

2020 Annual Groundwater

Monitoring and Corrective Action

Report

For the Federal Coal Combustion Residuals Rule

Wilson Phase II Landfill D.B Wilson Generating Station Ohio County, Kentucky

Prepared for:



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Executive Summary

This report summarizes groundwater monitoring and corrective action activities completed between January 1 and December 31, 2020 at the Big Rivers Electric Corporation (BREC) Wilson Phase II Landfill (the Unit) as required by 40 CFR 257.90(e) of the United States Environmental Protection Agency (USEPA) coal combustion residuals (CCR) Rule. A site figure presenting the location of the Unit is presented as **Figure 1**. The program monitoring networks for the Unit, including supporting monitoring wells are illustrated on **Figure 2**. No monitoring wells were installed, modified or abandoned during the reporting period.

Results of baseline groundwater monitoring performed in 2016 and 2017 indicated that the Unit would require initiation of Assessment monitoring under the CCR Rule, as most of the Appendix III constituents, excluding fluoride and pH, have downgradient statistically significant increases (SSIs) over background. On February 5, 2018, BREC posted a formal notification that the Unit would transition from Baseline Detection to an Assessment monitoring program.

Groundwater analytical data collected during Assessment monitoring at the Unit indicated that Appendix IV constituents were detected in downgradient monitoring wells at SSIs over background. Per CCR Rule requirements, groundwater protection standards (GWPSs) for each Appendix IV constituent were developed and the data were tested for whether the concentrations represented statistically significant levels (SSLs) above their respective GWPSs. SSLs identified in the current annual reporting period are as follows:

Cobalt: MW-5, MW-6, and MW-10

Lithium: MW-6

On January 14, 2019, BREC posted a formal notification that the Wilson Phase II Landfill would initiate an Assessment of Corrective Measures (ACM) per 40 CFR § 257.95(g)(5), fulfilling the requirement of 40 CFR § 257.107(h)(7). In June 2019 BREC finalized the ACM in which applicable remedial technologies to address cobalt impacts in groundwater were identified pursuant to Tile 40 CFR Section 257.96. A report summarizing the results of the ACM (AECOM, June 2019) was posted to BREC's publicly accessible CCR reporting website on July 10, 2019.

A public meeting has not been held to date to discuss the results of the ACM for the Wilson Phase II Landfill. BREC is working to establish a comprehensive list of data collection needs to proceed forward with remedy evaluation for this unit and anticipates providing additional data in future semi-annual remedy selection progress reports.

Other activities and conditions for the 2020 annual reporting period include:

- Semi-annual Assessment groundwater monitoring events were performed in April and October 2020;
- No monitoring well installation, repair, or decommissioning was performed; and
- No program transitions (Detection to Assessment or vice versa) were triggered.

Anticipated activities for the next annual reporting period include:

- Completion of two semi-annual Assessment groundwater monitoring events;
- Progress towards selection of a remedy for the Unit.

1. Introduction

At the request of Big Rivers Electric Corporation (BREC), AECOM Technical Services, Inc. (AECOM) prepared this 2020 Annual Groundwater Monitoring and Corrective Action Report for the BREC D.B. Wilson Phase II Landfill (the Unit), located in Ohio County, Kentucky. This report was prepared in accordance with Part 257.90, Sub-Part (e) of the United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) Rule. The CCR Rule was established to regulate the disposal of CCR produced by electricity generating facilities (USEPA, 2015).

This report summarizes all activities related to the CCR Rule groundwater monitoring program at the Unit in 2020. The following sections present a site background summary, a discussion of field activities performed, a summary of laboratory results, statistical evaluation findings, and conclusions regarding groundwater conditions in the aquifer system subject to monitoring under the CCR Rule.

As stated in previous Annual Groundwater Monitoring and Corrective Action Reports, statistical results of the Baseline groundwater data indicated that the Unit required initiation of Assessment monitoring under the CCR Rule, as most of the Appendix III constituents, excluding fluoride and pH, reported statistically significant increases (SSIs) over background. On February 5, 2018, BREC posted a formal notification that the Unit would enter into an Assessment Monitoring Program, fulfilling the requirement of 40 Code of Federal Regulations (CFR) § 257.107(h)(4).

1.1 Site Description

The Wilson Phase II Landfill is located in Ohio County approximately 5 miles northwest of the town of Centertown, Kentucky (**Figure 1**). The property is located northwest and adjacent to the D.B. Wilson Generating Station (Wilson Station). The current Wilson Phase II Landfill footprint is approximately 92 acres (**Figure 2**). Adjacent to the Phase II Landfill on the east is the Wilson Station Phase I Landfill, which is currently being regulated by Special Waste permit by the Kentucky Department for Environmental Protection, Division of Waste Management (KDMW) under Title 401 of the Kentucky Administrative Regulations (KAR) Section 45.

The Wilson Phase II Landfill is currently active and raised above adjacent ground to a maximum elevation of approximately 520 feet above mean sea level (AMSL). The original ground surface within the landfill footprint was an irregular post-mining reclaimed surface.

1.2 Program Monitoring Well Systems

1.2.1 Operating Permit Monitoring Wells

Prior to implementation of the CCR Rule, a groundwater monitoring well network was already present at the Unit in compliance with the requirements of the facility's operating permit. The existing wells are located along the perimeter of the permitted footprint for the Wilson Phase II Landfill and meet the CCR Rule requirements that downgradient monitoring wells must be located at the waste boundary of the (active) CCR unit, or as close as practical.

Under the requirements stated in the operating permit, five (5) monitoring wells (MW-5, MW-6, MW-7, MW-8 and MW-10) were installed adjacent to the Wilson Phase II CCR Landfill to determine the general direction of groundwater movement and to monitoring groundwater at the site. MW-8 is located north of the landfill and is considered upgradient. MW-5, MW-6 (both west of the landfill), MW-7 (southwest of the landfill) and MW-10 (south of the landfill) are considered as downgradient. As-built specifics of each well installation are summarized on **Table 1**. The locations of the groundwater monitoring wells are shown on **Figure 2**. Each well has a dedicated bladder pump and tubing system installed for sampling purposes.

As stated in the CCR monitoring well network certification, the stratigraphic interval considered as the most prominent water-transmitting zone within and adjacent to the Wilson Station is material identified as

reclaimed surface mining spoil material comprised of disrupted consolidated sandstone and shale of the Carbondale Formation. The United States Geological Survey (USGS) Geologic Map of the Equality Quadrangle describes underlying bedrock as "Sandstone, siltstone, shale, coal and underclay: Sandstone, light- to medium-gray, fine-grained, massive, micaceous, locally grades into thin-bedded siltstone. Siltstone, light- to medium-gray and yellowish-brown." For purposes of compliance with the CCR Rule groundwater monitoring requirements, this disrupted sequence comprising the unconsolidated mine spoil is considered the uppermost aquifer underlying the Wilson Phase II Landfill.

Details about the monitoring network are presented in the *Monitoring Well Completion Report, D.B. Wilson Special Waste Landfill, Solid Waste Permit Number 092-00004, Ohio County, Kentucky* (Associated Engineers, Inc., April 13, 2009). **No changes were made to the Program Monitoring Well System in 2020**. Monitoring wells MW-1, MW-2, MW-3, MW-4, P-9, and P-11 are included in the CCR program as "water level only" monitoring points.

1.2.2 Characterization Monitoring Wells

To address the requirements of 40 CFR § 257.95(g)(1), five (5) Characterization monitoring wells (MW-102, MW-104, MW-105, MW-110, and MW-4D) were installed in October 2018 for the characterization of groundwater at locations indicated on **Figure 2**. As-built specifics of each well installation are summarized on **Table 1**.

The Characterization monitoring wells, located at projected downgradient positions east, southeast, south, and southwest of the Unit, were used to assist in the characterization of the existence, quality, quantity, areal extent, and depth of groundwater degradation, and the rate and direction of migration of CCR contaminants in the groundwater.

2. 2020 Activities Summary

The following subsections describe the activities that were performed in 2020 for the Wilson Phase II Landfill related to the CCR Groundwater Monitoring Network.

2.1 Groundwater Sampling

Two groundwater sampling events were conducted at Wilson Phase II Landfill in 2020, fulfilling the sampling requirements for Assessment monitoring and Characterization. The following table summarizes the dates of the sampling events and the wells included in each event.

Event Type	Sampling Event	Dates	Wells Sampled
Assessment	14	April 22, 2020	Background (Upgradient) MW-8 Downgradient MW-5, MW-6, MW-7. MW-10
Characterization	3	April 22-23, 2020	Characterization Wells MW-4D, MW-102, MW-104, MW-105, MW110
Assessment	15	October 13, 2020	Background (Upgradient) MW-8 Downgradient MW-5, MW-6, MW-7. MW-10
Characterization	4	October 13,2020	Characterization Wells MW-4D, MW-102, MW-104, MW-105, MW110

Monitoring wells were sampled following low flow sampling techniques developed and incorporated into current operating permits, which are maintained within the operating record at Wilson Station.

Groundwater sampling activities were performed by BREC personnel in April and October 2020. Groundwater samples collected during the April and October 2020 sampling events were submitted to Pace Analytical Services, LLC in Madisonville, Kentucky and were analyzed for Appendix IV parameters, in accordance with 40 CFR § 257.95(b). No filtration of samples was conducted in either the field or laboratory procedures. Laboratory analyses were performed in accordance with approved USEPA methods.

2.2 Groundwater Assessment Plan

The Wilson Phase I Landfill and the Wilson Phase II Landfill are regulated under separate regulatory programs. As a result, groundwater data for each unit is evaluated under separate procedures; under 401 KAR 45:160 for Phase I and under 40 CFR 257 for Phase II.

In February 2020 BREC submitted a Groundwater Assessment Plan (GWAP) to KDWM to perform additional assessment of groundwater impacts at the Wilson Phase I Landfill in accordance with the requirements of 401 KAR 45:160. In December 2020 BREC received comments from KDWM on the GWAP. BREC is currently working to address KDWM's comments so that additional assessment of site-wide groundwater impacts can move forward in 2021.

3. Data Evaluation

3.1 Groundwater Flow

Groundwater level data collected during the 2020 monitoring events are summarized on **Table 2**. The data collected during October 2020 were used to construct a piezometric surface map to illustrate groundwater flow conditions for the uppermost aquifer (see **Figure 3**). These data are representative of general conditions at the Unit.

Overall groundwater flow beneath the footprint of the Wilson Phase II Landfill is to the south and southeast. Groundwater flow beneath the Landfill is influenced by extensive strip-mining and the physical extent of mine spoil deposits. These mine spoil deposits are laterally limited by the remaining bedrock high-walls left undisturbed south of the north side of State Route 85 and beyond (west of) the western edge of the Wilson Phase II Landfill.

3.2 Sampling Results

During 2020 a total of two (2) Assessment monitoring and Characterization sampling events were completed. Results from these sampling events are summarized on the tables included in **Appendix A**. Complete analytical laboratory reports are included in **Appendix B**.

3.3 Statistical Evaluation

As part of previous Assessment monitoring performed at the Unit, background and downgradient wells for the Phase II Landfill were sampled for Appendix IV constituents from 2018 through 2019. In accordance with 40 CFR § 257.95, groundwater protection standards (GWPS) were established for detected Appendix IV constituents. Previous Assessment monitoring results indicate the presence of Appendix IV constituents at Statistically Significant Levels (SSL) above their respective GWPSs in the following monitoring wells:

- MW-6: lithium
- MW-10: cobalt.

In accordance with 40 CFR § 257.93(f), 40 CFR § 257.93(h), and 40 CFR § 257.95(d)(2), statistical evaluation of the Assessment groundwater data collected to date was conducted as part of developing this summary report. The evaluation was conducted to identify any SSIs over baseline concentrations for the Appendix III and Appendix IV parameters and any SSLs over established GWPS for detected Appendix IV parameters. A summary of the 2020 statistical evaluation conducted on the Appendix III and Assessment Appendix IV parameters is provided as **Appendix C**.

Statistical methods were chosen in accordance with 40 CFR § 257.93(f) and the rationale behind why each method was selected is outlined in Statistical Methods Certification Document dated June 28, 2016. The Appendix III groundwater quality data were evaluated using an interwell approach that statistically compared constituent concentrations at downgradient monitoring wells to those present at a background monitoring well. For the Unit, monitoring well MW-8 is designated as the background well because it is located upgradient, whereas monitoring wells MW-5, MW-6, MW-7, and MW-10 are designated as compliance wells because they are located downgradient.

The statistical analysis results indicate that the following Appendix III constituents have SSIs over background (see **Appendix C**; **Table C3**):

- MW-5: boron, calcium, chloride, sulfate, and total dissolved solids (TDS);
- MW-6: boron, calcium, chloride, sulfate, and TDS;

- MW-7: boron, calcium, chloride, pH (field), and TDS; and
- MW-10: boron, calcium, chloride, and TDS.

Fluoride did not have any verified SSIs over background. Based on these results, Assessment monitoring is required to continue at the Unit on a semi-annual basis.

The statistical analysis results also indicate that the following Appendix IV constituents have SSIs over background (see **Appendix C**; **Table C4**):

- MW-5: cobalt and lithium;
- MW-6: cobalt, lead, and lithium;
- MW-7: chromium, cobalt, lead, and lithium; and
- MW-10: cobalt.

These constituents were further evaluated to determine whether they are present at SSLs over the GWPS by calculating the lower confidence limit (LCL) at 95% confidence for each well and constituent using all of the Baseline, Detection, and Assessment monitoring results collected to date. For a constituent to be present at an SSL over the GWPS, its LCL must be greater than the GWPS.

Analytical data were reviewed for consistency with historic data prior to any statistical evaluation. Background data were checked for high or low outliers that were removed following EPA (1989) procedures prior to statistical analysis. Outliers include some previous values with elevated detection limits. In addition, issues were noted with the October 2020 analytical data for MW-8, as the cobalt result (15 μ g/L) exceeded the GWPS and was an order of magnitude higher that the 14 previous background measurements. Upon discussing this result with BREC it was determined that during the October 2020 sampling event difficulties were encountered with the submersible pump utilized to perform the low-flow sampling, resulting in higher than normal turbidity during sample collection, which likely biased the MW-8 sample and would have skewed the GWPS, leading to false negative SSL results for the downgradient wells. For this reason, the October 2020 result for MW-8 has been excluded from statistical analysis.

Appendix C, **Table C5** provides a summary of the LCLs and GWPS for cobalt and lithium at monitoring wells MW-5, MW-6, MW-7, and MW-10. The results indicate that cobalt at monitoring wells MW-5, MW-6, and MW-10 and lithium at monitoring well MW-6 are present at SSLs above the GWPS. The LCLs for the remaining wells and constituents are equal to or less than the GWPS and thus are not considered SSLs.

On December 6, 2018, BREC posted a formal notification that one or more constituent in Appendix IV has been detected at SSLs above the established GWPS as required by 40 CFR Part 257.107(h)(6).

3.4 Conclusions

Based upon the statistical evaluation of Appendix III and Appendix IV parameters collected during Assessment Monitoring at the Wilson Phase II Landfill, BREC will continue Assessment Monitoring in 2021.

4. 2021 Planned Activities

4.1 Groundwater Monitoring

Continued Semi-Annual Assessment monitoring of all operating permit monitoring wells for the Unit is planned for 2021.

4.2 Remedy Selection

As required by 40 CFR Section 257.97, BREC is in the process of selecting a remedy for groundwater impacts at the Unit.

Currently BREC considers four (4) potential corrective action alternatives as viable options to address groundwater impacts at the Unit. To evaluate each alternative, additional data collection will likely be required. BREC is currently evaluating data collection needs in the following areas to assist with remedy selection:

- 1) Nature and Extent of impact groundwater trends, influence of non-groundwater remedies, etc.
- 2) Physical Characteristics available data on the physical characteristics of the landfill and the groundwater environment
- 3) Performance Modeling data needed to develop digital models demonstrating the effectiveness of potential alternatives
- 4) Engineering feasibility, cost estimates, etc.

BREC is working to establish a comprehensive list of data collection needs to proceed forward with remedy evaluation and anticipates providing additional data in future semi-annual remedy selection progress reports.

The 2021 groundwater monitoring program will continue to assist in evaluating the success of the non-groundwater release remedies implemented in 2019 and will further provide relevant and important information to be considered in the final groundwater remedy selection.

5. References

- AECOM, 2018. Annual Groundwater Monitoring and Corrective Action Report, 2016-2017; D.B. Wilson CCR Landfill, Ohio County, Kentucky.
- AECOM, 2019. Annual Groundwater Monitoring and Corrective Action Report, 2018; D.B. Wilson CCR Landfill, Ohio County, Kentucky.
- AECOM, 2019. Assessment of Corrective Measures under the CCR Rule; Phase II Landfill; D.B. Wilson Generating Station, Ohio County, Kentucky.
- AECOM, 2020. Annual Groundwater Monitoring and Corrective Action Report, 2019; D.B. Wilson Generating Station, Ohio County, Kentucky.
- Goudarzi, G.H., Geologic Map of the Equality Quadrangle, Western Kentucky, U.S. Geological Survey, 1969.
- USEPA, 40 CFR Part 257. [EPA-HQ-RCRA-2015-0331; FRL-9928-44-OSWER]. RIN-2050-AE81. Technical Amendments to the Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities—Correction of the Effective Date. Federal Register / Vol. 80, No. 127 / Thursday, July 2, 2015 / Rules and Regulations.
- USEPA, 40 CFR Part 257. [EPA-HQ-OLEM-2017-0286; FRL-9973-31-OLEM]. RIN-2050-AG88. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Amendments to the National Minimum Criteria (Phase One); Proposed Rule. Federal Register / Vol. 83, No. 51 / Thursday, March 15, 2018 / Proposed Rules.

Tables

TABLE 1

MONITORING WELL SYSTEM SUMMARY OF MONITORING WELL CONSTRUCTION
WILSON PHASE II LANDFILL

BIG RIVERS ELECTRIC CORPORATION - WILSON STATION OHIO COUNTY, KENTUCKY

				Reference	Elevation*	Casing		Filte	r Pack	Scre	ened	Bottom of
	_	Loca	ation*	TOIC	GS	Length	Size / Type	Inte	erval	Inte	erval	Boring
Well No.	_	Lat	Long	(feet, NAD27)	(feet, NAD27)	(feet, TOIC)	(ID / Material)	(feet, l	NAD27)	(feet, I	NAD27)	(feet, GS)
Operating Permit Monito	ring Wells											
	_							Тор	Bottom	Тор	Bottom	
MW-5 (8005-3477)	D	37.4638	-87.0910	469.14	467.42	75.0	2 inch / PVC	404.92	391.42	402.92	392.92	76
MW-6 (8005-3476)	D	37.4614	-87.0910	433.06	431.12	53.5	2 inch / PVC	390.42	377.12	388.12	378.12	54
MW-7 (8005-3479)	D	37.4584	-87.0913	426.14	424.08	50.0	2 inch / PVC	386.58	373.18	384.58	374.58	50.9
MW-8 (8005-3475)	U/B	37.4682	-87.0883	471.60	470.01	63.5	2 inch / PVC	419.53	405.96	417.05	407.05	64.05
MW-10 (8005-3478)	D	37.4544	-87.0902	398.91	396.91	22.4	2 inch / PVC	387.16	373.83	384.99	374.99	23.08
Characterization Wells	_											
MW-4D (8007-4811)	D/C	37.4542	-87.0851	410.02	407.03	96.4	2 inch / PVC	326.03	313.03	324.03	314.03	111
MW-102 (8007-2995)	D/C	37.4613	-87.0757	399.71	396.46	39.3	2 inch / PVC	372.46	360.46	370.46	360.46	36
MW-104 (8007-2994)	D/C	37.4517	-87.0826	392.87	389.76	43.4	2 inch / PVC	361.76	349.26	359.76	349.76	40
MW-105 (8007-2992)	D/C	37.4516	-87.0973	396.74	393.56	63.3	2 inch / PVC	366.56	333.56	343.56	333.56	60
MW-110 (8007-2996)	D/C	37.4521	-87.0907	393.54	390.56	42.8	2 inch / PVC	362.56	350.56	360.56	350.56	76 / 40
Water Levels Only	_											
P-9 (8005-3480)	water level only	37.4622	-87.0867	432.37	429.19	38.7	2 inch / PVC	402.99	389.99	400.99	390.99	39.2
P-11 (8005-3472)	water level only	37.4593	-87.0872	446.55	444.03	68.6	2 inch / PVC	388.43	374.90	385.93	375.93	69.13
MW-1 (8002-9621)	water level only	37.4667	-87.0852	443.89	442.31	36.3	4 inch / PVC	419.6	407.6	417.6	407.6	36
MW-2 (8002-9622)	water level only	37.4618	-87.0820	417.11	414.60	36.0	4 inch / PVC	393.3	381.1	391.1	381.1	36
MW-3 (8002-9623)	water level only	37.4576	-87.0845	411.12	408.19	36.2	4 inch / PVC	387.2	374.9	384.9	374.9	36
MW-4 (8002-9624)	water level only	37.4546	-87.0850	408.82	406.55	31.3	4 inch / PVC	389.6	377.5	387.5	377.5	31

Reference elevation of monitoring wells surveyed by Associated Engineers, Inc., Madisonville, Kentucky June 2015 and November 2018

Survey coordinates were based on the Kentucky State Plane, Kentucky Southern Zone, NAD27 datum

PVC = Polyvinyl chloride

ID = Internal Diameter

TOIC = Top of internal casing, or measured from (below) TOIC

GS = Ground Surface, or measured from (below) GS

U / B = Upgradient / Background

D = Downgradient

C = Characterization

TABLE 2

MONITORING WELL NETWORK GROUNDWATER ELEVATIONS WILSON PHASE II CCR LANDFILL

BIG RIVERS ELECTRIC CORPORATION - WILSON STATION OHIO COUNTY, KENTUCKY

WILSON PHASE II CCR LANDFILL

OPERATING PERMIT GROUNDWATER MONITORING WELLS

	M\	N-5	MV	N-6	M\	N-7	M\	N-8	MV	V-10
Reference Elevation TOIC*(ft, NAD27)	•	gradient 9.14	•	radient 3.06	•	gradient 6.14	Upgradient/B	ackground 1.60	•	radient 3.91
Date Measured	Depth to Water (ft) (feet)	GW Elevation (feet)								
4/22/2020	54.98	414.16	40.65	392.41	37.64	388.50	43.68	427.92	10.95	387.96
10/28/2020	57.71	411.43	42.59	390.47	39.98	386.16	45.53	426.07	13.33	385.58

CHARACTERIZATION GROUNDWATER MONITORING WELLS

	MW	/-4D	MW	-102	MW	/-104	MW	/-105	MW	/-110
Reference Elevation	Charact	erization								
TOIC*(ft, NAD27)	410	0.02	399	9.71	39	2.87	390	6.74	39	3.54
Date Measured	Depth to Water (ft) (feet)	GW Elevation (feet)								
Date inicacarea	(1001)	(1001)	(1001)	(1001)	(1001)	(1001)	(1001)	(1001)	(1001)	(1001)
4/22/2020	21.72	388.30	10.79	388.92	6.29	386.58	6.24	390.50	7.19	386.35
10/28/2020	23.98	386.04	11.58	388.13	6.94	385.93	6.27	390.47	8.93	384.61

TABLE 2 (continued)

GROUNDWATER ELEVATIONS SUPPLEMENTAL WATER LEVEL ONLY MONITORING POINTS

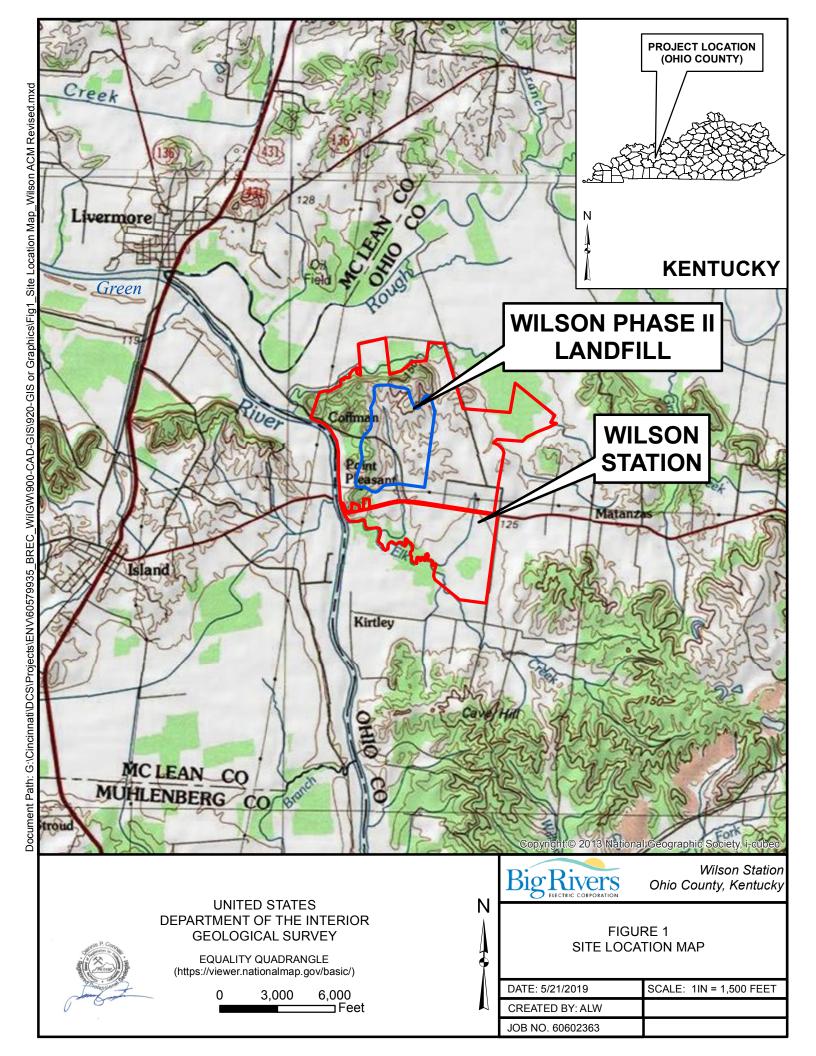
BIG RIVERS ELECTRIC CORPORATION - WILSON STATION OHIO COUNTY, KENTUCKY

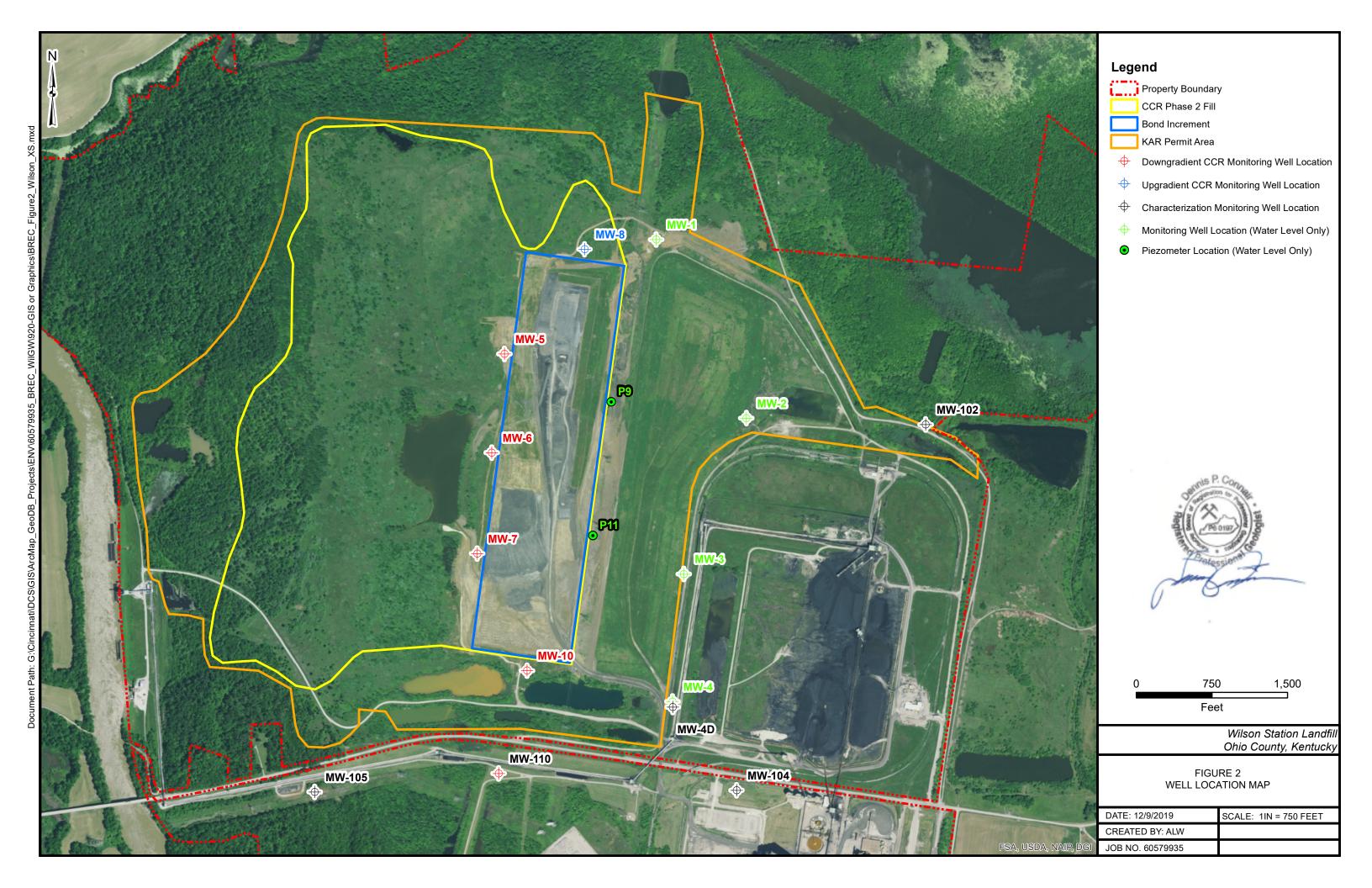
		SUI	PPLEMENTAL	WATER LEVI	EL ONLY MON	ITORING POIL	NTS			PEIZON	METERS	
	MV	N-1	MV	V-2	MV	N-3	MV	N-4	Norti	າ (P9)	South	ı (P11)
Reference Elevation	Water Le	evel Only										
TOIC*(ft, NAD27)	443	3.89	417	7.11	411	1.12	408	3.82	432	2.37	446	6.55
	Depth to Water (ft)	GW Elevation										
Date Measured	(feet)	(feet)										
4/22/2019	19.58	424.31	17.07	400.04	22.59	388.53	20.58	388.24	24.33	408.04	58.10	388.45
10/28/2020	19.47	424.42	18.51	398.6	24.59	386.53	22.78	386.04	24.51	407.86	60.50	386.05

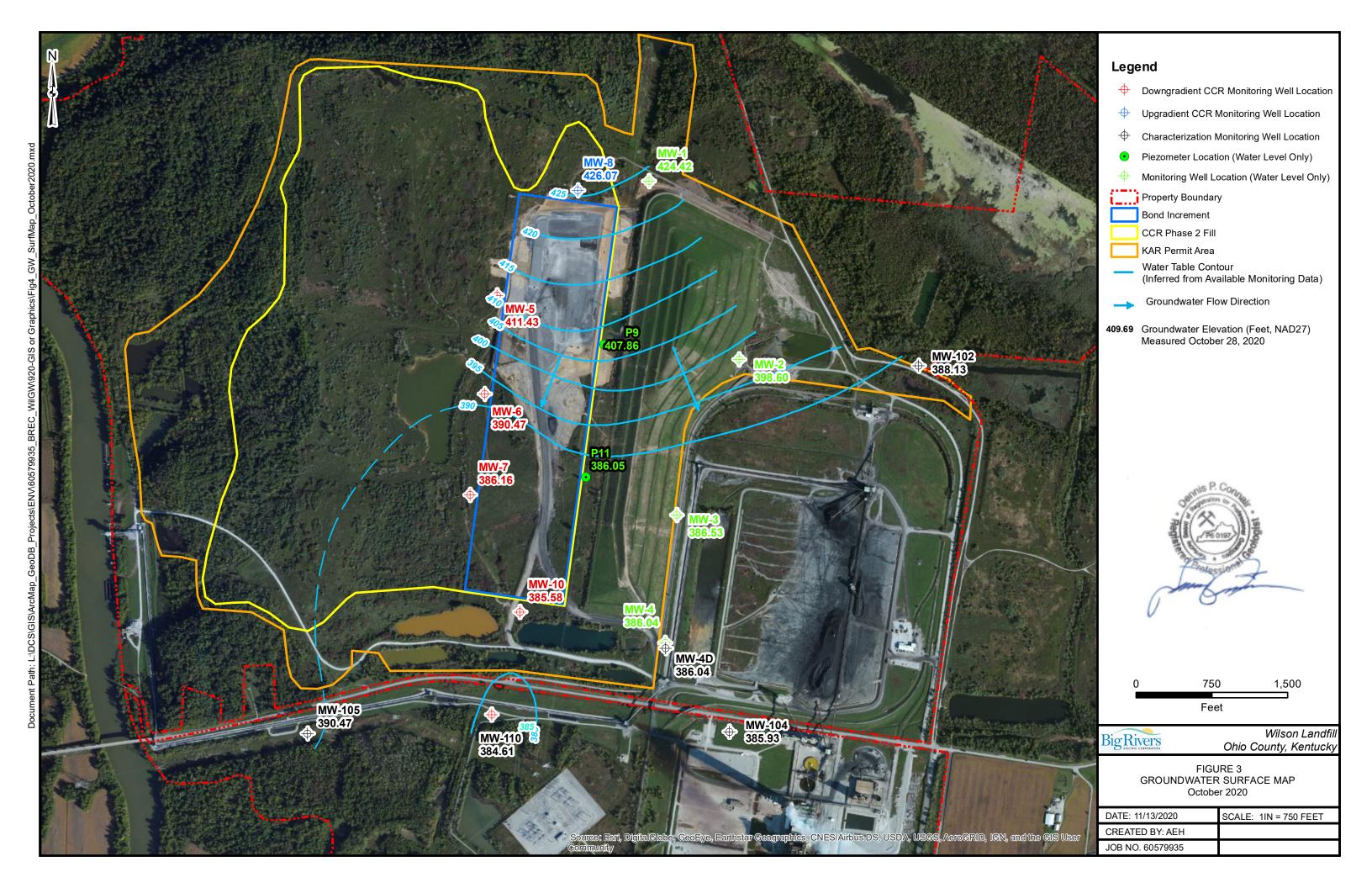
Reference elevation of monitoring wells surveyed by Associated Engineers, Inc., Madisonville, Kentucky June 2015 Survey coordinates were based on the Kentucky State Plane, Kentucky Southern Zone, NAD27 datum TOIC = Top of internal casing

GW = Groundwater; GS = Ground Surface; NM = Not measured

Figures







Appendix A Analytical Summary Tables

WILSON LANDFILL - CCR ANALYTICAL SUMMARY MW-5

											DATE							
APPENDIX III CONSTITUENTS	Detection Limit	GWPS	4/4/2016	5/20/2016	8/25/2016	10/4/2016	2/15/2017	5/17/2017	8/16/2017	9/28/2017	10/12/2017	4/13/2018	7/12/2018	10/3/2018	6/30/2019	11/6/2019	4/22/2020	10/13/2020
							Baseline Event	s				Assessment	Re-sample			Assessment	•	•
Boron	0.08		0.387 JB	0.282 JB	0.386 J	0.367 JB	0.839 J	0.981 JB	1.17	0.81 J	1.27		0.667 J	0.755 JB	ND D2 U	ND D2 U	0.66	0.69
Calcium	0.5		673	472	509	464	471 B	514 B	480	493	480 B		504	471	670 D1	541 D1	600 D1	571 D1
Chloride	3		49.3 B	60.2 JB	73.5	89.8	160 B	169 B	180	158 B	261		69.3 B	94.0 B	159 D	98.2 D	208 D	199 D
Fluoride	1		ND J	ND J	ND	0.838	ND J	ND J	ND JB	ND J	2.88		ND J	ND J	ND U	ND U	<0.20	<0.20
Sulfate	5		1630	1950	1670 B	1570 B	1620	1530	2040 B	1860 B	1730 B		1520	1640 B	2060 D	1490 D	2820 D	1800 D
pH (Field Measurement)	0.10		6.59	6.34	7.17	6.93	5.94	6.92	6.77	6.46	7.18	6.67	6.13	6.25	6.39	6.44	6.71	5.95
Total Dissolved Solids	10		2840	2960	2940	2930	3000	3100	3220	3090	3040		3210	3200	3440	3290	3460	3770
APPENDIX IV CONSTITUENTS												·				•		
Antimony	0.002	0.006 mg/L	ND	ND	ND J	ND JB	ND	ND JB	ND JB	ND J		ND JB	ND J	NA	ND U	ND U	<0.005	<0.005
Arsenic	0.005	0.01 mg/L	0.00524 J	0.00523	0.00577 B	ND J	ND J	ND JB	ND J	ND J		ND J	ND J	ND J	0.0025	0.0023	0.0025	0.0029
Barium	0.2	2 mg/L	ND J	ND J	ND J	ND J		ND J	ND J	NA	0.010	0.010	0.011	0.011				
Beryllium	0.002	0.004 mg/L	ND	ND J	ND J	ND J	ND	ND J	ND J	ND		ND	NA	NA	ND U	ND U	<0.0020	<0.0020
Cadmium	0.001	0.005 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	NA	NA	ND U	ND U	<0.0010	<0.0010
Chromium	0.003	0.1 mg/L	ND	ND J	0.00309 B	ND J	ND	ND J	ND J	ND		ND J	ND	NA	ND U	ND U	<0.0020	<0.0020
Cobalt	0.005	0.006 mg/L	0.00909 J	0.00829	0.00659	0.00664	0.00518	0.0057	ND J	0.0051		0.00873	0.00672	0.00660	0.009	0.008	0.008	0.010
Fluoride	1	4 mg/L	ND J	ND J	ND	0.838	ND J	ND J	ND JB	ND J		ND J	ND J	ND J	ND U	ND U	<0.20	<0.20
Lead	0.005	0.015 mg/L	ND	ND	ND J	ND JB	ND J	ND J	ND J	ND J		ND J	ND J	NA	ND U	ND U	<0.002	<0.002
Lithium	0.05	0.040 mg/L	0.0243 J	0.0283 J	0.0374 J	0.0338 J	0.0432	0.042 J	0.0489 J	0.0398		0.0370 J	0.0375 J	0.0382 J	0.03	0.03	0.03	0.03
Mercury	0.0002	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	NA	NA	ND U	ND U	<0.0005	<0.0005
Molybdenum	0.01	0.1 mg/L	ND J	ND J	ND J	ND J		ND J	ND J	ND J	0.004 J	0.004 J	0.004 J	0.004 J				
Radium 226 Radium 228	1	5 pCi/L	0.645	0.915	0.714	1.19	1.01	0.967	1.22	1.01		0.783	0.711	1.23	1.8	0.434	1.22	1.70
Selenium	0.01	0.05 mg/L	ND	ND J	ND J	ND J	ND J	ND JB	ND J	ND		ND J	ND J	NA	ND U	ND U	< 0.003	< 0.003
Thallium	0.001	0.002 mg/L	ND	ND J	ND	ND J	ND	ND J	ND J	ND		ND	ND	NA	ND U	ND U	<0.0020	<0.0020

^{*}All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)

GWPS = Groundwater Protection Standard

NA = Not Analyzed

NC = Not Collected

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

B = Compound was found in the blank and sample.

D = Results reported from dilution

D1 = Sample required dilution due to high concentration of target analyte
D2 = Sample required dilution due to matrix interference

H3 = Sample received and analyzed past holding time

U = Target analyte was analyzed for, but was below detection limit

WILSON LANDFILL - CCR ANALYTICAL SUMMARY MW-6

											DATE							
APPENDIX III CONSTITUENTS	Detection Limit	GWPS	4/5/2016	5/19/2016	8/25/2016	10/4/2016	2/15/2017	5/18/2017	8/16/2017	9/29/2017	10/12/2017	4/13/2018	7/12/2018	10/4/2018	6/30/2019	11/6/2019	4/22/2020	10/13/2020
							Baseline Even	ts				Assessment	Re-sample			Assessment		
Boron	0.08		0.255 JB	0.243 JB	0.27 J	0.228 JB	0.293	0.265 JB	0.298 J	0.328 J	0.286 J		0.250 J	0.272 JB	ND D2 U	ND D2 U	0.31	0.34
Calcium	0.5		534	466	470	445	414 B	490 B	477	459	438 B		478 J	426	433 D1	482 D1	511 D1	483 D1
Chloride	3		3.65 B	5.09 B	4.1 B	4.63	4.93	4.37 B	5.49 B	5.36 B	5.6		4.79 B	6.16 B	8.2	16.3	10.2	18.9
Fluoride	1		ND J	ND JB	ND	ND	ND J	ND J	ND JB	ND J	2.96		ND J	ND J	ND U	ND U	0.21	<0.20
Sulfate	5		1560	1710	1660 B	1790 B	1610	1570	1840 B	1630 B	1670 B		1730	1590 B	2040 D	1280 D	2370 D1	1750 D
pH (Field Measurement)	0.10		6.40	6.26	6.56	6.64	6.09	6.35	6.36	6.29	6.4	6.15	6.07	6.08	6.39	6.29	6.21	6.72
Total Dissolved Solids	10		2740	2780	2790	2800	2620	2820	2950	2900	2920		2920	3050	2700	3170	2750	3030
APPENDIX IV CONSTIUENTS																		
Antimony	0.002	0.006 mg/L	ND	ND J	ND J	ND JB	ND J	ND JB	ND JB	ND JB		ND JB	ND J	NA	ND U	ND U	<0.005	<0.005
Arsenic	0.005	0.01 mg/L	ND J	0.00736	ND JB	0.00534	0.0123	ND B	0.00598	0.00632		ND J	0.00683	0.00592	0.0046	0.0060	0.0050	0.0054
Barium	0.2	2 mg/L	ND J	ND J	ND J	ND J		ND J	ND J	NA	0.010	0.012	0.012	0.013				
Beryllium	0.002	0.004 mg/L	ND	ND	ND	ND J	ND	ND	ND	ND		ND	NA	NA	ND U	ND U	<0.0020	<0.0020
Cadmium	0.001	0.005 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	NA	NA	ND U	ND U	<0.0010	<0.0010
Chromimum	0.003	0.1 mg/L	ND	ND J	ND B	ND	ND	ND	ND	ND J		ND J	ND	NA	ND U	ND U	<0.0020	0.0007 J
Cobalt	0.005	0.006 mg/L	0.00728 J	0.00713	0.0074	0.00688	0.0054	0.0059	0.00578	0.00686		0.00742	0.00672	0.00666	0.008	0.008	0.009	0.009
Fluoride	1	4 mg/L	ND J	ND J	ND	ND	ND J	ND J	ND JB	ND J		ND J	ND J	ND J	ND U	ND U	0.21	<0.20
Lead	0.005	0.015 mg/L	ND	ND J	ND J	ND JB	ND J	ND J	ND J	ND J		ND J	ND J	NA	ND U	0.0005 J	0.0005 J	0.0006 J
Lithium	0.05	0.040 mg/L	0.0326 J	0.0419 J	0.0494 J	0.0459 J	0.0508	0.0455 J	0.0495 J	0.0472 J		0.0470 J	0.0496 J	0.0463 J	0.04	0.04	0.04	0.04
Mercury	0.0002	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	0.000161 J F1		ND	NA	NA	ND U	ND U	<0.0005	<0.0005
Molybdenum	0.01	0.1 mg/L	ND J	ND J	ND J	ND J		ND J	ND J	ND J	0.006 J	0.007 J	0.006 J	0.007 J				
Radium 226	1	5 pCi/L	0.596	0.581	0.519	0.847	0.919	0.892	0.82	0.639		0.900	0.795	1.44	0.8	1.42	0.804	0.568
Radium 228																		
Selenium	0.01	0.05 mg/L	ND	ND	ND	ND J	ND	ND	ND	ND		ND	ND	NA	ND U	ND U	<0.003	<0.003
Thallium	0.001	0.002 mg/L	ND	ND J	ND J	ND J	ND	ND	ND	ND J		ND J	ND	NA	ND U	ND U	<0.0020	<0.0020

^{*}All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL) GWPS = Groundwater Protection Standard

NA = Not Analyzed

NC = Not Collected

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

B = Compound was found in the blank and sample.

F1 = MS and/or MSD Recovery is outside acceptance limits.

D = Results reported from dilution

D1 = Sample required dilution due to high concentration of target analyte

D2 = Sample required dilution due to matrix interference H3 = Sample received and analyzed past holding time

U = Target analyte was analyzed for, but was below detection limit

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

WILSON LANDFILL - CCR ANALYTICAL SUMMARY

										DATE								
APPENDIX III CONSTITUENTS	Detection Limit	GWPS	4/4/2016	5/19/2016	8/25/2016	10/6/2016	2/15/2017	5/18/2017	8/16/2017	9/29/2017	10/12/2017	4/13/2018	7/12/2018	10/4/2018	6/27/2019	11/7/2019	4/22/2020	10/13/2020
							Baseline Events					Assessment	Re-sample			Assessment		
Boron	0.08		0.241 JB	0.165 JB	0.277 J	0.203 JB	0.293 J	0.232 JB	0.263 J	0.28 J	0.245 J		0.324 J	0.395 JB	1.75 B	1.41 D2	1.58 D1	2.26 D1
Calcium	0.5		364	241	287	251	262 B	273 B	268	269	259 B		297	271	329	331 D1	369 D1	350 D1
Chloride	3		3.47 B	5.31 B	5.67 B	5.65 B	6.15	6.91 B	7.91 B	7.54 B	7.77		17.1 B	21.9 B	32.0	30.1	40.0	45.0 D
Fluoride	1		ND J	ND J	ND J	ND J	ND J	ND J	ND JB	ND J	1.43		ND J	ND J	0.222	0.21	0.27	0.22
Sulfate	5		759	784	813 B	822	850	877	940 B	1780 B	910 B		837	888 B	1030	809 D	1310 D1	1050 D
pH (Field Measurement)	0.10		6.53	6.29	6.60	7.33	5.60	6.55	6.49	6.32	6.50	6.26	6.18	6.23	6.66	6.59	6.90	6.02
Total Dissolved Solids	10		1450	1450	1520	1560	1540	1550	1600	1590	1610		1720	1750	1820	1890	1910	1950
APPENDIX IV CONSTIUENTS					<u>.</u>											<u> </u>		
Antimony	0.002	0.006 mg/L	ND	ND	ND J	ND JB	ND	ND JB	ND JB	ND JB		ND JB	ND J	NA	0.000242 JB	ND U	<0.005	<0.005
Arsenic	0.005	0.01 mg/L	ND	ND J	ND JB	ND J	ND J	ND JB	ND J	ND J		ND J	ND J	ND J	0.00423 J	0.0034	0.0075	0.0036
Barium	0.2	2 mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J		ND J	ND J	NA	0.0164 JB	0.013	0.025	0.013
Beryllium	0.002	0.004 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	NA	NA	ND	ND U	<0.0020	<0.0020
Cadmium	0.001	0.005 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	NA	NA	ND	ND U	<0.0010	<0.0010
Chromimum	0.003	0.1 mg/L	ND	ND J	0.00304 B	ND	ND	ND	ND	ND		ND J	ND	NA	0.0247 B	ND U	0.0053	<0.0020
Cobalt	0.005	0.006 mg/L	0.0084 J	0.0058	0.0062	0.00483 J	0.00531	0.00358 J	0.00395 J	0.00454 J		0.00468 J	0.00365 J	0.00346 J	0.00236 JB	ND U	0.006	<0.004
Fluoride	1	4 mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND JB	ND J		ND J	ND J	ND J	0.222	0.21	0.27	0.22
Lead	0.005	0.015 mg/L	ND	ND	ND	ND J	ND	ND	ND	ND		ND	ND J	NA	0.000348 J	ND U	0.004	<0.002
Lithium	0.05	0.040 mg/L	0.0241 J	0.0241 J	0.0305 J	0.0263 J	0.0318 J	0.0277 J	0.0291 J	0.0278		0.0261 J	0.0271 J	0.0273 J	0.0323 J	0.02	0.03	0.03
Mercury	0.0002	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	NA	NA	ND	ND U	<0.0005	<0.0005
Molybdenum	0.01	0.1 mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J		ND J	ND J	ND J	0.0142	0.006 J	0.003 J	0.005 J
Radium 226	1 1	5 pCi/L	0.727	0.558	0.613	0.66	ND	0.817	0.852	0.779		0.572	0.697	0.935	0.597	0.864	1.05	0.967
Radium 228		•																
Selenium	0.01	0.05 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	NA	0.000427 J	ND U	<0.003	<0.003
Thallium	0.001	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	NA	ND	ND U	<0.0020	<0.0020

^{*}All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL) GWPS = Groundwater Protection Standard

NA = Not Analyzed

NC = Not Collected

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter
J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

B = Compound was found in the blank and sample.

HF = Hold time exceedence

D = Results reported from dilution

D1 = Sample required dilution due to high concentration of target analyte

WILSON LANDFILL - CCR ANALYTICAL SUMMARY MW-8

											DATE							
APPENDIX III CONSTITUENTS	Detection Limit	GWPS	4/4/2016	5/19/2016	8/25/2016	10/3/2016	2/15/2017	5/17/2017	8/15/2017	9/28/2017	10/12/2017	4/13/2018	7/12/2018	10/3/2018	6/30/2019	11/5/2019	4/22/2020	10/13/2020
							Baseline Events	3				Assessment	Re-sample		Assessmen	t		
Boron	0.08		ND JE	ND JB	ND J	ND JB	ND J	ND JB	ND J	ND J	ND J		ND J	0.0388 JB	ND D2 U	ND D2 M2 U	<0.10	<0.10
Calcium	0.5		329	242	237	226	213 B	225 B	230	214	216 B		245	207	248 D1	240 D1 M3	255 D1	249 D1
Chloride	3		4.12 B	5.48 B	4.38 B	4.69	4.7	4.19 B	4.68 B	4.82 B	4.44		3.83 B	4.80 B	4.1	4.7	3.6	3.7
Fluoride	1		ND J	ND J	ND J	ND JB	ND J	ND J	ND JE	ND J	1.210		ND J	ND J	0.2	0.27	0.27	0.23
Sulfate	5		876	910	872 B	854 B	779 B	877	964 B	900 B	894 B		887	799 B	920 D	1480 D	1010 D	992 D
pH (Field Measurement)	0.10		6.47	6.34	6.64	6.63	4.91	6.47	6.44	6.35	6.50	6.28	6.08	6.25	6.30	6.30	6.18	6.55
Total Dissolved Solids	10		1530	1590	1550	1520	1450	1560	1590	1520	1560		1690	1560	1640	1570	1500	1680
APPENDIX IV CONSTIUENTS					·	·	·	·				·	·	·			·	
Antimony	0.002	0.006 mg/L	ND	ND	ND J	ND JB	ND	ND JB	ND JE	ND J		ND JB	ND J	NA	ND U	ND U	<0.005	<0.005
Arsenic	0.005	0.01 mg/L	0.00931 J	0.00698	0.00709 B	0.00581	0.00799	0.0072 B	0.00548	0.00515		0.00525	0.00558	0.00757	0.0054	0.0056	0.0056	0.0144
Barium	0.2	2 mg/L	ND J	ND J	ND J	ND J		ND J	ND J	NA	0.024	0.022	0.024	0.070				
Beryllium	0.002	0.004 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	NA	NA	ND U	ND M2 U	<0.0020	<0.0020
Cadmium	0.001	0.005 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	NA	NA	ND U	ND U	<0.0010	0.0004 J
Chromimum	0.003	0.1 mg/L	ND	ND J	ND JB	ND	ND	ND	ND	ND		ND J	ND J	NA	ND U	0.0009 J	0.0008 J	0.0224
Cobalt	0.005	0.006 mg/L	ND	0.00156 J	0.00118 J	0.0015 J	0.0011 J	0.000739 J	0.000943 J	0.00102 J		0.000800 J	0.00113 J	0.000849 J	ND U	ND U	<0.004	0.015
Fluoride	1	4 mg/L	ND J	ND J	ND J	ND JB	ND J	ND J	ND JE	ND J		ND J	ND J	ND J	0.2	0.27	0.27	0.23
Lead	0.005	0.015 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND J	NA	ND U	0.0005 J	<0.002	0.012
Lithium	0.05	0.040 mg/L	ND	ND	0.0116 J	0.012 J	0.0142 J	0.0103 J	0.0137 J	ND		ND	0.0125 J	0.0129 J	0.009 J	0.009 J	0.009 J	0.02
Mercury	0.0002	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	NA	NA	ND U	ND U	<0.0005	<0.0005
Molybdenum	0.01	0.1 mg/L	0.0187 J	0.0142	0.0145	0.0151	0.0185	0.0137	0.0166	0.0153		0.0123	0.0129	0.0137	0.01	0.01	0.01	0.01
Radium 226	1	5 pCi/L	1.12	1.31	0.741	1.12	0.854	1.07	1.04	0.901		0.802	1.29	1.69	2.8	0.946	1.07	2.94
Radium 228	,				*** ***													
Selenium	0.01	0.05 mg/L	ND	ND	ND	ND	ND	ND	ND J	ND		ND	ND J	NA	ND U	ND U	<0.003	<0.003
Thallium	0.001	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	NA	ND U	0.0001 J	<0.0020	<0.0020

*All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL) GWPS = Groundwater Protection Standard

NA = Not Analyzed

NC = Not Collected

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

B = Compound was found in the blank and sample.

D = Results reported from dilution

D1 = Sample required dilution due to high concentration of target analyte
D2 = Sample required dilution due to matrix interference

H3 = Sample received and analyzed past holding time

M2 = Matrix spike recovery was low; the method control sample recovery was acceptable.

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.

U = Target analyte was analyzed for, but was below detection limit

WILSON LANDFILL - CCR ANALYTICAL SUMMARY MW-10

											DATE							
APPENDIX III CONSTITUENTS	Detection Limit	GWPS	4/5/2016	5/18/2016	8/25/2016	10/6/2016	2/17/2017	5/18/2017	8/18/2017	10/2/2017	10/13/2017	4/14/2018	7/13/2018	10/5/2018	6/30/2019	11/4/2019	4/22/2020	10/13/2020
							Baseline Events					Assessment	Re-sample			Assessment		
Boron	0.08		0.291 JB	0.217 JB	0.205 J	0.166 JB	0.229 J	0.163 JB	0.196 J	0.181 J	0.251 J		0.144 J	0.286 JB	ND D2 U	ND U D2	0.28	0.39
Calcium	0.5		497	390	404	369	440 B	390 B	368	379 B	347 B		378 J	334	369 D1	409 D1	415 D1	404 D1
Chloride	3		53.7 B	85.7 JB	53	44 B	44 B	47.4 B	43.5 B	63.3	83		48.2 B	59.2 B	80.1 D	143 D	68.6 D	89.2 D
Fluoride	1		ND JB	ND J	ND	ND J	ND J	ND J	ND JB	ND J	2.8		ND J	ND J	ND U	ND U	<0.20	<0.20
Sulfate	5		2090	2210	2000 B	2030	1980 B	2070	2320 B	2250 B	2080 B		2010	1850 B	2440 D	553 D	3580 D	1380 D
pH (Field Measurement)	0.10		6.03	5.82	6.05	6.91	4.62	5.88	5.83	5.84	6.00	5.90	5.68	5.44	6.01	5.53	6.26	6.16
Total Dissolved Solids	10		2980	3300	3240	3230	3050	3240	3200	3300	3120		3270	3120	2980	2960	3170	3290
APPENDIX IV CONSTIUENTS																		
Antimony	0.002	0.006 mg/L	ND	ND	ND J	ND JB	ND	ND JB	0.00396 B	ND JB		ND JB	ND J	NA	ND U	ND U	<0.005	<0.005
Arsenic	0.005	0.01 mg/L	ND J	ND J	ND JB	ND J	ND J	ND JB	ND J	ND JB		ND J	ND J	ND J	0.0009 J	0.0025	0.0011	0.0009 J
Barium	0.2	2 mg/L	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND J		ND J	ND J	NA	0.009	0.01	0.008	0.010
Beryllium	0.002	0.004 mg/L	ND	ND J	ND	ND	ND	ND	ND	ND		ND	NA	NA	ND U	ND U	<0.0020	<0.0020
Cadmium	0.001	0.005 mg/L	ND	ND	ND	ND	ND J	ND J	ND	ND		ND	NA	NA	0.0001 J	ND U	<0.0010	<0.0010
Chromimum	0.003	0.1 mg/L	ND	ND J	ND JB	ND	ND	ND	ND	ND J		ND J	ND	NA	ND U	ND U	<0.0020	0.0007 J
Cobalt	0.005	0.006 mg/L	0.158	0.113	0.126	0.108	0.0836	0.0602	0.121	0.139		0.0412	0.0704	0.114	0.110	0.108	0.082	0.078
Fluoride	1	4 mg/L	ND J	ND J	ND	ND J	ND J	ND J	ND JB	ND J		ND J	ND J	ND J	ND U	ND U	<0.20	<0.20
Lead	0.005	0.015 mg/L	ND	ND J	ND J	ND J	ND J	ND	ND	ND J		ND J	ND J	NA	ND U	ND U	<0.002	<0.002
Lithium	0.05	0.040 mg/L	ND	ND	0.0141 J	0.0149 J	0.0133 J	0.0109 J	0.0129 J	0.0124 J		ND	0.0102 J	0.0147 J	0.009 J	ND U	0.006 J	0.008 J
Mercury	0.0002	0.002 mg/L	ND	ND	ND	ND	ND	ND	ND	ND		ND	NA	NA	ND U	ND U	<0.0005	<0.0005
Molybdenum	0.01	0.1 mg/L	ND	ND	ND	ND	ND	ND	ND J	ND		ND	ND	ND	ND U	0.003 J	<0.01	<0.01
Radium 226	1	5 pCi/L	ND	ND	ND	ND	ND	0.384	0.372	0.506		0.721	0.472	0.625	12	0.11	0.414	0.944
Radium 228												***			1.2			
Selenium	0.01	0.05 mg/L	ND	ND	ND	ND	ND	ND	ND J	ND JB		ND	ND	NA	ND U	ND U	<0.003	<0.003
Thallium	0.001	0.002 mg/L	ND	ND J	ND J	ND	ND	ND	ND J	ND		ND	ND	NA	ND U	0.0001 J	<0.0020	<0.0020

^{*}All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL) GWPS = Groundwater Protection Standard

NA = Not Analyzed NC = Not Collected

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

<sup>J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
B = Compound was found in the blank and sample.
D = Results reported from dilution</sup>

D1 = Sample required dilution due to high concentration of target analyte

D2 = Sample required dilution due to matrix interference
H3 = Sample received and analyzed past holding time

U = Target analyte was analyzed for, but was below detection limit

WILSON LANDFILL - CCR ANALYTICAL SUMMARY MW-4D

							DATE					
APPENDIX III CONSTITUENTS	Detection Limit	GWPS	11/2/20	18	6/28/201	9	11/8/	/2019	4/22/202	20	10/13/20	20
						С	haracteriza	ation				
Boron	0.08		6.60		8.09	D2	9.11	D2	10.2	D1	9.39	D1
Calcium	0.5		607		635	D1	628	D1	714	D1	659	D1
Chloride	3		676	В	826	D	537	D	1280.0	D	1210	D
Fluoride	1		ND	J	ND	DU	0.21		0.26		0.23	
Sulfate	5		1720	В	1330	D	1100	D	2650	D	1260	D
pH (Field Measurement)	0.10		6.05		6.46		6.34		6.31		6.47	
Total Dissolved Solids	10		4180		4140		3500		4690		4410	
APPENDIX IV CONSTITUENTS												
Antimony	0.002	0.006 mg/L	ND	JB	ND	U	ND	U	<0.005		<0.005	
Arsenic	0.005	0.01 mg/L	ND	JB	0.0032		0.0032		0.0039		0.0037	
Barium	0.2	2 mg/L	ND	J	0.016		0.016		0.016		0.018	
Beryllium	0.002	0.004 mg/L	ND	J	ND	U	ND	U	<0.0020		<0.0020	
Cadmium	0.001	0.005 mg/L	ND		ND	U	ND	U	<0.0010		<0.0010	
Chromium	0.003	0.1 mg/L	0.00591	В	0.0006	J	ND	U	<0.0020		0.0010	J
Cobalt	0.005	0.006 mg/L	0.0122		0.010		0.015		0.010		0.012	
Fluoride	1	4 mg/L	ND	J	ND	DU	0.21		0.26		0.23	
Lead	0.005	0.015 mg/L	ND	J	ND	U	ND	U	<0.002		0.0005	J
Lithium	0.05	0.040 mg/L	0.181		0.14		0.14		0.16		0.17	
Mercury	0.0002	0.002 mg/L	ND		ND	U	ND	U	<0.0005		<0.0005	
Molybdenum	0.01	0.1 mg/L	0.0185		0.007	J	0.01		0.02		0.01	
Radium 226 Radium 228	1	5 pCi/L	1.58		2.7		1.86		0.851		1.71	
Selenium	0.01	0.05 mg/L	ND	J	0.001	J	0.001	J	0.001	J	< 0.003	
Thallium	0.001	0.002 mg/L	ND	J	ND	U	ND	U	<0.0020		<0.0020	

^{*}All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)

GWPS = Groundwater Protection Standard

NA = Not Analyzed

NC = Not Collected

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

B = Compound was found in the blank and sample.

D = Results reported from dilution

D1 = Sample required dilution due to high concentration of target analyte

D2 = Sample required dilution due to matrix interference

H3 = Sample received and analyzed past holding time

U = Target analyte was analyzed for, but was below detection limit

WILSON LANDFILL - CCR ANALYTICAL SUMMARY MW-102

						ı	DATE					
APPENDIX III CONSTITUENTS	Detection Limit	GWPS	11/2/201	18	6/27/20	19	11/8	/2019	4/22/202	20	10/13/202	20
						Chara	cteriza	ation				
Boron	0.08		ND	J	0.108	JB	ND	D2 M4 U	<0.10		<0.10	
Calcium	0.5		81.3		80.9		85.1	D2	94.5	D1	86.8	D2
Chloride	3		33.3	В	33.3		35.3		33.1		32.9	D2
Fluoride	1		ND	J	0.343		0.36		0.34		0.30	
Sulfate	5		265	В	279		307	D	259	D	261	D
pH (Field Measurement)	0.10		6.58		6.7		6.61		6.48		6.33	
Total Dissolved Solids	10		781		760		728		724		836	
APPENDIX IV CONSTITUENTS												
Antimony	0.002	0.006 mg/L	ND	JB	0.000101	JB	ND	U	<0.005		<0.005	
Arsenic	0.005	0.01 mg/L	ND	JB	0.00414	J (0.0031		0.0047		0.0036	
Barium	0.2	2 mg/L	ND	J	0.0596	JB	0.059		0.051		0.058	
Beryllium	0.002	0.004 mg/L	ND		0.000134	J	ND	U	<0.0020		<0.0020	
Cadmium	0.001	0.005 mg/L	ND		ND		ND	U	<0.0010		<0.0010	
Chromium	0.003	0.1 mg/L	0.00321	В	0.00140	JB C	0.0006	J	<0.0020		<0.0020	
Cobalt	0.005	0.006 mg/L	0.00263	J	0.00286	JB	ND	U	<0.004		<0.004	
Fluoride	1	4 mg/L	ND	J	0.343		0.36		0.34		0.30	
Lead	0.005	0.015 mg/L	ND	J	0.000164	J	ND	U	<0.002		<0.002	
Lithium	0.05	0.040 mg/L	ND		ND		ND	U	<0.02		< 0.02	
Mercury	0.0002	0.002 mg/L	ND		ND		ND	U	<0.0005		<0.0005	
Molybdenum	0.01	0.1 mg/L	0.0111		0.00112	J	0.002	J	<0.01		<0.01	
Radium 226	1	5 pCi/L	1.22		0.187	U	0.425		0.084		0.741	
Radium 228	'	0 p0//L									_	
Selenium	0.01	0.05 mg/L	ND		ND		ND		<0.003		<0.003	
Thallium	0.001	0.002 mg/L	ND		ND		ND	U	<0.0020		<0.0020	

^{*}All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)

GWPS = Groundwater Protection Standard

NA = Not Analyzed

NC = Not Collected

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

B = Compound was found in the blank and sample.

HF = Hold time exceedence

D = Results reported from dilution

D2 = Sample required dillution due to matrix interference

WILSON LANDFILL - CCR ANALYTICAL SUMMARY MW-104

							DATE					
APPENDIX III CONSTITUENTS	Detection Limit	GWPS	11/2/20	18	6/27/20	19	11/8/	2019	4/22/202	20	10/13/20	20
						С	haracteriza	ition				
Boron	0.08		ND	J	0.0765	JB	ND	U D2	<0.10		<0.10	
Calcium	0.5		227		221		257	D1	258	D1	267	D1
Chloride	3		11.8	В	12.7		13.2		13.0		11.4	
Fluoride	1		ND	J	0.129	J	ND	U	<0.20		<0.20	
Sulfate	5		639	JB	513		587	D M1	662	D	628	D
pH (Field Measurement)	0.10		6.43		6.87		6.64		6.50		6.41	
Total Dissolved Solids	10		1410		1360		1490		1380		1590	
APPENDIX IV CONSTITUENTS												
Antimony	0.002	0.006 mg/L	ND	JB	0.000173	JB	ND	U	<0.005		<0.005	
Arsenic	0.005	0.01 mg/L	ND	JB	0.00174	J	0.0027		0.0010		0.0006	J
Barium	0.2	2 mg/L	ND	J	0.0734	JB	0.064		0.050		0.047	
Beryllium	0.002	0.004 mg/L	ND	J	0.000142	J	ND	U	<0.0020		<0.0020	
Cadmium	0.001	0.005 mg/L	ND		ND		ND	U	<0.0010		<0.0010	
Chromium	0.003	0.1 mg/L	0.00361	В	0.0178	В	0.0037		0.0007	J	<0.0020	
Cobalt	0.005	0.006 mg/L	0.00388	J	0.00164	JB	ND	U	<0.004		<0.004	
Fluoride	1	4 mg/L	ND	J	0.129	J	ND	U	<0.20		<0.20	
Lead	0.005	0.015 mg/L	ND	J	0.000785	J	0.002		<0.002		<0.002	
Lithium	0.05	0.040 mg/L	0.0326	J	0.0261	J	0.03		0.02		0.03	
Mercury	0.0002	0.002 mg/L	ND		ND		ND	U	<0.0005		<0.0005	
Molybdenum	0.01	0.1 mg/L	0.0124		0.00319	J	ND	U	0.003	J	<0.01	
Radium 226 Radium 228	1	5 pCi/L	2.16		0.952		1.24		0.823		1.88	
Selenium	0.01	0.05 mg/L	ND		ND		ND	U	< 0.003		<0.003	
Thallium	0.001	0.002 mg/L	ND		ND		ND	U	<0.0020		<0.0020	

^{*}All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)

GWPS = Groundwater Protection Standard

NA = Not Analyzed

NC = Not Collected

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

HF = Hold time exceedence

D = Results reported from dilution

D1 = Sample required dilution due to high concentration of target analyte

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

B = Compound was found in the blank and sample.

