: Water

Associated Lab Samples: 92473420002, 92473420003

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.607 ± 0.452 (0.891) C:75% T:81%
 pCi/L
 05/01/20 16:03

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: Dominion Energy CCR

Pace Project No.: 92472859

QC Batch: 393049 Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92473787001, 92473787002

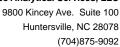
METHOD BLANK: 1903869 Matrix: Water

Associated Lab Samples: 92473787001, 92473787002

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.463 ± 0.385 (0.770) C:74% T:84%
 pCi/L
 05/05/20 16:31

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: Dominion Energy CCR

Pace Project No.: 92472859

QC Batch: 393048 Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

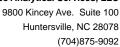
Associated Lab Samples: 92473787001, 92473787002

METHOD BLANK: 1903868 Matrix: Water

Associated Lab Samples: 92473787001, 92473787002

ParameterAct \pm Unc (MDC) Carr TracUnitsAnalyzedQualifiersRadium-226-0.0499 \pm 0.353 (0.749) C:NA T:88%pCi/L05/07/20 11:39

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: Dominion Energy CCR

Pace Project No.: 92472859

QC Batch: 392954 Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92473542001

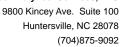
METHOD BLANK: 1903554 Matrix: Water

Associated Lab Samples: 92473542001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 1.04 ± 0.475 (0.800) C:78% T:76%
 pCi/L
 05/04/20 11:03

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: Dominion Energy CCR

Pace Project No.: 92472859

QC Batch: 393072 Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92473949001, 92473949002

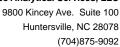
METHOD BLANK: 1903893 Matrix: Water

Associated Lab Samples: 92473949001, 92473949002

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.527 ± 0.340 (0.636) C:76% T:87%
 pCi/L
 05/06/20 12:56

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: Dominion Energy CCR

Pace Project No.: 92472859

QC Batch: 391989 Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92472859001

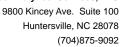
METHOD BLANK: 1897907 Matrix: Water

Associated Lab Samples: 92472859001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.343 ± 0.371 (0.770) C:65% T:79%
 pCi/L
 04/27/20 12:52

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: Dominion Energy CCR

Pace Project No.: 92472859

QC Batch: 392952 Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92473542001

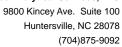
METHOD BLANK: 1903552 Matrix: Water

Associated Lab Samples: 92473542001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.000 ± 0.383 (0.775) C:NA T:82%
 pCi/L
 05/05/20 15:40

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: Dominion Energy CCR

Pace Project No.: 92472859

QC Batch: 393067 Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92473949001, 92473949002

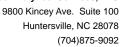
METHOD BLANK: 1903889 Matrix: Water

Associated Lab Samples: 92473949001, 92473949002

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.000 ± 0.366 (0.750) C:NA T:84%
 pCi/L
 05/08/20 13:37

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: Dominion Energy CCR

Pace Project No.: 92472859

QC Batch: 392491 Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92473420002, 92473420003

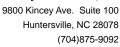
METHOD BLANK: 1900827 Matrix: Water

Associated Lab Samples: 92473420002, 92473420003

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.201 ± 0.395 (0.709) C:NA T:85%
 pCi/L
 05/05/20 12:25

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: Dominion Energy CCR

Pace Project No.: 92472859

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

Date: 05/11/2020 12:02 PM

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

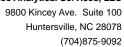
(MDC) - Minimum Detectable Concentration

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.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy CCR

Pace Project No.: 92472859

Date: 05/11/2020 12:02 PM

_ab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
92472859001	ED-22RA-20200407	EPA 903.1	391988		
92473024001	ED-23R20200408	EPA 903.1	392067		
92473024002	ES-3D-20200408	EPA 903.1	392067		
92473024003	ES-1609-20200408	EPA 903.1	392067		
2473024004	ES-1613-20200408	EPA 903.1	392067		
2473420002	T-1615S-20200410	EPA 903.1	392491		
2473420003	T-1615D-20200410	EPA 903.1	392491		
2473542001	ED-24R-20200413	EPA 903.1	392952		
2473787001	ED-26-20200414	EPA 903.1	393048		
2473787002	EB-01-20200414	EPA 903.1	393048		
2473949001	ES-1-20200415	EPA 903.1	393067		
2473949002	ES-1D-20200415	EPA 903.1	393067		
2472859001	ED-22RA-20200407	EPA 904.0	391989		
2473024001	ED-23R20200408	EPA 904.0	392068		
2473024002	ES-3D-20200408	EPA 904.0	392068		
2473024003	ES-1609-20200408	EPA 904.0	392068		
2473024004	ES-1613-20200408	EPA 904.0	392068		
2473420002	T-1615S-20200410	EPA 904.0	392492		
2473420003	T-1615D-20200410	EPA 904.0	392492		
2473542001	ED-24R-20200413	EPA 904.0	392954		
92473787001	ED-26-20200414	EPA 904.0	393049		
2473787002	EB-01-20200414	EPA 904.0	393049		
92473949001	ES-1-20200415	EPA 904.0	393072		
2473949002	ES-1D-20200415	EPA 904.0	393072		
2472859001	ED-22RA-20200407	Total Radium Calculation	394149		
92473024001	ED-23R20200408	Total Radium Calculation	394379		
2473024002	ES-3D-20200408	Total Radium Calculation	394379		
2473024003	ES-1609-20200408	Total Radium Calculation	394379		
2473024004	ES-1613-20200408	Total Radium Calculation	394379		
2473420002	T-1615S-20200410	Total Radium Calculation	394972		
92473420003	T-1615D-20200410	Total Radium Calculation	394972		
2473542001	ED-24R-20200413	Total Radium Calculation	394990		
92473787001	ED-26-20200414	Total Radium Calculation	395368		
92473787001	EB-01-20200414	Total Radium Calculation	395368		
92473949001	ES-1-20200415	Total Radium Calculation	395575		
700 -1 0001	ES-1D-20200415	Total Radium Calculation	395575		

Document Revised: February 7, 2018 **Document Name:** Sample Condition Upon Receipt(SCUR) Page 1 of 2 ace Analytical Document No.: Issuing Authority: Pace Carolinas Quality Office F-CAR-CS-033-Rev.06 Laboratory receiving samples: Huntersville 1 Raleigh 🗌 Mechanicsville Asheville Eden Greenwood WO#:92472807 Sample Condition Client Name: Project #: **Upon Receipt** Courler: Fed Ex Client ☐ Commercial Pace No Yes Seals Intact? Yes Date/Initials Person Examining Contents: Mg 4-8-20 **Custody Seal Present?** No Biological Tissue Frozen? None Other Packing Material: Bubble Wrap Bubble Bags ☐Yes ☐No ☐N/A Thermometer: ☑Wet □Blue None Type of Ice: IR Gun ID: Correction Factor: Add/Subtract (°C) +0.1 Temp should be above freezing to 6°C Cooler Temp Corrected (°C): Samples out of temp criteria. Samples on Ice, cooling process has begun USDA Regulated Soil (N/A, water sample) Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? DId samples originate from a foreign source (internationally, including Hawall and Puerto Rico)? Yes Yes No Comments/Discrepancy: Yes Chain of Custody Present? □No □N/A No Samples Arrived within Hold Time? □N/A 3. Short Hold Time Analysis (<72 hr.)? ☐ Yes - No □N/A □N/A 4. Rush Turn Around Time Requested? Yes ₽No Ves □N/A Sufficient Volume? Yes \ \ \ No □N/A Correct Containers Used? No □N/A -Pace Containers Used? □ Yes _ Yes 7. Containers Intact? No □N/A

□No

□No

No

□No

Yes

Yes

Yes

Yes

Dissolved analysis: Samples Field Filtered?

Headspace in VOA Vials (>5-6mm)?

Trip Blank Custody Seals Present?

COMMENTS/SAMPLE DISCREPANCY

-Includes Date/Time/ID/Analysis Matrix:

Sample Labels Match COC?

Trip Blank Present?

DNA

□N/A

√N/A

□N/A

□N/A

9.

11.

Field Data Required? Yes No



Document Name:
Sample Condition Upon Receipt(SCUR)
Document No.:
F-CAR-CS-033-Rev.06

Document Revised: February 7, 2018
Page 1 of 2
Issuing Authority:

Pace Carolinas Quality Office

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

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

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

Project #

WO#:92472807

M: PTE

Due Date: 04/29/20

CLIENT: 92-Haley VA

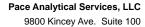
1 2 3 4 5 6 6 7 7		Rem#	BP4U-125 mL Plastic Unpreserved (N/A) (CI-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (CI-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (CI-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (CI-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG35-250 mL Amber H2SO4 (pH < 2)	AG3A[DG3A]-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BPIN	BP3A-250 mL Plastic (NH2)2SO4 (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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		pH Ad	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 #

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.

#
Compliance
Wells and
Sentinel
Well

Section 1 TICHE # Section 2 Section 2 Section 2 Section 2 Section 2 Section 2 Section 2 Section 2 Section 2 Section 2 Section 3 Section				ben		App		12	1	10	9	œ	7	6	C)	4	ω	2	_	ITEM#		Pace'	Requ	Phone:	Emai		Address:	Com	Requ	Sec	1
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CHAIN-OF CUSTODY / Analytical Request Document Page: 1 of 1				n, chr		Metals	TIONA												A-	PLE 0-9/	rmation	s Chain affiliates	гат:	0012	haleya	, Midl	est Ci	ldrich	ation:		nal)
NaOH Nag-Ground State of the Country Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) Nag-Ground State of the Country Appril Analysis Fillered (V/N) Appril Median Dissolved Solids (TDS) **Redium 226 & 228 Combined **Redium 226 & 228 Combined **Redium 226 & 228 Combined **DATE Signed U-7-20 **DATE Signed U-7-20 **Caustoin Country Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Redium 226 & 228 Combined **DATE Signed U-7-20 **Caustoin Country Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Redium 226 & 228 Combined **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **State of Country Appril Analysis Fillered (V/N) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **State of Country Appril Analysis Fillered (V/N) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pace of the Country Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pace of the Country Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pitt				omiur		s List: ılfate.	L COM													الاس 5		of Cust	S	Fax:	aldrich	othian	rcle	, Inc.			tica
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NaOH Nag-Ground State of the Country Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) Nag-Ground State of the Country Appril Analysis Fillered (V/N) Appril Median Dissolved Solids (TDS) **Redium 226 & 228 Combined **Redium 226 & 228 Combined **Redium 226 & 228 Combined **DATE Signed U-7-20 **DATE Signed U-7-20 **Caustoin Country Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Redium 226 & 228 Combined **DATE Signed U-7-20 **Caustoin Country Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Redium 226 & 228 Combined **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **State of Country Appril Analysis Fillered (V/N) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **State of Country Appril Analysis Fillered (V/N) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pace of the Country Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pace of the Country Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pitt							ISHED												۲	DA		d condi	0	ion E	019-2	@hal	Kelly	٦	tion:		$\overline{\Omega}$
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NaOH Nag-Ground State of the Country Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) Nag-Ground State of the Country Appril Analysis Fillered (V/N) Appril Median Dissolved Solids (TDS) **Redium 226 & 228 Combined **Redium 226 & 228 Combined **Redium 226 & 228 Combined **DATE Signed U-7-20 **DATE Signed U-7-20 **Caustoin Country Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Redium 226 & 228 Combined **DATE Signed U-7-20 **Caustoin Country Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Redium 226 & 228 Combined **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **State of Country Appril Analysis Fillered (V/N) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **State of Country Appril Analysis Fillered (V/N) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pace of the Country Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pitt Vey, Pace of the Country Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pittsburgh, PA 15238 (Pace of the Country) **Appril Median Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pittsburgh, Pace of the Country Pitt	f SAM	f SAM	SIGNA			1-1-1	DAT													End Depth Circle: feet or		nt #201									Custod Custod
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NaOH Nag-g-Q- Nag-g-Q	D	0				3	V.O.B.											L		HNO ₃	Pres	een Hal	IBD	taylo			ne:		lation:		JMEN.
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Huntersville, NC 28078 (704)875-9092





April 17, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy VSWMR

Pace Project No.: 92473415

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 11, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Asheville

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

Sincerely,

Taylor Ezell @pacelabs.com

(704)875-9092 Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy VSWMR

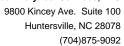
Pace Project No.: 92473415

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Dominion Energy VSWMR

Pace Project No.: 92473415

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
92473415001	ABC-1608-20200410	Water	04/10/20 08:31	04/11/20 10:26	
92473415002	T-1615S-20200410	Water	04/10/20 11:26	04/11/20 10:26	
92473415003	T-1615D-20200410	Water	04/10/20 12:21	04/11/20 10:26	



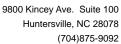
SAMPLE ANALYTE COUNT

Project: Dominion Energy VSWMR

Pace Project No.: 92473415

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92473415001	ABC-1608-20200410	EPA 6020B	JOR	11	PASI-A
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A
		SM 5310B-2011	ECH	1	PASI-A
92473415002	T-1615S-20200410	EPA 6020B	JOR	11	PASI-A
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A
		SM 5310B-2011	ECH	1	PASI-A
92473415003	T-1615D-20200410	EPA 6020B	JOR	11	PASI-A
		EPA 420.4 Rev 1.0 1993	KDF1	1	PASI-A
		SM 5310B-2011	ECH	1	PASI-A

PASI-A = Pace Analytical Services - Asheville





SUMMARY OF DETECTION

Project: Dominion Energy VSWMR

Pace Project No.: 92473415

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92473415001	ABC-1608-20200410					
EPA 6020B	Iron	5350	ug/L	1500	04/16/20 19:17	
EPA 6020B	Manganese	171	ug/L	15.0	04/16/20 19:17	
EPA 6020B	Nickel	19.2	ug/L	15.0	04/16/20 19:17	В
EPA 6020B	Potassium	3740	ug/L	1500	04/16/20 19:17	
EPA 6020B	Sodium	33200	ug/L	7500	04/16/20 19:17	
EPA 6020B	Hardness, Total(SM 2340B)	95100	ug/L	16200	04/16/20 19:17	
SM 5310B-2011	Nonpurgeable Organic Carbon	1.3	mg/L	1.0	04/15/20 20:19	
2473415002	T-1615S-20200410					
EPA 6020B	Iron	9440J	ug/L	10000	04/16/20 19:23	
EPA 6020B	Manganese	234	ug/L	100	04/16/20 19:23	
EPA 6020B	Potassium	3880J	ug/L	10000	04/16/20 19:23	
EPA 6020B	Sodium	142000	ug/L	50000	04/16/20 19:23	
EPA 6020B	Tin	26.2J	ug/L	100	04/16/20 19:23	В
EPA 6020B	Hardness, Total(SM 2340B)	36000J	ug/L	108000	04/16/20 19:23	
SM 5310B-2011	Nonpurgeable Organic Carbon	2.8	mg/L	1.0	04/15/20 21:44	
2473415003	T-1615D-20200410					
EPA 6020B	Iron	11200	ug/L	1000	04/16/20 19:28	
EPA 6020B	Manganese	297	ug/L	10.0	04/16/20 19:28	
EPA 6020B	Potassium	11900	ug/L	1000	04/16/20 19:28	
EPA 6020B	Sodium	8870	ug/L	5000	04/16/20 19:28	
EPA 6020B	Hardness, Total(SM 2340B)	96700	ug/L	10800	04/16/20 19:28	



Project: Dominion Energy VSWMR

Pace Project No.: 92473415

Date: 04/17/2020 02:48 PM

Sample: ABC-1608-20200410	Lab ID:	92473415001	Collected	d: 04/10/20	08:31	Received: 04/	11/20 10:26 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: El	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Copper	ND	ug/L	15.0	6.9	30	04/15/20 01:08	04/16/20 19:17	7440-50-8	
Iron	5350	ug/L	1500	224	30	04/15/20 01:08	04/16/20 19:17	7439-89-6	
Manganese	171	ug/L	15.0	4.2	30	04/15/20 01:08	04/16/20 19:17	7439-96-5	
Nickel	19.2	ug/L	15.0	3.3	30	04/15/20 01:08	04/16/20 19:17	7440-02-0	В
Potassium	3740	ug/L	1500	186	30	04/15/20 01:08	04/16/20 19:17	7440-09-7	
Silver	ND	ug/L	12.0	1.5	30	04/15/20 01:08	04/16/20 19:17	7440-22-4	
Sodium	33200	ug/L	7500	428	30	04/15/20 01:08	04/16/20 19:17	7440-23-5	
Tin	ND	ug/L	15.0	2.7	30	04/15/20 01:08	04/16/20 19:17	7440-31-5	
Hardness, Total(SM 2340B)	95100	ug/L	16200	2100	30	04/15/20 01:08	04/16/20 19:17		
Vanadium	ND	ug/L	9.0	3.6	30	04/15/20 01:08	04/16/20 19:17	7440-62-2	
Zinc	ND	ug/L	150	33.9	30	04/15/20 01:08	04/16/20 19:17	7440-66-6	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	eparatio	on Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Anal	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/15/20 07:50	04/15/20 17:02	108-95-2	
5310B WVA Nonpurgeable Organic	-	Method: SM 53 ytical Services							
Nonpurgeable Organic Carbon	1.3	mg/L	1.0	0.50	1		04/15/20 20:19	7440-44-0	



Project: Dominion Energy VSWMR

Pace Project No.: 92473415

Date: 04/17/2020 02:48 PM

Sample: T-1615S-20200410	Lab ID:	92473415002	Collected	d: 04/10/20	11:26	Received: 04/	11/20 10:26 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: Ef	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Copper	ND	ug/L	100	46.0	200	04/15/20 01:08	04/16/20 19:23	7440-50-8	
Iron	9440J	ug/L	10000	1500	200	04/15/20 01:08	04/16/20 19:23	7439-89-6	
Manganese	234	ug/L	100	28.0	200	04/15/20 01:08	04/16/20 19:23	7439-96-5	
Nickel	ND	ug/L	100	22.0	200	04/15/20 01:08	04/16/20 19:23	7440-02-0	
Potassium	3880J	ug/L	10000	1240	200	04/15/20 01:08	04/16/20 19:23	7440-09-7	
Silver	ND	ug/L	80.0	10.0	200	04/15/20 01:08	04/16/20 19:23	7440-22-4	
Sodium	142000	ug/L	50000	2850	200	04/15/20 01:08	04/16/20 19:23	7440-23-5	
Tin	26.2J	ug/L	100	18.0	200	04/15/20 01:08	04/16/20 19:23	7440-31-5	В
Hardness, Total(SM 2340B)	36000J	ug/L	108000	14000	200	04/15/20 01:08	04/16/20 19:23		
Vanadium	ND	ug/L	60.0	24.0	200	04/15/20 01:08	04/16/20 19:23	7440-62-2	
Zinc	ND	ug/L	1000	226	200	04/15/20 01:08	04/16/20 19:23	7440-66-6	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	eparatio	on Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Anal	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/15/20 07:50	04/15/20 17:03	108-95-2	
5310B WVA Nonpurgeable Organic	Analytical	Method: SM 53	310B-2011						
. 3	•	ytical Services							
Nonpurgeable Organic Carbon	2.8	mg/L	1.0	0.50	1		04/15/20 21:44	7440-44-0	



Project: Dominion Energy VSWMR

Pace Project No.: 92473415

Date: 04/17/2020 02:48 PM

Sample: T-1615D-20200410	Lab ID:	92473415003	Collected	d: 04/10/20	12:21	Received: 04/	11/20 10:26 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prepa	aration Met	hod: EF	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Copper	ND	ug/L	10.0	4.6	20	04/15/20 01:08	04/16/20 19:28	7440-50-8	
Iron	11200	ug/L	1000	150	20	04/15/20 01:08	04/16/20 19:28	7439-89-6	
Manganese	297	ug/L	10.0	2.8	20	04/15/20 01:08	04/16/20 19:28	7439-96-5	
Nickel	ND	ug/L	10.0	2.2	20	04/15/20 01:08	04/16/20 19:28	7440-02-0	
Potassium	11900	ug/L	1000	124	20	04/15/20 01:08	04/16/20 19:28	7440-09-7	
Silver	ND	ug/L	8.0	1.0	20	04/15/20 01:08	04/16/20 19:28	7440-22-4	
Sodium	8870	ug/L	5000	285	20	04/15/20 01:08	04/16/20 19:28	7440-23-5	
Tin	ND	ug/L	10.0	1.8	20	04/15/20 01:08	04/16/20 19:28	7440-31-5	
Hardness, Total(SM 2340B)	96700	ug/L	10800	1400	20	04/15/20 01:08	04/16/20 19:28		
Vanadium	ND	ug/L	6.0	2.4	20	04/15/20 01:08	04/16/20 19:28	7440-62-2	
Zinc	ND	ug/L	100	22.6	20	04/15/20 01:08	04/16/20 19:28	7440-66-6	
420.4 Phenolics, Total	Analytical	Method: EPA 4	20.4 Rev 1.	0 1993 Pre	eparatio	n Method: EPA 4	20.4 Rev 1.0 199	3	
	Pace Anal	ytical Services	- Asheville						
Phenol	ND	mg/L	0.020	0.0050	1	04/15/20 07:50	04/15/20 17:03	108-95-2	
5310B WVA Nonpurgeable Organic	Analytical	Method: SM 53	310B-2011						
	Pace Anal	ytical Services	- Asheville						
Nonpurgeable Organic Carbon	ND	mg/L	1.0	0.50	1		04/15/20 22:20	7440-44-0	



Project: Dominion Energy VSWMR

Pace Project No.: 92473415

Date: 04/17/2020 02:48 PM

QC Batch: 536213 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473415001, 92473415002, 92473415003

METHOD BLANK: 2860598 Matrix: Water

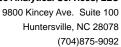
Associated Lab Samples: 92473415001, 92473415002, 92473415003

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Copper	ug/L	ND	0.50	0.23	04/16/20 17:06	
Hardness, Total(SM 2340B)	ug/L	ND	541	70.1	04/16/20 17:06	
ron	ug/L	ND	50.0	7.5	04/16/20 17:06	
Manganese	ug/L	ND	0.50	0.14	04/16/20 17:06	
lickel	ug/L	0.18J	0.50	0.11	04/16/20 17:06	
Potassium	ug/L	ND	50.0	6.2	04/16/20 17:06	
Bilver	ug/L	ND	0.40	0.050	04/16/20 17:06	
Sodium	ug/L	ND	250	14.3	04/16/20 17:06	
īn	ug/L	0.19J	0.50	0.090	04/16/20 17:06	
/anadium	ug/L	ND	0.30	0.12	04/16/20 17:06	
Zinc	ug/L	ND	5.0	1.1	04/16/20 17:06	

LABORATORY CONTROL SAMPLE:	2860599					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Copper	ug/L	50	50.8	102	80-120	
Hardness, Total(SM 2340B)	ug/L		4230			
Iron	ug/L	625	640	102	80-120	
Manganese	ug/L	50	50.5	101	80-120	
Nickel	ug/L	50	50.5	101	80-120	
Potassium	ug/L	625	643	103	80-120	
Silver	ug/L	25	25.3	101	80-120	
Sodium	ug/L	625	648	104	80-120	
Tin	ug/L	50	51.4	103	80-120	
Vanadium	ug/L	50	51.4	103	80-120	
Zinc	ug/L	50	51.8	104	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPI	LICATE: 2860	600 MS	MSD	2860601							
		92473551001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Copper	ug/L	1.4J	50	50	41.4	43.2	80	84	75-125	4	20	
Hardness, Total(SM 2340B)	ug/L	7630			9870	10500				6	20	
Iron	ug/L	390	625	625	845	882	73	79	75-125	4	20	M1
Manganese	ug/L	10.3	50	50	48.4	50.5	76	80	75-125	4	20	
Nickel	ug/L	1.2J	50	50	41.5	43.6	81	85	75-125	5	20	
Potassium	ug/L	2140	625	625	2320	2450	29	50	75-125	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.