U = Target analyte was analyzed for, but was below detection limit

^{^ =} Instrument related QC is outside acceptance limits

WILSON LANDFILL - CCR ANALYTICAL SUMMARY MW-105

							DATE					
APPENDIX III CONSTITUENTS	Detection Limit	GWPS	11/2/2018		6/27/20	19	11/7/	2019	4/22/202	20	10/13/20	20
						С	haracteriza	tion				
Boron	0.08		ND	J	0.348	JB	ND	D2 M4 U	0.33		0.37	
Calcium	0.5		124		58.6		72.0	D2 M1	60.4	D1	49.2	D2
Chloride	3		10.5	В	9.34		10.1		9.5		8.7	
Fluoride	1		ND	J	0.638		0.55		0.67		0.61	
Sulfate	5		216	JB	37.6		73.7	D	91.8	D	75.4	D
pH (Field Measurement)	0.10		6.75		7.70		7.51		7.78		8.02	
Total Dissolved Solids	10		747		548		612		398		550	
APPENDIX IV CONSTITUENTS												
Antimony	0.002	0.006 mg/L	ND	JB	0.000186	JB	ND	U	<0.005		<0.005	
Arsenic	0.005	0.01 mg/L	ND	JB	0.00186	J	ND	U	<0.0010		<0.0010	
Barium	0.2	2 mg/L	0.207		0.288	В	0.326		0.255		0.256	
Beryllium	0.002	0.004 mg/L	ND	J	0.000398	J	ND	U	<0.0020		<0.0020	
Cadmium	0.001	0.005 mg/L	ND		ND		ND	U	<0.0010		<0.0010	
Chromium	0.003	0.1 mg/L	0.00388	В	0.00784	В	ND	U	<0.0020		<0.0020	
Cobalt	0.005	0.006 mg/L	0.00488	J	0.00435	JB	ND	U	<0.004		<0.004	
Fluoride	1	4 mg/L	ND	J	0.638		0.55		0.67		0.61	
Lead	0.005	0.015 mg/L	ND	J	0.00326	J	ND	U	<0.002		<0.002	
Lithium	0.05	0.040 mg/L	0.0141	J	0.0278	J	0.03	M1	0.02		0.02	
Mercury	0.0002	0.002 mg/L	ND		ND		ND	U	<0.0005		<0.0005	
Molybdenum	0.01	0.1 mg/L	0.0131		0.00231	J	0.002	J	0.002	J	0.002	J
Radium 226	1	5 pCi/L	1.08		0.558	U	0.829		1.15		1.30	
Radium 228	·											
Selenium	0.01	0.05 mg/L	ND		ND		ND		<0.003	_	<0.003	
Thallium	0.001	0.002 mg/L	ND		0.0000510	J	ND	U	<0.0020		<0.0020	

^{*}All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)

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NC = Not Collected

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

B = Compound was found in the blank and sample.

HF = Hold time exceedence

D = Results reported from dilution

D1 = Sample required dilution due to high concentration of target analyte

WILSON LANDFILL - CCR ANALYTICAL SUMMARY MW-110

					DATE				
APPENDIX III CONSTITUENTS	Detection Limit	GWPS	11/2/2018	6/27/201	11/7/20	019	4/22/2020	0	10/13/2020
				•	on				
Boron	0.08		ND J	0.0716	JB ND	U D2	<0.10		<0.10
Calcium	0.5		33.8	38.9	47.6	D2	39.9	D1	37.9 D2
Chloride	3		14.4 B	11.1	10.0		11.5		10.5
Fluoride	1		ND J	0.229	0.23		0.28		0.24
Sulfate	5		102 B	70.0	61.2	D	71.7	0	56 D
pH (Field Measurement)	0.10		6.93	6.92	6.83		6.89		6.87
Total Dissolved Solids	10		333	296	348		208		278
APPENDIX IV CONSTITUENTS									
Antimony	0.002	0.006 mg/L	ND JB	0.000130	JB ND	U	<0.005		<0.005
Arsenic	0.005	0.01 mg/L	ND JB	0.00118	J ND	U	0.0019		0.0011
Barium	0.2	2 mg/L	ND J	0.0535	JB 0.051		0.051		0.053
Beryllium	0.002	0.004 mg/L	ND	ND	ND	U	<0.0020		<0.0020
Cadmium	0.001	0.005 mg/L	ND	ND	ND	U	<0.0010		<0.0010
Chromium	0.003	0.1 mg/L	0.00967 B	0.00217	JB ND	U	0.0007	J	<0.0020
Cobalt	0.005	0.006 mg/L	0.00240 J	0.000827	JB ND	U	<0.004		<0.004
Fluoride	1	4 mg/L	ND J	0.229	0.23		0.28		0.24
Lead	0.005	0.015 mg/L	ND J	0.000539	J ND	U	<0.002		<0.002
Lithium	0.05	0.040 mg/L	0.0122 J	ND	0.006	J	< 0.02		<0.02
Mercury	0.0002	0.002 mg/L	ND	ND	ND	U	<0.0005		<0.0005
Molybdenum	0.01	0.1 mg/L	ND J	ND	ND	U	<0.01		<0.01
Radium 226 Radium 228	1	5 pCi/L	1.19	0.816	1.10		1.53		1.49
Selenium	0.01	0.05 mg/L	ND	ND	ND	U	<0.003		<0.003
Thallium	0.001	0.002 mg/L	ND	ND	ND	U	<0.0020		<0.0020

^{*}All results listed in milligrams per liter (mg/L) unless otherwise noted by the Maximum Contaminant Level (MCL)

GWPS = Groundwater Protection Standard

NA = Not Analyzed

NC = Not Collected

ND = Not Detected at or above Method Detection Limit

pCi/L = picoCuries per Liter

HF = Hold time exceedence

J = Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

B = Compound was found in the blank and sample.

^{^ =} Instrument related QC is outside acceptance limits

D = Results reported from dilution

D1 = Sample required dilution due to high concentration of target analyte

Appendix B Analytical Laboratory Reports





Certificate of Analysis 0033753

Mike Galbraith
Big Rivers Electric Corporation Wilson Station
PO Box 24
Henderson KY, 42419

Customer ID: Report Printed:

44-100168 05/29/2020 14:20

Project Name: MW-5 Wilson 092-00004

Workorder: 0033753

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 04/23/2020 13:25.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC
P.O. Box 907
Madisonville, KY 42431
270.821.7375
www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0033753-01	MW5/		Groundwater	04/22/2020 09:25	04/23/2020 13:25	Travis Sneed
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0033753-01	Field Conductance	4100				
	Field pH	6.71				
	Field Temp (C)	15.99				

Work Order Comments:

Corrected Report:

This report has been issued as a revision of the previous report dated 5/20/20@0912. Cobalt result added to report.



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

Lab Sample ID: **0033753-01**Sample Collection Date Time: 04/22/2020 09:25

Description: MW5 Sample Received Date Time: 04/23/2020 13:25

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Arsenic	0.0025		mg/L	0.0010	0.0004	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Barium	0.011		mg/L	0.004	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Boron	0.66		mg/L	0.10	0.10	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:12	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Calcium	600	D1	mg/L	40.0	13.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:18	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Cobalt	0.008		mg/L	0.004	0.004	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Iron	6.73		mg/L	0.100	0.050	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:12	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Lithium	0.03		mg/L	0.02	0.005	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Magnesium	263	D1	mg/L	20.0	9.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:18	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	04/24/2020 11:25	05/04/2020 11:46	DMH
Molybdenum	0.004	J	mg/L	0.01	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Nickel	0.005		mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Potassium	11.7	D1	mg/L	5.00	2.20	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:15	AKB
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Sodium	84.7	D1	mg/L	2.60	1.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:15	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:29	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	476		mg/L	4		2320 B-2011	04/29/2020 14:32	04/29/2020 14:32	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	04/29/2020 14:32	04/29/2020 14:32	HMF
Total Alkalinity	476		mg/L	4		2320 B-2011	04/29/2020 14:32	04/29/2020 14:32	HMF
Chemical Oxygen Demand	15		mg/L	8	8	HACH 8000	04/27/2020 16:45	04/27/2020 16:45	ALT
Specific Conductance (Lab)	3700		umhos/cm	1	1	2510 B-2011	04/27/2020 15:13	04/27/2020 15:13	GAT
Hardness as CaCO3	1710	D	mg/L	5	5	2340 C (as HACH 8226)	05/04/2020 11:46	05/04/2020 11:46	CLL
Total Dissolved Solids	3460		mg/L	50	50	2540 C-2011	04/27/2020 11:04	04/28/2020 12:32	MAG
Total Organic Carbon	1.5		mg/L	0.5		5310 C-2011	05/02/2020 01:12	05/02/2020 01:12	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.067	_Sub	pCi/L			EPA 903.1	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium-228	1.15	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium	1.22	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW





Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	208	D	mg/L	10.0	7.2	EPA 300.0 REV 2.1	05/02/2020 05:09	05/02/2020 05:09	CSC
Fluoride	ND	U	mg/L	0.20		EPA 300.0 REV 2.1	05/02/2020 04:48	05/02/2020 04:48	CSC
Sulfate	2820	D	mg/L	100	50.0	EPA 300.0 REV 2.1	05/02/2020 05:29	05/02/2020 05:29	CSC



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Notes for work order 0033753

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI does not provide interpretation of these results unless otherwise stated.

laboratory method detection limit in our LIMS system).

- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
E	Concentration exceeds calibration range
J	Estimated value.
J5	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
L2	The associated blank spike recovery was below method acceptance limits.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
M6	Matrix spike recovery was high.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the

Standard Qualifiers/Acronymns

MDL Method Detection Limit MRL Minimum Reporting Limit

ND Not Detected

LCS Laboratory Control Sample

MS Matrix Spike

MSD Matrix Spike Duplicate DUP Sample Duplicate % Rec Percent Recovery

RPD Relative Percent Difference

Greater than Less than



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Blank (B017542-BLK1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12:	50									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Cobalt	ND	0.004	mg/L							U
Blank (B017542-BLK2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:0	9									
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.001	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U
Blank (B017542-BLK3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	0									
Antimony	ND	0.005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.002	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
LCS (B017542-BS1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020	0 12:53									
Boron	0.13	0.10	mg/L	0.125		106	85-115			
Calcium	6.57	0.40	mg/L	6.25		105	85-115			
Iron	6.39	0.100	mg/L	6.25		102	85-115			
Magnesium	5.72	0.200	mg/L	6.25		91.5	85-115			
Potassium	6.62	0.50	mg/L	6.25		106	85-115			
Sodium	6.47	0.26	mg/L	6.25		103	85-115			
Cobalt	0.054	0.004	mg/L	0.0625		85.7	85-115			
LCS (B017542-BS2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020	17:13									
Molybdenum	0.05	0.01	mg/L	0.0625		86.2	85-115			
Mercury	0.0020	0.0005	mg/L	0.00250		79.8	85-115			L2
Antimony	0.058	0.005	mg/L	0.0625		93.6	85-115			
Arsenic	0.0537	0.0010	mg/L	0.0625		85.9	85-115			
Barium	0.054	0.004	mg/L	0.0625		86.5	85-115			
Beryllium	0.0495	0.0020	mg/L	0.0625		79.2	85-115			M2
Cadmium	0.0533	0.0010	mg/L	0.0625		85.3	85-115			
Chromium	0.0535	0.0020	mg/L	0.0625		85.5	85-115			
Copper	0.054	0.003	mg/L	0.0625		86.7	85-115			
Lead	0.051	0.002	mg/L	0.0625		81.1	85-115			L2
Lithium	0.05	0.02	mg/L	0.0625		82.7	85-115			L2
Nickel	0.053	0.003	mg/L	0.0625		85.3	85-115			
Selenium	0.053	0.003	mg/L	0.0625		85.4	85-115			
Thallium	0.0495	0.0020	mg/L	0.0625		79.1	85-115			L2
Zinc	0.05	0.02	mg/L	0.0625		86.2	85-115			
			9. =							
LCS (B017542-BS3) Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020	16:54									
Molybdenum	0.07	0.01	mg/L	0.0625		110	85-115			
Antimony	0.069	0.005	mg/L	0.0625		110	85-115			
Mercury	0.003	0.0005	mg/L	0.0025		102	85-115			
Arsenic	0.0651	0.0003	mg/L	0.0625		102	85-115			
Barium		0.0010	-	0.0625		105	85-115			
Beryllium	0.065 0.0624	0.004	mg/L mg/L	0.0625		99.8	85-115			
Cadmium	0.0624	0.0020	mg/L	0.0625		104	85-115 85-115			
Chromium	0.0632	0.0010	mg/L	0.0625		104	85-115 85-115			
Copper	0.066	0.0020	mg/L	0.0625		106	85-115			
Lead	0.065	0.003	-	0.0625		104	85-115			
Lithium	0.065	0.002	mg/L	0.0625			85-115			
			mg/L			101				
Nickel Solonium	0.064	0.003	mg/L	0.0625		103	85-115 85-115			
Selenium	0.065	0.003	mg/L	0.0625		103	85-115 85-115			
Thallium	0.0650	0.0020	mg/L	0.0625		104	85-115 85-115			
Zinc	0.07	0.02	mg/L	0.0625		105	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:18									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	6.11	10.0	mg/L	6.25	ND	97.8	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.064	0.004	mg/L	0.0625	ND	102	80-120			
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, U
Matrix Spike (B017542-MS2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	357	40.0	mg/L	6.25	382	NR	80-120			D2, M2
Iron	89.2	10.0	mg/L	6.25	96.5	NR	80-120			D2, M2
Magnesium	190	20.0	mg/L	6.25	197	NR	80-120			D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.546	0.004	mg/L	0.0625	0.547	NR	80-120			M3
Sodium	107	26.0	mg/L	6.25	108	NR	80-120			D2
Matrix Spike (B017542-MS3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 18:48									
Antimony	0.071	0.005	mg/L	0.0625	ND	113	80-120			
Mercury	0.0023	0.0005	mg/L	0.00250	ND	92.2	80-120			
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120			
Arsenic	0.0646	0.0010	mg/L	0.0625	ND	103	80-120			J5
Barium	0.066	0.004	mg/L	0.0625	ND	106	80-120			
Beryllium	0.0609	0.0020	mg/L	0.0625	ND	97.5	80-120			
Cadmium	0.0639	0.0010	mg/L	0.0625	ND	102	80-120			
Chromium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120			
Copper	0.061	0.003	mg/L	0.0625	ND	97.6	80-120			
Lead	0.060	0.002	mg/L	0.0625	ND	96.7	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	104	80-120			
Nickel	0.062	0.003	mg/L	0.0625	ND	99.8	80-120			
Selenium	0.063	0.003	mg/L	0.0625	ND	100	80-120			
Thallium	0.0587	0.0020	mg/L	0.0625	ND	93.9	80-120			
Zinc	0.06	0.02	mg/L	0.0625	ND	103	80-120			





	Ţ.	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
-						701120				
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5	5/1/2020 19:11									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	86.7	80-120			
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120			
Molybdenum	0.04	0.01	mg/L	0.0625	0.002	53.5	80-120			J5, M2
Arsenic	0.0711	0.0010	mg/L	0.0625	0.0079	101	80-120			J5
Barium	0.068	0.004	mg/L	0.0625	0.005	102	80-120			
Beryllium	0.0507	0.0020	mg/L	0.0625	0.0013	79.2	80-120			M2
Cadmium	0.0781	0.0010	mg/L	0.0625	0.0211	91.1	80-120			
Chromium	0.0631	0.0020	mg/L	0.0625	0.0007	99.8	80-120			
Copper	0.057	0.003	mg/L	0.0625	ND	90.8	80-120			
Lead	0.056	0.002	mg/L	0.0625	ND	89.1	80-120			
Lithium	0.20	0.02	mg/L	0.0625	0.15	87.1	80-120			
Nickel	1.03	0.003	mg/L	0.0625	1.10	NR	80-120			M3, E
Selenium	0.032	0.003	mg/L	0.0625	ND	50.5	80-120			M2
Thallium	0.0560	0.0020	mg/L	0.0625	0.0011	87.8	80-120			
Zinc	1.85	0.02	mg/L	0.0625	2.25	NR	80-120			M3, E
Matrix Spike Dup (B017542-MSD1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	4/28/2020 16:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	6.31	10.0	mg/L	6.25	ND	101	80-120	3.22	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, U
Cobalt	0.065	0.004	mg/L	0.0625	ND	104	80-120	2.02	20	
Matrix Spike Dup (B017542-MSD2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	4/28/2020 16:28									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	356	40.0	mg/L	6.25	382	NR	80-120	0.438	20	D2, M2
Iron	88.8	10.0	mg/L	6.25	96.5	NR	80-120	0.473	20	D2, M2
Magnesium	189	20.0	mg/L	6.25	197	NR	80-120	0.296	20	D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Cobalt	0.552	0.004	mg/L	0.0625	0.547	8.08	80-120	1.11	20	M3
Sodium	106	26.0	mg/L	6.25	108	NR	80-120	0.573	20	D2





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike Dup (B017542-MSD3)	Source: 0033742-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	1/2020 18:52									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.30	20	
Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	2.84	20	
Mercury	0.0024	0.0005	mg/L	0.00250	ND	97.5	80-120	5.63	20	
Arsenic	0.0650	0.0010	mg/L	0.0625	ND	104	80-120	0.685	20	J5
Barium	0.068	0.004	mg/L	0.0625	ND	108	80-120	2.25	20	
Beryllium	0.0616	0.0020	mg/L	0.0625	ND	98.6	80-120	1.15	20	
Cadmium	0.0655	0.0010	mg/L	0.0625	ND	105	80-120	2.55	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	1.38	20	
Copper	0.062	0.003	mg/L	0.0625	ND	99.0	80-120	1.42	20	
Lead	0.062	0.002	mg/L	0.0625	ND	99.0	80-120	2.37	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	106	80-120	2.61	20	
Nickel	0.064	0.003	mg/L	0.0625	ND	103	80-120	3.35	20	
Selenium	0.064	0.003	mg/L	0.0625	ND	103	80-120	2.12	20	
Thallium	0.0601	0.0020	mg/L	0.0625	ND	96.2	80-120	2.37	20	
Zinc	0.07	0.02	mg/L	0.0625	ND	105	80-120	1.77	20	
Matrix Spike Dup (B017542-MSD4)	Source: 0033743-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	1/2020 19:15									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	89.1	80-120	2.77	20	
Molybdenum	0.03	0.01	mg/L	0.0625	0.002	52.5	80-120	1.71	20	J5, M2
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120	0.226	20	
Arsenic	0.0692	0.0010	mg/L	0.0625	0.0079	98.0	80-120	2.76	20	J5
Barium	0.068	0.004	mg/L	0.0625	0.005	100	80-120	1.30	20	
Beryllium	0.0493	0.0020	mg/L	0.0625	0.0013	76.8	80-120	2.91	20	M2
Cadmium	0.0793	0.0010	mg/L	0.0625	0.0211	93.1	80-120	1.59	20	
Chromium	0.0616	0.0020	mg/L	0.0625	0.0007	97.5	80-120	2.35	20	
Copper	0.055	0.003	mg/L	0.0625	ND	87.6	80-120	3.65	20	
Lead	0.055	0.002	mg/L	0.0625	ND	88.6	80-120	0.549	20	
Lithium	0.20	0.02	mg/L	0.0625	0.15	93.5	80-120	1.99	20	
Nickel	1.04	0.003	mg/L	0.0625	1.10	NR	80-120	1.31	20	M3, E
Selenium	0.031	0.003	mg/L	0.0625	ND	49.5	80-120	2.00	20	M2
Thallium	0.0555	0.0020	mg/L	0.0625	0.0011	87.0	80-120	0.916	20	
Zinc	1.87	0.02	mg/L	0.0625	2.25	NR	80-120	1.21	20	M3, E





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	Re	porting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Post Spike (B017542-PS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed	: 4/28/2020 16:31									
Boron	121		ug/L	125	-1.32	96.8	75-125			D2
Calcium	6440		ug/L	6250	3.49	103	75-125			D2
Iron	6150		ug/L	6250	21.5	98.0	75-125			D2
Magnesium	6600		ug/L	6250	1.11	106	75-125			D2
Potassium	5980		ug/L	6250	9.01	95.6	75-125			D2
Sodium	6720		ug/L	6250	2.78	108	75-125			D2
Cobalt	62.7		ug/L	62.5	0.009	100	75-125			
Post Spike (B017542-PS2)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed	: 5/1/2020 19:19									
Molybdenum	65.7		ug/L	62.5	0.03	105	75-125			
Antimony	71.0		ug/L	62.5	0.107	113	75-125			
Mercury	2.56		ug/L	2.50	0.0710	99.4	75-125			
Arsenic	64.2		ug/L	62.5	-0.0029	103	75-125			J5
Barium	67.2		ug/L	62.5	0.037	107	75-125			
Beryllium	56.7		ug/L	62.5	-0.0023	90.7	75-125			
Cadmium	63.6		ug/L	62.5	0.0053	102	75-125			
Chromium	61.7		ug/L	62.5	0.0998	98.6	75-125			
Copper	61.0		ug/L	62.5	-1.66	97.6	75-125			
Lead	60.7		ug/L	62.5	0.219	96.8	75-115			
Lithium	60.7		ug/L	62.5	0.05	97.0	75-125			
Nickel	62.6		ug/L	62.5	0.313	99.7	75-125			
Selenium	64.8		ug/L	62.5	-0.002	104	75-125			
Thallium	58.9		ug/L	62.5	0.0066	94.2	75-125			
Zinc	65.7		ug/L	62.5	1.46	103	75-125			





			-		_	-				
	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018047 - Default Prep Wet Cher	m									
Blank (B018047-BLK1)										
Prepared: 4/27/2020 10:24, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B018047-BS1)										
Prepared: 4/27/2020 10:28, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	1460	25	mg/L	1500		97.0	80-120			
Duplicate (B018047-DUP1)	Source: 0033745-01									
Prepared: 4/27/2020 11:52, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	716	50	mg/L		724			1.11	10	
Duplicate (B018047-DUP2)	Source: 0041174-01									
Prepared: 4/27/2020 11:56, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	364	50	mg/L		372			2.17	10	
Batch B018081 - Default Prep Wet Cher	m									
Blank (B018081-BLK1)										
Prepared: 4/27/2020 16:41, Analyzed: 4	/27/2020 16:41									
Chemical Oxygen Demand	ND	8	mg/L							U
LCS (B018081-BS1)										
Prepared: 4/27/2020 16:41, Analyzed: 4	/27/2020 16:41									
Chemical Oxygen Demand	127	8	mg/L				90-110			
Duplicate (B018081-DUP1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	206	8	mg/L		210			1.84	25	
Matrix Spike (B018081-MS1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	416	8	mg/L	250	210	82.7	90-110			M2
Matrix Spike Dup (B018081-MSD1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	414	8	mg/L	250	210	81.8	90-110	0.537	10	M2





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018086 - Default Prep Wet Chem										
Blank (B018086-BLK1)										
Prepared: 4/27/2020 14:54, Analyzed: 4/27/2	2020 14:54									
Specific Conductance (Lab)	ND	1	umhos/cm							U
LCS (B018086-BS1)										
Prepared: 4/27/2020 14:55, Analyzed: 4/27/2	2020 14:55									
Specific Conductance (Lab)	1410		umhos/cm	1410		99.8	80-120			
Duplicate (B018086-DUP1)	Source: 0033751-01									
Prepared: 4/27/2020 15:09, Analyzed: 4/27/2	2020 15:09									
Specific Conductance (Lab)	2980	1	umhos/cm		2990			0.0335	1.24	
Duplicate (B018086-DUP2)	Source: 0043793-01									
Prepared: 4/27/2020 15:27, Analyzed: 4/27/2	2020 15:27									
Specific Conductance (Lab)	1	1	umhos/cm		1			0.755	1.24	
Batch B018100 - Default Prep Wet Chem										
Blank (B018100-BLK1)										
Prepared: 5/1/2020 18:21, Analyzed: 5/1/2020	20 18:21									
Total Organic Carbon	ND	0.5	mg/L							U
LCS (B018100-BS1)										
Prepared: 5/1/2020 18:43, Analyzed: 5/1/202	20 18:43									
Total Organic Carbon	5.0	0.5	mg/L	5.00		101	80-120			
Duplicate (B018100-DUP1)	Source: 0033748-01									
Prepared: 5/2/2020 0:07, Analyzed: 5/2/202	20 0:07									
Total Organic Carbon	2.0	0.5	mg/L		2.0			0.0293	25	
Duplicate (B018100-DUP2)	Source: 0033758-01									
Prepared: 5/2/2020 4:27, Analyzed: 5/2/202	20 4:27									
Total Organic Carbon	2.8	0.5	mg/L		2.8			0.410	25	
Matrix Spike (B018100-MS1)	Source: 0033749-01									
Prepared: 5/2/2020 0:29, Analyzed: 5/2/202										
Total Organic Carbon	10.7	0.5	mg/L	2.50	8.2	101	80-120			



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018100 - Default Prep Wet Chem										
Matrix Spike (B018100-MS2)	Source: 0033759-01									
Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020	4:49									
Total Organic Carbon	3.6	0.5	mg/L	5.00	0.4	65.0	80-120			M2
Batch B018391 - Default Prep Wet Chem										
Blank (B018391-BLK1)										
Prepared: 4/29/2020 11:33, Analyzed: 4/29/20	20 11:33									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK2)										
Prepared: 4/29/2020 13:03, Analyzed: 4/29/20	20 13:03									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK3)										
Prepared: 4/29/2020 15:33, Analyzed: 4/29/20	20 15:33									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
LCS (B018391-BS1)										
Prepared: 4/29/2020 12:58, Analyzed: 4/29/20	20 12:58									
Total Alkalinity	235	4	mg/L	235		99.8	80-120			
Carbonate Alkalinity as CaCO3	232	4	mg/L	225		103	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
LCS (B018391-BS2)										
Prepared: 4/29/2020 15:29, Analyzed: 4/29/20	20 15:29									
Carbonate Alkalinity as CaCO3	230	4	mg/L	225		102	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	250	4	mg/L	235		106	80-120			



		Poportina		Snike	Source	<u> </u>	% DEC		- PPD	
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
	NGSUIL	LIIIII	Office	Level	Nesuit	/UINEO	LIIIIII	- Ni D	LIIIII	140163
Batch B018391 - Default Prep Wet Chem										
Duplicate (B018391-DUP1)	Source: 0033751-0	1								
Prepared: 4/29/2020 12:34, Analyzed: 4/29	9/2020 12:34									
Total Alkalinity	309	4	mg/L		301			2.43	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		301				10	U
Bicarbonate Alkalinity as CaCO3	309	4	mg/L		ND				10	
Duplicate (B018391-DUP2)	Source: 0033759-0	1								
Prepared: 4/29/2020 15:04, Analyzed: 4/29	9/2020 15:04									
Total Alkalinity	402	4	mg/L		394			2.01	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	402	4	mg/L		394			2.01	10	
Matrix Spike (B018391-MS1)	Source: 0033743-0	1								
Prepared: 4/29/2020 12:40, Analyzed: 4/29	9/2020 12:40									
Total Alkalinity	61	4	mg/L	50.4	22	77.0	80-120			M2
Matrix Spike (B018391-MS2)	Source: 0033759-0	1								
Prepared: 4/29/2020 15:18, Analyzed: 4/29	9/2020 15:18									
Total Alkalinity	413	4	mg/L	50.4	394	37.5	80-120			М3
Batch B019045 - Default Prep Wet Chem										
Blank (B019045-BLK1)										
Prepared: 5/4/2020 10:56, Analyzed: 5/4/2	020 10:56									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B019045-BS1)										
Prepared: 5/4/2020 10:58, Analyzed: 5/4/2	020 10:58									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B019045-DUP1)	Source: 0041237-0	2	-							
Prepared: 5/4/2020 12:56, Analyzed: 5/4/2										
Hardness as CaCO3	214	1	mg/L		200			6.76	10	
Matrix Spike (B019045-MS1)	Source: 0041237-0	2								
Prepared: 5/4/2020 12:58, Analyzed: 5/4/2										
Hardness as CaCO3	568	1	mg/L	318	200	116	80-120			
			9, -	0.0		1.10	30 .20			





Ion Chromatography Madisonville - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018474 - Default Prep IC										
Blank (B018474-BLK1)										
Prepared: 5/2/2020 1:02, Analyzed: 5/2/20	20 1:02									
Sulfate	ND	1.0	mg/L							U
Chloride	ND	0.5	mg/L							U
Fluoride	ND	0.20	mg/L							U
LCS (B018474-BS1)										
Prepared: 5/2/2020 0:42, Analyzed: 5/2/20	20 0:42									
Chloride	9.7		mg/L	10.0		97.0	90-110			
Fluoride	9.60		mg/L	10.0		96.0	90-110			
Sulfate	10.0		mg/L	10.0		99.9	90-110			
Matrix Spike (B018474-MS1)	Source: 0033759-0	1								
Prepared: 5/2/2020 9:35, Analyzed: 5/2/20	20 9:35									
Chloride	552		mg/L	10.0	1170	NR	80-120			M2
Fluoride	1.75		mg/L	10.0	0.24	15.1	80-120			M2
Sulfate	627		mg/L	10.0	2710	NR	80-120			M2
Matrix Spike Dup (B018474-MSD1)	Source: 0033759-0	1								
Prepared: 5/2/2020 9:56, Analyzed: 5/2/20	20 9:56									
Fluoride	1.81		mg/L	10.0	0.24	15.7	80-120	3.09	20	M2
Sulfate	640		mg/L	10.0	2710	NR	80-120	2.10	20	M2
Chloride	558		mg/L	10.0	1170	NR	80-120	1.05	10	M2

Analyte Certifications

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0033753
Shipped By: Client	Temperature: 3.90° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	abla
Check if bottles are intact	☑
Check if bottles are correct	abla
Check if bottles have sufficient volume	☑
Check if samples received on ice	☑
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	☑

Chain of Custody

Scheduled for: <u>03/02/2020</u>



Client: Big Rivers Electri Station Project: MW-5 Wilson 09			ctric Corporation Wilson	Brian Edwar PO Box 24	Big Rivers Electric Corporation Wilson Station Brian Edwards			
		Phone: (270) 8	<u>44-6000</u>	PO#: 2	58508-6			
Please Print Legibly		PWS ID#: State:	<u> </u>	Quote#		_		
Collected by (Signature):	Tran.	Sund		Compli	ance Monitori	ng? Yes X No		
• • • • • •		ired information*	at and times below	Sample	es Chlorinated	!? Yes No		
	-	time, end time and temp(oC)		Town (aC)				
		End Date						
Effluent: Start Date	Start time	End Date	End Time	remp (oc)				
MMLI USE ONLY *requir Workorder # Date 0033753 (mm/dd/ Sample ID#		Bottle and Preservative	Sample Descript	ion Composite	Sample	Analysis Requested		
0033753-01 A 4/2a/2	10 0925	Plastic 1L	1 MW5	g/c	Conductivity	tal Chloride 300.0 (Lab) Fluoride 300.0 0 Alkalinity Bicarbonate		
0033753-01 B <u>4/2a/</u> 2	30 0925	Plastic 500mL pH<2 w/HNO3	1 MVV5	g/c	Arsenic Tot 6 Barium Tot 6 Selenium To Titration Ber Tot 6010B C Calcium Tot 6020 Sodium	ty Carbonate 6020 Antimony Tot 602 6020 Iron Tot 6010B It 6020 Hardness yllium Tot 6020 Boron admium Tot 6020 6010B Chromium Tot Tot 6010B Lead Tot		
0033753-01 C <u>4/2</u> 2/	20 0925	Preservation Check: pH : _ Plastic 500mL pH<2 w/H2SO4 Preservation Check: pH : _	1 MW5	g/c	6020 COD TOC	n Tot 6020 Mercury Tot		
0033753-01 D <u>4/22/2</u>		Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) Preservation Check: pH:_	1	g/c	Radium 226	(sub)		
Preservation Check Perfo		AN	1/22/20 To 100	2925				
/ ¬ /	m 5/2 m /	Date (mm/dd/yy) Res CI (mg/L)			ee Cl (mg/L)			
pH <u>6,//</u> Temp (oC) <u>15,99</u>		Static Water Level						
			DO (mg/L	, ·				
				D-1- /	1441 - 3	Time (04 hr)		
Relinquished by: (Signature	Sug	Received by: (Signal Abbyy)	Haule	Date (mm. 4-23	7-20	Time (24 hr) 1325		
PACE- Check here	e if trip charge app	lied to associated COC	Print	ed: 3/27/2020 1:53	:00PM	Page 19 of 20		
	3 PP	 - 			.	Page 18 of 30		

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>03/02/2020</u>



Client: Big Rivers Electric Station	Corporation Wilso	Report To: Big Rivers Electric Station Mike Galbraith	Corporation Wilson	Invoice To: Big Rivers Electric Corporation Wilson Station Brian Edwards			
Project: MW-5 Wilson 092	-00004	PO Box 24					
		Phone: (270) 844-6		PO#: 258508-6			
Please Print Legibly		PWS ID#:	u	Quote#			
Collected by (Signature):	Yna'	Let		Compli	ance Monitoring? Yes X	No	
For composite samples plea	•	ired information* me, end time and temp(oC) at e	end time below:	Sample	es Chlorinated? Yes I	No	
,		End Date		Temp (oC)			
		End Date					
MMLI USE ONLY *require Norkorder # Date 0033753 (mm/dd/y	ed information* Collection y): Time (24 hr):	Bottle and Preservative	Oznak Dagaintina	Commonito			
Sample ID#			Sample Description	Composite	Sample Analysis Requ	ested	
033753-01 E <u>4/82/2</u> ,	0935	Plastic 1L pH<2 w/HNO3 1 Rad 228 (Sub) Preservation Check: pH:	/ _	g/c	Radium 228 (sub)		
033753-01 F <u>4/22/20</u>	<u>0925</u>	Plastic 1L pH<2 w/HNO3 1 Rad 228 (Sub) V Preservation Check: pH:	/ MW5	g/c	Radium 228 (sub)		
033753-01 G <u>4/22/20</u>		Plastic 1L pH<2 w/HNO3 1 (Sub) Preservation Check: pH:	MW5	g / c	Radium Total (sub)		
Preservation Check Perfor	med by:	AM					
Field data collected by:	Trav5 - 50	Date (mm/dd/yy) _4	//22/20 Time (24 hr) _	0925			
он <u>6.7/</u>	Cond (umh o) <u>4.</u>	/0 Res CI (mg/L)	Tot CI (mg/L) _	Fre	ee Cl (mg/L)		
Temp (oC) 15,99	or (oF)	Static Water Level	DO (mg/L)	т	urb. (NTU)		
Flow (MGD)	or (CFS)	or (g/min)					
Relinquished by: (Signature)		Received by: (Signature	9)	Date (mm	/dd/yy) Time (24 hr)		
Jose he		appryo	Kark	4-23	1-20 /325	>	

PACE- Check here if trip charge applied to associated COC

Printed: 3/27/2020 1:53:00PM

Page 19 of 30

(724)850-5600



May 18, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 33753

Pace Project No.: 30360644

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 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,

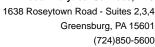
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 33753
Pace Project No.: 30360644

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706

Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

North Dakota Certification #: R-190

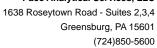
Ohio EPA Rad Approval: #41249

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

REPORT OF LABORATORY ANALYSIS



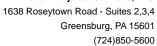


SAMPLE SUMMARY

Project: 33753
Pace Project No.: 30360644

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30360644001	0033753-01	Water	04/22/20 09:25	04/28/20 09:10

REPORT OF LABORATORY ANALYSIS



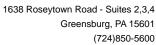


SAMPLE ANALYTE COUNT

Project: 33753
Pace Project No.: 30360644

			Analytes						
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory				
30360644001	0033753-01	EPA 903.1	MK1	1	PASI-PA				
		EPA 904.0	VAL	1	PASI-PA				
		Total Radium Calculation	CMC	1	PASI-PA				

PASI-PA = Pace Analytical Services - Greensburg



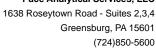


ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 33753
Pace Project No.: 30360644

Sample: 0033753-01 PWS:	Lab ID: 303606 Site ID:	644001 Collected: 04/22/20 09:25 Sample Type:	Received:	04/28/20 09:10	Matrix: Water		
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual	
	Pace Analytical S	ervices - Greensburg					
Radium-226	EPA 903.1	0.0670 ± 0.405 (0.631) C:NA T:94%	pCi/L	05/18/20 14:43	3 13982-63-3		
	Pace Analytical S	ervices - Greensburg					
Radium-228	EPA 904.0	1.15 ± 0.468 (0.764) C:79% T:91%	pCi/L	05/14/20 10:56	3 15262-20-1		
	Pace Analytical S	ervices - Greensburg					
Total Radium	Total Radium Calculation	1.22 ± 0.873 (1.40)	pCi/L	05/18/20 16:00	7440-14-4		

REPORT OF LABORATORY ANALYSIS





QUALITY CONTROL - RADIOCHEMISTRY

Project: 33753
Pace Project No.: 30360644

QC Batch: 394308

QC Batch Method: EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360644001

METHOD BLANK: 1909681

Matrix: Water

Associated Lab Samples: 30360644001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-228

-0.453 ± 0.239 (0.657) C:83% T:82%

pCi/L

05/14/20 10:56

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.





QUALITY CONTROL - RADIOCHEMISTRY

Project:

33753

Pace Project No.:

30360644

QC Batch: QC Batch Method: 394309

Analysis Method:

EPA 903.1

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

30360644001

METHOD BLANK: 1909682

Matrix: Water

Associated Lab Samples:

30360644001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

-0.127 ± 0.277 (0.478) C:NA T:86%

pCi/L

05/18/20 13:52

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.

REPORT OF LABORATORY ANALYSIS



QUALIFIERS

Project: 33753
Pace Project No.: 30360644

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.

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: 05/18/2020 04:02 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

WO#:30360644

Chain of Custody

Face Analytical

LAB USE ONLY Results Requested By: Comments Requested Analysis Owner Received Date: 4/23/2020 EPA 904.0 Radium Sum Calc The ode Date/Time £PA 903.1 Preserved Containers Pace Analytical Services LLC Greensburg PA Water Matrix Workorder Name: MW-5 Wilson 092-00004 Reyeiyed By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Greensburg, PA 15601 Lab ID Date/Time Subcontract To: (724) 850-5615 04/22/20 09:25 Date/Time Collect Sample Type r.whittington@mccoylabs.com Madisonville, KY 42409 Fransfers | Released By Workorder: 33753 McCoy & McCoy Labs 0033753-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 4 9 ∞

Sample Intact Y ***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC Received on Ice Y/or N This chain of custody is considered complete as is since this information is available in the owner laboratory. Custody Seal Y or/N ၁ Cooler Temperature on Receipt

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

or N

SUBCONTRACT ORDER

3 0 3 6 0 6 4 4 Pace Analytical Services, LLC Kentucky 0033753

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

ger: Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601

Phone :(724) 850-5615

Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0033753-01	Water	Sampled:04/22/2020 09:25	Specific Method		
Radium Total (sub)		10/19/2020 09:25	EPA 904.0 Radium Su	ım (
Radium 228 (sub)		10/19/2020 09:25	EPA 904.0 Radium Su	am C	
Radium 226 (sub)		10/19/2020 09:25	EPA 903.1		

May Hage 14.27.20
Released By Date Received By Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condit	ion l	Jpon	Red	ceipt "
Face Analytical' Client Name:	Pi	ice	2	Project # 30360644
				- I SOM
Courier: Fed Ex UPS USPS Client		ommer	cial	Pace Other Label O S
Tracking #: 1107 3336 18(1		-		LIMS Login 0.5 1
Custody Seal on Cooler/Box Present:	Πn		_	intact: yes no
Thermometer Used	Туре	of Ice:		
Cooler Temperature Observed Temp	<u>8</u>	. C	Corre	ection Factor: 7,5 °C Final Temp: 5,3 °C
Temp should be above freezing to 6°C				pH paper Lot# Date and Initials of person examining contents: USM 4/23/2020
Comments:	Yes	No	N/A	10D4191 contents: 05144/38/3020
Chain of Custody Present:	<u> </u>	ļ		1.
Chain of Custody Filled Out:	<u> </u>	,		2.
Chain of Custody Relinquished:				3.
Sampler Name & Signature on COC:	 _ _			4.
Sample Labels match COC:				5.
-Includes date/time/ID Matrix:	\sim			
Samples Arrived within Hold Time:				6.
Short Hold Time Analysis (<72hr remaining):	—			7.
Rush Turn Around Time Requested:	<u> </u>		ļ	8.
Sufficient Volume:				9.
Correct Containers Used:			ļ	10.
-Pace Containers Used:	<u> </u>			
Containers Intact:	<u> </u>			11.
Orthophosphate field filtered	ļ			12.
Hex Cr Aqueous sample field filtered	ļ	ļ		13.
Organic Samples checked for dechlorination:	ļ			14.
Filtered volume received for Dissolved tests All containers have been checked for preservation.	├	ļ,		15.
•				16. pHC 2
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	radon,	•		
All containers meet method preservation requirements.	\mathbb{Z}			Initial when Date/time of completed preservation
				Lot# of added preservative
Headspace in VOA Vials (>6mm):	<u> </u>			17.
Trip Blank Present:	<u></u>	ļ		18.
Trip Blank Custody Seals Present	L			B-W-Indon V A
Rad Samples Screened < 0.5 mrem/hr				initial when completed: SM Date: Was Indeed
Client Notification/ Resolution:				,
Person-Gontacted:			-Date/1	Fime:Gontacted-By:
Comments/ Resolution:				•
A check in this box indicates that addit	ional	inform	nation	has been stored in ereports.

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0033754

Mike Galbraith
Big Rivers Electric Corporation Wilson Station
PO Box 24
Henderson KY, 42419

Customer ID: Report Printed:

44-100168 05/29/2020 14:22

Project Name: MW-6 Wilson 092-00004

Workorder: 0033754

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 04/23/2020 13:25.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC
P.O. Box 907
Madisonville, KY 42431
270.821.7375
www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0033754-01	MW6/		Groundwater	04/22/2020 10:35	04/23/2020 13:25	Travis Sneed
<u>LabNumber</u>	Measurement	<u>Value</u>				
0033754-01	Field Conductance	3230				
	Field Dissolved Oxygen	0.24				
	Field pH	6.21				
	Field Temp (C)	15.86				
	Field Turbidity	59.6				

Work Order Comments:

Corrected Report:

This report has been issued as a revision of the previous report dated 5/20/20@ 0911. Cobalt result added to report.



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ANALYTICAL RESULTS

Lab Sample ID: 0033754-01 Sample Collection Date Time: 04/22/2020 10:35
Description: MW6 Sample Received Date Time: 04/23/2020 13:25

Metals by SW846 6000 Series Methods

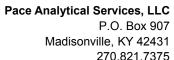
Accelete	Daniel	E1	L Lorito	MDI	MDI	N 4 - 411	Donasa	A I I	A
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:33	DMH
Arsenic	0.0050		mg/L	0.0010	0.0004	SW846-6020 A	04/24/2020 11:25	05/04/2020 12:05	DMH
Barium	0.012		mg/L	0.004	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:33	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:33	DMH
Boron	0.31		mg/L	0.10	0.10	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:21	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:33	DMH
Calcium	511	D1	mg/L	40.0	13.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:37	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	04/24/2020 11:25	05/04/2020 12:05	DMH
Cobalt	0.009		mg/L	0.004	0.004	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:33	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/04/2020 12:05	DMH
Iron	5.94		mg/L	0.100	0.050	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:21	AKB
Lead	0.0005	J	mg/L	0.002	0.0005	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:33	DMH
Lithium	0.04		mg/L	0.02	0.005	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:33	DMH
Magnesium	238	D1	mg/L	20.0	9.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:37	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	04/24/2020 11:25	05/04/2020 12:05	DMH
Molybdenum	0.006	J	mg/L	0.01	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:33	DMH
Nickel	0.018		mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/04/2020 12:05	DMH
Potassium	10.7	D1	mg/L	5.00	2.20	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:25	AKB
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:33	DMH
Sodium	40.2	D1	mg/L	2.60	1.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:25	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:33	DMH
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	04/24/2020 11:25	05/04/2020 12:05	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	510		mg/L	4		2320 B-2011	04/29/2020 14:39	04/29/2020 14:39	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	04/29/2020 14:39	04/29/2020 14:39	HMF
Total Alkalinity	510		mg/L	4		2320 B-2011	04/29/2020 14:39	04/29/2020 14:39	HMF
Chemical Oxygen Demand	8		mg/L	8	8	HACH 8000	04/27/2020 16:45	04/27/2020 16:45	ALT
Specific Conductance	3080		umhos/cm	1	1	2510 B-2011	04/27/2020 15:14	04/27/2020 15:14	GAT
(Lab)									
Hardness as CaCO3	1800	D	mg/L	5	5	2340 C (as HACH 8226)	05/04/2020 11:52	05/04/2020 11:52	CLL
Total Dissolved Solids	2750		mg/L	50	50	2540 C-2011	04/27/2020 11:08	04/28/2020 12:32	MAG
Total Organic Carbon	1.5		mg/L	0.5		5310 C-2011	05/02/2020 01:34	05/02/2020 01:34	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	-0.091	_Sub	pCi/L			EPA 903.1	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium-228	0.804	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium	0.804	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW



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Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	10.2		mg/L	0.5	0.4	EPA 300.0 REV 2.1	05/02/2020 05:50	05/02/2020 05:50	CSC
Fluoride	0.21		mg/L	0.20		EPA 300.0 REV 2.1	05/02/2020 05:50	05/02/2020 05:50	CSC
Sulfate	2370	D	mg/L	100	50.0	EPA 300.0 REV 2.1	05/02/2020 06:11	05/02/2020 06:11	CSC



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Notes for work order 0033754

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI does not provide interpretation of these results unless otherwise stated.

laboratory method detection limit in our LIMS system).

- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
E	Concentration exceeds calibration range
J	Estimated value.
J5	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
L2	The associated blank spike recovery was below method acceptance limits.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
M6	Matrix spike recovery was high.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the

Standard Qualifiers/Acronymns

MDL Method Detection Limit MRL Minimum Reporting Limit ND Not Detected

LCS Laboratory Control Sample Matrix Spike

MSD Matrix Spike Duplicate DUP Sample Duplicate % Rec Percent Recovery

MS

RPD Relative Percent Difference

Greater than Less than



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Blank (B017542-BLK1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12:	50									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Cobalt	ND	0.004	mg/L							U
Blank (B017542-BLK2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:0	9									
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.001	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U
Blank (B017542-BLK3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	0									
Antimony	ND	0.005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.002	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		9446 6000 —————————————————————————————————								
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
LCS (B017542-BS1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020	0 12:53									
Boron	0.13	0.10	mg/L	0.125		106	85-115			
Calcium	6.57	0.40	mg/L	6.25		105	85-115			
Iron	6.39	0.100	mg/L	6.25		102	85-115			
Magnesium	5.72	0.200	mg/L	6.25		91.5	85-115			
Potassium	6.62	0.50	mg/L	6.25		106	85-115			
Sodium	6.47	0.26	mg/L	6.25		103	85-115			
Cobalt	0.054	0.004	mg/L	0.0625		85.7	85-115			
LCS (B017542-BS2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020	17:13									
Molybdenum	0.05	0.01	mg/L	0.0625		86.2	85-115			
Mercury	0.0020	0.0005	mg/L	0.00250		79.8	85-115			L2
Antimony	0.058	0.005	mg/L	0.0625		93.6	85-115			
Arsenic	0.0537	0.0010	mg/L	0.0625		85.9	85-115			
Barium	0.054	0.004	mg/L	0.0625		86.5	85-115			
Beryllium	0.0495	0.0020	mg/L	0.0625		79.2	85-115			M2
Cadmium	0.0533	0.0010	mg/L	0.0625		85.3	85-115			
Chromium	0.0535	0.0020	mg/L	0.0625		85.5	85-115			
Copper	0.054	0.003	mg/L	0.0625		86.7	85-115			
Lead	0.051	0.002	mg/L	0.0625		81.1	85-115			L2
Lithium	0.05	0.02	mg/L	0.0625		82.7	85-115			L2
Nickel	0.053	0.003	mg/L	0.0625		85.3	85-115			
Selenium	0.053	0.003	mg/L	0.0625		85.4	85-115			
Thallium	0.0495	0.0020	mg/L	0.0625		79.1	85-115			L2
Zinc	0.05	0.02	mg/L	0.0625		86.2	85-115			
			9.=							
LCS (B017542-BS3) Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020	16:54									
Molybdenum	0.07	0.01	mg/L	0.0625		110	85-115			
Antimony	0.069	0.005	mg/L	0.0625		110	85-115			
Mercury	0.003	0.0005	mg/L	0.0025		102	85-115			
Arsenic	0.0651	0.0003	mg/L	0.0625		102	85-115			
Barium		0.0010	-	0.0625		105	85-115			
Beryllium	0.065 0.0624	0.004	mg/L mg/L	0.0625		99.8	85-115			
Cadmium	0.0624	0.0020	mg/L	0.0625		104	85-115 85-115			
Chromium	0.0632	0.0010	mg/L	0.0625		104	85-115 85-115			
Copper	0.066	0.0020	mg/L	0.0625		106	85-115			
Lead	0.065	0.003	-	0.0625		104	85-115			
Lithium	0.065	0.002	mg/L	0.0625			85-115			
			mg/L			101				
Nickel Solonium	0.064	0.003	mg/L	0.0625		103	85-115 85-115			
Selenium	0.065	0.003	mg/L	0.0625		103	85-115 85-115			
Thallium	0.0650	0.0020	mg/L	0.0625		104	85-115 85-115			
Zinc	0.07	0.02	mg/L	0.0625		105	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:18									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	6.11	10.0	mg/L	6.25	ND	97.8	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.064	0.004	mg/L	0.0625	ND	102	80-120			
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, U
Matrix Spike (B017542-MS2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	357	40.0	mg/L	6.25	382	NR	80-120			D2, M2
Iron	89.2	10.0	mg/L	6.25	96.5	NR	80-120			D2, M2
Magnesium	190	20.0	mg/L	6.25	197	NR	80-120			D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.546	0.004	mg/L	0.0625	0.547	NR	80-120			M3
Sodium	107	26.0	mg/L	6.25	108	NR	80-120			D2
Matrix Spike (B017542-MS3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 18:48									
Antimony	0.071	0.005	mg/L	0.0625	ND	113	80-120			
Mercury	0.0023	0.0005	mg/L	0.00250	ND	92.2	80-120			
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120			
Arsenic	0.0646	0.0010	mg/L	0.0625	ND	103	80-120			J5
Barium	0.066	0.004	mg/L	0.0625	ND	106	80-120			
Beryllium	0.0609	0.0020	mg/L	0.0625	ND	97.5	80-120			
Cadmium	0.0639	0.0010	mg/L	0.0625	ND	102	80-120			
Chromium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120			
Copper	0.061	0.003	mg/L	0.0625	ND	97.6	80-120			
Lead	0.060	0.002	mg/L	0.0625	ND	96.7	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	104	80-120			
Nickel	0.062	0.003	mg/L	0.0625	ND	99.8	80-120			
Selenium	0.063	0.003	mg/L	0.0625	ND	100	80-120			
Thallium	0.0587	0.0020	mg/L	0.0625	ND	93.9	80-120			
Zinc	0.06	0.02	mg/L	0.0625	ND	103	80-120			





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
						701120				
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5	5/1/2020 19:11									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	86.7	80-120			
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120			
Molybdenum	0.04	0.01	mg/L	0.0625	0.002	53.5	80-120			J5, M2
Arsenic	0.0711	0.0010	mg/L	0.0625	0.0079	101	80-120			J5
Barium	0.068	0.004	mg/L	0.0625	0.005	102	80-120			
Beryllium	0.0507	0.0020	mg/L	0.0625	0.0013	79.2	80-120			M2
Cadmium	0.0781	0.0010	mg/L	0.0625	0.0211	91.1	80-120			
Chromium	0.0631	0.0020	mg/L	0.0625	0.0007	99.8	80-120			
Copper	0.057	0.003	mg/L	0.0625	ND	90.8	80-120			
Lead	0.056	0.002	mg/L	0.0625	ND	89.1	80-120			
Lithium	0.20	0.02	mg/L	0.0625	0.15	87.1	80-120			
Nickel	1.03	0.003	mg/L	0.0625	1.10	NR	80-120			M3, E
Selenium	0.032	0.003	mg/L	0.0625	ND	50.5	80-120			M2
Thallium	0.0560	0.0020	mg/L	0.0625	0.0011	87.8	80-120			
Zinc	1.85	0.02	mg/L	0.0625	2.25	NR	80-120			M3, E
Matrix Spike Dup (B017542-MSD1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	4/28/2020 16:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	6.31	10.0	mg/L	6.25	ND	101	80-120	3.22	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, U
Cobalt	0.065	0.004	mg/L	0.0625	ND	104	80-120	2.02	20	
Matrix Spike Dup (B017542-MSD2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	4/28/2020 16:28									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	356	40.0	mg/L	6.25	382	NR	80-120	0.438	20	D2, M2
Iron	88.8	10.0	mg/L	6.25	96.5	NR	80-120	0.473	20	D2, M2
Magnesium	189	20.0	mg/L	6.25	197	NR	80-120	0.296	20	D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Cobalt	0.552	0.004	mg/L	0.0625	0.547	8.08	80-120	1.11	20	M3
Sodium	106	26.0	mg/L	6.25	108	NR	80-120	0.573	20	D2





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike Dup (B017542-MSD3)	Source: 0033742-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	/2020 18:52									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.30	20	
Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	2.84	20	
Mercury	0.0024	0.0005	mg/L	0.00250	ND	97.5	80-120	5.63	20	
Arsenic	0.0650	0.0010	mg/L	0.0625	ND	104	80-120	0.685	20	J5
Barium	0.068	0.004	mg/L	0.0625	ND	108	80-120	2.25	20	
Beryllium	0.0616	0.0020	mg/L	0.0625	ND	98.6	80-120	1.15	20	
Cadmium	0.0655	0.0010	mg/L	0.0625	ND	105	80-120	2.55	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	1.38	20	
Copper	0.062	0.003	mg/L	0.0625	ND	99.0	80-120	1.42	20	
Lead	0.062	0.002	mg/L	0.0625	ND	99.0	80-120	2.37	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	106	80-120	2.61	20	
Nickel	0.064	0.003	mg/L	0.0625	ND	103	80-120	3.35	20	
Selenium	0.064	0.003	mg/L	0.0625	ND	103	80-120	2.12	20	
Thallium	0.0601	0.0020	mg/L	0.0625	ND	96.2	80-120	2.37	20	
Zinc	0.07	0.02	mg/L	0.0625	ND	105	80-120	1.77	20	
Matrix Spike Dup (B017542-MSD4)	Source: 0033743-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	/2020 19:15									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	89.1	80-120	2.77	20	
Molybdenum	0.03	0.01	mg/L	0.0625	0.002	52.5	80-120	1.71	20	J5, M2
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120	0.226	20	
Arsenic	0.0692	0.0010	mg/L	0.0625	0.0079	98.0	80-120	2.76	20	J5
Barium	0.068	0.004	mg/L	0.0625	0.005	100	80-120	1.30	20	
Beryllium	0.0493	0.0020	mg/L	0.0625	0.0013	76.8	80-120	2.91	20	M2
Cadmium	0.0793	0.0010	mg/L	0.0625	0.0211	93.1	80-120	1.59	20	
Chromium	0.0616	0.0020	mg/L	0.0625	0.0007	97.5	80-120	2.35	20	
Copper	0.055	0.003	mg/L	0.0625	ND	87.6	80-120	3.65	20	
Lead	0.055	0.002	mg/L	0.0625	ND	88.6	80-120	0.549	20	
Lithium	0.20	0.02	mg/L	0.0625	0.15	93.5	80-120	1.99	20	
Nickel	1.04	0.003	mg/L	0.0625	1.10	NR	80-120	1.31	20	M3, E
Selenium	0.031	0.003	mg/L	0.0625	ND	49.5	80-120	2.00	20	M2
Thallium	0.0555	0.0020	mg/L	0.0625	0.0011	87.0	80-120	0.916	20	
Zinc	1.87	0.02	mg/L	0.0625	2.25	NR	80-120	1.21	20	M3, E





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	Re	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Post Spike (B017542-PS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed	: 4/28/2020 16:31									
Boron	121		ug/L	125	-1.32	96.8	75-125			D2
Calcium	6440		ug/L	6250	3.49	103	75-125			D2
Iron	6150		ug/L	6250	21.5	98.0	75-125			D2
Magnesium	6600		ug/L	6250	1.11	106	75-125			D2
Potassium	5980		ug/L	6250	9.01	95.6	75-125			D2
Sodium	6720		ug/L	6250	2.78	108	75-125			D2
Cobalt	62.7		ug/L	62.5	0.009	100	75-125			
Post Spike (B017542-PS2)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed	: 5/1/2020 19:19									
Molybdenum	65.7		ug/L	62.5	0.03	105	75-125			
Antimony	71.0		ug/L	62.5	0.107	113	75-125			
Mercury	2.56		ug/L	2.50	0.0710	99.4	75-125			
Arsenic	64.2		ug/L	62.5	-0.0029	103	75-125			J5
Barium	67.2		ug/L	62.5	0.037	107	75-125			
Beryllium	56.7		ug/L	62.5	-0.0023	90.7	75-125			
Cadmium	63.6		ug/L	62.5	0.0053	102	75-125			
Chromium	61.7		ug/L	62.5	0.0998	98.6	75-125			
Copper	61.0		ug/L	62.5	-1.66	97.6	75-125			
Lead	60.7		ug/L	62.5	0.219	96.8	75-115			
Lithium	60.7		ug/L	62.5	0.05	97.0	75-125			
Nickel	62.6		ug/L	62.5	0.313	99.7	75-125			
Selenium	64.8		ug/L	62.5	-0.002	104	75-125			
Thallium	58.9		ug/L	62.5	0.0066	94.2	75-125			
Zinc	65.7		ug/L	62.5	1.46	103	75-125			





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	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018047 - Default Prep Wet Cher	m									
Blank (B018047-BLK1)										
Prepared: 4/27/2020 10:24, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B018047-BS1)										
Prepared: 4/27/2020 10:28, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	1460	25	mg/L	1500		97.0	80-120			
Duplicate (B018047-DUP1)	Source: 0033745-01									
Prepared: 4/27/2020 11:52, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	716	50	mg/L		724			1.11	10	
Duplicate (B018047-DUP2)	Source: 0041174-01									
Prepared: 4/27/2020 11:56, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	364	50	mg/L		372			2.17	10	
Batch B018081 - Default Prep Wet Cher	m									
Blank (B018081-BLK1)										
Prepared: 4/27/2020 16:41, Analyzed: 4	/27/2020 16:41									
Chemical Oxygen Demand	ND	8	mg/L							U
LCS (B018081-BS1)										
Prepared: 4/27/2020 16:41, Analyzed: 4	/27/2020 16:41									
Chemical Oxygen Demand	127	8	mg/L				90-110			
Duplicate (B018081-DUP1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	206	8	mg/L		210			1.84	25	
Matrix Spike (B018081-MS1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	416	8	mg/L	250	210	82.7	90-110			M2
Matrix Spike Dup (B018081-MSD1) Source: 0040126-01										
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	414	8	mg/L	250	210	81.8	90-110	0.537	10	M2





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018086 - Default Prep Wet Chem										
Blank (B018086-BLK1)										
Prepared: 4/27/2020 14:54, Analyzed: 4/27/2	2020 14:54									
Specific Conductance (Lab)	ND	1	umhos/cm							U
LCS (B018086-BS1)										
Prepared: 4/27/2020 14:55, Analyzed: 4/27/2	2020 14:55									
Specific Conductance (Lab)	1410		umhos/cm	1410		99.8	80-120			
Duplicate (B018086-DUP1)	Source: 0033751-01									
Prepared: 4/27/2020 15:09, Analyzed: 4/27/2	2020 15:09									
Specific Conductance (Lab)	2980	1	umhos/cm		2990			0.0335	1.24	
Duplicate (B018086-DUP2)	Source: 0043793-01									
Prepared: 4/27/2020 15:27, Analyzed: 4/27/2	2020 15:27									
Specific Conductance (Lab)	1	1	umhos/cm		1			0.755	1.24	
Batch B018100 - Default Prep Wet Chem										
Blank (B018100-BLK1)										
Prepared: 5/1/2020 18:21, Analyzed: 5/1/2020	20 18:21									
Total Organic Carbon	ND	0.5	mg/L							U
LCS (B018100-BS1)										
Prepared: 5/1/2020 18:43, Analyzed: 5/1/202	20 18:43									
Total Organic Carbon	5.0	0.5	mg/L	5.00		101	80-120			
Duplicate (B018100-DUP1)	Source: 0033748-01									
Prepared: 5/2/2020 0:07, Analyzed: 5/2/202	20 0:07									
Total Organic Carbon	2.0	0.5	mg/L		2.0			0.0293	25	
Duplicate (B018100-DUP2)	Source: 0033758-01									
Prepared: 5/2/2020 4:27, Analyzed: 5/2/202	20 4:27									
Total Organic Carbon	2.8	0.5	mg/L		2.8			0.410	25	
Matrix Spike (B018100-MS1)	Source: 0033749-01									
Prepared: 5/2/2020 0:29, Analyzed: 5/2/202										
Total Organic Carbon	10.7	0.5	mg/L	2.50	8.2	101	80-120			



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018100 - Default Prep Wet Chem										
Matrix Spike (B018100-MS2)	Source: 0033759-01									
Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020	4:49									
Total Organic Carbon	3.6	0.5	mg/L	5.00	0.4	65.0	80-120			M2
Batch B018391 - Default Prep Wet Chem										
Blank (B018391-BLK1)										
Prepared: 4/29/2020 11:33, Analyzed: 4/29/20	20 11:33									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK2)										
Prepared: 4/29/2020 13:03, Analyzed: 4/29/20	20 13:03									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK3)										
Prepared: 4/29/2020 15:33, Analyzed: 4/29/20	20 15:33									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
LCS (B018391-BS1)										
Prepared: 4/29/2020 12:58, Analyzed: 4/29/20	20 12:58									
Total Alkalinity	235	4	mg/L	235		99.8	80-120			
Carbonate Alkalinity as CaCO3	232	4	mg/L	225		103	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
LCS (B018391-BS2)										
Prepared: 4/29/2020 15:29, Analyzed: 4/29/20	20 15:29									
Carbonate Alkalinity as CaCO3	230	4	mg/L	225		102	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	250	4	mg/L	235		106	80-120			



		Poportina		Snike	Source	<u> </u>	% DEC		- PPD	
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
	NGSUIL	LIIIII	Office	Level	Nesuit	/UINEO	LIIIIII	- Ni D	LIIIII	140163
Batch B018391 - Default Prep Wet Chem										
Duplicate (B018391-DUP1)	Source: 0033751-0	1								
Prepared: 4/29/2020 12:34, Analyzed: 4/29	9/2020 12:34									
Total Alkalinity	309	4	mg/L		301			2.43	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		301				10	U
Bicarbonate Alkalinity as CaCO3	309	4	mg/L		ND				10	
Duplicate (B018391-DUP2)	Source: 0033759-0	1								
Prepared: 4/29/2020 15:04, Analyzed: 4/29/2020 15:04										
Total Alkalinity	402	4	mg/L		394			2.01	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	402	4	mg/L		394			2.01	10	
Matrix Spike (B018391-MS1) Source: 0033743-01										
Prepared: 4/29/2020 12:40, Analyzed: 4/29/2020 12:40										
Total Alkalinity	61	4	mg/L	50.4	22	77.0	80-120			M2
Matrix Spike (B018391-MS2)	Source: 0033759-0	1								
Prepared: 4/29/2020 15:18, Analyzed: 4/29	9/2020 15:18									
Total Alkalinity	413	4	mg/L	50.4	394	37.5	80-120			М3
Batch B019045 - Default Prep Wet Chem										
Blank (B019045-BLK1)										
Prepared: 5/4/2020 10:56, Analyzed: 5/4/2	020 10:56									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B019045-BS1)										
Prepared: 5/4/2020 10:58, Analyzed: 5/4/2	020 10:58									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B019045-DUP1)	Source: 0041237-0	2	-							
Prepared: 5/4/2020 12:56, Analyzed: 5/4/2										
Hardness as CaCO3	214	1	mg/L		200			6.76	10	
Matrix Spike (B019045-MS1)	Source: 0041237-0	2								
Prepared: 5/4/2020 12:58, Analyzed: 5/4/2										
Hardness as CaCO3	568	1	mg/L	318	200	116	80-120			
			9, -	0.0		1.10	30 120			





Ion Chromatography Madisonville - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018474 - Default Prep IC										
Blank (B018474-BLK1)										
Prepared: 5/2/2020 1:02, Analyzed: 5/2/20	20 1:02									
Sulfate	ND	1.0	mg/L							U
Chloride	ND	0.5	mg/L							U
Fluoride	ND	0.20	mg/L							U
LCS (B018474-BS1)										
Prepared: 5/2/2020 0:42, Analyzed: 5/2/20	20 0:42									
Chloride	9.7		mg/L	10.0		97.0	90-110			
Fluoride	9.60		mg/L	10.0		96.0	90-110			
Sulfate	10.0		mg/L	10.0		99.9	90-110			
Matrix Spike (B018474-MS1)	Source: 0033759-0	1								
Prepared: 5/2/2020 9:35, Analyzed: 5/2/20	20 9:35									
Chloride	552		mg/L	10.0	1170	NR	80-120			M2
Fluoride	1.75		mg/L	10.0	0.24	15.1	80-120			M2
Sulfate	627		mg/L	10.0	2710	NR	80-120			M2
Matrix Spike Dup (B018474-MSD1)	Source: 0033759-0	1								
Prepared: 5/2/2020 9:56, Analyzed: 5/2/20	20 9:56									
Fluoride	1.81		mg/L	10.0	0.24	15.7	80-120	3.09	20	M2
Sulfate	640		mg/L	10.0	2710	NR	80-120	2.10	20	M2
Chloride	558		mg/L	10.0	1170	NR	80-120	1.05	10	M2

Analyte Certifications

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0033754
Shipped By: Client	Temperature: 3.90° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	abla
Check if Collector Signature Present	$oldsymbol{arnothing}$
Check if bottles are intact	☑
Check if bottles are correct	☑
Check if bottles have sufficient volume	☑
Check if samples received on ice	☑
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>03/02/2020</u>



					•		
Client: Big Rivers Electric Corporation Station		lectric Corporation \	Vilson	Invoice To: Big Rivers Electric Corporation Wilson Station Brian Edwards PO Box 24 Henderson, KY 42419 PO#: 258508-6			
Project: MW-6 Wilson 092-00004	Mike Galbrai	th					
•	PO Box 24 Henderson, I	KY 42419					
	Phone: (270)						
Please Print Legibly	PWS ID#: St # e:	KI		Quote#			
		- 17			ianas Manitas	ring? Yes 🗶 No	
Collected by (Signature):	*required information*					·	
*For composite samples please indicate t	begin time, end time and temp(o	C) at end time below	v:	Sample	es Chlorinate	d? Yes No	
Influent: Start Date Start tim	ne End Date	End Time	Te	emp (oC)			
Effluent: Start Date Start tin	ne End Date	End Time	т	emp (oC)			
MMLI USE ONLY *required information Workorder # Date Collection 0033754 (mm/dd/yy): Time (24	ion	Containers Sample	Description	Composite	Sample	e Analysis Requested	
Sample ID#	Plastic 1L		W6	g/c		otal Chloride 300.0	
0033754-01 A 04-23-20 10:3	Flastic IL	1 191	vvo	g/C	Conductivit Sulfate 300	y (Lab) Fluoride 300.0 .0 Alkalinity Bicarbonate hity Carbonate	
0033754-01 В <u>0 Ч-27-2<i>0</i> </u>	Plastic 500mL pH<2 w/HNO3	1 M	W6	g/c	Barium Tot Selenium T Titration Be Tot 6010B (Calcium To 6020 Sodiu	6020 Antimony Tot 6020 6020 Iron Tot 6010B ot 6020 Hardness eryllium Tot 6020 Boron Cadmium Tot 6020 t 6010B Chromium Tot Im Tot 6010B Lead Tot m Tot 6020 Mercury Tot	
	Preservation Check: pH	:\			0020		
0033754-01 C 04-22-20 16:35	Plastic 500mL pH<2 w/H2SO4 Preservation Check: pH	1	W6	g/c	COD TOC		
0033754-01 D 0 <u>4-22-20 18:35</u>	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) Preservation Check: pH	1	W6	g/c	Radium 22	6 (sub)	
Preservation Check Performed by:	Al						
Field data collected by:	Smeed Date (mm/dd/y	y y 4-22-20 Tim	e (24 hr)	10:35			
pH 6,21 Cond (umho)	Res CI (mg/l	_) Tot	CI (mg/L)	Fr	ee Cl (mg/L)		
•	Static Water Level					_	
• •			· (g/	····			
Flow (MGD) or (CFS)	or (g/min)					
Relinquished by: (Signature)	Received by: (Sig	nature)		Date (mm	/dd/yy)	Time (24 hr)	
Tra Sud	appuy	Jak		4-23	-20	1352	
PACE- Check here if trip charg	e applied to associated COC		Printed: 3	/27/2020 1:53	3:35PM	Page 18 of 30	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: 03/02/2020



Client: Big Rivers Electric Corporation Wilson Station	Report To: Big Rivers Electric Col	rooration Wilson	Invoice To:	ectric Corporation Wilson Station
	Station	iporation venous	· ·	·
Project: MW-6 Wilson 092-00004	Mike Galbraith		Brian Edward PO Box 24	JS .
•	PO Box 24 Henderson, KY 42419		Henderson, I	(Y 42419
	Phone: (270) 844-600	<u>o</u>	PO#: 25	8508-6
Please Print Legibly	PWS ID#: State: Ky	<u>.</u>	Quote#	
Collected by (Signature): required info	ormation*	-	Complia	ance Monitoring? Yes No
*For composite samples please indicate begin time, end	I time and temp(oC) at end	time below:	Sample	s Chlorinated? Yes No
Influent: Start Date Start time				
Effluent: Start Date Start time	End DateE	nd Time Te	mp (oC)	
MMLI USE ONLY *required information*	<u>ව</u> ව			
	and Preservative	Sample Description	Composite	Sample Analysis Requested
	1L pH<2 w/HNO3 1	MW6	g/c	Radium 228 (sub)
Preserv	ad 228 (Sub) ation Check: pH :			
Ra	1L pH<2 w/HNO3 1 ad 228 (Sub) ation Check: pH :	MW6	g/c	Radium 228 (sub)
	1L pH<2 w/HNO3 1 (Sub)	MW6	g/c	Radium Total (sub)
Preserv	ation Check: pH :			
•				
,				
A	1			
Preservation Check Performed by:				
Field data collected by:	Date (mm/dd/yy) 64-2	2 · 2 © Time (24 hr)	0:35	
pH <u>6.21</u> Cond (umbo) 3,23	Res CI (mg/L)	Tot CI (mg/L)	Fre	ee CI (mg/L)
	Static Water Level			·
				
Flow (MGD) or (CFS)	or (g/min)			
Relinquished by: (Signature)	Received by: (Signature)		Date (mm/	dd/yy) Time (24 hr)
Then bull	assyzar	ih	4-23-	<u>20 1325</u>

PACE- Check here if trip charge applied to associated COC

Printed: 3/27/2020 1:53:35PM

Page 19 of 30

(724)850-5600



May 18, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 33754

Pace Project No.: 30360645

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 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,

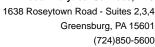
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 33754
Pace Project No.: 30360645

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

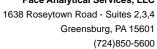
Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

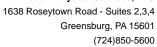




SAMPLE SUMMARY

Project: 33754
Pace Project No.: 30360645

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30360645001	0033754-01	Water	04/22/20 10:35	04/28/20 09:10





SAMPLE ANALYTE COUNT

Project: 33754
Pace Project No.: 30360645

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30360645001	0033754-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 33754
Pace Project No.: 30360645

Sample: 0033754-01 PWS:	Lab ID: 30360 Site ID:	645001 Collected: 04/22/20 10:35 Sample Type:	Received:	04/28/20 09:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	ervices - Greensburg				
Radium-226	EPA 903.1	-0.0913 ± 0.343 (0.573) C:NA T:91%	pCi/L	05/18/20 14:43	3 13982-63-3	
	Pace Analytical S	ervices - Greensburg				
Radium-228	EPA 904.0	0.804 ± 0.454 (0.851) C:79% T:89%	pCi/L	05/14/20 10:56	5 15262-20-1	
	Pace Analytical S	ervices - Greensburg				
Total Radium	Total Radium Calculation	0.804 ± 0.797 (1.42)	pCi/L	05/18/20 16:00	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project:

33754

Pace Project No.:

30360645

QC Batch: QC Batch Method: 394308

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360645001

METHOD BLANK: 1909681

Matrix: Water

Associated Lab Samples:

30360645001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

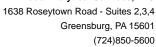
Radium-228

-0.453 ± 0.239 (0.657) C:83% T:82%

pCi/L

05/14/20 10:56

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.





QUALITY CONTROL - RADIOCHEMISTRY

Project: 33754 Pace Project No.:

30360645

QC Batch:

394309

QC Batch Method: EPA 903.1 Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360645001

METHOD BLANK: 1909682

Matrix: Water

Associated Lab Samples:

30360645001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

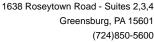
Radium-226

-0.127 ± 0.277 (0.478) C:NA T:86%

pCi/L

05/18/20 13:52

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.





QUALIFIERS

Project: 33754
Pace Project No.: 30360645

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.

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: 05/18/2020 04:03 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

MO#:30360645

Chain of Custody

Workorder: 33754

Report To:

Workorder Name: MW-6 Wilson 092-00004 Owner Received Date: 4/23/2020

Results Requested By:

Requested Analysis Radium Sum Calc Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601 Subcontract To: (724) 850-5615 r.whittington@mccoylabs.com Madisonville, KY 42409 McCoy & McCoy Labs

270-821-7375

P.O. Box 907

A .	.will group ans.coll				á.	Preserved Containers		_	_	 			
,		Sample Collect	Collect				7						
Item	Item Sample ID	Type	Type Date/Time	Lab ID.	Matrix			06 \ 06 \					
Н							- 41_			 		VINC BUISE ONLY	Y INC
2	0033754-01		04/22/20 10:35	IR44-McCoy	Water		×	-		-			
8												1	-
4													
5										-			
9									Ŧ		+		
7													
8	The state of the s									-			
6										_			
10										-	+		
Tran	Transfers Released By		Date/Time	Time Revgived By			Date/Time	ime		Comments	Jents		
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2								2					
က					77700000								

Sample Intact Y or N	provided on this COC	
Received on Ice Y or N	in/name of the sampling site, sampler's name and signature may not be provided on this COC	ailable in the owner laboratory.
Custody Seal Y or (N)	cation/name of the sampling	s since this information is av
ooler Temperature on Receipt 3 . 7 °C	***In order to maintain client confidentiality, location	This chain of custody is considered complete as is since this information is available in the owner laboratory.

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Page 28 of 30

30360645

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0033754

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601

Phone :(724) 850-5615

Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0033754-01	Water	Sampled:04/22/2020 10:35	Specific Method		
Radium Total (sub)	•	10/19/2020 10:35	EPA 904.0 Radium S	um (
Radium 228 (sub)		10/19/2020 10:35	EPA 904.0 Radium S	um C	
Radium 226 (sub)		10/19/2020 10:35	EPA 903.1		

Mary May 04-27-20
Released By Date Received By Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condit	ion l	Jpon	Red	ceipt _	_
American and the second	D.		-	Froject # # 30360	6 4 5
Pace Analytical Client Name:	<u> </u>	lle		Project #	
·	_			- I OM	
Courier: Fed Ex DUPS DUSPS Client		ommei	rcial	Pace Other Label O S	
Tracking#: 1107 5386 1811		-		LIMS Login () S 1 V/	I
Custody Seal on Cooler/Box Present:	_ n		_	intact: yes no	
Thermometer Used	Туре	of Ice:		0.0	
Cooler Temperature Observed Temp 5	<u>, 1</u>	°C	Corre	ection Factor: 0,5 °C Final Temp: 3,2 °C	
Temp should be above freezing to 6°C				pH paper Lot# Date and Initials of person examining	
	- V	NI=	L NI/A	pH paper Lot# Date and Initials of person examining contents: DSM 4/3 3/3020	
Comments:	Yes	No	N/A		
Chain of Custody Present:				1.	
Chain of Custody Filled Out:		1		2. 	ſ
Chain of Custody Relinquished:			<u> </u>	3.	
Sampler Name & Signature on COC:	_	<u> </u>	-	4.	
Sample Labels match COC:		<u> </u>	<u> </u>	5.	
-Includes date/time/ID Matrix:	\sim	<u> </u>	ī		
Samples Arrived within Hold Time:			ļ	6.	
Short Hold Time Analysis (<72hr remaining):			 	7.	
Rush Turn Around Time Requested:	ļ			8.	
Sufficient Volume:				9.	
Correct Containers Used:				10.	
-Pace Containers Used:	ļ				
Containers Intact:	<u> </u>			11.	
Orthophosphate field filtered	ļ	ļ		12.	
Hex Cr Aqueous sample field filtered	ļ			13.	
Organic Samples checked for dechlorination:				14.	
Filtered volume received for Dissolved tests				15.	
All containers have been checked for preservation.		<u> </u>	<u> </u>	16. pH L Z	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon				
All containers meet method preservation				Initial when \Q\U Date/time of	
requirements.		<u> </u>		completed D1 preservation	
				Lot# of added preservative	
Headspace in VOA Vials (>6mm):				17.	
Trip Blank Present:				18.	
Trip Blank Custody Seals Present				-	
Rad Samples Screened < 0.5 mrem/hr			-	Initial when completed SM Date: 42812030	•
Client Notification/ Resolution:	<u> </u>	L		panel () vo) vc	
Person Contacted:			-Date/-	Firme: Gontacted By:	
Comments/ Resolution:					
A check in this box indicates that addit	ional	inform	nation	ı has been stored in ereports.	

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0033755

Mike Galbraith
Big Rivers Electric Corporation Wilson Station
PO Box 24
Henderson KY, 42419

Customer ID: Report Printed:

44-100168

05/29/2020 14:26

Project Name: MW-7

MW-7 Wilson 092-00004

Workorder:

0033755

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 04/23/2020 13:25.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0033755-01	MW7/		Groundwater	04/22/2020 10:55	04/23/2020 13:25	Travis Sneed
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0033755-01	Field Conductance	2320				
	Field pH	6.90				
	Field Temp (C)	18.22				

Work Order Comments:

Corrected Report:

This report has been issued as a revision of the previous report dated 5/20/20@ 0911. Cobalt result added to report.



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

Lab Sample ID: **0033755-01**Sample Collection Date Time: 04/22/2020 10:55

Description: MW7 Sample Received Date Time: 04/23/2020 13:25

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Arsenic	0.0075		mg/L	0.0010	0.0004	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Barium	0.025		mg/L	0.004	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Boron	1.58	D1	mg/L	1.00	1.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:43	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Calcium	369	D1	mg/L	40.0	13.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:47	AKB
Chromium	0.0053		mg/L	0.0020	0.0006	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Cobalt	0.006		mg/L	0.004	0.004	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Copper	0.003		mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Iron	15.1	D1	mg/L	1.00	0.500	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:43	AKB
Lead	0.004		mg/L	0.002	0.0005	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Lithium	0.03		mg/L	0.02	0.005	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Magnesium	134	D1	mg/L	20.0	9.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:47	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:07	DMH
Molybdenum	0.003	J	mg/L	0.01	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Nickel	0.013		mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Potassium	8.90		mg/L	0.50	0.22	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:40	AKB
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Sodium	36.1	D1	mg/L	2.60	1.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:43	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH
Zinc	0.02		mg/L	0.02	0.02	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:37	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	320		mg/L	4		2320 B-2011	04/29/2020 14:47	04/29/2020 14:47	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	04/29/2020 14:47	04/29/2020 14:47	HMF
Total Alkalinity	320		mg/L	4		2320 B-2011	04/29/2020 14:47	04/29/2020 14:47	HMF
Chemical Oxygen Demand	112		mg/L	8	8	HACH 8000	04/27/2020 16:46	04/27/2020 16:46	ALT
Specific Conductance	2250		umhos/cm	1	1	2510 B-2011	04/27/2020 15:16	04/27/2020 15:16	GAT
(Lab)									
Hardness as CaCO3	1350	D	mg/L	5	5	2340 C (as HACH	05/04/2020 11:58	05/04/2020 11:58	CLL
						8226)			
Total Dissolved Solids	1910		mg/L	50	50	2540 C-2011	04/27/2020 11:12	04/28/2020 12:32	MAG
Total Organic Carbon	1.3		mg/L	0.5		5310 C-2011	05/02/2020 01:56	05/02/2020 01:56	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.040	_Sub	pCi/L			EPA 903.1	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium-228	1.01	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium	1.05	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW





Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	40.0		mg/L	0.5	0.4	EPA 300.0 REV 2.1	05/02/2020 06:31	05/02/2020 06:31	CSC
Fluoride	0.27		mg/L	0.20		EPA 300.0 REV 2.1	05/02/2020 06:31	05/02/2020 06:31	CSC
Sulfate	1310	D	mg/L	100	50.0	EPA 300.0 REV 2.1	05/02/2020 06:52	05/02/2020 06:52	CSC



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

Notes for work order 0033755

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI does not provide interpretation of these results unless otherwise stated.

laboratory method detection limit in our LIMS system).

- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
E	Concentration exceeds calibration range
J	Estimated value.
J5	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
L2	The associated blank spike recovery was below method acceptance limits.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
M6	Matrix spike recovery was high.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

Greater than Less than



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Blank (B017542-BLK1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12:	50									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Cobalt	ND	0.004	mg/L							U
Blank (B017542-BLK2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:0	9									
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.001	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U
Blank (B017542-BLK3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	0									
Antimony	ND	0.005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.002	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





Metals by Swo46 6000 Series Methods - Quality Control										
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
LCS (B017542-BS1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020	0 12:53									
Boron	0.13	0.10	mg/L	0.125		106	85-115			
Calcium	6.57	0.40	mg/L	6.25		105	85-115			
Iron	6.39	0.100	mg/L	6.25		102	85-115			
Magnesium	5.72	0.200	mg/L	6.25		91.5	85-115			
Potassium	6.62	0.50	mg/L	6.25		106	85-115			
Sodium	6.47	0.26	mg/L	6.25		103	85-115			
Cobalt	0.054	0.004	mg/L	0.0625		85.7	85-115			
LCS (B017542-BS2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020	17:13									
Molybdenum	0.05	0.01	mg/L	0.0625		86.2	85-115			
Mercury	0.0020	0.0005	mg/L	0.00250		79.8	85-115			L2
Antimony	0.058	0.005	mg/L	0.0625		93.6	85-115			
Arsenic	0.0537	0.0010	mg/L	0.0625		85.9	85-115			
Barium	0.054	0.004	mg/L	0.0625		86.5	85-115			
Beryllium	0.0495	0.0020	mg/L	0.0625		79.2	85-115			M2
Cadmium	0.0533	0.0010	mg/L	0.0625		85.3	85-115			
Chromium	0.0535	0.0020	mg/L	0.0625		85.5	85-115			
Copper	0.054	0.003	mg/L	0.0625		86.7	85-115			
Lead	0.051	0.002	mg/L	0.0625		81.1	85-115			L2
Lithium	0.05	0.02	mg/L	0.0625		82.7	85-115			L2
Nickel	0.053	0.003	mg/L	0.0625		85.3	85-115			
Selenium	0.053	0.003	mg/L	0.0625		85.4	85-115			
Thallium	0.0495	0.0020	mg/L	0.0625		79.1	85-115			L2
Zinc	0.05	0.02	mg/L	0.0625		86.2	85-115			
			9. =							
LCS (B017542-BS3) Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020	16:54									
Molybdenum	0.07	0.01	mg/L	0.0625		110	85-115			
Antimony	0.069	0.005	mg/L	0.0625		110	85-115			
Mercury	0.003	0.0005	mg/L	0.0025		102	85-115			
Arsenic	0.0651	0.0003	mg/L	0.0625		102	85-115			
Barium		0.0010	-	0.0625		105	85-115			
Beryllium	0.065 0.0624	0.004	mg/L mg/L	0.0625		99.8	85-115			
Cadmium	0.0624	0.0020	mg/L	0.0625		104	85-115 85-115			
Chromium	0.0632	0.0010	mg/L	0.0625		104	85-115 85-115			
Copper	0.066	0.0020	mg/L	0.0625		106	85-115			
Lead	0.065	0.003	-	0.0625		104	85-115			
Lithium	0.065	0.002	mg/L	0.0625			85-115			
			mg/L			101				
Nickel Solonium	0.064	0.003	mg/L	0.0625		103	85-115 85-115			
Selenium	0.065	0.003	mg/L	0.0625		103	85-115 85-115			
Thallium	0.0650	0.0020	mg/L	0.0625		104	85-115 85-115			
Zinc	0.07	0.02	mg/L	0.0625		105	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:18									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	6.11	10.0	mg/L	6.25	ND	97.8	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.064	0.004	mg/L	0.0625	ND	102	80-120			
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, U
Matrix Spike (B017542-MS2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	357	40.0	mg/L	6.25	382	NR	80-120			D2, M2
Iron	89.2	10.0	mg/L	6.25	96.5	NR	80-120			D2, M2
Magnesium	190	20.0	mg/L	6.25	197	NR	80-120			D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.546	0.004	mg/L	0.0625	0.547	NR	80-120			M3
Sodium	107	26.0	mg/L	6.25	108	NR	80-120			D2
Matrix Spike (B017542-MS3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 18:48									
Antimony	0.071	0.005	mg/L	0.0625	ND	113	80-120			
Mercury	0.0023	0.0005	mg/L	0.00250	ND	92.2	80-120			
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120			
Arsenic	0.0646	0.0010	mg/L	0.0625	ND	103	80-120			J5
Barium	0.066	0.004	mg/L	0.0625	ND	106	80-120			
Beryllium	0.0609	0.0020	mg/L	0.0625	ND	97.5	80-120			
Cadmium	0.0639	0.0010	mg/L	0.0625	ND	102	80-120			
Chromium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120			
Copper	0.061	0.003	mg/L	0.0625	ND	97.6	80-120			
Lead	0.060	0.002	mg/L	0.0625	ND	96.7	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	104	80-120			
Nickel	0.062	0.003	mg/L	0.0625	ND	99.8	80-120			
Selenium	0.063	0.003	mg/L	0.0625	ND	100	80-120			
Thallium	0.0587	0.0020	mg/L	0.0625	ND	93.9	80-120			
Zinc	0.06	0.02	mg/L	0.0625	ND	103	80-120			





	Ţ.	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
-						701120				
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5	5/1/2020 19:11									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	86.7	80-120			
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120			
Molybdenum	0.04	0.01	mg/L	0.0625	0.002	53.5	80-120			J5, M2
Arsenic	0.0711	0.0010	mg/L	0.0625	0.0079	101	80-120			J5
Barium	0.068	0.004	mg/L	0.0625	0.005	102	80-120			
Beryllium	0.0507	0.0020	mg/L	0.0625	0.0013	79.2	80-120			M2
Cadmium	0.0781	0.0010	mg/L	0.0625	0.0211	91.1	80-120			
Chromium	0.0631	0.0020	mg/L	0.0625	0.0007	99.8	80-120			
Copper	0.057	0.003	mg/L	0.0625	ND	90.8	80-120			
Lead	0.056	0.002	mg/L	0.0625	ND	89.1	80-120			
Lithium	0.20	0.02	mg/L	0.0625	0.15	87.1	80-120			
Nickel	1.03	0.003	mg/L	0.0625	1.10	NR	80-120			M3, E
Selenium	0.032	0.003	mg/L	0.0625	ND	50.5	80-120			M2
Thallium	0.0560	0.0020	mg/L	0.0625	0.0011	87.8	80-120			
Zinc	1.85	0.02	mg/L	0.0625	2.25	NR	80-120			M3, E
Matrix Spike Dup (B017542-MSD1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	4/28/2020 16:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	6.31	10.0	mg/L	6.25	ND	101	80-120	3.22	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, U
Cobalt	0.065	0.004	mg/L	0.0625	ND	104	80-120	2.02	20	
Matrix Spike Dup (B017542-MSD2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	4/28/2020 16:28									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	356	40.0	mg/L	6.25	382	NR	80-120	0.438	20	D2, M2
Iron	88.8	10.0	mg/L	6.25	96.5	NR	80-120	0.473	20	D2, M2
Magnesium	189	20.0	mg/L	6.25	197	NR	80-120	0.296	20	D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Cobalt	0.552	0.004	mg/L	0.0625	0.547	8.08	80-120	1.11	20	M3
Sodium	106	26.0	mg/L	6.25	108	NR	80-120	0.573	20	D2





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike Dup (B017542-MSD3)	Source: 0033742-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	1/2020 18:52									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.30	20	
Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	2.84	20	
Mercury	0.0024	0.0005	mg/L	0.00250	ND	97.5	80-120	5.63	20	
Arsenic	0.0650	0.0010	mg/L	0.0625	ND	104	80-120	0.685	20	J5
Barium	0.068	0.004	mg/L	0.0625	ND	108	80-120	2.25	20	
Beryllium	0.0616	0.0020	mg/L	0.0625	ND	98.6	80-120	1.15	20	
Cadmium	0.0655	0.0010	mg/L	0.0625	ND	105	80-120	2.55	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	1.38	20	
Copper	0.062	0.003	mg/L	0.0625	ND	99.0	80-120	1.42	20	
Lead	0.062	0.002	mg/L	0.0625	ND	99.0	80-120	2.37	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	106	80-120	2.61	20	
Nickel	0.064	0.003	mg/L	0.0625	ND	103	80-120	3.35	20	
Selenium	0.064	0.003	mg/L	0.0625	ND	103	80-120	2.12	20	
Thallium	0.0601	0.0020	mg/L	0.0625	ND	96.2	80-120	2.37	20	
Zinc	0.07	0.02	mg/L	0.0625	ND	105	80-120	1.77	20	
Matrix Spike Dup (B017542-MSD4)	Source: 0033743-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	1/2020 19:15									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	89.1	80-120	2.77	20	
Molybdenum	0.03	0.01	mg/L	0.0625	0.002	52.5	80-120	1.71	20	J5, M2
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120	0.226	20	
Arsenic	0.0692	0.0010	mg/L	0.0625	0.0079	98.0	80-120	2.76	20	J5
Barium	0.068	0.004	mg/L	0.0625	0.005	100	80-120	1.30	20	
Beryllium	0.0493	0.0020	mg/L	0.0625	0.0013	76.8	80-120	2.91	20	M2
Cadmium	0.0793	0.0010	mg/L	0.0625	0.0211	93.1	80-120	1.59	20	
Chromium	0.0616	0.0020	mg/L	0.0625	0.0007	97.5	80-120	2.35	20	
Copper	0.055	0.003	mg/L	0.0625	ND	87.6	80-120	3.65	20	
Lead	0.055	0.002	mg/L	0.0625	ND	88.6	80-120	0.549	20	
Lithium	0.20	0.02	mg/L	0.0625	0.15	93.5	80-120	1.99	20	
Nickel	1.04	0.003	mg/L	0.0625	1.10	NR	80-120	1.31	20	M3, E
Selenium	0.031	0.003	mg/L	0.0625	ND	49.5	80-120	2.00	20	M2
Thallium	0.0555	0.0020	mg/L	0.0625	0.0011	87.0	80-120	0.916	20	
Zinc	1.87	0.02	mg/L	0.0625	2.25	NR	80-120	1.21	20	M3, E





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	Re	porting		Spike	Source		%REC		RPD		
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes	
Batch B017542 - EPA 200.2											
Post Spike (B017542-PS1)	Source: 0033742-01										
Prepared: 4/24/2020 11:25, Analyzed	: 4/28/2020 16:31										
Boron	121		ug/L	125	-1.32	96.8	75-125			D2	
Calcium	6440		ug/L	6250	3.49	103	75-125			D2	
Iron	6150		ug/L	6250	21.5	98.0	75-125			D2	
Magnesium	6600		ug/L	6250	1.11	106	75-125			D2	
Potassium	5980		ug/L	6250	9.01	95.6	75-125			D2	
Sodium	6720		ug/L	6250	2.78	108	75-125			D2	
Cobalt	62.7		ug/L	62.5	0.009	100	75-125				
Post Spike (B017542-PS2)	Source: 0033742-01										
Prepared: 4/24/2020 11:25, Analyzed	: 5/1/2020 19:19										
Molybdenum	65.7		ug/L	62.5	0.03	105	75-125				
Antimony	71.0		ug/L	62.5	0.107	113	75-125				
Mercury	2.56		ug/L	2.50	0.0710	99.4	75-125				
Arsenic	64.2		ug/L	62.5	-0.0029	103	75-125			J5	
Barium	67.2		ug/L	62.5	0.037	107	75-125				
Beryllium	56.7		ug/L	62.5	-0.0023	90.7	75-125				
Cadmium	63.6		ug/L	62.5	0.0053	102	75-125				
Chromium	61.7		ug/L	62.5	0.0998	98.6	75-125				
Copper	61.0		ug/L	62.5	-1.66	97.6	75-125				
Lead	60.7		ug/L	62.5	0.219	96.8	75-115				
Lithium	60.7		ug/L	62.5	0.05	97.0	75-125				
Nickel	62.6		ug/L	62.5	0.313	99.7	75-125				
Selenium	64.8		ug/L	62.5	-0.002	104	75-125				
Thallium	58.9		ug/L	62.5	0.0066	94.2	75-125				
Zinc	65.7		ug/L	62.5	1.46	103	75-125				





			-		_	-				
	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018047 - Default Prep Wet Cher	m									
Blank (B018047-BLK1)										
Prepared: 4/27/2020 10:24, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B018047-BS1)										
Prepared: 4/27/2020 10:28, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	1460	25	mg/L	1500		97.0	80-120			
Duplicate (B018047-DUP1)	Source: 0033745-01									
Prepared: 4/27/2020 11:52, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	716	50	mg/L		724			1.11	10	
Duplicate (B018047-DUP2)	Source: 0041174-01									
Prepared: 4/27/2020 11:56, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	364	50	mg/L		372			2.17	10	
Batch B018081 - Default Prep Wet Cher	m									
Blank (B018081-BLK1)										
Prepared: 4/27/2020 16:41, Analyzed: 4	/27/2020 16:41									
Chemical Oxygen Demand	ND	8	mg/L							U
LCS (B018081-BS1)										
Prepared: 4/27/2020 16:41, Analyzed: 4	/27/2020 16:41									
Chemical Oxygen Demand	127	8	mg/L				90-110			
Duplicate (B018081-DUP1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	206	8	mg/L		210			1.84	25	
Matrix Spike (B018081-MS1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	416	8	mg/L	250	210	82.7	90-110			M2
Matrix Spike Dup (B018081-MSD1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	414	8	mg/L	250	210	81.8	90-110	0.537	10	M2





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018086 - Default Prep Wet Chem										
Blank (B018086-BLK1)										
Prepared: 4/27/2020 14:54, Analyzed: 4/27/2	2020 14:54									
Specific Conductance (Lab)	ND	1	umhos/cm							U
LCS (B018086-BS1)										
Prepared: 4/27/2020 14:55, Analyzed: 4/27/2	2020 14:55									
Specific Conductance (Lab)	1410		umhos/cm	1410		99.8	80-120			
Duplicate (B018086-DUP1)	Source: 0033751-01									
Prepared: 4/27/2020 15:09, Analyzed: 4/27/2	2020 15:09									
Specific Conductance (Lab)	2980	1	umhos/cm		2990			0.0335	1.24	
Duplicate (B018086-DUP2)	Source: 0043793-01									
Prepared: 4/27/2020 15:27, Analyzed: 4/27/2	2020 15:27									
Specific Conductance (Lab)	1	1	umhos/cm		1			0.755	1.24	
Batch B018100 - Default Prep Wet Chem										
Blank (B018100-BLK1)										
Prepared: 5/1/2020 18:21, Analyzed: 5/1/2020	20 18:21									
Total Organic Carbon	ND	0.5	mg/L							U
LCS (B018100-BS1)										
Prepared: 5/1/2020 18:43, Analyzed: 5/1/202	20 18:43									
Total Organic Carbon	5.0	0.5	mg/L	5.00		101	80-120			
Duplicate (B018100-DUP1)	Source: 0033748-01									
Prepared: 5/2/2020 0:07, Analyzed: 5/2/202	20 0:07									
Total Organic Carbon	2.0	0.5	mg/L		2.0			0.0293	25	
Duplicate (B018100-DUP2)	Source: 0033758-01									
Prepared: 5/2/2020 4:27, Analyzed: 5/2/202	20 4:27									
Total Organic Carbon	2.8	0.5	mg/L		2.8			0.410	25	
Matrix Spike (B018100-MS1)	Source: 0033749-01									
Prepared: 5/2/2020 0:29, Analyzed: 5/2/202										
Total Organic Carbon	10.7	0.5	mg/L	2.50	8.2	101	80-120			



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018100 - Default Prep Wet Chem										
Matrix Spike (B018100-MS2)	Source: 0033759-01									
Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020	4:49									
Total Organic Carbon	3.6	0.5	mg/L	5.00	0.4	65.0	80-120			M2
Batch B018391 - Default Prep Wet Chem										
Blank (B018391-BLK1)										
Prepared: 4/29/2020 11:33, Analyzed: 4/29/20	20 11:33									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK2)										
Prepared: 4/29/2020 13:03, Analyzed: 4/29/20	20 13:03									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK3)										
Prepared: 4/29/2020 15:33, Analyzed: 4/29/20	20 15:33									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
LCS (B018391-BS1)										
Prepared: 4/29/2020 12:58, Analyzed: 4/29/20	20 12:58									
Total Alkalinity	235	4	mg/L	235		99.8	80-120			
Carbonate Alkalinity as CaCO3	232	4	mg/L	225		103	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
LCS (B018391-BS2)										
Prepared: 4/29/2020 15:29, Analyzed: 4/29/20	20 15:29									
Carbonate Alkalinity as CaCO3	230	4	mg/L	225		102	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	250	4	mg/L	235		106	80-120			



	R	eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018391 - Default Prep Wet Chem										
Duplicate (B018391-DUP1)	Source: 0033751-01									
Prepared: 4/29/2020 12:34, Analyzed: 4/2	29/2020 12:34									
Total Alkalinity	309	4	mg/L		301			2.43	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		301				10	U
Bicarbonate Alkalinity as CaCO3	309	4	mg/L		ND				10	
Duplicate (B018391-DUP2)	Source: 0033759-01									
Prepared: 4/29/2020 15:04, Analyzed: 4/2	29/2020 15:04									
Total Alkalinity	402	4	mg/L		394			2.01	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	402	4	mg/L		394			2.01	10	
Matrix Spike (B018391-MS1)	Source: 0033743-01									
Prepared: 4/29/2020 12:40, Analyzed: 4/2	29/2020 12:40									
Total Alkalinity	61	4	mg/L	50.4	22	77.0	80-120			M2
Matrix Spike (B018391-MS2)	Source: 0033759-01									
Prepared: 4/29/2020 15:18, Analyzed: 4/2	29/2020 15:18									
Total Alkalinity	413	4	mg/L	50.4	394	37.5	80-120			М3
Batch B019045 - Default Prep Wet Chem										
Blank (B019045-BLK1)										
Prepared: 5/4/2020 10:56, Analyzed: 5/4/	2020 10:56									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B019045-BS1)										
Prepared: 5/4/2020 10:58, Analyzed: 5/4/	2020 10:58									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B019045-DUP1)	Source: 0041237-02		-							
Prepared: 5/4/2020 12:56, Analyzed: 5/4/										
		4	mc/l		200			6.76	10	
Hardness as CaCO3	214	1	mg/L		200			6.76	10	
Matrix Spike (B019045-MS1)	Source: 0041237-02									
Prepared: 5/4/2020 12:58, Analyzed: 5/4/										
Hardness as CaCO3	568	1	mg/L	318	200	116	80-120			





Ion Chromatography Madisonville - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018474 - Default Prep IC										
Blank (B018474-BLK1)										
Prepared: 5/2/2020 1:02, Analyzed: 5/2/20	20 1:02									
Sulfate	ND	1.0	mg/L							U
Chloride	ND	0.5	mg/L							U
Fluoride	ND	0.20	mg/L							U
LCS (B018474-BS1)										
Prepared: 5/2/2020 0:42, Analyzed: 5/2/20	20 0:42									
Chloride	9.7		mg/L	10.0		97.0	90-110			
Fluoride	9.60		mg/L	10.0		96.0	90-110			
Sulfate	10.0		mg/L	10.0		99.9	90-110			
Matrix Spike (B018474-MS1)	Source: 0033759-0	1								
Prepared: 5/2/2020 9:35, Analyzed: 5/2/20	20 9:35									
Chloride	552		mg/L	10.0	1170	NR	80-120			M2
Fluoride	1.75		mg/L	10.0	0.24	15.1	80-120			M2
Sulfate	627		mg/L	10.0	2710	NR	80-120			M2
Matrix Spike Dup (B018474-MSD1)	Source: 0033759-0	1								
Prepared: 5/2/2020 9:56, Analyzed: 5/2/20	20 9:56									
Fluoride	1.81		mg/L	10.0	0.24	15.7	80-120	3.09	20	M2
Sulfate	640		mg/L	10.0	2710	NR	80-120	2.10	20	M2
Chloride	558		mg/L	10.0	1170	NR	80-120	1.05	10	M2

Analyte Certifications

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0033755
Shipped By: Client	Temperature: 3.90° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	
Check if Collector Signature Present	abla
Check if bottles are intact	
Check if bottles are correct	☑
Check if bottles have sufficient volume	
Check if samples received on ice	☑
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	✓

Chain of Custody

Scheduled for: <u>03/02/2020</u>



Client: Big Rivers Electric Corpora Station Project: MW-7 Wilson 092-00004	ation Wilson	Report To: Big Rivers Ele Station Mike Galbraith PO Box 24 Henderson, K	h	orporation Wilson	Invoice To: Big Rivers E Brian Edwar PO Box 24 Henderson,	rds	oration Wilson Station
		Phone: (270)	844-600	<u>00</u>	PO#: 2 :	58508	-la
Please Print Legibly		PWS ID#: State:	KY	,	Quote#	<i>,,,,,</i>	<u>_</u>
Collected by (Signature):	· /	0				ance Monito	— oring? Yes — No
•	required info				·		ed? Yes No
*For composite samples please indica							. —
Influent: Start DateStar							
Effluent: Start Date Start	t time	_ End Date	E	and Time	Temp (oC)		
MMLI USE ONLY *required inform Workorder # Date Col 0033755 (mm/dd/yy): Time Sample ID#	lection	and Preservative	Containers	Sample Description	Composite	Samp	ele Analysis Requested
	55	Plastic 1L	1	MW7	g/c	Alkalinity 7	Total Chloride 300.0 ity (Lab) Fluoride 300.0 0.0 Alkalinity Bicarbonate
0033755-01 B <u>4/22/20 10</u>	Plast	ic 500mL pH<2 w/HNO3	1	MW7	g/c	Arsenic To Barium To Selenium Titration B Tot 6010B	inity Carbonate it 6020 Antimony Tot 6020 t 6020 Iron Tot 6010B Tot 6020 Hardness eryllium Tot 6020 Boron Cadmium Tot 6020 ot 6010B Chromium Tot
0033755-01 C <u>4/22/20</u>	Plast	ation Check: pH : ic 500mL pH<2 w/H2SO4 ation Check: pH :	<u>/</u> 1	MW7	g/c	6020 Sodi	um Tot 6010B Lead Tot um Tot 6020 Mercury Tot
0033755-01 D 4/22/20 105	Plastic Ra	1L pH<2 w/HNO3 ad 226 (Sub) ation Check: pH:	/	MW7	g/c	Radium 22	26 (sub)
Preservation Check Performed by:		4e1	/				
Field data collected by:	<i>l</i>		4/2	<u>R/2∂</u> Time (24 hr) _	105		
pH <u>6,90</u> Cond (un				Tot Cl (mg/L)			
Temp (oC) <u>18.22</u> or (oF) S	Static Water Level		DO (mg/L)	т	urb. (NTU)	
Flow (MGD) or (CF	FS) (or (g/min)					
Relinquished by: (Signature)	1	Received by: (Sign	ature)		Date (mm/	dd/yy)	Time (24 hr)
Tran Sun a		abbyy	Kav	yn.	<u>4-23</u>	-20	/325
PACE- Check here if trip ch	arge applied to a	ssociated COC		Printed: 3	3/27/2020 1:54	10PM	Page 18 of 30

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: 03/02/2020



	Scheduled 10	r. <u>03/02/2020</u>		
Client: Big Rivers Electric Corporation Wilson Station Project: MW-7 Wilson 092-00004	Report To: Big Rivers Electric C Station Mike Galbraith PO Box 24 Henderson, KY 4241	9	Invoice To: Big Rivers El Brian Edward PO Box 24 Henderson, I	
Please Print Legibly	Phone: (270) 844-60 PWS ID#: State:	<u> </u>	PO#: 25	<u>8508-6</u>
Collected by (Signature):			Complia	ance Monitoring? Yes X No
required into		d time below:	·	s Chlorinated? Yes No
*For composite samples please indicate begin time, end to Influent: Start Date Start time			emn (oC)	
Effluent: Start Date Start time				
Sample ID# 0033755-01 E	nd Preservative L pH<2 w/HNO3 1 228 (Sub) ion Check: pH: L pH<2 w/HNO3 1 228 (Sub) ion Check: pH: L pH<2 w/HNO3 (Sub) ion Check: pH:	Sample Description MW7 MW7 MW7	Composite g/c g/c g/c	Sample Analysis Requested Radium 228 (sub) Radium 228 (sub) Radium Total (sub)
Preservation Check Performed by:		-l	A. ~~	
Field data collected by: 179 Society pH 6,90 Cond (umbe) 2,32				e Ci (ma/l)
		DO (mg/L)		
Flow (MGD) or (CFS) or				
	eceived by: (Signature)	in	Date (mm/	dd/yy) Time (24 hr) -20 /325

Printed: 3/27/2020 1:54:10PM

Page 19 of 30

PACE- Check here if trip charge applied to associated COC

(724)850-5600



May 18, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 33755

Pace Project No.: 30360643

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 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,

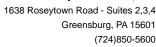
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 33755
Pace Project No.: 30360643

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706

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

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

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

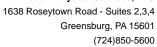




SAMPLE SUMMARY

Project: 33755
Pace Project No.: 30360643

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30360643001	0033755-01	Water	04/22/20 10:55	04/28/20 09:10





SAMPLE ANALYTE COUNT

Project: 33755
Pace Project No.: 30360643

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
	- Cample 15		– ———	———	
30360643001	0033755-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

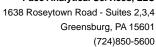
PASI-PA = Pace Analytical Services - Greensburg



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 33755
Pace Project No.: 30360643

Sample: 0033755-01 PWS:	Lab ID: 3036 Site ID:	0643001 Collected: 04/22/20 10:55 Sample Type:	Received:	04/28/20 09:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 903.1	0.0400 ± 0.437 (0.697) C:NA T:87%	pCi/L	05/18/20 14:43	3 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	1.01 ± 0.504 (0.887) C:79% T:75%	pCi/L	05/14/20 10:55	5 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.05 ± 0.941 (1.58)	pCi/L	05/18/20 16:00	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project: 33755 Pace Project No.: 30360643

QC Batch: 394308

Analysis Method: QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

> Pace Analytical Services - Greensburg Laboratory:

EPA 904.0

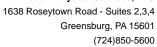
Associated Lab Samples: 30360643001

METHOD BLANK: 1909681 Matrix: Water

Associated Lab Samples: 30360643001

Act ± Unc (MDC) Carr Trac Analyzed Qualifiers Parameter Units Radium-228 -0.453 ± 0.239 (0.657) C:83% T:82% pCi/L 05/14/20 10:56

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.





QUALITY CONTROL - RADIOCHEMISTRY

Project:

33755

Pace Project No.:

30360643

QC Batch: QC Batch Method: 394309

Analysis Method:

EPA 903.1

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

30360643001

METHOD BLANK: 1909682

Matrix: Water

Associated Lab Samples:

30360643001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

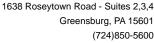
Radium-226

-0.127 ± 0.277 (0.478) C:NA T:86%

pCi/L

05/18/20 13:52

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.





QUALIFIERS

Project: 33755
Pace Project No.: 30360643

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.

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

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Date: 05/18/2020 04:02 PM

MO#:30360643

30360643

Chain of Custody

Face Analytical

	Workorder: 55/55	MC	workorder Name:	MW-7 Wilson 092-00004	n 092-000		Owner Received Date: 4/23/2020	Date: 4	/23/2020	Resul	ts Reque	Results Requested By:	 	
Repo	Report To:		Subcontract To:	act To:				-	*	Requested Analysis	d Analys	sis		
Σ̈́	McCov & McCov Labs		Pace Ana	Pace Analytical Services 11C Greenshirg DA	T Gree	nchiira D./			oleO					
P.O.	P.O. Box 907		1638 Ros	1638 Rosey Town Rd Suite 2,3,4	Jite 2,3,4	2 S IN 22 I			wns					
Mad	Madisonville, KY 42409		Greensbr	Greensburg, PA 15601					յ աւ					
270-	270-821-7375		(724) 850-5615)-5615					nibe					
r.wh	r.whittington@mccoylabs.com					_	Preserved Containers							
		Sample	Collect		<u> </u>			E						
Item	Item Sample ID	Туре	Date/Time	Lab ID		Matrix		י טע	06 V					
Н					-			703						LAB USE ONLY
2	0033755-01		04/22/20 10:55	IR44-McCoy		Water		×	+~`				L	12
က														
4													-	
5	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			1.4										
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Tran	Transfers Released By		Date	Date/Time Re	Reverived By	<u></u>		Date/Time	ime		<u></u> 3	Comments	١,	
П						MAK	\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	Mps och	Clibs					
7								26.11						
3														

Sample Intact Yor N ***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC Received on Ice Y or N This chain of custody is considered complete as is since this information is available in the owner laboratory. Custody Seal Y of N ၁ **Cooler Temperature on Receipt**

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Page 9 of 11 Page 28 of 30

30360643 Pace Analytical Services, LLC Kentucky 0033755

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager: Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601

Phone: (724) 850-5615

Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0033755-01	Water	Sampled:04/22/2020 10:55	Specific Method		
Radium Total (sub)		10/19/2020 10:55	EPA 904.0 Radium S	Sum (Minima (
Radium 228 (sub)		10/19/2020 10:55	EPA 904.0 Radium S	Sum C	
Radium 226 (sub)		10/19/2020 10:55	EPA 903.1		

Received By Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condit	_			seipt
Pace Analytical Client Name:	Pa	ce	2	Project #
	 -			The one of the original of the
Courier: Fed Ex UPS USPS Client	C	ommer	rcial	Pace Other Label O S V
Tracking #: 1107 5386 1811		-		LIMS Login () S V/
Custody Seal on Cooler/Box Present: Syes	_ n			intact: Uyes no
Thermometer Used				Blue None
•	<u> 75</u>		Corre	ection Factor: 0,5 °C Final Temp: 4.0 °C
Temp should be above freezing to 6°C				pH paper Lot# Date and Initials of person examining
Comments:	Yes	No	N/A	pH paper Lot# Date and Initials of person examining contents: 05144/33/2020
	100	110	140,	1.
Chain of Custody Present: Chain of Custody Filled Out:				2.
+		 		3.
Chain of Custody Relinquished: Sampler Name & Signature on COC:				4.
				5.
Sample Labels match COC: -Includes date/time/ID Matrix:	<u>~~</u>	7		
Samples Arrived within Hold Time:		'		6.
,	<u> </u>			7.
Short Hold Time Analysis (<72hr remaining):				8.
Rush Turn Around Time Requested:				9.
Sufficient Volume:				10.
Correct Containers Used:	\vdash			10.
-Pace Containers Used:	 			11.
Containers Intact:				12.
Orthophosphate field filtered				
Hex Cr Aqueous sample field filtered				14.
Organic Samples checked for dechlorination:				15.
Filtered volume received for Dissolved tests All containers have been checked for preservation.				16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon,			" pHC2
All containers meet method preservation requirements.				Initial when SV Date/time of preservation
		 _		Lot # of added preservative
Headspace in VOA Vials (>6mm):				17.
Trip Blank Present:				18.
Trip Blank Custody Seals Present				
Rad Samples Screened < 0.5 mrem/hr				initial when completed: Date: 4 28 2000
Client Notification/ Resolution:				
Person-Gontacted:			Date/1	ime:Gontacted-B <u>y:</u>
Comments/ Resolution:				

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0033758

Mike Galbraith
Big Rivers Electric Corporation Wilson Station
PO Box 24
Henderson KY, 42419

Customer ID: Report Printed:

44-100168 05/29/2020 14:28

Project Name: MW-8 Wilson 092-00004

Workorder: 0033758

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 04/23/2020 13:25.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC
P.O. Box 907
Madisonville, KY 42431
270.821.7375
www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0033758-01	MW8/		Groundwater	04/22/2020 07:55	04/23/2020 13:25	Travis Sneed
<u>LabNumber</u>	Measurement	<u>Value</u>				
0033758-01	Field Conductance	2050				
	Field Dissolved Oxygen	0.41				
	Field pH	6.18				
	Field Temp (C)	15.00				
	Field Turbidity	16.3				

Work Order Comments:

Corrected Report:

This report has been issued as a revision of the previous report dated 5/20/20@0910. Cobalt result added to report.



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ANALYTICAL RESULTS

Sample Collection Date Time: 04/22/2020 07:55 Lab Sample ID: 0033758-01 Sample Received Date Time: 04/23/2020 13:25

Description: MW8

Metals by SW846 6000 Series Methods

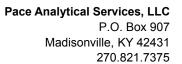
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:41	DMH
Arsenic	0.0056		mg/L	0.0010	0.0004	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:11	DMH
Barium	0.024		mg/L	0.004	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:41	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:41	DMH
Boron	ND	U	mg/L	0.10	0.10	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:50	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:41	DMH
Calcium	255	D1	mg/L	40.0	13.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:56	AKB
Chromium	0.0008	J	mg/L	0.0020	0.0006	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:11	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:11	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:11	DMH
Iron	38.0	D1	mg/L	1.00	0.500	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:53	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:41	DMH
Lithium	0.009	J	mg/L	0.02	0.005	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:41	DMH
Magnesium	138	D1	mg/L	20.0	9.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:56	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:11	DMH
Molybdenum	0.01		mg/L	0.01	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:41	DMH
Nickel	0.002	J	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:11	DMH
Potassium	4.46		mg/L	0.50	0.22	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:50	AKB
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:41	DMH
Sodium	41.1	D1	mg/L	2.60	1.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:53	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:41	DMH
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:11	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	236		mg/L	4		2320 B-2011	04/29/2020 14:52	04/29/2020 14:52	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	04/29/2020 14:52	04/29/2020 14:52	HMF
Total Alkalinity	236		mg/L	4		2320 B-2011	04/29/2020 14:52	04/29/2020 14:52	HMF
Chemical Oxygen Demand	22		mg/L	8	8	HACH 8000	04/27/2020 16:46	04/27/2020 16:46	ALT
Specific Conductance	1940		umhos/cm	1	1	2510 B-2011	04/27/2020 15:20	04/27/2020 15:20	GAT
(Lab)									
Hardness as CaCO3	820	D	mg/L	2	2	2340 C (as HACH 8226)	05/04/2020 12:42	05/04/2020 12:42	CLL
Total Dissolved Solids	1500		mg/L	50	50	/	04/27/2020 11:16	04/28/2020 12:32	MAG
Total Organic Carbon	2.8		mg/L	0.5		5310 C-2011	05/02/2020 02:17	05/02/2020 02:17	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.395	_Sub	pCi/L			EPA 903.1	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium-228	0.675	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium	1.07	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW



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Ion Chromatography Madisonville

Analyte	Result	Flag Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	3.6	mg/L	0.5	0.4	EPA 300.0 REV 2.1	05/02/2020 07:12	05/02/2020 07:12	CSC
Fluoride	0.27	mg/L	0.20		EPA 300.0 REV 2.1	05/02/2020 07:12	05/02/2020 07:12	CSC
Sulfate	1010	D mg/L	100	50.0	EPA 300.0 REV	05/02/2020 07:32	05/02/2020 07:32	CSC



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Notes for work order 0033758

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI does not provide interpretation of these results unless otherwise stated.

laboratory method detection limit in our LIMS system).

- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.

See subcontractors report.

All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.
 Concentrations reported are estimated values.

Qualifiers

_Sub

D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
E	Concentration exceeds calibration range
J	Estimated value.
J5	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
L2	The associated blank spike recovery was below method acceptance limits.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
M6	Matrix spike recovery was high.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample

MS Matrix Spike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

Greater than Less than



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Blank (B017542-BLK1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12	50									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Cobalt	ND	0.004	mg/L							U
Blank (B017542-BLK2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:0	9									
Antimony	ND	0.005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.001	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U
Blank (B017542-BLK3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	0									
Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.002	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
	Juit	Liiiit	J		. tooun	70. 120	2			
Batch B017542 - EPA 200.2										
LCS (B017542-BS1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12	:53									
Boron	0.13	0.10	mg/L	0.125		106	85-115			
Calcium	6.57	0.40	mg/L	6.25		105	85-115			
Iron	6.39	0.100	mg/L	6.25		102	85-115			
Magnesium	5.72	0.200	mg/L	6.25		91.5	85-115			
Potassium	6.62	0.50	mg/L	6.25		106	85-115			
Sodium	6.47	0.26	mg/L	6.25		103	85-115			
Cobalt	0.054	0.004	mg/L	0.0625		85.7	85-115			
LCS (B017542-BS2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:1	13									
Mercury	0.0020	0.0005	mg/L	0.00250		79.8	85-115			L2
Molybdenum	0.05	0.01	mg/L	0.0625		86.2	85-115			
Antimony	0.058	0.005	mg/L	0.0625		93.6	85-115			
Arsenic	0.0537	0.0010	mg/L	0.0625		85.9	85-115			
Barium	0.054	0.004	mg/L	0.0625		86.5	85-115			
Beryllium	0.0495	0.0020	mg/L	0.0625		79.2	85-115			M2
Cadmium	0.0533	0.0010	mg/L	0.0625		85.3	85-115			
Chromium	0.0535	0.0020	mg/L	0.0625		85.5	85-115			
Copper	0.054	0.003	mg/L	0.0625		86.7	85-115			
Lead	0.051	0.002	mg/L	0.0625		81.1	85-115			L2
Lithium	0.05	0.02	mg/L	0.0625		82.7	85-115			L2
Nickel	0.053	0.003	mg/L	0.0625		85.3	85-115			
Selenium	0.053	0.003	mg/L	0.0625		85.4	85-115			
Thallium	0.0495	0.0020	mg/L	0.0625		79.1	85-115			L2
Zinc	0.05	0.02	mg/L	0.0625		86.2	85-115			
LCS (B017542-BS3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	54									
Molybdenum	0.07	0.01	mg/L	0.0625		110	85-115			
Antimony	0.069	0.005	mg/L	0.0625		110	85-115			
Mercury	0.0026	0.0005	mg/L	0.00250		102	85-115			
Arsenic	0.0651	0.0010	mg/L	0.0625		104	85-115			
Barium	0.065	0.004	mg/L	0.0625		105	85-115			
Beryllium	0.0624	0.0020	mg/L	0.0625		99.8	85-115			
Cadmium	0.0652	0.0010	mg/L	0.0625		104	85-115			
Chromium	0.0645	0.0020	mg/L	0.0625		103	85-115			
Copper	0.066	0.003	mg/L	0.0625		106	85-115			
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.06	0.02	mg/L	0.0625		101	85-115			
Nickel	0.064	0.003	mg/L	0.0625		103	85-115			
Selenium	0.065	0.003	mg/L	0.0625		103	85-115			
Thallium	0.0650	0.0020	mg/L	0.0625		104	85-115			
Zinc	0.07	0.02	mg/L	0.0625		105	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:18									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	6.11	10.0	mg/L	6.25	ND	97.8	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, U
Cobalt	0.064	0.004	mg/L	0.0625	ND	102	80-120			
Matrix Spike (B017542-MS2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	357	40.0	mg/L	6.25	382	NR	80-120			D2, M2
Iron	89.2	10.0	mg/L	6.25	96.5	NR	80-120			D2, M2
Magnesium	190	20.0	mg/L	6.25	197	NR	80-120			D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.546	0.004	mg/L	0.0625	0.547	NR	80-120			М3
Sodium	107	26.0	mg/L	6.25	108	NR	80-120			D2
Matrix Spike (B017542-MS3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 18:48									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120			
Mercury	0.0023	0.0005	mg/L	0.00250	ND	92.2	80-120			
Antimony	0.071	0.005	mg/L	0.0625	ND	113	80-120			
Arsenic	0.0646	0.0010	mg/L	0.0625	ND	103	80-120			J5
Barium	0.066	0.004	mg/L	0.0625	ND	106	80-120			
Beryllium	0.0609	0.0020	mg/L	0.0625	ND	97.5	80-120			
Cadmium	0.0639	0.0010	mg/L	0.0625	ND	102	80-120			
Chromium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120			
Copper	0.061	0.003	mg/L	0.0625	ND	97.6	80-120			
Lead	0.060	0.002	mg/L	0.0625	ND	96.7	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	104	80-120			
Nickel	0.062	0.003	mg/L	0.0625	ND	99.8	80-120			
Selenium	0.063	0.003	mg/L	0.0625	ND	100	80-120			
Thallium	0.0587	0.0020	mg/L	0.0625	ND	93.9	80-120			
Zinc	0.06	0.02	mg/L	0.0625	ND	103	80-120			





		Damantin e		Calles	Causas		0/ DEC		DDD	
Analyto		Reporting	Linita	Spike	Source	0/ BEC	%REC	RPD	RPD Limit	Notes
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	KPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5/1	/2020 19:11									
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120			
Molybdenum	0.04	0.01	mg/L	0.0625	0.002	53.5	80-120			J5, M2
Mercury	0.0022	0.0005	mg/L	0.00250	ND	86.7	80-120			
Arsenic	0.0711	0.0010	mg/L	0.0625	0.0079	101	80-120			J5
Barium	0.068	0.004	mg/L	0.0625	0.005	102	80-120			
Beryllium	0.0507	0.0020	mg/L	0.0625	0.0013	79.2	80-120			M2
Cadmium	0.0781	0.0010	mg/L	0.0625	0.0211	91.1	80-120			
Chromium	0.0631	0.0020	mg/L	0.0625	0.0007	99.8	80-120			
Copper	0.057	0.003	mg/L	0.0625	ND	90.8	80-120			
Lead	0.056	0.002	mg/L	0.0625	ND	89.1	80-120			
Lithium	0.20	0.02	mg/L	0.0625	0.15	87.1	80-120			
Nickel	1.03	0.003	mg/L	0.0625	1.10	NR	80-120			M3, E
Selenium	0.032	0.003	mg/L	0.0625	ND	50.5	80-120			M2
Thallium	0.0560	0.0020	mg/L	0.0625	0.0011	87.8	80-120			
Zinc	1.85	0.02	mg/L	0.0625	2.25	NR	80-120			M3, E
Matrix Spike Dup (B017542-MSD1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 4/2	8/2020 16:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	6.31	10.0	mg/L	6.25	ND	101	80-120	3.22	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Cobalt	0.065	0.004	mg/L	0.0625	ND	104	80-120	2.02	20	
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, U
Matrix Spike Dup (B017542-MSD2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 4/2	8/2020 16:28									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	356	40.0	mg/L	6.25	382	NR	80-120	0.438	20	D2, M2
Iron	88.8	10.0	mg/L	6.25	96.5	NR	80-120	0.473	20	D2, M2
Magnesium	189	20.0	mg/L	6.25	197	NR	80-120	0.296	20	D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	106	26.0	mg/L	6.25	108	NR	80-120	0.573	20	D2
Cobalt	0.552	0.004	mg/L	0.0625	0.547	8.08	80-120	1.11	20	M3
	0.002	5.55∓	g/L	0.0020	0.0-1	0.00	00 120		0	1410





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		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike Dup (B017542-MSD3)	Source: 0033742-01	I								
Prepared: 4/24/2020 11:25, Analyzed: 5/1/	/2020 18:52									
Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	2.84	20	
Mercury	0.0024	0.0005	mg/L	0.00250	ND	97.5	80-120	5.63	20	
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.30	20	
Arsenic	0.0650	0.0010	mg/L	0.0625	ND	104	80-120	0.685	20	J5
Barium	0.068	0.004	mg/L	0.0625	ND	108	80-120	2.25	20	
Beryllium	0.0616	0.0020	mg/L	0.0625	ND	98.6	80-120	1.15	20	
Cadmium	0.0655	0.0010	mg/L	0.0625	ND	105	80-120	2.55	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	1.38	20	
Copper	0.062	0.003	mg/L	0.0625	ND	99.0	80-120	1.42	20	
Lead	0.062	0.002	mg/L	0.0625	ND	99.0	80-120	2.37	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	106	80-120	2.61	20	
Nickel	0.064	0.003	mg/L	0.0625	ND	103	80-120	3.35	20	
Selenium	0.064	0.003	mg/L	0.0625	ND	103	80-120	2.12	20	
Thallium	0.0601	0.0020	mg/L	0.0625	ND	96.2	80-120	2.37	20	
Zinc	0.07	0.02	mg/L	0.0625	ND	105	80-120	1.77	20	
Matrix Spike Dup (B017542-MSD4)	Source: 0033743-01	I								
Prepared: 4/24/2020 11:25, Analyzed: 5/1/	/2020 19:15									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	89.1	80-120	2.77	20	
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120	0.226	20	
Molybdenum	0.03	0.01	mg/L	0.0625	0.002	52.5	80-120	1.71	20	J5, M2
Arsenic	0.0692	0.0010	mg/L	0.0625	0.0079	98.0	80-120	2.76	20	J5
Barium	0.068	0.004	mg/L	0.0625	0.005	100	80-120	1.30	20	
Beryllium	0.0493	0.0020	mg/L	0.0625	0.0013	76.8	80-120	2.91	20	M2
Cadmium	0.0793	0.0010	mg/L	0.0625	0.0211	93.1	80-120	1.59	20	
Chromium	0.0616	0.0020	mg/L	0.0625	0.0007	97.5	80-120	2.35	20	
Copper	0.055	0.003	mg/L	0.0625	ND	87.6	80-120	3.65	20	
Lead	0.055	0.002	mg/L	0.0625	ND	88.6	80-120	0.549	20	
Lithium	0.20	0.02	mg/L	0.0625	0.15	93.5	80-120	1.99	20	
Nickel	1.04	0.003	mg/L	0.0625	1.10	NR	80-120	1.31	20	M3, E
Selenium	0.031	0.003	mg/L	0.0625	ND	49.5	80-120	2.00	20	M2
Thallium	0.0555	0.0020	mg/L	0.0625	0.0011	87.0	80-120	0.916	20	
Zinc	1.87	0.02	mg/L	0.0625	2.25	NR	80-120	1.21	20	M3, E





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	Repor	rting	Spike	Source		%REC		RPD	
Analyte	Result L	Limit Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2									
Post Spike (B017542-PS1)	Source: 0033742-01								
Prepared: 4/24/2020 11:25, Analyzed:	: 4/28/2020 16:31								
Boron	121	ug/L	125	-1.32	96.8	75-125			D2
Calcium	6440	ug/L	6250	3.49	103	75-125			D2
Iron	6150	ug/L	6250	21.5	98.0	75-125			D2
Magnesium	6600	ug/L	6250	1.11	106	75-125			D2
Potassium	5980	ug/L	6250	9.01	95.6	75-125			D2
Sodium	6720	ug/L	6250	2.78	108	75-125			D2
Cobalt	62.7	ug/L	62.5	0.009	100	75-125			
Post Spike (B017542-PS2)	Source: 0033742-01								
Prepared: 4/24/2020 11:25, Analyzed:	: 5/1/2020 19:19								
Mercury	2.56	ug/L	2.50	0.0710	99.4	75-125			
Molybdenum	65.7	ug/L	62.5	0.03	105	75-125			
Antimony	71.0	ug/L	62.5	0.107	113	75-125			
Arsenic	64.2	ug/L	62.5	-0.0029	103	75-125			J5
Barium	67.2	ug/L	62.5	0.037	107	75-125			
Beryllium	56.7	ug/L	62.5	-0.0023	90.7	75-125			
Cadmium	63.6	ug/L	62.5	0.0053	102	75-125			
Chromium	61.7	ug/L	62.5	0.0998	98.6	75-125			
Copper	61.0	ug/L	62.5	-1.66	97.6	75-125			
Lead	60.7	ug/L	62.5	0.219	96.8	75-115			
Lithium	60.7	ug/L	62.5	0.05	97.0	75-125			
Nickel	62.6	ug/L	62.5	0.313	99.7	75-125			
Selenium	64.8	ug/L	62.5	-0.002	104	75-125			
Thallium	58.9	ug/L	62.5	0.0066	94.2	75-125			
Zinc	65.7	ug/L	62.5	1.46	103	75-125			





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	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018047 - Default Prep Wet Cher	m									
Blank (B018047-BLK1)										
Prepared: 4/27/2020 10:24, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B018047-BS1)										
Prepared: 4/27/2020 10:28, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	1460	25	mg/L	1500		97.0	80-120			
Duplicate (B018047-DUP1)	Source: 0033745-01									
Prepared: 4/27/2020 11:52, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	716	50	mg/L		724			1.11	10	
Duplicate (B018047-DUP2)	Source: 0041174-01									
Prepared: 4/27/2020 11:56, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	364	50	mg/L		372			2.17	10	
Batch B018081 - Default Prep Wet Cher	m									
Blank (B018081-BLK1)										
Prepared: 4/27/2020 16:41, Analyzed: 4	/27/2020 16:41									
Chemical Oxygen Demand	ND	8	mg/L							U
LCS (B018081-BS1)										
Prepared: 4/27/2020 16:41, Analyzed: 4	/27/2020 16:41									
Chemical Oxygen Demand	127	8	mg/L				90-110			
Duplicate (B018081-DUP1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	206	8	mg/L		210			1.84	25	
Matrix Spike (B018081-MS1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	416	8	mg/L	250	210	82.7	90-110			M2
Matrix Spike Dup (B018081-MSD1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	414	8	mg/L	250	210	81.8	90-110	0.537	10	M2