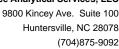
Project: Dominion Energy VSWMR

Pace Project No.: 92473415

Date: 04/17/2020 02:48 PM

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 2860	MS	MSD	2860601							
	9	2473551001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Silver	ug/L	ND	25	25	18.4	19.1	73	76	75-125	4	20	M1
Sodium	ug/L	1820	625	625	2050	2160	36	54	75-125	5	20	M1
Tin	ug/L	ND	50	50	35.4	36.9	70	73	75-125	4	20	M1
Vanadium	ug/L	0.66J	50	50	40.6	42.6	80	84	75-125	5	20	
Zinc	ug/L	ND	50	50	43.5	46.5	77	83	75-125	7	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: Dominion Energy VSWMR

Pace Project No.: 92473415

Date: 04/17/2020 02:48 PM

QC Batch: 536101 Analysis Method: EPA 420.4 Rev 1.0 1993

QC Batch Method: EPA 420.4 Rev 1.0 1993 Analysis Description: 420.4 Phenolics

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473415001, 92473415002, 92473415003

METHOD BLANK: 2860123 Matrix: Water

Associated Lab Samples: 92473415001, 92473415002, 92473415003

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Phenol mg/L ND 0.020 0.0050 04/15/20 16:37

LABORATORY CONTROL SAMPLE: 2860124

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Phenol 0.05 0.048 96 90-110 mg/L

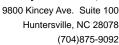
MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860125 2860126

MSD MS 92472806001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Result **RPD** RPD Result Conc. Conc. % Rec % Rec Limits Qual 0.044 10 M1,R1 Phenol mg/L ND 0.05 0.05 0.049 87 98 90-110 12

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860127 2860128

MS MSD 92473016001 MS MSD MS MSD % Rec Spike Spike Max **RPD** RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits Qual Phenol 90 3 ND 0.05 0.05 0.049 0.051 94 10 mg/L 90-110

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: Dominion Energy VSWMR

Pace Project No.: 92473415

QC Batch: 536300 Analysis Method: SM 5310B-2011

QC Batch Method: SM 5310B-2011 Analysis Description: 5310B WVA Nonpurgeable Organic Carbon

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473415001, 92473415002, 92473415003

METHOD BLANK: 2860785 Matrix: Water

Associated Lab Samples: 92473415001, 92473415002, 92473415003

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Nonpurgeable Organic Carbon mg/L ND 1.0 0.50 04/15/20 13:21

LABORATORY CONTROL SAMPLE: 2860786

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

Date: 04/17/2020 02:48 PM

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Nonpurgeable Organic Carbon 25 24.4 97 90-110 mg/L

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2860787 2860788

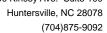
MSD MS 92473016001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Result Result **RPD** RPD Result Conc. % Rec % Rec Limits Qual Nonpurgeable Organic ND mg/L 25 25 24.4 24.5 97 97 90-110 0 10 Carbon

2860790

2860789

MS MSD 92473553001 Spike Spike MS MSD MS MSD % Rec Max % Rec RPD Parameter Units Result Conc. Conc. Result Result % Rec Limits **RPD** Qual Nonpurgeable Organic ND 25 25 24.9 98 99 90-110 mg/L 24.8 0 10 Carbon

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: Dominion Energy VSWMR

Pace Project No.: 92473415

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.

ANALYTE QUALIFIERS

Date: 04/17/2020 02:48 PM

- B Analyte was detected in the associated method blank.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- R1 RPD value was outside control limits.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy VSWMR

Pace Project No.: 92473415

Date: 04/17/2020 02:48 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
92473415001	ABC-1608-20200410	EPA 3010A	536213	EPA 6020B	536222
92473415002	T-1615S-20200410	EPA 3010A	536213	EPA 6020B	536222
92473415003	T-1615D-20200410	EPA 3010A	536213	EPA 6020B	536222
92473415001	ABC-1608-20200410	EPA 420.4 Rev 1.0 1993	536101	EPA 420.4 Rev 1.0 1993	536271
92473415002	T-1615S-20200410	EPA 420.4 Rev 1.0 1993	536101	EPA 420.4 Rev 1.0 1993	536271
92473415003	T-1615D-20200410	EPA 420.4 Rev 1.0 1993	536101	EPA 420.4 Rev 1.0 1993	536271
92473415001	ABC-1608-20200410	SM 5310B-2011	536300		
92473415002	T-1615S-20200410	SM 5310B-2011	536300		
92473415003	T-1615D-20200410	SM 5310B-2011	536300		

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

Asheville Eden	Greenwood	Huntersville 🔃	Raleigh	Mechanics ville	
Sample Condition Upon Receipt Courler: Commercial Client Name: Haley + Fed Ex Pace	Aldrich Jups Jusps Jother:	riojecti	:92473 		
Custody Seal Present? Yes No	Seals Intact? Yes	No Date/init	lals Person Examining Co	ntents: 4-13-26	AMP
2 2	Bubble Bags None Type of Ice: We Factor: Add/Subtract (°C)+	0.1 Temp should b	Biological Tissue Yes No	√/A	
Cooler Temp Corrected (°C):		has begun	out of temp criteria. Samp	les on ice, cooling process	
USDA Regulated Soil (N/A, water sample) Did samples originate in a quarantine zone within t	he United States: CA, NY, or SC (cl	heck maps)? DId samples original including Hawal	inate from a foreign sour and Puerto Rico)? Yes	i □No	
Chain of Custody Present?	□Ves □No □]N/A 1.			
Samples Arrived within Hold Time?		□N/A 2.			
Short Hold Time Analysis (<72 hr.)?]n/A 3.			
Rush Turn Around Time Requested?	Yes No []N/A 4.			
Sufficient Volume?	Yes No	□N/A 5.			
Correct Containers Used? -Pace Containers Used?]n/A 6.]n/A			
Containers Intact?	□Yes □No □]N/A 7.			
Dissolved analysis: Samples Field Filtered?		□N/A 8.			
Sample Labels Match COC?	Yes No [□N/A 9.			
-Includes Date/Time/ID/Analysis Matrix:	W				
Headspace in VOA Vials (>5-6mm)?	□Yes ☑No □	□N/A 10.			
Trip Blank Present?	□Yes □No □	_N/A 11.			
Trip Blank Custody Seals Present?	□Yes □No □	N/A			
COMMENTS/SAMPLE DISCREPANCY			Field Data Re	equired? Yes No	
CLIENT NOTIFICATION/RESOLUTION		Lot ID of split con	talners:		
	×				-
	: 45		4 = = =	ie e e	-
Person contacted:		Date/Time:		· · · · · · · · · · · · · · · · · · ·	
Project Manager SCURF Review:		Date:			
Project Manager SRF Review:		Date:			



Document Name: Sample Condition Upon Receipt(SCUR) Document No.: F-CAR-CS-033-Rev.06

Document Revised: February 7, 2018 Page 1 of 2

Issuing Authority:
Pace Carolinas Quality Office

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

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

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

Project

WO#: 92473415

PM: PTE

Due Date: 04/27/20

CLIENT: 92-Haley VA

-	RP411_175 ml Diactic Harresonad MAAACL	or 40-123 mile reserved (N/A) (Cir)	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) (CI-)	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 HCI (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (CI-)	AG15-1 liter Amber H2SO4 (pH < 2)	AG35-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4C! (N/A)(CI-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U 40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGOU-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1		1					K								1					3										
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4																														
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12			+			1	1	7	7			7	-	7		1	\dashv						\dashv	-	7	1		\dashv	\dashv	

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

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

Pace Analytical "
www.pacelats.com

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

o Page:

Section A		Section B									ď	Section								L	220 Wil	lliam Pit	tt Way,	Pittsbu	ırgh, P/	15238 (220 William Pitt Way, Pittsburgh, PA 15238 (Pace Energy)	(Ab.
Required Client Information:		Required Project Information:	oject Ir	nforma	ation:						ovri	Invoice Information:	mation	1							1700 E	Im Stree	et SE -	Minnea	apolis, 1	1700 Elm Street SE - Minneapolis, MN 55414	4	
Company: Haley & Aldrich, Inc.		Report To: Wright, Erin	Vrigh	it, Eri	Ë	\vdash					Atte	Attention:									7726 M	loller Ro	7726 Moller Road - Indianapolis, IN 46268	dianapo	olis, IN	46268		
Address: 1 Park West Circle		Copy To: (Chatte	erton	Chatterton, Kelly	_					S	Company Name:	ame:							R	REGULATORY AGENCY	ORY A	AGENC	<u>}:</u>				
Suite 208, Midlothian, VA 23114			cchatt	tertor	kchatterton@haleya		ldrich.com	듸			Ado	Address:								디	NPDES	LI S:		GROU	GROUND VT. TER	TER	DRIN	DRINKING \
ald	rich.com	BSA#:		2	2019-2	2019-22-Pace	o o				Pace	Pace Quote Reference:									UST.	L	r 1	RCRA	₽ Fl			
Phone: 804-419-0012 Fak	u	H&A Client Name:		Omir	nion E	nergy.	Possu	Dominion Energy: Possum Point	_		Pace	Project		rlor.ez	taylor.ezell@pacelabs.com	acela	bs.co	El		0)	Site Location	ation		,	卜			
Requested Due Date/TAT:	Standard	H&A Project #:	#:	134660	90						Pac	Profile #	1	TBD (9362?)	(625)					Τ	ST,	STATE:		A	1			
Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions inc., its subsidiaries and affiliates ahd Pace Analytical Services, Inc.	Custody shall be performed in nd Pace Analytical Services, In	n accordance nc.	with te	rms an	puo pu	itions wit	thin Blan	within Blanket Service	e Agreement #2019-22-Pace by and between Haley & Aldrich,	t #2019-22	-Pace by	and bet	ween H	laley & /	Aldrich,			Re	quest	ed Ans	Requested Analysis Filtered (Y/N)	iltered	(W/N)		L			
Section D Required Client Information	Matrix Codes	odes	(fiel of	(AMC			COLL	COLLECTED					Pre	Preservatives	tives		Î N/A			-				4	1			
		V V V V V V V V V V V V V V V V V V V	see valid codes	=GRAB C=C	-	Collection	tion		Sample Depth								13	Pollutant List							(N/X) €			
Sample IDs MUST BE UNIQUE #	Wipe Wind Air Nigue Tissue	AR TS TO		ayyt alqmas	DATE	世	TIME	Start Depth (Circle: feet or inches)		End Depth (Circle: feet or or	# OF CONTAINER	Unpreserved	FONH OS ² H	N ^g OH HCI	Na ₂ S ₂ O ₃	Methanol Other	esT sisylsnA !	VSWMR Metals List Worth Water Quality I	Total Organic Carbon	4554					Residual Chlorine	Pace Pr	12873415 Pace Project No.1 Lab	/Lab
1 ABC-1608-	01600202 -	Ĵ) IM	J	4-10-2	9-5	580		-		L		L			F		×	-	\vdash	L		F	\vdash	E	0	10	
2 7-10158	01/20202-			-	-		211		_									×	X					-	F	6	600	1
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ADDITIONAL COMMENTS	COMMENTS		REL	INQU	RELINQUISHED BY		AFFILIATION	NO		DATE		TIME			ACC	EPTE	DBY!	AFFILI	ACCEPTED BY / AFFILIATION		DATE	- 2	TIME		8	MPLE CC	SAMPLE CONDITIONS	
VSWMR Metals List: copper, nickel, silver, lin, vanadium, and zinc	er, nickel, silver, tin,	And		1	seccions	3	Ť	r.A	4	4-10-2	2	1630	0	13	B	Jan 1	Jacon Da	1	200	2	11-1	2	1026	05	3	2	>	
VWCB Water Quality Pollutant List: phenolics, potassium, iron, manganese, hardness, and sodium.	itant List: phenolics, se, hardness, and					\vdash					+													++	++			
age							SAMP	SAMPLER NAM	AE AND SIGNATURE	IGNATU	RE														T)ler	act	
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17								SIGN	SIGNATURE of SAMPLER:	SAMPLE	ii.	9	7	8	3			(MM/	DATE Signed (MM/DD/YY):		4-10-20	22					Saml	
#2 Compliance Wells and Sentinel Wells	Sentinel Wells)	_														
						+	T																					



Huntersville, NC 28078 (704)875-9092



April 20, 2020

Andy Gerringer Haley & Aldrich 1 Park West Circle Suite 208 Midlothian, VA 23114

RE: Project: Dominion Energy CCR
Pace Project No.: 92473417

Dear Andy Gerringer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 11, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Asheville

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

Sincerely,

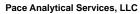
Taylor Ezell taylor.ezell@pacelabs.com (704)875-9092

Project Manager

Enclosures

cc: Kelly Chattterton, Haley & Aldrich Erin Write, Haley & Aldrich





Pace Analytical www.pacelabs.com

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

CERTIFICATIONS

Project: Dominion Energy CCR

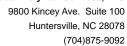
Pace Project No.: 92473417

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





SAMPLE SUMMARY

Project: Dominion Energy CCR

Pace Project No.: 92473417

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
92473417001	ABC-1608-20200410	Water	04/10/20 08:31	04/11/20 10:26	
92473417002	T-1615S-20200410	Water	04/10/20 11:26	04/11/20 10:26	
92473417003	T-1615D-20200410	Water	04/10/20 12:21	04/11/20 10:26	



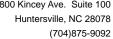
SAMPLE ANALYTE COUNT

Project: Dominion Energy CCR

Pace Project No.: 92473417

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92473417001	ABC-1608-20200410	EPA 6020B	JOR	14	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 9056A	BRJ	3	PASI-A
92473417002	T-1615S-20200410	EPA 6020B	JOR	14	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 9056A	BRJ	3	PASI-A
92473417003	T-1615D-20200410	EPA 6020B	JOR	14	PASI-A
		EPA 7470A	SOO	1	PASI-A
		SM 2540C-2011	RED	1	PASI-A
		EPA 9056A	BRJ	3	PASI-A

PASI-A = Pace Analytical Services - Asheville





SUMMARY OF DETECTION

Project: Dominion Energy CCR

Pace Project No.: 92473417

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92473417001	ABC-1608-20200410					
EPA 6020B	Arsenic	1.9J	ug/L	2.0	04/16/20 19:33	
EPA 6020B	Barium	46.3	ug/L	6.0	04/16/20 19:33	
EPA 6020B	Boron	158J	ug/L	500	04/16/20 19:33	
EPA 6020B	Calcium	16400	ug/L	4000	04/16/20 19:33	
EPA 6020B	Cobalt	18.8	ug/L	2.0	04/16/20 19:33	
EPA 6020B	Lithium	11.2J	ug/L	50.0	04/16/20 19:33	
EPA 7470A	Mercury	0.14J	ug/L	0.20	04/20/20 16:02	
SM 2540C-2011	Total Dissolved Solids	229	mg/L	25.0	04/14/20 17:42	
EPA 9056A	Chloride	53.1	mg/L	1.0	04/14/20 02:45	
PA 9056A	Fluoride	73.0J	ug/L	100	04/14/20 02:45	
PA 9056A	Sulfate	30.3	mg/L	1.0	04/14/20 02:45	
2473417002	T-1615S-20200410					
PA 6020B	Barium	133	ug/L	60.0	04/16/20 19:39	
PA 6020B	Boron	767J	ug/L	5000	04/16/20 19:39	
PA 6020B	Calcium	13700J	ug/L	40000	04/16/20 19:39	
PA 6020B	Cobalt	22.4	ug/L	20.0	04/16/20 19:39	
M 2540C-2011	Total Dissolved Solids	492	mg/L	50.0	04/14/20 17:42	
PA 9056A	Chloride	218	mg/L	5.0	04/14/20 15:13	
PA 9056A	Fluoride	114	ug/L	100	04/14/20 03:30	
EPA 9056A	Sulfate	27.3	mg/L	1.0	04/14/20 03:30	
2473417003	T-1615D-20200410					
PA 6020B	Barium	101	ug/L	6.0	04/16/20 19:44	
PA 6020B	Calcium	18000	ug/L	4000	04/16/20 19:44	
PA 6020B	Lithium	15.3J	ug/L	50.0	04/16/20 19:44	
M 2540C-2011	Total Dissolved Solids	204	mg/L	25.0	04/14/20 17:42	
PA 9056A	Chloride	77.5	mg/L	1.0	04/14/20 03:44	
PA 9056A	Fluoride	210	ug/L	100	04/14/20 03:44	
PA 9056A	Sulfate	1.5	mg/L	1.0	04/14/20 03:44	



Project: Dominion Energy CCR

Pace Project No.: 92473417

Date: 04/20/2020 04:31 PM

Sample: ABC-1608-20200410	Lab ID:	92473417001	Collected	d: 04/10/20	08:31	Received: 04/	11/20 10:26 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA 6	020B Prep	aration Met	hod: Ef	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Antimony	ND	ug/L	10.0	2.2	20	04/15/20 01:08	04/16/20 19:33	7440-36-0	
Arsenic	1.9J	ug/L	2.0	1.2	20	04/15/20 01:08	04/16/20 19:33	7440-38-2	
Barium	46.3	ug/L	6.0	1.2	20	04/15/20 01:08	04/16/20 19:33	7440-39-3	
Beryllium	ND	ug/L	2.0	1.0	20	04/15/20 01:08	04/16/20 19:33	7440-41-7	
Boron	158J	ug/L	500	51.0	20	04/15/20 01:08	04/16/20 19:33	7440-42-8	
Cadmium	ND	ug/L	1.6	1.4	20	04/15/20 01:08	04/16/20 19:33	7440-43-9	
Calcium	16400	ug/L	4000	412	20	04/15/20 01:08	04/16/20 19:33	7440-70-2	
Chromium	ND	ug/L	10.0	8.4	20	04/15/20 01:08	04/16/20 19:33	7440-47-3	
Cobalt	18.8	ug/L	2.0	1.0	20	04/15/20 01:08	04/16/20 19:33	7440-48-4	
₋ead	ND	ug/L	2.0	1.0	20	04/15/20 01:08	04/16/20 19:33	7439-92-1	
₋ithium	11.2J	ug/L	50.0	8.4	20	04/15/20 01:08	04/16/20 19:33	7439-93-2	
Molybdenum	ND	ug/L	10.0	2.0	20	04/15/20 01:08	04/16/20 19:33	7439-98-7	
Selenium	ND	ug/L	10.0	1.6	20	04/15/20 01:08	04/16/20 19:33	7782-49-2	
Γhallium	ND	ug/L	2.0	1.2	20	04/15/20 01:08	04/16/20 19:33	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	470A Prep	aration Met	hod: EF	PA 7470A			
	Pace Anal	ytical Services	- Asheville						
Mercury	0.14J	ug/L	0.20	0.10	1	04/20/20 10:40	04/20/20 16:02	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 25	540C-2011						
	Pace Anal	ytical Services	- Asheville						
Total Dissolved Solids	229	mg/L	25.0	25.0	1		04/14/20 17:42		
9056 IC anions 28 Days	Analytical	Method: EPA 9	056A						
•	Pace Anal	ytical Services	- Asheville						
Chloride	53.1	mg/L	1.0	0.60	1		04/14/20 02:45	16887-00-6	
Fluoride	73.0J	ug/L	100	50.0	1		04/14/20 02:45	16984-48-8	
Sulfate	30.3	mg/L	1.0	0.50	1		04/14/20 02:45	14808-79-8	