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018086 - Default Prep Wet Chem										
Blank (B018086-BLK1)										
Prepared: 4/27/2020 14:54, Analyzed: 4/27/2	2020 14:54									
Specific Conductance (Lab)	ND	1	umhos/cm							U
LCS (B018086-BS1)										
Prepared: 4/27/2020 14:55, Analyzed: 4/27/2	2020 14:55									
Specific Conductance (Lab)	1410		umhos/cm	1410		99.8	80-120			
Duplicate (B018086-DUP1)	Source: 0033751-01									
Prepared: 4/27/2020 15:09, Analyzed: 4/27/2	2020 15:09									
Specific Conductance (Lab)	2980	1	umhos/cm		2990			0.0335	1.24	
Duplicate (B018086-DUP2)	Source: 0043793-01									
Prepared: 4/27/2020 15:27, Analyzed: 4/27/2	2020 15:27									
Specific Conductance (Lab)	1	1	umhos/cm		1			0.755	1.24	
Batch B018100 - Default Prep Wet Chem										
Blank (B018100-BLK1)										
Prepared: 5/1/2020 18:21, Analyzed: 5/1/2020	20 18:21									
Total Organic Carbon	ND	0.5	mg/L							U
LCS (B018100-BS1)										
Prepared: 5/1/2020 18:43, Analyzed: 5/1/202	20 18:43									
Total Organic Carbon	5.0	0.5	mg/L	5.00		101	80-120			
Duplicate (B018100-DUP1)	Source: 0033748-01									
Prepared: 5/2/2020 0:07, Analyzed: 5/2/202	20 0:07									
Total Organic Carbon	2.0	0.5	mg/L		2.0			0.0293	25	
Duplicate (B018100-DUP2)	Source: 0033758-01									
Prepared: 5/2/2020 4:27, Analyzed: 5/2/202	20 4:27									
Total Organic Carbon	2.8	0.5	mg/L		2.8			0.410	25	
Matrix Spike (B018100-MS1)	Source: 0033749-01									
Prepared: 5/2/2020 0:29, Analyzed: 5/2/202										
Total Organic Carbon	10.7	0.5	mg/L	2.50	8.2	101	80-120			



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		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018100 - Default Prep Wet Chem										
Matrix Spike (B018100-MS2)	Source: 0033759-01									
Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020	4:49									
Total Organic Carbon	3.6	0.5	mg/L	5.00	0.4	65.0	80-120			M2
Batch B018391 - Default Prep Wet Chem										
Blank (B018391-BLK1)										
Prepared: 4/29/2020 11:33, Analyzed: 4/29/20	020 11:33									
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK2)										
Prepared: 4/29/2020 13:03, Analyzed: 4/29/20	020 13:03									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Blank (B018391-BLK3)										
Prepared: 4/29/2020 15:33, Analyzed: 4/29/20	020 15:33									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
LCS (B018391-BS1)										
Prepared: 4/29/2020 12:58, Analyzed: 4/29/20	020 12:58									
Total Alkalinity	235	4	mg/L	235		99.8	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	232	4	mg/L	225		103	0-200			
LCS (B018391-BS2)										
Prepared: 4/29/2020 15:29, Analyzed: 4/29/20	020 15:29									
Carbonate Alkalinity as CaCO3	230	4	mg/L	225		102	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	250	4	mg/L	235		106	80-120			



	R	eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018391 - Default Prep Wet Chem	1									
Duplicate (B018391-DUP1)	Source: 0033751-01									
Prepared: 4/29/2020 12:34, Analyzed: 4/	29/2020 12:34									
Bicarbonate Alkalinity as CaCO3	309	4	mg/L		ND				10	
Total Alkalinity	309	4	mg/L		301			2.43	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		301				10	U
Duplicate (B018391-DUP2)	Source: 0033759-01									
Prepared: 4/29/2020 15:04, Analyzed: 4/	29/2020 15:04									
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Total Alkalinity	402	4	mg/L		394			2.01	10	
Bicarbonate Alkalinity as CaCO3	402	4	mg/L		394			2.01	10	
Matrix Spike (B018391-MS1)	Source: 0033743-01									
Prepared: 4/29/2020 12:40, Analyzed: 4/	29/2020 12:40									
Total Alkalinity	61	4	mg/L	50.4	22	77.0	80-120			M2
Matrix Spike (B018391-MS2)	Source: 0033759-01									
Prepared: 4/29/2020 15:18, Analyzed: 4/	29/2020 15:18									
Total Alkalinity	413	4	mg/L	50.4	394	37.5	80-120			М3
Batch B019045 - Default Prep Wet Chem	1									
Blank (B019045-BLK1)										
Prepared: 5/4/2020 10:56, Analyzed: 5/4	/2020 10:56									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B019045-BS1)										
Prepared: 5/4/2020 10:58, Analyzed: 5/4	/2020 10:58									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B019045-DUP1)	Source: 0041237-02									
Prepared: 5/4/2020 12:56, Analyzed: 5/4										
Hardness as CaCO3	214	1	mg/L		200			6.76	10	
_		1	mg/L		200			0.10	10	
Matrix Spike (B019045-MS1)	Source: 0041237-02									
Prepared: 5/4/2020 12:58, Analyzed: 5/4				0.40	000	440	00.400			
Hardness as CaCO3	568	1	mg/L	318	200	116	80-120			





Ion Chromatography Madisonville - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018474 - Default Prep IC										
Blank (B018474-BLK1)										
Prepared: 5/2/2020 1:02, Analyzed: 5/2/20	020 1:02									
Chloride	ND	0.5	mg/L							U
Sulfate	ND	1.0	mg/L							U
Fluoride	ND	0.20	mg/L							U
LCS (B018474-BS1)										
Prepared: 5/2/2020 0:42, Analyzed: 5/2/20	020 0:42									
Sulfate	10.0		mg/L	10.0		99.9	90-110			
Chloride	9.7		mg/L	10.0		97.0	90-110			
Fluoride	9.60		mg/L	10.0		96.0	90-110			
Matrix Spike (B018474-MS1)	Source: 0033759-01									
Prepared: 5/2/2020 9:35, Analyzed: 5/2/20	020 9:35									
Fluoride	1.75		mg/L	10.0	0.24	15.1	80-120			M2
Sulfate	627		mg/L	10.0	2710	NR	80-120			M2
Chloride	552		mg/L	10.0	1170	NR	80-120			M2
Matrix Spike Dup (B018474-MSD1)	Source: 0033759-01									
Prepared: 5/2/2020 9:56, Analyzed: 5/2/20	020 9:56									
Fluoride	1.81		mg/L	10.0	0.24	15.7	80-120	3.09	20	M2
Chloride	558		mg/L	10.0	1170	NR	80-120	1.05	10	M2
Sulfate	640		mg/L	10.0	2710	NR	80-120	2.10	20	M2

Analyte Certifications

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0033758
Shipped By: Client	Temperature: 3.90° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	✓
Check if Collector Signature Present	☑
Check if bottles are intact	
Check if bottles are correct	☑
Check if bottles have sufficient volume	
Check if samples received on ice	
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	

Chain of Custody

Scheduled for: <u>03/02/2020</u>



Client: Big Rivers Electric Corporation Wilson Station		Big Rivers Ele Station	Big Rivers Electric Corporation Wilson			Electric Corporation Wilson Station		
Project: MW-8 Wilson 092-000	004	PO Box 24		•	PO Box 24 Henderson, KY 42419			
		Henderson, K			Henderson,	KY 42419		
		Phone: <u>(270) {</u> PWS ID#:	344-60	<u>00</u>	PO#: 25	58508-6		
Please Print Legibly		State:	KY		Quote#			
Collected by (Signature):	ron Fedure	ed information*		_	Compli	iance Monitoring? Yes <u>K</u> No		
*For composite samples please	indicate begin tim	e, end time and temp(oC) at end	d time below:	Sample	es Chlorinated? Yes No		
Influent: Start Date	Start time	End Date	E	End Time	Temp (oC)			
Effluent: Start Date	_ Start time	End Date	E	End Time	Temp (oC)			
MMLI USE ONLY *required ir Workorder # Date (mm/dd/yy):	Collection	Sottle and Preservative	Containers					
Sample ID#		Sollie and Preservative	Con	Sample Description	Composite	Sample Analysis Requested		
0033758-01 A <u>он-22-2</u> о	7:55	Plastic 1L	1	MW8	g/c	Alkalinity Total Chloride 300.0 Conductivity (Lab) Fluoride 300.0 Sulfate 300.0 Alkalinity Bicarbonate		
0033758-01 B 04-32-20 7:55 F		Plastic 500mL pH<2 w/HNO3	•		g/c	TDS Alkalinity Carbonate Arsenic Tot 6020 Antimony Tot 6020 Barium Tot 6020 Iron Tot 6010B Selenium Tot 6020 Hardness Titration Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot		
0000770 04 0 44 22 74		eservation Check: pH :	<u>/</u>	MAGO	a./a	6020 Sodium Tot 6010B Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020		
0033758-01 С <u>оч-27·20</u>		Plastic 500mL pH<2 w/H2SO4 eservation Check: pH:	<u> </u>	MW8	g/c	COD FOC		
0033758-01 D <i>6<u>4-22-20</u></i>		lastic 1L pH<2 w/HNO3 Rad 226 (Sub) eservation Check: pH:	/	MW8	g/c	Radium 226 (sub)		
Preservation Check Performed	d by:	u				1		
Field data collected by:	is sneed	Date (mm/dd/yy)	<u> </u>	2-20 Time (24 hr) _	7:55			
pH <u>6.1%</u> Con	d (umhe)22	Res CI (mg/L)		Tot CI (mg/L) _	Fre	ee CI (mg/L)		
Temp (oC) <u>15.00</u> or	(oF)	Static Water Level		DO (mg/L)	0,411 T	urb. (NTU) <u>/ 6 3</u>		
Flow (MGD) or	(CFS)	or (g/min)		ar ne				
Relinquished by: (Signature)		Received by: (Signa	ature)		Date (mm/	/dd/yy) Time (24 hr)		
The Sal		amm	amy hun			3-20 1325		
	1 4 4 4 4 4		.					
			·			Winasan (1997)		

PACE- Check here if tr	ip charge applied	d to associated COC		Printed:		:14PM		

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: 03/02/2020



Client: Big Rivers Electric Corporation Wil Station	Big Rivers Electri	ic Corporation Wilson	Invoice To: Big Rivers E	Invoice To: Big Rivers Electric Corporation Wilson Station Brian Edwards PO Box 24			
Project: MW-8 Wilson 092-00004	Station Mike Galbraith PO Box 24						
	Henderson, KY 4	2419	Henderson,	KY 42419			
	Phone: <u>(270) 844</u> PWS ID#:	<u>-6000</u>	PO#: <u>a.s</u>	58508-6			
Please Print Legibly	State: K	V	Quote#				
Collected by (Signature):	uired information*	·		ance Monitoring? Yes K No _			
*For composite samples please indicate begin	time, end time and temp(oC) at	t end time below:	Sample	es Chlorinated? Yes No			
Influent: Start Date Start time	End Date	End Time T	emp (oC)				
Effluent: Start Date Start time	End Date	End Time 1	Гетр (oC)				
MMLI USE ONLY *required information* Workorder # Date Collection	អ្នក Bottle and Preservative						
0033758 (mm/dd/yy): Time (24 hr): Sample ID#	Bottle and Preservative	Sample Description	Composite	Sample Analysis Requested			
0033758-01 E 04-12-20 7:55	Plastic 1L pH<2 w/HNO3 1 Rad 228 (Sub) Preservation Check: pH:	MW8	g/c	Radium 228 (sub)			
0033758-01 F 04-22-20 7:55	Plastic 1L pH<2 w/HNO3 1 Rad 228 (Sub) Preservation Check: pH:	MW8	g/c	Radium 228 (sub)			
0033758-01 G 64-22-20 7:55	Plastic 1L pH<2 w/HNO3 1 (Sub) Preservation Check: pH:	MW8	g/c	Radium Total (sub)			
Preservation Check Performed by:	AM						
Field data collected by: Travis Sn. pH 6.68 Cond (umaho) 2.	Date (mm/dd/yy)	√-2≀-20 Time (24 hr) Tot Cl (mg/L)	7'.55 Fre	ee Cl (mg/L)			
	Static Water Level						
Flow (MGD) or (CFS)							
Relinquished by: (Signature)	Received by: (Signatu	re)	Date (mm/	/dd/yy) Time (24 hr)			
Then Sund	amnyz	ar Mr_	4-23	-20 132S			
							

Printed: 3/27/2020 1:56:14PM

Page 19 of 30

PACE- Check here if trip charge applied to associated COC

(724)850-5600



May 18, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 33758

Pace Project No.: 30360647

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 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,

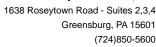
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 33758
Pace Project No.: 30360647

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

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

Ohio EPA Rad Approval: #41249

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

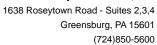




SAMPLE SUMMARY

Project: 33758
Pace Project No.: 30360647

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
30360647001	0033758-01	Water	04/22/20 07:55	04/28/20 09:10	





SAMPLE ANALYTE COUNT

Project: 33758
Pace Project No.: 30360647

Lab ID	Sample ID	Method	Amelyata	Analytes Reported	Laboratory
			Analysts	————	Laboratory
30360647001	0033758-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 33758
Pace Project No.: 30360647

Sample: 0033758-01 PWS:	Lab ID: 303606 Site ID:	47001 Collected: 04/22/20 07:55 Sample Type:	Received:	04/28/20 09:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Se	ervices - Greensburg				
Radium-226	EPA 903.1	0.395 ± 0.453 (0.625) C:NA T:84%	pCi/L	05/18/20 14:43	13982-63-3	
	Pace Analytical Se	ervices - Greensburg				
Radium-228	EPA 904.0	0.675 ± 0.411 (0.781) C:83% T:88%	pCi/L	05/14/20 10:56	15262-20-1	
	Pace Analytical Se	ervices - Greensburg				
Total Radium	Total Radium Calculation	1.07 ± 0.864 (1.41)	pCi/L	05/18/20 16:00	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project:

33758

Pace Project No.:

30360647

QC Batch: QC Batch Method: 394308

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360647001

METHOD BLANK: 1909681

Matrix: Water

Associated Lab Samples:

30360647001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-228

-0.453 ± 0.239 (0.657) C:83% T:82%

pCi/L

05/14/20 10:56

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.





QUALITY CONTROL - RADIOCHEMISTRY

Project:

33758

Pace Project No.:

30360647

QC Batch: QC Batch Method: 394309

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

30360647001

METHOD BLANK: 1909682

Matrix: Water

Associated Lab Samples:

30360647001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

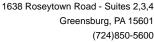
Radium-226

-0.127 ± 0.277 (0.478) C:NA T:86%

pCi/L

05/18/20 13:52

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.





QUALIFIERS

Project: 33758
Pace Project No.: 30360647

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.

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: 05/18/2020 04:03 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

WO#:30360647

Chain of Custody

	Workorder: 33758	Wo	rkorder Name:	Workorder Name: MW-8 Wilson 092-00004		Owner Received Date: 4/23/2020	te: 4/23/;	2020	Results Requested By:	sted By:	
ō	Report To:		Subcontract To:	ct To:				Re	Requested Analysis	is	
Ó a	McCoy & McCoy Labs		Pace Analy	Pace Analytical Services LLC Greensburg PA	ensburg P/		oleO mu		*******		
dis S	Madisonville, KY 42409		Greensburg, PA	y iowii ka suite 2,3,4 g, PA 15601	.		s wr				
8	270-821-7375		(724) 850-5615	5615							
/hit	r.whittington@mccoylabs.com					Preserved Containers	τ		···		
 		Sample	Collect						-	····	
m S	item Sample ID	Type	Date/Time	Lab ID	Matrix)6 \)6 \			•	
				AND THE REAL PROPERTY OF THE PARTY OF THE PA		***************************************					LAB USE ONLY
)	0033758-01		04/22/20 07:55	IR44-McCoy	Water		×				8
				1.10000							
				1144VVVIII 1144							
Н											
										,	
				0.000							
10											
เทรา	Transfers Released By		Date	Date/Time Reyeiyed By	By		Date/Time		Š	Comments	
				VN / Fa	-W	3	1)2/20 09/C				
				1		1.0	,				

Sample Intact(Y or N ***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC Received on Ice Y or N This chain of custody is considered complete as is since this information is available in the owner laboratory. Custody Seal Y or/N ပွ 2 ک Cooler Temperature on Receipt

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

SUBCONTRACT ORDER

30360647 Pace Analytical Services, LLC Kentucky

0033758

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601 Phone:(724) 850-5615

Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0033758-01	Water	Sampled:04/22/2020 07:55	Specific Method		
Radium Total (sub)		10/19/2020 07:55	EPA 904,0 Radium S	ım C	"
Radium 228 (sub)		10/19/2020 07:55	EPA 904.0 Radium S	ım C	
Radium 226 (sub)		10/19/2020 07:55	EPA 903,1		

Many Verger	04.27.20		
Released By	Date	Received By	Date

Released By

Date

Received By

Date

Page 1 of 1 Page 29 of 30

Pittsburgh Lab Sample Condit	ion l	Jpor	Re	ceipt	
Paos Analytical Client Name:	Pa	ice	2	Project # 30360	6 4 7
Courier: Fed Ex UPS USPS Client Tracking #: 1107 3386 1811		omme		Label SM LIMS Login DSM	
Custody Seal on Cooler/Box Present: yes	n		-	intact: yes no	
Thermometer Used	Type	of ice:			
Cooler Temperature Observed Temp Temp should be above freezing to 6°C	<u>、 </u>	- ° C	Corre	pH paper Lot# Date and Initials of person examining contents: 05 M 4/3 3/1020	
Comments:	Yes	No	N/A	101)4191 contents.	į
Chain of Custody Present:				1.	
Chain of Custody Filled Out:				2.	
Chain of Custody Relinquished:				3.	
Sampler Name & Signature on COC:			<u> </u>	4.	
Sample Labels match COC:		<u> </u>		5.	
-Includes date/time/ID Matrix:	<u>~</u>	工			
Samples Arrived within Hold Time:				6.	
Short Hold Time Analysis (<72hr remaining):				7.	
Rush Turn Around Time Requested:				8.	
Sufficient Volume:				9.	
Correct Containers Used:				10.	
-Pace Containers Used:	<u> </u>				
Containers Intact:				11.	
Orthophosphate field filtered	ļ			12.	
Hex Cr Aqueous sample field filtered				13.	
Organic Samples checked for dechlorination:		<u> </u>		14.	
Filtered volume received for Dissolved tests All containers have been checked for preservation.				15.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon	<u></u>		16. pH<2	
All containers meet method preservation requirements.		-		Initial when JSM Date/time of preservation	!
				Lot#of added preservative	l
Headspace in VOA Vials (>6mm):				17.	
Trip Blank Present:				18. ·	
Trip Blank Custody Seals Present				4	•
Rad Samples Screened < 0.5 mrem/hr				Initial when SM Date: 428/2000	
Client Notification/ Resolution:				,	
Person-Gontacted:			·Date/1	ime:Gontacted By:	
Comments/ Resolution:					
A check in this how indicates that addit	ional	inform	ation	has been stored in ereports.	

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0033744

Mike Galbraith
Big Rivers Electric Corporation Wilson Station
PO Box 24
Henderson KY, 42419

Customer ID: Report Printed:

44-100168 05/29/2020 13:50

Project Name: MW-10 Wilson 092-00004

Workorder: 0033744

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 04/23/2020 13:25.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC
P.O. Box 907
Madisonville, KY 42431
270.821.7375
www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0033744-01	MW10/		Groundwater	04/22/2020 07:50	04/23/2020 13:25	Travis Sneed
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0033744-01	Field Conductance	3760				
	Field pH	6.26				
	Field Temp (C)	13.66				

Work Order Comments:

Corrected Report:

This report has been issued as a revision of the previous report dated 5/20/20@0921. Cobalt result added to report.



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

Lab Sample ID: **0033744-01** Sample Collection Date Time: 04/22/2020 07:50 Description: **MW10** Sample Received Date Time: 04/23/2020 13:25

Metals by SW846 6000 Series Methods

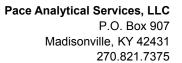
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Arsenic	0.0011		mg/L	0.0010	0.0004	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Barium	0.008		mg/L	0.004	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Boron	0.28		mg/L	0.10	0.10	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:18	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Calcium	415	D1	mg/L	40.0	13.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:25	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Cobalt	0.082		mg/L	0.004	0.004	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Iron	9.91		mg/L	0.100	0.050	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:18	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Lithium	0.006	J	mg/L	0.02	0.005	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Magnesium	234	D1	mg/L	20.0	9.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:25	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	04/24/2020 11:25	05/02/2020 17:25	DMH
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Nickel	0.046		mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Potassium	6.38		mg/L	0.50	0.22	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:18	AKB
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Sodium	179	D1	mg/L	26.0	10.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:25	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:40	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	166		mg/L	4		2320 B-2011	04/29/2020 11:52	04/29/2020 11:52	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	04/29/2020 11:52	04/29/2020 11:52	HMF
Total Alkalinity	166		mg/L	4		2320 B-2011	04/29/2020 11:52	04/29/2020 11:52	HMF
Chemical Oxygen Demand	35		mg/L	8	8	HACH 8000	04/27/2020 15:25	04/27/2020 15:25	ALT
Specific Conductance (Lab)	3400		umhos/cm	1	1	2510 B-2011	04/27/2020 14:58	04/27/2020 14:58	GAT
Hardness as CaCO3	1240	D	mg/L	5	5	2340 C (as HACH 8226)	05/04/2020 11:14	05/04/2020 11:14	CLL
Total Dissolved Solids	3170		mg/L	50	50	2540 C-2011	04/27/2020 09:13	04/28/2020 12:15	MAG
Total Organic Carbon	1.0		mg/L	0.5		5310 C-2011	05/01/2020 20:09	05/01/2020 20:09	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.082	_Sub	pCi/L			EPA 903.1	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium-228	0.332	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium	0.414	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW



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Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	68.6	D	mg/L	25.0	18.0	EPA 300.0 REV 2.1	05/01/2020 18:34	05/01/2020 18:34	CSC
Fluoride	ND	U	mg/L	0.20		EPA 300.0 REV 2.1	05/01/2020 18:13	05/01/2020 18:13	CSC
Sulfate	3580	D	mg/L	100	50.0	EPA 300.0 REV	05/01/2020 18:54	05/01/2020 18:54	CSC



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Notes for work order 0033744

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI does not provide interpretation of these results unless otherwise stated.
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub	See subcontractors report.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
Е	Concentration exceeds calibration range
J	Estimated value.
J5	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
L2	The associated blank spike recovery was below method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
M6	Matrix spike recovery was high.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).
Y1	Sample RPD exceeded the method control limit.
Y2	MS/MSD RPD exceeded the method control limit. Recovery met acceptance criteria.

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

Greater than
Less than



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Blank (B017542-BLK1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12:	50									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Cobalt	ND	0.004	mg/L							U
Blank (B017542-BLK2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:0	9									
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.001	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U
Blank (B017542-BLK3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	0									
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.002	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





	5 "	Reporting		Spike	Source	0/ DE0	%REC	555	RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
200.2										
1:25, Analyzed: 4/28/2020	12:53									
	0.13	0.10	mg/L	0.125		106	85-115			
	6.57	0.40	mg/L	6.25		105	85-115			
	6.39	0.100	mg/L	6.25		102	85-115			
	5.72	0.200	mg/L	6.25		91.5	85-115			
	6.62	0.50	mg/L	6.25		106	85-115			
	0.054	0.004	mg/L	0.0625		85.7	85-115			
	6.47	0.26	mg/L	6.25		103	85-115			
1:25, Analyzed: 5/1/2020 1	7:13									
	0.0020	0.0005	mg/L	0.00250		79.8	85-115			L2
	0.058	0.005	mg/L	0.0625		93.6	85-115			
	0.05	0.01	mg/L	0.0625		86.2	85-115			
	0.0537	0.0010	mg/L	0.0625		85.9	85-115			
	0.054	0.004	mg/L	0.0625		86.5	85-115			
	0.0495	0.0020	mg/L	0.0625		79.2	85-115			M2
	0.0533	0.0010	mg/L	0.0625		85.3	85-115			
	0.0535	0.0020	mg/L	0.0625		85.5	85-115			
	0.054	0.003	mg/L	0.0625		86.7	85-115			
	0.051	0.002	mg/L	0.0625		81.1	85-115			L2
	0.05	0.02	mg/L	0.0625		82.7	85-115			L2
	0.053	0.003	mg/L	0.0625		85.3	85-115			
	0.053	0.003	mg/L	0.0625		85.4	85-115			
	0.0495	0.0020	mg/L	0.0625		79.1	85-115			L2
	0.05	0.02	mg/L	0.0625		86.2	85-115			
1:25, Analyzed: 5/2/2020 1	6:54									
	0.07	0.01	mg/L	0.0625		110	85-115			
	0.069	0.005		0.0625		110	85-115			
	0.0026	0.0005		0.00250		102	85-115			
						104	85-115			
			_				85-115			
						99.8				
	0.0652					104				
	0.0645					103				
	0.066	0.003	mg/L			106				
	0.065		_			104				
			_							
			_							
1:25, Analyzed: 5/2/2020 1	0.07 0.069 0.0026 0.0651 0.065 0.0624 0.0652 0.0645 0.066	0.005 0.0005 0.0010 0.004 0.0020 0.0010 0.0020	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L			110 102 104 105 99.8 104 103 106	85-115 85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:18									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	6.11	10.0	mg/L	6.25	ND	97.8	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, U
Cobalt	0.064	0.004	mg/L	0.0625	ND	102	80-120			
Matrix Spike (B017542-MS2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	357	40.0	mg/L	6.25	382	NR	80-120			D2, M2
Iron	89.2	10.0	mg/L	6.25	96.5	NR	80-120			D2, M2
Magnesium	190	20.0	mg/L	6.25	197	NR	80-120			D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.546	0.004	mg/L	0.0625	0.547	NR	80-120			М3
Sodium	107	26.0	mg/L	6.25	108	NR	80-120			D2
Matrix Spike (B017542-MS3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 18:48									
Mercury	0.0023	0.0005	mg/L	0.00250	ND	92.2	80-120			
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120			
Antimony	0.071	0.005	mg/L	0.0625	ND	113	80-120			
Arsenic	0.0646	0.0010	mg/L	0.0625	ND	103	80-120			J5
Barium	0.066	0.004	mg/L	0.0625	ND	106	80-120			
Beryllium	0.0609	0.0020	mg/L	0.0625	ND	97.5	80-120			
Cadmium	0.0639	0.0010	mg/L	0.0625	ND	102	80-120			
Chromium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120			
Copper	0.061	0.003	mg/L	0.0625	ND	97.6	80-120			
Lead	0.060	0.002	mg/L	0.0625	ND	96.7	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	104	80-120			
Nickel	0.062	0.003	mg/L	0.0625	ND	99.8	80-120			
Selenium	0.063	0.003	mg/L	0.0625	ND	100	80-120			
Thallium	0.0587	0.0020	mg/L	0.0625	ND	93.9	80-120			
Zinc	0.06	0.02	mg/L	0.0625	ND	103	80-120			





	-				-					
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5/1	1/2020 19:11									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	86.7	80-120			
Molybdenum	0.04	0.01	mg/L	0.0625	0.002	53.5	80-120			J5, M2
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120			
Arsenic	0.0711	0.0010	mg/L	0.0625	0.0079	101	80-120			J5
Barium	0.068	0.004	mg/L	0.0625	0.005	102	80-120			
Beryllium	0.0507	0.0020	mg/L	0.0625	0.0013	79.2	80-120			M2
Cadmium	0.0781	0.0010	mg/L	0.0625	0.0211	91.1	80-120			
Chromium	0.0631	0.0020	mg/L	0.0625	0.0007	99.8	80-120			
Copper	0.057	0.003	mg/L	0.0625	ND	90.8	80-120			
Lead	0.056	0.002	mg/L	0.0625	ND	89.1	80-120			
Lithium	0.20	0.02	mg/L	0.0625	0.15	87.1	80-120			
Nickel	1.03	0.003	mg/L	0.0625	1.10	NR	80-120			M3, E
Selenium	0.032	0.003	mg/L	0.0625	ND	50.5	80-120			M2
Thallium	0.0560	0.0020	mg/L	0.0625	0.0011	87.8	80-120			
Zinc	1.85	0.02	mg/L	0.0625	2.25	NR	80-120			M3, E
Matrix Spike Dup (B017542-MSD1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 4/2	28/2020 16:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	6.31	10.0	mg/L	6.25	ND	101	80-120	3.22	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Cobalt	0.065	0.004	mg/L	0.0625	ND	104	80-120	2.02	20	
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, U
Matrix Spike Dup (B017542-MSD2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 4/2	28/2020 16:28									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	356	40.0	mg/L	6.25	382	NR	80-120	0.438	20	D2, M2
Iron	88.8	10.0	mg/L	6.25	96.5	NR	80-120	0.473	20	D2, M2
Magnesium	189	20.0	mg/L	6.25	197	NR	80-120	0.296	20	D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120	0.200	20	D2, M4, U
Sodium	106	26.0	mg/L	6.25	108	NR	80-120	0.573	20	D2, W4, O
Cobalt	0.552	0.004	mg/L	0.0625	0.547	8.08	80-120	1.11	20	M3
Obbait	0.002	0.007	mg/L	0.0020	0.071	0.00	00 120	1.11	20	IVIO





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike Dup (B017542-MSD3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 5/1/	2020 18:52									
Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	2.84	20	
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.30	20	
Mercury	0.0024	0.0005	mg/L	0.00250	ND	97.5	80-120	5.63	20	
Arsenic	0.0650	0.0010	mg/L	0.0625	ND	104	80-120	0.685	20	J5
Barium	0.068	0.004	mg/L	0.0625	ND	108	80-120	2.25	20	
Beryllium	0.0616	0.0020	mg/L	0.0625	ND	98.6	80-120	1.15	20	
Cadmium	0.0655	0.0010	mg/L	0.0625	ND	105	80-120	2.55	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	1.38	20	
Copper	0.062	0.003	mg/L	0.0625	ND	99.0	80-120	1.42	20	
Lead	0.062	0.002	mg/L	0.0625	ND	99.0	80-120	2.37	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	106	80-120	2.61	20	
Nickel	0.064	0.003	mg/L	0.0625	ND	103	80-120	3.35	20	
Selenium	0.064	0.003	mg/L	0.0625	ND	103	80-120	2.12	20	
Thallium	0.0601	0.0020	mg/L	0.0625	ND	96.2	80-120	2.37	20	
Zinc	0.07	0.02	mg/L	0.0625	ND	105	80-120	1.77	20	
Matrix Spike Dup (B017542-MSD4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5/1/	2020 19:15									
Molybdenum	0.03	0.01	mg/L	0.0625	0.002	52.5	80-120	1.71	20	J5, M2
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120	0.226	20	
Mercury	0.0022	0.0005	mg/L	0.00250	ND	89.1	80-120	2.77	20	
Arsenic	0.0692	0.0010	mg/L	0.0625	0.0079	98.0	80-120	2.76	20	J5
Barium	0.068	0.004	mg/L	0.0625	0.005	100	80-120	1.30	20	
Beryllium	0.0493	0.0020	mg/L	0.0625	0.0013	76.8	80-120	2.91	20	M2
Cadmium	0.0793	0.0010	mg/L	0.0625	0.0211	93.1	80-120	1.59	20	
Chromium	0.0616	0.0020	mg/L	0.0625	0.0007	97.5	80-120	2.35	20	
Copper	0.055	0.003	mg/L	0.0625	ND	87.6	80-120	3.65	20	
Lead	0.055	0.002	mg/L	0.0625	ND	88.6	80-120	0.549	20	
Lithium	0.20	0.02	mg/L	0.0625	0.15	93.5	80-120	1.99	20	
Nickel	1.04	0.003	mg/L	0.0625	1.10	NR	80-120	1.31	20	M3, E
Selenium	0.031	0.003	mg/L	0.0625	ND	49.5	80-120	2.00	20	M2
Thallium	0.0555	0.0020	mg/L	0.0625	0.0011	87.0	80-120	0.916	20	
Zinc	1.87	0.02	mg/L	0.0625	2.25	NR	80-120	1.21	20	M3, E





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	Re	porting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Post Spike (B017542-PS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed	: 4/28/2020 16:31									
Boron	121		ug/L	125	-1.32	96.8	75-125			D2
Calcium	6440		ug/L	6250	3.49	103	75-125			D2
Iron	6150		ug/L	6250	21.5	98.0	75-125			D2
Magnesium	6600		ug/L	6250	1.11	106	75-125			D2
Potassium	5980		ug/L	6250	9.01	95.6	75-125			D2
Sodium	6720		ug/L	6250	2.78	108	75-125			D2
Cobalt	62.7		ug/L	62.5	0.009	100	75-125			
Post Spike (B017542-PS2)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed	: 5/1/2020 19:19									
Molybdenum	65.7		ug/L	62.5	0.03	105	75-125			
Antimony	71.0		ug/L	62.5	0.107	113	75-125			
Mercury	2.56		ug/L	2.50	0.0710	99.4	75-125			
Arsenic	64.2		ug/L	62.5	-0.0029	103	75-125			J5
Barium	67.2		ug/L	62.5	0.037	107	75-125			
Beryllium	56.7		ug/L	62.5	-0.0023	90.7	75-125			
Cadmium	63.6		ug/L	62.5	0.0053	102	75-125			
Chromium	61.7		ug/L	62.5	0.0998	98.6	75-125			
Copper	61.0		ug/L	62.5	-1.66	97.6	75-125			
Lead	60.7		ug/L	62.5	0.219	96.8	75-115			
Lithium	60.7		ug/L	62.5	0.05	97.0	75-125			
Nickel	62.6		ug/L	62.5	0.313	99.7	75-125			
Selenium	64.8		ug/L	62.5	-0.002	104	75-125			
Thallium	58.9		ug/L	62.5	0.0066	94.2	75-125			
Zinc	65.7		ug/L	62.5	1.46	103	75-125			





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018020 - Default Prep Wet Cher	n									
Blank (B018020-BLK1)										
Prepared: 4/27/2020 8:45, Analyzed: 4/	28/2020 12:15									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B018020-BS1)										
Prepared: 4/27/2020 8:49, Analyzed: 4/	28/2020 12:15									
Total Dissolved Solids	1440	25	mg/L	1500		96.3	80-120			
Duplicate (B018020-DUP1)	Source: 0043533-01									
Prepared: 4/27/2020 10:13, Analyzed: 4	/28/2020 12:15									
Total Dissolved Solids	ND	50	mg/L		ND				10	U
Duplicate (B018020-DUP2)	Source: 0033742-01									
Prepared: 4/27/2020 10:17, Analyzed: 4	/28/2020 12:15									
Total Dissolved Solids	74	50	mg/L		76			2.67	10	
Batch B018080 - Default Prep Wet Cher	n									
Blank (B018080-BLK1)										
Prepared: 4/27/2020 15:20, Analyzed: 4	/27/2020 15:20									
Chemical Oxygen Demand	ND	8	mg/L							U
LCS (B018080-BS1)										
Prepared: 4/27/2020 15:20, Analyzed: 4	/27/2020 15:20									
Chemical Oxygen Demand	121	8	mg/L				90-110			
Duplicate (B018080-DUP1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	36	8	mg/L		22			47.1	25	Y1
Matrix Spike (B018080-MS1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	274	8	mg/L	250	22	101	90-110			
Matrix Spike Dup (B018080-MSD1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	263	8	mg/L	250	22	96.3	90-110	4.34	10	





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018086 - Default Prep Wet Chem										
Blank (B018086-BLK1)										
Prepared: 4/27/2020 14:54, Analyzed: 4/27/2	2020 14:54									
Specific Conductance (Lab)	ND	1	umhos/cm							U
LCS (B018086-BS1)										
Prepared: 4/27/2020 14:55, Analyzed: 4/27/2	2020 14:55									
Specific Conductance (Lab)	1410		umhos/cm	1410		99.8	80-120			
Duplicate (B018086-DUP1)	Source: 0033751-01									
Prepared: 4/27/2020 15:09, Analyzed: 4/27/2	2020 15:09									
Specific Conductance (Lab)	2980	1	umhos/cm		2990			0.0335	1.24	
Duplicate (B018086-DUP2)	Source: 0043793-01									
Prepared: 4/27/2020 15:27, Analyzed: 4/27/2	2020 15:27									
Specific Conductance (Lab)	1	1	umhos/cm		1			0.755	1.24	
Batch B018100 - Default Prep Wet Chem										
Blank (B018100-BLK1)										
Prepared: 5/1/2020 18:21, Analyzed: 5/1/2020	20 18:21									
Total Organic Carbon	ND	0.5	mg/L							U
LCS (B018100-BS1)										
Prepared: 5/1/2020 18:43, Analyzed: 5/1/202	20 18:43									
Total Organic Carbon	5.0	0.5	mg/L	5.00		101	80-120			
Duplicate (B018100-DUP1)	Source: 0033748-01									
Prepared: 5/2/2020 0:07, Analyzed: 5/2/202	20 0:07									
Total Organic Carbon	2.0	0.5	mg/L		2.0			0.0293	25	
Duplicate (B018100-DUP2)	Source: 0033758-01									
Prepared: 5/2/2020 4:27, Analyzed: 5/2/202	20 4:27									
Total Organic Carbon	2.8	0.5	mg/L		2.8			0.410	25	
Matrix Spike (B018100-MS1)	Source: 0033749-01									
Prepared: 5/2/2020 0:29, Analyzed: 5/2/202										
Total Organic Carbon	10.7	0.5	mg/L	2.50	8.2	101	80-120			



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018100 - Default Prep Wet Chem										
Matrix Spike (B018100-MS2)	Source: 0033759-01	l								
Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020) 4:49									
Total Organic Carbon	3.6	0.5	mg/L	5.00	0.4	65.0	80-120			M2
Batch B018391 - Default Prep Wet Chem										
Blank (B018391-BLK1)										
Prepared: 4/29/2020 11:33, Analyzed: 4/29/2	020 11:33									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK2)										
Prepared: 4/29/2020 13:03, Analyzed: 4/29/2	020 13:03									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK3)										
Prepared: 4/29/2020 15:33, Analyzed: 4/29/2	020 15:33									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
LCS (B018391-BS1)										
Prepared: 4/29/2020 12:58, Analyzed: 4/29/2	020 12:58									
Carbonate Alkalinity as CaCO3	232	4	mg/L	225		103	0-200			
Total Alkalinity	235	4	mg/L	235		99.8	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
LCS (B018391-BS2)										
Prepared: 4/29/2020 15:29, Analyzed: 4/29/2	020 15:29									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	250	4	mg/L	235		106	80-120			
Carbonate Alkalinity as CaCO3	230	4	mg/L	225		102	0-200			



	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018391 - Default Prep Wet Chem										
Duplicate (B018391-DUP1)	Source: 0033751-01									
Prepared: 4/29/2020 12:34, Analyzed: 4/29/20	20 12:34									
Carbonate Alkalinity as CaCO3	ND	4	mg/L		301				10	U
Bicarbonate Alkalinity as CaCO3	309	4	mg/L		ND				10	
Total Alkalinity	309	4	mg/L		301			2.43	10	
Duplicate (B018391-DUP2)	Source: 0033759-01									
Prepared: 4/29/2020 15:04, Analyzed: 4/29/20	20 15:04									
Bicarbonate Alkalinity as CaCO3	402	4	mg/L		394			2.01	10	
Total Alkalinity	402	4	mg/L		394			2.01	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Matrix Spike (B018391-MS1)	Source: 0033743-01									
Prepared: 4/29/2020 12:40, Analyzed: 4/29/20	20 12:40									
Total Alkalinity	61	4	mg/L	50.4	22	77.0	80-120			M2
Matrix Spike (B018391-MS2)	Source: 0033759-01									
Prepared: 4/29/2020 15:18, Analyzed: 4/29/20	20 15:18									
Total Alkalinity	413	4	mg/L	50.4	394	37.5	80-120			М3
Batch B019045 - Default Prep Wet Chem										
Blank (B019045-BLK1)										
Prepared: 5/4/2020 10:56, Analyzed: 5/4/2020	10:56									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B019045-BS1)										
Prepared: 5/4/2020 10:58, Analyzed: 5/4/2020	10:58									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B019045-DUP1)	Source: 0041237-02									
Prepared: 5/4/2020 12:56, Analyzed: 5/4/2020	12:56									
Hardness as CaCO3	214	1	mg/L		200			6.76	10	
Matrix Spike (B019045-MS1)	Source: 0041237-02									
Prepared: 5/4/2020 12:58, Analyzed: 5/4/2020	12:58									
Hardness as CaCO3	568	1	mg/L	318	200	116	80-120			





Ion Chromatography Madisonville - Quality Control

ion Chromatography Madisonville - Quality Control										
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018473 - Default Prep IC										
Blank (B018473-BLK1)										
Prepared: 5/1/2020 15:50, Analyzed: 5/1	/2020 15:50									
Sulfate	ND	1.0	mg/L							U
Chloride	ND	0.5	mg/L							U
Fluoride	ND	0.20	mg/L							U
LCS (B018473-BS1)										
Prepared: 5/1/2020 15:30, Analyzed: 5/1	/2020 15:30									
Fluoride	9.60		mg/L	10.0		96.0	90-110			
Sulfate	9.7		mg/L	10.0		97.1	90-110			
Chloride	9.6		mg/L	10.0		96.1	90-110			
Matrix Spike (B018473-MS1)	Source: 0033742-01									
Prepared: 5/2/2020 0:01, Analyzed: 5/2/	2020 0:01									
Chloride	10.1		mg/L	10.0	0.0	101	80-120			
Fluoride	10.2		mg/L	10.0	0.06	101	80-120			
Sulfate	10.8		mg/L	10.0	0.005	108	80-120			
Matrix Spike Dup (B018473-MSD1)	Source: 0033742-01									
Prepared: 5/2/2020 0:21, Analyzed: 5/2/	2020 0:21									
Fluoride	13.2		mg/L	10.0	0.06	132	80-120	26.2	20	M1, Y2
Chloride	13.1		mg/L	10.0	0.0	131	80-120	25.7	10	M1, Y2
Sulfate	14.5		mg/L	10.0	0.005	145	80-120	28.8	20	M1, Y2
Certified Analyses included in this Repo	ort							<u> </u>		<u> </u>
Analyte	Certifications									

KY Drinking Water Mdv (00030) Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) **Total Alkalinity**

2340 C (as HACH 8226) in Water

KY Drinking Water Mdv (00030) Hardness as CaCO3

2510 B-2011 in Water

KY Drinking Water Mdv (00030) Specific Conductance (Lab)

2540 C-2011 in Water

KY Drinking Water Mdv (00030) **Total Dissolved Solids**

5310 C-2011 in Water

KY Drinking Water Mdv (00030) Total Organic Carbon

EPA 300.0 REV 2.1 in Water

KY Drinking Water Mdv (00030) Chloride KY Drinking Water Mdv (00030) Fluoride KY Drinking Water Mdv (00030) Sulfate

HACH 8000 in Water

KY Wastewater Mdv (00030) Chemical Oxygen Demand

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0033744
Shipped By: Client	Temperature: 3.90° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	
Check if bottles are intact	
Check if bottles are correct	☑
Check if bottles have sufficient volume	
Check if samples received on ice	☑
Check if VOA headspace is acceptable	
Check if samples received in holding time.	
Check if samples are preserved properly	

Chain of Custody

Scheduled for: 03/02/2020



Client: Big Rivers Electric Corporation Wilson Station Project: MW-10 Wilson 092-00004		Big Rivers Ele Station Mike Galbraith PO Box 24	Big Rivers Electric Corporation Wilson Station Mike Galbraith			Invoice To: Big Rivers Electric Corporation Wilson Station Brian Edwards PO Box 24 Henderson, KY 42419		
Place Bright Legible		Phone: <u>(270)</u> PWS ID#: State:			PO#: <u>258508 -6</u>			
Please Print Legibly	P. Kr. A	State	/ 		Quote#	once Menite	ring? Yes 🗶 No	
Collected by (Signature):	req	uirea information*		and the same of th				
*For composite samples pleas	se indicate begin	time, end time and temp(oC) at en	d time below:	Sample	es Chionnate	ed? Yes No	
Influent: Start Date	Start time	End Date	End Date End Time		Temp (oC)			
Effluent: Start Date	Start time	End Date	End Date End Time		Temp (oC)			
Workorder # Date	information* Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	n Composite	Samp	e Analysis Requested	
0033744-01 A 4/aa/ao	0750	Plastic 1L	1	MW10	g/c	Alkalinity Total Chloride 300.0 Conductivity (Lab) Fluoride 300 Sulfate 300.0 Alkalinity Bicarbo TDS Alkalinity Carbonate Arsenic Tot 6020 Antimony Tot Barium Tot 6020 Iron Tot 6010E Selenium Tot 6020 Hardness Titration Beryllium Tot 6020 Bot Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium 6020 Sodium Tot 6010B Lead 1 6020 Lithium Tot 6020 Mercury		
0033744-01 В <u>4/аа/ао</u>	<u>0750</u>	Plastic 500mL pH<2 w/HNO3	1	MW10	g/c			
0033744-01 C <u>4/22/2</u> 0	0750	Preservation Check: pH : Plastic 500mL pH<2 w/H2SO4 Preservation Check: pH :	1 /	MW10	g/c	6020 COD TOC		
0033744-01 D <u>\/\22\\</u> 20	0250	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) Preservation Check: pH:	W	MVV10 -	g/c	Radium 226 (sub)		
Preservation Check Perform		M						
(0 /	ms/cm 3.			Tot CI (mg/L)		ee Cl (ma/L)		
			Static Water Level DO (mg/L)					
Flow (MGD) or		or (g/min)				. ,		
Relinquished by: (Signature)	d	Received by: (Sign	nature)	_	Date (mm	/dd/yy) 3-20	Time (24 hr) /325	
PACE- Check here it	f trip charge ap	olied to associated COC		Printed	: 3/27/2020 1:43	:27PM	Page 18 of 30	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>03/02/2020</u>



Client: Big Rivers Electric Corporation Wilson Station Project: MW-10 Wilson 092-00004		Big Rivers Electric Station Mike Galbraith PO Box 24	Big Rivers Electric Corporation Wilson Station Mike Galbraith		Invoice To: Big Rivers Electric Corporation Wilson Station Brian Edwards PO Box 24 Henderson, KY 42419		
Please Print Legibly		Phone: (270) 844 PWS ID#: State:/	- <u>6000</u>	PO#: 25 Quote#	8508-6		
Collected by (Signature):	Dra's	and in		Compli	ance Monitoring? Yes X No		
• • •		ed information*		Sample	es Chlorinated? Yes No		
		ie, end time and temp(oC) at		Tomp (oC)			
		End Date					
Effluent: Start Date	Start time	End Date	End Time	temp (oC)			
MMLI USE ONLY *require Workorder # Date 0033744 (mm/dd/yy Sample ID#	Collection	Sottle and Preservative	Sample Description	on Composite	Sample Analysis Requested		
0033744-01 E <u>4/22/20</u>		Plastic 1L pH<2 w/HNO3 1 Rad 228 (Sub) reservation Check: pH :		g/c	Radium 228 (sub)		
0033744-01 F <u>4/22/2</u>		Plastic 1L pH<2 w/HNO3 1 Rad 228 (Sub) reservation Check: pH: <u>v</u>	MW10	g/c	Radium 228 (sub)		
0033744-01 G <u>4/22/21</u>		Plastic 1L pH<2 w/HNO3 1 (Sub) reservation Check: pH: <u>v</u>	M W10	g/c	Radium Total (sub)		
Preservation Check Perfo	med by:	AN					
		Date (mm/dd/yy) 4	1/22/20 Time (24 hr)	0750			
	Cond (umbo) 3.70				ee CI (mg/L)		
_ , , ,		Static Water Level					
Temp (oC) <u>13,66</u> Flow (MGD)	or (OF) or (CFS)				V,		
Relinquished by: (Signature	rel	Received by: (Signatu		Date (mm	7/dd/yy) Time (24 hr) 3-20 /325		

PACE- Check here if trip charge applied to associated COC

Printed: 3/27/2020 1:43:27PM

Page 19 of 30

(724)850-5600



May 18, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 33744

Pace Project No.: 30360642

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 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,

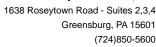
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 33744
Pace Project No.: 30360642

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

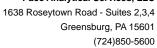
Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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: 33744
Pace Project No.: 30360642

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30360642001	0033744-01	Water	04/22/20 07:50	04/28/20 09:10





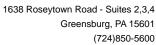
SAMPLE ANALYTE COUNT

Project: 33744

Pace Project No.: 30360642

Lak ID	0	Mark and		Analytes	Labandana
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30360642001	0033744-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg





ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 33744

Pace Project No.: 30360642

Sample: 0033744-01 PWS:	Lab ID: 30360 Site ID:	642001 Collected: 04/22/20 07:50 Sample Type:	Received:	04/28/20 09:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	Gervices - Greensburg				
Radium-226	EPA 903.1	0.0821 ± 0.360 (0.550) C:NA T:95%	pCi/L	05/18/20 14:19	13982-63-3	
	Pace Analytical S	Services - Greensburg				
Radium-228	EPA 904.0	0.332 ± 0.371 (0.778) C:80% T:84%	pCi/L	05/14/20 10:55	5 15262-20-1	
	Pace Analytical S	Services - Greensburg				
Total Radium	Total Radium Calculation	0.414 ± 0.731 (1.33)	pCi/L	05/18/20 16:00	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project:

33744

Pace Project No.:

30360642

QC Batch: QC Batch Method: 394308

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

METHOD BLANK: 1909681

30360642001

Matrix: Water

Associated Lab Samples:

30360642001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

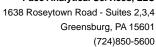
Radium-228

-0.453 ± 0.239 (0.657) C:83% T:82%

pCi/L

05/14/20 10:56

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.





QUALITY CONTROL - RADIOCHEMISTRY

Project: 33744
Pace Project No.: 30360642

QC Batch: 394309

QC Batch Method: EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description: 903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360642001

METHOD BLANK: 1909682

Matrix: Water

Associated Lab Samples:

30360642001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

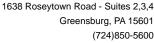
Qualifiers

Radium-226 -0.127 ± 0.277 (0.478) C:NA T:86% pCi/L

....

05/18/20 13:52

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.





QUALIFIERS

Project: 33744
Pace Project No.: 30360642

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.

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: 05/18/2020 04:02 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

MO#:30360642

Chain of Custody

LAB USE ONLY Results Requested By: Comments Requested Analysis Workorder Name: MW-10 Wilson 092-00004 Owner Received Date: 4/23/2020 EPA 904.0 Radium Sum Calc olled) Date/Time EPA 903.1 Preserved Containers Pace Analytical Services LLC Greensburg PA Matrix Water Reveived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Greensburg, PA 15601 Lab ID Subcontract To: Date/Time (724) 850-5615 04/22/20 07:50 Date/Time Sample Collect Туре r.whittington@mccoylabs.com Madisonville, KY 42409 Workorder: 33744 Transfers | Released By McCoy & McCoy Labs 0033744-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 4 ဖ ∞ ð

Sample Intact Y or N ***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC Received on Ice Yor N This chain of custody is considered complete as is since this information is available in the owner laboratory. Custody Seal Y or N Ç Cooler Temperature on Receipt

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Page 9 of 11 Page 28 of 30

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0033744

30360642

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375

Fax: 844-270-7904 Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601 Phone:(724) 850-5615

Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0033744-01 Wat		Sampled:04/22/2020 07:50	Specific Method		00/
Radium Total (sub)	· · · · · · · · · · · · · · · · · · ·	10/19/2020 07:50	EPA 904.0 Radium Sur	n (
Radium 228 (sub)		10/19/2020 07:50	EPA 904.0 Radium Sur	n C	
Radium 226 (sub)		10/19/2020 07:50	EPA 903.1		

Released By

Date

Received By

Pittsburgh Lab Sample Condit	ion l	Jpor	ı Re	ceipt
Pace Analytical Client Name:	D		_	Froject # # 3 0 3 6 0 6 4 2
Pace Analytical Client Name:	<u> </u>	1 CE	2_	Project #
	_			- ' CM
Courier: Fed Ex UPS USPS Client		omme	rcial	Pace Other Label O S A
Tracking #: 1107 5336 1811		_		LIMS Login () S 1V/
Custody Seal on Cooler/Box Present: yes	□r	ю	Seals	s intact; yes no
Thermometer Used	Type	of Ice:	: (Wet	Blue None
Cooler Temperature Observed Temp	<u>.S_</u>	· c	Corre	ection Factor: O, S °C Final Temp: S, O °C
Temp should be above freezing to 6°C				
			1 8778	pH paper Lot# Date and Initials of person examining contents: SM 4/3 3/1020
Comments:	Yes	No	N/A	10139171
Chain of Custody Present:		<u> </u>	<u> </u>	1.
Chain of Custody Filled Out:		-	ļ	2.
Chain of Custody Relinquished:	1		<u> </u>	3.
Sampler Name & Signature on COC:	<u> </u>	-	<u> </u>	4.
Sample Labels match COC:		<u> </u>		_5.
-Includes date/time/ID Matrix:	$\frac{N}{1}$	<u> </u>	-	
Samples Arrived within Hold Time:			ļ	6.
Short Hold Time Analysis (<72hr remaining):	-		ļ	7.
Rush Turn Around Time Requested:			<u> </u>	8.
Sufficient Volume:				9.
Correct Containers Used:				10.
-Pace Containers Used:	<u> </u>		<u> </u>	
Containers Intact:	 			11.
Orthophosphate field filtered	<u> </u>			12.
Hex Cr Aqueous sample field filtered	<u> </u>			13.
Organic Samples checked for dechlorination:	<u> </u>			14.
Filtered volume received for Dissolved tests	L.,			15.
All containers have been checked for preservation.		<u> </u>		16. LEC >
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon,	1		price
All containers meet method preservation		·······	l	Initial when \(\)\ Date/time of
requirements.				completed JJ preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):				17.
Trip Blank Present:				18.
Trip Blank Custody Seals Present				
Rad Samples Screened < 0.5 mrem/hr				Initial when completed: Date: Paginow
Client Notification/ Resolution:				
Person-Contacted:			Date/1	Firme: Contacted By:
Comments/ Resolution:				
				
		····		
A check in this box indicates that addit	ional	inform	nation	ı has been stored in ereports.

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0033752

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419 Customer ID: Report Printed:

44-100168 05/29/2020 14:18

Project Name: MW-4D Wilson 092-00004 Workorder: 0033752

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 04/23/2020 13:25.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0033752-01	MW4D/		Groundwater	04/23/2020 07:50	04/23/2020 13:25	Travis Sneed
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0033752-01	Field Conductance	5890				
	Field pH	6.31				
	Field Temp (C)	15.69				

Work Order Comments:

Corrected Report:

This report has been issued as a revision of the previous report dated 5/20/20@0914. Cobalt result added to report.



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ANALYTICAL RESULTS

Lab Sample ID: **0033752-01** Sample Collection Date Time: 04/23/2020 07:50 Description: **MW4D** Sample Received Date Time: 04/23/2020 13:25

Metals by SW846 6000 Series Methods

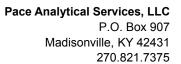
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Arsenic	0.0039		mg/L	0.0010	0.0004	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Barium	0.016		mg/L	0.004	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Boron	10.2	D1	mg/L	10.0	10.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:09	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Calcium	714	D1	mg/L	40.0	13.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:09	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Cobalt	0.010		mg/L	0.004	0.004	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Iron	7.31		mg/L	0.100	0.050	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:02	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Lithium	0.16		mg/L	0.02	0.005	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Magnesium	280	D1	mg/L	20.0	9.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:09	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	04/24/2020 11:25	05/04/2020 11:42	DMH
Molybdenum	0.02		mg/L	0.01	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Nickel	0.036		mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Potassium	49.1	D1	mg/L	5.00	2.20	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:06	AKB
Selenium	0.001	J	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Sodium	256	D1	mg/L	26.0	10.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:09	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH
Zinc	0.02		mg/L	0.02	0.02	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:25	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	404		mg/L	4		2320 B-2011	04/29/2020 14:25	04/29/2020 14:25	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	04/29/2020 14:25	04/29/2020 14:25	HMF
Total Alkalinity	404		mg/L	4		2320 B-2011	04/29/2020 14:25	04/29/2020 14:25	HMF
Chemical Oxygen Demand	45		mg/L	8	8	HACH 8000	04/27/2020 16:45	04/27/2020 16:45	ALT
Specific Conductance (Lab)	5470		umhos/cm	1	1	2510 B-2011	04/27/2020 15:12	04/27/2020 15:12	GAT
Hardness as CaCO3	2290	D	mg/L	5	5	2340 C (as HACH 8226)	05/04/2020 11:40	05/04/2020 11:40	CLL
Total Dissolved Solids	4690		mg/L	50	50	2540 C-2011	04/27/2020 11:00	04/28/2020 12:32	MAG
Total Organic Carbon	0.5		mg/L	0.5		5310 C-2011	05/02/2020 00:51	05/02/2020 00:51	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	-0.286	_Sub	pCi/L			EPA 903.1	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium-228	0.851	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium	0.851	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW



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Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	1280	D	mg/L	50.0	36.0	EPA 300.0 REV 2.1	05/02/2020 03:47	05/02/2020 03:47	CSC
Fluoride	0.26		mg/L	0.20		EPA 300.0 REV 2.1	05/02/2020 03:26	05/02/2020 03:26	CSC
Sulfate	2650	D	mg/L	100	50.0	EPA 300.0 REV 2.1	05/02/2020 03:47	05/02/2020 03:47	CSC



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Notes for work order 0033752

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI does not provide interpretation of these results unless otherwise stated.

laboratory method detection limit in our LIMS system).

- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
E	Concentration exceeds calibration range
J	Estimated value.
J5	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
L2	The associated blank spike recovery was below method acceptance limits.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
М3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
M6	Matrix spike recovery was high.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Snike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

Greater than Less than



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Blank (B017542-BLK1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12:	50									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Cobalt	ND	0.004	mg/L							U
Blank (B017542-BLK2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:0	9									
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.001	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U
Blank (B017542-BLK3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	0									
Antimony	ND	0.005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.002	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
LCS (B017542-BS1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020	0 12:53									
Boron	0.13	0.10	mg/L	0.125		106	85-115			
Calcium	6.57	0.40	mg/L	6.25		105	85-115			
Iron	6.39	0.100	mg/L	6.25		102	85-115			
Magnesium	5.72	0.200	mg/L	6.25		91.5	85-115			
Potassium	6.62	0.50	mg/L	6.25		106	85-115			
Sodium	6.47	0.26	mg/L	6.25		103	85-115			
Cobalt	0.054	0.004	mg/L	0.0625		85.7	85-115			
LCS (B017542-BS2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020	17:13									
Molybdenum	0.05	0.01	mg/L	0.0625		86.2	85-115			
Mercury	0.0020	0.0005	mg/L	0.00250		79.8	85-115			L2
Antimony	0.058	0.005	mg/L	0.0625		93.6	85-115			
Arsenic	0.0537	0.0010	mg/L	0.0625		85.9	85-115			
Barium	0.054	0.004	mg/L	0.0625		86.5	85-115			
Beryllium	0.0495	0.0020	mg/L	0.0625		79.2	85-115			M2
Cadmium	0.0533	0.0010	mg/L	0.0625		85.3	85-115			
Chromium	0.0535	0.0020	mg/L	0.0625		85.5	85-115			
Copper	0.054	0.003	mg/L	0.0625		86.7	85-115			
Lead	0.051	0.002	mg/L	0.0625		81.1	85-115			L2
Lithium	0.05	0.02	mg/L	0.0625		82.7	85-115			L2
Nickel	0.053	0.003	mg/L	0.0625		85.3	85-115			
Selenium	0.053	0.003	mg/L	0.0625		85.4	85-115			
Thallium	0.0495	0.0020	mg/L	0.0625		79.1	85-115			L2
Zinc	0.05	0.02	mg/L	0.0625		86.2	85-115			
			9. =							
LCS (B017542-BS3) Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020	16:54									
Molybdenum	0.07	0.01	mg/L	0.0625		110	85-115			
Antimony	0.069	0.005	mg/L	0.0625		110	85-115			
Mercury	0.003	0.0005	mg/L	0.0025		102	85-115			
Arsenic	0.0651	0.0003	mg/L	0.0625		102	85-115			
Barium		0.0010	-	0.0625		105	85-115			
Beryllium	0.065 0.0624	0.004	mg/L mg/L	0.0625		99.8	85-115			
Cadmium	0.0624	0.0020	mg/L	0.0625		104	85-115 85-115			
Chromium	0.0632	0.0010	mg/L	0.0625		104	85-115 85-115			
Copper	0.066	0.0020	mg/L	0.0625		106	85-115			
Lead	0.065	0.003	-	0.0625		104	85-115			
Lithium	0.065	0.002	mg/L	0.0625			85-115			
			mg/L			101				
Nickel Solonium	0.064	0.003	mg/L	0.0625		103	85-115 85-115			
Selenium	0.065	0.003	mg/L	0.0625		103	85-115 85-115			
Thallium	0.0650	0.0020	mg/L	0.0625		104	85-115 85-115			
Zinc	0.07	0.02	mg/L	0.0625		105	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:18									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	6.11	10.0	mg/L	6.25	ND	97.8	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.064	0.004	mg/L	0.0625	ND	102	80-120			
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, U
Matrix Spike (B017542-MS2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	357	40.0	mg/L	6.25	382	NR	80-120			D2, M2
Iron	89.2	10.0	mg/L	6.25	96.5	NR	80-120			D2, M2
Magnesium	190	20.0	mg/L	6.25	197	NR	80-120			D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.546	0.004	mg/L	0.0625	0.547	NR	80-120			M3
Sodium	107	26.0	mg/L	6.25	108	NR	80-120			D2
Matrix Spike (B017542-MS3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 18:48									
Antimony	0.071	0.005	mg/L	0.0625	ND	113	80-120			
Mercury	0.0023	0.0005	mg/L	0.00250	ND	92.2	80-120			
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120			
Arsenic	0.0646	0.0010	mg/L	0.0625	ND	103	80-120			J5
Barium	0.066	0.004	mg/L	0.0625	ND	106	80-120			
Beryllium	0.0609	0.0020	mg/L	0.0625	ND	97.5	80-120			
Cadmium	0.0639	0.0010	mg/L	0.0625	ND	102	80-120			
Chromium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120			
Copper	0.061	0.003	mg/L	0.0625	ND	97.6	80-120			
Lead	0.060	0.002	mg/L	0.0625	ND	96.7	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	104	80-120			
Nickel	0.062	0.003	mg/L	0.0625	ND	99.8	80-120			
Selenium	0.063	0.003	mg/L	0.0625	ND	100	80-120			
Thallium	0.0587	0.0020	mg/L	0.0625	ND	93.9	80-120			
Zinc	0.06	0.02	mg/L	0.0625	ND	103	80-120			





	Ţ.	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
-			27.1102			701120				
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5	5/1/2020 19:11									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	86.7	80-120			
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120			
Molybdenum	0.04	0.01	mg/L	0.0625	0.002	53.5	80-120			J5, M2
Arsenic	0.0711	0.0010	mg/L	0.0625	0.0079	101	80-120			J5
Barium	0.068	0.004	mg/L	0.0625	0.005	102	80-120			
Beryllium	0.0507	0.0020	mg/L	0.0625	0.0013	79.2	80-120			M2
Cadmium	0.0781	0.0010	mg/L	0.0625	0.0211	91.1	80-120			
Chromium	0.0631	0.0020	mg/L	0.0625	0.0007	99.8	80-120			
Copper	0.057	0.003	mg/L	0.0625	ND	90.8	80-120			
Lead	0.056	0.002	mg/L	0.0625	ND	89.1	80-120			
Lithium	0.20	0.02	mg/L	0.0625	0.15	87.1	80-120			
Nickel	1.03	0.003	mg/L	0.0625	1.10	NR	80-120			M3, E
Selenium	0.032	0.003	mg/L	0.0625	ND	50.5	80-120			M2
Thallium	0.0560	0.0020	mg/L	0.0625	0.0011	87.8	80-120			
Zinc	1.85	0.02	mg/L	0.0625	2.25	NR	80-120			M3, E
Matrix Spike Dup (B017542-MSD1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	4/28/2020 16:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	6.31	10.0	mg/L	6.25	ND	101	80-120	3.22	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, U
Cobalt	0.065	0.004	mg/L	0.0625	ND	104	80-120	2.02	20	
Matrix Spike Dup (B017542-MSD2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	4/28/2020 16:28									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	356	40.0	mg/L	6.25	382	NR	80-120	0.438	20	D2, M2
Iron	88.8	10.0	mg/L	6.25	96.5	NR	80-120	0.473	20	D2, M2
Magnesium	189	20.0	mg/L	6.25	197	NR	80-120	0.296	20	D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Cobalt	0.552	0.004	mg/L	0.0625	0.547	8.08	80-120	1.11	20	M3
Sodium	106	26.0	mg/L	6.25	108	NR	80-120	0.573	20	D2





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike Dup (B017542-MSD3)	Source: 0033742-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	1/2020 18:52									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.30	20	
Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	2.84	20	
Mercury	0.0024	0.0005	mg/L	0.00250	ND	97.5	80-120	5.63	20	
Arsenic	0.0650	0.0010	mg/L	0.0625	ND	104	80-120	0.685	20	J5
Barium	0.068	0.004	mg/L	0.0625	ND	108	80-120	2.25	20	
Beryllium	0.0616	0.0020	mg/L	0.0625	ND	98.6	80-120	1.15	20	
Cadmium	0.0655	0.0010	mg/L	0.0625	ND	105	80-120	2.55	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	1.38	20	
Copper	0.062	0.003	mg/L	0.0625	ND	99.0	80-120	1.42	20	
Lead	0.062	0.002	mg/L	0.0625	ND	99.0	80-120	2.37	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	106	80-120	2.61	20	
Nickel	0.064	0.003	mg/L	0.0625	ND	103	80-120	3.35	20	
Selenium	0.064	0.003	mg/L	0.0625	ND	103	80-120	2.12	20	
Thallium	0.0601	0.0020	mg/L	0.0625	ND	96.2	80-120	2.37	20	
Zinc	0.07	0.02	mg/L	0.0625	ND	105	80-120	1.77	20	
Matrix Spike Dup (B017542-MSD4)	Source: 0033743-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	1/2020 19:15									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	89.1	80-120	2.77	20	
Molybdenum	0.03	0.01	mg/L	0.0625	0.002	52.5	80-120	1.71	20	J5, M2
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120	0.226	20	
Arsenic	0.0692	0.0010	mg/L	0.0625	0.0079	98.0	80-120	2.76	20	J5
Barium	0.068	0.004	mg/L	0.0625	0.005	100	80-120	1.30	20	
Beryllium	0.0493	0.0020	mg/L	0.0625	0.0013	76.8	80-120	2.91	20	M2
Cadmium	0.0793	0.0010	mg/L	0.0625	0.0211	93.1	80-120	1.59	20	
Chromium	0.0616	0.0020	mg/L	0.0625	0.0007	97.5	80-120	2.35	20	
Copper	0.055	0.003	mg/L	0.0625	ND	87.6	80-120	3.65	20	
Lead	0.055	0.002	mg/L	0.0625	ND	88.6	80-120	0.549	20	
Lithium	0.20	0.02	mg/L	0.0625	0.15	93.5	80-120	1.99	20	
Nickel	1.04	0.003	mg/L	0.0625	1.10	NR	80-120	1.31	20	M3, E
Selenium	0.031	0.003	mg/L	0.0625	ND	49.5	80-120	2.00	20	M2
Thallium	0.0555	0.0020	mg/L	0.0625	0.0011	87.0	80-120	0.916	20	
Zinc	1.87	0.02	mg/L	0.0625	2.25	NR	80-120	1.21	20	M3, E





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	Re	porting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Post Spike (B017542-PS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed	: 4/28/2020 16:31									
Boron	121		ug/L	125	-1.32	96.8	75-125			D2
Calcium	6440		ug/L	6250	3.49	103	75-125			D2
Iron	6150		ug/L	6250	21.5	98.0	75-125			D2
Magnesium	6600		ug/L	6250	1.11	106	75-125			D2
Potassium	5980		ug/L	6250	9.01	95.6	75-125			D2
Sodium	6720		ug/L	6250	2.78	108	75-125			D2
Cobalt	62.7		ug/L	62.5	0.009	100	75-125			
Post Spike (B017542-PS2)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed	: 5/1/2020 19:19									
Molybdenum	65.7		ug/L	62.5	0.03	105	75-125			
Antimony	71.0		ug/L	62.5	0.107	113	75-125			
Mercury	2.56		ug/L	2.50	0.0710	99.4	75-125			
Arsenic	64.2		ug/L	62.5	-0.0029	103	75-125			J5
Barium	67.2		ug/L	62.5	0.037	107	75-125			
Beryllium	56.7		ug/L	62.5	-0.0023	90.7	75-125			
Cadmium	63.6		ug/L	62.5	0.0053	102	75-125			
Chromium	61.7		ug/L	62.5	0.0998	98.6	75-125			
Copper	61.0		ug/L	62.5	-1.66	97.6	75-125			
Lead	60.7		ug/L	62.5	0.219	96.8	75-115			
Lithium	60.7		ug/L	62.5	0.05	97.0	75-125			
Nickel	62.6		ug/L	62.5	0.313	99.7	75-125			
Selenium	64.8		ug/L	62.5	-0.002	104	75-125			
Thallium	58.9		ug/L	62.5	0.0066	94.2	75-125			
Zinc	65.7		ug/L	62.5	1.46	103	75-125			





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	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018047 - Default Prep Wet Cher	m									
Blank (B018047-BLK1)										
Prepared: 4/27/2020 10:24, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B018047-BS1)										
Prepared: 4/27/2020 10:28, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	1460	25	mg/L	1500		97.0	80-120			
Duplicate (B018047-DUP1)	Source: 0033745-01									
Prepared: 4/27/2020 11:52, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	716	50	mg/L		724			1.11	10	
Duplicate (B018047-DUP2)	Source: 0041174-01									
Prepared: 4/27/2020 11:56, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	364	50	mg/L		372			2.17	10	
Batch B018081 - Default Prep Wet Cher	m									
Blank (B018081-BLK1)										
Prepared: 4/27/2020 16:41, Analyzed: 4	/27/2020 16:41									
Chemical Oxygen Demand	ND	8	mg/L							U
LCS (B018081-BS1)										
Prepared: 4/27/2020 16:41, Analyzed: 4	/27/2020 16:41									
Chemical Oxygen Demand	127	8	mg/L				90-110			
Duplicate (B018081-DUP1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	206	8	mg/L		210			1.84	25	
Matrix Spike (B018081-MS1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	416	8	mg/L	250	210	82.7	90-110			M2
Matrix Spike Dup (B018081-MSD1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	414	8	mg/L	250	210	81.8	90-110	0.537	10	M2





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018086 - Default Prep Wet Chem										
Blank (B018086-BLK1)										
Prepared: 4/27/2020 14:54, Analyzed: 4/27/2	2020 14:54									
Specific Conductance (Lab)	ND	1	umhos/cm							U
LCS (B018086-BS1)										
Prepared: 4/27/2020 14:55, Analyzed: 4/27/2	2020 14:55									
Specific Conductance (Lab)	1410		umhos/cm	1410		99.8	80-120			
Duplicate (B018086-DUP1)	Source: 0033751-01									
Prepared: 4/27/2020 15:09, Analyzed: 4/27/2	2020 15:09									
Specific Conductance (Lab)	2980	1	umhos/cm		2990			0.0335	1.24	
Duplicate (B018086-DUP2)	Source: 0043793-01									
Prepared: 4/27/2020 15:27, Analyzed: 4/27/2	2020 15:27									
Specific Conductance (Lab)	1	1	umhos/cm		1			0.755	1.24	
Batch B018100 - Default Prep Wet Chem										
Blank (B018100-BLK1)										
Prepared: 5/1/2020 18:21, Analyzed: 5/1/2020	20 18:21									
Total Organic Carbon	ND	0.5	mg/L							U
LCS (B018100-BS1)										
Prepared: 5/1/2020 18:43, Analyzed: 5/1/202	20 18:43									
Total Organic Carbon	5.0	0.5	mg/L	5.00		101	80-120			
Duplicate (B018100-DUP1)	Source: 0033748-01									
Prepared: 5/2/2020 0:07, Analyzed: 5/2/202	20 0:07									
Total Organic Carbon	2.0	0.5	mg/L		2.0			0.0293	25	
Duplicate (B018100-DUP2)	Source: 0033758-01									
Prepared: 5/2/2020 4:27, Analyzed: 5/2/202	20 4:27									
Total Organic Carbon	2.8	0.5	mg/L		2.8			0.410	25	
Matrix Spike (B018100-MS1)	Source: 0033749-01									
Prepared: 5/2/2020 0:29, Analyzed: 5/2/202										
Total Organic Carbon	10.7	0.5	mg/L	2.50	8.2	101	80-120			



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018100 - Default Prep Wet Chem										
Matrix Spike (B018100-MS2)	Source: 0033759-01									
Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020	4:49									
Total Organic Carbon	3.6	0.5	mg/L	5.00	0.4	65.0	80-120			M2
Batch B018391 - Default Prep Wet Chem										
Blank (B018391-BLK1)										
Prepared: 4/29/2020 11:33, Analyzed: 4/29/20	20 11:33									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK2)										
Prepared: 4/29/2020 13:03, Analyzed: 4/29/20	20 13:03									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK3)										
Prepared: 4/29/2020 15:33, Analyzed: 4/29/20	20 15:33									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
LCS (B018391-BS1)										
Prepared: 4/29/2020 12:58, Analyzed: 4/29/20	20 12:58									
Total Alkalinity	235	4	mg/L	235		99.8	80-120			
Carbonate Alkalinity as CaCO3	232	4	mg/L	225		103	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
LCS (B018391-BS2)										
Prepared: 4/29/2020 15:29, Analyzed: 4/29/20	20 15:29									
Carbonate Alkalinity as CaCO3	230	4	mg/L	225		102	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	250	4	mg/L	235		106	80-120			



	R	eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018391 - Default Prep Wet Chem										
Duplicate (B018391-DUP1)	Source: 0033751-01									
Prepared: 4/29/2020 12:34, Analyzed: 4/2	29/2020 12:34									
Total Alkalinity	309	4	mg/L		301			2.43	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		301				10	U
Bicarbonate Alkalinity as CaCO3	309	4	mg/L		ND				10	
Duplicate (B018391-DUP2)	Source: 0033759-01									
Prepared: 4/29/2020 15:04, Analyzed: 4/2	29/2020 15:04									
Total Alkalinity	402	4	mg/L		394			2.01	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	402	4	mg/L		394			2.01	10	
Matrix Spike (B018391-MS1)	Source: 0033743-01									
Prepared: 4/29/2020 12:40, Analyzed: 4/2	29/2020 12:40									
Total Alkalinity	61	4	mg/L	50.4	22	77.0	80-120			M2
Matrix Spike (B018391-MS2)	Source: 0033759-01									
Prepared: 4/29/2020 15:18, Analyzed: 4/2	29/2020 15:18									
Total Alkalinity	413	4	mg/L	50.4	394	37.5	80-120			М3
Batch B019045 - Default Prep Wet Chem										
Blank (B019045-BLK1)										
Prepared: 5/4/2020 10:56, Analyzed: 5/4/	2020 10:56									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B019045-BS1)										
Prepared: 5/4/2020 10:58, Analyzed: 5/4/	2020 10:58									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B019045-DUP1)	Source: 0041237-02		-							
Prepared: 5/4/2020 12:56, Analyzed: 5/4/										
		4	mc/l		200			6.76	10	
Hardness as CaCO3	214	1	mg/L		200			6.76	10	
Matrix Spike (B019045-MS1)	Source: 0041237-02									
Prepared: 5/4/2020 12:58, Analyzed: 5/4/										
Hardness as CaCO3	568	1	mg/L	318	200	116	80-120			





Ion Chromatography Madisonville - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018474 - Default Prep IC										
Blank (B018474-BLK1)										
Prepared: 5/2/2020 1:02, Analyzed: 5/2/20	20 1:02									
Sulfate	ND	1.0	mg/L							U
Chloride	ND	0.5	mg/L							U
Fluoride	ND	0.20	mg/L							U
LCS (B018474-BS1)										
Prepared: 5/2/2020 0:42, Analyzed: 5/2/20	20 0:42									
Chloride	9.7		mg/L	10.0		97.0	90-110			
Fluoride	9.60		mg/L	10.0		96.0	90-110			
Sulfate	10.0		mg/L	10.0		99.9	90-110			
Matrix Spike (B018474-MS1)	Source: 0033759-0	1								
Prepared: 5/2/2020 9:35, Analyzed: 5/2/20	20 9:35									
Chloride	552		mg/L	10.0	1170	NR	80-120			M2
Fluoride	1.75		mg/L	10.0	0.24	15.1	80-120			M2
Sulfate	627		mg/L	10.0	2710	NR	80-120			M2
Matrix Spike Dup (B018474-MSD1)	Source: 0033759-0	1								
Prepared: 5/2/2020 9:56, Analyzed: 5/2/20	20 9:56									
Fluoride	1.81		mg/L	10.0	0.24	15.7	80-120	3.09	20	M2
Sulfate	640		mg/L	10.0	2710	NR	80-120	2.10	20	M2
Chloride	558		mg/L	10.0	1170	NR	80-120	1.05	10	M2

Analyte Certifications

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0033752
Shipped By: Client	Temperature: 3.90° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	☑
Check if bottles are intact	
Check if bottles are correct	☑
Check if bottles have sufficient volume	
Check if samples received on ice	☑
Check if VOA headspace is acceptable	
Check if samples received in holding time.	
Check if samples are preserved properly	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>03/02/2020</u>



	L					
Client: Big Rivers Electric Corporat Station		s Electric C	Corporation Wilson	Invoice To: Big Rivers E	Electric Corp	oration Wilson Station
Project: MW-4D Wilson 092-00004	PO Box 2		19	PO Box 24 Henderson,		
		270) 844-60		DO#: 3	58508-	6
Diseas Drink Lawikh	PWS ID#	t: K}	/		> <u>8 700 -</u>	<u> </u>
Please Print Legibly Collected by (Signature):				Quote#	iance Monito	ring? Yes / No
Collected by (Signature):	*required information*			·		ed? Yes No
*For composite samples please indica	te begin time, end time and tem	ıp(oC) at er	nd time below:	Jampi	es Cilionilate	ed: 163 140
Influent: Start Date Start	time End Date		End Time T	emp (oC)		
Effluent: Start Date Start	time End Date		End Time T	emp (oC)		
MMLI USE ONLY *required information workorder # Date Colle 0033752 (mm/dd/yy): Time	ection	evi Containers	Sample Description	Composite		
Sample ID#		<u> </u>		•		e Analysis Requested
// 1	Plastic 1L	1	MW4D	g/c	Conductivi Sulfate 300	otal Chloride 300.0 ty (Lab) Fluoride 300.0 0.0 Alkalinity Bicarbonate nity Carbonate
0033752-01 В <u>У/23/20</u> <u>О</u> Z	Plastic 500mL pH<: w/HNO3	2 1	MW4D	g/c	Arsenic To Barium Tot Selenium Titration Be Tot 6010B	t 6020 Antimony Tot 6020 6020 Iron Tot 6010B Fot 6020 Hardness eryllium Tot 6020 Boron Cadmium Tot 6020
0033752-01 C 4/23/20 07	Preservation Check:	•	MW4D	g/c	6020 Sodiu	ot 6010B Chromium Tot Im Tot 6010B Lead Tot Im Tot 6020 Mercury Tot
,/ ,	w/H2SO4 Preservation Check:	pH :				
0033752-01 D <u>4/23/20</u> <u>07</u>	Plastic 1L pH<2 w/HN Rad 226 (Sub) Preservation Check:	/	MW4D	g/c	Radium 22	6 (sub)
Preservation Check Performed by: _	pur					
	Date (mm/d	ld/yy) <u>4/</u>	9 <i>2/</i> 20 Time (24 hr) <u></u>	750		
pH <u>6.3/</u> Cond (um	(n he) <u>5,89</u> Res Cl (n	ng/L)	Tot CI (mg/L)	Fre	ee Cl (mg/L)	
Temp (oC) <u>15,64</u> or (o	F) Static Water Le	evel	DO (mg/L)	т	urb. (NTU)	
Flow (MGD) or (CF:	S) or (g/i	min)				
Relinquished by: (Signature)	Received by: ((Signature)		Date (mm.	/dd/yy)	
Tree Suce	1 appur		_	,	-20	132S
				_		
PACE- Check here if trip cha	rge applied to associated CO	C	Printed: 3	/27/2020 1:51	:57PM	Page 18 of 30

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>03/02/2020</u>



Client: Big Rivers Electric Corporation \ Station	Big Rivers Elect Station	tric Corporation Wilson	_	lectric Corporation Wilson Station
Project: MW-4D Wilson 092-00004	Mike Galbraith PO Box 24		Brian Edwar PO Box 24	as
	Henderson, KY	42419	Henderson,	KY 42419
	Phone: <u>(270) 84</u> PWS ID#:	<u>14-6000</u> イレ	PO#: 2 5	8508-6
Please Print Legibly	State:	<u> </u>	Quote#	
Collected by (Signature):	required information*		Compli	ance Monitoring? Yes Y No
*For composite samples please indicate be	gin time, end time and temp(oC)	at end time below:	Sample	es Chlorinated? Yes No
Influent: Start Date Start time	End Date	End Time 1	emp (oC)	
Effluent: Start Date Start time	End Date	End Date End Time		
MMLI USE ONLY *required information Workorder # Date Collection 0033752 (mm/dd/yy): Time (24 h	* n r): Bottle and Preservative	Sample Description	Composite	Sample Analysis Requested
0033752-01 E 4/23/20 0750	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH :	<u>√</u> MW4D	g/c	Radium 228 (sub)
0033752-01 F 4/23/20 0750	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH : _	1 MW4D	g/c	Radium 228 (sub)
0033752-01 G 4/23/20 0750	Plastic 1L pH<2 w/HNO3 (Sub) Preservation Check: pH : _	1 MW4D	g/c	Radium Total (sub)
	AN			
pH <u>6.31</u> Cond (umho) Temp (oC) <u>15.69</u> or (oF) _	Snesd Date (mm/dd/yy) 5,89 Res Cl (mg/L) Static Water Level	Tot CI (mg/L) DO (mg/L)	Fr	İ
Field data collected by: Travis. pH (0.31 Cond (umhe) Temp (oC) 15,69 or (oF)	Sneco Date (mm/dd/yy) 5,89 Res CI (mg/L) Static Water Level	Tot CI (mg/L)	Fr	İ

PACE- Check here if trip charge applied to associated COC

Printed: 3/27/2020 1:51:57PM

Page 19 of 30

(724)850-5600



May 19, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 33752

Pace Project No.: 30360656

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 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,

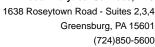
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 33752
Pace Project No.: 30360656

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

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

Ohio EPA Rad Approval: #41249

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

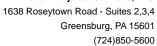




SAMPLE SUMMARY

Project: 33752
Pace Project No.: 30360656

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30360656001	0033752-01	Water	04/23/20 07:50	04/28/20 09:10





SAMPLE ANALYTE COUNT

Project: 33752
Pace Project No.: 30360656

Lak ID	0	Made at		Analytes	Labandana
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30360656001	0033752-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 33752
Pace Project No.: 30360656

Sample: 0033752-01 PWS:	Lab ID: 303606 Site ID:	56001 Collected: 04/23/20 07:50 Sample Type:	Received:	04/28/20 09:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Se	rvices - Greensburg				
Radium-226	EPA 903.1	-0.286 ± 0.460 (0.898) C:NA T:86%	pCi/L	05/18/20 15:36	13982-63-3	
	Pace Analytical Se	rvices - Greensburg				
Radium-228	EPA 904.0	0.851 ± 0.525 (0.987) C:76% T:68%	pCi/L	05/15/20 15:51	15262-20-1	
	Pace Analytical Se	rvices - Greensburg				
Total Radium	Total Radium Calculation	0.851 ± 0.985 (1.89)	pCi/L	05/19/20 08:36	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project: 33752 Pace Project No.: 30360656

QC Batch:

394311 QC Batch Method: EPA 903.1 Analysis Method: Analysis Description: EPA 903.1

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360656001

METHOD BLANK: 1909693

Matrix: Water

Associated Lab Samples: 30360656001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

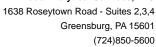
Radium-226

-0.255 ± 0.240 (0.532) C:NA T:97%

pCi/L

05/18/20 15:36

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:

33752

Pace Project No.:

30360656

QC Batch: QC Batch Method: 394310

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

30360656001

METHOD BLANK: 1909692

Matrix: Water

Associated Lab Samples:

30360656001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

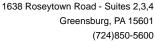
Radium-228

0.175 ± 0.287 (0.624) C:79% T:85%

pCi/L

05/15/20 15:53

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.





QUALIFIERS

Project: 33752
Pace Project No.: 30360656

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.

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: 05/19/2020 08:37 AM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

MO#:30360656

Chain of Custody

lytical"

	Workorder: 33/52	MC	workorder Name:	ne: MW-4D	Wilson 092-	MW-4D Wilson 092-00004 Owner Received Date: 4/23/2020	Received Date	:: 4/23/2020	Results Re	Results Requested By:	
Repo	Report To:		Subco	Subcontract To:				- A	Requested Analysis	lysis	
McC	McCoy & McCoy Labs		Pace /	Pace Analytical Services LLC Greensburg PA	vices LLC Gre	ensburg P#		olaO n			
P.O. I	P.O. Box 907		1638	1638 Rosey Town Rd Suite 2,3,4	d Suite 2,3,4	·		uns			
Madi	Madisonville, KY 42409		Green	Greensburg, PA 15601	601			ı wı	· • • • • • • • • • • • • • • • • • • •		
270-8	270-821-7375		(724)	(724) 850-5615				nibe			
r.whi	r.whittington@mccoylabs.com					Pres	Preserved Containers	1			
		Sample	Collect		- Political			.εα			
Item	Item Sample ID	Туре	Date/Time	Lab ID		Matrix					
П]		/d3			LAB USE ONLY
7	0033752-01		04/23/20 07:50		IR44-McCoy	Water					8
3								\Box			
4											- William
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Transfers	fers Released By]	Date/Time	Reveived By	By	Dat	Date/Time	-	Comments	
	***************************************				WAL	MAS	RYL	Che och			
7					/ /			,			
<u>m</u>											
_	1000	ļ			V			(AWW.
Coole	Cooler Temperature on Receipt	3,6	°C Cus	Custody Seal Y	Y or/N	R	Received on Ice Y or N	Ice Y or N	San	Sample Intact V or N	or N

This chain of custody is considered complete as is since this information is available in the owner laboratory.

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

30360656

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0033752

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4 Greensburg PA 15601

Greensburg, PA 15601 Phone :(724) 850-5615

Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0033752-01	Water	Sampled:04/23/2020 07:50	Specific Method		
Radium Total (sub)		10/20/2020 07:50	EPA 904.0 Radium S	ım (
Radium 228 (sub)		10/20/2020 07:50	EPA 904.0 Radium S	ım C	
Radium 226 (sub)		10/20/2020 07:50	EPA 903.1		

Released By Date Received By Date

Received By Date

Pittsburgh Lab Sample Condit	ion l	Jpor	Re	
Pace Analytical Client Name:	D		a	Project # # _ 3 0 3 6 0 6 5 6
Pace Analytical Client Name:	<u> </u>	ice		Project # W - J J J J
· /				- ' SOM
Courier: Fed Ex UPS USPS Ocient		omme	rcial	Pace Other Label O SIV
Tracking #: 1107 5336 1811		_		LIMS Login $0 \le 1^{\circ}$
Custody Seal on Cooler/Box Present:	□ n		-	s intact: yes no
Thermometer Used	Туре	of Ice:		Blue None
Cooler Temperature Observed Temp	6	°C	Corre	ection Factor: -0,5 °C Final Temp: 5,1 °C
Temp should be above freezing to 6°C				pH paper Lot# Date and initials of person examining
				pH paper Lot# Date and Initials of person examining contents: OSM (1) 3/1820
Comments:	Yes	No	N/A	1019411
Chain of Custody Present:		-	<u> </u>	1.
Chain of Custody Filled Out:		-	<u> </u>	2.
Chain of Custody Relinquished:		<u> </u>	-	3.
Sampler Name & Signature on COC:		<u> </u>		4.
Sample Labels match COC:		<u> </u>	<u> </u>	_5.
-Includes date/time/ID Matrix:	<u>~~</u>	<u> </u>	Ī	
Samples Arrived within Hold Time:		<u> </u>		6.
Short Hold Time Analysis (<72hr remaining):	ļ			7.
Rush Turn Around Time Requested:			ļ	8.
Sufficient Volume:				9.
Correct Containers Used:			<u> </u>	10.
-Pace Containers Used:				
Containers Intact:		ļ		11.
Orthophosphate field filtered				12.
Hex Cr Aqueous sample field filtered				13.
Organic Samples checked for dechlorination:				14.
Filtered volume received for Dissolved tests				15.
All containers have been checked for preservation.		<u> </u>	[16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon,	•		PHC2
All containers meet method preservation			1	Initial when \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
requirements.				completed JJ/ preservation
·				Lot # of added preservative
Headspace in VOA Vials (>6mm):				17.
Trip Blank Present:				18.
Trip Blank Custody Seals Present				
Rad Samples Screened < 0.5 mrem/hr				Initial when Completed Date: 428 2000
Olicat Net/Spetion/ Parallythan				completed: Date: T AB NO DO
Client Notification/ Resolution: ——Person-Gontacted:			-Date/F	Fime: Gontacted-By:
Comments/ Resolution:			Date!	Outracied by.
COMMONIA (COOLUMN)				
-				
A check in this box indicates that addit	ional	inform	nation	n has been stored in ereports.

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0033745

Mike Galbraith
Big Rivers Electric Corporation Wilson Station
PO Box 24
Henderson KY, 42419

MW-102 Wilson 092-00004

Customer ID: Report Printed:

44-100168 05/29/2020 13:55

Workorder:

0033745

Dear Mike Galbraith

Project Name:

Enclosed are the analytical results for samples received at one of our laboratories on 04/23/2020 13:25.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC
P.O. Box 907
Madisonville, KY 42431
270.821.7375
www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0033745-01	MW102/		Groundwater	04/23/2020 08:10	04/23/2020 13:25	Travis Sneed
LabNumber	<u>Measurement</u>	<u>Value</u>				
0033745-01	Field Conductance	1210				
	Field Dissolved Oxygen	0.58				
	Field pH	6.48				
	Field Temp (C)	15.77				
	Field Turbidity	3.8				

Work Order Comments:

Corrected Report:

This report has been issued as a revision of the previous report dated 5/20/20@0920. Cobalt result added to report.



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

 Lab Sample ID: 0033745-01
 Sample Collection Date Time: 04/23/2020 08:10

 Description: MW102
 Sample Received Date Time: 04/23/2020 13:25

Metals by SW846 6000 Series Methods

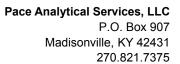
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Arsenic	0.0047		mg/L	0.0010	0.0004	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Barium	0.051		mg/L	0.004	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Boron	ND	U	mg/L	0.10	0.10	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:28	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Calcium	94.5	D1	mg/L	4.00	1.30	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:31	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Iron	6.01		mg/L	0.100	0.050	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:28	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Lithium	ND	U	mg/L	0.02	0.005	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Magnesium	41.3	D1	mg/L	2.00	0.900	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:31	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	04/24/2020 11:25	05/02/2020 17:29	DMH
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Nickel	0.002	J	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Potassium	2.46		mg/L	0.50	0.22	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:28	AKB
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Sodium	135	D1	mg/L	26.0	10.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:44	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:43	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	288		mg/L	4		2320 B-2011	04/29/2020 11:55	04/29/2020 11:55	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	04/29/2020 11:55	04/29/2020 11:55	HMF
Total Alkalinity	288		mg/L	4		2320 B-2011	04/29/2020 11:55	04/29/2020 11:55	HMF
Chemical Oxygen Demand	14		mg/L	8	8	HACH 8000	04/27/2020 15:25	04/27/2020 15:25	ALT
Specific Conductance (Lab)	1190		umhos/cm	1	1	2510 B-2011	04/27/2020 14:59	04/27/2020 14:59	GAT
Hardness as CaCO3	320		mg/L	1	1	2340 C (as HACH 8226)	05/04/2020 11:16	05/04/2020 11:16	CLL
Total Dissolved Solids	724		mg/L	50	50	2540 C-2011	04/27/2020 10:32	04/28/2020 12:32	MAG
Total Organic Carbon	1.0		mg/L	0.5		5310 C-2011	05/01/2020 20:31	05/01/2020 20:31	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.084	_Sub	pCi/L			EPA 903.1	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium-228	-0.154	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium	0.084	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW



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Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	33.1		mg/L	0.5	0.4	EPA 300.0 REV 2.1	05/01/2020 19:56	05/01/2020 19:56	CSC
Fluoride	0.34		mg/L	0.20		EPA 300.0 REV 2.1	05/01/2020 19:56	05/01/2020 19:56	CSC
Sulfate	259	D	mg/L	50.0	25.0	EPA 300.0 REV	05/01/2020 20:16	05/01/2020 20:16	CSC



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Notes for work order 0033745

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI does not provide interpretation of these results unless otherwise stated.
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub	See subcontractors report.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
E	Concentration exceeds calibration range
J	Estimated value.
J5	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
L2	The associated blank spike recovery was below method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
M6	Matrix spike recovery was high.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).
Y1	Sample RPD exceeded the method control limit.
Y2	MS/MSD RPD exceeded the method control limit. Recovery met acceptance criteria.

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate

DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

Greater than Less than



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Blank (B017542-BLK1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12:	50									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Cobalt	ND	0.004	mg/L							U
Blank (B017542-BLK2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:0	9									
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.001	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U
Blank (B017542-BLK3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	0									
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.002	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





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		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
LCS (B017542-BS1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020	12:53									
Boron	0.13	0.10	mg/L	0.125		106	85-115			
Calcium	6.57	0.40	mg/L	6.25		105	85-115			
Iron	6.39	0.100	mg/L	6.25		102	85-115			
Magnesium	5.72	0.200	mg/L	6.25		91.5	85-115			
Potassium	6.62	0.50	mg/L	6.25		106	85-115			
Sodium	6.47	0.26	mg/L	6.25		103	85-115			
Cobalt	0.054	0.004	mg/L	0.0625		85.7	85-115			
LCS (B017542-BS2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 1	17:13									
Molybdenum	0.05	0.01	mg/L	0.0625		86.2	85-115			
Mercury	0.0020	0.0005	mg/L	0.00250		79.8	85-115			L2
Antimony	0.058	0.005	mg/L	0.0625		93.6	85-115			
Arsenic	0.0537	0.0010	mg/L	0.0625		85.9	85-115			
Barium	0.054	0.004	mg/L	0.0625		86.5	85-115			
Beryllium	0.0495	0.0020	mg/L	0.0625		79.2	85-115			M2
Cadmium	0.0533	0.0010	mg/L	0.0625		85.3	85-115			
Chromium	0.0535	0.0020	mg/L	0.0625		85.5	85-115			
Copper	0.054	0.003	mg/L	0.0625		86.7	85-115			
Lead	0.051	0.002	mg/L	0.0625		81.1	85-115			L2
Lithium	0.05	0.02	mg/L	0.0625		82.7	85-115			L2
Nickel	0.053	0.003	mg/L	0.0625		85.3	85-115			
Selenium	0.053	0.003	mg/L	0.0625		85.4	85-115			
Thallium	0.0495	0.0020	mg/L	0.0625		79.1	85-115			L2
Zinc	0.05	0.02	mg/L	0.0625		86.2	85-115			
LCS (B017542-BS3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 1	16:54									
Mercury	0.0026	0.0005	mg/L	0.00250		102	85-115			
Antimony	0.069	0.005	mg/L	0.0625		110	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		110	85-115			
Arsenic	0.0651	0.0010	mg/L	0.0625		104	85-115			
Barium	0.065	0.004	mg/L	0.0625		105	85-115			
Beryllium	0.0624	0.0020	mg/L	0.0625		99.8	85-115			
Cadmium	0.0652	0.0010	mg/L	0.0625		104	85-115			
Chromium	0.0645	0.0020	mg/L	0.0625		103	85-115			
Copper	0.066	0.003	mg/L	0.0625		106	85-115			
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.06	0.02	mg/L	0.0625		101	85-115			
Nickel	0.064	0.003	mg/L	0.0625		103	85-115			
Selenium	0.065	0.003	mg/L	0.0625		103	85-115			
Thallium	0.0650	0.0020	mg/L	0.0625		104	85-115			
Zinc	0.07	0.02	mg/L	0.0625		105	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:18									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	6.11	10.0	mg/L	6.25	ND	97.8	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, U
Cobalt	0.064	0.004	mg/L	0.0625	ND	102	80-120			
Matrix Spike (B017542-MS2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	357	40.0	mg/L	6.25	382	NR	80-120			D2, M2
Iron	89.2	10.0	mg/L	6.25	96.5	NR	80-120			D2, M2
Magnesium	190	20.0	mg/L	6.25	197	NR	80-120			D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.546	0.004	mg/L	0.0625	0.547	NR	80-120			М3
Sodium	107	26.0	mg/L	6.25	108	NR	80-120			D2
Matrix Spike (B017542-MS3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 18:48									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120			
Mercury	0.0023	0.0005	mg/L	0.00250	ND	92.2	80-120			
Antimony	0.071	0.005	mg/L	0.0625	ND	113	80-120			
Arsenic	0.0646	0.0010	mg/L	0.0625	ND	103	80-120			J5
Barium	0.066	0.004	mg/L	0.0625	ND	106	80-120			
Beryllium	0.0609	0.0020	mg/L	0.0625	ND	97.5	80-120			
Cadmium	0.0639	0.0010	mg/L	0.0625	ND	102	80-120			
Chromium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120			
Copper	0.061	0.003	mg/L	0.0625	ND	97.6	80-120			
Lead	0.060	0.002	mg/L	0.0625	ND	96.7	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	104	80-120			
Nickel	0.062	0.003	mg/L	0.0625	ND	99.8	80-120			
Selenium	0.063	0.003	mg/L	0.0625	ND	100	80-120			
Thallium	0.0587	0.0020	mg/L	0.0625	ND	93.9	80-120			
Zinc	0.06	0.02	mg/L	0.0625	ND	103	80-120			





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Anglista		Reporting	l loite	Spike	Source	0/ DEC	%REC	DDD	RPD Limit	Netss
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5	5/1/2020 19:11									
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120			
Molybdenum	0.04	0.01	mg/L	0.0625	0.002	53.5	80-120			J5, M2
Mercury	0.0022	0.0005	mg/L	0.00250	ND	86.7	80-120			
Arsenic	0.0711	0.0010	mg/L	0.0625	0.0079	101	80-120			J5
Barium	0.068	0.004	mg/L	0.0625	0.005	102	80-120			
Beryllium	0.0507	0.0020	mg/L	0.0625	0.0013	79.2	80-120			M2
Cadmium	0.0781	0.0010	mg/L	0.0625	0.0211	91.1	80-120			
Chromium	0.0631	0.0020	mg/L	0.0625	0.0007	99.8	80-120			
Copper	0.057	0.003	mg/L	0.0625	ND	90.8	80-120			
Lead	0.056	0.002	mg/L	0.0625	ND	89.1	80-120			
Lithium	0.20	0.02	mg/L	0.0625	0.15	87.1	80-120			
Nickel	1.03	0.003	mg/L	0.0625	1.10	NR	80-120			M3, E
Selenium	0.032	0.003	mg/L	0.0625	ND	50.5	80-120			M2
Thallium	0.0560	0.0020	mg/L	0.0625	0.0011	87.8	80-120			
Zinc	1.85	0.02	mg/L	0.0625	2.25	NR	80-120			M3, E
Matrix Spike Dup (B017542-MSD1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	/28/2020 16:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	6.31	10.0	mg/L	6.25	ND	101	80-120	3.22	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, U
Cobalt	0.065	0.004	mg/L	0.0625	ND	104	80-120	2.02	20	
Matrix Spike Dup (B017542-MSD2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	/28/2020 16:28									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	356	40.0	mg/L	6.25	382	NR	80-120	0.438	20	D2, M2
Iron	88.8	10.0	mg/L	6.25	96.5	NR	80-120	0.473	20	D2, M2
Magnesium	189	20.0	mg/L	6.25	197	NR	80-120	0.296	20	D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	106	26.0	mg/L	6.25	108	NR	80-120	0.573	20	D2
Cobalt	0.552	0.004	mg/L	0.0625	0.547	8.08	80-120	1.11	20	М3





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike Dup (B017542-MSD3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 5/1/20	20 18:52									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.30	20	
Mercury	0.0024	0.0005	mg/L	0.00250	ND	97.5	80-120	5.63	20	
Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	2.84	20	
Arsenic	0.0650	0.0010	mg/L	0.0625	ND	104	80-120	0.685	20	J5
Barium	0.068	0.004	mg/L	0.0625	ND	108	80-120	2.25	20	
Beryllium	0.0616	0.0020	mg/L	0.0625	ND	98.6	80-120	1.15	20	
Cadmium	0.0655	0.0010	mg/L	0.0625	ND	105	80-120	2.55	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	1.38	20	
Copper	0.062	0.003	mg/L	0.0625	ND	99.0	80-120	1.42	20	
Lead	0.062	0.002	mg/L	0.0625	ND	99.0	80-120	2.37	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	106	80-120	2.61	20	
Nickel	0.064	0.003	mg/L	0.0625	ND	103	80-120	3.35	20	
Selenium	0.064	0.003	mg/L	0.0625	ND	103	80-120	2.12	20	
Thallium	0.0601	0.0020	mg/L	0.0625	ND	96.2	80-120	2.37	20	
Zinc	0.07	0.02	mg/L	0.0625	ND	105	80-120	1.77	20	
Matrix Spike Dup (B017542-MSD4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5/1/20	20 19:15									
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120	0.226	20	
Mercury	0.0022	0.0005	mg/L	0.00250	ND	89.1	80-120	2.77	20	
Molybdenum	0.03	0.01	mg/L	0.0625	0.002	52.5	80-120	1.71	20	J5, M2
Arsenic	0.0692	0.0010	mg/L	0.0625	0.0079	98.0	80-120	2.76	20	J5
Barium	0.068	0.004	mg/L	0.0625	0.005	100	80-120	1.30	20	
Beryllium	0.0493	0.0020	mg/L	0.0625	0.0013	76.8	80-120	2.91	20	M2
Cadmium	0.0793	0.0010	mg/L	0.0625	0.0211	93.1	80-120	1.59	20	
Chromium	0.0616	0.0020	mg/L	0.0625	0.0007	97.5	80-120	2.35	20	
Copper	0.055	0.003	mg/L	0.0625	ND	87.6	80-120	3.65	20	
Lead	0.055	0.002	mg/L	0.0625	ND	88.6	80-120	0.549	20	
Lithium	0.20	0.02	mg/L	0.0625	0.15	93.5	80-120	1.99	20	
Nickel	1.04	0.003	mg/L	0.0625	1.10	NR	80-120	1.31	20	M3, E
Selenium	0.031	0.003	mg/L	0.0625	ND	49.5	80-120	2.00	20	M2
Thallium	0.0555	0.0020	mg/L	0.0625	0.0011	87.0	80-120	0.916	20	
Zinc	1.87	0.02	mg/L	0.0625	2.25	NR	80-120	1.21	20	M3, E





	Re	porting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Post Spike (B017542-PS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed	: 4/28/2020 16:31									
Boron	121		ug/L	125	-1.32	96.8	75-125			D2
Calcium	6440		ug/L	6250	3.49	103	75-125			D2
Iron	6150		ug/L	6250	21.5	98.0	75-125			D2
Magnesium	6600		ug/L	6250	1.11	106	75-125			D2
Potassium	5980		ug/L	6250	9.01	95.6	75-125			D2
Sodium	6720		ug/L	6250	2.78	108	75-125			D2
Cobalt	62.7		ug/L	62.5	0.009	100	75-125			
Post Spike (B017542-PS2)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed	: 5/1/2020 19:19									
Antimony	71.0		ug/L	62.5	0.107	113	75-125			
Molybdenum	65.7		ug/L	62.5	0.03	105	75-125			
Mercury	2.56		ug/L	2.50	0.0710	99.4	75-125			
Arsenic	64.2		ug/L	62.5	-0.0029	103	75-125			J5
Barium	67.2		ug/L	62.5	0.037	107	75-125			
Beryllium	56.7		ug/L	62.5	-0.0023	90.7	75-125			
Cadmium	63.6		ug/L	62.5	0.0053	102	75-125			
Chromium	61.7		ug/L	62.5	0.0998	98.6	75-125			
Copper	61.0		ug/L	62.5	-1.66	97.6	75-125			
Lead	60.7		ug/L	62.5	0.219	96.8	75-115			
Lithium	60.7		ug/L	62.5	0.05	97.0	75-125			
Nickel	62.6		ug/L	62.5	0.313	99.7	75-125			
Selenium	64.8		ug/L	62.5	-0.002	104	75-125			
Thallium	58.9		ug/L	62.5	0.0066	94.2	75-125			
Zinc	65.7		ug/L	62.5	1.46	103	75-125			





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	R	eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018047 - Default Prep Wet Cher	m									
Blank (B018047-BLK1)										
Prepared: 4/27/2020 10:24, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B018047-BS1)										
Prepared: 4/27/2020 10:28, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	1460	25	mg/L	1500		97.0	80-120			
Duplicate (B018047-DUP1)	Source: 0033745-01									
Prepared: 4/27/2020 11:52, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	716	50	mg/L		724			1.11	10	
Duplicate (B018047-DUP2)	Source: 0041174-01									
Prepared: 4/27/2020 11:56, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	364	50	mg/L		372			2.17	10	
Batch B018080 - Default Prep Wet Cher	m									
Blank (B018080-BLK1)										
Prepared: 4/27/2020 15:20, Analyzed: 4	/27/2020 15:20									
Chemical Oxygen Demand	ND	8	mg/L							U
LCS (B018080-BS1)										
Prepared: 4/27/2020 15:20, Analyzed: 4	/27/2020 15:20									
Chemical Oxygen Demand	121	8	mg/L				90-110			
Duplicate (B018080-DUP1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	36	8	mg/L		22			47.1	25	Y1
Matrix Spike (B018080-MS1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	274	8	mg/L	250	22	101	90-110			
Matrix Spike Dup (B018080-MSD1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	263	8	mg/L	250	22	96.3	90-110	4.34	10	





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018086 - Default Prep Wet Chem										
Blank (B018086-BLK1)										
Prepared: 4/27/2020 14:54, Analyzed: 4/27/2	2020 14:54									
Specific Conductance (Lab)	ND	1	umhos/cm							U
LCS (B018086-BS1)										
Prepared: 4/27/2020 14:55, Analyzed: 4/27/2	2020 14:55									
Specific Conductance (Lab)	1410		umhos/cm	1410		99.8	80-120			
Duplicate (B018086-DUP1)	Source: 0033751-01									
Prepared: 4/27/2020 15:09, Analyzed: 4/27/2	2020 15:09									
Specific Conductance (Lab)	2980	1	umhos/cm		2990			0.0335	1.24	
Duplicate (B018086-DUP2)	Source: 0043793-01									
Prepared: 4/27/2020 15:27, Analyzed: 4/27/2	2020 15:27									
Specific Conductance (Lab)	1	1	umhos/cm		1			0.755	1.24	
Batch B018100 - Default Prep Wet Chem										
Blank (B018100-BLK1)										
Prepared: 5/1/2020 18:21, Analyzed: 5/1/2020	20 18:21									
Total Organic Carbon	ND	0.5	mg/L							U
LCS (B018100-BS1)										
Prepared: 5/1/2020 18:43, Analyzed: 5/1/202	20 18:43									
Total Organic Carbon	5.0	0.5	mg/L	5.00		101	80-120			
Duplicate (B018100-DUP1)	Source: 0033748-01									
Prepared: 5/2/2020 0:07, Analyzed: 5/2/202	20 0:07									
Total Organic Carbon	2.0	0.5	mg/L		2.0			0.0293	25	
Duplicate (B018100-DUP2)	Source: 0033758-01									
Prepared: 5/2/2020 4:27, Analyzed: 5/2/202	20 4:27									
Total Organic Carbon	2.8	0.5	mg/L		2.8			0.410	25	
Matrix Spike (B018100-MS1)	Source: 0033749-01									
Prepared: 5/2/2020 0:29, Analyzed: 5/2/202										
Total Organic Carbon	10.7	0.5	mg/L	2.50	8.2	101	80-120			



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018100 - Default Prep Wet Chem										
Matrix Spike (B018100-MS2)	Source: 0033759-01									
Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020	4:49									
Total Organic Carbon	3.6	0.5	mg/L	5.00	0.4	65.0	80-120			M2
Batch B018391 - Default Prep Wet Chem										
Blank (B018391-BLK1)										
Prepared: 4/29/2020 11:33, Analyzed: 4/29/20	20 11:33									
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK2)										
Prepared: 4/29/2020 13:03, Analyzed: 4/29/20	20 13:03									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK3)										
Prepared: 4/29/2020 15:33, Analyzed: 4/29/20	20 15:33									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
LCS (B018391-BS1)										
Prepared: 4/29/2020 12:58, Analyzed: 4/29/20	20 12:58									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	232	4	mg/L	225		103	0-200			
Total Alkalinity	235	4	mg/L	235		99.8	80-120			
LCS (B018391-BS2)										
Prepared: 4/29/2020 15:29, Analyzed: 4/29/20	20 15:29									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	230	4	mg/L	225		102	0-200			
Total Alkalinity	250	4	mg/L	235		106	80-120			



		-	-			-				
	R	eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018391 - Default Prep Wet Chem										
Duplicate (B018391-DUP1)	Source: 0033751-01									
Prepared: 4/29/2020 12:34, Analyzed: 4/29/2020	9/2020 12:34									
Bicarbonate Alkalinity as CaCO3	309	4	mg/L		ND				10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		301				10	U
Total Alkalinity	309	4	mg/L		301			2.43	10	
Duplicate (B018391-DUP2)	Source: 0033759-01									
Prepared: 4/29/2020 15:04, Analyzed: 4/29/2020	9/2020 15:04									
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	402	4	mg/L		394			2.01	10	
Total Alkalinity	402	4	mg/L		394			2.01	10	
Matrix Spike (B018391-MS1)	Source: 0033743-01									
Prepared: 4/29/2020 12:40, Analyzed: 4/29/2020	9/2020 12:40									
Total Alkalinity	61	4	mg/L	50.4	22	77.0	80-120			M2
Matrix Spike (B018391-MS2)	Source: 0033759-01									
Prepared: 4/29/2020 15:18, Analyzed: 4/29	9/2020 15:18									
Total Alkalinity	413	4	mg/L	50.4	394	37.5	80-120			M3
Batch B019045 - Default Prep Wet Chem										
Blank (B019045-BLK1)										
Prepared: 5/4/2020 10:56, Analyzed: 5/4/2	2020 10:56									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B019045-BS1)										
Prepared: 5/4/2020 10:58, Analyzed: 5/4/2	2020 10:58									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B019045-DUP1)	Source: 0041237-02		-							
Hardness as CaCO3	214	1	mg/L		200			6.76	10	
Matrix Spike (B019045-MS1)	Source: 0041237-02									
. ,										
		1	ma/L	318	200	116	80-120			
Prepared: 5/4/2020 10:58, Analyzed: 5/4/2 Hardness as CaCO3 Duplicate (B019045-DUP1) Prepared: 5/4/2020 12:56, Analyzed: 5/4/2	230 Source: 0041237-02 2020 12:56 214 Source: 0041237-02			225	200	102	80-120	6.76	10	





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018473 - Default Prep IC										
Blank (B018473-BLK1)										
Prepared: 5/1/2020 15:50, Analyzed: 5/1	/2020 15:50									
Fluoride	ND	0.20	mg/L							U
Sulfate	ND	1.0	mg/L							U
Chloride	ND	0.5	mg/L							U
LCS (B018473-BS1)										
Prepared: 5/1/2020 15:30, Analyzed: 5/1	/2020 15:30									
Sulfate	9.7		mg/L	10.0		97.1	90-110			
Chloride	9.6		mg/L	10.0		96.1	90-110			
Fluoride	9.60		mg/L	10.0		96.0	90-110			
Matrix Spike (B018473-MS1)	Source: 0033742-0)1								
Prepared: 5/2/2020 0:01, Analyzed: 5/2/	/2020 0:01									
Sulfate	10.8		mg/L	10.0	0.005	108	80-120			
Fluoride	10.2		mg/L	10.0	0.06	101	80-120			
Chloride	10.1		mg/L	10.0	0.0	101	80-120			
Matrix Spike Dup (B018473-MSD1)	Source: 0033742-0)1								
Prepared: 5/2/2020 0:21, Analyzed: 5/2/	/2020 0:21									
Sulfate	14.5		mg/L	10.0	0.005	145	80-120	28.8	20	M1, Y2
Chloride	13.1		mg/L	10.0	0.0	131	80-120	25.7	10	M1, Y2
Fluoride	13.2		mg/L	10.0	0.06	132	80-120	26.2	20	M1, Y2
Certified Analyses included in this Repo	ort									
Analyte	Certifications									

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0033745
Shipped By: Client	Temperature: 3.90° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	lacksquare
Check if bottles are intact	☑
Check if bottles are correct	☑
Check if bottles have sufficient volume	☑
Check if samples received on ice	☑
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	☑

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>03/02/2020</u>



				<u> </u>				
Client: Big Rivers Electric Corporation Wils Station		ectric Co	orporation Wilson	Invoice To: Big Rivers E	Electric Corporation Wilso	n Station		
Project: MW-102 Wilson 092-00004	Mike Galbraith PO Box 24			Brian Edwards PO Box 24 Henderson, KY 42419				
•	Henderson, K			·	_			
	Phone: <u>(270) (</u> PWS ID#:	844-600	<u>00</u>	PO#: 2 5	58508-6			
Please Print Legibly	S fate:	ny		Quote#				
Collected by (Signature):	uired information*		-	Compl	liance Monitoring? Yes 🗘	No _		
*For composite samples please indicate begin) at end	I time below:	Sampl	les Chlorinated? Yes	No		
Influent: Start Date Start time				Temp (oC)				
Effluent: Start Date Start time								
MMLI USE ONLY *required information* Workorder # Date Collection 0033745 (mm/dd/yy): Time (24 hr):	Bottle and Preservative	Containers	Cample Description	n Composite				
Sample ID#	Dottle and 1 reservative	2	Sample Description		Sample Analysis R			
0033745-01 A 04-23-20 3:10	Plastic 1L		MW102	g/c	Alkalinity Total Chloride Conductivity (Lab) Fluo Sulfate 300.0 Alkalinity TDS Alkalinity Carbona	ride 300.0 Bicarbonate		
0033745-01 B 0 4-23-20 8:10	Plastic 500mL pH<2 w/HNO3	1	MW102	g/c	Arsenic Tot 6020 Antim Barium Tot 6020 Iron To Selenium Tot 6020 Hard	ony Tot 6020 ot 6010B		
	~				Titration Beryllium Tot 6 Tot 6010B Cadmium To Calcium Tot 6010B Chr 6020 Sodium Tot 6010B 6020 Lithium Tot 6020 I	ot 6020 romium Tot B Lead Tot		
	Preservation Check: pH:				6020	·		
0033745-01 C 04.23.20 8:10	Plastic 500mL pH<2 . w/H2SO4 Preservation Check: pH:	1	MW102	g/c	COD TOC			
0033745-01 D 0 4-23-20 8:10	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) Preservation Check: pH:		MW102	g/c	Radium 226 (sub)			
Preservation Check Performed by:	pri							
Field data collected by: 1 Fau: 5 5	Date (mm/dd/yy) <u>04-2.</u>	3-20 Time (24 hr)	8:10				
pH <u>6.48</u> Cond (unifie) 1					ree Cl (mg/L)	_		
·	Static Water Level							
Flow (MGD) or (CFS)								
Relinquished by: (Signature)	Received by: (Sign	nature)		Date (mn	n/dd/yy) Time (24	hr)		
Tum Seed	abbuy	Kai	M	4-2	3-20 132	ئے		
			_					
PACE- Check here if trip charge app	olied to associated COC		Printed	: 3/27/2020 1:4	3:56PM Page	e 18 of 30		

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: 03/02/2020



		L						
Client: Big Rivers Electric Co Station	rporation Wils	Big Rivers Electr Station	ic Corporation Wilson	•		ation Wilson Station		
Project: MW-102 Wilson 092-0	00004	Mike Galbraith PO Box 24 Henderson, KY 4	2419	Brian Edwards PO Box 24 Henderson, KY 42419				
		Phone: <u>(270)</u> 844 PWS ID#:		PO#: 25	8508-6	<u>.</u>		
Please Print Legibly		State:	54	Quote#		-		
Collected by (Signature):) ron :	fired information*	7	Complia	ance Monitori	ng? Yes K No		
*For composite samples please		•	t end time below:	Sample	s Chlorinated	l? Yes No		
Influent: Start Date				Temp (oC)	·			
Effluent: Start Date								
MMLI USE ONLY *required in Workorder # Date 0033745 (mm/dd/yy):	nformation* Collection Time (24 hr):	Bottle and Preservative	Sample Descriptio	n Composite				
Sample ID#	0-1 1 2		MW102	g/c	Sample Radium 228	Analysis Requested		
0033745-01 E 04-23-20	8:10	Plastic 1L pH<2 w/HNO3 1 Rad 228 (Sub) Preservation Check: pH:		g/C	Nadium 220	(300)		
0033745-01 F	8'.10	Plastic 1L pH<2 w/HNO3 1 Rad 228 (Sub) Preservation Check: pH:	MW102	g / c	Radium 228	s (sub)		
0033745-01 G <i>O <u>4-23 - 20</u></i>	8:10	Plastic 1L pH<2 w/HNO3 1 (Sub) Preservation Check: pH:	MW102	g / c	Radium Tota	al (sub)		
Preservation Check Performe	d by:	Au						
Field data collected by:		Date (mm/dd/yy)o	4-23-2 € Time (24 hr)	8:10				
pH Con	nd (umito)	1.2_1 Res Cl (mg/L) _	Tot CI (mg/L)		ee CI (mg/L) .	1.15		
Temp (oC) <u>15.77</u> or	(oF)	Static Water Level						
Flow (MGD) or	(CFS)							
Relinquished by: (Signature)		Received by: (Signat	ure)	Date (mm	/dd/yy)	Time (24 hr)		
Gran Suc	d	about	hall	<u>4-2:</u>	3-20	1325		
	· · · · · · · · · · · · · · · · · · ·							

PACE- Check here if trip charge applied to associated COC

Printed: 3/27/2020 1:43:56PM

Page 19 of 30

(724)850-5600



May 19, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 33745

Pace Project No.: 30360660

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 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,

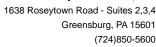
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 33745
Pace Project No.: 30360660

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706

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

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

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

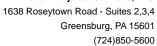




SAMPLE SUMMARY

Project: 33745
Pace Project No.: 30360660

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30360660001	0033745-01	Water	04/23/20 08:10	04/28/20 09:10



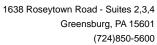


SAMPLE ANALYTE COUNT

Project: 33745
Pace Project No.: 30360660

				Analytes	
Lab ID	Sample ID		Analysts	Reported	Laboratory
30360660001	0033745-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg





ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 33745
Pace Project No.: 30360660

Sample: 0033745-01 PWS:	Lab ID: 303606 Site ID:	Collected: 04/23/20 08:10 Sample Type:	Received:	04/28/20 09:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	ervices - Greensburg				
Radium-226	EPA 903.1	0.0838 ± 0.339 (0.591) C:NA T:95%	pCi/L	05/18/20 15:36	3 13982-63-3	
	Pace Analytical S	ervices - Greensburg				
Radium-228	EPA 904.0	-0.154 ± 0.323 (0.787) C:76% T:85%	pCi/L	05/15/20 15:52	2 15262-20-1	
	Pace Analytical S	ervices - Greensburg				
Total Radium	Total Radium Calculation	$0.0838 \pm 0.662 (1.38)$	pCi/L	05/19/20 08:36	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project: 33745

Pace Project No.:

30360660

QC Batch: QC Batch Method: 394311

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360660001

METHOD BLANK: 1909693

Matrix: Water

Associated Lab Samples:

30360660001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

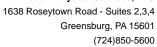
Radium-226

-0.255 ± 0.240 (0.532) C:NA T:97%

pCi/L

05/18/20 15:36

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: 33745 Pace Project No.:

30360660

QC Batch:

QC Batch Method:

394310

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360660001

METHOD BLANK: 1909692

Matrix: Water

Associated Lab Samples: 30360660001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

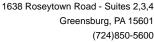
Radium-228

0.175 ± 0.287 (0.624) C:79% T:85%

pCi/L

05/15/20 15:53

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.





QUALIFIERS

Project: 33745
Pace Project No.: 30360660

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.

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: 05/19/2020 08:37 AM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

MO#:30360660

Chain of Custody

LAB USE ONLY $\bar{\mathscr{G}}$ Results Requested By: Comments Requested Analysis Workorder Name: MW-102 Wilson 092-0000 Owner Received Date: 4/23/2020 EPA 904.0 Radium Sum Calc 4/22/2009/20 Date/Time EPA 903.1 Preserved Containers Pace Analytical Services LLC Greensburg PA Matrix Water Reyeived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Greensburg, PA 15601 Lab ID Date/Time Subcontract To: (724) 850-5615 04/23/20 08:10 Date/Time Sample | Collect ပ Type r.whittington@mccoylabs.com Madisonville, KY 42409 Transfers | Released By Workorder: 33745 McCoy & McCoy Labs 0033745-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 4 ø

Sample Intact Yor N ***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COE Received on Ice Y or N This chain of custody is considered complete as is since this information is available in the owner laboratory. Custody Seal Y or/N Cooler Temperature on Receipt

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Page 9 of 11 Page 28 of 30

SUBCONTRACT ORDER

3 0 3 6 0 Bac6 Mulytical Services, LLC Kentucky 0033745

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601 Phone: (724) 850-5615

Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0033745-01	Water	Sampled:04/23/2020 08:10	Specific Method		
Radium Total (sub)		10/20/2020 08:10	EPA 904.0 Radium S	Sum C	· · · · · · · · · · · · · · · · · · ·
Radium 228 (sub)		10/20/2020 08:10	EPA 904.0 Radium S	Sum C	
Radium 226 (sub)		10/20/2020 08:10	EPA 903.1		

Released By Date Received By Date

Received By Date

Page 29 of 30

Pittsburgh Lab Sample Condit	ion l	Jpor	Re	ceipt	
Pace Analytical* Client Name:	Pa	ice	2	Project # 30360660	
Courier: Fed Ex UPS USPS UClient Tracking #: 1107 3386 18(1)	□	omme	rcial-	Lims Login \wedge S	
Custody Seal on Cooler/Box Present: yes	_ n	- 10	Seals	intact; yes no	
Thermometer Used			Wet	7 Blue None	
Cooler Temperature Observed Temp	, 3	٠c	Corre	ection Factor: -0,5 °C Final Temp: 2,8 °C	
Temp should be above freezing to 6°C		-			
				pH paper Lot# Date and initials of person examining contents: 05 M 4/3 3/3000	
Comments:	Yes	No	N/A	101)4141	
Chain of Custody Present:		<u> </u>		1.	
Chain of Custody Filled Out:	<u> </u>			2.	
Chain of Custody Relinquished:		<u> </u>	<u> </u>	3.	
Sampler Name & Signature on COC:	<u> </u>		<u> </u>	4.	
Sample Labels match COC:				5.	
-Includes date/time/ID Matrix:	<u>~~</u>	T_	T		
Samples Arrived within Hold Time:				6.	
Short Hold Time Analysis (<72hr remaining):			<u> </u>	7.	
Rush Turn Around Time Requested:	<u> </u>			8.	
Sufficient Volume:	<u> </u>			9.	
Correct Containers Used:			ļ	10.	
-Pace Containers Used:					
Containers Intact:	<u> </u>			11.	
Orthophosphate field filtered		<u> </u>		12.	
Hex Cr Aqueous sample field filtered	ļ	<u> </u>		13.	
Organic Samples checked for dechlorination:		<u> </u>		14.	
Filtered volume received for Dissolved tests	<u> </u>	<u> </u>		15.	
All containers have been checked for preservation.			ļ	16. 0HCZ	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon	1 T#) / / - ·	
All containers meet method preservation requirements.				Initial when Date/time of preservation	
, oqui on one		1		Lot # of added preservative	
Headspace in VOA Vials (>6mm):				17.	
Trip Blank Present:				18.	
Trip Blank Custody Seals Present					
Rad Samples Screened < 0.5 mrem/hr				Initial when SM Date: Pas hord	
Client Notification/ Resolution:					
Person Contacted:			-Date/-	Fime:Gontacted-B <u>y:</u>	·····
Comments/ Resolution:					
☐ A check in this box indicates that addi	floro!	infor	nafie-	has been stored in granouts	
A CHECK IN THIS DOX INDICATES THAT ADDI	uu iidi	muvii	iianA)	t tide wood design in elebotics	

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0033746

Mike Galbraith
Big Rivers Electric Corporation Wilson Station
PO Box 24
Henderson KY, 42419

Customer ID: Report Printed:

44-100168 05/29/2020 13:58

Project Name: MW-104 Wilson 092-00004

Workorder: 0033746

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 04/23/2020 13:25.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC
P.O. Box 907
Madisonville, KY 42431
270.821.7375
www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0033746-01	MW104/		Groundwater	04/22/2020 14:05	04/23/2020 13:25	Travis Sneed
<u>LabNumber</u>	Measurement	<u>Value</u>				
0033746-01	Field Conductance	2050				
	Field Dissolved Oxygen	0.48				
	Field pH	6.50				
	Field Temp (C)	17.16				
	Field Turbidity	96.1				

Work Order Comments:

Corrected Report:

This report has been issued as a revision of the previous report dated 5/20/20@0919. Cobalt result added to report.



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

Lab Sample ID: 0033746-01 Sample Collection Date Time: 04/22/2020 14:05
Description: MW104 Sample Received Date Time: 04/23/2020 13:25

Metals by SW846 6000 Series Methods

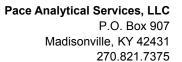
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Arsenic	0.0010		mg/L	0.0010	0.0004	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Barium	0.050		mg/L	0.004	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Boron	ND	U	mg/L	0.10	0.10	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:47	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Calcium	258	D1	mg/L	40.0	13.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:53	AKB
Chromium	0.0007	J	mg/L	0.0020	0.0006	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Iron	4.34		mg/L	0.100	0.050	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:47	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Lithium	0.02		mg/L	0.02	0.005	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Magnesium	79.3	D1	mg/L	2.00	0.900	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:50	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	04/24/2020 11:25	05/02/2020 17:32	DMH
Molybdenum	0.003	J	mg/L	0.01	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Nickel	0.003		mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Potassium	8.53		mg/L	0.50	0.22	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:47	AKB
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Sodium	97.1	D1	mg/L	2.60	1.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:50	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:47	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	384		mg/L	4		2320 B-2011	04/29/2020 12:01	04/29/2020 12:01	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	04/29/2020 12:01	04/29/2020 12:01	HMF
Total Alkalinity	384		mg/L	4		2320 B-2011	04/29/2020 12:01	04/29/2020 12:01	HMF
Chemical Oxygen Demand	11		mg/L	8	8	HACH 8000	04/27/2020 15:25	04/27/2020 15:25	ALT
Specific Conductance (Lab)	1750		umhos/cm	1	1	2510 B-2011	04/27/2020 15:00	04/27/2020 15:00	GAT
Hardness as CaCO3	912	D	mg/L	2	2	2340 C (as HACH 8226)	05/04/2020 11:20	05/04/2020 11:20	CLL
Total Dissolved Solids	1380		mg/L	50	50	2540 C-2011	04/27/2020 10:36	04/28/2020 12:32	MAG
Total Organic Carbon	0.8		mg/L	0.5		5310 C-2011	05/01/2020 20:53	05/01/2020 20:53	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.149	_Sub	pCi/L			EPA 903.1	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium-228	0.674	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium	0.823	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW



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Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	13.0		mg/L	0.5	0.4	EPA 300.0 REV 2.1	05/01/2020 20:37	05/01/2020 20:37	CSC
Fluoride	ND	U	mg/L	0.20		EPA 300.0 REV 2.1	05/01/2020 20:37	05/01/2020 20:37	CSC
Sulfate	662	D	mg/L	100	50.0	EPA 300.0 REV 2.1	05/01/2020 20:57	05/01/2020 20:57	CSC



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Notes for work order 0033746

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI does not provide interpretation of these results unless otherwise stated.
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub	See subcontractors report.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
E	Concentration exceeds calibration range
J	Estimated value.
J5	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
L2	The associated blank spike recovery was below method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
M6	Matrix spike recovery was high.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).
Y1	Sample RPD exceeded the method control limit.
Y2	MS/MSD RPD exceeded the method control limit. Recovery met acceptance criteria.