Project: Dominion Energy CCR

Pace Project No.: 92473417

Date: 04/20/2020 04:31 PM

Sample: T-1615S-20200410	Lab ID: 9	2473417002	Collected	1: 04/10/20	11:26	Received: 04/	11/20 10:26 Ma	atrix: Water		
			Report							
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua	
6020 MET ICPMS	Analytical M	/lethod: EPA 6	020B Prepa	aration Met	hod: EF	PA 3010A				
	Pace Analy	tical Services	- Asheville							
Antimony	ND	ug/L	100	22.0	200	04/15/20 01:08	04/16/20 19:39	7440-36-0		
Arsenic	ND	ug/L	20.0	12.0	200	04/15/20 01:08	04/16/20 19:39	7440-38-2		
Barium	133	ug/L	60.0	12.0	200	04/15/20 01:08	04/16/20 19:39	7440-39-3		
Beryllium	ND	ug/L	20.0	10.0	200	04/15/20 01:08	04/16/20 19:39	7440-41-7		
Boron	767J	ug/L	5000	510	200	04/15/20 01:08	04/16/20 19:39	7440-42-8		
Cadmium	ND	ug/L	16.0	14.0	200	04/15/20 01:08	04/16/20 19:39	7440-43-9		
Calcium	13700J	ug/L	40000	4120	200	04/15/20 01:08	04/16/20 19:39	7440-70-2		
Chromium	ND	ug/L	100	84.0	200	04/15/20 01:08	04/16/20 19:39	7440-47-3		
Cobalt	22.4	ug/L	20.0	10.0	200	04/15/20 01:08	04/16/20 19:39	7440-48-4		
_ead	ND	ug/L	20.0	10.0	200	04/15/20 01:08	04/16/20 19:39	7439-92-1		
_ithium	ND	ug/L	500	84.0	200	04/15/20 01:08	04/16/20 19:39	7439-93-2		
Molybdenum	ND	ug/L	100	20.0	200	04/15/20 01:08	04/16/20 19:39	7439-98-7		
Selenium	ND	ug/L	100	16.0	200	04/15/20 01:08	04/16/20 19:39	7782-49-2		
Thallium	ND	ug/L	20.0	12.0	200	04/15/20 01:08	04/16/20 19:39	7440-28-0		
7470 Mercury	Analytical M	Method: EPA 7	470A Prepa	aration Met	hod: EF	A 7470A				
•	Pace Analy	tical Services	- Asheville							
Mercury	ND	ug/L	0.20	0.10	1	04/20/20 10:40	04/20/20 16:04	7439-97-6		
2540C Total Dissolved Solids	Analytical M	Method: SM 25	40C-2011							
	Pace Analy	tical Services	- Asheville							
Total Dissolved Solids	492	mg/L	50.0	50.0	1		04/14/20 17:42			
9056 IC anions 28 Days	Analytical M	Method: EPA 9	056A							
•	Pace Analytical Services - Asheville									
Chloride	218	mg/L	5.0	3.0	5		04/14/20 15:13	16887-00-6		
Fluoride	114	ug/L	100	50.0	1		04/14/20 03:30	16984-48-8		
Sulfate	27.3	mg/L	1.0	0.50	1		04/14/20 03:30			

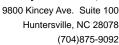


Project: Dominion Energy CCR

Pace Project No.: 92473417

Date: 04/20/2020 04:31 PM

Sample: T-1615D-20200410	Lab ID:	92473417003	Collected	I: 04/10/20	12:21	Received: 04/	11/20 10:26 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA 6	6020B Prepa	aration Met	hod: EF	PA 3010A			
	Pace Anal	ytical Services	- Asheville						
Antimony	ND	ug/L	10.0	2.2	20	04/15/20 01:08	04/16/20 19:44	7440-36-0	
Arsenic	ND	ug/L	2.0	1.2	20	04/15/20 01:08	04/16/20 19:44	7440-38-2	
3arium	101	ug/L	6.0	1.2	20	04/15/20 01:08	04/16/20 19:44	7440-39-3	
Beryllium	ND	ug/L	2.0	1.0	20	04/15/20 01:08	04/16/20 19:44	7440-41-7	
Boron	ND	ug/L	500	51.0	20	04/15/20 01:08	04/16/20 19:44	7440-42-8	
Cadmium	ND	ug/L	1.6	1.4	20	04/15/20 01:08	04/16/20 19:44	7440-43-9	
Calcium	18000	ug/L	4000	412	20	04/15/20 01:08	04/16/20 19:44	7440-70-2	
Chromium	ND	ug/L	10.0	8.4	20	04/15/20 01:08	04/16/20 19:44	7440-47-3	
Cobalt	ND	ug/L	2.0	1.0	20	04/15/20 01:08	04/16/20 19:44	7440-48-4	
_ead	ND	ug/L	2.0	1.0	20	04/15/20 01:08	04/16/20 19:44	7439-92-1	
_ithium	15.3J	ug/L	50.0	8.4	20	04/15/20 01:08	04/16/20 19:44	7439-93-2	
Molybdenum	ND	ug/L	10.0	2.0	20	04/15/20 01:08	04/16/20 19:44	7439-98-7	
Selenium	ND	ug/L	10.0	1.6	20	04/15/20 01:08	04/16/20 19:44	7782-49-2	
Thallium	ND	ug/L	2.0	1.2	20	04/15/20 01:08	04/16/20 19:44	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Prepa	aration Met	nod: EF	PA 7470A			
-	Pace Anal	ytical Services	- Asheville						
Mercury	ND	ug/L	0.20	0.10	1	04/20/20 10:40	04/20/20 16:06	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C-2011						
	Pace Anal	ytical Services	- Asheville						
Total Dissolved Solids	204	mg/L	25.0	25.0	1		04/14/20 17:42		
9056 IC anions 28 Days	•	Method: EPA 9							
	Pace Anal	ytical Services	- Asheville						
Chloride	77.5	mg/L	1.0	0.60	1		04/14/20 03:44	16887-00-6	
Fluoride	210	ug/L	100	50.0	1		04/14/20 03:44	16984-48-8	
Sulfate	1.5	mg/L	1.0	0.50	1		04/14/20 03:44	14808-79-8	





Project: Dominion Energy CCR

Pace Project No.: 92473417

Mercury

Date: 04/20/2020 04:31 PM

QC Batch: 537073 Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473417001, 92473417002, 92473417003

METHOD BLANK: 2864577 Matrix: Water

Associated Lab Samples: 92473417001, 92473417002, 92473417003

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury ug/L ND 0.20 0.10 04/20/20 15:50

LABORATORY CONTROL SAMPLE: 2864578

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units ug/L 2.5 2.8 114 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2864579 2864580

MS MSD

92473551001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec % Rec **RPD** RPD Qual Result Limits ND 25 Mercury ug/L 2.5 2.5 2.8 2.8 114 111 75-125 2

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.

(704)875-9092



QUALITY CONTROL DATA

Project: Dominion Energy CCR

Pace Project No.: 92473417

Date: 04/20/2020 04:31 PM

QC Batch: 536213 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473417001, 92473417002, 92473417003

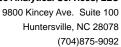
METHOD BLANK: 2860598 Matrix: Water

Associated Lab Samples: 92473417001, 92473417002, 92473417003

		Blank	Reporting			Qualifiers	
Parameter	Units	Result	Limit	MDL	Analyzed		
Antimony	ug/L	0.33J	0.50	0.11	04/16/20 17:06	BC	
Arsenic	ug/L	ND	0.10	0.060	04/16/20 17:06		
Barium	ug/L	ND	0.30	0.060	04/16/20 17:06		
Beryllium	ug/L	ND	0.10	0.050	04/16/20 17:06		
Boron	ug/L	ND	25.0	2.6	04/16/20 17:06		
Cadmium	ug/L	ND	0.080	0.070	04/16/20 17:06		
Calcium	ug/L	ND	200	20.6	04/16/20 17:06		
Chromium	ug/L	ND	0.50	0.42	04/16/20 17:06		
Cobalt	ug/L	ND	0.10	0.050	04/16/20 17:06		
Lead	ug/L	ND	0.10	0.050	04/16/20 17:06		
Lithium	ug/L	ND	2.5	0.42	04/16/20 17:06		
Molybdenum	ug/L	ND	0.50	0.10	04/16/20 17:06		
Selenium	ug/L	ND	0.50	0.080	04/16/20 17:06		
Thallium	ug/L	ND	0.10	0.060	04/16/20 17:06		

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	ug/L	50	53.1	106	80-120	
Arsenic	ug/L	10	10.3	103	80-120	
Barium	ug/L	50	50.9	102	80-120	
Beryllium	ug/L	10	10.0	100	80-120	
Boron	ug/L	50	49.7	99	80-120	
Cadmium	ug/L	10	10.3	103	80-120	
Calcium	ug/L	625	634	102	80-120	
Chromium	ug/L	50	51.0	102	80-120	
Cobalt	ug/L	10	10.1	101	80-120	
Lead	ug/L	50	50.6	101	80-120	
Lithium	ug/L	50	50.3	101	80-120	
Molybdenum	ug/L	50	50.4	101	80-120	
Selenium	ug/L	50	51.5	103	80-120	
Thallium	ug/L	10	10.3	103	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.





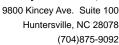
Project: Dominion Energy CCR

Pace Project No.: 92473417

Date: 04/20/2020 04:31 PM

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 2860	600 MS	MSD	2860601							
		92473551001	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	50	50	40.9	43.4	82	87	75-125	6	20	
Arsenic	ug/L	ND	10	10	7.9	8.7	78	86	75-125	10	20	
Barium	ug/L	13.5	50	50	49.8	52.0	73	77	75-125	4	20	M1
Beryllium	ug/L	ND	10	10	7.6	8.0	75	79	75-125	5	20	
Boron	ug/L	ND	50	50	40.8J	47.0J	73	86	75-125		20	M1
Cadmium	ug/L	ND	10	10	7.9	8.6	79	86	75-125	8	20	
Calcium	ug/L	1700	625	625	1970	2120	43	66	75-125	7	20	M1
Chromium	ug/L	2.7	50	50	41.8	43.9	78	83	75-125	5	20	
Cobalt	ug/L	0.34J	10	10	8.3	8.7	79	84	75-125	5	20	
Lead	ug/L	ND	50	50	37.3	39.0	74	78	75-125	4	20	M1
Lithium	ug/L	ND	50	50	39.1	40.8	76	80	75-125	4	20	
Molybdenum	ug/L	ND	50	50	39.4	41.0	79	82	75-125	4	20	
Selenium	ug/L	ND	50	50	38.2	40.1	76	80	75-125	5	20	
Thallium	ug/L	ND	10	10	7.7	8.1	77	80	75-125	5	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: Dominion Energy CCR

Pace Project No.: 92473417

QC Batch: 536140 Analysis Method: SM 2540C-2011

QC Batch Method: SM 2540C-2011 Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473417001, 92473417002, 92473417003

METHOD BLANK: 2860277 Matrix: Water

Associated Lab Samples: 92473417001, 92473417002, 92473417003

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Total Dissolved Solids mg/L ND 25.0 25.0 04/14/20 17:42

LABORATORY CONTROL SAMPLE: 2860278

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units **Total Dissolved Solids** mg/L 250 256 102 90-110

·

SAMPLE DUPLICATE: 2860279

92473325004 Dup Max Parameter Units Result Result **RPD RPD** Qualifiers 131 **Total Dissolved Solids** 0 mg/L 131 25

SAMPLE DUPLICATE: 2860280

Date: 04/20/2020 04:31 PM

92472791004 Dup Max RPD RPD Parameter Units Result Result Qualifiers Total Dissolved Solids 409 372 mg/L 9 25

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 DATA

Project: Dominion Energy CCR

Pace Project No.: 92473417

LABORATORY CONTROL SAMPLE:

Date: 04/20/2020 04:31 PM

QC Batch: 535951 Analysis Method: EPA 9056A

QC Batch Method: EPA 9056A Analysis Description: 9056 IC anions 28 Days

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 92473417001, 92473417002, 92473417003

METHOD BLANK: 2859446 Matrix: Water

Associated Lab Samples: 92473417001, 92473417002, 92473417003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	04/14/20 00:39	
Fluoride	ug/L	ND	100	50.0	04/14/20 00:39	
Sulfate	mg/L	ND	1.0	0.50	04/14/20 00:39	

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Chloride 104 mg/L 50 52.0 90-110 Fluoride 2500 2390 ug/L 95 90-110 Sulfate 105 mg/L 50 52.3 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2859448 2859449

2859447

Parameter	Units	92473325001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.7	50	50	53.7	53.5	102	102	90-110	1	10	
Fluoride	ug/L	ND	2500	2500	2630	2720	105	108	90-110	3	10	
Sulfate	ma/L	57.6	50	50	95.4	96.4	76	78	90-110	1	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2859450 2859451

Parameter	Units	2630891006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	5.3	50	50	56.4	61.1	102	112	90-110	8	10	M1
Fluoride	ug/L		2500	2500	3300	3780	131	150	90-110	14	10	M1,R1
Sulfate	mg/L		50	50	59.9	65.7	107	119	90-110	9	10	M1

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

REPORT OF LABORATORY ANALYSIS



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

QUALIFIERS

Project: Dominion Energy CCR

Pace Project No.: 92473417

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.

ANALYTE QUALIFIERS

Date: 04/20/2020 04:31 PM

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.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Dominion Energy CCR

Pace Project No.: 92473417

Date: 04/20/2020 04:31 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92473417001	ABC-1608-20200410	EPA 3010A	536213	EPA 6020B	536222
92473417002	T-1615S-20200410	EPA 3010A	536213	EPA 6020B	536222
92473417003	T-1615D-20200410	EPA 3010A	536213	EPA 6020B	536222
92473417001	ABC-1608-20200410	EPA 7470A	537073	EPA 7470A	537132
92473417002	T-1615S-20200410	EPA 7470A	537073	EPA 7470A	537132
92473417003	T-1615D-20200410	EPA 7470A	537073	EPA 7470A	537132
92473417001	ABC-1608-20200410	SM 2540C-2011	536140		
92473417002	T-1615S-20200410	SM 2540C-2011	536140		
92473417003	T-1615D-20200410	SM 2540C-2011	536140		
92473417001	ABC-1608-20200410	EPA 9056A	535951		
92473417002	T-1615S-20200410	EPA 9056A	535951		
92473417003	T-1615D-20200410	EPA 9056A	535951		

REPORT OF LABORATORY ANALYSIS

ace Analytical Issuing Authority: Document No.: Pace Carolinas Quality Office F-CAR-CS-033-Rev.06 Laboratory receiving samples: Mechanicsville Huntersville | Raleigh Greenwood Asheville Eden WO#: 92473417 Sample Condition Client Name: Client Courler: Fed Ex Other: ☐ Commercial Date/Initials Person Examining Contents: 4-13-20 AMP Yes MO No Seals Intact? Yes **Custody Seal Present?** Biological Tissue Frozen? Bubble Bags None Other Packing Material: Bubble Wrap ☐Yes ☐No ☐N/A Thermometer: ☑Wet ☐Blue None Type of Ice: 92T061 IR Gun ID: $\frac{1}{2}$ Correction Factor: Add/Subtract (°C) $\frac{1}{2}$ Cooler Temp (°C): Temp should be above freezing to 6°C Samples out of temp criteria. Samples on Ice, cooling process Cooler Temp Corrected (°C): _ has begun USDA Regulated Soil (N/A, water sample) DId samples originate from a foreign source (internationally, Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? including Hawall and Puerto Rico)? Yes Yes No Comments/Discrepancy: Yes □No □N/A Chain of Custody Present? 2. Yes No □N/A Samples Arrived within Hold Time? 3. TYes No □N/A Short Hold Time Analysis (<72 hr.)? ☐Yes 4. No □N/A Rush Turn Around Time Requested? 5. □No □N/A Yes Sufficient Volume? No □N/A 6. Yes Correct Containers Used? No □N/A Yes -Pace Containers Used? 7. Yes No □N/A Containers Intact? □N/A □Yes □No Dissolved analysis: Samples Field Filtered? ПNо 9. □N/A Sample Labels Match COC? Yes -Includes Date/Time/ID/Analysis Matrix: 10. N/A Yes No Headspace in VOA Vials (>5-6mm)? Yes N/A Trip Blank Present? Yes □No N/A Trip Blank Custody Seals Present? Field Data Required? ☐Yes ☐No COMMENTS/SAMPLE DISCREPANCY Lot ID of split containers: CLIENT NOTIFICATION/RESOLUTION Date/Time: Person contacted: Project Manager SCURF Review:

Project Manager SRF Review:

Date:

Document Name: Sample Condition Upon Receipt(SCUR) Document Revised: February 7, 2018

Page 1 of 2



Document Name:
Sample Condition Upon Receipt(SCUR)
Document No.:
F-CAR-CS-033-Rev.06

Document Revised: February 7, 2018
Page 1 of 2
Issuing Authority:

Issuing Authority:
Pace Carolinas Quality Office

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

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

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

Project # WO#: 92473417

PM: PTE

Due Date: 05/04/20

CLIENT: 92-Haley VA

	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) (CI-)	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)	AG35-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGDU-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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		pH Ad	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 #

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.



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

Page: | of

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Required Client Information:		Required Project Information:	Project	t Infor	mation:	+				-	Invoice Information:	nforms	ation:									Street	SE - MI	nneapo	1700 EIM Street SE - Minneapolis, MN 55414	55414	
	ij	Report To: Wright, Erin	Wrig	Jht, E	rin					`	Attention:	<u>,</u>								77	26 Moll	er Road	d - India	ınapoli	7726 Moller Road - Indianapolis, IN 46268	568	×
Address: 1 Park West Circle		Copy To:	Cha	tterto	Chatterton, Kelly	>				<u> </u>	Company Name:	y Nam	e:							REGU	LATO	REGULATORY AGENCY	ENCY				
Suite 208, Midlothian, VA 23114	an, VA 23114		kcha	attert	kchatterton@haleyal		rich.com				Address:									z Ll	NPDES	디	9	ROUNE	GROUND VITTER	e:	DRINKING V
Email To: ewright@haleyaldr	ich.com	BSA#:			2019-2	2019-22-Pace					Pace Quote	e) L	UST	L		RCRA	LI	ŀ	
Phone: 804-419-0012 Fax:		H&A Client Name: Dominion Energy: Possum Point	Vame:	Dom	ninion E	nergy:	Possum	Point		14.2	Pace Project	ect	taylor.	taylor.ezell@pacelabs.com	Dace	labs.	com			Site	Site Location	uo			L		
Requested Due Date/TAT:	Standard	H&A Project #:	1	134660	099	\vdash					ace Prof	fle #:	TBD (TBD (9362?)	2						STATE:	Ü	N.	4			
Pace's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Inc., its subsidiaries and affiliates and Pace Analytical Services, Inc.	ustody shall be performed in Pace Analytical Services, In	n accordanc	se with	terms	and cond	itions with	hin Blanket		Agreement #2019-22-Pace by and between Haley & Aldrich,	1-22-Pac	by and	betwe	en Haley	& Aldri	ch,			Seque	sted ,	Analys	sis Filt	Requested Analysis Filtered (Y/N)	(N)				
Section D Required Client Information	Matrix Codes MATRIX / CODE	odes	(fiel o	(AMC			COLLECTED	TED					Preser	Preservatives	ွ	ÎNA		-		-		<u> </u>					
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Sample IDS MUST BE UNIQUE #	Whe Air Air Issue Other	ARRAC	MATRIX CODE	D) BAYT BLAMAS	DATE		TIME	Start Depth (Circle: feet or inches)	End Depth (Circle: feet or inches)	TA 9MPLE TEMP AT	# OF CONTAINER	H ^s 2O ⁴	HCI HNO ³	HOaN	Na ₂ S ₂ O ₃ Methanol	Other Tes	Appx III Anions & Met	Appx IV Metals List Total Dissolved Solids	Radium 226 & 228 Co						Residual Chlorin	Se Proj	PXY754/7 Pace Project No./ Lab I.D.
1 ABC-1608-	20200410		13	J	4-10-22	_	0831				\vdash				F		×	×	-			_				0	16
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Appx III Anions & Metals Lis chloride, fluoride, and sulfar	st: boron, calcium, te.	7	Jack	19	4 ecciony	5	H+W		4-10-20	32	1630	۵	3	13	2	SPENDING	200	Spec	SCE	5	K-11-4	2	36	53		7	>
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lead, lithium, mercury, and																	1	ı		\dashv		\dashv		4	4		
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8 of 18								PRINT Nar	PRINT Name of SAMPLER:	PLER:	An	35-	J.	2017	she		à	DATE Signed	gned	,				Temp ir		otsuO O belse N/Y)	N/A) səldwe
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APPENDIX D

Investigation Derived Waste Disposal Documentation



4/24/2020 5:23:44PM

Date Issued:

Analysis Detects Report

Client Name: Haley & Aldrich

Client Site ID: Possum Point IDW

Submitted To: Erin Wright

Laboratory Sample ID: 20D0761-01 Client Sample ID: IDW-Soil-20200416

							Dil.	
Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Factor	Units
TCLP Extraction Fluid, Metals	01	SW1311	1		0	0	1	#

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".



an Enthalpy Analytical Laboratory

1941 Reymet Road ● Richmond, Virginia 23237 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 20D0761

Client Name: Haley & Aldrich

1 Park West Circle, Suite 208

Midlothian, VA 23114

Submitted To: Erin Wright

Client Site I.D.: Possum Point IDW

Date Issued: April 24, 2020 17:23

April 17, 2020 9:00

Project Number: [none]

Date Received:

Purchase Order: 134660

Enclosed are the results of analyses for samples received by the laboratory on 04/17/2020 09:00. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

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.