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate

% Rec Percent Recovery RPD Relative Percent Difference

Greater than Less than



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Blank (B017542-BLK1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12:	50									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Cobalt	ND	0.004	mg/L							U
Blank (B017542-BLK2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:0	9									
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.001	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U
Blank (B017542-BLK3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	0									
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.002	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		Deporting		Spiko	Source		%PEC		RPD	
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	Limit	Notes
	Result	Liiiil	Onito	LOVE	Result	JUNEO	Liiilio	I I D	Enlit	140103
Batch B017542 - EPA 200.2										
LCS (B017542-BS1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020	0 12:53									
Boron	0.13	0.10	mg/L	0.125		106	85-115			
Calcium	6.57	0.40	mg/L	6.25		105	85-115			
Iron	6.39	0.100	mg/L	6.25		102	85-115			
Magnesium	5.72	0.200	mg/L	6.25		91.5	85-115			
Potassium	6.62	0.50	mg/L	6.25		106	85-115			
Cobalt	0.054	0.004	mg/L	0.0625		85.7	85-115			
Sodium	6.47	0.26	mg/L	6.25		103	85-115			
LCS (B017542-BS2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020	17:13									
Mercury	0.0020	0.0005	mg/L	0.00250		79.8	85-115			L2
Antimony	0.058	0.005	mg/L	0.0625		93.6	85-115			
Molybdenum	0.05	0.01	mg/L	0.0625		86.2	85-115			
Arsenic	0.0537	0.0010	mg/L	0.0625		85.9	85-115			
Barium	0.054	0.004	mg/L	0.0625		86.5	85-115			
Beryllium	0.0495	0.0020	mg/L	0.0625		79.2	85-115			M2
Cadmium	0.0533	0.0010	mg/L	0.0625		85.3	85-115			
Chromium	0.0535	0.0020	mg/L	0.0625		85.5	85-115			
Copper	0.054	0.003	mg/L	0.0625		86.7	85-115			
Lead	0.051	0.002	mg/L	0.0625		81.1	85-115			L2
Lithium	0.05	0.02	mg/L	0.0625		82.7	85-115			L2
Nickel	0.053	0.003	mg/L	0.0625		85.3	85-115			
Selenium	0.053	0.003	mg/L	0.0625		85.4	85-115			
Thallium	0.0495	0.0020	mg/L	0.0625		79.1	85-115			L2
Zinc	0.05	0.0020	mg/L	0.0625		86.2	85-115			LZ
	0.03	0.02	IIIg/L	0.0025		00.2	00-110			
LCS (B017542-BS3) Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020	16:54									
Molybdenum	0.07	0.01	mg/L	0.0625		110	85-115			
Mercury	0.0026	0.0005	mg/L	0.00250		102	85-115			
Antimony	0.069	0.005	mg/L	0.0625		110	85-115			
Arsenic	0.0651	0.003	mg/L	0.0625		104	85-115			
			_			104				
Barium	0.065	0.004	mg/L	0.0625			85-115 85-115			
Beryllium	0.0624	0.0020	mg/L	0.0625		99.8	85-115			
Chamium	0.0652	0.0010	mg/L	0.0625		104	85-115 85-115			
Chromium	0.0645	0.0020	mg/L	0.0625		103	85-115			
Copper	0.066	0.003	mg/L	0.0625		106	85-115			
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.06	0.02	mg/L	0.0625		101	85-115			
Nickel	0.064	0.003	mg/L	0.0625		103	85-115			
Selenium	0.065	0.003	mg/L	0.0625		103	85-115			
Thallium	0.0650	0.0020	mg/L	0.0625		104	85-115			
Zinc	0.07	0.02	mg/L	0.0625		105	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS1)	Source: 0033742-01	1								
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:18									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	6.11	10.0	mg/L	6.25	ND	97.8	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.064	0.004	mg/L	0.0625	ND	102	80-120			
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, U
Matrix Spike (B017542-MS2)	Source: 0033743-0	1								
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	357	40.0	mg/L	6.25	382	NR	80-120			D2, M2
Iron	89.2	10.0	mg/L	6.25	96.5	NR	80-120			D2, M2
Magnesium	190	20.0	mg/L	6.25	197	NR	80-120			D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.546	0.004	mg/L	0.0625	0.547	NR	80-120			М3
Sodium	107	26.0	mg/L	6.25	108	NR	80-120			D2
Matrix Spike (B017542-MS3)	Source: 0033742-01	1								
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 18:48									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120			
Mercury	0.0023	0.0005	mg/L	0.00250	ND	92.2	80-120			
Antimony	0.071	0.005	mg/L	0.0625	ND	113	80-120			
Arsenic	0.0646	0.0010	mg/L	0.0625	ND	103	80-120			J5
Barium	0.066	0.004	mg/L	0.0625	ND	106	80-120			
Beryllium	0.0609	0.0020	mg/L	0.0625	ND	97.5	80-120			
Cadmium	0.0639	0.0010	mg/L	0.0625	ND	102	80-120			
Chromium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120			
Copper	0.061	0.003	mg/L	0.0625	ND	97.6	80-120			
Lead	0.060	0.002	mg/L	0.0625	ND	96.7	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	104	80-120			
Nickel	0.062	0.003	mg/L	0.0625	ND	99.8	80-120			
Selenium	0.063	0.003	mg/L	0.0625	ND	100	80-120			
Thallium	0.0587	0.0020	mg/L	0.0625	ND	93.9	80-120			
Zinc	0.06	0.02	mg/L	0.0625	ND	103	80-120			





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
	rtoduit	Liiiii	Ornio	20701	rtoouit	701120	Lillino	111 5	Liiiii	110100
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 19:11									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	86.7	80-120			
Molybdenum	0.04	0.01	mg/L	0.0625	0.002	53.5	80-120			J5, M2
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120			
Arsenic	0.0711	0.0010	mg/L	0.0625	0.0079	101	80-120			J5
Barium	0.068	0.004	mg/L	0.0625	0.005	102	80-120			
Beryllium	0.0507	0.0020	mg/L	0.0625	0.0013	79.2	80-120			M2
Cadmium	0.0781	0.0010	mg/L	0.0625	0.0211	91.1	80-120			
Chromium	0.0631	0.0020	mg/L	0.0625	0.0007	99.8	80-120			
Copper	0.057	0.003	mg/L	0.0625	ND	90.8	80-120			
Lead	0.056	0.002	mg/L	0.0625	ND	89.1	80-120			
Lithium	0.20	0.02	mg/L	0.0625	0.15	87.1	80-120			
Nickel	1.03	0.003	mg/L	0.0625	1.10	NR	80-120			M3, E
Selenium	0.032	0.003	mg/L	0.0625	ND	50.5	80-120			M2
Thallium	0.0560	0.0020	mg/L	0.0625	0.0011	87.8	80-120			
Zinc	1.85	0.02	mg/L	0.0625	2.25	NR	80-120			M3, E
Matrix Spike Dup (B017542-MSD1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	4/28/2020 16:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	6.31	10.0	mg/L	6.25	ND	101	80-120	3.22	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Cobalt	0.065	0.004	mg/L	0.0625	ND	104	80-120	2.02	20	
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, U
Matrix Spike Dup (B017542-MSD2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	4/28/2020 16:28									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	356	40.0	mg/L	6.25	382	NR	80-120	0.438	20	D2, M2
Iron	88.8	10.0	mg/L	6.25	96.5	NR	80-120	0.473	20	D2, M2
Magnesium	189	20.0	mg/L	6.25	197	NR	80-120	0.296	20	D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Cobalt	0.552	0.004	mg/L	0.0625	0.547	8.08	80-120	1.11	20	M3
Sodium	106	26.0	mg/L	6.25	108	NR	80-120	0.573	20	D2





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike Dup (B017542-MSD3)	Source: 0033742-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	/2020 18:52									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.30	20	
Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	2.84	20	
Mercury	0.0024	0.0005	mg/L	0.00250	ND	97.5	80-120	5.63	20	
Arsenic	0.0650	0.0010	mg/L	0.0625	ND	104	80-120	0.685	20	J5
Barium	0.068	0.004	mg/L	0.0625	ND	108	80-120	2.25	20	
Beryllium	0.0616	0.0020	mg/L	0.0625	ND	98.6	80-120	1.15	20	
Cadmium	0.0655	0.0010	mg/L	0.0625	ND	105	80-120	2.55	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	1.38	20	
Copper	0.062	0.003	mg/L	0.0625	ND	99.0	80-120	1.42	20	
Lead	0.062	0.002	mg/L	0.0625	ND	99.0	80-120	2.37	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	106	80-120	2.61	20	
Nickel	0.064	0.003	mg/L	0.0625	ND	103	80-120	3.35	20	
Selenium	0.064	0.003	mg/L	0.0625	ND	103	80-120	2.12	20	
Thallium	0.0601	0.0020	mg/L	0.0625	ND	96.2	80-120	2.37	20	
Zinc	0.07	0.02	mg/L	0.0625	ND	105	80-120	1.77	20	
Matrix Spike Dup (B017542-MSD4)	Source: 0033743-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	/2020 19:15									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	89.1	80-120	2.77	20	
Molybdenum	0.03	0.01	mg/L	0.0625	0.002	52.5	80-120	1.71	20	J5, M2
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120	0.226	20	
Arsenic	0.0692	0.0010	mg/L	0.0625	0.0079	98.0	80-120	2.76	20	J5
Barium	0.068	0.004	mg/L	0.0625	0.005	100	80-120	1.30	20	
Beryllium	0.0493	0.0020	mg/L	0.0625	0.0013	76.8	80-120	2.91	20	M2
Cadmium	0.0793	0.0010	mg/L	0.0625	0.0211	93.1	80-120	1.59	20	
Chromium	0.0616	0.0020	mg/L	0.0625	0.0007	97.5	80-120	2.35	20	
Copper	0.055	0.003	mg/L	0.0625	ND	87.6	80-120	3.65	20	
Lead	0.055	0.002	mg/L	0.0625	ND	88.6	80-120	0.549	20	
Lithium	0.20	0.02	mg/L	0.0625	0.15	93.5	80-120	1.99	20	
Nickel	1.04	0.003	mg/L	0.0625	1.10	NR	80-120	1.31	20	M3, E
Selenium	0.031	0.003	mg/L	0.0625	ND	49.5	80-120	2.00	20	M2
Thallium	0.0555	0.0020	mg/L	0.0625	0.0011	87.0	80-120	0.916	20	
Zinc	1.87	0.02	mg/L	0.0625	2.25	NR	80-120	1.21	20	M3, E





	R	Reporting		Spike	Source		%REC		RPD		
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes	
Batch B017542 - EPA 200.2											
Post Spike (B017542-PS1)	Source: 0033742-01										
Prepared: 4/24/2020 11:25, Analyzed	d: 4/28/2020 16:31										
Boron	121		ug/L	125	-1.32	96.8	75-125			D2	
Calcium	6440		ug/L	6250	3.49	103	75-125			D2	
Iron	6150		ug/L	6250	21.5	98.0	75-125			D2	
Magnesium	6600		ug/L	6250	1.11	106	75-125			D2	
Potassium	5980		ug/L	6250	9.01	95.6	75-125			D2	
Sodium	6720		ug/L	6250	2.78	108	75-125			D2	
Cobalt	62.7		ug/L	62.5	0.009	100	75-125				
Post Spike (B017542-PS2)	Source: 0033742-01										
Prepared: 4/24/2020 11:25, Analyzed	d: 5/1/2020 19:19										
Mercury	2.56		ug/L	2.50	0.0710	99.4	75-125				
Antimony	71.0		ug/L	62.5	0.107	113	75-125				
Molybdenum	65.7		ug/L	62.5	0.03	105	75-125				
Arsenic	64.2		ug/L	62.5	-0.0029	103	75-125			J5	
Barium	67.2		ug/L	62.5	0.037	107	75-125				
Beryllium	56.7		ug/L	62.5	-0.0023	90.7	75-125				
Cadmium	63.6		ug/L	62.5	0.0053	102	75-125				
Chromium	61.7		ug/L	62.5	0.0998	98.6	75-125				
Copper	61.0		ug/L	62.5	-1.66	97.6	75-125				
Lead	60.7		ug/L	62.5	0.219	96.8	75-115				
Lithium	60.7		ug/L	62.5	0.05	97.0	75-125				
Nickel	62.6		ug/L	62.5	0.313	99.7	75-125				
Selenium	64.8		ug/L	62.5	-0.002	104	75-125				
Thallium	58.9		ug/L	62.5	0.0066	94.2	75-125				
Zinc	65.7		ug/L	62.5	1.46	103	75-125				





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	R	eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018047 - Default Prep Wet Cher	m									
Blank (B018047-BLK1)										
Prepared: 4/27/2020 10:24, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B018047-BS1)										
Prepared: 4/27/2020 10:28, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	1460	25	mg/L	1500		97.0	80-120			
Duplicate (B018047-DUP1)	Source: 0033745-01									
Prepared: 4/27/2020 11:52, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	716	50	mg/L		724			1.11	10	
Duplicate (B018047-DUP2)	Source: 0041174-01									
Prepared: 4/27/2020 11:56, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	364	50	mg/L		372			2.17	10	
Batch B018080 - Default Prep Wet Cher	m									
Blank (B018080-BLK1)										
Prepared: 4/27/2020 15:20, Analyzed: 4	/27/2020 15:20									
Chemical Oxygen Demand	ND	8	mg/L							U
LCS (B018080-BS1)										
Prepared: 4/27/2020 15:20, Analyzed: 4	/27/2020 15:20									
Chemical Oxygen Demand	121	8	mg/L				90-110			
Duplicate (B018080-DUP1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	36	8	mg/L		22			47.1	25	Y1
Matrix Spike (B018080-MS1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	274	8	mg/L	250	22	101	90-110			
Matrix Spike Dup (B018080-MSD1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	263	8	mg/L	250	22	96.3	90-110	4.34	10	





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018086 - Default Prep Wet Chem										
Blank (B018086-BLK1)										
Prepared: 4/27/2020 14:54, Analyzed: 4/27/2	2020 14:54									
Specific Conductance (Lab)	ND	1	umhos/cm							U
LCS (B018086-BS1)										
Prepared: 4/27/2020 14:55, Analyzed: 4/27/2	2020 14:55									
Specific Conductance (Lab)	1410		umhos/cm	1410		99.8	80-120			
Duplicate (B018086-DUP1)	Source: 0033751-01									
Prepared: 4/27/2020 15:09, Analyzed: 4/27/2	2020 15:09									
Specific Conductance (Lab)	2980	1	umhos/cm		2990			0.0335	1.24	
Duplicate (B018086-DUP2)	Source: 0043793-01									
Prepared: 4/27/2020 15:27, Analyzed: 4/27/2	2020 15:27									
Specific Conductance (Lab)	1	1	umhos/cm		1			0.755	1.24	
Batch B018100 - Default Prep Wet Chem										
Blank (B018100-BLK1)										
Prepared: 5/1/2020 18:21, Analyzed: 5/1/2020	20 18:21									
Total Organic Carbon	ND	0.5	mg/L							U
LCS (B018100-BS1)										
Prepared: 5/1/2020 18:43, Analyzed: 5/1/202	20 18:43									
Total Organic Carbon	5.0	0.5	mg/L	5.00		101	80-120			
Duplicate (B018100-DUP1)	Source: 0033748-01									
Prepared: 5/2/2020 0:07, Analyzed: 5/2/202	20 0:07									
Total Organic Carbon	2.0	0.5	mg/L		2.0			0.0293	25	
Duplicate (B018100-DUP2)	Source: 0033758-01									
Prepared: 5/2/2020 4:27, Analyzed: 5/2/202	20 4:27									
Total Organic Carbon	2.8	0.5	mg/L		2.8			0.410	25	
Matrix Spike (B018100-MS1)	Source: 0033749-01									
Prepared: 5/2/2020 0:29, Analyzed: 5/2/202										
Total Organic Carbon	10.7	0.5	mg/L	2.50	8.2	101	80-120			



Batch B018100 - Default Prop Wet Chem Matrix Spike (B018100-MS2) Source: 0033759-01				-			-				
Batch B018100 - Default Prep Wet Chem Matrix Spike (B018100-MS2) Source: 0033759-01 Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020 4:49 Total Organic Carbon 3.6 0.5 mg/L 5.00 0.4 65.0 80-120 M2 Batch B018391 - Default Prep Wet Chem Blank (B018391-BLK1) Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:35 Total Alkalinity a CaCO3 ND 4 mg/L U U Carbonate Alkalinity as CaCO3 ND 4 mg/L U U U Carbonate Alkalinity as CaCO3 ND 4 mg/L U U U U U U U U U U U U U U U U U U U			Reporting		Spike	Source		%REC		RPD	
Marix Spike (B018100 -MS2) Source: 0033759-01	Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Prepared: 5/2/2020 4.49, Analyzed: 5/2/2020 4.49 Total Organic Carbon 3.6 0.5 mg/L 5.00 0.4 65.0 80-120 M2 Batch B018391 - Default Prep Wet Chem Blank (8018391-BLK1) Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:33 Total Alkalinity as CaCO3 ND 4 mg/L USA MB MB MB MB MB MB MB MB MB MB MB MB MB	Batch B018100 - Default Prep Wet Chem										
Total Organic Carbon 3.6 0.5 mg/L 5.00 0.4 65.0 80-120 M2	Matrix Spike (B018100-MS2)	Source: 0033759-01									
Blank (B018391-BLK1) Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:30 Total Alkalinity as CaCO3 ND 4 mg/L UBicarbonate Alkalinity as CaCO3 ND 4 mg/L	Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020	4:49									
Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:35 ND	Total Organic Carbon	3.6	0.5	mg/L	5.00	0.4	65.0	80-120			M2
Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:33 Total Alkalinity ND A mg/L MD A mg/L U Carbonate Alkalinity as CaCO3 ND A mg/L U Blank (B018391-BLK2) Prepared: 4/29/2020 13:03, Analyzed: 4/29/2020 13:03 ND A MD A Mg/L U Blank (B018391-BLK2) Prepared: 4/29/2020 13:03, Analyzed: 4/29/2020 13:03 ND A MD A Mg/L U Carbonate Alkalinity as CaCO3 ND A Mg/L Carbonate Alkalinity as CaCO3 ND Carbonate Alkalinity as Ca	Batch B018391 - Default Prep Wet Chem										
Total Alkalinity	Blank (B018391-BLK1)										
Carbonate Alkalinity as CaCO3	Prepared: 4/29/2020 11:33, Analyzed: 4/29/20	20 11:33									
Bicarbonate Alkalinity as CaCO3	Total Alkalinity	ND	4	mg/L							U
Blank (B018391-BLK2) Prepared: 4/29/2020 13:03, Analyzed: 4/29/2020 13:03 ND	Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Prepared: 4/29/2020 13:03, Analyzed: 4/29/2020 13:03 Total Alkalinity	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Biank (B018391-BLK3) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:35 Carbonate Alkalinity as CaCO3 ND 4 mg/L U Total Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 ND 4 mg/L 225 103 0-200 U Total Alkalinity as CaCO3 ND 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Frepared: 4/29/2020 15:29 F	Blank (B018391-BLK2)										
Carbonate Alkalinity as CaCO3 ND 4 mg/L U Blank (B018391-BLK3) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Carbonate Alkalinity as CaCO3 ND 4 mg/L U U U Blank (B018391-BLK3) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Carbonate Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 ND 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity as CaCO3 15:29, Analyzed: 4/29/2020 15:29 ECS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 235 99.8 80-120 U Total Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity as CaCO3 ND 4 mg/L 235 106 80-120	Prepared: 4/29/2020 13:03, Analyzed: 4/29/20	20 13:03									
Bicarbonate Alkalinity as CaCO3	Total Alkalinity	ND	4	mg/L							U
Blank (B018391-BLK3) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Carbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Carbonate Alkalinity as CaCO3 ND 4 mg/L U Total Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 ND 4 mg/L 225 103 0-200 U Total Alkalinity as CaCO3 ND 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 235 99.8 80-120 U Total Alkalinity as CaCO3 ND 4 mg/L 235 90.8 80-120	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	Blank (B018391-BLK3)										
Total Alkalinity	Prepared: 4/29/2020 15:33, Analyzed: 4/29/20	20 15:33									
Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 2020 15:29, Analyzed: 4/29/2020 15:29	Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 0 15:29, Analyzed: 4/29/2020 15:29 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 250 4 mg/L 235 106 80-120	Total Alkalinity	ND	4	mg/L							U
Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 235 99.8 80-120 U Total Alkalinity 235 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 250 4 mg/L 235 106 80-120	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 235 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 250 4 mg/L 235 106 80-120	LCS (B018391-BS1)										
Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 235 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 250 4 mg/L 235 106 80-120	Prepared: 4/29/2020 12:58, Analyzed: 4/29/20	20 12:58									
Total Alkalinity 235 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 250 4 mg/L 235 106 80-120	Carbonate Alkalinity as CaCO3	232	4	mg/L	225		103	0-200			
LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 250 4 mg/L 235 106 80-120	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 250 4 mg/L 235 106 80-120	Total Alkalinity	235	4	mg/L	235		99.8	80-120			
Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 250 4 mg/L 235 106 80-120	LCS (B018391-BS2)										
Total Alkalinity 250 4 mg/L 235 106 80-120	Prepared: 4/29/2020 15:29, Analyzed: 4/29/20	20 15:29									
Total Alkalinity 250 4 mg/L 235 106 80-120	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Total Alkalinity	250	4		235		106	80-120			
	Carbonate Alkalinity as CaCO3	230	4	mg/L	225		102	0-200			



	R	eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018391 - Default Prep Wet Chen	1									
Duplicate (B018391-DUP1)	Source: 0033751-01									
Prepared: 4/29/2020 12:34, Analyzed: 4/	29/2020 12:34									
Total Alkalinity	309	4	mg/L		301			2.43	10	
Bicarbonate Alkalinity as CaCO3	309	4	mg/L		ND				10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		301				10	U
Duplicate (B018391-DUP2)	Source: 0033759-01									
Prepared: 4/29/2020 15:04, Analyzed: 4/	29/2020 15:04									
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Total Alkalinity	402	4	mg/L		394			2.01	10	
Bicarbonate Alkalinity as CaCO3	402	4	mg/L		394			2.01	10	
Matrix Spike (B018391-MS1)	Source: 0033743-01									
Prepared: 4/29/2020 12:40, Analyzed: 4/	29/2020 12:40									
Total Alkalinity	61	4	mg/L	50.4	22	77.0	80-120			M2
Matrix Spike (B018391-MS2)	Source: 0033759-01									
Prepared: 4/29/2020 15:18, Analyzed: 4/	29/2020 15:18									
Total Alkalinity	413	4	mg/L	50.4	394	37.5	80-120			М3
Batch B019045 - Default Prep Wet Chen	1									
Blank (B019045-BLK1)										
Prepared: 5/4/2020 10:56, Analyzed: 5/4	/2020 10:56									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B019045-BS1)										
Prepared: 5/4/2020 10:58, Analyzed: 5/4	/2020 10:58									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B019045-DUP1)	Source: 0041237-02									
Prepared: 5/4/2020 12:56, Analyzed: 5/4										
Hardness as CaCO3	214	1	mg/L		200			6.76	10	
-			mg/L					0.10		
Matrix Spike (B019045-MS1)	Source: 0041237-02									
Prepared: 5/4/2020 12:58, Analyzed: 5/4				0.40	000	440	00.400			
Hardness as CaCO3	568	1	mg/L	318	200	116	80-120			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018473 - Default Prep IC										
Blank (B018473-BLK1)										
Prepared: 5/1/2020 15:50, Analyzed: 5/1	1/2020 15:50									
Sulfate	ND	1.0	mg/L							U
Fluoride	ND	0.20	mg/L							U
Chloride	ND	0.5	mg/L							U
LCS (B018473-BS1)										
Prepared: 5/1/2020 15:30, Analyzed: 5/1	1/2020 15:30									
Fluoride	9.60		mg/L	10.0		96.0	90-110			
Sulfate	9.7		mg/L	10.0		97.1	90-110			
Chloride	9.6		mg/L	10.0		96.1	90-110			
Matrix Spike (B018473-MS1)	Source: 0033742-0	1								
Prepared: 5/2/2020 0:01, Analyzed: 5/2	/2020 0:01									
Chloride	10.1		mg/L	10.0	0.0	101	80-120			
Sulfate	10.8		mg/L	10.0	0.005	108	80-120			
Fluoride	10.2		mg/L	10.0	0.06	101	80-120			
Matrix Spike Dup (B018473-MSD1)	Source: 0033742-0	1								
Prepared: 5/2/2020 0:21, Analyzed: 5/2	/2020 0:21									
Sulfate	14.5		mg/L	10.0	0.005	145	80-120	28.8	20	M1, Y2
Fluoride	13.2		mg/L	10.0	0.06	132	80-120	26.2	20	M1, Y2
Chloride	13.1		mg/L	10.0	0.0	131	80-120	25.7	10	M1, Y2
Certified Analyses included in this Rep	ort									
Analyte	Certifications									

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0033746
Shipped By: Client	Temperature: 3.90° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	
Check if Collector Signature Present	
Check if bottles are intact	
Check if bottles are correct	
Check if bottles have sufficient volume	
Check if samples received on ice	abla
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>03/02/2020</u>



				· · · · · · · · · · · · · · · · · · ·	
Client: Big Rivers Electric Corporation Wil Station	Big Rivers Ele Station		orporation Wilson	J	Electric Corporation Wilson Station
Project: MW-104 Wilson 092-00004	Mike Galbraitl PO Box 24	h		Brian Edwar PO Box 24	rds
	Henderson, K	Y 4241	9	Henderson,	KY 42419
	Phone: <u>(270)</u> PWS ID#:	844-60	<u>00</u>	PO#: 2.	58508-6
Please Print Legibly	/ State:	Κy		Quote#	
Collected by (Signature):	uired information*			Compli	iance Monitoring? Yes _K_ No
*For composite samples please indicate begin	time, end time and temp(oC	c) at en	d time below:	Sample	es Chlorinated? Yes No
Influent: Start Date Start time				Temp (oC)	
Effluent: Start Date Start time					
MMLI USE ONLY *required information* Workorder # Date Collection (mm/dd/un): Time (24 br):		Containers			
0033746 (mm/dd/yy): Time (24 hr): Sample ID#	Bottle and Preservative	Cont	Sample Description	Composite	Sample Analysis Requested
0033746-01 A 04-22-20 IM:05	Plastic 1L	1	MW104	g/c	Alkalinity Total Chloride 300.0 Conductivity (Lab) Fluoride 300.0 Sulfate 300.0 Alkalinity Bicarbonate TDS Alkalinity Carbonate
0033746-01 B <u>04-32-20</u> <u>14 05</u>	Plastic 500mL pH<2 w/HNO3	1	MW104	g/c	Arsenic Tot 6020 Antimony Tot 6020 Barium Tot 6020 Iron Tot 6010B Selenium Tot 6020 Hardness Titration Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Sodium Tot 6010B Lead Tot
0033746-01 C 04-22 -70 1405	Preservation Check: pH : Plastic 500mL pH<2	<u>J</u>	MW104	g / c	6020 Lithium Tot 6020 Mercury Tot 6020 COD TOC
	w/H2SO4 Preservation Check: pH:				
0033746-01 D 0 4-27-20 1405	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) Preservation Check: pH:	1	MW104	g/c	Radium 226 (sub)
Preservation Check Performed by:	pl				
Field data collected by: Trau'S	Sneed Date (mm/dd/yy	104-2	?? • 2 € Time (24 hr)	1405	
pH (.50 Cond (umho) 3					ree CI (mg/L)
II ·	Static Water Level				
	or (g/min)				, , ,
Relinquished by: (Signature)	Received by: (Sign	nature)		Date (mm	n/dd/yy) Time (24 hr)
Trai Sund	abony	Zu	u for	1-23	1325
PACE- Check here if trip charge ap	plied to associated COC		Printed:	3/27/2020 1:45	5:28PM Page 18 of 30

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: 03/02/2020



		<u> </u>		<u> </u>	
Client: Big Rivers Electric Station	Corporation Wilso	Big Rivers Elec Station	tric Corporation Wilson	J	lectric Corporation Wilson Station
Project: MW-104 Wilson 09	92-00004	Mike Galbraith PO Box 24 Henderson, KY	42419	Brian Edward PO Box 24 Henderson, I	
		Phone: <u>(270)</u> 84 PWS ID#:	14-6000	PO#: 25	8508-6
Please Print Legibly		State: K	<u> </u>	Quote#	
Collected by (Signature):	Jena requ	fred information*		Complia	ance Monitoring? Yes No
*For composite samples plea	se indicate begin t	me, end time and temp(oC)	at end time below:	Sample	es Chlorinated? Yes No
Influent: Start Date	Start time	End Date	End Time	Temp (oC)	
Effluent: Start Date	Start time	End Date	End Time	Temp (oC)	
0000170	d information* Collection): Time (24 hr):	Bottle and Preservative	Sample Description	Composite	Sample Analysis Requested
Sample ID# 0033746-01 E 0 4-22-26		Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH:	<u>ŏ</u> 1 MW104	g/c	Radium 228 (sub)
0033746-01 F <i>04-22-20</i>	1405	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH:_	1 MW104	g/c	Radium 228 (sub)
0033746-01 G <i>04-</i> 21 <i>-22</i>		Plastic 1L pH<2 w/HNO3 (Sub) Preservation Check: pH:_	1 MW104	g / c	Radium Total (sub)
		,			
Preservation Check Perform	med by:	m ·			
Field data collected by:		Data (mm/dd/sa)	34-22-21 Time (24 hr)	1405	
, ,,		Res CI (mg/L)			ee CI (ma/L)
pH <u>6.30</u> (Temp (oC) <u>17.16</u> (Static Water Level _			
Flow (MGD) o					
Relinquished by: (Signature)		Received by: (Signa	ture)	Date (mm/	/dd/yy) Time (24 hr)
Trai hu	d	abyre	Tank	4-23	3-20 1325
	(
					

Printed: 3/27/2020 1:45:28PM

Page 19 of 30

PACE- Check here if trip charge applied to associated COC

(724)850-5600



May 19, 2020

Rob Whittington
Pace Analytical Madisonville
825 Industrial Rd
Madisonville, KY 42431

RE: Project: 33746

Pace Project No.: 30360675

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 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,

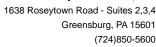
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 33746
Pace Project No.: 30360675

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

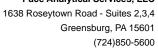
South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

REPORT OF LABORATORY ANALYSIS



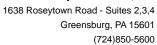


SAMPLE SUMMARY

Project: 33746
Pace Project No.: 30360675

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30360675001	0033746-01	Water	04/22/20 14:05	04/28/20 09:10

REPORT OF LABORATORY ANALYSIS



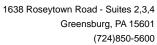


SAMPLE ANALYTE COUNT

Project: 33746
Pace Project No.: 30360675

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
			— ———	————	Laboratory
30360675001	0033746-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg





ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 33746
Pace Project No.: 30360675

Sample: 0033746-01 PWS:	Lab ID: 30360 Site ID:	675001 Collected: 04/22/20 14:05 Sample Type:	Received:	04/28/20 09:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	ervices - Greensburg				
Radium-226	EPA 903.1	0.149 ± 0.395 (0.658) C:NA T:95%	pCi/L	05/18/20 15:55	13982-63-3	
	Pace Analytical S	ervices - Greensburg				
Radium-228	EPA 904.0	0.674 ± 0.445 (0.832) C:73% T:68%	pCi/L	05/15/20 15:53	3 15262-20-1	
	Pace Analytical S	ervices - Greensburg				
Total Radium	Total Radium Calculation	0.823 ± 0.840 (1.49)	pCi/L	05/19/20 08:36	7440-14-4	

REPORT OF LABORATORY ANALYSIS





QUALITY CONTROL - RADIOCHEMISTRY

Project: 33746 Pace Project No.:

30360675

QC Batch:

QC Batch Method:

394311

EPA 903.1

Analysis Method: Analysis Description: EPA 903.1

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360675001

METHOD BLANK: 1909693

Matrix: Water

Associated Lab Samples:

30360675001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

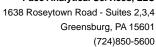
Radium-226

-0.255 ± 0.240 (0.532) C:NA T:97%

pCi/L

05/18/20 15:36

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: 33746
Pace Project No.: 30360675

QC Batch: 394310

QC Batch Method: EPA 904.0

Analysis Method: Analysis Description:

904.0 Radium 228

EPA 904.0

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360675001

METHOD BLANK: 1909692

Matrix: Water

Associated Lab Samples: 3

30360675001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-228

0.175 ± 0.287 (0.624) C:79% T:85%

pCi/L

05/15/20 15:53

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.



QUALIFIERS

Project: 33746
Pace Project No.: 30360675

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.

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: 05/19/2020 08:39 AM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

MO#:30360675

30360675

Chain of Custody

e Analytical

	Workorder: 33746	W	orkorder Na	me: M	W-104 Wilson	Workorder Name: MW-104 Wilson 092-0000 Owner Received Date: 4/23/2020	ner Received	Date: 4/	23/2020	Result	Results Requested By:	By:	
Repo	Report To:		Subc	Subcontract To:	To:	•			<u>~</u>	Requested Analysis	Analysis		
McC	McCoy & McCoy Labs		Pace	Analytic	cal Services LL	Pace Analytical Services LLC Greensburg P	10	,	oleO n				
P.O.	P.O. Box 907		1638	Rosey 1	1638 Rosey Town Rd Suite 2,3,4	2,3,4			uns				
Madi	Madisonville, KY 42409		Gree	nsburg,	Greensburg, PA 15601				wr				
270-	270-821-7375		(724	(724) 850-5615	15				ilbe				
r.whi	r.whittington@mccoylabs.com						Preserved Containers						
		Sample	Collect		THE PROPERTY OF THE PARTY OF TH								
Item	Item Sample ID	Туре	Date/Time		Lab ID	Matrix)6 ¥					
1								Eb'					LAB USE ONLY
2	0033746-01		04/22/20 14:05	14:05	IR44-McCoy	y Water		×	×				i S
3													
4													
5													
9				ļ									
7													
8					•								
6													
10													
Tran:	Transfers Released By			Date/Time		Reveјуед Ву		Date/Time	me		Comments	nts	
1					7	WANN	17	Olico Calself	Olico				
7						1							
3													
					(Ì	C			(
Cook	Cooler Temperature on Receipt	ر ح	ີ ູຸ	stody Se	Custody Seal Y or /N /		Receive	Received on Ice Y or N	Y)or N		Sample Intact Y)or		Z

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC This chain of custody is considered complete as is since this information is available in the owner laboratory.

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Page 9 of 11 Page 28 of 30

SUBCONTRACT ORDER

30360675 Pace Analytical Services, LLC Kentucky 0033746

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601

Phone: (724) 850-5615

Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0033746-01	Water	Sampled:04/22/2020 14:05	Specific Method		
Radium Total (sub)		10/19/2020 14:05	EPA 904.0 Radium S	um C	
Radium 228 (sub)		10/19/2020 14:05	EPA 904.0 Radium S	um C	
Radium 226 (sub)		10/19/2020 14:05	EPA 903.1		

Received By Date Received By Date Date Released By

Page Analytical Client Name:	D.	_	_	↓ V Project # -30360675
- Face Analytical* Client Name:	<u> </u>	ice		Project #
Courier: Fed Ex UPS USPS Client		ommei	rcial	Pace Other Label 55M
Tracking #: 1107 5336 18/1				LIMS Login $0 \le 10^{-1}$
Custody Seal on Cooler/Box Present: yes		0	Seals	intact: yes no
Thermometer Used	Type	of Ice:	(Wet	Blue None
Cooler Temperature Observed Temp	4	. c	Corre	ection Factor: 1,5 °C Final Temp: 1, 9 °C
Temp should be above freezing to 6°C	·			pH paper Lot# Date and initials of person examining
	<u> </u>	T 3.1	L 1/0	pH paper Lot# Date and initials of person examining contents: DSM 413/1000
Comments:	Yes	No	N/A	10139111
Chain of Custody Present:	+	ļ		1.
Chain of Custody Filled Out:		 		2.
Chain of Custody Relinquished:			-	3.
Sampler Name & Signature on COC:	+			4.
Sample Labels match COC:		<u></u>		5.
-Includes date/time/ID Matrix:	<i>~~</i>		<u> </u>	
Samples Arrived within Hold Time:				6.
Short Hold Time Analysis (<72hr remaining):	-			7.
Rush Turn Around Time Requested:				8.
Sufficient Volume:				9.
Correct Containers Used:				10.
-Pace Containers Used:	<u> </u>			
Containers Intact:				11.
Orthophosphate field filtered	-			12.
Hex Cr Aqueous sample field filtered	ļ			13.
Organic Samples checked for dechlorination:	<u> </u>	L		14.
Filtered volume received for Dissolved tests				15.
All containers have been checked for preservation.		<u></u>	<u> </u>	16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon,	,		PHCZ
All containers meet method preservation requirements.				Initial when SSM Date/time of completed preservation
, oquitoritor	I	<u> </u>	I	Lot # of added
	1	Г	·	preservative
Headspace in VOA Vials (>6mm):				17.
Trip Blank Present:	<u></u>			18.
Trip Blank Custody Seals Present	├			Initial when
Rad Samples Screened < 0.5 mrem/hr				completed SM Date: 4/28/2000
Client Notification/ Resolution:				, , ,
Person-Contacted:			-Date/-	Firme:Gontacted-By:
Comments/ Resolution:				

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0033747

Mike Galbraith
Big Rivers Electric Corporation Wilson Station
PO Box 24
Henderson KY, 42419

MW-105 Wilson 092-00004

Customer ID: Report Printed:

44-100168 05/29/2020 14:00

Workorder:

0033747

Dear Mike Galbraith

Project Name:

Enclosed are the analytical results for samples received at one of our laboratories on 04/23/2020 13:25.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0033747-01	MW105/		Groundwater	04/22/2020 13:05	04/23/2020 13:25	Travis Sneed
<u>LabNumber</u>	Measurement	<u>Value</u>				
0033747-01	Field Conductance	911				
	Field pH	7.78				
	Field Temp (C)	17.41				

Work Order Comments:

Corrected Report:

This report has been issued as a revision of the previous report dated 5/20/20@0918. Cobalt result added to report.



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ANALYTICAL RESULTS

 Lab Sample ID: 0033747-01
 Sample Collection Date Time: 04/22/2020 13:05

 Description: MW105
 Sample Received Date Time: 04/23/2020 13:25

Metals by SW846 6000 Series Methods

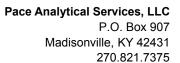
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Arsenic	ND	U	mg/L	0.0010	0.0004	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Barium	0.255		mg/L	0.004	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Boron	0.33		mg/L	0.10	0.10	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:56	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Calcium	60.4	D1	mg/L	4.00	1.30	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:59	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Iron	1.88		mg/L	0.100	0.050	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:56	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Lithium	0.02		mg/L	0.02	0.005	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Magnesium	20.0	D1	mg/L	2.00	0.900	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:59	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	04/24/2020 11:25	05/02/2020 17:36	DMH
Molybdenum	0.002	J	mg/L	0.01	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Nickel	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Potassium	5.73		mg/L	0.50	0.22	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:56	AKB
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Sodium	146	D1	mg/L	26.0	10.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 14:03	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:51	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as CaCO3	399		mg/L	4		2320 B-2011	04/29/2020 12:07	04/29/2020 12:07	HMF
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	04/29/2020 12:07	04/29/2020 12:07	HMF
Total Alkalinity	399		mg/L	4		2320 B-2011	04/29/2020 12:07	04/29/2020 12:07	HMF
Chemical Oxygen Demand	ND	U	mg/L	8	8	HACH 8000	04/27/2020 15:26	04/27/2020 15:26	ALT
Specific Conductance (Lab)	966		umhos/cm	1	1	2510 B-2011	04/27/2020 15:01	04/27/2020 15:01	GAT
Hardness as CaCO3	222		mg/L	1	1	2340 C (as HACH 8226)	05/04/2020 11:22	05/04/2020 11:22	CLL
Total Dissolved Solids	398		mg/L	50	50	2540 C-2011	04/27/2020 10:40	04/28/2020 12:32	MAG
Total Organic Carbon	1.0		mg/L	0.5		5310 C-2011	05/01/2020 21:14	05/01/2020 21:14	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	-0.019	_Sub	pCi/L			EPA 903.1	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium-228	1.15	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium	1.15	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW





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Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	9.5		mg/L	0.5	0.4	EPA 300.0 REV 2.1	05/01/2020 21:18	05/01/2020 21:18	CSC
Fluoride	0.67		mg/L	0.20		EPA 300.0 REV 2.1	05/01/2020 21:18	05/01/2020 21:18	CSC
Sulfate	91.8	D	mg/L	20.0	10.0	EPA 300.0 REV 2.1	05/01/2020 21:38	05/01/2020 21:38	CSC



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Notes for work order 0033747

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI does not provide interpretation of these results unless otherwise stated.
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub	See subcontractors report.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
E	Concentration exceeds calibration range
J	Estimated value.
J5	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
L2	The associated blank spike recovery was below method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
M6	Matrix spike recovery was high.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).
Y1	Sample RPD exceeded the method control limit.
Y2	MS/MSD RPD exceeded the method control limit. Recovery met acceptance criteria.

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

> Greater than

Less than



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Blank (B017542-BLK1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12:	50									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Cobalt	ND	0.004	mg/L							U
Blank (B017542-BLK2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:0	9									
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.001	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U
Blank (B017542-BLK3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	0									
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.002	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		Panartina		Spiko	Source		%PEC		RPD	
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	Limit	Notes
	Result	Limit	Onito	LOVE	Result	JUNEO	Liiilio	I I D	Enlit	140103
Batch B017542 - EPA 200.2										
LCS (B017542-BS1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020	0 12:53									
Boron	0.13	0.10	mg/L	0.125		106	85-115			
Calcium	6.57	0.40	mg/L	6.25		105	85-115			
Iron	6.39	0.100	mg/L	6.25		102	85-115			
Magnesium	5.72	0.200	mg/L	6.25		91.5	85-115			
Potassium	6.62	0.50	mg/L	6.25		106	85-115			
Cobalt	0.054	0.004	mg/L	0.0625		85.7	85-115			
Sodium	6.47	0.26	mg/L	6.25		103	85-115			
LCS (B017542-BS2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020	17:13									
Mercury	0.0020	0.0005	mg/L	0.00250		79.8	85-115			L2
Antimony	0.058	0.005	mg/L	0.0625		93.6	85-115			
Molybdenum	0.05	0.01	mg/L	0.0625		86.2	85-115			
Arsenic	0.0537	0.0010	mg/L	0.0625		85.9	85-115			
Barium	0.054	0.004	mg/L	0.0625		86.5	85-115			
Beryllium	0.0495	0.0020	mg/L	0.0625		79.2	85-115			M2
Cadmium	0.0533	0.0010	mg/L	0.0625		85.3	85-115			
Chromium	0.0535	0.0020	mg/L	0.0625		85.5	85-115			
Copper	0.054	0.003	mg/L	0.0625		86.7	85-115			
Lead	0.051	0.002	mg/L	0.0625		81.1	85-115			L2
Lithium	0.05	0.02	mg/L	0.0625		82.7	85-115			L2
Nickel	0.053	0.003	mg/L	0.0625		85.3	85-115			
Selenium	0.053	0.003	mg/L	0.0625		85.4	85-115			
Thallium	0.0495	0.0020	mg/L	0.0625		79.1	85-115			L2
Zinc	0.05	0.0020	mg/L	0.0625		86.2	85-115			LZ
	0.03	0.02	IIIg/L	0.0025		00.2	00-110			
LCS (B017542-BS3) Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020	16:54									
Molybdenum	0.07	0.01	mg/L	0.0625		110	85-115			
Mercury	0.0026	0.0005	mg/L	0.00250		102	85-115			
Antimony	0.069	0.0005	mg/L	0.0625		110	85-115			
Arsenic	0.0651	0.003	mg/L	0.0625		104	85-115			
			_			104				
Barium	0.065	0.004	mg/L	0.0625			85-115 85-115			
Beryllium	0.0624	0.0020	mg/L	0.0625		99.8	85-115			
Chamium	0.0652	0.0010	mg/L	0.0625		104	85-115 85-115			
Chromium	0.0645	0.0020	mg/L	0.0625		103	85-115			
Copper	0.066	0.003	mg/L	0.0625		106	85-115			
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.06	0.02	mg/L	0.0625		101	85-115			
Nickel	0.064	0.003	mg/L	0.0625		103	85-115			
Selenium	0.065	0.003	mg/L	0.0625		103	85-115			
Thallium	0.0650	0.0020	mg/L	0.0625		104	85-115			
Zinc	0.07	0.02	mg/L	0.0625		105	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:18									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	6.11	10.0	mg/L	6.25	ND	97.8	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.064	0.004	mg/L	0.0625	ND	102	80-120			
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, U
Matrix Spike (B017542-MS2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	357	40.0	mg/L	6.25	382	NR	80-120			D2, M2
Iron	89.2	10.0	mg/L	6.25	96.5	NR	80-120			D2, M2
Magnesium	190	20.0	mg/L	6.25	197	NR	80-120			D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.546	0.004	mg/L	0.0625	0.547	NR	80-120			M3
Sodium	107	26.0	mg/L	6.25	108	NR	80-120			D2
Matrix Spike (B017542-MS3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 18:48									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120			
Mercury	0.0023	0.0005	mg/L	0.00250	ND	92.2	80-120			
Antimony	0.071	0.005	mg/L	0.0625	ND	113	80-120			
Arsenic	0.0646	0.0010	mg/L	0.0625	ND	103	80-120			J5
Barium	0.066	0.004	mg/L	0.0625	ND	106	80-120			
Beryllium	0.0609	0.0020	mg/L	0.0625	ND	97.5	80-120			
Cadmium	0.0639	0.0010	mg/L	0.0625	ND	102	80-120			
Chromium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120			
Copper	0.061	0.003	mg/L	0.0625	ND	97.6	80-120			
Lead	0.060	0.002	mg/L	0.0625	ND	96.7	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	104	80-120			
Nickel	0.062	0.003	mg/L	0.0625	ND	99.8	80-120			
Selenium	0.063	0.003	mg/L	0.0625	ND	100	80-120			
Thallium	0.0587	0.0020	mg/L	0.0625	ND	93.9	80-120			
Zinc	0.06	0.02	mg/L	0.0625	ND	103	80-120			





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
	rtoduit	Liiiii	Ornio	20701	rtoouit	701120	Lillino	111 5	Liiiii	110100
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 19:11									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	86.7	80-120			
Molybdenum	0.04	0.01	mg/L	0.0625	0.002	53.5	80-120			J5, M2
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120			
Arsenic	0.0711	0.0010	mg/L	0.0625	0.0079	101	80-120			J5
Barium	0.068	0.004	mg/L	0.0625	0.005	102	80-120			
Beryllium	0.0507	0.0020	mg/L	0.0625	0.0013	79.2	80-120			M2
Cadmium	0.0781	0.0010	mg/L	0.0625	0.0211	91.1	80-120			
Chromium	0.0631	0.0020	mg/L	0.0625	0.0007	99.8	80-120			
Copper	0.057	0.003	mg/L	0.0625	ND	90.8	80-120			
Lead	0.056	0.002	mg/L	0.0625	ND	89.1	80-120			
Lithium	0.20	0.02	mg/L	0.0625	0.15	87.1	80-120			
Nickel	1.03	0.003	mg/L	0.0625	1.10	NR	80-120			M3, E
Selenium	0.032	0.003	mg/L	0.0625	ND	50.5	80-120			M2
Thallium	0.0560	0.0020	mg/L	0.0625	0.0011	87.8	80-120			
Zinc	1.85	0.02	mg/L	0.0625	2.25	NR	80-120			M3, E
Matrix Spike Dup (B017542-MSD1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	4/28/2020 16:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	6.31	10.0	mg/L	6.25	ND	101	80-120	3.22	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Cobalt	0.065	0.004	mg/L	0.0625	ND	104	80-120	2.02	20	
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, U
Matrix Spike Dup (B017542-MSD2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	4/28/2020 16:28									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	356	40.0	mg/L	6.25	382	NR	80-120	0.438	20	D2, M2
Iron	88.8	10.0	mg/L	6.25	96.5	NR	80-120	0.473	20	D2, M2
Magnesium	189	20.0	mg/L	6.25	197	NR	80-120	0.296	20	D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Cobalt	0.552	0.004	mg/L	0.0625	0.547	8.08	80-120	1.11	20	M3
Sodium	106	26.0	mg/L	6.25	108	NR	80-120	0.573	20	D2





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike Dup (B017542-MSD3)	Source: 0033742-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	/2020 18:52									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.30	20	
Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	2.84	20	
Mercury	0.0024	0.0005	mg/L	0.00250	ND	97.5	80-120	5.63	20	
Arsenic	0.0650	0.0010	mg/L	0.0625	ND	104	80-120	0.685	20	J5
Barium	0.068	0.004	mg/L	0.0625	ND	108	80-120	2.25	20	
Beryllium	0.0616	0.0020	mg/L	0.0625	ND	98.6	80-120	1.15	20	
Cadmium	0.0655	0.0010	mg/L	0.0625	ND	105	80-120	2.55	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	1.38	20	
Copper	0.062	0.003	mg/L	0.0625	ND	99.0	80-120	1.42	20	
Lead	0.062	0.002	mg/L	0.0625	ND	99.0	80-120	2.37	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	106	80-120	2.61	20	
Nickel	0.064	0.003	mg/L	0.0625	ND	103	80-120	3.35	20	
Selenium	0.064	0.003	mg/L	0.0625	ND	103	80-120	2.12	20	
Thallium	0.0601	0.0020	mg/L	0.0625	ND	96.2	80-120	2.37	20	
Zinc	0.07	0.02	mg/L	0.0625	ND	105	80-120	1.77	20	
Matrix Spike Dup (B017542-MSD4)	Source: 0033743-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	/2020 19:15									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	89.1	80-120	2.77	20	
Molybdenum	0.03	0.01	mg/L	0.0625	0.002	52.5	80-120	1.71	20	J5, M2
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120	0.226	20	
Arsenic	0.0692	0.0010	mg/L	0.0625	0.0079	98.0	80-120	2.76	20	J5
Barium	0.068	0.004	mg/L	0.0625	0.005	100	80-120	1.30	20	
Beryllium	0.0493	0.0020	mg/L	0.0625	0.0013	76.8	80-120	2.91	20	M2
Cadmium	0.0793	0.0010	mg/L	0.0625	0.0211	93.1	80-120	1.59	20	
Chromium	0.0616	0.0020	mg/L	0.0625	0.0007	97.5	80-120	2.35	20	
Copper	0.055	0.003	mg/L	0.0625	ND	87.6	80-120	3.65	20	
Lead	0.055	0.002	mg/L	0.0625	ND	88.6	80-120	0.549	20	
Lithium	0.20	0.02	mg/L	0.0625	0.15	93.5	80-120	1.99	20	
Nickel	1.04	0.003	mg/L	0.0625	1.10	NR	80-120	1.31	20	M3, E
Selenium	0.031	0.003	mg/L	0.0625	ND	49.5	80-120	2.00	20	M2
Thallium	0.0555	0.0020	mg/L	0.0625	0.0011	87.0	80-120	0.916	20	
Zinc	1.87	0.02	mg/L	0.0625	2.25	NR	80-120	1.21	20	M3, E





	Re	porting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Post Spike (B017542-PS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed	: 4/28/2020 16:31									
Boron	121		ug/L	125	-1.32	96.8	75-125			D2
Calcium	6440		ug/L	6250	3.49	103	75-125			D2
Iron	6150		ug/L	6250	21.5	98.0	75-125			D2
Magnesium	6600		ug/L	6250	1.11	106	75-125			D2
Potassium	5980		ug/L	6250	9.01	95.6	75-125			D2
Sodium	6720		ug/L	6250	2.78	108	75-125			D2
Cobalt	62.7		ug/L	62.5	0.009	100	75-125			
Post Spike (B017542-PS2)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed	: 5/1/2020 19:19									
Mercury	2.56		ug/L	2.50	0.0710	99.4	75-125			
Antimony	71.0		ug/L	62.5	0.107	113	75-125			
Molybdenum	65.7		ug/L	62.5	0.03	105	75-125			
Arsenic	64.2		ug/L	62.5	-0.0029	103	75-125			J5
Barium	67.2		ug/L	62.5	0.037	107	75-125			
Beryllium	56.7		ug/L	62.5	-0.0023	90.7	75-125			
Cadmium	63.6		ug/L	62.5	0.0053	102	75-125			
Chromium	61.7		ug/L	62.5	0.0998	98.6	75-125			
Copper	61.0		ug/L	62.5	-1.66	97.6	75-125			
Lead	60.7		ug/L	62.5	0.219	96.8	75-115			
Lithium	60.7		ug/L	62.5	0.05	97.0	75-125			
Nickel	62.6		ug/L	62.5	0.313	99.7	75-125			
Selenium	64.8		ug/L	62.5	-0.002	104	75-125			
Thallium	58.9		ug/L	62.5	0.0066	94.2	75-125			
Zinc	65.7		ug/L	62.5	1.46	103	75-125			





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	R	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018047 - Default Prep Wet Che	m									
Blank (B018047-BLK1)										
Prepared: 4/27/2020 10:24, Analyzed: 4	1/28/2020 12:32									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B018047-BS1)										
Prepared: 4/27/2020 10:28, Analyzed: 4	1/28/2020 12:32									
Total Dissolved Solids	1460	25	mg/L	1500		97.0	80-120			
Duplicate (B018047-DUP1)	Source: 0033745-01									
Prepared: 4/27/2020 11:52, Analyzed: 4	1/28/2020 12:32									
Total Dissolved Solids	716	50	mg/L		724			1.11	10	
Duplicate (B018047-DUP2)	Source: 0041174-01									
Prepared: 4/27/2020 11:56, Analyzed: 4	1/28/2020 12:32									
Total Dissolved Solids	364	50	mg/L		372			2.17	10	
Batch B018080 - Default Prep Wet Che	m									
Blank (B018080-BLK1)										
Prepared: 4/27/2020 15:20, Analyzed: 4	1/27/2020 15:20									
Chemical Oxygen Demand	ND	8	mg/L							U
LCS (B018080-BS1)										
Prepared: 4/27/2020 15:20, Analyzed: 4	1/27/2020 15:20									
Chemical Oxygen Demand	121	8	mg/L				90-110			
Duplicate (B018080-DUP1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	1/27/2020 15:30									
Chemical Oxygen Demand	36	8	mg/L		22			47.1	25	Y1
Matrix Spike (B018080-MS1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	1/27/2020 15:30									
Chemical Oxygen Demand	274	8	mg/L	250	22	101	90-110			
Matrix Spike Dup (B018080-MSD1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	1/27/2020 15:30									
Chemical Oxygen Demand	263	8	mg/L	250	22	96.3	90-110	4.34	10	





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018086 - Default Prep Wet Chem										
Blank (B018086-BLK1)										
Prepared: 4/27/2020 14:54, Analyzed: 4/27/2	2020 14:54									
Specific Conductance (Lab)	ND	1	umhos/cm							U
LCS (B018086-BS1)										
Prepared: 4/27/2020 14:55, Analyzed: 4/27/2	2020 14:55									
Specific Conductance (Lab)	1410		umhos/cm	1410		99.8	80-120			
Duplicate (B018086-DUP1)	Source: 0033751-01									
Prepared: 4/27/2020 15:09, Analyzed: 4/27/2	2020 15:09									
Specific Conductance (Lab)	2980	1	umhos/cm		2990			0.0335	1.24	
Duplicate (B018086-DUP2)	Source: 0043793-01									
Prepared: 4/27/2020 15:27, Analyzed: 4/27/2	2020 15:27									
Specific Conductance (Lab)	1	1	umhos/cm		1			0.755	1.24	
Batch B018100 - Default Prep Wet Chem										
Blank (B018100-BLK1)										
Prepared: 5/1/2020 18:21, Analyzed: 5/1/202	20 18:21									
Total Organic Carbon	ND	0.5	mg/L							U
LCS (B018100-BS1)										
Prepared: 5/1/2020 18:43, Analyzed: 5/1/202	20 18:43									
Total Organic Carbon	5.0	0.5	mg/L	5.00		101	80-120			
Duplicate (B018100-DUP1)	Source: 0033748-01									
Prepared: 5/2/2020 0:07, Analyzed: 5/2/202	0 0:07									
Total Organic Carbon	2.0	0.5	mg/L		2.0			0.0293	25	
Duplicate (B018100-DUP2)	Source: 0033758-01									
Prepared: 5/2/2020 4:27, Analyzed: 5/2/202	0 4:27									
Total Organic Carbon	2.8	0.5	mg/L		2.8			0.410	25	
Matrix Spike (B018100-MS1)	Source: 0033749-01									
Prepared: 5/2/2020 0:29, Analyzed: 5/2/202										
Total Organic Carbon	10.7	0.5	mg/L	2.50	8.2	101	80-120			
-										



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018100 - Default Prep Wet Chem										
Matrix Spike (B018100-MS2)	Source: 0033759-01	l								
Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020	4:49									
Total Organic Carbon	3.6	0.5	mg/L	5.00	0.4	65.0	80-120			M2
Batch B018391 - Default Prep Wet Chem										
Blank (B018391-BLK1)										
Prepared: 4/29/2020 11:33, Analyzed: 4/29/20	20 11:33									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK2)										
Prepared: 4/29/2020 13:03, Analyzed: 4/29/20	20 13:03									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK3)										
Prepared: 4/29/2020 15:33, Analyzed: 4/29/20	20 15:33									
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
LCS (B018391-BS1)										
Prepared: 4/29/2020 12:58, Analyzed: 4/29/20	20 12:58									
Carbonate Alkalinity as CaCO3	232	4	mg/L	225		103	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	235	4	mg/L	235		99.8	80-120			
LCS (B018391-BS2)										
Prepared: 4/29/2020 15:29, Analyzed: 4/29/20	20 15:29									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	250	4	mg/L	235		106	80-120			
Carbonate Alkalinity as CaCO3	230	4	mg/L	225		102	0-200			



Reporting Analyte Result Limit Ur	Spike nits Level	Source		%REC			
result Lillit Of		Result	%REC	Limits	RPD	RPD Limit	Notes
Part I Paragon Part II Para III a Chara		resuit	701 CLO	Limito	IN D	Lillie	110103
Batch B018391 - Default Prep Wet Chem							
Duplicate (B018391-DUP1) Source: 0033751-01							
Prepared: 4/29/2020 12:34, Analyzed: 4/29/2020 12:34							
•	ng/L	301			2.43	10	
•	ng/L	ND				10	
Carbonate Alkalinity as CaCO3 ND 4 m	ng/L	301				10	U
Duplicate (B018391-DUP2) Source: 0033759-01							
Prepared: 4/29/2020 15:04, Analyzed: 4/29/2020 15:04							
Carbonate Alkalinity as CaCO3 ND 4 m	ng/L	ND				10	U
Total Alkalinity 402 4 m	ng/L	394			2.01	10	
Bicarbonate Alkalinity as CaCO3 402 4 m	ng/L	394			2.01	10	
Matrix Spike (B018391-MS1) Source: 0033743-01							
Prepared: 4/29/2020 12:40, Analyzed: 4/29/2020 12:40							
Total Alkalinity 61 4 m	ng/L 50.4	22	77.0	80-120			M2
Matrix Spike (B018391-MS2) Source: 0033759-01							
Prepared: 4/29/2020 15:18, Analyzed: 4/29/2020 15:18							
Total Alkalinity 413 4 m	ng/L 50.4	394	37.5	80-120			М3
Batch B019045 - Default Prep Wet Chem							
Blank (B019045-BLK1)							
Prepared: 5/4/2020 10:56, Analyzed: 5/4/2020 10:56							
Hardness as CaCO3 ND 1 m	ng/L						U
LCS (B019045-BS1)							
Prepared: 5/4/2020 10:58, Analyzed: 5/4/2020 10:58							
Hardness as CaCO3 230 1 m	mg/L 225		102	80-120			
Duplicate (B019045-DUP1) Source: 0041237-02							
Prepared: 5/4/2020 12:56, Analyzed: 5/4/2020 12:56							
	ng/L	200			6.76	10	
Matrix Spike (B019045-MS1) Source: 0041237-02							
Prepared: 5/4/2020 12:58, Analyzed: 5/4/2020 12:58							
	ng/L 318	200	116	80-120			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018473 - Default Prep IC										
Blank (B018473-BLK1)										
Prepared: 5/1/2020 15:50, Analyzed: 5/1	1/2020 15:50									
Sulfate	ND	1.0	mg/L							U
Fluoride	ND	0.20	mg/L							U
Chloride	ND	0.5	mg/L							U
LCS (B018473-BS1)										
Prepared: 5/1/2020 15:30, Analyzed: 5/1	1/2020 15:30									
Fluoride	9.60		mg/L	10.0		96.0	90-110			
Sulfate	9.7		mg/L	10.0		97.1	90-110			
Chloride	9.6		mg/L	10.0		96.1	90-110			
Matrix Spike (B018473-MS1)	Source: 0033742-0	1								
Prepared: 5/2/2020 0:01, Analyzed: 5/2	/2020 0:01									
Chloride	10.1		mg/L	10.0	0.0	101	80-120			
Sulfate	10.8		mg/L	10.0	0.005	108	80-120			
Fluoride	10.2		mg/L	10.0	0.06	101	80-120			
Matrix Spike Dup (B018473-MSD1)	Source: 0033742-0	1								
Prepared: 5/2/2020 0:21, Analyzed: 5/2	/2020 0:21									
Sulfate	14.5		mg/L	10.0	0.005	145	80-120	28.8	20	M1, Y2
Fluoride	13.2		mg/L	10.0	0.06	132	80-120	26.2	20	M1, Y2
Chloride	13.1		mg/L	10.0	0.0	131	80-120	25.7	10	M1, Y2
Certified Analyses included in this Rep	ort									
Analyte	Certifications									

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0033747
Shipped By: Client	Temperature: 3.90° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	
Check if Collector Signature Present	
Check if bottles are intact	☑
Check if bottles are correct	abla
Check if bottles have sufficient volume	
Check if samples received on ice	
Check if VOA headspace is acceptable	
Check if samples received in holding time.	
Check if samples are preserved properly	

Chain of Custody

Scheduled for: <u>03/02/2020</u>



		<u> </u>		-			
Client: Big Rivers Electric Station Project: MW-105 Wilson 09			ic Corporation Wilson	Invoice To: Big Rivers Electric Corporation Wilson Station Brian Edwards PO Box 24 Henderson, KY 42419			
		Phone: (270) 844		·			
		PWS ID#:	' V	PO#: 23	5 8508 -6		
Please Print Legibly		State:	<u> </u>	Quote#			
Collected by (Signature):	requi	red information*	_	Compli	ance Monitorir	ig? Yes X No	
*For composite samples plea	ase indicate begin ti	me, end time and temp(oC) a	t end time below:	Sample	∍s Chlorinated'	? Yes No	
Influent: Start Date	Start time	End Date	End Time	Temp (oC)			
Effluent: Start Date	Start time	End Date	End Time	_ Temp (oC)			
VUUUTI	ed information* Collection y): Time (24 hr):	Bottle and Preservative	Sample Description	n Composite	Comple	Analysis Dogwood	
Sample ID# 0033747-01 A 4/32/20	1305	Plastic 1L 1	<u>5</u> 	g/c		Analysis Requested al Chloride 300.0	
0033747-01 B 4/22/22	, 13as	Plastic 500mL pH<2 1		g/c	Conductivity Sulfate 300.0 TDS Alkalinit	(Lab) Fluoride 300.0 Alkalinity Bicarbonate	
	F	w/HNO3 [*] Preservation Check: pH :	<u>J</u>		Selenium Tot Titration Bery Tot 6010B Co Calcium Tot 6 6020 Sodium	020 Iron Tot 6010B : 6020 Hardness /Ilium Tot 6020 Boron admium Tot 6020 6010B Chromium Tot i Tot 6010B Lead Tot Tot 6020 Mercury Tot	
0033747-01 C <u>4/aa/a</u>	20 1305 F	Plastic 500mL pH<2 1 w/H2SO4 Preservation Check: pH:	MW105	g/c	COD TOC		
0033747-01 D <u>4/22/20</u>		Plastic 1L pH<2 w/HNO3 1 Rad 226 (Sub) Preservation Check: pH:i	1	g/c	Radium 226	(sub)	
Preservation Check Perfor	med by:	port					
Field data collected by:		Date (mm/dd/yy) 4	//22/20 Time (24 hr)	1305			
рн <u>7,78</u>	<u>π5/ε</u> μ Cond (umho) <u>0.9</u>	11 Res CI (mg/L) _	Tot Cl (mg/L)	Fr	ee CI (mg/L) _		
i	or (oF)	Static Water Level	DO (mg/L)		urb. (NTU) _		
	or (CFS)						
Relinquished by: (Signature)	of	Received by: (Signatu		Date (mm	//dd/yy) 3 - 20	Time (24 hr) 1385	
PACE- Check here	if trip charge appl	ied to associated COC	Printed	: 3/27/2020 1:46	6:46PM	Page 18 of 30	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>03/02/2020</u>



Client: Big Rivers Electric Corporation Wil Station Project: MW-105 Wilson 092-00004	The state of the s	ric Corporation Wilson	Invoice To: Big Rivers Electric Corporation Wilson Station Brian Edwards PO Box 24 Henderson, KY 42419			
	Phone: <u>(270) 84-</u> PWS ID#:	4-6000 V V		58508-6		
Please Print Legibly	State:	<u> </u>	Quote#			
Collected by (Signature):	uired information*		Complia	ance Monitoring? Yes 🗡 No 🔃		
*For composite samples please indicate begir	time, end time and temp(oC) a	at end time below:	Sample	es Chlorinated? Yes No		
Influent: Start Date Start time	End Date	End Time1	Гетр (oC)			
Effluent: Start Date Start time _	End Date	End Time	Temp (oC)			
MMLI USE ONLY *required information* Date Collection (mm/dd/yy): Time (24 hr): 0033747-01 E 4/22/20 1305 0033747-01 G 4/22/20 1305	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH: Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH: Plastic 1L pH<2 w/HNO3 (Sub) Preservation Check: pH:	Sample Description MW105 MW105 MW105	Composite g/c g/c g/c	Sample Analysis Requested Radium 228 (sub) Radium 228 (sub) Radium Total (sub)		
Preservation Check Performed by:	AU					
Field data collected by:	Res Cl (mg/L)Static Water Level	Tot CI (mg/L) DO (mg/L)	Fre	li di		
Relinquished by: (Signature)	Received by: (Signatu		Date (mm/			

Printed: 3/27/2020 1:46:46PM

Page 19 of 30

PACE- Check here if trip charge applied to associated COC

(724)850-5600



May 19, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 33747

Pace Project No.: 30360672

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 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,

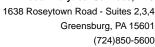
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 33747
Pace Project No.: 30360672

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

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

Ohio EPA Rad Approval: #41249

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: 33747
Pace Project No.: 30360672

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30360672001	0033747-01	Water	04/22/20 13:05	04/28/20 09:10



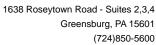


SAMPLE ANALYTE COUNT

Project: 33747
Pace Project No.: 30360672

				Analytes		
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory	
30360672001	0033747-01	EPA 903.1	MK1	1	PASI-PA	
		EPA 904.0	VAL	1	PASI-PA	
		Total Radium Calculation	CMC	1	PASI-PA	

PASI-PA = Pace Analytical Services - Greensburg

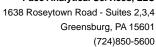




ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 33747
Pace Project No.: 30360672

Sample: 0033747-01 PWS:	Lab ID: 3036 Site ID:	0672001 Collected: 04/22/20 13:05 Sample Type:	Received:	04/28/20 09:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 903.1	-0.0186 ± 0.311 (0.574) C:NA T:98%	pCi/L	05/18/20 15:36	3 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	1.15 ± 0.507 (0.848) C:73% T:88%	pCi/L	05/15/20 15:52	2 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.15 ± 0.818 (1.42)	pCi/L	05/19/20 08:36	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project:

33747

Pace Project No.:

30360672

QC Batch: QC Batch Method: 394311

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

Matrix: Water

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360672001

Parameter

METHOD BLANK: 1909693

Associated Lab Samples:

30360672001

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

-0.255 ± 0.240 (0.532) C:NA T:97%

pCi/L

05/18/20 15:36

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:

33747

Pace Project No.:

30360672

QC Batch: QC Batch Method: 394310

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

30360672001

METHOD BLANK: 1909692

Matrix: Water

Associated Lab Samples:

30360672001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

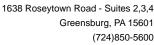
Radium-228

0.175 ± 0.287 (0.624) C:79% T:85%

pCi/L

05/15/20 15:53

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.





QUALIFIERS

Project: 33747
Pace Project No.: 30360672

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.