Certificate of Analysis

Client Name: Haley & Aldrich

Possum Point IDW Client Site I.D.:

Erin Wright Submitted To:

Date Issued: 4/24/2020 5:23:44PM

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
IDW-Soil-20200416	20D0761-01	Solids	04/16/2020 07:45	04/17/2020 09:00
IDW-Water-20200416	20D0761-02	Ground Water	04/16/2020 08:00	04/17/2020 09:00
Trip Blank	20D0761-03	Ground Water	04/15/2020 10:40	04/17/2020 09:00



4/24/2020 5:23:44PM

Date Issued:

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point IDW

Submitted To: Erin Wright

Client Sample ID: IDW-Soil-20200416 Laboratory Sample ID: 20D0761-01

						,						
Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
TCLP Metals by 6000/7000 Series Meth	nods											
TCLP Silver	01	7440-22-4	SW6010C	04/21/2020 09:30	04/22/2020 12:15	BLOD		0.100	0.100	1	mg/L	SNL
TCLP Arsenic	01	7440-38-2	SW6010C	04/21/2020 09:30	04/22/2020 12:15	BLOD		0.100	0.100	1	mg/L	SNL
TCLP Barium	01	7440-39-3	SW6010C	04/21/2020 09:30	04/22/2020 12:15	BLOD		1.00	5.00	1	mg/L	SNL
TCLP Cadmium	01	7440-43-9	SW6010C	04/21/2020 09:30	04/22/2020 12:15	BLOD		0.0200	0.0400	1	mg/L	SNL
TCLP Chromium	01	7440-47-3	SW6010C	04/21/2020 09:30	04/22/2020 12:15	BLOD		0.100	0.100	1	mg/L	SNL
TCLP Mercury	01	7439-97-6	SW7470A	04/21/2020 10:24	04/21/2020 14:35	BLOD		0.008	0.008	1	mg/L	MWL
TCLP Lead	01	7439-92-1	SW6010C	04/21/2020 09:30	04/22/2020 12:15	BLOD		0.100	0.100	1	mg/L	SNL
TCLP Selenium	01	7782-49-2	SW6010C	04/21/2020 09:30	04/22/2020 12:15	BLOD		0.250	0.250	1	mg/L	SNL
TCLP Extraction Fluid, Metals	01	NA	SW1311	04/20/2020 15:30	04/20/2020 15:30	1		0	0	1	#	ESW
Volatile Hydrocarbons by GC												
TPH-Volatiles (GRO)	01RE1	NA	SW8015C	04/20/2020 11:19	04/20/2020 11:19	BLOD		0.48	0.48	1	mg/kg	HLM
Surr: 2,5-Dibromotoluene (Surr FID)	01RE1	98.7	'% 80-120	04/20/2020 1	1:19 04/20/2020 11	1:19						
Semivolatile Hydrocarbons by GC												
TPH-Semi-Volatiles (DRO)	01	NA	SW8015C	04/20/2020 15:15	04/21/2020 22:16	BLOD		9.8	10.0	1	mg/kg	LBH2
Surr: Pentacosane (Surr)	01	61.5	5% 45-160	04/20/2020 1	5:15 04/21/2020 22	2:16						



Certificate of Analysis

Date Issued:

4/24/2020 5:23:44PM

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point IDW

Submitted To: Erin Wright

Client Sample ID: IDW-Water-20200416 Laboratory Sample ID: 20D0761-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
TCLP Metals by 6000/7000 Se	eries Methods											
TCLP Silver	02	7440-22-4	SW6010C	04/21/2020 09:30	04/22/2020 11:49	BLOD		0.100	0.100	1	mg/L	SNL
TCLP Arsenic	02	7440-38-2	SW6010C	04/21/2020 09:30	04/22/2020 11:50	BLOD		0.100	0.100	1	mg/L	SNL
TCLP Barium	02	7440-39-3	SW6010C	04/21/2020 09:30	04/22/2020 11:50	BLOD		1.00	5.00	1	mg/L	SNL
TCLP Cadmium	02	7440-43-9	SW6010C	04/21/2020 09:30	04/22/2020 11:50	BLOD		0.0200	0.0400	1	mg/L	SNL
TCLP Chromium	02	7440-47-3	SW6010C	04/21/2020 09:30	04/22/2020 11:50	BLOD		0.100	0.100	1	mg/L	SNL
TCLP Mercury	02	7439-97-6	SW7470A	04/21/2020 10:22	04/21/2020 14:12	BLOD		0.008	0.008	1	mg/L	MWL
TCLP Lead	02	7439-92-1	SW6010C	04/21/2020 09:30	04/22/2020 11:50	BLOD		0.100	0.100	1	mg/L	SNL
TCLP Selenium	02	7782-49-2	SW6010C	04/21/2020 09:30	04/22/2020 11:50	BLOD		0.250	0.250	1	mg/L	SNL



Client Site I.D.:

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

Certificate of Analysis

Date Issued:

4/24/2020 5:23:44PM

Client Name: Haley & Aldrich

Possum Point IDW

Submitted To: Erin Wright

Client Sample ID: IDW-Water-20200416 Laboratory Sample ID: 20D0761-02

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter** Volatile Hydrocarbons by GC TPH-Volatiles (GRO) 02 NA SW8015C 04/17/2020 16:32 04/17/2020 16:32 **BLOD** 0.10 1 0.10 HLM mg/L Surr: 2,5-Dibromotoluene (Surr FID) 02 95.2 % 80-120 04/17/2020 16:32 04/17/2020 16:32



Client Name:

Client Site I.D.:

Surr: Pentacosane (Surr)

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

4/24/2020 5:23:44PM

Date Issued:

Certificate of Analysis

Haley & Aldrich

Possum Point IDW

02

Submitted To: Erin Wright

Client Sample ID: IDW-Water-20200416 Laboratory Sample ID: 20D0761-02

50-125

59.1 %

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter** Semivolatile Hydrocarbons by GC TPH-Semi-Volatiles (DRO) 02 NA SW8015C 04/22/2020 14:10 04/23/2020 10:31 **BLOD** 1 LBH2 0.510 0.510 mg/L

04/23/2020 10:31

04/22/2020 14:10

Page 7 of 25



Client Name:

Client Site I.D.:

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

Date Issued:

4/24/2020 5:23:44PM

Certificate of Analysis

Haley & Aldrich

Possum Point IDW

Submitted To: Erin Wright

Client Sample ID: Trip Blank Laboratory Sample ID: 20D0761-03

Reference Sample Prep Analyzed Sample CAS Qual LOD LOQ DF Units Analyst Samp ID Method Date/Time Date/Time Results **Parameter** Volatile Hydrocarbons by GC TPH-Volatiles (GRO) 03 NA SW8015C 04/17/2020 16:10 04/17/2020 16:10 **BLOD** 0.10 1 0.10 HLM mg/L Surr: 2,5-Dibromotoluene (Surr FID) 03 98.3 % 80-120 04/17/2020 16:10 04/17/2020 16:10

Page 8 of 25



Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point IDW

Submitted To: Erin Wright

Date Issued:

4/24/2020 5:23:44PM

TCLP Metals by 6000/7000 Series Methods - Quality Control

				Spike	Source	0/550	%REC	222	RPD	0 1
Analyte	Result	LOQ	Units	Level	Result	%REC	Limits	RPD	Limit	Qual
	Batch BDD0582 - SW13	11 Metals								
Blank (BDD0582-BLK1)				Prepared & Analy	yzed: 04/20/2020					
Extraction Fluid, Metals	1	0	#							
	Batch BDD0590 - SW30	10A								
Blank (BDD0590-BLK1)				Prepared: 04/21/	2020 Analyzed: 0	04/22/2020				
Arsenic	ND	0.100	mg/L							
Barium	ND	5.00	mg/L							
Cadmium	ND	0.0400	mg/L							
Chromium	ND	0.100	mg/L							
Lead	ND	0.100	mg/L							
Selenium	ND	0.250	mg/L							
Silver	ND	0.100	mg/L							
LCS (BDD0590-BS1)				Prepared: 04/21/	2020 Analyzed: 0	04/22/2020				
Arsenic	2.26	0.100	mg/L	2.50		90.3	80-120			
Barium	2.30	5.00	mg/L	2.50		92.1	80-120			
Cadmium	2.30	0.0400	mg/L	2.50		92.0	80-120			
Chromium	2.26	0.100	mg/L	2.50		90.5	80-120			
Lead	2.36	0.100	mg/L	2.50		94.3	80-120			
Selenium	2.15	0.250	mg/L	2.50		85.9	80-120			
Silver	0.437	0.100	mg/L	0.500		87.5	80-120			
LCS Dup (BDD0590-BSD1)				Prepared: 04/21/	2020 Analyzed: 0	04/22/2020				
Arsenic	2.25	0.100	mg/L	2.50		90.1	80-120	0.231	20	
Barium	2.22	5.00	mg/L	2.50		88.7	80-120	3.79	20	
Cadmium	2.24	0.0400	mg/L	2.50		89.7	80-120	2.56	20	
Chromium	2.21	0.100	mg/L	2.50		88.3	80-120	2.50	20	



Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point IDW

Submitted To: Erin Wright

Date Issued: 4/24/2020 5:23:44PM

TCLP Metals by 6000/7000 Series Methods - Quality Control

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch E	3DD0590 - SW30	10A								
LCS Dup (BDD0590-BSD1)				Prepared: 04/21/	2020 Analyzed: (04/22/2020				
Lead	2.35	0.100	mg/L	2.50		93.9	80-120	0.444	20	
Selenium	2.17	0.250	mg/L	2.50		86.7	80-120	0.958	20	
Silver	0.439	0.100	mg/L	0.500		87.9	80-120	0.456	20	
Matrix Spike (BDD0590-MS1)	Sour	rce: 20D0761-0	2	Prepared: 04/21/	2020 Analyzed: (04/22/2020				
Arsenic	2.36	0.100	mg/L	2.50	BLOD	94.2	75-125			
Barium	2.56	5.00	mg/L	2.50	BLOD	102	75-125			
Cadmium	2.30	0.0400	mg/L	2.50	BLOD	92.1	75-125			
Chromium	2.29	0.100	mg/L	2.50	BLOD	91.5	75-125			
Lead	2.39	0.100	mg/L	2.50	BLOD	95.6	75-125			
Selenium	2.23	0.250	mg/L	2.50	BLOD	89.4	75-125			
Silver	0.456	0.100	mg/L	0.500	BLOD	91.3	75-125			
Matrix Spike Dup (BDD0590-MSD1)	Sour	rce: 20D0761-0	2	Prepared: 04/21/	2020 Analyzed: (04/22/2020				
Arsenic	2.39	0.100	mg/L	2.50	BLOD	95.7	75-125	1.60	20	
Barium	2.68	5.00	mg/L	2.50	BLOD	107	75-125	4.69	20	
Cadmium	2.40	0.0400	mg/L	2.50	BLOD	95.8	75-125	4.02	20	
Chromium	2.38	0.100	mg/L	2.50	BLOD	95.3	75-125	4.03	20	
Lead	2.45	0.100	mg/L	2.50	BLOD	98.0	75-125	2.48	20	
Selenium	2.29	0.250	mg/L	2.50	BLOD	91.4	75-125	2.25	20	
Silver	0.453	0.100	mg/L	0.500	BLOD	90.6	75-125	0.733	20	
Batch E	BDD0591 - SW30	10A								
Blank (BDD0591-BLK1)				Prepared: 04/21/	2020 Analyzed: (04/22/2020				
Arsenic	ND	0.100	mg/L							
Barium	ND	5.00	mg/L							



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TCLP Metals by 6000/7000 Series Methods - Quality Control

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Bato	ch BDD0591 - SW30	10A								
Blank (BDD0591-BLK1)				Prepared: 04/21/	2020 Analyzed: (04/22/2020				
Cadmium	ND	0.0400	mg/L							
Chromium	ND	0.100	mg/L							
Lead	ND	0.100	mg/L							
Selenium	ND	0.250	mg/L							
Silver	ND	0.100	mg/L							
LCS (BDD0591-BS1)				Prepared: 04/21/	2020 Analyzed: (04/22/2020				
Arsenic	2.36	0.100	mg/L	2.50		94.5	80-120			
Barium	2.38	5.00	mg/L	2.50		95.3	80-120			
Cadmium	2.30	0.0400	mg/L	2.50		92.0	80-120			
Chromium	2.24	0.100	mg/L	2.50		89.5	80-120			
Lead	2.33	0.100	mg/L	2.50		93.1	80-120			
Selenium	2.26	0.250	mg/L	2.50		90.2	80-120			
Silver	0.431	0.100	mg/L	0.500		86.3	80-120			
LCS Dup (BDD0591-BSD1)				Prepared: 04/21/	2020 Analyzed: (04/22/2020				
Arsenic	2.44	0.100	mg/L	2.50		97.4	80-120	3.07	20	
Barium	2.45	5.00	mg/L	2.50		98.0	80-120	2.71	20	
Cadmium	2.35	0.0400	mg/L	2.50		94.1	80-120	2.30	20	
Chromium	2.29	0.100	mg/L	2.50		91.7	80-120	2.39	20	
Lead	2.41	0.100	mg/L	2.50		96.4	80-120	3.47	20	
Selenium	2.31	0.250	mg/L	2.50		92.5	80-120	2.47	20	
Silver	0.458	0.100	mg/L	0.500		91.5	80-120	5.90	20	
Matrix Spike (BDD0591-MS1)	Sour	ce: 20D0778-0	1	Prepared: 04/21/	2020 Analyzed: (04/22/2020				
Arsenic	2.37	0.100	mg/L	2.50	BLOD	94.6	75-125			
Barium	2.41	5.00	mg/L	2.50	BLOD	96.4	75-125			



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TCLP Metals by 6000/7000 Series Methods - Quality Control

Analyta	Result	LOQ	Units	Spike	Source	%REC	%REC Limits	RPD	RPD Limit	Qual
Analyte	Resuit	LUQ	Units	Level	Result	%REC	LIIIIIIS	KPU	Limit	Qual
Batch I	BDD0591 - SW30	10A								
Matrix Spike (BDD0591-MS1)	Sour	ce: 20D0778-01		Prepared: 04/21/	2020 Analyzed: 0	04/22/2020				
Cadmium	2.33	0.0400	mg/L	2.50	BLOD	93.3	75-125			
Chromium	2.41	0.100	mg/L	2.50	0.130	91.1	75-125			
Lead	2.33	0.100	mg/L	2.50	BLOD	93.3	75-125			
Selenium	2.32	0.250	mg/L	2.50	BLOD	92.9	75-125			
Silver	0.447	0.100	mg/L	0.500	BLOD	89.5	75-125			
Matrix Spike Dup (BDD0591-MSD1)	Sour	ce: 20D0778-01		Prepared: 04/21/	2020 Analyzed: 0	04/22/2020				
Arsenic	2.30	0.100	mg/L	2.50	BLOD	92.0	75-125	2.79	20	
Barium	2.37	5.00	mg/L	2.50	BLOD	94.8	75-125	1.69	20	
Cadmium	2.26	0.0400	mg/L	2.50	BLOD	90.5	75-125	3.11	20	
Chromium	2.34	0.100	mg/L	2.50	0.130	88.2	75-125	3.10	20	
Lead	2.27	0.100	mg/L	2.50	BLOD	90.8	75-125	2.72	20	
Selenium	2.25	0.250	mg/L	2.50	BLOD	90.0	75-125	3.10	20	
Silver	0.453	0.100	mg/L	0.500	BLOD	90.6	75-125	1.26	20	
Batch I	BDD0597 - SW74	70A								
Blank (BDD0597-BLK1)				Prepared & Anal	yzed: 04/21/2020					
Mercury	ND	0.008	mg/L							
LCS (BDD0597-BS1)				Prepared & Analy	yzed: 04/21/2020					
Mercury	0.048	0.008	mg/L	0.0500		96.1	80-120			
LCS Dup (BDD0597-BSD1)				Prepared & Analy	yzed: 04/21/2020					
Mercury	0.047	0.008	mg/L	0.0500		93.6	80-120	2.66	20	
Matrix Spike (BDD0597-MS1)	Sour	ce: 20D0761-02	2	Prepared & Analy	yzed: 04/21/2020					
Mercury	0.044	0.008	mg/L	0.0500	BLOD	88.2	80-120			



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TCLP Metals by 6000/7000 Series Methods - Quality Control

	Result	LOQ	Units	Spike Level	Source		%REC		RPD	
	atch BDD0597 - SW74704			Levei	Result	%REC	Limits	RPD	Limit	Qual
Matrix Onits Day (DDD0507 MOD4)	aton 6660001 - 04414107	4								
Matrix Spike Dup (BDD0597-MSD1)	Source:	20D0761-02	2	Prepared & Analy	zed: 04/21/2020					
Mercury	0.044	0.008	mg/L	0.0500	BLOD	89.0	80-120	0.842	20	
В	atch BDD0598 - SW7470	4								
Blank (BDD0598-BLK1)				Prepared & Analy	zed: 04/21/2020					
Mercury	ND	0.008	mg/L							
LCS (BDD0598-BS1)				Prepared & Analy	zed: 04/21/2020					
Mercury	0.042	0.008	mg/L	0.0500		84.3	80-120			
LCS Dup (BDD0598-BSD1)				Prepared & Analy	zed: 04/21/2020					
Mercury	0.044	0.008	mg/L	0.0500		87.3	80-120	3.53	20	
Matrix Spike (BDD0598-MS1)	Source:	20D0761-01	ı	Prepared & Analy	zed: 04/21/2020					
Mercury	0.048	0.008	mg/L	0.0500	BLOD	95.6	80-120			·
Matrix Spike Dup (BDD0598-MSD1)	Source:	20D0761-01	1	Prepared & Analy	zed: 04/21/2020					
Mercury	0.046	0.008	mg/L	0.0500	BLOD	92.8	80-120	2.98	20	



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Volatile Hydrocarbons by GC - Quality Control

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
•	DD0524 - SW503	0B								•
Blank (BDD0524-BLK1)				Prepared & Anal	yzed: 04/17/2020					
TPH-Volatiles (GRO)	ND	0.10	mg/L							
Surr: 2,5-Dibromotoluene (Surr FID)	92.8		ug/L	100		92.8	80-120			
LCS (BDD0524-BS1)				Prepared & Anal	yzed: 04/17/2020					
TPH-Volatiles (GRO)	1.02	0.10	mg/L	1.00		102	70-130			
Surr: 2,5-Dibromotoluene (Surr FID)	88.9		ug/L	100		88.9	80-120			
Matrix Spike (BDD0524-MS1)	Sourc	e: 20D0720-11		Prepared & Anal	yzed: 04/17/2020					
TPH-Volatiles (GRO)	1.04	0.10	mg/L	1.00	BLOD	104	70-130			
Surr: 2,5-Dibromotoluene (Surr FID)	96.3		ug/L	100		96.3	80-120			
Matrix Spike Dup (BDD0524-MSD1)	Sourc	e: 20D0720-11		Prepared & Anal	yzed: 04/17/2020					
TPH-Volatiles (GRO)	1.05	0.10	mg/L	1.00	BLOD	105	70-130	0.831	20	
Surr: 2,5-Dibromotoluene (Surr FID)	89.9		ug/L	100		89.9	80-120			
Batch B	DD0532 - SW503	0B								
Blank (BDD0532-BLK1)				Prepared & Anal	yzed: 04/17/2020					
TPH-Volatiles (GRO)	ND	0.10	mg/kg							
Surr: 2,5-Dibromotoluene (Surr FID)	97.2		ug/L	100		97.2	80-120			
LCS (BDD0532-BS1)				Prepared & Anal	yzed: 04/17/2020					
TPH-Volatiles (GRO)	0.90	0.10	mg/kg	1.00		90.3	70-130			
Surr: 2,5-Dibromotoluene (Surr FID)	95.9		ug/L	100		95.9	80-120			
Matrix Spike (BDD0532-MS1)	Sourc	e: 20D0750-01		Prepared & Anal	yzed: 04/17/2020					
TPH-Volatiles (GRO)	4.68	0.48	mg/kg	4.76	BLOD	98.2	70-130			



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Volatile Hydrocarbons by GC - Quality Control

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch B	DD0532 - SW503	0B								
Matrix Spike (BDD0532-MS1)	Sourc	e: 20D0750-0	1	Prepared & Anal	yzed: 04/17/2020					
Surr: 2,5-Dibromotoluene (Surr FID)	132		ug/L	100		132	80-120			S
Matrix Spike Dup (BDD0532-MSD1)	Sourc	e: 20D0750-0	1	Prepared & Anal	yzed: 04/17/2020					
TPH-Volatiles (GRO)	4.39	0.45	mg/kg	4.50	BLOD	97.4	70-130	6.39	20	
Surr: 2,5-Dibromotoluene (Surr FID)	112		ug/L	100		112	80-120			
Batch B	DD0578 - SW503	0B								
Blank (BDD0578-BLK1)				Prepared & Anal	yzed: 04/20/2020					
TPH-Volatiles (GRO)	ND	0.10	mg/kg							
Surr: 2,5-Dibromotoluene (Surr FID)	92.9		ug/L	100		92.9	80-120			
LCS (BDD0578-BS1)				Prepared & Anal	yzed: 04/20/2020					
TPH-Volatiles (GRO)	0.95	0.10	mg/kg	1.00		95.3	70-130			
Surr: 2,5-Dibromotoluene (Surr FID)	101		ug/L	100		101	80-120			
Matrix Spike (BDD0578-MS1)	Sourc	e: 20D0761-0	1RE1	Prepared & Anal	yzed: 04/20/2020					
TPH-Volatiles (GRO)	3.88	0.43	mg/kg	4.35	BLOD	89.2	70-130			
Surr: 2,5-Dibromotoluene (Surr FID)	99.9		ug/L	100		99.9	80-120			<u> </u>
Matrix Spike Dup (BDD0578-MSD1)	Sourc	e: 20D0761-0	1RE1	Prepared & Anal	yzed: 04/20/2020					
TPH-Volatiles (GRO)	3.94	0.45	mg/kg	4.46	BLOD	88.2	70-130	1.51	20	
Surr: 2,5-Dibromotoluene (Surr FID)	95.7		ug/L	100		95.7	80-120			



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Semivolatile Hydrocarbons by GC - Quality Control

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch E	BDD0586 - SW35	50C								
Blank (BDD0586-BLK1)				Prepared: 04/20	/2020 Analyzed: (04/21/2020				
TPH-Semi-Volatiles (DRO)	ND	10.0	mg/kg							
Surr: Pentacosane (Surr)	2.98		mg/kg	5.00		59.5	45-160			
LCS (BDD0586-BS1)				Prepared: 04/20	/2020 Analyzed: (04/21/2020				
TPH-Semi-Volatiles (DRO)	82.8	10.0	mg/kg	99.6		83.1	40-160			
Surr: Pentacosane (Surr)	2.83		mg/kg	4.98		56.7	45-160			
Matrix Spike (BDD0586-MS1)	Sour	ce: 20D0772-0	2	Prepared: 04/20	/2020 Analyzed: (04/21/2020				
TPH-Semi-Volatiles (DRO)	20400	998	mg/kg	99.8	17400	3020	40-160			M2
Surr: Pentacosane (Surr)	37.4		mg/kg	4.99		749	45-160			DS
Matrix Spike Dup (BDD0586-MSD1)	Sour	ce: 20D0772-0	2	Prepared: 04/20	/2020 Analyzed: (04/21/2020				
TPH-Semi-Volatiles (DRO)	19700	990	mg/kg	99.0	17400	2320	40-160	3.60	20	M2
Surr: Pentacosane (Surr)	36.1		mg/kg	4.95		729	45-160			DS
Batch E	3DD0655 - SW35 ²	10C								
Blank (BDD0655-BLK1)				Prepared: 04/22	/2020 Analyzed: (04/23/2020				
TPH-Semi-Volatiles (DRO)	ND	0.500	mg/L	•						
Surr: Pentacosane (Surr)	0.153		mg/L	0.250		61.3	50-125			
LCS (BDD0655-BS1)				Prepared: 04/22	/2020 Analyzed: (04/23/2020				
TPH-Semi-Volatiles (DRO)	3.7	0.500	mg/L	5.00	-	73.6	50-110			
Surr: Pentacosane (Surr)	0.135		mg/L	0.250		54.2	50-125			
Matrix Spike (BDD0655-MS1)	Source	ce: 20D0895-0	3	Prepared: 04/22	/2020 Analyzed: (04/23/2020				
TPH-Semi-Volatiles (DRO)	4.2	0.515	mg/L	5.15	BLOD	82.1	40-110			



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Semivolatile Hydrocarbons by GC - Quality Control

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch	BDD0655 - SW351	0C								
Matrix Spike (BDD0655-MS1)	Sourc	e: 20D0895-0	03	Prepared: 04/22/	2020 Analyzed: (04/23/2020				
Surr: Pentacosane (Surr)	0.136		mg/L	0.258		52.7	50-125			
Matrix Spike Dup (BDD0655-MSD1)	Source	e: 20D0895-0	03	Prepared: 04/22/	2020 Analyzed: (04/23/2020				
TPH-Semi-Volatiles (DRO)	4.5	0.515	mg/L	5.15	BLOD	87.7	40-110	6.63	20	
Surr: Pentacosane (Surr)	0.166		mg/L	0.258		64.6	50-125			



Client Name:

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

Certificate of Analysis

Haley & Aldrich

Possum Point IDW Client Site I.D.:

Erin Wright Submitted To:

Date Issued: 4/24/2020 5:23:44PM

Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
TCLP Metals by 6000	0/7000 Series Methods		Preparation Method:	SW1311 Metals	
20D0761-02	100 mL / 2000 mL	SW1311	BDD0580	SDD0509	
20D0761-01	100 g / 2000 mL	SW1311	BDD0582	SDD0512	
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
TCLP Metals by 6000	0/7000 Series Methods		Preparation Method:	SW3010A	
20D0761-02	10.0 mL / 50.0 mL	SW6010C	BDD0590	SDD0581	AD00102
20D0761-01	10.0 mL / 50.0 mL	SW6010C	BDD0591	SDD0581	AD00102
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Hydroca	arbons by GC		Preparation Method:	SW3510C	
20D0761-02	980 mL / 1.00 mL	SW8015C	BDD0655	SDD0657	AA00116
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Hydroca	arbons by GC		Preparation Method:	SW3550C	
20D0761-01	50.9 g / 1.00 mL	SW8015C	BDD0586	SDD0541	AA00116
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Hydrocarbor	ns by GC		Preparation Method:	SW5030B	
20D0761-02	5.00 mL / 5.00 mL	SW8015C	BDD0524	SDD0466	AD00030
20D0761-03	5.00 mL / 5.00 mL	SW8015C	BDD0524	SDD0466	AD00030
20D0761-01	5.05 g / 5.00 mL	SW8015C	BDD0532	SDD0473	AD00066
20D0761-01RE1	1.04 g / 5.00 mL	SW8015C	BDD0578	SDD0508	AD00066



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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
TCLP Metals by 60	000/7000 Series Methods		Preparation Method:	SW7470A	
20D0761-02	1.00 mL / 20.0 mL	SW7470A	BDD0597	SDD0537	AD00096
20D0761-01	1.00 ml / 20.0 ml	SW7470A	BDD0598	SDD0537	AD00096



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4/24/2020 5:23:44PM

Client Name: Haley & Aldrich

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Certified Analyses included in this Report

Analyte	Certifications	
SW1311 in Solids		_
Extraction Fluid, Metals	VELAP	
SW6010C in Non-Potable Water		
Arsenic	VELAP,WVDEP	
Barium	VELAP,WVDEP	
Cadmium	VELAP,WVDEP	
Chromium	VELAP,WVDEP	
Lead	VELAP,WVDEP	
Selenium	VELAP,WVDEP	
Silver	VELAP,WVDEP	
SW7470A in Non-Potable Water		
Mercury	VELAP,WVDEP	
SW8015C in Non-Potable Water		
TPH-Semi-Volatiles (DRO)	VELAP,NC,WVDEP	
TPH-Volatiles (GRO)	VELAP,NC,WVDEP	
SW8015C in Solids		
TPH-Semi-Volatiles (DRO)	VELAP,NC,WVDEP	
TPH-Volatiles (GRO)	VELAP,NC,WVDEP	



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Code	Description	Laboratory ID	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2020
NC	North Carolina DENR	495	12/31/2020
NCDOH	North Carolina Department of Health	51714	07/31/2020
NJDEP	New Jersey DEP	VA015	06/30/2020
PADEP	NELAC-Pennsylvania Certificate #005	68-03503	10/31/2020
VELAP	NELAC-Virginia Certificate #10637	460021	06/14/2020
WVDEP	West Virginia DEP	350	11/30/2020



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Qualifiers and Definitions

DS Surrogate concentration reflects a dilution factor.

J The reported result is an estimated value.

M2 Sample was diluted due to matrix interference.

S Surrogate recovery was outside acceptance criteria

RPD Relative Percent Difference

Qual Qualifers

-RE Denotes sample was re-analyzed

LOD Limit of Detection

BLOD Below Limit of Detection

LOQ Limit of Quantitation

DF Dilution Factor

TIC Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral

library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are

estimated and are calculated using an internal standard response factor of 1.

PCBs, Total Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.



1941 REYMET ROAD RICHMOND, VIRGINIA 23237 (804) 358-8295 PHONE (804)358-8297 FAX Chain of Custody Effective: Nov 15, 2018

CHAIN OF CUSTODY OF PAGE LABORATORIES, INC. PROJECT NAME/Quote #: Possum Point 1DW INVOICE TO: AP COMPANY NAME: Haley + Aldrich INVOICE CONTACT: ap@ haleyaldrich. com SITE NAME: CONTACT: Erin Wright PROJECT NUMBER: INVOICE ADDRESS: ADDRESS: 1 Park West Circle, Ste 208 134660 INVOICE PHONE #: P.O. #: PHONE #: 804-419-0010 ewright @ haley aldrich. com Pretreatment Program: EMAIL: FAX #: Is sample from a chlorinated supply? PWS I.D. #: NO YES Is sample for compliance reporting? YES NO **Regulatory State:** or _ Day(s) **Turn Around Time:** Circle: 10 5 Days SAMPLER SIGNATURE: SAMPLER NAME (PRINT): Andy Gerical COMMENTS Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other Preservative Codes: N=Nitric Acid ANALYSIS / (PRESERVATIVE) C=Hydrochloric Acid S=Sulfuric Acid Field Filtered (Dissolved Metals) Grab Time or Composite Stop Time H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium 8 RCRA Metals Thiosulfate M=Methanol Number of Containers Composite Start Time Grab Date or Composite Stop Date Composite Start Date Matrix (See Codes) CLIENT SAMPLE I.D. Time Preserved Composite I TPH PLEASE NOTE PRESERVATIVE(S) Grab INTERFERENCE CHECKS or PUMP RATE (L/min) X X 1) IDW-SOIL-20200416 4-16-20 X × 2) IDW-WATER-ZOZOOYIL 4-16-20 0800 3) 4) 5) 6) 8) 9) 10) LAB USE ONLY Therm ID: 271 COOLER TEMP (. . DATE / TIME QC Data Package RELINQUISHED: RECEIVED: DATE / TIME esm 4/17/20 Received on ice? (Y/N) Custody Seals used and intact? (N) 0900 4-17-20 0900 Level III 20D0761 DATE / TIME Haley & Aldrich DATE / TIME RECEIVED: RELINQUISHED: Level IV **Spoils Characterization** DATE / TIME RECEIVED: RELINQUISHED: DATE / TIME Recd: 04/17/2020 Due: 04/24 Page 23 of 25

AIR	CD
WATER	SOIL
VV2 1.1 1.21C	ABORATORIES, INC.

Sample Preservation Log

Sample Preservation Log Form #: F1301 Rev # 9.0 Effective: Nov 13, 2018 Page 1 of 1

Order ID	20D0761	
CIUCI ID		

Date Performed: 4/17/2020

Analyst Performing Check: PTM

Sample ID	Container ID	Re < 2	Meta H as ceived	Final pH 60	C P Re	yani H as ceived	Final pH OP	P Re	Sulfied H as ceived	de Hadinet	AI P Re-	mmo	inal pH	Re < 2	TKN oH as ceived	inal pH If adjust,)	PI Re	hos, oH as ceived	Tot Hadinet	N R	O3+N pH as eceived	inal pH O	F Re	DRO OH as ceived	inal pH If adjust.)	(80)	estic 81/608 Cl as seived	8/508)	(525 Res	SVO	0/625)	- 1	kdjusted * * *	sv	(508) (OC(5 H as ceived	/ 25)	pH Rec	l as eived Other	Final pH (If adjust.)
09	A	T													-		T			T			1	,		1050		Lic	1000	7.550	- EIG	4.6	4.2	1	Other	1		Other	T.S.
														T		Γ	T			T																П			
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																N																							
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																																-							
NaOH ID:								_	HNC)3 ID	:						_	CrV	l pre	ser	ved d	ate/t	ime	:						Anal	yst Init	ials: _							
H2SO4 ID						Adres Adria Milliannia			Nazs	S2O3	ID:_										e adju ID:																		
HCL ID:_								_	Nazs	SO3 I	D:_							1N I	NaO	НΙ	D:								5N 1	NaOH	:								



4/24/2020 5:23:44PM

Certificate of Analysis

Client Name: Haley & Aldrich

Client Site I.D.: Possum Point IDW

Submitted To: Erin Wright

Date Issued:

Sample Conditions Checklist

Samples Received at:	1.80°C
How were samples received?	Walk In
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	No
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	Yes
Are all volatile organic and TOX containers free of headspace?	Yes
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	Yes
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Received Trip Blank (15 April 2020/10.40) added to work order, Erin Wright notified by email. THM 17 April 2020/15.35

FACILITY PROFILE FORM

Giant Resource Recov	very	Facility Use Only:	
The Best Solution - Recycling & Resource F	Recovery	PROFILE NUMI	BER
Giant Resource Recovery - Sumter, Inc. ◆ 755 Industria Phone: (803) 773-1400 ◆ Fax: (803) 775-4145 ◆ S C D		9151 Date:	Account #:
X New Amendment TREATMEN METHO		Classification:	New Customer New S/A
A. GENERATOR INFORMATION	GENERATOR STATUS:	Conditionally Exempt	X Small Quantity Large Quantity
Generator Name: Possum Point Powe	r Station	EPA ID#	VAD000620476
Primary Contact: Kevin Bishoff	Phone #	540-259-0384	Fax#:
Location Address: 19000 Possum Poin	t Road City:	Dumfries State: VA	Zip: 22026 County:
Mailing Address: Dominion Energy 60	0 East Canal Streεcity:	Richmond State: VA	Zip: 23219 County:
Billing Name: Potomac Environme	ntal, Inc. Phone #	540-659-1894 Contac	t: Dan Kalil
Billing Address: PO Box 1836	City:	Stafford State: VA	Zip: 22555 County:
E-mail Information: Generator Primary Contact:	dkalil@potomacenv.com	Billing Contact:	Dan Kalil
B. WASTE DESCRIPTION		A/ C-il	
Waste Name:	יטו	N Soil IDW Drilling	
Description of Process Generating Waste: EPA Waste Code(s):		N/A	
		•1 Flash Point: 90 % pH: 3	If solid or no water present
Layering: X None Bilayer	Multilayer Total Solids: >	90 % pH: <u>3</u>	to 12 pH of 50/50 aqueous slurry
D. CHEMICAL COMPOSITION Chemical Constituents:			
Water (if present)			9
Soil			
	<u> </u>		9
	<u></u> %		
	<u> </u>		
	<u> </u>		9
	%		
Toxins: Cyanidesppm Pesticides	ppm PCB's	ppm Beryllium	ppm Antimonyppn
Nickelppm Thallium	ppm Zinc	ppm Dioxins	ppm (None of the above)
E. SHIPPING INFORMATION			
Volume (lbs/yr): 4 Drums	Shipping Frequency:	One Time Weekly	Monthly Quarterly X Yearly
Container Spec: X Drums (size: 55 gal) Roll-Off (size:) Tanker Othe	er:
Proper DOT Shipping Name:	Non-hazardous, non-	RCRA, non-DOT reg	ulated material
Hazard Class: N/A UN / NA #: N/A	Packaging Group: N/A	N.O.S. Information:	IDW Soil

PROCEED TO SECTION "I" ON PAGE 3 FOR $\underline{\text{NON-HAZARDOUS}}$ MATERIAL

Page 1 of 3 rev5 9/2005

Complete	e each secti	on							
Regulator Above B			Regulatory Level, ppm	Actual Range		atory Level Below		Regulatory Level, ppm	Actual Range
П	X D004	Arsenic	5.0			X D024	m-Cresol	200.0	
	X D005	Barium	100.0			X D025	p-Cresol	200.0	
	X D006	Cadmium	1.0			X D026	Cresol	200.0	
	X D007	Chromium	5.0			X D027	1,4-Dichlorobenzene	7.5	
Н	X D008	Lead	5.0		Н	X D028	1,2-Dichloroethane	0.5	
H	X D009 X D010	Mercury Selenium	0.2 1.0		H	X D029 X D030	1,1-Dichloroethylene 2,4-Dinitrotoluene	0.7 0.13	
\vdash	X D010	Silver	5.0		\vdash	X D030	Heptachlor	0.13	
H	X D012	Endrin	0.02		H	X D032	Hexachlorobenzene	0.13	
	X D013	Lindane	0.4			X D033	Hexachlorobutadiene	0.5	
	X D014	Methoxychlor	10.0			X D034	Hexachloroethane	3.0	
	X D015	Toxaphene	0.5			X D035	Methyl Ethyl Ketone	200.0	
Н	X D016	2,4-D	10.0			X D036	Nitrobenzene	2.0	
Н	X D017 X D018	2,4,5-TP (Silvex) Benzene	1.0 0.5		H	X D037 X D038	Pentachlorophenol Pyridine	100.0	
\vdash	X D019	Carbon Tetrachle	_		\vdash	X D039	Tetrachloroethylene	5.0 0.7	
	X D020	Chlordane	0.03		H	X D040	Trichloroethylene	0.5	
	X D021	Chlorobenzene	100.0			X D041	2,4,5-Trichlorophenol	400.0	
	X D022	Chloroform	6.0	-		X D042	2,4,6-Trichlorophenol	2.0	
	X D023	o-Cresol	200.0			X D043	Vinyl Chloride	0.2	
*The abo	ve TC is ba	ased on:	X Actual Te	esting	Generato	r Knowledge	Both (At	tach all applica	able analysis)
J. WAS	TE DETER	RMINATION (F	OR NON-H	IAZARDOUS	WASTE ONLY)			
		•					documentation sup	norting the	statement
						-			
			-		•	-	ents are known to the	-	. (Please
provide	material	safety data sh	eets or prod	duct specificat	ion sheets supp	orting this find	ding as an attachme	nt)	
↑ The	generato	r has a docum	ented histor	v of the waste	to confirm the o	lassification	as non-hazardous. (Please prov	ride a
	-			•			waste stream and als	-	
					d by your facility		waste stream and all	so provide ii	nomation
	-	**	-				at confirms the class		-
waste s	tream as	non-hazardou	s. (Please	attach a copy	of your current a	analytical data	a (TCLP, EPA Metho	od 8260, EF	PA Method
8270 or	r equivale	ent)							
K. CER	TIFICATION	ON FOR NON-H	AZARDOUS	WASTE					
Genera	ator Cer	tification							
I herel	by certif	v that all info	rmation s	submitted in	association v	vith this do	cument is true, a	ccurate a	nd
							rtify that I am aut		
			•	•		•	•		•
			-		-		nation is represe		-
shipm	ent of th	nis waste str	eam ident	tified with th	e indicated p	ofile numb	er that will be se	nt to GRR	from this
date fo	orward.				1				
a:			1/ /S	: <i>[[[[</i>]]]		mi d		r	
Signatur	e:			1211/		Title:	Project M	anager	
Print Na	me		Kevin Ris	hoff		Date:	5/6/20)20	
I IIII I Vu			IXCVIII DIS	11011		Bute.	3/0/20	,20	
	y Certifi								
I herek	by certif	y that I have	reviewed	I the informa	ation provided	on this pro	ofile form, includi	ng all of t	he
	-	•			-	-	termined that the	-	
				•			Sumter facility to	•	
		-				-			
	quently	_	s material	as a nonha	zardous wast	e in accord	dance with applic	abie tacili	ty permits 1
									-,
and re	gulation	าร.							.,
	•	ns.				Title			, , ,
and re	•	าร.				Title:			