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: 05/19/2020 08:38 AM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

MO#:30360672

Chain of Custody

4/23/2020 Results Reguested Bv:	l e	S Radium Sum Calc	EPA 904.0	×				Date/Time Comments	hafro ano
Owner Received Date:		urg P/		š				Date/	2/8/1/
Workorder Name: MW-105 Wilson 092-0000 Owner Received Date: 4/23/2020	ct To:	Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601 (724) 850-5615	Lab ID Matrix	IR44-McCoy Water	100 mm			Date/Time Reyeived, By,	GAJAVAVV
Workorder Name:	Subcontract To:	Pace Analytical 1638 Rosey Tov Greensburg, PA (724) 850-5615	Sample Collect Type Date/Time	04/22/20 13:05			700	Date/	
Workorder: 33747	Report To:	McCoy & McCoy Labs P.O. Box 907 Madisonville, KY 42409 270-821-7375 r.whittington@mccoylabs.com		0033747-01				Fransfers Released By	

Received on log Y or N Sample Intact Y or N	on/name of the sampling site, sampler's name and signature may not be provided on this COC	nce this information is available in the owner laboratory
°C Custody Seal Y or/N	, locati	te as is since this information is avail
Cooler Temperature on Receipt 5,9	***In order to maintain client confidentiality	This chain of custody is considered complete as is since

Eriday, June 17, 2016 11:01:34 AM above 20 pt 20

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

#_30360672

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0033747

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

anager: Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA

1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601

Phone :(724) 850-5615

Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0033747-01	Water	Sampled:04/22/2020 13:05	Specific Method	•	
Radium Total (sub)		10/19/2020 13:05	EPA 904.0 Radium S	Sum (
Radium 228 (sub)		10/19/2020 13:05	EPA 904.0 Radium S	Sum C	
Radium 226 (sub)		10/19/2020 13:05	EPA 903.1		

Released by Date Received By Date

Released By

Date

Received By

Date

Page 1 of 11 Page 29 of 30

Pittsburgh Lab Sample Condit	ion l	Jpor	Re	ceipt
Pace Analytical Client Name:	Pa	ille	2	Project # 30360672
(<u>, , , , , , , , , , , , , , , , , , , </u>		
Courier: Fed Ex UPS USPS Client		omme	rcial	Pace Other Label SM
Tracking #: 1107 5336 1811		_		LIMS Login \sqrt{S}
Custody Seal on Cooler/Box Present:	n			intact: yes no
Thermometer Used	Туре	of Ice:	_	Blue None
Cooler Temperature Observed Temp	9	. ° C	Corre	ection Factor: 0,5 °C Final Temp: 3,4 °C
Temp should be above freezing to 6°C				pH paper Lot# Date and initials of person examining
Community	Yes	No	N/A	pH paper Lot# Date and Initials of person examining contents: 05144(33/3020)
Comments:	165	140	19//	
Chain of Custody Present:		 	:	[1.
Chain of Custody Filled Out:		-		2.
Chain of Custody Relinquished:	<u> </u>	-	-	3.
Sampler Name & Signature on COC:			 	4.
Sample Labels match COC:		<u> </u>	<u> </u>	5.
-Includes date/time/ID Matrix:		1	T	
Samples Arrived within Hold Time:				6.
Short Hold Time Analysis (<72hr remaining):				7.
Rush Turn Around Time Requested:				8.
Sufficient Volume:				9.
Correct Containers Used:				10.
-Pace Containers Used:				
Containers Intact:	<u> </u>			11.
Orthophosphate field filtered				12.
Hex Cr Aqueous sample field filtered				13.
Organic Samples checked for dechlorination:	ļ			14.
Filtered volume received for Dissolved tests All containers have been checked for preservation.		-		15. 16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, I Non-aqueous matrix	Radon,	l		pHC2
All containers meet method preservation requirements.				Initial when Date/time of completed preservation
regun erreine.		I		Lot # of added preservative
Headspace in VOA Vials (>6mm):				17.
Trip Blank Present:				18.
Trip Blank Custody Seals Present				
Rad Samples Screened < 0.5 mrem/hr				Initial when SM Date: PADIA OW
Client Notification/ Resolution:				
Person-Contacted:			Date/1	Time:Gontacted-By:
Comments/ Resolution:				
	···			
A check in this box indicates that addit	ional i	inform	natio-	has been stored in aronarts

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0033748

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419 Customer ID: Report Printed:

44-100168 05/29/2020 14:03

Project Name: MW-110 Wilson 092-00004

Workorder: 0033748

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 04/23/2020 13:25.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC
P.O. Box 907
Madisonville, KY 42431
270.821.7375
www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0033748-01	MW110/		Groundwater	04/22/2020 14:20	04/23/2020 13:25	Travis Sneed
<u>LabNumber</u>	Measurement	<u>Value</u>				
0033748-01	Field Conductance	550				
	Field pH	6.89				
	Field Temp (C)	17.10				

Work Order Comments:

Corrected Report:

This report has been issued as a revision of the previous report dated 5/20/20@0917. Cobalt result added to report.



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

Lab Sample ID: 0033748-01 Sample Collection Date Time: 04/22/2020 14:20
Description: MW110 Sample Received Date Time: 04/23/2020 13:25

Metals by SW846 6000 Series Methods

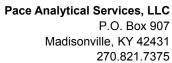
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Arsenic	0.0019		mg/L	0.0010	0.0004	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Barium	0.051		mg/L	0.004	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Boron	ND	U	mg/L	0.10	0.10	SW846 6010 B	04/24/2020 11:25	04/28/2020 14:06	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Calcium	39.9	D1	mg/L	4.00	1.30	SW846 6010 B	04/24/2020 11:25	04/28/2020 14:09	AKB
Chromium	0.0007	J	mg/L	0.0020	0.0006	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Iron	5.60		mg/L	0.100	0.050	SW846 6010 B	04/24/2020 11:25	04/28/2020 14:06	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Lithium	ND	U	mg/L	0.02	0.005	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Magnesium	19.6	D1	mg/L	2.00	0.900	SW846 6010 B	04/24/2020 11:25	04/28/2020 14:09	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	04/24/2020 11:25	05/02/2020 17:40	DMH
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Nickel	0.001	J	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Potassium	1.02		mg/L	0.50	0.22	SW846 6010 B	04/24/2020 11:25	04/28/2020 14:06	AKB
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Sodium	33.7	D1	mg/L	2.60	1.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 14:09	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:55	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	137		mg/L	4		2320 B-2011	04/29/2020 12:14	04/29/2020 12:14	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	04/29/2020 12:14	04/29/2020 12:14	HMF
Total Alkalinity	137		mg/L	4		2320 B-2011	04/29/2020 12:14	04/29/2020 12:14	HMF
Chemical Oxygen Demand	10		mg/L	8	8	HACH 8000	04/27/2020 15:26	04/27/2020 15:26	ALT
Specific Conductance (Lab)	466		umhos/cm	1	1	2510 B-2011	04/27/2020 15:02	04/27/2020 15:02	GAT
Hardness as CaCO3	178		mg/L	1	1	2340 C (as HACH 8226)	05/04/2020 11:24	05/04/2020 11:24	CLL
Total Dissolved Solids	208		mg/L	50	50	2540 C-2011	04/27/2020 10:44	04/28/2020 12:32	MAG
Total Organic Carbon	2.0		mg/L	0.5		5310 C-2011	05/01/2020 21:36	05/01/2020 21:36	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.837	_Sub	pCi/L			EPA 903.1	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium-228	0.694	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium	1.53	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW



270.821.7375 www.pacelabs.com



Ion Chromatography Madisonville

Analyte	Result	Flag Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	11.5	mg/L	0.5	0.4	EPA 300.0 REV 2.1	05/01/2020 21:58	05/01/2020 21:58	CSC
Fluoride	0.28	mg/L	0.20		EPA 300.0 REV 2.1	05/01/2020 21:58	05/01/2020 21:58	CSC
Sulfate	71.7	D mg/L	20.0	10.0	EPA 300.0 REV 2.1	05/01/2020 22:19	05/01/2020 22:19	CSC



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375

www.pacelabs.com

Notes for work order 0033748

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI does not provide interpretation of these results unless otherwise stated.
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub	See subcontractors report.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
E	Concentration exceeds calibration range
J	Estimated value.
J5	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
L2	The associated blank spike recovery was below method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
M6	Matrix spike recovery was high.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).
Y1	Sample RPD exceeded the method control limit.
Y2	MS/MSD RPD exceeded the method control limit. Recovery met acceptance criteria.

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample

MS Matrix Spike
MSD Matrix Spike Duplicate
DUP Sample Duplicate

% Rec Percent Recovery
RPD Relative Percent Difference

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Service Greater than Less than



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Blank (B017542-BLK1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12:	50									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Cobalt	ND	0.004	mg/L							U
Blank (B017542-BLK2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:0	9									
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.001	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U
Blank (B017542-BLK3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	0									
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.002	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





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		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
LCS (B017542-BS1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020	12:53									
Boron	0.13	0.10	mg/L	0.125		106	85-115			
Calcium	6.57	0.40	mg/L	6.25		105	85-115			
Iron	6.39	0.100	mg/L	6.25		102	85-115			
Magnesium	5.72	0.200	mg/L	6.25		91.5	85-115			
Potassium	6.62	0.50	mg/L	6.25		106	85-115			
Sodium	6.47	0.26	mg/L	6.25		103	85-115			
Cobalt	0.054	0.004	mg/L	0.0625		85.7	85-115			
LCS (B017542-BS2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 1	17:13									
Molybdenum	0.05	0.01	mg/L	0.0625		86.2	85-115			
Mercury	0.0020	0.0005	mg/L	0.00250		79.8	85-115			L2
Antimony	0.058	0.005	mg/L	0.0625		93.6	85-115			
Arsenic	0.0537	0.0010	mg/L	0.0625		85.9	85-115			
Barium	0.054	0.004	mg/L	0.0625		86.5	85-115			
Beryllium	0.0495	0.0020	mg/L	0.0625		79.2	85-115			M2
Cadmium	0.0533	0.0010	mg/L	0.0625		85.3	85-115			
Chromium	0.0535	0.0020	mg/L	0.0625		85.5	85-115			
Copper	0.054	0.003	mg/L	0.0625		86.7	85-115			
Lead	0.051	0.002	mg/L	0.0625		81.1	85-115			L2
Lithium	0.05	0.02	mg/L	0.0625		82.7	85-115			L2
Nickel	0.053	0.003	mg/L	0.0625		85.3	85-115			
Selenium	0.053	0.003	mg/L	0.0625		85.4	85-115			
Thallium	0.0495	0.0020	mg/L	0.0625		79.1	85-115			L2
Zinc	0.05	0.02	mg/L	0.0625		86.2	85-115			
LCS (B017542-BS3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 1	16:54									
Mercury	0.0026	0.0005	mg/L	0.00250		102	85-115			
Antimony	0.069	0.005	mg/L	0.0625		110	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		110	85-115			
Arsenic	0.0651	0.0010	mg/L	0.0625		104	85-115			
Barium	0.065	0.004	mg/L	0.0625		105	85-115			
Beryllium	0.0624	0.0020	mg/L	0.0625		99.8	85-115			
Cadmium	0.0652	0.0010	mg/L	0.0625		104	85-115			
Chromium	0.0645	0.0020	mg/L	0.0625		103	85-115			
Copper	0.066	0.003	mg/L	0.0625		106	85-115			
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.06	0.02	mg/L	0.0625		101	85-115			
Nickel	0.064	0.003	mg/L	0.0625		103	85-115			
Selenium	0.065	0.003	mg/L	0.0625		103	85-115			
Thallium	0.0650	0.0020	mg/L	0.0625		104	85-115			
Zinc	0.07	0.02	mg/L	0.0625		105	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:18									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	6.11	10.0	mg/L	6.25	ND	97.8	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, U
Cobalt	0.064	0.004	mg/L	0.0625	ND	102	80-120			
Matrix Spike (B017542-MS2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	357	40.0	mg/L	6.25	382	NR	80-120			D2, M2
Iron	89.2	10.0	mg/L	6.25	96.5	NR	80-120			D2, M2
Magnesium	190	20.0	mg/L	6.25	197	NR	80-120			D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.546	0.004	mg/L	0.0625	0.547	NR	80-120			М3
Sodium	107	26.0	mg/L	6.25	108	NR	80-120			D2
Matrix Spike (B017542-MS3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 18:48									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120			
Mercury	0.0023	0.0005	mg/L	0.00250	ND	92.2	80-120			
Antimony	0.071	0.005	mg/L	0.0625	ND	113	80-120			
Arsenic	0.0646	0.0010	mg/L	0.0625	ND	103	80-120			J5
Barium	0.066	0.004	mg/L	0.0625	ND	106	80-120			
Beryllium	0.0609	0.0020	mg/L	0.0625	ND	97.5	80-120			
Cadmium	0.0639	0.0010	mg/L	0.0625	ND	102	80-120			
Chromium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120			
Copper	0.061	0.003	mg/L	0.0625	ND	97.6	80-120			
Lead	0.060	0.002	mg/L	0.0625	ND	96.7	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	104	80-120			
Nickel	0.062	0.003	mg/L	0.0625	ND	99.8	80-120			
Selenium	0.063	0.003	mg/L	0.0625	ND	100	80-120			
Thallium	0.0587	0.0020	mg/L	0.0625	ND	93.9	80-120			
Zinc	0.06	0.02	mg/L	0.0625	ND	103	80-120			





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Anglista		Reporting	l loite	Spike	Source	0/ DEC	%REC	DDD	RPD Limit	Netss
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5	5/1/2020 19:11									
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120			
Molybdenum	0.04	0.01	mg/L	0.0625	0.002	53.5	80-120			J5, M2
Mercury	0.0022	0.0005	mg/L	0.00250	ND	86.7	80-120			
Arsenic	0.0711	0.0010	mg/L	0.0625	0.0079	101	80-120			J5
Barium	0.068	0.004	mg/L	0.0625	0.005	102	80-120			
Beryllium	0.0507	0.0020	mg/L	0.0625	0.0013	79.2	80-120			M2
Cadmium	0.0781	0.0010	mg/L	0.0625	0.0211	91.1	80-120			
Chromium	0.0631	0.0020	mg/L	0.0625	0.0007	99.8	80-120			
Copper	0.057	0.003	mg/L	0.0625	ND	90.8	80-120			
Lead	0.056	0.002	mg/L	0.0625	ND	89.1	80-120			
Lithium	0.20	0.02	mg/L	0.0625	0.15	87.1	80-120			
Nickel	1.03	0.003	mg/L	0.0625	1.10	NR	80-120			M3, E
Selenium	0.032	0.003	mg/L	0.0625	ND	50.5	80-120			M2
Thallium	0.0560	0.0020	mg/L	0.0625	0.0011	87.8	80-120			
Zinc	1.85	0.02	mg/L	0.0625	2.25	NR	80-120			M3, E
Matrix Spike Dup (B017542-MSD1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	/28/2020 16:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	6.31	10.0	mg/L	6.25	ND	101	80-120	3.22	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, U
Cobalt	0.065	0.004	mg/L	0.0625	ND	104	80-120	2.02	20	
Matrix Spike Dup (B017542-MSD2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 4	/28/2020 16:28									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	356	40.0	mg/L	6.25	382	NR	80-120	0.438	20	D2, M2
Iron	88.8	10.0	mg/L	6.25	96.5	NR	80-120	0.473	20	D2, M2
Magnesium	189	20.0	mg/L	6.25	197	NR	80-120	0.296	20	D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	106	26.0	mg/L	6.25	108	NR	80-120	0.573	20	D2
Cobalt	0.552	0.004	mg/L	0.0625	0.547	8.08	80-120	1.11	20	М3





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
,	room	Liiiit	Jinto	LOVO	rtodait	701123	Liiiilo	1412	Liiiit	110100
Batch B017542 - EPA 200.2										
Matrix Spike Dup (B017542-MSD3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2	020 18:52									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.30	20	
Mercury	0.0024	0.0005	mg/L	0.00250	ND	97.5	80-120	5.63	20	
Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	2.84	20	
Arsenic	0.0650	0.0010	mg/L	0.0625	ND	104	80-120	0.685	20	J5
Barium	0.068	0.004	mg/L	0.0625	ND	108	80-120	2.25	20	
Beryllium	0.0616	0.0020	mg/L	0.0625	ND	98.6	80-120	1.15	20	
Cadmium	0.0655	0.0010	mg/L	0.0625	ND	105	80-120	2.55	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	1.38	20	
Copper	0.062	0.003	mg/L	0.0625	ND	99.0	80-120	1.42	20	
Lead	0.062	0.002	mg/L	0.0625	ND	99.0	80-120	2.37	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	106	80-120	2.61	20	
Nickel	0.064	0.003	mg/L	0.0625	ND	103	80-120	3.35	20	
Selenium	0.064	0.003	mg/L	0.0625	ND	103	80-120	2.12	20	
Thallium	0.0601	0.0020	mg/L	0.0625	ND	96.2	80-120	2.37	20	
Zinc	0.07	0.02	mg/L	0.0625	ND	105	80-120	1.77	20	
Matrix Spike Dup (B017542-MSD4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2	020 19:15									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	89.1	80-120	2.77	20	
Molybdenum	0.03	0.01	mg/L	0.0625	0.002	52.5	80-120	1.71	20	J5, M2
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120	0.226	20	
Arsenic	0.0692	0.0010	mg/L	0.0625	0.0079	98.0	80-120	2.76	20	J5
Barium	0.068	0.004	mg/L	0.0625	0.005	100	80-120	1.30	20	
Beryllium	0.0493	0.0020	mg/L	0.0625	0.0013	76.8	80-120	2.91	20	M2
Cadmium	0.0793	0.0010	mg/L	0.0625	0.0211	93.1	80-120	1.59	20	
Chromium	0.0616	0.0020	mg/L	0.0625	0.0007	97.5	80-120	2.35	20	
Copper	0.055	0.003	mg/L	0.0625	ND	87.6	80-120	3.65	20	
Lead	0.055	0.002	mg/L	0.0625	ND	88.6	80-120	0.549	20	
Lithium	0.20	0.02	mg/L	0.0625	0.15	93.5	80-120	1.99	20	
Nickel	1.04	0.003	mg/L	0.0625	1.10	NR	80-120	1.31	20	M3, E
Selenium	0.031	0.003	mg/L	0.0625	ND	49.5	80-120	2.00	20	M2
Thallium	0.0555	0.0020	mg/L	0.0625	0.0011	87.0	80-120	0.916	20	
Zinc	1.87	0.02	mg/L	0.0625	2.25	NR	80-120	1.21	20	M3, E





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	Repo	orting	Spike	Source		%REC		RPD				
Analyte	Result	Limit Unit	s Level	Result	%REC	Limits	RPD	Limit	Notes			
Batch B017542 - EPA 200.2												
Post Spike (B017542-PS1)	Source: 0033742-01											
Prepared: 4/24/2020 11:25, Analyzed	1: 4/28/2020 16:31											
Boron	121	ug/	L 125	-1.32	96.8	75-125			D2			
Calcium	6440	ug/	L 6250	3.49	103	75-125			D2			
Iron	6150	ug/	L 6250	21.5	98.0	75-125			D2			
Magnesium	6600	ug/	L 6250	1.11	106	75-125			D2			
Potassium	5980	ug/	L 6250	9.01	95.6	75-125			D2			
Cobalt	62.7	ug/	L 62.5	0.009	100	75-125						
Sodium	6720	ug/	L 6250	2.78	108	75-125			D2			
Post Spike (B017542-PS2)	Source: 0033742-01											
Prepared: 4/24/2020 11:25, Analyzed	1: 5/1/2020 19:19											
Mercury	2.56	ug/	L 2.50	0.0710	99.4	75-125						
Molybdenum	65.7	ug/	L 62.5	0.03	105	75-125						
Antimony	71.0	ug/	L 62.5	0.107	113	75-125						
Arsenic	64.2	ug/	L 62.5	-0.0029	103	75-125			J5			
Barium	67.2	ug/	L 62.5	0.037	107	75-125						
Beryllium	56.7	ug/	L 62.5	-0.0023	90.7	75-125						
Cadmium	63.6	ug/	L 62.5	0.0053	102	75-125						
Chromium	61.7	ug/	L 62.5	0.0998	98.6	75-125						
Copper	61.0	ug/	L 62.5	-1.66	97.6	75-125						
Lead	60.7	ug/	L 62.5	0.219	96.8	75-115						
Lithium	60.7	ug/	L 62.5	0.05	97.0	75-125						
Nickel	62.6	ug/	L 62.5	0.313	99.7	75-125						
Selenium	64.8	ug/	L 62.5	-0.002	104	75-125						
Thallium	58.9	ug/	L 62.5	0.0066	94.2	75-125						
Zinc	65.7	ug/	L 62.5	1.46	103	75-125						





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	R	eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018047 - Default Prep Wet Cher	m									
Blank (B018047-BLK1)										
Prepared: 4/27/2020 10:24, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B018047-BS1)										
Prepared: 4/27/2020 10:28, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	1460	25	mg/L	1500		97.0	80-120			
Duplicate (B018047-DUP1)	Source: 0033745-01									
Prepared: 4/27/2020 11:52, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	716	50	mg/L		724			1.11	10	
Duplicate (B018047-DUP2)	Source: 0041174-01									
Prepared: 4/27/2020 11:56, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	364	50	mg/L		372			2.17	10	
Batch B018080 - Default Prep Wet Cher	m									
Blank (B018080-BLK1)										
Prepared: 4/27/2020 15:20, Analyzed: 4	/27/2020 15:20									
Chemical Oxygen Demand	ND	8	mg/L							U
LCS (B018080-BS1)										
Prepared: 4/27/2020 15:20, Analyzed: 4	/27/2020 15:20									
Chemical Oxygen Demand	121	8	mg/L				90-110			
Duplicate (B018080-DUP1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	36	8	mg/L		22			47.1	25	Y1
Matrix Spike (B018080-MS1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	274	8	mg/L	250	22	101	90-110			
Matrix Spike Dup (B018080-MSD1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	263	8	mg/L	250	22	96.3	90-110	4.34	10	





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018086 - Default Prep Wet Chem										
Blank (B018086-BLK1)										
Prepared: 4/27/2020 14:54, Analyzed: 4/27/2	2020 14:54									
Specific Conductance (Lab)	ND	1	umhos/cm							U
LCS (B018086-BS1)										
Prepared: 4/27/2020 14:55, Analyzed: 4/27/2	2020 14:55									
Specific Conductance (Lab)	1410		umhos/cm	1410		99.8	80-120			
Duplicate (B018086-DUP1)	Source: 0033751-01									
Prepared: 4/27/2020 15:09, Analyzed: 4/27/2	2020 15:09									
Specific Conductance (Lab)	2980	1	umhos/cm		2990			0.0335	1.24	
Duplicate (B018086-DUP2)	Source: 0043793-01									
Prepared: 4/27/2020 15:27, Analyzed: 4/27/2	2020 15:27									
Specific Conductance (Lab)	1	1	umhos/cm		1			0.755	1.24	
Batch B018100 - Default Prep Wet Chem										
Blank (B018100-BLK1)										
Prepared: 5/1/2020 18:21, Analyzed: 5/1/2020	20 18:21									
Total Organic Carbon	ND	0.5	mg/L							U
LCS (B018100-BS1)										
Prepared: 5/1/2020 18:43, Analyzed: 5/1/202	20 18:43									
Total Organic Carbon	5.0	0.5	mg/L	5.00		101	80-120			
Duplicate (B018100-DUP1)	Source: 0033748-01									
Prepared: 5/2/2020 0:07, Analyzed: 5/2/202	20 0:07									
Total Organic Carbon	2.0	0.5	mg/L		2.0			0.0293	25	
Duplicate (B018100-DUP2)	Source: 0033758-01									
Prepared: 5/2/2020 4:27, Analyzed: 5/2/202	20 4:27									
Total Organic Carbon	2.8	0.5	mg/L		2.8			0.410	25	
Matrix Spike (B018100-MS1)	Source: 0033749-01									
Prepared: 5/2/2020 0:29, Analyzed: 5/2/202										
Total Organic Carbon	10.7	0.5	mg/L	2.50	8.2	101	80-120			



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018100 - Default Prep Wet Chem										
Matrix Spike (B018100-MS2)	Source: 0033759-01									
Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020	4:49									
Total Organic Carbon	3.6	0.5	mg/L	5.00	0.4	65.0	80-120			M2
Batch B018391 - Default Prep Wet Chem										
Blank (B018391-BLK1)										
Prepared: 4/29/2020 11:33, Analyzed: 4/29/20	020 11:33									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK2)										
Prepared: 4/29/2020 13:03, Analyzed: 4/29/20	020 13:03									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK3)										
Prepared: 4/29/2020 15:33, Analyzed: 4/29/20	020 15:33									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
LCS (B018391-BS1)										
Prepared: 4/29/2020 12:58, Analyzed: 4/29/20	020 12:58									
Carbonate Alkalinity as CaCO3	232	4	mg/L	225		103	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	235	4	mg/L	235		99.8	80-120			
LCS (B018391-BS2)										
Prepared: 4/29/2020 15:29, Analyzed: 4/29/20	020 15:29									
Carbonate Alkalinity as CaCO3	230	4	mg/L	225		102	0-200			
Total Alkalinity	250	4	mg/L	235		106	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U



	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018391 - Default Prep Wet Chem										
Duplicate (B018391-DUP1)	Source: 0033751-01									
Prepared: 4/29/2020 12:34, Analyzed: 4/29/20	20 12:34									
Bicarbonate Alkalinity as CaCO3	309	4	mg/L		ND				10	
Total Alkalinity	309	4	mg/L		301			2.43	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		301				10	U
Duplicate (B018391-DUP2)	Source: 0033759-01									
Prepared: 4/29/2020 15:04, Analyzed: 4/29/20	20 15:04									
Bicarbonate Alkalinity as CaCO3	402	4	mg/L		394			2.01	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Total Alkalinity	402	4	mg/L		394			2.01	10	
Matrix Spike (B018391-MS1)	Source: 0033743-01									
Prepared: 4/29/2020 12:40, Analyzed: 4/29/20	20 12:40									
Total Alkalinity	61	4	mg/L	50.4	22	77.0	80-120			M2
Matrix Spike (B018391-MS2)	Source: 0033759-01									
Prepared: 4/29/2020 15:18, Analyzed: 4/29/20	20 15:18									
Total Alkalinity	413	4	mg/L	50.4	394	37.5	80-120			М3
Batch B019045 - Default Prep Wet Chem										
Blank (B019045-BLK1)										
Prepared: 5/4/2020 10:56, Analyzed: 5/4/2020	10:56									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B019045-BS1)										
Prepared: 5/4/2020 10:58, Analyzed: 5/4/2020	10:58									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B019045-DUP1)	Source: 0041237-02									
Prepared: 5/4/2020 12:56, Analyzed: 5/4/2020	12:56									
Hardness as CaCO3	214	1	mg/L		200			6.76	10	
Matrix Spike (B019045-MS1)	Source: 0041237-02									
Prepared: 5/4/2020 12:58, Analyzed: 5/4/2020	12:58									
Hardness as CaCO3	568	1	mg/L	318	200	116	80-120			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018473 - Default Prep IC										
Blank (B018473-BLK1)										
Prepared: 5/1/2020 15:50, Analyzed: 5/1	1/2020 15:50									
Sulfate	ND	1.0	mg/L							U
Fluoride	ND	0.20	mg/L							U
Chloride	ND	0.5	mg/L							U
LCS (B018473-BS1)										
Prepared: 5/1/2020 15:30, Analyzed: 5/1	1/2020 15:30									
Sulfate	9.7		mg/L	10.0		97.1	90-110			
Chloride	9.6		mg/L	10.0		96.1	90-110			
Fluoride	9.60		mg/L	10.0		96.0	90-110			
Matrix Spike (B018473-MS1)	Source: 0033742-01									
Prepared: 5/2/2020 0:01, Analyzed: 5/2	/2020 0:01									
Chloride	10.1		mg/L	10.0	0.0	101	80-120			
Sulfate	10.8		mg/L	10.0	0.005	108	80-120			
Fluoride	10.2		mg/L	10.0	0.06	101	80-120			
Matrix Spike Dup (B018473-MSD1)	Source: 0033742-01									
Prepared: 5/2/2020 0:21, Analyzed: 5/2	/2020 0:21									
Chloride	13.1		mg/L	10.0	0.0	131	80-120	25.7	10	M1, Y
Fluoride	13.2		mg/L	10.0	0.06	132	80-120	26.2	20	M1, Y
Sulfate	14.5		mg/L	10.0	0.005	145	80-120	28.8	20	M1, Y
Certified Analyses included in this Rep	ort									
Analyte	Certifications									

KY Drinking Water Mdv (00030) Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) **Total Alkalinity**

2340 C (as HACH 8226) in Water

KY Drinking Water Mdv (00030) Hardness as CaCO3

2510 B-2011 in Water

KY Drinking Water Mdv (00030) Specific Conductance (Lab)

2540 C-2011 in Water

KY Drinking Water Mdv (00030) **Total Dissolved Solids**

5310 C-2011 in Water

KY Drinking Water Mdv (00030) Total Organic Carbon

EPA 300.0 REV 2.1 in Water

KY Drinking Water Mdv (00030) Chloride KY Drinking Water Mdv (00030) Fluoride KY Drinking Water Mdv (00030) Sulfate

HACH 8000 in Water

KY Wastewater Mdv (00030) Chemical Oxygen Demand

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0033748
Shipped By: Client	Temperature: 3.90° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	abla
Check if Collector Signature Present	$oldsymbol{arnothing}$
Check if bottles are intact	☑
Check if bottles are correct	abla
Check if bottles have sufficient volume	☑
Check if samples received on ice	☑
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	

Chain of Custody

Scheduled for: 03/02/2020



	Concadio	nethern	<u> </u>				
Client: Big Rivers Electric Corporation Wilson Station	Report To: Big Rivers Ele- Station	ctric C	orporation Wilson	Invoice To: Big Rivers Electric Corporation Wilson Station Brian Edwards PO Box 24 Henderson, KY 42419			
Project: MW-110 Wilson 092-00004	Mike Galbraith PO Box 24 Henderson, K		9				
	Phone: <u>(270) 8</u> PWS ID#:	344-60	<u>00</u>	PO#: 2	58508-6		
Please Print Legibly	State:	<u> </u>	_	Quote#			
Collected by (Signature): *required if	nformation*		 .	Compli	ance Monitoring? Yes Y No		
*For composite samples please indicate begin time, e	nd time and temp(oC) at en	d time below:	Sample	es Chlorinated? Yes No		
Influent: Start Date Start time	End Date	E	End Time	Temp (oC)			
Effluent: Start Date Start time	End Date	E	End Time	Temp (oC)			
	e and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested		
Sample ID# 0033748-01 A	Plastic 1L	<u>ŏ</u>	MW110	g/c	Alkalinity Total Chloride 300.0		
/ 1	stic 500mL pH<2 w/HNO3	1	MW110	g/c	Conductivity (Lab) Fluoride 300.0 Sulfate 300.0 Alkalinity Bicarbonate TDS Alkalinity Carbonate Arsenic Tot 6020 Antimony Tot 6020 Barium Tot 6020 Iron Tot 6010B Selenium Tot 6020 Hardness		
0033748-01 C 4/22/21 1420 Pla	rvation Check: pH : stic 500mL pH<2 w/H2SO4	1 /	MW110	g/c	Titration Beryllium Tot 6020 Boron Tot 6010B Cadmium Tot 6020 Calcium Tot 6010B Chromium Tot 6020 Sodium Tot 6010B Lead Tot 6020 Lithium Tot 6020 Mercury Tot 6020		
0033748-01 D 4/22/20 1420 Plasti	rvation Check: pH: c 1L pH<2 w/HNO3 Rad 226 (Sub) rvation Check: pH:	1	MW110	g/c	Radium 226 (sub)		
Preservation Check Performed by:	١						
Field data collected by: Travis Snee		<u>4/3</u>	2/28 Time (24 hr)	1420			
pH <u>6,89</u> Cond (umho) <u>0.330</u>			•		ee Cl (mg/L)		
Temp (oC) <u>17.10</u> or (oF)	Static Water Level		DO (mg/L) _	Т	urb. (NTU)		
Flow (MGD) or (CFS)	or (g/min)		 .				
Relinquished by: (Signature)	Received by: (Sign		mpi	Date (mm	7dd/yy) Time (24 hr) 3-20 1.325		
PACE- Check here if trip charge applied to	associated COC	3	, 9 Printed:	3/27/2020 1:48	:34PM Page 18 of 30		

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>03/02/2020</u>



Client: Big Rivers Electric C Station Project: MW-110 Wilson 092			tric Corporation Wilson 42419	Invoice To: Big Rivers Electric Corporation Wilson Station Brian Edwards PO Box 24 Henderson, KY 42419				
		Phone: (270) 8		PO#: 25	8508-6			
Please Print Legibly		PWS ID#: State:	KY_	Quote#	-			
Collected by (Signature):	Form.	herst		Compli	ance Monitorir	ng? Yes X No		
For composite samples pleas	•.	ired information	at end time helow:	Sample	es Chlorinated	? Yes No		
Influent: Start Date				Temp (oC)				
Effluent: Start Date								
MMLI USE ONLY *required Date O033748 (mm/dd/yy) Sample ID# 0033748-01 E	1420	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub). Preservation Check: pH: Plastic 1L pH<2 w/HNO3 Rad 228 (Sub) Preservation Check: pH: Plastic 1L pH<2 w/HNO3 (Sub) Preservation Check: pH:	1 MW110	n Composite g/c g/c g/c	Sample Radium 228 Radium 228 Radium Tota	(sub)		
Field data collected by: pH	Cond-(umho) 0.0 r (oF)	Static Water Level or (g/min) Received by: (Signal	Tot CI (mg/L)) Fr	Turb. (NTU) _			

PACE- Check here if trip charge applied to associated COC

Printed: 3/27/2020 1:48:34PM

Page 19 of 30

(724)850-5600



May 19, 2020

Rob Whittington
Pace Analytical Madisonville
825 Industrial Rd
Madisonville, KY 42431

RE: Project: 33748

Pace Project No.: 30360673

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 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,

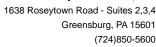
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 33748
Pace Project No.: 30360673

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

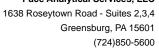
Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3 Utah/TNI Certification #: PA014572017-9 USDA Soil Permit #: P330-17-00091 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 9526 Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad Wyoming Certification #: 8TMS-L

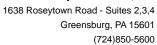




SAMPLE SUMMARY

Project: 33748
Pace Project No.: 30360673

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30360673001	0033748-01	Water	04/22/20 14:20	04/28/20 09:10





SAMPLE ANALYTE COUNT

Project: 33748
Pace Project No.: 30360673

	0 1 10	••		Analytes	
Lab ID	Sample ID	Method	Analysts — ———	Reported	Laboratory
30360673001	0033748-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

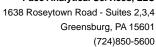


ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 33748
Pace Project No.: 30360673

Sample: 0033748-01 PWS:	Lab ID: 303606 Site ID:	73001 Collected: 04/22/20 14:20 Sample Type:	Received:	04/28/20 09:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Se	ervices - Greensburg				
Radium-226	EPA 903.1	0.837 ± 0.495 (0.590) C:NA T:93%	pCi/L	05/18/20 15:36	6 13982-63-3	
	Pace Analytical Se	ervices - Greensburg				
Radium-228	EPA 904.0	0.694 ± 0.413 (0.757) C:76% T:81%	pCi/L	05/15/20 15:52	2 15262-20-1	
	Pace Analytical Se	ervices - Greensburg				
Total Radium	Total Radium Calculation	1.53 ± 0.908 (1.35)	pCi/L	05/19/20 08:36	7440-14-4	

REPORT OF LABORATORY ANALYSIS





QUALITY CONTROL - RADIOCHEMISTRY

Project: 33

33748

Pace Project No.:

30360673

QC Batch:
QC Batch Method:

394311

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

METHOD BLANK: 1909693

30360673001

Matrix: Water

Associated Lab Samples:

les: 30360673001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

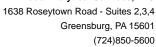
Radium-226

-0.255 ± 0.240 (0.532) C:NA T:97%

pCi/L

05/18/20 15:36

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: 33748
Pace Project No.: 30360673

QC Batch: 394310 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: 30360673001

METHOD BLANK: 1909692 Matrix: Water

Associated Lab Samples: 30360673001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.175 ± 0.287 (0.624) C:79% T:85%
 pCi/L
 05/15/20 15:53

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.

REPORT OF LABORATORY ANALYSIS



QUALIFIERS

Project: 33748
Pace Project No.: 30360673

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.

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: 05/19/2020 08:38 AM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

MO#:30360673

Chain of Custody

Analytical **

	Workorder: 33748	W	orkorder Nar	ne: M	Workorder Name: MW-110 Wilson 092-0000 Owner Received Date: 4/23/2020	092-0000	wner Received	Date: 4/	03/2020	- Doculto	Reculte Beampeted Bur		
Rep	Report To:		Subco	Subcontract To	To:				27.7	Comes	reducated by.		Γ
						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			L	requested Analysis	nalysis		
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Mac 270-	Madisonville, KY 42409 270-821-7375		Green	ısburg,	Greensburg, PA 15601				uni			-1	
. ×	E/9 UZI-/3/3 F.Whittington@mccovlabs com		(724)	(724) 850-5615	15				ibeЯ				
L		Sample	Collect	ŀ			Preserved Containers	1	0.				
Item	Item Sample ID	Type	Date/Time	Lab	DI QI	Matrix		£06	⊅ 06				
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, COO	Cooler Temperature on Receipt	Ž	ູດ Cust	Custody Seal	al Y or/N		Receiver	Received on Ice V ar N	Z	-	Sample late 4 V 2 - A	1	_
7							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- -	2	<u>-</u>		Z	_

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC This chain of custody is considered complete as is since this information is available in the owner laboratory.

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Page 9 of 11 Page 28 of 30

30360673

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0033748

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375

Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601

Phone:(724) 850-5615

Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID .	Comments
Sample ID: 0033748-01	Water	Sampled:04/22/2020 14:20	Specific Method	
Radium Total (sub)		10/19/2020 14:20	EPA 904.0 Radium Sur	n (
Radium 228 (sub)		10/19/2020 14:20	EPA 904.0 Radium Sur	n C
Radium 226 (sub)		10/19/2020 14:20	EPA 903.1	

Released By Date Received By Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condit	ion l	Jpor	Re	ceipt	
Pacs Analytical* Client Name:	Pa	ice	2	Project # # 30360673	
Courier: Fed Ex UPS USPS UClient		omme	rcial	Pace Other Label O S N	
Tracking #: 1107 3336 1811		_		LIMS Login $\bigwedge S \bigvee$	
Custody Seal on Cooler/Box Present:	∏ n	0	Seals	intact; yes no	
Thermometer Used	Туре	of Ice:	(Wet		
Cooler Temperature Observed Temp		. ° C	Corre	ection Factor <u>0, 5</u> °C Final Temp <u>:3 -6</u> °C	
Temp should be above freezing to 6°C				pH paper Lot# Date and Initials of person examining	
•	- V	l No	N/A	pH paper Lot# Date and Initials of person examining contents: 051441331000	
Comments:	Yes	No	IN/A		
Chain of Custody Present:				1.	
Chain of Custody Filled Out:				2.	
Chain of Custody Relinquished:			-	3.	
Sample I shelt match COC:		<u> </u>		5.	
Sample Labels match COC: -Includes date/time/ID Matrix:	~		<u> </u>	 	
Samples Arrived within Hold Time:			Ī	6.	
Short Hold Time Analysis (<72hr remaining):				7.	
Rush Turn Around Time Requested:		_		8.	
Sufficient Volume:			<u> </u>	9,	
Correct Containers Used:				10.	
-Pace Containers Used:					
Containers Intact:				11.	
Orthophosphate field filtered				12.	
Hex Cr Aqueous sample field filtered				13.	
Organic Samples checked for dechlorination:				14.	
Filtered volume received for Dissolved tests				15.	
All containers have been checked for preservation.				16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, I Non-aqueous matrix	Radon,			pHe	
All containers meet method preservation requirements.		-		Initial when Date/time of preservation	
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):				17.	
Trip Blank Present:				18. ·	
Trip Blank Custody Seals Present					
Rad Samples Screened < 0.5 mrem/hr				Initial when SM Date: 4728/2000	
Client Notification/ Resolution:				, ,	
Person-Gontacted:			-Date/1	Firme:Gontacted By:	
Comments/ Resolution:					
			·· · · · · · · · · · · · · · · · · · ·		
A check in this box indicates that addit	ional	inform	nation	has been stored in ereports.	

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0033759

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419 Customer ID: Report Printed:

44-100168 05/29/2020 14:30

Well Duplicate Wilson 092-00004

Workorder: 0033759

Dear Mike Galbraith

Project Name:

Enclosed are the analytical results for samples received at one of our laboratories on 04/23/2020 13:25.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC
P.O. Box 907
Madisonville, KY 42431
270.821.7375
www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0033759-01	Well Duplicate/		Groundwater	04/23/2020 08:30	04/23/2020 13:25	Travis Sneed
LabNumber	<u>Measurement</u>	<u>Value</u>				
0033759-01	Field Conductance	5890				
	Field pH	6.31				
	Field Temp (C)	15.69				

Work Order Comments:

Corrected Report:

This report has been issued as a revision of the previous report dated 5/20/20@0909. Cobalt result added to report.



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ANALYTICAL RESULTS

Lab Sample ID: 0033759-01 Sample Collection Date Time: 04/23/2020 08:30 Description: Well Duplicate Sample Received Date Time: 04/23/2020 13:25

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:44	DMH
Arsenic	0.0033		mg/L	0.0010	0.0004	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:18	DMH
Barium	0.016		mg/L	0.004	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:44	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:44	DMH
Boron	10.9	D1	mg/L	10.0	10.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 16:15	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:44	DMH
Calcium	720	D1	mg/L	40.0	13.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 16:15	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:18	DMH
Cobalt	0.012		mg/L	0.004	0.004	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:18	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:18	DMH
Iron	8.05		mg/L	0.100	0.050	SW846 6010 B	04/24/2020 11:25	04/28/2020 15:59	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:44	DMH
Lithium	0.17		mg/L	0.02	0.005	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:44	DMH
Magnesium	278	D1	mg/L	20.0	9.00	SW846 6010 B	04/24/2020 11:25	04/28/2020 16:15	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:18	DMH
Molybdenum	0.008	J	mg/L	0.01	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:44	DMH
Nickel	0.030		mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:18	DMH
Potassium	67.9	D1	mg/L	5.00	2.20	SW846 6010 B	04/24/2020 11:25	04/28/2020 16:02	AKB
Selenium	0.001	J	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:44	DMH
Sodium	234	D1	mg/L	26.0	10.0	SW846 6010 B	04/24/2020 11:25	04/28/2020 16:15	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 18:44	DMH
Zinc	0.02		mg/L	0.02	0.02	SW846-6020 A	04/24/2020 11:25	05/04/2020 13:18	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	394	М3	mg/L	4		2320 B-2011	04/29/2020 14:57	04/29/2020 14:57	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U, M3	mg/L	4		2320 B-2011	04/29/2020 14:57	04/29/2020 14:57	HMF
Total Alkalinity	394	М3	mg/L	4		2320 B-2011	04/29/2020 14:57	04/29/2020 14:57	HMF
Chemical Oxygen Demand	51		mg/L	8	8	HACH 8000	04/27/2020 16:46	04/27/2020 16:46	ALT
Specific Conductance	5260		umhos/cm	1	1	2510 B-2011	04/27/2020 15:21	04/27/2020 15:21	GAT
(Lab)									
Hardness as CaCO3	2510	D	mg/L	5	5	2340 C (as HACH	05/04/2020 12:48	05/04/2020 12:48	CLL
						8226)			
Total Dissolved Solids	4630		mg/L	50	50	2540 C-2011	04/27/2020 11:20	04/28/2020 12:32	MAG
Total Organic Carbon	ND	M2, U	mg/L	0.5		5310 C-2011	05/02/2020 02:39	05/02/2020 02:39	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.174	_Sub	pCi/L			EPA 903.1	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium-228	1.39	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium	1.56	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW



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Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	1300	D, M2	mg/L	25.0	18.0	EPA 300.0 REV 2.1	05/02/2020 08:54	05/02/2020 08:54	CSC
Fluoride	0.27	M2	mg/L	0.20		EPA 300.0 REV 2.1	05/02/2020 08:34	05/02/2020 08:34	CSC
Sulfate	3010	D, M2	mg/L	100	50.0	EPA 300.0 REV 2.1	05/02/2020 09:15	05/02/2020 09:15	CSC



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Notes for work order 0033759

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI does not provide interpretation of these results unless otherwise stated.

laboratory method detection limit in our LIMS system).

- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
E	Concentration exceeds calibration range
J	Estimated value.
J5	Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.
L2	The associated blank spike recovery was below method acceptance limits.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
M6	Matrix spike recovery was high.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the

Standard Qualifiers/Acronymns

MDL Method Detection Limit MRL Minimum Reporting Limit ND Not Detected

LCS Laboratory Control Sample Matrix Spike

MSD Matrix Spike Duplicate DUP Sample Duplicate % Rec Percent Recovery

MS

RPD Relative Percent Difference

Greater than Less than



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Blank (B017542-BLK1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12:	50									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Cobalt	ND	0.004	mg/L							U
Blank (B017542-BLK2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:0	9									
Mercury	ND	0.0005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.001	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U
Blank (B017542-BLK3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	0									
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.002	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





	Mictals by C				-					
	5 "	Reporting		Spike	Source	0/ 550	%REC	555	RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
LCS (B017542-BS1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28	/2020 12:53									
Boron	0.13	0.10	mg/L	0.125		106	85-115			
Calcium	6.57	0.40	mg/L	6.25		105	85-115			
Iron	6.39	0.100	mg/L	6.25		102	85-115			
Magnesium	5.72	0.200	mg/L	6.25		91.5	85-115			
Potassium	6.62	0.50	mg/L	6.25		106	85-115			
Cobalt	0.054	0.004	mg/L	0.0625		85.7	85-115			
Sodium	6.47	0.26	mg/L	6.25		103	85-115			
LCS (B017542-BS2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2	2020 17:13									
Molybdenum	0.05	0.01	mg/L	0.0625		86.2	85-115			
Mercury	0.0020	0.0005	mg/L	0.00250		79.8	85-115			L2
Antimony	0.058	0.005	mg/L	0.0625		93.6	85-115			
Arsenic	0.0537	0.0010	mg/L	0.0625		85.9	85-115			
Barium	0.054	0.004	mg/L	0.0625		86.5	85-115			
Beryllium	0.0495	0.0020	mg/L	0.0625		79.2	85-115			M2
Cadmium	0.0533	0.0010	mg/L	0.0625		85.3	85-115			
Chromium	0.0535	0.0020	mg/L	0.0625		85.5	85-115			
Copper	0.054	0.003	mg/L	0.0625		86.7	85-115			
Lead	0.051	0.002	mg/L	0.0625		81.1	85-115			L2
Lithium	0.05	0.02	mg/L	0.0625		82.7	85-115			L2
Nickel	0.053	0.003	mg/L	0.0625		85.3	85-115			
Selenium	0.053	0.003	mg/L	0.0625		85.4	85-115			
Thallium	0.0495	0.0020	mg/L	0.0625		79.1	85-115			L2
Zinc	0.05	0.02	mg/L	0.0625		86.2	85-115			
LCS (B017542-BS3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2	2020 16:54									
Molybdenum	0.07	0.01	mg/L	0.0625		110	85-115			
Antimony	0.069	0.005	mg/L	0.0625		110	85-115			
Mercury	0.0026	0.0005	mg/L	0.00250		102	85-115			
Arsenic	0.0651	0.0010	mg/L	0.0625		104	85-115			
Barium	0.065	0.004	mg/L	0.0625		105	85-115			
Beryllium	0.0624	0.0020	mg/L	0.0625		99.8	85-115			
Cadmium	0.0652	0.0010	mg/L	0.0625		104	85-115			
Chromium	0.0645	0.0020	mg/L	0.0625		103	85-115			
Copper	0.066	0.003	mg/L	0.0625		106	85-115			
Lead	0.065		-			104				
			_							
			_							
Lead Lithium Nickel Selenium Thallium Zinc	0.065 0.06 0.064 0.065 0.0650 0.07	0.002 0.02 0.003 0.003 0.0020 0.022	mg/L mg/L mg/L mg/L mg/L mg/L	0.0625 0.0625 0.0625 0.0625 0.0625 0.0625		104 101 103 103 104 105	85-115 85-115 85-115 85-115 85-115 85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:18									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	6.11	10.0	mg/L	6.25	ND	97.8	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, U
Cobalt	0.064	0.004	mg/L	0.0625	ND	102	80-120			
Matrix Spike (B017542-MS2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	357	40.0	mg/L	6.25	382	NR	80-120			D2, M2
Iron	89.2	10.0	mg/L	6.25	96.5	NR	80-120			D2, M2
Magnesium	190	20.0	mg/L	6.25	197	NR	80-120			D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	107	26.0	mg/L	6.25	108	NR	80-120			D2
Cobalt	0.546	0.004	mg/L	0.0625	0.547	NR	80-120			М3
Matrix Spike (B017542-MS3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 18:48									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120			
Antimony	0.071	0.005	mg/L	0.0625	ND	113	80-120			
Mercury	0.0023	0.0005	mg/L	0.00250	ND	92.2	80-120			
Arsenic	0.0646	0.0010	mg/L	0.0625	ND	103	80-120			J5
Barium	0.066	0.004	mg/L	0.0625	ND	106	80-120			
Beryllium	0.0609	0.0020	mg/L	0.0625	ND	97.5	80-120			
Cadmium	0.0639	0.0010	mg/L	0.0625	ND	102	80-120			
Chromium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120			
Copper	0.061	0.003	mg/L	0.0625	ND	97.6	80-120			
Lead	0.060	0.002	mg/L	0.0625	ND	96.7	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	104	80-120			
Nickel	0.062	0.003	mg/L	0.0625	ND	99.8	80-120			
Selenium	0.063	0.003	mg/L	0.0625	ND	100	80-120			
Thallium	0.0587	0.0020	mg/L	0.0625	ND	93.9	80-120			
Zinc	0.06	0.02	mg/L	0.0625	ND	103	80-120			





	-									
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5/	1/2020 19:11									
Mercury	0.0022	0.0005	mg/L	0.00250	ND	86.7	80-120			
Molybdenum	0.04	0.01	mg/L	0.0625	0.002	53.5	80-120			J5, M2
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120			
Arsenic	0.0711	0.0010	mg/L	0.0625	0.0079	101	80-120			J5
Barium	0.068	0.004	mg/L	0.0625	0.005	102	80-120			
Beryllium	0.0507	0.0020	mg/L	0.0625	0.0013	79.2	80-120			M2
Cadmium	0.0781	0.0010	mg/L	0.0625	0.0211	91.1	80-120			
Chromium	0.0631	0.0020	mg/L	0.0625	0.0007	99.8	80-120			
Copper	0.057	0.003	mg/L	0.0625	ND	90.8	80-120			
Lead	0.056	0.002	mg/L	0.0625	ND	89.1	80-120			
Lithium	0.20	0.02	mg/L	0.0625	0.15	87.1	80-120			
Nickel	1.03	0.003	mg/L	0.0625	1.10	NR	80-120			M3, E
Selenium	0.032	0.003	mg/L	0.0625	ND	50.5	80-120			M2
Thallium	0.0560	0.0020	mg/L	0.0625	0.0011	87.8	80-120			
Zinc	1.85	0.02	mg/L	0.0625	2.25	NR	80-120			M3, E
Matrix Spike Dup (B017542-MSD1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 4/2	28/2020 16:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	6.31	10.0	mg/L	6.25	ND	101	80-120	3.22	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	M4, D2, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, U
Cobalt	0.065	0.004	mg/L	0.0625	ND	104	80-120	2.02	20	, -
Matrix Spike Dup (B017542-MSD2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 4/2	28/2020 16:28									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	356	40.0	mg/L	6.25	382	NR	80-120	0.438	20	D2, M2
Iron	88.8	10.0	mg/L	6.25	96.5	NR	80-120	0.473	20	D2, M2
Magnesium	189	20.0	mg/L	6.25	197	NR	80-120	0.296	20	D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120	5.200	20	D2, M4, U
Sodium	106	26.0	mg/L	6.25	108	NR	80-120	0.573	20	D2, M4, 0
Cobalt	0.552	0.004	mg/L	0.0625	0.547	8.08	80-120	1.11	20	M3
Oodait	0.002	0.007	mg/L	0.0020	0.071	0.00	00 120	1.11	20	1010





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike Dup (B017542-MSD3)	Source: 0033742-01	I								
Prepared: 4/24/2020 11:25, Analyzed: 5/1.	/2020 18:52									
Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	2.84	20	
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.30	20	
Mercury	0.0024	0.0005	mg/L	0.00250	ND	97.5	80-120	5.63	20	
Arsenic	0.0650	0.0010	mg/L	0.0625	ND	104	80-120	0.685	20	J5
Barium	0.068	0.004	mg/L	0.0625	ND	108	80-120	2.25	20	
Beryllium	0.0616	0.0020	mg/L	0.0625	ND	98.6	80-120	1.15	20	
Cadmium	0.0655	0.0010	mg/L	0.0625	ND	105	80-120	2.55	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	1.38	20	
Copper	0.062	0.003	mg/L	0.0625	ND	99.0	80-120	1.42	20	
Lead	0.062	0.002	mg/L	0.0625	ND	99.0	80-120	2.37	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	106	80-120	2.61	20	
Nickel	0.064	0.003	mg/L	0.0625	ND	103	80-120	3.35	20	
Selenium	0.064	0.003	mg/L	0.0625	ND	103	80-120	2.12	20	
Thallium	0.0601	0.0020	mg/L	0.0625	ND	96.2	80-120	2.37	20	
Zinc	0.07	0.02	mg/L	0.0625	ND	105	80-120	1.77	20	
Matrix Spike Dup (B017542-MSD4)	Source: 0033743-01	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1	/2020 19:15									
Molybdenum	0.03	0.01	mg/L	0.0625	0.002	52.5	80-120	1.71	20	M2, J5
Mercury	0.0022	0.0005	mg/L	0.00250	ND	89.1	80-120	2.77	20	
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120	0.226	20	
Arsenic	0.0692	0.0010	mg/L	0.0625	0.0079	98.0	80-120	2.76	20	J5
Barium	0.068	0.004	mg/L	0.0625	0.005	100	80-120	1.30	20	
Beryllium	0.0493	0.0020	mg/L	0.0625	0.0013	76.8	80-120	2.91	20	M2
Cadmium	0.0793	0.0010	mg/L	0.0625	0.0211	93.1	80-120	1.59	20	
Chromium	0.0616	0.0020	mg/L	0.0625	0.0007	97.5	80-120	2.35	20	
Copper	0.055	0.003	mg/L	0.0625	ND	87.6	80-120	3.65	20	
Lead	0.055	0.002	mg/L	0.0625	ND	88.6	80-120	0.549	20	
Lithium	0.20	0.02	mg/L	0.0625	0.15	93.5	80-120	1.99	20	
Nickel	1.04	0.003	mg/L	0.0625	1.10	NR	80-120	1.31	20	M3, E
Selenium	0.031	0.003	mg/L	0.0625	ND	49.5	80-120	2.00	20	M2
Thallium	0.0555	0.0020	mg/L	0.0625	0.0011	87.0	80-120	0.916	20	
Zinc	1.87	0.02	mg/L	0.0625	2.25	NR	80-120	1.21	20	M3, E





	Repo	orting	Spike	Source		%REC		RPD	
Analyte	Result	Limit Unit	s Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2									
Post Spike (B017542-PS1)	Source: 0033742-01								
Prepared: 4/24/2020 11:25, Analyzed	1: 4/28/2020 16:31								
Boron	121	ug/	L 125	-1.32	96.8	75-125			D2
Calcium	6440	ug/	L 6250	3.49	103	75-125			D2
Iron	6150	ug/	L 6250	21.5	98.0	75-125			D2
Magnesium	6600	ug/	L 6250	1.11	106	75-125			D2
Potassium	5980	ug/	L 6250	9.01	95.6	75-125			D2
Cobalt	62.7	ug/	L 62.5	0.009	100	75-125			
Sodium	6720	ug/	L 6250	2.78	108	75-125			D2
Post Spike (B017542-PS2)	Source: 0033742-01								
Prepared: 4/24/2020 11:25, Analyzed	1: 5/1/2020 19:19								
Mercury	2.56	ug/	L 2.50	0.0710	99.4	75-125			
Molybdenum	65.7	ug/	L 62.5	0.03	105	75-125			
Antimony	71.0	ug/	L 62.5	0.107	113	75-125			
Arsenic	64.2	ug/	L 62.5	-0.0029	103	75-125			J5
Barium	67.2	ug/	L 62.5	0.037	107	75-125			
Beryllium	56.7	ug/	L 62.5	-0.0023	90.7	75-125			
Cadmium	63.6	ug/	L 62.5	0.0053	102	75-125			
Chromium	61.7	ug/	L 62.5	0.0998	98.6	75-125			
Copper	61.0	ug/	L 62.5	-1.66	97.6	75-125			
Lead	60.7	ug/	L 62.5	0.219	96.8	75-115			
Lithium	60.7	ug/	L 62.5	0.05	97.0	75-125			
Nickel	62.6	ug/	L 62.5	0.313	99.7	75-125			
Selenium	64.8	ug/	L 62.5	-0.002	104	75-125			
Thallium	58.9	ug/	L 62.5	0.0066	94.2	75-125			
Zinc	65.7	ug/	L 62.5	1.46	103	75-125			





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	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018047 - Default Prep Wet Cher	m									
Blank (B018047-BLK1)										
Prepared: 4/27/2020 10:24, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B018047-BS1)										
Prepared: 4/27/2020 10:28, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	1460	25	mg/L	1500		97.0	80-120			
Duplicate (B018047-DUP1)	Source: 0033745-01									
Prepared: 4/27/2020 11:52, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	716	50	mg/L		724			1.11	10	
Duplicate (B018047-DUP2)	Source: 0041174-01									
Prepared: 4/27/2020 11:56, Analyzed: 4	/28/2020 12:32									
Total Dissolved Solids	364	50	mg/L		372			2.17	10	
Batch B018081 - Default Prep Wet Cher	m									
Blank (B018081-BLK1)										
Prepared: 4/27/2020 16:41, Analyzed: 4	/27/2020 16:41									
Chemical Oxygen Demand	ND	8	mg/L							U
LCS (B018081-BS1)										
Prepared: 4/27/2020 16:41, Analyzed: 4	/27/2020 16:41									
Chemical Oxygen Demand	127	8	mg/L				90-110			
Duplicate (B018081-DUP1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	206	8	mg/L		210			1.84	25	
Matrix Spike (B018081-MS1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	416	8	mg/L	250	210	82.7	90-110			M2
Matrix Spike Dup (B018081-MSD1)	Source: 0040126-01									
Prepared: 4/27/2020 16:50, Analyzed: 4	/27/2020 16:50									
Chemical Oxygen Demand	414	8	mg/L	250	210	81.8	90-110	0.537	10	M2





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018086 - Default Prep Wet Chem										
Blank (B018086-BLK1)										
Prepared: 4/27/2020 14:54, Analyzed: 4/27/2	2020 14:54									
Specific Conductance (Lab)	ND	1	umhos/cm							U
LCS (B018086-BS1)										
Prepared: 4/27/2020 14:55, Analyzed: 4/27/2	2020 14:55									
Specific Conductance (Lab)	1410		umhos/cm	1410		99.8	80-120			
Duplicate (B018086-DUP1)	Source: 0033751-01									
Prepared: 4/27/2020 15:09, Analyzed: 4/27/2	2020 15:09									
Specific Conductance (Lab)	2980	1	umhos/cm		2990			0.0335	1.24	
Duplicate (B018086-DUP2)	Source: 0043793-01									
Prepared: 4/27/2020 15:27, Analyzed: 4/27/2	2020 15:27									
Specific Conductance (Lab)	1	1	umhos/cm		1			0.755	1.24	
Batch B018100 - Default Prep Wet Chem										
Blank (B018100-BLK1)										
Prepared: 5/1/2020 18:21, Analyzed: 5/1/2020	20 18:21									
Total Organic Carbon	ND	0.5	mg/L							U
LCS (B018100-BS1)										
Prepared: 5/1/2020 18:43, Analyzed: 5/1/202	20 18:43									
Total Organic Carbon	5.0	0.5	mg/L	5.00		101	80-120			
Duplicate (B018100-DUP1)	Source: 0033748-01									
Prepared: 5/2/2020 0:07, Analyzed: 5/2/202	20 0:07									
Total Organic Carbon	2.0	0.5	mg/L		2.0			0.0293	25	
Duplicate (B018100-DUP2)	Source: 0033758-01									
Prepared: 5/2/2020 4:27, Analyzed: 5/2/202	20 4:27									
Total Organic Carbon	2.8	0.5	mg/L		2.8			0.410	25	
Matrix Spike (B018100-MS1)	Source: 0033749-01									
Prepared: 5/2/2020 0:29, Analyzed: 5/2/202										
Total Organic Carbon	10.7	0.5	mg/L	2.50	8.2	101	80-120			



Result Result Limit Units Limit Units Limit Units Limit Units Limit WREC Limits RPD Limit Notes			-	-			-				
Batch B018100 - Default Prep Wet Chem Matrix Spike (B018100 - MS2) Source: 0033759-01 Prepared: 5/2/2020 4.49, Analyzed: 5/2/2020 4.49 Total Organic Carbon 3.6 0.5 mg/L 5.00 0.4 65.0 80-120 M2 Batch B018391 - Default Prep Wet Chem Biank (B018391 - Befault Prep Wet Chem Biank (B0183			Reporting		Spike	Source		%REC		RPD	
Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020 4:49	Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Prepared: Si/22020 4:49, Analyzed: Si/22020 4:49 Total Organic Carbon 3,6 0,5 mg/L 5,00 0,4 65.0 80-120 M2 Batch B018391 - Default Prep Wet Chem Blank (8018391-BLK1) Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:33 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U U Total Alkalinity as CaCO3 ND 4 mg/L U U U U U U U U U U U U U U U U U U U	Batch B018100 - Default Prep Wet Chem										
Total Arganic Carbon 3.6 0.5 mg/L 5.00 0.4 65.0 80-120 M2 Batch B018391 - Default Prep Wet Chem Blank (B018391-BLK1) Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:33 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	Matrix Spike (B018100-MS2)	Source: 0033759-01									
Blank (B018391 - Dufault Prep Wet Chem Blank (B018391 - Dufault Prep Wet Chem Blank (B018391 - Dufault Prep Wet Chem Blank (B018391 - Dufault Prep Wet Chem Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:35 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Blank (B018391 - BLK2) Prepared: 4/29/2020 13:03, Analyzed: 4/29/2020 13:03 Total Alkalinity ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Blank (B018391 - BLK3) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Total Alkalinity ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L O Carbonate Alkalinity as CaCO3 ND 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020	4:49									
Blank (B018391-BLK1) Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:30 ND	Total Organic Carbon	3.6	0.5	mg/L	5.00	0.4	65.0	80-120			M2
Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:33	Batch B018391 - Default Prep Wet Chem										
Bicarbonate Alkalinity as CaCO3	Blank (B018391-BLK1)										
Carbonate Alkalinity as CaCO3	Prepared: 4/29/2020 11:33, Analyzed: 4/29/20	20 11:33									
Total Alkalinity ND 4 mg/L	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK2) Prepared: 4/29/2020 13:03, Analyzed: 4/29/2020 13:03 ND	Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Prepared: 4/29/2020 13:03, Analyzed: 4/29/2020 13:03 Total Alkalinity	Total Alkalinity	ND	4	mg/L							U
Total Alkalinity ND	Blank (B018391-BLK2)										
Carbonate Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Blank (B018391-BLK3) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Total Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Total Alkalinity 235 99.8 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 235 99.8 80-120 Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity as CaCO3 ND 4 mg/L 235 106 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Carbonate Alkalinity 3 CaCO3 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	Prepared: 4/29/2020 13:03, Analyzed: 4/29/2020	20 13:03									
Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U	Total Alkalinity	ND	4	mg/L							U
Blank (B018391-BLK3) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Total Alkalinity	Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Total Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Total Alkalinity as CaCO3 ND 4 mg/L 235 99.8 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity as CaCO3 ND 4 mg/L 225 103 0-200 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity ND	Blank (B018391-BLK3)										
Carbonate Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Total Alkalinity as CaCO3 ND 4 mg/L 235 99.8 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020	20 15:33									
Bicarbonate Alkalinity as CaCO3 ND 4 mg/L LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Total Alkalinity 235 99.8 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	Total Alkalinity	ND	4	mg/L							U
LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Total Alkalinity 235 4 mg/L 235 99.8 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Total Alkalinity 235 4 mg/L 235 99.8 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity as CaCO3 ND 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity 235 4 mg/L 235 99.8 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	LCS (B018391-BS1)										
Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020	20 12:58									
Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	Total Alkalinity	235	4	mg/L	235		99.8	80-120			
LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	Carbonate Alkalinity as CaCO3	232	4	mg/L	225		103	0-200			
Total Alkalinity 250 4 mg/L 235 106 80-120 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	LCS (B018391-BS2)										
Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020	20 15:29									
3	Total Alkalinity	250	4	mg/L	235		106	80-120			
Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
	Carbonate Alkalinity as CaCO3	230	4	mg/L	225		102	0-200			



Source		%REC		RPD	
Result 9	%REC	Limits	RPD	Limit	Notes
301				10	U
301			2.43	10	
ND				10	
394			2.01	10	
ND				10	U
394			2.01	10	
22	77.0	80-120			M2
394	37.5	80-120			М3
					U
	102	80-120			
200			6.76	10	
200	116	80-120			
	301 301 ND 394 ND 394 22 394	Result %REC 301 301 ND 394 ND 394 22 77.0 394 37.5	Result %REC Limits 301 301 301 ND 394 ND 394 22 77.0 80-120 394 37.5 80-120 102 80-120	Result %REC Limits RPD 301 2.43 301 2.43 ND 2.01 394 2.01 ND 394 22 77.0 80-120 394 37.5 80-120 102 80-120 200 6.76	Result %REC Limits RPD Limit 301 10 10 301 2.43 10 ND 10 10 394 2.01 10 ND 10 10 394 2.01 10 22 77.0 80-120





Ion Chromatography Madisonville - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018474 - Default Prep IC										
Blank (B018474-BLK1)										
Prepared: 5/2/2020 1:02, Analyzed: 5/2/2020	1:02									
Chloride	ND	0.5	mg/L							U
Sulfate	ND	1.0	mg/L							U
Fluoride	ND	0.20	mg/L							U
LCS (B018474-BS1)										
Prepared: 5/2/2020 0:42, Analyzed: 5/2/2020	0 0:42									
Chloride	9.7		mg/L	10.0		97.0	90-110			
Sulfate	10.0		mg/L	10.0		99.9	90-110			
Fluoride	9.60		mg/L	10.0		96.0	90-110			
Matrix Spike (B018474-MS1)	Source: 0033759-01									
Prepared: 5/2/2020 9:35, Analyzed: 5/2/2020	9:35									
Chloride	552		mg/L	10.0	1170	NR	80-120			M2
Fluoride	1.75		mg/L	10.0	0.24	15.1	80-120			M2
Sulfate	627		mg/L	10.0	2710	NR	80-120			M2
Matrix Spike Dup (B018474-MSD1)	Source: 0033759-01									
Prepared: 5/2/2020 9:56, Analyzed: 5/2/2020	9:56									
Sulfate	640		mg/L	10.0	2710	NR	80-120	2.10	20	M2
Fluoride	1.81		mg/L	10.0	0.24	15.7	80-120	3.09	20	M2
Chloride	558		mg/L	10.0	1170	NR	80-120	1.05	10	M2

Certifications Analyte

KY Drinking Water Mdv (00030) Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Total Alkalinity

2340 C (as HACH 8226) in Water

KY Drinking Water Mdv (00030) Hardness as CaCO3

2510 B-2011 in Water

KY Drinking Water Mdv (00030) Specific Conductance (Lab)

2540 C-2011 in Water

KY Drinking Water Mdv (00030) **Total Dissolved Solids**

5310 C-2011 in Water

KY Drinking Water Mdv (00030) Total Organic Carbon

EPA 300.0 REV 2.1 in Water

KY Drinking Water Mdv (00030) Chloride KY Drinking Water Mdv (00030) Fluoride KY Drinking Water Mdv (00030) Sulfate

HACH 8000 in Water

KY Wastewater Mdv (00030) Chemical Oxygen Demand

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0033759
Shipped By: Client	Temperature: 3.90° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	
Check if Collector Signature Present	$oldsymbol{arDelta}$
Check if bottles are intact	
Check if bottles are correct	$oldsymbol{arDelta}$
Check if bottles have sufficient volume	
Check if samples received on ice	$oldsymbol{arDelta}$
Check if VOA headspace is acceptable	
Check if samples received in holding time.	
Check if samples are preserved properly	

Chain of Custody

Scheduled for: <u>03/02/2020</u>



	L			J			
Client: Big Rivers Electric Corporation Wilson Station Project: Well Duplicate Wilson 092-00004	Station Mike Galbraith PO Box 24	1	orporation Wilson	Invoice To: Big Rivers Electric Corporation Wilson Station Brian Edwards PO Box 24			
	Henderson, K			Henderson,		<u>6</u>	
Please Print Legibly	PWS ID#: State:	Kt	_	Quote#			
Collected by (Signature):	al .			Compli	ance Monito	oring? Yes X No	
required	information			Sample	es Chlorinate	ed? Yes No	
*For composite samples please indicate begin time,							
Influent: Start Date Start time							
Effluent: Start Date Start time	End Date	E	End Time	Temp (oC)			
MMLI USE ONLY *required information* Workorder # Date Collection 0033759 (mm/dd/yy): Time (24 hr): Bo Sample ID# /	ttle and Preservative	Containers	Sample Description	Composite	Samp	ele Analysis Requested	
0033759-01 A 4/33/20 0830	Plastic 1L	1	Well Duplicate	g/c	Alkalinity T	Total Chloride 300.0	
1/2/ 0000	Plastic 500mL pH<2 w/HNO3	1	Well Duplicate	g/c	Sulfate 300 TDS Alkali Arsenic To	ity (Lab) Fluoride 300.0 0.0 Alkalinity Bicarbonate inity Carbonate of 6020 Antimony Tot 6020 t 6020 Iron Tot 6010B	
,/ / Pres	ervation Check: pH:				Titration Be Tot 6010B Calcium To 6020 Sodie	Tot 6020 Hardness eryllium Tot 6020 Boron Cadmium Tot 6020 ot 6010B Chromium Tot um Tot 6010B Lead Tot um Tot 6020 Mercury Tot	
	Plastic 500mL pH<2 w/H2SO4 servation Check: pH:	1 	Well Duplicate	g / c.	COD TOC		
0033759-01 D <u>4//23/30</u> 0830 Plas	stic 1L pH<2 w/HNO3 Rad 226 (Sub) ervation Check: pH:	1	Well Duplicate	g/c	Radium 22	26 (sub)	
	1	•				· · · · · · · · · · · · · · · · · · ·	
Field data collected by: Tran's Snec	Date (mm/dd/yy)	4/2	3/20 Time (24 hr)	0830			
pH 631 Cond (umho) 5,89	Res Cl (mg/L)		Tot CI (mg/L)		e CI (mg/L)		
	_ Static Water Level		DO (mg/L) _	т	urb. (NTU)		
Flow (MGD) or (CFS)							
Relinquished by: (Signature)	Received by: (Sign	ature)		Date (mm/		Time (24 hr)	
Luca L	assey		ih	<u>4-23</u>		/325	
PACE- Check here if trip charge applied to	to associated COC		Printed:	3/27/2020 1:56	:51PM	Page 18 of 30	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>03/02/2020</u>



Page 19 of 30

Client: Big Rivers Electric Station	Corporation Wilson	Station	Big Rivers Electric Corporation Wilson Station			Invoice To: Big Rivers Electric Corporation Wilson Station				
Project: Well Duplicate Wi	ison 092-00004	Mike Galbraith PO Box 24		Brian Edwards PO Box 24						
		Henderson, KY 424	119	Henderson,	KY 42419					
		Phone: (270) 844-6	000	PO#: 25	8508-6	<u>,</u>				
Please Print Legibly		State:	<u>/</u>	Quote#		=				
Collected by (Signature):	of me	See of		Compli	ance Monitor	ing? Yes 🗶 No _				
	•	d information*				d? Yes No				
For composite samples plea	ase indicate begin time	e, end time and temp(oC) at e	nd time below:							
nfluent: Start Date	Start time	End Date	End Time	Temp (oC)						
ffluent: Start Date	Start time	End Date	End Time	Temp (oC)						
Norkorder # Date 0033759 (mm/dd/y	d information* Collection y): Time (24 hr): B	sottle and Preservative	Sample Description	Composite	Sample	e Analysis Requested				
Sample ID#	0020		Well Dunlicate	0/0	Radium 228					
033759-01 E <u>4/23/22</u>		astic 1L pH<2 w/HNO3 1 Rad 228 (Sub) eservation Check: pH :	Well Duplicate / -	g/c	Radiuiii 220	s (sub)				
033759-01 F <u>4/21/20</u>		astic 1L pH<2 w/HNO3 1 Rad 228 (Sub) eservation Check: pH:	Well Duplicate	g / c	Radium 228	3 (sub)				
033759-01 G 4/23/2	0 ~ 20	astic 1L pH<2 w/HNO3 1	– Well Duplicate	g/c	Radium Tota	al (sub)				
033759-01 G 779579		(Sub) eservation Check: pH:	•	gro	radiani rot	ur (505)				
Preservation Check Perfor Field data collected by:	med by:/		23/20 Time (24 hr)							
			Tot CI (mg/L) _							
emp (oC) 15,69		Static Water Level	DO (mg/L) _	T	urb. (NTU) _					
Flow (MGD)	or (CFS)	or (g/min)								
Relinquished by: (Signature)	1	Received by: (Signature	*)	Date (mm	/dd/yy)	Time (24 hr)				
No.	al al	appryta	uh	4-2	3-20	1325				
· som /		- 				-				
PACE- Check here	if trip charge applie	d to associated COC	Printed:	3/27/2020 1:56	:51PM	Page 10 of 3				

(724)850-5600



May 19, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 33759

Pace Project No.: 30360657

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 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,

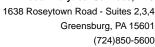
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 33759
Pace Project No.: 30360657

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

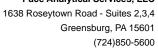
South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

REPORT OF LABORATORY ANALYSIS



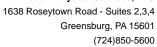


SAMPLE SUMMARY

Project: 33759
Pace Project No.: 30360657

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30360657001	0033759-01	Water	04/23/20 08:30	04/28/20 09:10

REPORT OF LABORATORY ANALYSIS





SAMPLE ANALYTE COUNT

Project: 33759
Pace Project No.: 30360657

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30360657001	0033759-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

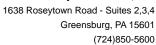


ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 33759
Pace Project No.: 30360657

Sample: 0033759-01 PWS:	Lab ID: 3036 Site ID:	0657001 Collected: 04/23/20 08:30 Sample Type:	Received:	04/28/20 09:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 903.1	0.174 ± 0.372 (0.612) C:NA T:87%	pCi/L	05/18/20 15:36	3 13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	1.39 ± 0.533 (0.818) C:72% T:87%	pCi/L	05/15/20 15:51	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.56 ± 0.905 (1.43)	pCi/L	05/19/20 08:36	6 7440-14-4	

REPORT OF LABORATORY ANALYSIS





QUALITY CONTROL - RADIOCHEMISTRY

Project:

33759

Pace Project No.:

30360657

QC Batch: QC Batch Method: 394311

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

30360657001

METHOD BLANK: 1909693

Matrix: Water

Associated Lab Samples:

30360657001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

-0.255 ± 0.240 (0.532) C:NA T:97%

pCi/L

05/18/20 15:36

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 - RADIOCHEMISTRY

Project: 33759 Pace Project No.:

30360657

QC Batch:

QC Batch Method:

394310

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360657001

METHOD BLANK: 1909692

Matrix: Water

Associated Lab Samples:

30360657001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

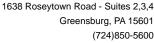
Radium-228

0.175 ± 0.287 (0.624) C:79% T:85%

pCi/L

05/15/20 15:53

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.