Facility Use Only:

PROFILE NUMBER

I. TC CERTIFICATION*

FACILITY PROFILE FORM

Giant Resource Recovery	racinty use only:								
The Best Solution - Recycling & Resource Recovery	PROFILE NUMBER								
Giant Resource Recovery - Sumter, Inc. • 755 Industrial Road • PO Box 1755 • Sumter, SC 291 Phone: (803) 773-1400 • Fax: (803) 775-4145 • S C D 0 3 6 2 7 5 6 2 6	51 Date: Account #:								
	Sales # / Broker #								
TREATMENT X New Amendment METHOD	Classification: New Customer New S/A								
A. GENERATOR INFORMATION GENERATOR STATUS:	Conditionally Exempt X Small Quantity Large Quantity								
Generator Name: Possum Point Power Station	EPA ID# VAD000620476								
Primary Contact: Kevin Bishoff Phone #:	540-259-0384 Fax#:								
Location Address: 19000 Possum Point Road City: D	umfries State: VA Zip: 22026 County:								
Mailing Address: Dominion Energy 600 East Canal Streecity: Ri	chmond State: VA Zip: 23219 County:								
Billing Name: Potomac Environmental, Inc. Phone #:	540-659-1894 Contact: Dan Kalil								
Billing Address: PO Box 1836 City: S	Stafford State: VA Zip: 22555 County:								
E-mail Information: Generator Primary Contact: <u>dkalil@potomacenv.com</u>	Billing Contact: Dan Kalil								
B. WASTE DESCRIPTION									
	ge Water								
	IDW drilling and purge N/A								
EPA Waste Code(s):	TV/A								
Physical State: Solid X Liquid Sludge Thousands of BTU's/lb: Viscosity: Low(Thin) X Medium High Specific Gravity: >1 Layering: X None Bilayer Multilayer Total Solids: <1	If solid or no water present								
D. CHEMICAL COMPOSITION									
Chemical Constituents: Water (if present) 90-100 %	%								
Soil and sediment 0-10 %									
<u> </u>									
%									
%	%								
Toxins: Cyanidesppm Pesticidesppm PCB's	ppm Berylliumppm Antimonyppm								
Nickelppm Thalliumppm Zinc	ppm Dioxinsppm X (None of the above)								
E. SHIPPING INFORMATION									
Volume (lbs/yr): 6 Drums Shipping Frequency:	One Time Weekly Monthly Quarterly X Yearly								
Container Spec: X Drums (size: 55 gal) Roll-Off (size:	Other:								
Proper DOT Shipping Name: Non-hazardous, non-R	CRA, non-DOT regulated material								
$\textbf{Hazard Class:} \underline{N/A} \textbf{UN / NA \#:} \underline{N/A} \textbf{Packaging Group:} \underline{N/A}$	N.O.S. Information: IDW Purge Water								

PROCEED TO SECTION "I" ON PAGE 3 FOR $\underline{\text{NON-HAZARDOUS}}$ MATERIAL

Page 1 of 3 rev5 9/2005

Complete each sect	ion							
Regulatory Level Above Below		Regulatory Level, ppm	Actual Range		tory Level Below		Regulatory Level, ppm	Actual Range
X D004	Arsenic	5.0		П	X D024	m-Cresol	200.0	
X D005	Barium	100.0			X D025	p-Cresol	200.0	
X D006	Cadmium	1.0			X D026	Cresol	200.0	
X D007	Chromium	5.0		Ц	X D027	1,4-Dichlorobenzene	7.5	
X D008	Lead	5.0		Н	X D028	1,2-Dichloroethane	0.5	
X D009	Mercury	0.2		Н	X D029	1,1-Dichloroethylene	0.7	
X D010 X D011	Selenium Silver	1.0 5.0		Н	X D030 X D031	2,4-Dinitrotoluene Heptachlor	0.13 0.008	
X D011 X D012	Endrin	0.02		H	X D031	Hexachlorobenzene	0.000	
X D013	Lindane	0.4		Н	X D033	Hexachlorobutadiene	0.10	
X D013 X D014	Methoxychlor	10.0		Ħ	X D034	Hexachloroethane	3.0	
X D015	Toxaphene	0.5		П	X D035	Methyl Ethyl Ketone	200.0	
X D016	2,4-D	10.0			X D036	Nitrobenzene	2.0	
X D017	2,4,5-TP (Silvex)			Ц	X D037	Pentachlorophenol	100.0	
X D018	Benzene	0.5		Ц	X D038	Pyridine	5.0	
X D019	Carbon Tetrachle	-		Н	X D039	Tetrachloroethylene	0.7	
X D020 X D021	Chlordane Chlorobenzene	0.03		H	X D040 X D041	Trichloroethylene	0.5	
X D021	Chloroform	100.0 6.0		Н	X D041	2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	400.0 2.0	
X D022	o-Cresol	200.0		H	X D042	Vinyl Chloride	0.2	
	0 010001	200.0		ш	X DOIG	Viiiyi Oliiolido	0.2	
*The above TC is ba	ased on:	X Actual Te	esting	Generator	Knowledge	Both (A	ttach all applica	able analysis)
J. WASTE DETE	RMINATION (F	OR NON-H	IAZARDOUS	WASTE ONLY)				
	•			•		ary documentation sup	porting the	statement
			•				·	
		-		•	-	dients are known to th ïnding as an attachme	-	. (Please
↑ The generate	or has a docum	ented histor	v of the waste	to confirm the c	assificatio	n as non-hazardous. (Please prov	ide a
-			•			ct waste stream and al		
regarding how lo						n waste stream and ar	so provide ii	ilormation
· · · · · · · · · · · · · · · · · · ·								
	or has current (բ	oreferably n	o more than 2	years old) analy	tical data t	that confirms the class	ification of t	he subject
waste stream as	s non-hazardou	s. (Please	attach a copy	of your current a	nalytical d	ata (TCLP, EPA Meth	od 8260, EF	'A Method
8270 or equivale	ent)							
K. CERTIFICATI		AZARDOUS	WASTE					
Generator Cer			1 20 12		.0 0 .			
						locument is true, a		
complete to the	he best of m	y knowled	lge and beli	ef. In additior	i, I also d	ertify that I am aut	thorized to	provide
such certifica	tion on beha	If of my co	ompany and	I that the prov	ided info	rmation is represe	ntative of	everv
						nber that will be se		
		cam idem	unea wiai ui	e indicated pi	Onic nun	ibei tilat will be se	int to Oixiv	. 110111 11115
date forward.	2 .	, 1	11/					
Signature:]2	Bis	h////		Title:	Project M	Ianager	
Print Name		Kevin Bis	hoff	<u> </u>	Date:	5/6/2	020	
Facility Certifi	ication							
		reviewed	the informa	ation provided	on this	orofile form, includ	ing all of t	he
	-			-	-		-	
			•			letermined that the	•	
	-					ry Sumter facility to		
subsequently	manage this	s material	as a nonha	zardous wast	e in acco	ordance with applic	able facili	ty permits
and regulation	•					• •		
					T:41			
Signature:					Title:			
Print Name					Date:			

Facility Use Only:

PROFILE NUMBER

I. TC CERTIFICATION*

Invoice: 613193

169-BLC-O 6 10498 (Rev. 9/09)

1. Generator ID Number NON-HAZARDOUS 2. Page 1 of 3. Emergency Response Phone 4. Waste Tracking Number VAD000620476 **WASTE MANIFEST** 888-673-8890 1 06150 5. Generator's Name and Mailing Address "Generator's Site Address (if different than mailing address) Dominion Possum Point Power 19000 Possom Point Road Station Dumfries, VA 22026 600 East Canal Street Richmond, VA 23210 Generator's Phone: 703-306-1972 Transporter 1 Company Nar U.S. EPA ID Number Enviritie of Pennsylvania, Inc. PAD010154045 7. Transporter 2 Company Name U.S. EPA ID Number 8. Designated Facility Name and Site Address U.S. EPA ID Number Giant Resource Recovery 755 Industrial Road Sumter, SC 29150 SCD036275626 Facility's Phone: 803.773.1400 10. Containers 9. Waste Shipping Name and Description 11. Total 12. Unit No. Quantity Wt./Vol. NON-HAZARDOUS, NON-RCRA, NON-DOT NREG REGULATED MATERIAL (IDW SOIL) NON-HAZARDOUS, NON-RORA, NON-DOT 3-REGULATED MATERIAL (IDW PURGE WATER) 2000 NREG 13. Special Handling Instructions and Additional Information 1) SE-154743-NREG 2) SE-154744-NREG Certificates of Disposal are Required, Send to PEI **Emergency Contact. PET** 14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. Generator's/Offeror's Printed/Typed Name Day Year KRISTIN LUNG 15. International Shipments Port of entry/exit: Import to U.S. Export from U.S. Transporter Signature (for exports only): Date leaving U.S. 16. Transporter Acknowledgment of Receipt of Materials Printed/Typed Name Signature Transporter 2 Printed/Typed Name 17. Discrepancy 17a. Discrepancy Indication Space Quantity Туре Residue Partial Rejection Full Rejection Manifest Reference Number: 17b. Alternate Facility (or Generator) U.S. EPA ID Number Facility's Phone: DESIGNATED 17c. Signature of Alternate Facility (or Generator) Month Day Year 18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a 177

TRANSPORTER #2

APPENDIX E

Data Usability Summary Reports





Data Usability Summary Report

Project Name: Dominion Energy VSWMR and CCR

Analytical Laboratory: Pace Analytical Services, LLC - Huntersville, NC

Air Water & Soil, Inc. - Richmond, VA

Validation Performed by: Carly Nemanic, Alexis Rainery

Validation Reviewed by: Katherine Miller

Validation Date: 1 May 2020

Haley & Aldrich, Inc., prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the Dominion Energy VSWMR and CCR groundwater samples collected on 7 April through 15 April 2020 and submitted to Pace Analytical Services, LLC – Huntersville, NC and Air Water & Soil, Inc. – Richmond, VA. The analytical results for the Sample Delivery Group(s) (SDG) listed below were reviewed to determine the data's usability.

This data validation and usability assessment was performed as per the guidance and requirements established by the U.S. Environmental Protection Agency's (EPA) "National Functional Guidelines for Inorganic Data Review" and "National Functional Guidelines for Organic Data Review" herein referred to as the specified limits. Data in this report have been reviewed against the most recent NFGs. The following quality assurance/quality control (QA/QC) criteria from the analysis of the project samples were reviewed as applicable:

- 1. Sample Delivery Group Number 92472806 (Pace)
- 2. Sample Delivery Group Number 92472807 (Pace)
- 3. Sample Delivery Group Number 92473016 (Pace)
- 4. Sample Delivery Group Number 92473019 (Pace)
- 5. Sample Delivery Group Number 92473551 (Pace)
- 6. Sample Delivery Group Number 92473553 (Pace)
- 7. Sample Delivery Group Number 92473799 (Pace)
- 8. Sample Delivery Group Number 92473800 (Pace)
- 9. Sample Delivery Group Number 92473946 (Pace)
- 10. Sample Delivery Group Number 92473947 (Pace)
- 11. Sample Delivery Group Number 92473948 (Pace)
- 12. Sample Delivery Group Number 200409 (Air Water & Soil)
- 13. Sample Delivery Group Number 92474190 (Pace)
- 1. Sample Delivery Group Number 92472806 (Pace)
- 2. Sample Delivery Group Number 92472807 (Pace)
- 3. Sample Delivery Group Number 92473016 (Pace)
- 4. Sample Delivery Group Number 92473019 (Pace)
- 5. Sample Delivery Group Number 92473551 (Pace)
- 6. Sample Delivery Group Number 92473553 (Pace)



- 7. Sample Delivery Group Number 92473799 (Pace)
- 8. Sample Delivery Group Number 92473800 (Pace)
- 9. Sample Delivery Group Number 92473946 (Pace)
- 10. Sample Delivery Group Number 92473947 (Pace)
- 11. Sample Delivery Group Number 92473948 (Pace)
- 12. Sample Delivery Group Number 200409 (Air Water & Soil)
- 13. Sample Delivery Group Number 92474190 (Pace)
- Holding Times/Preservation
- Reporting Limits and Sample Dilution
- Blank Sample Analysis
- Laboratory Control Samples
- Matrix Spike Samples
- Laboratory and Field Duplicate Sample Analysis
- System Performance and Overall Assessment

Analytical precision and accuracy were evaluated based on the laboratory control, matrix spike, or laboratory duplicate analyses performed concurrently with the project samples or based on field duplicates collected at the site.

Data reported in this sampling event were reported to the laboratory method detection limit (MDL). Results found between the MDL and reporting limit (RL) are flagged "J" as estimated.

Sample data were qualified in accordance with laboratory's standard operating procedures (SOPs). The results presented in each laboratory report were found to be compliant with the data quality objectives for the project and therefore usable; any exceptions are noted in the following pages.



1. Sample Delivery Group Number 92472806 (Pace)

1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92472806, dated 15 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

Custody seals were not used on the sample cooler(s).

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ED-22RA-20200407	N	92472806001	4/7/2020	WG	А, В, С

ı	Method Holding Time					
	A.	EPA 420.4 (Phenolics, Total)	28 days			
	В.	SM5310B (Total Organic Carbon (TOC))	28 days			
	C.	SW6020B (Metals)	180 days			

1.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 2.5 degrees Celsius.

1.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Only detected analytes were reported from a dilution.

1.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred with the following exceptions:

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (ug/L)	Qualifier	Affected Samples
Method Blank	535206	Manganese	0.38 J	NA	None, samples are 10x > Method Blank

Field blanks are prepared to identify contamination that may have been introduced during field activity. Blank samples for field quality control were not collected in this SDG.



1.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

• An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was analyzed, this data set is supported by precision quality control information.

1.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. The sample(s) below were used for MS/MSD:

Lab Sample Number	Matrix Spike/ Matrix Spike Duplicate Sample Client ID	Method(s)
2855914 2855915		EPA 6020B
2860125 2860126	ED-22RA-20200407	EPA 420.4
2856100 2856101		SM 5310B

The MS/MSD recoveries and the RPD between the MS and MSD results were within the specified limits with the following exceptions:

Sample Type	Method	Parent Sample Number	Analyte	%R/RPD	Qualifier	Affected Samples
MS/RPD	EPA 420.4	ED-22RA-20200407	Phenol	87%,RPD=12	J/UJ	ED-22RA-20200407

1.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. The laboratory did not analyze any laboratory duplicates in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

1.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. A summary of qualifiers applied to this SDG are shown below.

Sample ID	Analyte	Reported Result	Validated Result	Reason for Qualifier
ED-22RA-20200407	Phenol	0.020 U	0.020 UJ	Matrix Spike outside recovery limits



2. Sample Delivery Group Number 92472807 (Pace)

2.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92472807, dated 15 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

Custody seals were not used on the sample cooler(s).

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ED-22RA-20200407	N	92472807001	4/7/2020	WG	A, B, C, D

Method Ho	Method Holding Time				
A.	SM2540C (Total Dissolved Solids (TDS))	7 days			
В.	SW7470 (Mercury)	28 days			
C.	SW9056A	28 days			
D.	SW6020B (Metals)	180 days			

2.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 2.5 degrees Celsius.

2.3 REPORTING LIMITS AND SAMPLE DILUTION

No dilutions were performed for the analysis of the samples in this report.

2.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred.

Field blanks are prepared to identify contamination that may have been introduced during field activity. Blank samples for field quality control were not collected in this SDG.

2.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

• An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was analyzed, this data set is supported by precision quality control information.



2.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. The sample(s) below were used for MS/MSD:

Lab Sample Number	Matrix Spike/ Matrix Spike Duplicate Sample Client ID	Method(s)
2858654 2858655		EPA 7470A
2855914 2855915	ED-22RA-20200407	EPA 6020B
2858404 2858405 2858406 2858407		EPA 9056A

The MS/MSD recoveries and the RPD between the MS and MSD results were within the specified limits with the following exceptions:

Sample Type	Method	Parent Sample Number	Analyte	%R/RPD	Qualifier	Affected Samples
NAC/NACD	EDA 00E6A	PA 9056A ED-22RA-20200407	Fluoride	119%/123%	J/None	ED-22RA-20200407
IVIS/IVISD	MS/MSD EPA 9056A	ED-22KA-20200407	Sulfate	83%/86%	ı/uı	ED-22KA-20200407

2.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. No client samples were used for laboratory duplicate analysis in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

2.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. A summary of qualifiers applied to this SDG are shown below.

Sample ID	Analyte	Reported Result	Validated Result	Reason for Qualifier
ED-22RA-20200407	Sulfate	60.5	60.5 J	Matrix Spike outside recovery limits



3. Sample Delivery Group Number 92473016 (Pace)

3.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92473016, dated 20 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel.

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ED-23R-20200408	N	92473016001	4/8/2020	WG	А, В, С
ES-3D-20200408	N	92473016002	4/8/2020	WG	А, В, С
ES-1609-20200408	N	92473016003	4/8/2020	WG	А, В, С
ES-1613-20200408	N	92473016004	4/8/2020	WG	А, В, С

Method Ho	Method Holding Time				
A.	E420.4 (Total Dissolved Solids (TDS))	7 days			
B.	SM5310B (Total Organic Carbon (TOC))	28 days			
C.	SW6020B (Metals)	180 days			

3.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 1.4 – 0.4 degrees Celsius.

3.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Only detected analytes were reported from a dilution.

3.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred with the following exceptions:

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (ug/L)	Qualifier	Affected Samples
Method Blank	2859498	Potassium	9.9 J	NA	None, samples are 10x > Method Blank

Field blanks are prepared to identify contamination that may have been introduced during field activity. Blank samples for field quality control were not collected in this SDG.



3.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

• An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was analyzed, this data set is supported by precision quality control information.

3.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. The sample(s) below were used for MS/MSD:

Lab Sample Number	Matrix Spike/ Matrix Spike Duplicate Sample Client ID	Method(s)
2860127 2860128	ED-23R-20200408	EPA 420.4

The MS/MSD recoveries and the RPD between the MS and MSD results were within the specified limits.

3.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. The laboratory did not analyze any laboratory duplicates in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

3.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. No qualifiers were applied to any data in this report.



4. Sample Delivery Group Number 92473019 (Pace)

4.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92473019, dated 17 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel.

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ED-23R-20200408	N	92473019001	4/8/2020	WG	A, B, C, D
ES-3D-20200408	N	92473019002	4/8/2020	WG	A, B, C, D
ES-1609-20200408	N	92473019003	4/8/2020	WG	A, B, C, D
ES-1613-20200408	N	92473019004	4/8/2020	WG	A, B, C, D

Method Ho	Method Holding Time				
A.	SM2540C (Total Dissolved Solids (TDS))	7 days			
B.	SW7470 (Mercury)	28 days			
C.	SW9056A	28 days			
D.	SW6020B (Metals)	180 days			

4.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 1.4-0.4 degrees Celsius.

4.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Only detected analytes were reported from a dilution.

4.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred.

Field blanks are prepared to identify contamination that may have been introduced during field activity. Blank samples for field quality control were not collected in this SDG.



4.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

 An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was also not analyzed, this data set does not include site-specific precision quality control information.

4.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. No client samples were used for MS/MSD analysis in this SDG.

4.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. No client samples were used for laboratory duplicate analysis in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

4.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. No qualifiers were applied to any data in this report.



5. Sample Delivery Group Number 92473551 (Pace)

5.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92473551, dated 20 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

Custody seals were not used on the sample cooler(s).

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ED-24R-20200413	N	92473551001	4/13/2020	WG	A, B, C, D

Method Hol	Method Holding Time				
A.	SM2540C (Total Dissolved Solids (TDS))	7 days			
В.	SW7470 (Mercury)	28 days			
C.	SW9056A	28 days			
D.	SW6020B (Metals)	180 days			

5.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 2.0 degrees Celsius.

5.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Any non-detects with elevated reported limits are noted and explained below.

Sample ID	Lab ID	Analyte/ Method	Dilution Factor	Issue/Explanation
ED-24R-20200413	92473551001	6020/various metals	5	Dilution required due to high target analyte abundance.

5.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred with the following exceptions:

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (ug/L)	Qualifier	Affected Samples
Method Blank	536213	Antimony	0.33 J	NA	None, samples are non-detect



Field blanks are prepared to identify contamination that may have been introduced during field activity. Blank samples for field quality control were not collected in this SDG.

5.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

• An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was analyzed, this data set is supported by precision quality control information.

5.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. The sample(s) below were used for MS/MSD:

Lab Sample Number	Matrix Spike/ Matrix Spike Duplicate Sample Client ID	Method(s)
2864579		EPA 7470A
2864580	ED-24R-20200413	LFA 7470A
2860600		EPA 6020B
2860601		EPA 8020B
2861752		EPA 9056A
2861753		LFA 9030A

The MS/MSD recoveries and the RPD between the MS and MSD results were within the specified limits with the following exceptions:

Sample Type	Method	Parent Sample Number	Analyte	%R/RPD	Qualifier	Affected Samples
MS			Barium	73%	J-/UJ	
MS	EPA		Boron	73%	J-/UJ	
MS/MSD	6020B	ED-24R- 20200413	Calcium	43%/66%	J-/UJ	
MS			Lead	74%	J-/UJ	ED-24R-20200413
MS		20200 113	Chloride	117%	J/None	
MS/MSD	EPA 9056A		Fluoride	163%/121%	J/None	
MS	223071		Sulfate	123%	J/None	

5.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. No client samples were used for laboratory duplicate analysis in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.



5.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. A summary of qualifiers applied to this SDG are shown below.

Sample ID	Analyte	Reported Result	Validated Result	Reason for Qualifier
	Lead	0.50 U	0.50 UJ	
	Barium	13.5	13.5 J-	
	Boron	125 U	125 UJ	
ED-24R-20200413	Calcium	1700	1700 J-	Matrix Spike recovery out of acceptance limits
	Sulfate	2.7	2.7 J	deceptance innes
	Chloride	2.3	2.3 J	
	Fluoride	60 J	60 J	



6. Sample Delivery Group Number 92473553 (Pace)

6.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92473553, dated 23 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

Custody seals were not used on the sample cooler(s).

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ED-24R-20200413	N	92473553001	4/13/2020	WG	А, В, С

Method Ho	Method Holding Time					
A.	EPA 420.4 (Phenolics, Total)	28 days				
B.	SM5310B (Total Organic Carbon (TOC))	28 days				
C.	SW6020B (Metals)	180 days				

6.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 2.0 degrees Celsius.

6.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Only detected analytes were reported from a dilution.

6.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred with the following exceptions:

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (ug/L)	Qualifier	Affected Samples
Method Blank	537477	Potassium	7.2 J	NA	None, samples are 10x > Method Blank

Field blanks are prepared to identify contamination that may have been introduced during field activity. Blank samples for field quality control were not collected in this SDG.



6.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

• An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was analyzed, this data set is supported by precision quality control information.

6.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. The sample(s) below were used for MS/MSD:

Lab Sample Number	Matrix Spike/ Matrix Spike Duplicate Sample Client ID	Method(s)
2866335 2866336	ED-24R-20200413	EPA 6020B
2864521 2864522		EPA 420.4
2860789 2860790		SM 5310B

The MS/MSD recoveries and the RPD between the MS and MSD results were within the specified limits.

6.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. The laboratory did not analyze any laboratory duplicates in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

6.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. No qualifiers were applied to any data in this report.



7. Sample Delivery Group Number 92473799 (Pace)

7.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92473799, dated 23 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

Custody seals were not used on the sample cooler(s).

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ED-26-20200414	N	92473799001	4/14/2020	WG	A, B, C, D
EB-01-20200414	EB	92473799002	4/14/2020	WQ	A, B, C, D

Method Hol	Method Holding Time					
A.	SM2540C (Total Dissolved Solids (TDS))	7 days				
B.	SW7470 (Mercury)	28 days				
C.	SW9056A	28 days				
D.	SW6020B (Metals)	180 days				

7.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 3.3 degrees Celsius.

7.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Only detected analytes were reported from a dilution.

7.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred.

Equipment blanks are prepared to identify contamination that may have been introduced while decontaminating sampling equipment. The analysis of the blank samples for field quality control was free of target compounds with the following exceptions:

Blank Type	Date of Blank	Analyte Detected in Blank	Concentration (ug/L)	Qualifier	Affected Samples
	4/14/2020	Antimony	0.14 J	NA	None, samples are ND
Equipment Blank	4/14/2020	Barium	0.062 J	NA	None, result > 10x blank
	4/14/2020	Boron	3.1 J	RL U	ED-26-20200414



7.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

 An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was also not analyzed, this data set does not include site-specific precision quality control information.

7.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. No client samples were used for MS/MSD analysis in this SDG.

7.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. No client samples were used for laboratory duplicate analysis in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

7.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. A summary of qualifiers applied to this SDG are shown below.

Sample ID	Analyte	Reported Result	Validated Result	Reason for Qualifier
ED-26-20200414	Boron	9.6 J	25 U	Equipment blank contamination



8. Sample Delivery Group Number 92473800 (Pace)

8.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92492473800, dated 23 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

Custody seals were not used on the sample cooler(s).

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ED-26-20200414	N	92473800001	4/14/2020	WG	А, В, С
EB-01-20200414	EB	92473800002	4/14/2020	WQ	А, В, С

Method Ho	olding Time	
A.	EPA 420.4 (Phenolics, Total)	28 days
B.	SM5310B (Total Organic Carbon (TOC))	28 days
C.	SW6020B (Metals)	180 days

8.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 3.3 degrees Celsius.

8.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Only detected analytes were reported from a dilution.

8.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred with the following exceptions:

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (ug/L)	Qualifier	Affected Samples
Method Blank	537477	Potassium	7.2 J	NA	None, samples >10x detected result



Equipment blanks are prepared to identify contamination that may have been introduced while decontaminating sampling equipment. The analysis of the blank samples for field quality control was free of target compounds with the following exceptions:

Blank Type	Date of Blank	Analyte Detected in Blank	Concentration (ug/L)	Qualifier	Affected Samples
Equipment Blank	4/14/2020	Nickel	0.24 J	RL U	ED-26-20200414
	4/14/2020	Zinc	1.7 J	RL U	ED-26-20200414

8.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

 An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was also not analyzed, this data set does not include site-specific precision quality control information.

8.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. No client samples were used for MS/MSD analysis in this SDG.

8.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. No client samples were used for laboratory duplicate analysis in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

8.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. A summary of qualifiers applied to this SDG are shown below.

Sample ID	Sample ID Analyte		Validated Result	Reason for Qualifier
ED-26-20200414	Nickel	0.24 J	0.50 U	Equipment blank
ED-26-20200414	Zinc	1.8 J	5.0 U	contamination



9. Sample Delivery Group Number 92473946 (Pace)

9.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92473946, dated 23 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

Custody seals were not used on the sample cooler(s).

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ES-1-20200415	N	92473946001	4/15/2020	WG	Α
ES-1D-20200415	N	92473946002	4/15/2020	WG	А

Method Ho	ding Time	
A.	SW6020B (Metals)	180 days

9.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 0.8 degrees Celsius.

9.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Only detected analytes were reported from a dilution.

9.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred.

Field blanks are prepared to identify contamination that may have been introduced during field activity. Blank samples for field quality control were not collected in this SDG.

9.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

 An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was also not analyzed, this data set does not include site-specific precision quality control information.



9.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. No client samples were used for MS/MSD analysis in this SDG.

9.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. The laboratory did not analyze any laboratory duplicates in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

9.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. No qualifiers were applied to any data in this report.



10. Sample Delivery Group Number 92473947 (Pace)

10.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92473947, dated 22 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

Custody seals were not used on the sample cooler(s).

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ES-1-20200415	N	92473947001	4/15/2020	WG	A, B, C, D
ES-1D-20200415	N	92473947002	4/15/2020	WG	A, B, C, D

Method Hold	Method Holding Time				
A.	SM2540C (Total Dissolved Solids (TDS))	7 days			
B.	SW7470 (Mercury)	28 days			
C.	SW9056A (Anions)	28 days			
D.	SW6020B (Metals)	180 days			

10.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 0.8 degrees Celsius.

10.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Only detected analytes were reported from a dilution.

10.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred.

Field blanks are prepared to identify contamination that may have been introduced during field activity. Blank samples for field quality control were not collected in this SDG.

10.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

 An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was also not analyzed, this data set does not include site-specific precision quality control information.



10.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. No client samples were used for MS/MSD analysis in this SDG.

10.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. No client samples were used for laboratory duplicate analysis in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

10.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. No qualifiers were applied to any data in this report.



11. Sample Delivery Group Number 92473948 (Pace)

11.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92473948, dated 22 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

Custody seals were not used on the sample cooler(s).

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ES-1-20200415	N	92473948001	4/15/2020	WG	А, В, С
ES-1D-20200415	N	92473948002	4/15/2020	WG	А, В, С

Method Hol	Method Holding Time				
A.	SM2340B (Hardness, Total)	7 days			
B.	EPA 420.4 (Phenolics)	28 days			
C.	SW6020B (Metals)	180 days			

11.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 0.8 degrees Celsius.

11.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Only detected analytes were reported from a dilution.

11.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred.

Field blanks are prepared to identify contamination that may have been introduced during field activity. Blank samples for field quality control were not collected in this SDG.

11.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

 An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was also not analyzed, this data set does not include site-specific precision quality control information.



11.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. No client samples were used for MS/MSD analysis in this SDG.

11.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. The laboratory did not analyze any laboratory duplicates in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

11.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. No qualifiers were applied to any data in this report.



12. Sample Delivery Group Number 200409 (Air Water & Soil)

12.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 200409, dated 12 May 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

- Custody seals were not used on the sample cooler(s).
- The following samples documented on attached COCs were reported in a separate lab report:
 - ABC-1602-20200409
 - ABC-1607-20200409
 - ABC-1608-20200410
 - ABC-1614-20200409
 - ABC-1616-20200414
 - FB-01-20200409
 - FD-01-20200409

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ED-22RA-20200407	N	20D0312-01	4/7/2020	WG	А
ED-23R-20200408	N	20D0391-01	4/8/2020	WG	А
ES-3D-20200408	N	20D0391-02	4/8/2020	WG	Α
ES-1609-20200408	N	20D0391-03	4/8/2020	WG	А
ES-1613-20200408	N	20D0391-04	4/8/2020	WG	А
T-1615S-20200410	N	20D0498-02	4/10/2020	WG	А
T-1615D-20200410	N	20D0498-03	4/10/2020	WG	А
ED-24R-20200413	N	20D0522-01	4/13/2020	WG	А
ED-26-20200414	N	20D0590-01	4/14/2020	WG	А
EB-01-20200414	EB	20D0590-03	4/14/2020	WG	А
ES-1-20200415	N	20D0680-01	4/15/2020	WG	А
ES-1D-20200415	N	20D0680-02	4/15/2020	WG	А

Method Hol	lding Time	
A.	SW 7196 (hexavalent chromium)	24 hours



12.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol with the following exceptions:

Method	Matrix	Holding Time	Preservation	Sample ID, Violation, Qualification	
SW 7196	Water	24 hours	Cool to ≤ 4 °C;	The cooler containing the following sample was received warm at 6.4 degrees Celsius (°C): T-1615S-20200410 T-1615D-20200410 However, the cooler was delivered same day as sample collection and there is evidence chilling had begun.	

Cooler temperature on arrival to the laboratory was: 0.2 – 6.4 degrees Celsius.

12.3 REPORTING LIMITS AND SAMPLE DILUTION

No dilutions were performed for the analysis of the samples in this report.

12.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred.

Equipment blanks are prepared to identify contamination that may have been introduced while decontaminating sampling equipment. The analysis of the blank samples for field quality control was free of target compounds.

12.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

• An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was analyzed, this data set is supported by precision quality control information.



12.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. The sample(s) below were used for MS/MSD:

Lab Sample Number	Matrix Spike/ Matrix Spike Duplicate Sample Client ID	Method(s)
20D0312-01	ED-22RA-20200407	SW 7196
20D0391-01	ED-23R-20200408	SW 7196
20D0522-01	ED-24R-20200413	SW 7196
20D0590-03	EB-01-20200414	SW 7196
20D0680-01	ES-1-20200415	SW 7196

The MS/MSD recoveries and the RPD between the MS and MSD results were within the specified limits.

12.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. The laboratory did not analyze any laboratory duplicates in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

12.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. No qualifiers were applied to any data in this report.



13. Sample Delivery Group Number 92474190 (Pace)

13.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92474190, dated 22 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

Custody seals were not used on the sample cooler(s).

Analyses were performed on the following samples:

Sample ID	S	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ES-7D-202004	16	N	92474190001	4/16/2020	WG	А
ES-7-2020041	6	N	92474190002	4/16/2020	WG	А

Method Holding Time		
A.	SW6020B (Metals)	180 days

13.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 1.8 degrees Celsius.

13.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Any non-detects with elevated reported limits are noted and explained below.

Sample ID	Lab ID	Analyte/ Method	Dilution Factor	Issue/Explanation
ES-7D-20200416	92474190001	Zinc SW6020B	5	Dilution required due to high target analyte abundance.

13.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred.

Field blanks are prepared to identify contamination that may have been introduced during field activity. Blank samples for field quality control were not collected in this SDG.

13.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits with the following exceptions:



• An LCSD was not reported for SW6020B Because a site-specific matrix spike duplicate was analyzed, this data set is supported by precision quality control information.

13.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. The sample(s) below were used for MS/MSD:

Lab Sample Number	Matrix Spike/ Matrix Spike Duplicate Sample Client ID	Method(s)	
2864505 2864506	ES-7-20200416	SW6020B	

The MS/MSD recoveries and the RPD between the MS and MSD results were within the specified limits with the following exceptions:

Sample Type	Method	Parent Sample Number	Analyte	%R/RPD	Qualifier	Affected Samples
MS/MSD		ES-7-20200416	Boron, Dissolved	37%/-30%	NA	None, native sample > 4x the spiked concentration
MS/MSD	SD SW6020B		Cobalt, Dissolved	37%/-47%	NA	None, native sample > 4x the spiked concentration
MSD			Nickel, Dissolved	62%	J-/UJ	ES-7D-20200416
MSD			Zinc, Dissolved	74%	J-/UJ	ES-7-20200416

13.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. The laboratory did not analyze any laboratory duplicates in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

13.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. A summary of qualifiers applied to this SDG are shown below.

Sample ID	Analyte	Reported Result	Validated Result	Reason for Qualifier
ES-7D-20200416	Nickel, Dissolved	2.2 J	2.2 J-	MCD 0/ Danson Laur
ES-7-20200416		60.7	60.7 J-	
ES-7D-20200416	Zinc, Dissolved	ND U	ND UJ	MSD % Recovery Low
ES-7-20200416		30.3	30.3 J-	



Glossary

• Sample Types:

N Primary Sample
FD Field Duplicate Sample
FB Field Blank Sample
EB Equipment Blank Sample

Units:

μg/L or ug/L micrograms per litermg/L milligrams per liter

• Matrices:

WG GroundwaterWQ Water Quality

Table Footnotes

NA Not applicableND Non-detectNR Not reported

Abbreviations

DUSR
 Data Usability Summary Report

SDG Sample Delivery Group

EPA Environmental Protection Agency
 NFG National Functional Guidelines
 QA/QC Quality Assurance/Quality Control

RL Reporting Limit

MDL Method Detection Limit

SOP Standard Operating Procedures

COC Chain of Custody

- % Percent

– %R Percent Recovery

RPD Relative Percent Difference

LCS/LCSD Laboratory Control Sample/Laboratory Control Sample Duplicate

MS/MSD Matrix Spike/Matrix Spike Duplicate



Qualifiers

Results are qualified with the following codes in accordance with EPA National Functional Guidelines:

- Concentration (C) Qualifiers:
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or "ND".
 - B The compound was found in the sample and its associated blank. Its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers:
 - E The compound was quantitated above the calibration range.
 - D The concentration is based on a diluted sample analysis.
- Validation Qualifiers:
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UJ The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.
 - NJ The analysis indicated the presence of a compound for which there was presumptive
 evidence to make a tentative identification; the associated numerical value is therefore
 an estimated concentration only.
 - R The sample results were rejected as unusable; the compound may or may not be present in the sample.



References

- 1. United States Environmental Protection Agency, 2017a. National Functional Guidelines for Inorganic Superfund Methods Data Review. EPA-540-R-2017-001. January.
- 2. United States Environmental Protection Agency, 2017b. National Functional Guidelines for Organic Superfund Methods Data Review. EPA-540-R-2017-002. January.







Data Usability Summary Report

Project Name: Dominion Energy VSWMR and CCR

Analytical Laboratory: Pace Analytical Services, LLC - Huntersville, NC

Validation Performed by: Alexis Rainery
Validation Reviewed by: Katherine Miller

Validation Date: 18 May 2020

Haley & Aldrich, Inc., prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the Dominion Energy VSWMR and CCR groundwater samples collected on 7 April through 15 April 2020. The analytical results for Sample Delivery Group(s) (SDG) listed below were reviewed to determine the data's usability.

This data validation and usability assessment was performed as per the guidance and requirements established by the *Evaluation of Radiochemical Data Usability* by J.G. Paar, herein referred to as the specified limits. The following quality assurance/quality control (QA/QC) criteria from the analysis of the project samples were reviewed as applicable:

- 1. Sample Delivery Group Number 9242859 (Pace)
- Holding Times/Preservation
- Reporting Limits and Sample Dilution
- Blank Sample Analysis
- Laboratory Control Samples
- Matrix Spike Samples
- Radiological Negative Result Check
- Radiological Chemical Yield Tracers and Carriers
- Radiological Combined Isotope Calculations
- Field and Laboratory Duplicate Samples
- System Performance and Overall Assessment

Radiological data reported in this sampling event were reported to the Minimum Detectable Concentration (MDC).

Sample data were qualified in accordance with laboratory's standard operating procedures (SOPs). The results presented in each laboratory report were found to be compliant with the data quality objectives for the project and therefore usable; any exceptions are noted in the following pages.



1. Sample Delivery Group Number 9242859 (Pace)

1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92472859, dated 11 May 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

• COC includes only a single sample

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Methods
ED-22RA-20200407	N	92472859001	4/7/2020	WG	А, В
ED-23R-20200408	N	92473024001	4/8/2020	WG	А, В
ES-3D-20200408	N	92473024002	4/8/2020	WG	А, В
ES-1609-20200408	N	92473024003	4/8/2020	WG	А, В
ES-1613-20200408	N	92473024004	4/8/2020	WG	А, В
T-1615S-20200410	N	92473420002	4/10/2020	WG	А, В
T-1615D-20200410	N	92473420003	4/10/2020	WG	А, В
ED-24R-20200413	N	92473542001	4/13/2020	WG	А, В
ED-26-20200414	N	92473787001	4/14/2020	WG	А, В
EB-01-20200414	EB	92473787002	4/14/2020	WG	А, В
ES-1-20200415	N	92473949001	4/15/2020	WG	А, В
ES-1D-20200415	N	92473949002	4/15/2020	WG	А, В

Method Ho	Method Holding Time				
A.	EPA 903.1 (Radium-226)	180 days			
В.	EPA 904.0 (Radium-228)	180 days			

1.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per method protocol.

Cooler temperature on arrival to the laboratory was: 2.5 degrees Celsius.

1.3 REPORTING LIMITS AND SAMPLE DILUTION

No dilutions were performed for the analysis of the samples in this report.



1.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. In accordance with cited Paar guidelines, no statistical evaluation of the method blank needs to be performed if either of the following conditions are met:

- Method blank is less than its MDC or less than its 2s counting uncertainty
- Method blank result is greater than its MDC and the sample result less than its MDC

Based on the above conditions, no further evaluation was required, and no data qualification is recommended.

Equipment blanks are prepared to identify contamination that may have been introduced while decontaminating sampling equipment. The analysis of the blank samples for field quality control was free of target compounds.

1.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. No LCS/LCSD analysis was evaluated as part of this SDG.

1.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. No MS/MSD analysis was evaluated as part of this SDG.

1.7 NEGATIVE RESULT CHECK

Negative results that have absolute values greater than their 2s counting uncertainty are an indication that the instrument background has shifted. The implication of an unstable background is a possible negative bias in the sample result. Negative sample results were reviewed, and their absolute values found to be less than their 2s counting uncertainties. No data qualification was recommended.

1.8 CHEMICAL YIELD – TRACERS AND CARRIERS

Tracers and carriers are used in radiochemical separations methods to evaluate chemical separation. Chemical yield is evaluated by recovering the chemical species spiked into samples. Yield is evaluated radiometrically with a tracer and gravimetrically with a carrier. Each sample is spiked with either a carrier or tracer, and sample results are adjusted for yields greater or less than 100%. A low yield indicates tracer losses and radionuclide of interest through sample separation. A high yield indicates instrumental problems or contamination. There is no tracer recovery reported for this SDG.



1.9 COMBINED ISOTOPE CALCULATIONS

Taking the sum of the individual isotopes for an element does not necessarily give the best representation of the combined radiological concentration. The reviewer took the actions indicated below in the "Combined Result" column depending on the individual isotope activities:

Isotope #1	Isotope #2	Combined Result	Combined Uncertainty	Combined MDC	Samples Affected
ND (positive)	ND (positive)	Summed			EB, ED-23R, ED-24R, ED-26, ES- 1D (no change).
ND (negative)	ND (negative)	Zero			None, does not apply.
ND (positive)	ND (negative)	ND (positive)	of Sum of between	are-root Highest MDC ED-22RA	ED-22RA (no change).
>MDC	ND (negative)	egative) > IVIDC 1		between the	ES-1-20200415
>MDC	ND (positive)	Summed J	Squares	two isotopes	T-1615D-20200410 ES-3D-20200408 ES-1613-20200408
>MDC	>MDC	Summed			ES-1609, T-1615S (no change).

The laboratory properly calculates and represents the combined uncertainty and the combined MDC as shown above. The combined result has been adjusted for the above situations for the applicable samples listed. The laboratory report provides a simple summation of the individual activities, but when negative activities are reported, they should not be subtracted from the total.

1.10 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of the analysis to demonstrate acceptable method precision. The laboratory did not analyze any laboratory duplicates in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

1.11 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. A summary of qualifiers applied to this SDG are shown below.

Sample ID	Analyte	Reported Result	Validated Result	Reason for Qualifier
ES-1-20200415	Combined Ra-226 & 228	1.88	1.88 J	
ES-1613-20200408	Combined Ra-226 & 228	2.3	2.3 J	See combined isotope
ES-3D-20200408	Combined Ra-226 & 228	1.93	1.93 J	calculation
T-1615D-20200410	Combined Ra-226 & 228	0.905	0.905 J	



Glossary

Sample Types:

N Primary Sample

FD Field Duplicate Sample
 FB Field Blank Sample
 EB Equipment Blank Sample

TB Trip Blank Sample

• Units:

pCi/L picocuries per liter

Matrices:

– SO Soil

WG GroundwaterSE Sediment

Table Footnotes

NA Not applicableND Non-detectNR Not reported

Abbreviations

DUSR Data Usability Summary Report

SDG Sample Delivery Group

EPA Environmental Protection Agency
 NFG National Functional Guidelines
 QA/QC Quality Assurance/Quality Control
 MDC Minimum Detectable Concentration

SOP Laboratory Standard Operating Procedures

COC Chain of Custody%R Percent Recovery

RPD Relative Percent DifferenceTPU Total Propagated Uncertainty

LCS/LCSD Laboratory Control Sample/Laboratory Control Sample Duplicate

MS/MSD Matrix Spike/Matrix Spike Duplicate



Qualifiers

Results are qualified with the following codes in accordance with EPA National Functional Guidelines:

- Concentration (C) Qualifiers:
 - U The compound was analyzed for but not detected. The associated value is either the compound quantitation limit if not detected by the analytical instrument or could be the reported or blank concentration if qualified by blank contamination. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or "ND".
 - B The compound was found in the sample and its associated blank. Its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers:
 - E The compound was quantitated above the calibration range.
 - The concentration is based on a diluted sample analysis.
- Validation Qualifiers:
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UJ The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.
 - NJ The analysis indicated the presence of a compound for which there is presumptive
 evidence to make a tentative identification; the associated numerical value is an
 estimated concentration only.
 - R The sample results were rejected as unusable; the compound may or may not be present in the sample.



References

1. Paar, J.G., 1997. Evaluation of Radiochemical Data Usability. April.







Data Usability Summary Report

Project Name: Dominion Energy VSWMR and CCR

Analytical Laboratory: Pace Analytical Services, LLC - Huntersville, NC

Validation Performed by: Carly Nemanic, Alexis Rainery

Validation Reviewed by: Katherine Miller

Validation Date: 1 May 2020

Haley & Aldrich, Inc., prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the Dominion Energy VSWMR and CCR groundwater samples collected on 10 April and submitted to Pace Analytical Services, LLC – Huntersville. The analytical results for the Sample Delivery Group(s) (SDG) listed below were reviewed to determine the data's usability.

This data validation and usability assessment was performed as per the guidance and requirements established by the U.S. Environmental Protection Agency's (EPA) "National Functional Guidelines for Inorganic Data Review" herein referred to as the specified limits. Data in this report have been reviewed against the most recent NFGs. The following quality assurance/quality control (QA/QC) criteria from the analysis of the project samples were reviewed as applicable:

- 1. Sample Delivery Group Number 92473415 (Pace)
- 2. Sample Delivery Group Number 92473417 (Pace)
- Holding Times/Preservation
- Reporting Limits and Sample Dilution
- Blank Sample Analysis
- Laboratory Control Samples
- Matrix Spike Samples
- Laboratory and Field Duplicate Sample Analysis
- System Performance and Overall Assessment

Analytical precision and accuracy were evaluated based on the laboratory control, matrix spike, or laboratory duplicate analyses performed concurrently with the project samples or based on field duplicates collected at the site.

Data reported in this sampling event were reported to the laboratory method detection limit (MDL). Results found between the MDL and reporting limit (RL) are flagged "J" as estimated.

Sample data were qualified in accordance with laboratory's standard operating procedures (SOPs). The results presented in each laboratory report were found to be compliant with the data quality objectives for the project and therefore usable; any exceptions are noted in the following pages.



1. Sample Delivery Group Number 92473415 (Pace)

1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92473415, dated 17 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

Custody seals were not used on the sample cooler(s).

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ABC-1608-20200410	N	92473415001	4/10/2020	WG	А, В, С
T-1615S-20200410	N	92473415002	4/10/2020	WG	А, В, С
T-1615D-20200410	N	92473415003	4/10/2020	WG	А, В, С

Method Ho	Method Holding Time				
A.	EPA 420.4 (Phenolics, Total)	28 days			
В.	SM5310B (Total Organic Carbon (TOC))	28 days			
C.	SW6020B (Metals)	180 days			

1.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 3.3 degrees Celsius.

1.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Any non-detects with elevated reported limits are noted and explained below.

Sample ID	Lab ID	Analyte/ Method	Dilution Factor	Issue/Explanation
ABC-1608-20200410	92473415001	6020/various metals	30	Dilution on the day of the brings to
T-1615S-20200410	92473415002	6020/various metals	200	Dilution required due to high target analyte abundance.
T-1615D-20200410	92473415003	6020/various metals	20	analyte abundance.



1.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred with the following exceptions:

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (ug/L)	Qualifier	Affected Samples
Mothed Block	F26212	Nickel	0.18 J	U Result	ABC-1608-20200410
Method Blank 536213	Tin	0.19 J	U RL	T-1615S-20200410	

Field blanks are prepared to identify contamination that may have been introduced during field activity. Blank samples for field quality control were not collected in this SDG.

1.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

 An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was also not analyzed, this data set does not include site-specific precision quality control information.

1.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. No client samples were used for MS/MSD analysis in this SDG.

1.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. The laboratory did not analyze any laboratory duplicates in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

1.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. A summary of qualifiers applied to this SDG are shown below.

Sample ID	Analyte	Reported Result	Validated Result	Reason for Qualifier
T-1615S-20200410	Tin	26.2 J	100 U	Method blank
ABC-1608-20200410	Nickel	19.2	19.2 U	contamination



2. Sample Delivery Group Number 92473417 (Pace)

2.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number 92473417, dated 20 April 2020. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol. Samples were also received appropriately, identified correctly, and analyzed according to the chain of custody. COCs were appropriately signed and dated by the field and/or laboratory personnel with the following exceptions:

Custody seals were not used on the sample cooler(s).

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Collection Date	Matrix	Method(s)
ABC-1608-20200410	N	92473417001	4/10/2020	WG	A, B, C, D
T-1615S-20200410	N	92473417002	4/10/2020	WG	A, B, C, D
T-1615D-20200410	N	92473417003	4/10/2020	WG	A, B, C, D

Method H	Method Holding Time				
A.	SM2540C (Total Dissolved Solids (TDS))	7 days			
B.	SW7470 (Mercury)	28 days			
C.	SW9056A	28 days			
D.	SW6020B (Metals)	180 days			

2.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified as per each method's protocol.

Cooler temperature on arrival to the laboratory was: 3.3 degrees Celsius.

2.3 REPORTING LIMITS AND SAMPLE DILUTION

All dilutions were reviewed and found to be justified. Any non-detects with elevated reported limits are noted and explained below.

Sample ID	Lab ID	Analyte/ Method	Dilution Factor	Issue/Explanation	
ABC-1608-20200410	92473417001	6020/various metals	20	51	
T-1615S-20200410	92473417002	6020/various metals	200	Dilution required due to high target	
T-1615D-20200410	92473417003	6020/various metals	20	analyte abundance.	



2.4 BLANK SAMPLE ANALYSIS

Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred with the following exceptions:

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (ug/L)	Qualifier	Affected Samples
Method Blank	536213	Antimony	0.33 J	NA	None, samples are non-detect

Field blanks are prepared to identify contamination that may have been introduced during field activity. Blank samples for field quality control were not collected in this SDG.

2.5 LABORATORY CONTROL SAMPLES

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences. Compounds associated with the LCS analyses exhibited recoveries within the specified limits.

 An LCSD was not reported for this SDG. Because a site-specific matrix spike duplicate, field duplicate, or laboratory duplicate was also not analyzed, this data set does not include site-specific precision quality control information.

2.6 MATRIX SPIKE SAMPLES

Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies. No client samples were used for MS/MSD analysis in this SDG.

2.7 LABORATORY AND FIELD DUPLICATE SAMPLES

The laboratory duplicate sample analysis is used by the laboratory at the time of analysis to demonstrate acceptable method precision. No client samples were used for laboratory duplicate analysis in this SDG.

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. No field duplicates were collected in this data set.

2.8 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are 100% useable. No qualifiers were applied to any data in this report.



Glossary

Sample Types:

N Primary Sample
 FD Field Duplicate Sample
 FB Field Blank Sample
 EB Equipment Blank Sample

Units:

μg/L or ug/L micrograms per litermg/L milligrams per liter

Matrices:

WG GroundwaterWQ Water Quality

Table Footnotes

NA Not applicableND Non-detectNR Not reported

Abbreviations

DUSR
 Data Usability Summary Report

SDG Sample Delivery Group

EPA Environmental Protection Agency
 NFG National Functional Guidelines
 QA/QC Quality Assurance/Quality Control

RL Reporting Limit

MDL Method Detection Limit

SOP Standard Operating Procedures

COC Chain of Custody

– % Percent

— %R Percent Recovery

RPD Relative Percent Difference

LCS/LCSD Laboratory Control Sample/Laboratory Control Sample Duplicate

MS/MSD Matrix Spike/Matrix Spike Duplicate



Qualifiers

Results are qualified with the following codes in accordance with EPA National Functional Guidelines:

- Concentration (C) Qualifiers:
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or "ND".
 - B The compound was found in the sample and its associated blank. Its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers:
 - E The compound was quantitated above the calibration range.
 - D The concentration is based on a diluted sample analysis.
- Validation Qualifiers:
 - The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - J+ The result is an estimated quantity, but the result may be biased high.
 - J- The result is an estimated quantity, but the result may be biased low.
 - UJ The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.
 - NJ The analysis indicated the presence of a compound for which there was presumptive
 evidence to make a tentative identification; the associated numerical value is therefore
 an estimated concentration only.
 - R The sample results were rejected as unusable; the compound may or may not be present in the sample.



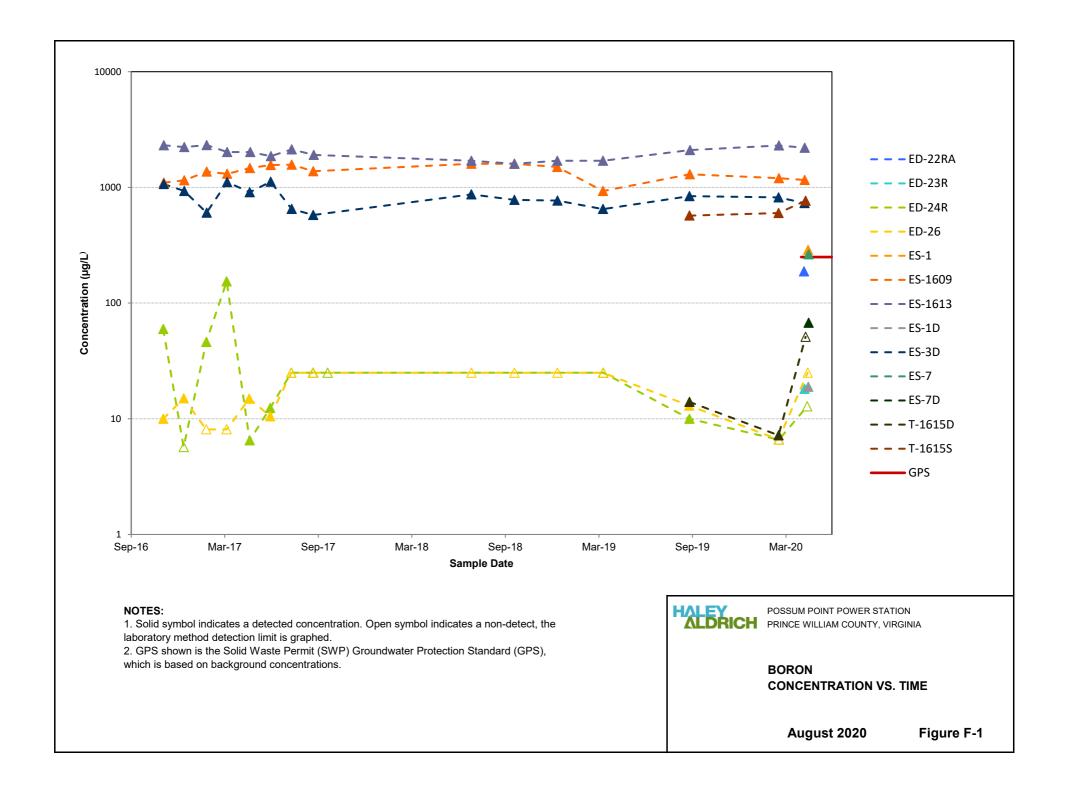
References

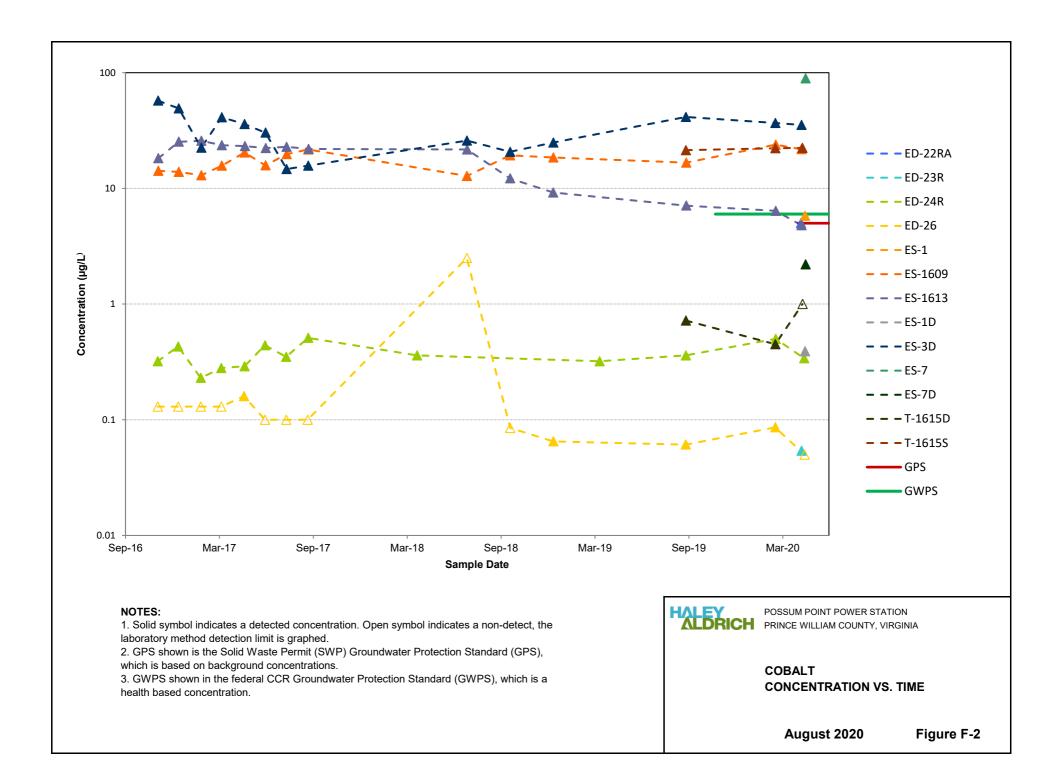
1.	United States Environmental Protection Agency, 2017a. National Functional Guidelines for Inorganic
	Superfund Methods Data Review. EPA-540-R-2017-001. January.

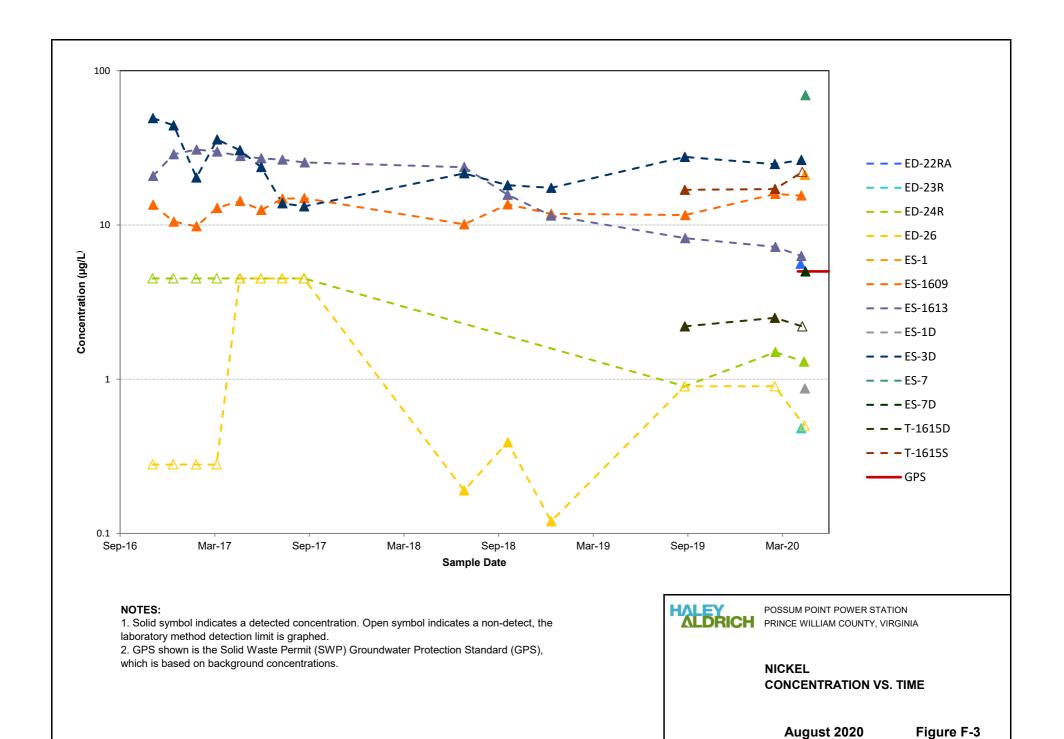


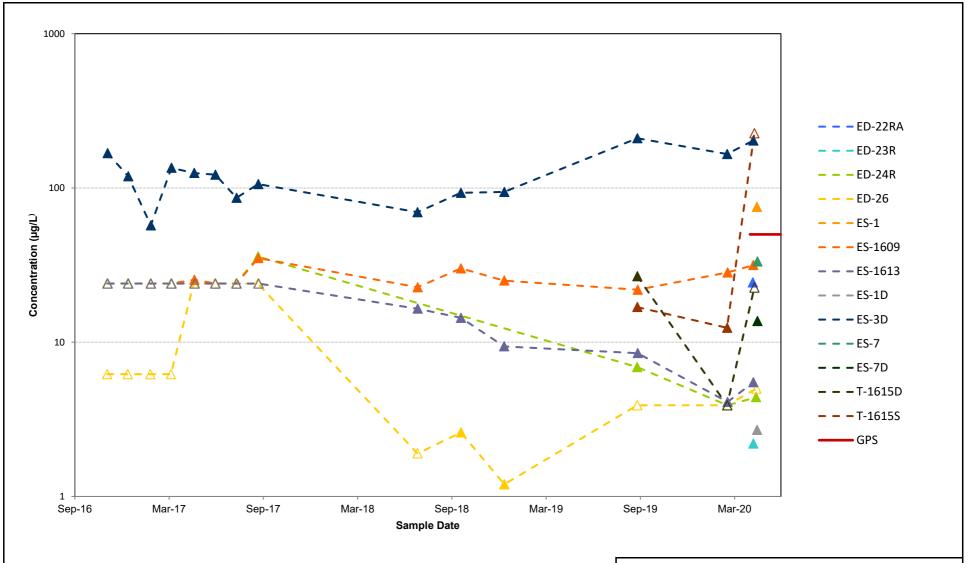
APPENDIX F

Groundwater Trend Graphs



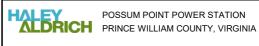






NOTES:

- 1. Solid symbol indicates a detected concentration. Open symbol indicates a non-detect, the laboratory method detection limit is graphed.
- 2. GPS shown is the Solid Waste Permit (SWP) Groundwater Protection Standard (GPS), which is based on background concentrations.



ZINC CONCENTRATION VS. TIME

August 2020 Figure F-4