QUALIFIERS

Project: 33759
Pace Project No.: 30360657

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.

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: 05/19/2020 08:37 AM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

730360657 WOW

Chain of Custody

Water to					***************************************	LAB USE ONLY	001	-											
Results Requested By:	Analysis															Comments			
	Requested Analysis																		
Owner Received Date: 4/23/2020		ole⊃ mu2 n)6 A		XX						******			Date/Time	Absto ceuo	1 1	
		nsburg P/	•	Preserved	Matrix		Water									٨	Mes		
Well Duplicate Wilson 092	t To:	Pace Analytical Services LLC Greensburg P/ 1638 Rosey Town Rd Suite 2,3,4	Greensburg, PA 15601 (724) 850-5615		Lab ID		IR44-McCoy									Time Reveived By	I GIVE	,	_
Workorder Name:	Subcontract To:	Pace Analy 1638 Rose	Greensburg, PA (724) 850-5615	Collect	Date/Time		04/23/20 08:30									Date/Tin			
Wo				Sample Collect	Type														
Workorder: 33759	rt To:	McCoy & McCoy Labs P.O. Box 907	Madisonville, KY 42409 270-821-7375	r.waittington@mccoylabs.com	Item Sample ID		0033759-01									Transfers Released By			
	Report To:	McCo P.O. E	Madi: 270-8		Item	1	2	3	4	5	9	2	8	6	10	Trans	m	7	m

4	Sample Intact Y or N	this COC	
	Samp	vided on	
	Y/or N	re may not be pro	
	Received on Ice Y or N	name of the sampling site, sampler's name and signature may not be provided on this COC	this information is available in the owner laboratory.
(or/N	samp	ation i
	Custody Seal Y or/N	ocation/name of the	is since this informa
	ۍ, <u>۲′</u> ۲	onfidentiality, lo	red complete as
	Cooler Temperature on Receipt	***In order to maintain client confidentiality, location/	This chain of custody is considered complete as is since

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

#_30360657

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0033759

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431

Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601

Phone: (724) 850-5615

Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0033759-01	Water	Sampled:04/23/2020 08:30	Specific Method		•
Radium Total (sub)		10/20/2020 08:30	EPA 904.0 Radium S	Sum (
Radium 228 (sub)		10/20/2020 08:30	EPA 904.0 Radium S	Sum C	
Radium 226 (sub)		10/20/2020 08:30	EPA 903.1		

Released/By Date Received By Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condit	ion l	Jpor	Red	ceipt
Page Analytical Client Name:	D		_	Project # # 3 0 3 6 0 6 5 7
Pace Analytical Client Name:	<u> </u>	166		Project #
				- I OM
	Lb	omme	rcial	- / 36 /
		-		
Custody Seal on Cooler/Box Present:			-	_
Thermometer Used	Type			
Cooler Temperature Observed Temp	<u> </u>	. ° C	Corre	ection Factor: <u>'U, S</u> °C Final Temp: <u>d i /</u> °C
Temp should be above freezing to 6°C				nH namer Lotti
Communitary	Voc	No	N/A	INTUIGI contents: USM 4/28/2020
	168	140	IVA	
		 		
		-		
	1		-	
		 	<u> </u>	
	1		<u> </u>	jo.
	T		Ī	
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	 		-	
stocky Seal on Cooler/Box Present:				
		-		
				10.
	 			
			_	
	<u></u>			
	 	 		
			_	
All containers have been checked for preservation.	 	_		
exceptions: VOA. coliform, TOC, O&G, Phenolics.	Radon	L		$\int_{0}^{\infty} DHC2$
Non-aqueous matrix				<i>P</i>
All containers meet method preservation				
nedunerne ns.	Ľ	L	L	
	1	ı	l	preservative
Headspace in VOA Vials (>6mm):	ļ			17.
Trip Blank Present:				{ }
Trip Blank Custody Seals Present				
Rad Samples Screened < 0.5 interior				
Client Notification/ Resolution:				, ,
			-Date/-	Fime:Gontacted By:
Comments/ Resolution:				
A check in this box indicates that additional controls.	iorai	Info-	nafia-	has been stored in ereports
— A Check in this Dox maicages that addit	uviidi		(CUDI)	i into poort aminet ili atabates:

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0033742

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419 Customer ID: Report Printed:

44-100168 05/29/2020 13:40

Project Name:

Field Blank Wilson 092-00004

Workorder: 0033742

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 04/23/2020 13:25.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
0033742-01	Field Blank/	Water	04/23/2020 08:45	04/23/2020 13:25	Travis Sneed

Work Order Comments:

Corrected Report:

This report has been issued as a revision of the previous report dated 5/20/20@0922. Cobalt result added to report.



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

Lab Sample ID: 0033742-01 Sample Collection Date Time: 04/23/2020 08:45
Description: Field Blank Sample Received Date Time: 04/23/2020 13:25

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Arsenic	ND	U	mg/L	0.0010	0.0004	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Barium	ND	U	mg/L	0.004	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Boron	ND	M4, U	mg/L	0.10	0.10	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:06	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Calcium	ND	M4, U	mg/L	0.40	0.13	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:06	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Copper	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Iron	ND	U	mg/L	0.100	0.050	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:06	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Lithium	ND	U	mg/L	0.02	0.005	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Magnesium	ND	U	mg/L	0.200	0.090	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:06	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	04/24/2020 11:25	05/02/2020 16:58	DMH
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Nickel	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Potassium	ND	M4, U	mg/L	0.50	0.22	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:06	AKB
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Sodium	ND	U	mg/L	0.26	0.10	SW846 6010 B	04/24/2020 11:25	04/28/2020 13:06	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	04/24/2020 11:25	05/01/2020 17:32	DMH

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	04/29/2020 11:47	04/29/2020 11:47	HMF
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	04/29/2020 11:47	04/29/2020 11:47	HMF
Total Alkalinity	ND	U	mg/L	4		2320 B-2011	04/29/2020 11:47	04/29/2020 11:47	HMF
Chemical Oxygen Demand	ND	U	mg/L	8	8	HACH 8000	04/27/2020 15:25	04/27/2020 15:25	ALT
Specific Conductance (Lab)	4		umhos/cm	1	1	2510 B-2011	04/27/2020 14:56	04/27/2020 14:56	GAT
Hardness as CaCO3	30		mg/L	1	1	2340 C (as HACH 8226)	05/04/2020 11:06	05/04/2020 11:06	CLL
Total Dissolved Solids	76		mg/L	50	50	2540 C-2011	04/27/2020 09:05	04/28/2020 12:15	MAG
Total Organic Carbon	0.5		mg/L	0.5		5310 C-2011	05/01/2020 19:26	05/01/2020 19:26	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	-0.103	_Sub	pCi/L			EPA 903.1	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium-228	0.007	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW
Radium	0.007	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	05/19/2020 09:27	05/19/2020 09:29	RCW





Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	ND	M1, Y2, U	mg/L	0.5	0.4	EPA 300.0 REV 2.1	05/01/2020 16:11	05/01/2020 16:11	CSC
Fluoride	ND	M1, Y2, U	mg/L	0.20		EPA 300.0 REV 2.1	05/01/2020 16:11	05/01/2020 16:11	CSC
Sulfate	ND	M1, Y2, U	mg/L	1.0	0.5	EPA 300.0 REV 2.1	05/01/2020 16:11	05/01/2020 16:11	CSC



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Notes for work order 0033742

- Samples collected by MMLI personnel are done so in accordance with procedures set forth in MMLI field services SOPs.
- Results contained in this report are only representative of the samples received.
- MMLI does not provide interpretation of these results unless otherwise stated.
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.
 Concentrations reported are estimated values.

Qualifiers

_Sub	See subcontractors report.	
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D2 Sample required dilution due to matrix interference.

E Concentration exceeds calibration range

J Estimated value.

J5 Concentration estimated. Internal standard recoveries did not meet method acceptance criteria.

L2 The associated blank spike recovery was below method acceptance limits.

M1 Matrix spike recovery was high; the method control sample recovery was acceptable.

M2 Matrix spike recovery was low; the method control sample recovery was acceptable.

M3 The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is

 $\label{thm:control} \mbox{disproportionate to spike level. The method control sample recovery was acceptable.}$

M4 The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the

reporting limit. The method control sample recovery was acceptable.

M6 Matrix spike recovery was high.

U Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the

laboratory method detection limit in our LIMS system).

Sample RPD exceeded the method control limit.

Y2 MS/MSD RPD exceeded the method control limit. Recovery met acceptance criteria.

Standard Qualifiers/Acronymns

MDL Method Detection Limit
MRL Minimum Reporting Limit

ND Not Detected

Y1

LCS Laboratory Control Sample

MS Matrix Spike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

> Greater than
< Less than



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Blank (B017542-BLK1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/2020 12:	50									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Cobalt	ND	0.004	mg/L							U
Blank (B017542-BLK2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2020 17:0	9									
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.001	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U
Blank (B017542-BLK3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/2020 16:5	0									
Mercury	ND	0.0005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Copper	0.002	0.003	mg/L							J
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





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	5 "	Reporting		Spike	Source	0/ 550	%REC	222	RPD	.
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
LCS (B017542-BS1)										
Prepared: 4/24/2020 11:25, Analyzed: 4/28/20	020 12:53									
Boron	0.13	0.10	mg/L	0.125		106	85-115			
Calcium	6.57	0.40	mg/L	6.25		105	85-115			
Iron	6.39	0.100	mg/L	6.25		102	85-115			
Magnesium	5.72	0.200	mg/L	6.25		91.5	85-115			
Potassium	6.62	0.50	mg/L	6.25		106	85-115			
Cobalt	0.054	0.004	mg/L	0.0625		85.7	85-115			
Sodium	6.47	0.26	mg/L	6.25		103	85-115			
LCS (B017542-BS2)										
Prepared: 4/24/2020 11:25, Analyzed: 5/1/202	20 17:13									
Molybdenum	0.05	0.01	mg/L	0.0625		86.2	85-115			
Antimony	0.058	0.005	mg/L	0.0625		93.6	85-115			
Mercury	0.0020	0.0005	mg/L	0.00250		79.8	85-115			L2
Arsenic	0.0537	0.0010	mg/L	0.0625		85.9	85-115			
Barium	0.054	0.004	mg/L	0.0625		86.5	85-115			
Beryllium	0.0495	0.0020	mg/L	0.0625		79.2	85-115			M2
Cadmium	0.0533	0.0010	mg/L	0.0625		85.3	85-115			
Chromium	0.0535	0.0020	mg/L	0.0625		85.5	85-115			
Copper	0.054	0.003	mg/L	0.0625		86.7	85-115			
Lead	0.051	0.002	mg/L	0.0625		81.1	85-115			L2
Lithium	0.05	0.02	mg/L	0.0625		82.7	85-115			L2
Nickel	0.053	0.003	mg/L	0.0625		85.3	85-115			
Selenium	0.053	0.003	mg/L	0.0625		85.4	85-115			
Thallium	0.0495	0.0020	mg/L	0.0625		79.1	85-115			L2
Zinc	0.05	0.02	mg/L	0.0625		86.2	85-115			
LCS (B017542-BS3)										
Prepared: 4/24/2020 11:25, Analyzed: 5/2/202	20 16:54									
Antimony	0.069	0.005	mg/L	0.0625		110	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		110	85-115			
Mercury	0.0026	0.0005	mg/L	0.00250		102	85-115			
Arsenic	0.0651	0.0010	mg/L	0.0625		104	85-115			
Barium	0.065	0.004	mg/L	0.0625		105	85-115			
Beryllium	0.0624	0.0020	mg/L	0.0625		99.8	85-115			
Cadmium	0.0652	0.0010	mg/L	0.0625		104	85-115			
Chromium	0.0645	0.0020	mg/L	0.0625		103	85-115			
Copper	0.066	0.003	mg/L	0.0625		106	85-115			
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.06	0.02	mg/L	0.0625		101	85-115			
			_							
			_							
Nickel Selenium Thallium Zinc	0.064 0.065 0.0650 0.07	0.003 0.003 0.0020 0.02	mg/L mg/L mg/L mg/L	0.0625 0.0625 0.0625 0.0625		103 103 104 105	85-115 85-115 85-115 85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	: 4/28/2020 16:18									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	6.11	10.0	mg/L	6.25	ND	97.8	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.064	0.004	mg/L	0.0625	ND	102	80-120			
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, U
Matrix Spike (B017542-MS2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed:	4/28/2020 16:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	357	40.0	mg/L	6.25	382	NR	80-120			D2, M2
Iron	89.2	10.0	mg/L	6.25	96.5	NR	80-120			D2, M2
Magnesium	190	20.0	mg/L	6.25	197	NR	80-120			D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Cobalt	0.546	0.004	mg/L	0.0625	0.547	NR	80-120			M3
Sodium	107	26.0	mg/L	6.25	108	NR	80-120			D2
Matrix Spike (B017542-MS3)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed:	5/1/2020 18:48									
Molybdenum	0.07	0.01	mg/L	0.0625	ND	104	80-120			
Antimony	0.071	0.005	mg/L	0.0625	ND	113	80-120			
Mercury	0.0023	0.0005	mg/L	0.00250	ND	92.2	80-120			
Arsenic	0.0646	0.0010	mg/L	0.0625	ND	103	80-120			J5
Barium	0.066	0.004	mg/L	0.0625	ND	106	80-120			
Beryllium	0.0609	0.0020	mg/L	0.0625	ND	97.5	80-120			
Cadmium	0.0639	0.0010	mg/L	0.0625	ND	102	80-120			
Chromium	0.0633	0.0020	mg/L	0.0625	ND	101	80-120			
Copper	0.061	0.003	mg/L	0.0625	ND	97.6	80-120			
Lead	0.060	0.002	mg/L	0.0625	ND	96.7	80-120			
Lithium	0.06	0.02	mg/L	0.0625	ND	104	80-120			
Nickel	0.062	0.003	mg/L	0.0625	ND	99.8	80-120			
Selenium	0.063	0.003	mg/L	0.0625	ND	100	80-120			
Thallium	0.0587	0.0020	mg/L	0.0625	ND	93.9	80-120			
Zinc	0.06	0.02	mg/L	0.0625	ND	103	80-120			





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		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike (B017542-MS4)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 5/	1/2020 19:11									
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120			
Mercury	0.0022	0.0005	mg/L	0.00250	ND	86.7	80-120			
Molybdenum	0.04	0.01	mg/L	0.0625	0.002	53.5	80-120			J5, M2
Arsenic	0.0711	0.0010	mg/L	0.0625	0.0079	101	80-120			J5
Barium	0.068	0.004	mg/L	0.0625	0.005	102	80-120			
Beryllium	0.0507	0.0020	mg/L	0.0625	0.0013	79.2	80-120			M2
Cadmium	0.0781	0.0010	mg/L	0.0625	0.0211	91.1	80-120			
Chromium	0.0631	0.0020	mg/L	0.0625	0.0007	99.8	80-120			
Copper	0.057	0.003	mg/L	0.0625	ND	90.8	80-120			
Lead	0.056	0.002	mg/L	0.0625	ND	89.1	80-120			
Lithium	0.20	0.02	mg/L	0.0625	0.15	87.1	80-120			
Nickel	1.03	0.003	mg/L	0.0625	1.10	NR	80-120			M3, E
Selenium	0.032	0.003	mg/L	0.0625	ND	50.5	80-120			M2
Thallium	0.0560	0.0020	mg/L	0.0625	0.0011	87.8	80-120			
Zinc	1.85	0.02	mg/L	0.0625	2.25	NR	80-120			M3, E
Matrix Spike Dup (B017542-MSD1)	Source: 0033742-01									
Prepared: 4/24/2020 11:25, Analyzed: 4/2	28/2020 16:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	6.31	10.0	mg/L	6.25	ND	101	80-120	3.22	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, U
Cobalt	0.065	0.004	mg/L	0.0625	ND	104	80-120	2.02	20	
Matrix Spike Dup (B017542-MSD2)	Source: 0033743-01									
Prepared: 4/24/2020 11:25, Analyzed: 4/2	28/2020 16:28									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	356	40.0	mg/L	6.25	382	NR	80-120	0.438	20	D2, M2
Iron	88.8	10.0	mg/L	6.25	96.5	NR	80-120	0.473	20	D2, M2
Magnesium	189	20.0	mg/L	6.25	197	NR	80-120	0.296	20	D2
Potassium	ND	50.0	mg/L	6.25	ND		80-120	5.200	20	D2, M4, U
Sodium	106	26.0	mg/L	6.25	108	NR	80-120	0.573	20	D2, W4, O
Cobalt	0.552	0.004	mg/L	0.0625	0.547	8.08	80-120	1.11	20	M3
Oodait	0.002	0.007	mg/L	0.0020	0.071	0.00	00 120	1.11	20	IVIO





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		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2										
Matrix Spike Dup (B017542-MSD3)	Source: 0033742-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2	2020 18:52									
Mercury	0.0024	0.0005	mg/L	0.00250	ND	97.5	80-120	5.63	20	
Antimony	0.073	0.005	mg/L	0.0625	ND	116	80-120	2.84	20	
Molybdenum	0.07	0.01	mg/L	0.0625	ND	106	80-120	2.30	20	
Arsenic	0.0650	0.0010	mg/L	0.0625	ND	104	80-120	0.685	20	J5
Barium	0.068	0.004	mg/L	0.0625	ND	108	80-120	2.25	20	
Beryllium	0.0616	0.0020	mg/L	0.0625	ND	98.6	80-120	1.15	20	
Cadmium	0.0655	0.0010	mg/L	0.0625	ND	105	80-120	2.55	20	
Chromium	0.0642	0.0020	mg/L	0.0625	ND	103	80-120	1.38	20	
Copper	0.062	0.003	mg/L	0.0625	ND	99.0	80-120	1.42	20	
Lead	0.062	0.002	mg/L	0.0625	ND	99.0	80-120	2.37	20	
Lithium	0.07	0.02	mg/L	0.0625	ND	106	80-120	2.61	20	
Nickel	0.064	0.003	mg/L	0.0625	ND	103	80-120	3.35	20	
Selenium	0.064	0.003	mg/L	0.0625	ND	103	80-120	2.12	20	
Thallium	0.0601	0.0020	mg/L	0.0625	ND	96.2	80-120	2.37	20	
Zinc	0.07	0.02	mg/L	0.0625	ND	105	80-120	1.77	20	
Matrix Spike Dup (B017542-MSD4)	Source: 0033743-0	1								
Prepared: 4/24/2020 11:25, Analyzed: 5/1/2	2020 19:15									
Antimony	0.069	0.005	mg/L	0.0625	ND	111	80-120	0.226	20	
Molybdenum	0.03	0.01	mg/L	0.0625	0.002	52.5	80-120	1.71	20	J5, M2
Mercury	0.0022	0.0005	mg/L	0.00250	ND	89.1	80-120	2.77	20	,
Arsenic	0.0692	0.0010	mg/L	0.0625	0.0079	98.0	80-120	2.76	20	J5
Barium	0.068	0.004	mg/L	0.0625	0.005	100	80-120	1.30	20	
Beryllium	0.0493	0.0020	mg/L	0.0625	0.0013	76.8	80-120	2.91	20	M2
Cadmium	0.0793	0.0010	mg/L	0.0625	0.0211	93.1	80-120	1.59	20	
Chromium	0.0616	0.0020	mg/L	0.0625	0.0007	97.5	80-120	2.35	20	
Copper	0.055	0.003	mg/L	0.0625	ND	87.6	80-120	3.65	20	
Lead	0.055	0.002	mg/L	0.0625	ND	88.6	80-120	0.549	20	
Lithium	0.20	0.02	mg/L	0.0625	0.15	93.5	80-120	1.99	20	
Nickel	1.04	0.003	mg/L	0.0625	1.10	NR	80-120	1.31	20	M3, E
Selenium	0.031	0.003	mg/L	0.0625	ND	49.5	80-120	2.00	20	M2
Thallium	0.0555	0.0020	mg/L	0.0625	0.0011	87.0	80-120	0.916	20	
Zinc	1.87	0.02	mg/L	0.0625	2.25	NR	80-120	1.21	20	M3, E





	Repor	rting	Spike	Source		%REC		RPD	
Analyte	Result L	Limit Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B017542 - EPA 200.2									
Post Spike (B017542-PS1)	Source: 0033742-01								
Prepared: 4/24/2020 11:25, Analyzed:	: 4/28/2020 16:31								
Boron	121	ug/L	125	-1.32	96.8	75-125			D2
Calcium	6440	ug/L	6250	3.49	103	75-125			D2
Iron	6150	ug/L	6250	21.5	98.0	75-125			D2
Magnesium	6600	ug/L	6250	1.11	106	75-125			D2
Potassium	5980	ug/L	6250	9.01	95.6	75-125			D2
Sodium	6720	ug/L	6250	2.78	108	75-125			D2
Cobalt	62.7	ug/L	62.5	0.009	100	75-125			
Post Spike (B017542-PS2)	Source: 0033742-01								
Prepared: 4/24/2020 11:25, Analyzed:	: 5/1/2020 19:19								
Mercury	2.56	ug/L	2.50	0.0710	99.4	75-125			
Molybdenum	65.7	ug/L	62.5	0.03	105	75-125			
Antimony	71.0	ug/L	62.5	0.107	113	75-125			
Arsenic	64.2	ug/L	62.5	-0.0029	103	75-125			J5
Barium	67.2	ug/L	62.5	0.037	107	75-125			
Beryllium	56.7	ug/L	62.5	-0.0023	90.7	75-125			
Cadmium	63.6	ug/L	62.5	0.0053	102	75-125			
Chromium	61.7	ug/L	62.5	0.0998	98.6	75-125			
Copper	61.0	ug/L	62.5	-1.66	97.6	75-125			
Lead	60.7	ug/L	62.5	0.219	96.8	75-115			
Lithium	60.7	ug/L	62.5	0.05	97.0	75-125			
Nickel	62.6	ug/L	62.5	0.313	99.7	75-125			
Selenium	64.8	ug/L	62.5	-0.002	104	75-125			
Thallium	58.9	ug/L	62.5	0.0066	94.2	75-125			
Zinc	65.7	ug/L	62.5	1.46	103	75-125			





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018020 - Default Prep Wet Cher	n									
Blank (B018020-BLK1)										
Prepared: 4/27/2020 8:45, Analyzed: 4/	28/2020 12:15									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B018020-BS1)										
Prepared: 4/27/2020 8:49, Analyzed: 4/	28/2020 12:15									
Total Dissolved Solids	1440	25	mg/L	1500		96.3	80-120			
Duplicate (B018020-DUP1)	Source: 0043533-01									
Prepared: 4/27/2020 10:13, Analyzed: 4	/28/2020 12:15									
Total Dissolved Solids	ND	50	mg/L		ND				10	U
Duplicate (B018020-DUP2)	Source: 0033742-01									
Prepared: 4/27/2020 10:17, Analyzed: 4	/28/2020 12:15									
Total Dissolved Solids	74	50	mg/L		76			2.67	10	
Batch B018080 - Default Prep Wet Cher	n									
Blank (B018080-BLK1)										
Prepared: 4/27/2020 15:20, Analyzed: 4	/27/2020 15:20									
Chemical Oxygen Demand	ND	8	mg/L							U
LCS (B018080-BS1)										
Prepared: 4/27/2020 15:20, Analyzed: 4	/27/2020 15:20									
Chemical Oxygen Demand	121	8	mg/L				90-110			
Duplicate (B018080-DUP1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	36	8	mg/L		22			47.1	25	Y1
Matrix Spike (B018080-MS1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	274	8	mg/L	250	22	101	90-110			
Matrix Spike Dup (B018080-MSD1)	Source: 0042854-01									
Prepared: 4/27/2020 15:30, Analyzed: 4	/27/2020 15:30									
Chemical Oxygen Demand	263	8	mg/L	250	22	96.3	90-110	4.34	10	





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018086 - Default Prep Wet Chem										
Blank (B018086-BLK1)										
Prepared: 4/27/2020 14:54, Analyzed: 4/27/2	2020 14:54									
Specific Conductance (Lab)	ND	1	umhos/cm							U
LCS (B018086-BS1)										
Prepared: 4/27/2020 14:55, Analyzed: 4/27/2	2020 14:55									
Specific Conductance (Lab)	1410		umhos/cm	1410		99.8	80-120			
Duplicate (B018086-DUP1)	Source: 0033751-01									
Prepared: 4/27/2020 15:09, Analyzed: 4/27/2	2020 15:09									
Specific Conductance (Lab)	2980	1	umhos/cm		2990			0.0335	1.24	
Duplicate (B018086-DUP2)	Source: 0043793-01									
Prepared: 4/27/2020 15:27, Analyzed: 4/27/2	2020 15:27									
Specific Conductance (Lab)	1	1	umhos/cm		1			0.755	1.24	
Batch B018100 - Default Prep Wet Chem										
Blank (B018100-BLK1)										
Prepared: 5/1/2020 18:21, Analyzed: 5/1/2020	20 18:21									
Total Organic Carbon	ND	0.5	mg/L							U
LCS (B018100-BS1)										
Prepared: 5/1/2020 18:43, Analyzed: 5/1/202	20 18:43									
Total Organic Carbon	5.0	0.5	mg/L	5.00		101	80-120			
Duplicate (B018100-DUP1)	Source: 0033748-01									
Prepared: 5/2/2020 0:07, Analyzed: 5/2/202	20 0:07									
Total Organic Carbon	2.0	0.5	mg/L		2.0			0.0293	25	
Duplicate (B018100-DUP2)	Source: 0033758-01									
Prepared: 5/2/2020 4:27, Analyzed: 5/2/202	20 4:27									
Total Organic Carbon	2.8	0.5	mg/L		2.8			0.410	25	
Matrix Spike (B018100-MS1)	Source: 0033749-01									
Prepared: 5/2/2020 0:29, Analyzed: 5/2/202										
Total Organic Carbon	10.7	0.5	mg/L	2.50	8.2	101	80-120			



Batch B018100 - Default Prep Wet Chem Matrix Spike (B018100-Mis2)			-	-				_	_	_	_
Batch B018100 - Default Prep Wet Chem Matrix Spike (B018100-MS2)			Reporting		Spike	Source		%REC		RPD	
Matrix Spike (B018100-MS2) Source: 0033759-01	Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020 4:49 Total Organic Carbon 3.6 0.5 mg/L 5.00 0.4 65.0 80-120 Mic Batch B018391 - Default Prep Wet Chem Blank (8018391-BLK1) Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:33 Total Alkalinity as CaCO3 ND 4 mg/L UGarbonate Alkalinity as CaCO3 ND 4 mg/L UGarbonate Alkalinity as CaCO3 ND 4 mg/L UGarbonate Alkalinity as CaCO3 ND 4 mg/L UGARBONATE Alkalinity as CaCO3 ND UGARBONATE Alkalinity as CaCO3 ND UGARBONATE Alkalinity as CaCO3 ND UGARBONATE Alkalinity as CaCO3 ND UGARBONATE Alkalinity as CaCO3 ND UGARBONATE Alkalinity as CaCO3 ND UGARBONATE Alkalinity as	Batch B018100 - Default Prep Wet Chem										
Total Organic Carbon 3.6 0.5 mg/L 5.00 0.4 65.0 80-120 Miles Blatch B018391 - Default Prep Wet Chem Blank (8018391-BLK1) Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:33 Total Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBach Carbonate Alkalinity as CaCO3 ND 4 mg/L UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L 225 ND 99.8 80-120 UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 99.8 80-120 UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 99.8 80-120 UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 99.8 80-120 UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 99.8 80-120 UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 99.8 80-120 UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 99.8 80-120 UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 99.8 80-120 UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 99.8 80-120 UBACh Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 99.8 80-120 UBACh Carbonate Alkalinity as CaCO3 ND 99.8 80-120 UBACh Carbonate Alkalinity as CaCO3 ND 99.8 80-120 UBACh Carbonate Al	Matrix Spike (B018100-MS2)	Source: 0033759-01	I								
Blank (B018391 - Default Prep Wet Chem Blank (B018391 - Default Prep Wet Chem Blank (B018391 - Default Prep Wet Chem Blank (B018391 - Default Prep Wet Chem Blank (B018391 - Default Prep Wet Chem Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:33 Total Alkalinity as CaCO3	Prepared: 5/2/2020 4:49, Analyzed: 5/2/2020	4:49									
Blank (B018391-BLK1) Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:33 ND	Total Organic Carbon	3.6	0.5	mg/L	5.00	0.4	65.0	80-120			M2
Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020 11:33 Total Alkalinity ND	Batch B018391 - Default Prep Wet Chem										
Total Alkalinity s CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Blank (B018391-BLK2) Prepared: 4/29/2020 13:03, Analyzed: 4/29/2020 15:33 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Blank (B018391-BLK2) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Blank (B018391-BLK3) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L 225 ND 0-200 Carbonate Alkalinity as CaCO3 ND 4 mg/L 225 ND 0-200 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 0-200 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 0-200 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 0-200 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 0-200 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 0-200 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 0-200 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 0-200 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 0-200 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 0-200 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 0-200 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200 Carbonate Alkalinity as CaCO3 ND 0-200	Blank (B018391-BLK1)										
Bicarbonate Alkalinity as CaCO3	Prepared: 4/29/2020 11:33, Analyzed: 4/29/2020	20 11:33									
Carbonate Alkalinity as CaCO3	Total Alkalinity	ND	4	mg/L							U
Blank (B018391-BLK2)	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Prepared: 4/29/2020 13:03, Analyzed: 4/29/2020 13:03 Carbonate Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Biank (B018391-BLK3) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 235 99.8 80-120 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 15:29, Analyzed: 4/29/2020 15:29 Carbonate Alkalinity as CaCO3 15:29, Analyzed: 4/29/2020 15:29 Carbonate Alkalinity as CaCO3 15:29, Analyzed: 4/29/2020 15:29 Carbonate Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity 250 4 mg/L 225 102 0-200	Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3 ND 4 mg/L U Total Alkalinity as CaCO3 ND 4 mg/L U Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Biank (B018391-BLK3) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Total Alkalinity as CaCO3 ND 4 mg/L U Total Alkalinity as CaCO3 ND 4 mg/L U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 ND 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Carbonate Alkalinity as CaCO3 ND 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 15:29, Analyzed: 4/29/2020 15:29 Carbonate Alkalinity as CaCO3 15:29, Analyzed: 4/29/2020 15:29 Carbonate Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 15:29, Analyzed: 4/29/2020 15:29 Carbonate Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Blank (B018391-BLK2)										
Total Alkalinity	Prepared: 4/29/2020 13:03, Analyzed: 4/29/202	20 13:03									
Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Blank (B018391-BLK3) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Total Alkalinity as CaCO3 ND 4 mg/L U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 ND 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 2 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B018391-BLK3) Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Interpretation of the state of the s	Total Alkalinity	ND	4	mg/L							U
Prepared: 4/29/2020 15:33, Analyzed: 4/29/2020 15:33 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Total Alkalinity ND 4 mg/L U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity 250 4 mg/L 225 102 0-200	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3 ND 4 mg/L U Carbonate Alkalinity as CaCO3 ND 4 mg/L U Total Alkalinity ND 4 mg/L U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 235 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Blank (B018391-BLK3)										
Carbonate Alkalinity as CaCO3 ND 4 mg/L U Total Alkalinity ND 4 mg/L U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Prepared: 4/29/2020 15:33, Analyzed: 4/29/202	20 15:33									
Total Alkalinity ND 4 mg/L U LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
LCS (B018391-BS1) Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Prepared: 4/29/2020 12:58, Analyzed: 4/29/2020 12:58 Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3 232 4 mg/L 225 103 0-200 Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 235 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	LCS (B018391-BS1)										
Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U Total Alkalinity 235 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Prepared: 4/29/2020 12:58, Analyzed: 4/29/202	20 12:58									
Total Alkalinity 235 4 mg/L 235 99.8 80-120 LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Carbonate Alkalinity as CaCO3	232	4	mg/L	225		103	0-200			
LCS (B018391-BS2) Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Prepared: 4/29/2020 15:29, Analyzed: 4/29/2020 15:29 Total Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Total Alkalinity	235	4	mg/L	235		99.8	80-120			
Total Alkalinity 250 4 mg/L 235 106 80-120 Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	LCS (B018391-BS2)										
Carbonate Alkalinity as CaCO3 230 4 mg/L 225 102 0-200	Prepared: 4/29/2020 15:29, Analyzed: 4/29/202	20 15:29									
,	Total Alkalinity	250	4	mg/L	235		106	80-120			
Bicarbonate Alkalinity as CaCO3 ND 4 mg/L 0.106 0-200 U	Carbonate Alkalinity as CaCO3	230	4	mg/L	225		102	0-200			
	Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U



	R	eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018391 - Default Prep Wet Chem	1									
Duplicate (B018391-DUP1)	Source: 0033751-01									
Prepared: 4/29/2020 12:34, Analyzed: 4/2	29/2020 12:34									
Total Alkalinity	309	4	mg/L		301			2.43	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		301				10	U
Bicarbonate Alkalinity as CaCO3	309	4	mg/L		ND				10	
Duplicate (B018391-DUP2)	Source: 0033759-01									
Prepared: 4/29/2020 15:04, Analyzed: 4/2	29/2020 15:04									
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Total Alkalinity	402	4	mg/L		394			2.01	10	
Bicarbonate Alkalinity as CaCO3	402	4	mg/L		394			2.01	10	
Matrix Spike (B018391-MS1)	Source: 0033743-01									
Prepared: 4/29/2020 12:40, Analyzed: 4/2	29/2020 12:40									
Total Alkalinity	61	4	mg/L	50.4	22	77.0	80-120			M2
Matrix Spike (B018391-MS2)	Source: 0033759-01									
Prepared: 4/29/2020 15:18, Analyzed: 4/2	29/2020 15:18									
Total Alkalinity	413	4	mg/L	50.4	394	37.5	80-120			М3
Batch B019045 - Default Prep Wet Chem	1									
Blank (B019045-BLK1)										
Prepared: 5/4/2020 10:56, Analyzed: 5/4/	/2020 10:56									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B019045-BS1)										
Prepared: 5/4/2020 10:58, Analyzed: 5/4/	/2020 10:58									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B019045-DUP1)	Source: 0041237-02									
Prepared: 5/4/2020 12:56, Analyzed: 5/4/										
Hardness as CaCO3	214	1	mg/L		200			6.76	10	
		- '	9/ =					0.10		
Matrix Spike (B019045-MS1)	Source: 0041237-02									
Prepared: 5/4/2020 12:58, Analyzed: 5/4/		,		040	000	440	00.400			
Hardness as CaCO3	568	1	mg/L	318	200	116	80-120			





	Ion Chrom	atography	Madisor	nville - Qı	uality Cor	ntrol				
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B018473 - Default Prep IC										
Blank (B018473-BLK1)										
Prepared: 5/1/2020 15:50, Analyzed: 5/	1/2020 15:50									
Chloride	ND	0.5	mg/L							U
Sulfate	ND	1.0	mg/L							U
Fluoride	ND	0.20	mg/L							U
LCS (B018473-BS1)										
Prepared: 5/1/2020 15:30, Analyzed: 5/	1/2020 15:30									
Sulfate	9.7		mg/L	10.0		97.1	90-110			
Fluoride	9.60		mg/L	10.0		96.0	90-110			
Chloride	9.6		mg/L	10.0		96.1	90-110			
Matrix Spike (B018473-MS1)	Source: 0033742-0	I								
Prepared: 5/2/2020 0:01, Analyzed: 5/2	2/2020 0:01									
Sulfate	10.8		mg/L	10.0	0.005	108	80-120			
Chloride	10.1		mg/L	10.0	0.0	101	80-120			
Fluoride	10.2		mg/L	10.0	0.06	101	80-120			
Matrix Spike Dup (B018473-MSD1)	Source: 0033742-0	I								
Prepared: 5/2/2020 0:21, Analyzed: 5/2	2/2020 0:21									
Chloride	13.1		mg/L	10.0	0.0	131	80-120	25.7	10	M1, Y2
Sulfate	14.5		mg/L	10.0	0.005	145	80-120	28.8	20	M1, Y2
Fluoride	13.2		mg/L	10.0	0.06	132	80-120	26.2	20	M1, Y2
Certified Analyses included in this Rep	ort									
Analyte	Certifications									
2320 B-2011 in Water				_	•	_		•	_	
Bicarbonate Alkalinity as CaCO3	KY Drinking Water Mdv	(00030)								

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)

Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)

Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0033742
Shipped By: Client	Temperature: 3.90° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	
Check if Collector Signature Present	abla
Check if bottles are intact	
Check if bottles are correct	☑
Check if bottles have sufficient volume	
Check if samples received on ice	☑
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>03/02/2020</u>



	<u> </u>					
Client: Big Rivers Electric Corporation W Station	Big Rivers Ele Station	•	ration Wilson	_	Electric Corpo	oration Wilson Station
Project: Field Blank Wilson 092-00004	Mike Galbraith PO Box 24	h		Brian Edwar PO Box 24	ds	
	Henderson, K	Y 42419		Henderson,	KY 42419	
	Phone: <u>(270) -</u> PWS ID#:	844-6000		PO#: 2	58508-	-6
Please Print Legibly	State:	Ky_		Quote#		_
Collected by (Signature):	equired information*			Compli	iance Monitor	ring? Yes K No
*For composite samples please indicate beg	in time, end time and temp(oC) at end tim	ne below:	Sample	es Chlorinate	d? Yes No
Influent: Start Date Start time _	End Date	End	Time	Гетр (oC)	<u>. </u>	
Effluent: Start Date Start time	End Date	End	Time	Temp (oC)		
MMLI USE ONLY *required information* Workorder # Date Collection 0033742 (mm/dd/yy): Time (24 hr)	: Bottle and Preservative	Containers S	ample Description	Composite		
Sample ID#	Plantia 11	<u>S</u>	Field Blank	•		e Analysis Requested
0033742-01 A 74 23-20 8:45	_ Plastic 1L	ı	rieid Diarik	g/c	Conductivity Sulfate 300	otal Chloride 300.0 y (Lab) Fluoride 300.0 .0 Alkalinity Bicarbonate
0033742-01 B <u>04-₹**26 </u>	_ Plastic 500mL pH<2 w/HNO3	1	Field Blank	g / c	Arsenic Tot Barium Tot Selenium Tot Titration Be Tot 6010B (Calcium Tot 6020 Sodiu 6020 Lithiui	ity Carbonate 6020 Antimony Tot 6020 6020 Iron Tot 6010B ot 6020 Hardness ryllium Tot 6020 Boron Cadmium Tot 6020 t 6010B Chromium Tot m Tot 6010B Lead Tot m Tot 6020 Mercury Tot
	Preservation Check: pH:				6020	
0033742-01 C <u>04-23-20 8':45</u>	Plastic 500mL pH<2 w/H2SO4 Preservation Check: pH :	1	Field Blank	g/c	COD TOC	
0033742-01 D QH-23-20 4:45	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) Preservation Check: pH:	/	Field Blank	g/c	Radium 226	6 (sub)
Preservation Check Performed by:	AL					
Field data collected by:	Date (mm/dd/yy))	Time (24 hr)	·		
pH Cond (umho)	Res Cl (mg/L)		Tot CI (mg/L)	Fre	e CI (mg/L) .	
Temp (oC) or (oF)	Static Water Level		DO (mg/L)	т	urb. (NTU) _	
Flow (MGD) or (CFS)	or (g/min)		_			
Relinquished by: (Signature)	Received by: (Sign	ature)		Date (mm/	/dd/yy)	Time (24 hr)
Tira find	apprey	, Zu	m	4-23	-20	/325
<u> </u>						

Printed: 3/27/2020 1:41:17PM

Page 18 of 30

PACE- Check here if trip charge applied to associated COC

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>03/02/2020</u>



						l 		
Station	ivers Electric Co d Blank Wilson (Big Rivers Station Mike Galbr PO Box 24	Electric Co raith	rporation Wilson	Invoice To: Big Rivers E Brian Edwar PO Box 24 Henderson,	rds	ation Wilson Station
			Phone: <u>(27</u>	70) 844-600	0	PO#: 2 .5	58508-0	•_
Diana Drint	l amilalu		PWS ID#: State:	K,	•		10900 - C	9
Please Print		Flus '	State.	-114	<u>~</u>	Quote#	ance Monitorin	ng? Yes∕∕ No
Collected by (S	oignature)	*rec	urred information*		_		es Chlorinated	
*For composite	e samples please	e indicate begin	time, end time and temp	(oC) at end	time below:	Sample	is Chiorinated	? Yes No
Influent: Start	Date	_ Start time	End Date	Eı	nd Time	Temp (oC)		
Effluent: Start	Date	_ Start time _	End Date	E	nd Time	Temp (oC)		
MMLI USE ON Workorder # 0033742 Sample ID#	NLY *required i Date (mm/dd/yy):	nformation* Collection Time (24 hr):	Bottle and Preservative	<u>క</u>	Sample Description	Composite	Sample	Analysis Requested
0033742-01 E	04.33-20	8:45	Plastic 1L pH<2 w/HNC Rad 228 (Sub) Preservation Check: pl		Field Blank	g/c	Radium 228	(sub)
0033742-01 F	04-23-20	8:45	Plastic 1L pH<2 w/HNC Rad 228 (Sub) Preservation Check: pl	/	Field Blank	g/c	Radium 228	(sub)
0033742-01 G	<u>04-23-70</u>	<i>¥</i> ′, 45	Plastic 1L pH<2 w/HNC (Sub) Preservation Check: pl	/	Field Blank	g/c	Radium Total	l (sub)
	Check Performe		Date (mm/dd/	/yy)	Time (24 hr) _			
pH _	Coi	nd (umho)	Res CI (mg	g/L)	Tot CI (mg/L) _	Fre	e CI (mg/L) _	
Temp (oC) _	or	(oF)	Static Water Lev	/el	DO (mg/L)	т	urb. (NTU)	
Flow (MGD)	or	(CFS)	or (g/m	in)				
Relinquished b	by: (Signature)	. 01	Received by: (S		M	Date (mm/		Time (24 hr) 1325
						· -		

Printed: 3/27/2020 1:41:17PM

Page 19 of 30

PACE- Check here if trip charge applied to associated COC

(724)850-5600



May 19, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 33742

Pace Project No.: 30360658

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 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,

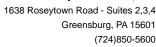
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 33742
Pace Project No.: 30360658

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

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

Ohio EPA Rad Approval: #41249

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

REPORT OF LABORATORY ANALYSIS





SAMPLE SUMMARY

Project: 33742
Pace Project No.: 30360658

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30360658001	0033742-01	Water	04/23/20 08:45	04/28/20 09:10

REPORT OF LABORATORY ANALYSIS



SAMPLE ANALYTE COUNT

Project: 33742
Pace Project No.: 30360658

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30360658001	0033742-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

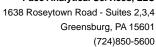


ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 33742
Pace Project No.: 30360658

Sample: 0033742-01 PWS:	Lab ID: 30360 Site ID:	658001 Collected: 04/23/20 08:45 Sample Type:	Received:	04/28/20 09:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	Gervices - Greensburg				
Radium-226	EPA 903.1	-0.103 ± 0.239 (0.519) C:NA T:95%	pCi/L	05/18/20 15:36	3 13982-63-3	
	Pace Analytical S	ervices - Greensburg				
Radium-228	EPA 904.0	0.00670 ± 0.393 (0.911) C:74% T:81%	pCi/L	05/15/20 15:52	2 15262-20-1	
	Pace Analytical S	Services - Greensburg				
Total Radium	Total Radium Calculation	0.00670 ± 0.632 (1.43)	pCi/L	05/19/20 08:36	7440-14-4	

REPORT OF LABORATORY ANALYSIS





QUALITY CONTROL - RADIOCHEMISTRY

Project: 33742
Pace Project No.: 30360658

QC Batch: 394311

QC Batch Method: EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360658001

METHOD BLANK: 1909693

Matrix: Water

Associated Lab Samples: 30360658001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

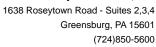
Radium-226

-0.255 ± 0.240 (0.532) C:NA T:97%

pCi/L

05/18/20 15:36

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: 33742 Pace Project No.: 30360658

QC Batch: 394310 QC Batch Method: EPA 904.0 Analysis Method: EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30360658001

METHOD BLANK: 1909692

Matrix: Water

Associated Lab Samples:

30360658001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

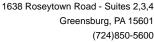
Radium-228

0.175 ± 0.287 (0.624) C:79% T:85%

pCi/L

05/15/20 15:53

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.





QUALIFIERS

Project: 33742
Pace Project No.: 30360658

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.

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: 05/19/2020 08:37 AM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

MO#:30360658

30360658

Chain of Custody

LAB USE ONLY Results Requested By: Comments Requested Analysis Workorder Name: Field Blank Wilson 092-000 Owner Received Date: 4/23/2020 EPA 904.0 Radium Sum Calc 1200 STST Date/Time EPA 903.1 Preserved Containers Pace Analytical Services LLC Greensburg PA Matrix Water Reveived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Greensburg, PA 15601 Lab ID Date/Time Subcontract To: (724) 850-5615 04/23/20 08:45 Date/Time Sample |Collect Type r.whittington@mccoylabs.com Madisonville, KY 42409 Transfers | Released By Workorder: 33742 McCoy & McCoy Labs 0033742-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 4 ø

Cooler Temperature on Receipt	7.6 °C	Custody Seal Y or 🕅	Received on Ice Yor N	Sample Intact Oor
***In order to maintain client confider	dentiality,	location/name of the sam	tion/name of the sampling site, sampler's name and signature may not be provided on this COC	ided on this COC
This chain of custody is considered complete as is sin	complete a	is is since this information	s since this information is available in the owner laboratory.	

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

z

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SUBCONTRACT ORDER

#_30360658 Pace Analytical Services, LLC Kentucky 0033742

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager: **Rob Whittington**

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601 Phone: (724) 850-5615

Fax:

Please return shipping cooler to return address on shipping label.

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0033742-01	Water	Sampled:04/23/2020 08:45	Specific Method		
Radium Total (sub)		10/20/2020 08:45	EPA 904.0 Radium S	um C	
Radium 228 (sub)		10/20/2020 08:45	EPA 904.0 Radium S	um (
Radium 226 (sub)		10/20/2020 08:45	EPA 903.1		

Received By Date

Received By

Date

Released By

Date

Page 29 of 30

Pittsburgh Lab Sample Condit	ion l	Jpon	Red	ceipt
Pace Analytical Client Name:	Pa	ice	7	Y Project # # 3 0 3 6 0 6 5 8
				- \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Courier: Fed Ex UPS USPS UClient	Lb	ommei	cial	Pace Other Label OSM
Tracking #: 1107 5336 1811				LIMS Login () S IV
Custody Seal on Cooler/Box Present:	□ n		_	intact; yes no
Thermometer Used	Туре			Blue None
Cooler Temperature Observed Temp	6	. °C	Corre	ection Factor: "U, 5" °C Final Temp: Q, 1" °C
Temp should be above freezing to 6°C				pH paper Lot# Date and Initials of person examining
Comments:	Yes	No	N/A	pH paper Lot# Date and Initials of person examining contents: 05 M 4/2 8/1020
Chain of Custody Present:				1.
Chain of Custody Filled Out:				2.
Chain of Custody Relinquished:				3.
Sampler Name & Signature on COC:				4.
Sample Labels match COC:				5.
-Includes date/time/ID Matrix:	~	T		
Samples Arrived within Hold Time:				6.
Short Hold Time Analysis (<72hr remaining):				7.
Rush Turn Around Time Requested:				8.
Sufficient Volume:				9.
Correct Containers Used:				10.
-Pace Containers Used:				
Containers Intact:				11.
Orthophosphate field filtered				12.
Hex Cr Aqueous sample field filtered				13.
Organic Samples checked for dechlorination:				14.
Filtered volume received for Dissolved tests All containers have been checked for preservation.				15.
exceptions: VOA, coliform, TOC, O&G, Phenolics, F Non-aqueous matrix	Radon,			" pH<2
All containers meet method preservation requirements.		-		Initial when JSIV Date/time of completed preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):				17.
Trip Blank Present:				18.
Trip Blank Custody Seals Present				The state of the s
Rad Samples Screened < 0.5 mrem/hr				completed: SM Date: 4728/2020
Client Notification/ Resolution:				
Person-Gontacted:			Date/1	Trne:Gontacted-By:
Comments/ Resolution:				
		-		
A check in this box indicates that addit	ional i	inform	ation	has been stored in ereports.

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0092631

Mike Galbraith
Big Rivers Electric Corporation Wilson Station
PO Box 24
Henderson KY, 42419

Customer ID: Report Printed: 44-100168 11/05/2020 13:47

Project Name: MW-5 Wilson 092-00004 Workorder: 0092631

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 10/14/2020 08:38.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0092631-01	MW5/		Groundwater	10/13/2020 08:55	10/14/2020 8:38	Travis Sneed
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0092631-01	Field Conductance	3960				
	Field pH	5.95				
	Field Temp (C)	16.68				



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

Lab Sample ID: 0092631-01 Sample Collection Date Time: 10/13/2020 08:55

Description: MW5 Sample Received Date Time: 10/14/2020 08:38

Metals by SW846 6000 Series Methods

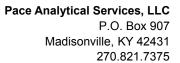
Analyte Resul	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony NE	U	mg/L	0.005	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Arsenic 0.0029		mg/L	0.0010	0.0004	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Barium 0.011		mg/L	0.004	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Beryllium ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Boron 0.69		mg/L	0.10	0.10	SW846 6010 B	10/15/2020 07:52	10/20/2020 15:32	DMH
Cadmium NE	U	mg/L	0.0010	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Calcium 571	D1	mg/L	40.0	13.0	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:37	AKB
Chromium NE	U	mg/L	0.0020	0.0006	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Cobalt 0.010		mg/L	0.004	0.004	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Copper NE	U, B	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Iron 7.45	D2	mg/L	1.00	0.500	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:33	AKB
Lead NE	U	mg/L	0.002	0.0005	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Lithium 0.03		mg/L	0.02	0.005	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Magnesium 251	D1	mg/L	20.0	9.00	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:37	AKB
Mercury NE	U	mg/L	0.0005	0.0002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Molybdenum 0.004	. J	mg/L	0.01	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Nickel 0.006		mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Potassium 12.5	D2	mg/L	5.00	2.20	SW846 6010 B	10/15/2020 07:52	10/16/2020 10:32	dmh
Selenium NE	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Sodium 91.2	D2	mg/L	2.60	1.00	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:33	AKB
Thallium NE	U	mg/L	0.0020	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM
Zinc	U	mg/L	0.02	0.02	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:21	CAM

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	495		mg/L	4		2320 B-2011	10/21/2020 18:49	10/21/2020 18:49	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	10/21/2020 18:49	10/21/2020 18:49	HMF
Total Alkalinity	495		mg/L	4		2320 B-2011	10/21/2020 18:49	10/21/2020 18:49	HMF
Chemical Oxygen Demand	14		mg/L	5	5	HACH 8000	10/23/2020 13:24	10/23/2020 15:30	HMF
Specific Conductance	3800		umhos/cm	1	1	2510 B-2011	10/20/2020 15:58	10/20/2020 15:58	CML
(Lab)									
Hardness as CaCO3	2320	D	mg/L	5	5	2340 C (as HACH	10/19/2020 11:46	10/19/2020 11:46	CLL
						8226)			
Total Dissolved Solids	3770		mg/L	50	50	2540 C-2011	10/16/2020 11:40	10/19/2020 17:00	DJK
Total Organic Carbon	2.0		mg/L	0.5		5310 C-2011	10/18/2020 00:27	10/18/2020 00:27	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.191	_Sub	pCi/L			EPA 903.1	11/04/2020 00:00	11/04/2020 00:00	xxx
Radium-228	1.51	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	10/30/2020 00:00	10/30/2020 00:00	xxx
Radium	1.70	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	11/04/2020 00:00	11/04/2020 00:00	XXX



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Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	199	D	mg/L	50.0	36.0	EPA 300.0 REV 2.1	10/21/2020 01:37	10/21/2020 01:37	CSC
Fluoride	ND	U	mg/L	0.20		EPA 300.0 REV 2.1	10/21/2020 01:20	10/21/2020 01:20	CSC
Sulfate	1800	D	mg/L	200	100	EPA 300.0 REV 2.1	10/21/2020 11:02	10/21/2020 11:02	CSC



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

Notes for work order 0092631

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.

Sample RPD exceeded the method control limit.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

Υ1

В	Target analyte detected in method blank at or above the method reporting limit.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
J	Estimated value.
L1	The associated blank spike recovery was above method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Snike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

Greater than
Less than

Results relate only to the items tested.



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:52									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Blank (B042261-BLK2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:10									
Potassium	ND	0.50	mg/L							U
Blank (B042261-BLK3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:36									
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	0.003	0.003	mg/L							В
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		=					0/5=0			
	5 "	Reporting	11.89	Spike	Source	0/ 5=0	%REC	DE-	RPD	N
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/21/2020	12:43									
Molybdenum	ND	0.01	mg/L							U
Copper	0.003	0.003	mg/L							В
Selenium	ND	0.003	mg/L							U
LCS (B042261-BS1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:56									
Boron	0.13	0.10	mg/L	0.125		101	85-115			
Calcium	6.42	0.40	mg/L	6.25		103	85-115			
Iron	6.27	0.100	mg/L	6.25		100	85-115			
Magnesium	5.31	0.200	mg/L	6.25		85.0	85-115			
Potassium	8.21	0.50	mg/L	6.25		131	85-115			L1
Sodium	6.41	0.26	mg/L	6.25		103	85-115			
LCS (B042261-BS2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:13									
Potassium	6.67	0.50	mg/L	6.25		107	85-115			
LCS (B042261-BS3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:40									
Antimony	0.072	0.005	mg/L	0.0625		115	85-115			
Mercury	0.0025	0.0005	mg/L	0.00250		101	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		109	85-115			
Arsenic	0.0657	0.0010	mg/L	0.0625		105	85-115			
Barium	0.067	0.004	mg/L	0.0625		107	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		103	85-115			
Cadmium	0.0646	0.0010	mg/L	0.0625		103	85-115			
Chromium	0.0682	0.0020	mg/L	0.0625		109	85-115			
Cobalt	0.067	0.004	mg/L	0.0625		107	85-115			
Copper	0.068	0.003	mg/L	0.0625		109	85-115			В
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.07	0.02	mg/L	0.0625		107	85-115			
Nickel	0.066	0.003	mg/L	0.0625		106	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0663	0.0020	mg/L	0.0625		106	85-115			
Zinc	0.07	0.02	mg/L	0.0625		106	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
LCS (B042261-BS4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/2	21/2020 12:47									
		0.01	ma/l	0.0625		107	0E 11E			
Molybdenum	0.07	0.01	mg/L	0.0625 0.0625		107	85-115 85-115			В
Copper Selenium	0.067 0.064	0.003 0.003	mg/L mg/L	0.0625		107 103	85-115			ь
Celeman	0.004	0.003	mg/L	0.0023		100	00-110			
Matrix Spike (B042261-MS1)	Source: 0092620-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/1	15/2020 15:14									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	5.57	10.0	mg/L	6.25	ND	89.1	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			U, D2, M4
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, M4, U
Matrix Spike (B042261-MS2)	Source: 0092629-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/1	15/2020 15:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	394	40.0	mg/L	6.25	384	166	80-120			D2, M1
Iron	15.8	10.0	mg/L	6.25	9.29	105	80-120			D2
Magnesium	147	20.0	mg/L	6.25	97.9	790	80-120			D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	81.5	26.0	mg/L	6.25	72.3	146	80-120			D2, M1
Matrix Spike (B042261-MS3)	Source: 0092620-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/2	20/2020 19:57									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	112	80-120			D2, J
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120			D2, J
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120			D2
Arsenic	0.0695	0.0100	mg/L	0.0625	ND	111	80-120			D2
Barium	0.066	0.040	mg/L	0.0625	ND	105	80-120			D2
Beryllium	0.0628	0.0200	mg/L	0.0625	ND	101	80-120			D2
Cadmium	0.0649	0.0100	mg/L	0.0625	ND	104	80-120			D2
Chromium	0.0659	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120			D2
Copper	0.065	0.030	mg/L	0.0625	ND	104	80-120			D2, B
	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lead										
Lead Lithium	0.06	0.20	mg/L	0.0625	ND	102	80-120			D2, J
Lead Lithium Nickel	0.06 0.066	0.030	mg/L	0.0625	ND	105	80-120			D2
Lead Lithium	0.06									





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike (B042261-MS4)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/20/2020 20:04									
Molybdenum	0.07	0.10	mg/L	0.0625	ND	115	80-120			D2, J
Mercury	0.0028	0.0050	mg/L	0.00250	ND	110	80-120			D2, J
Antimony	0.075	0.050	mg/L	0.0625	ND	121	80-120			D2, M1
Arsenic	0.0732	0.0100	mg/L	0.0625	ND	117	80-120			D2
Barium	0.082	0.040	mg/L	0.0625	0.014	108	80-120			D2
Beryllium	0.0639	0.0200	mg/L	0.0625	ND	102	80-120			D2
Cadmium	0.0656	0.0100	mg/L	0.0625	ND	105	80-120			D2
Chromium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.082	0.040	mg/L	0.0625	ND	132	80-120			D2, M1
Copper	0.061	0.030	mg/L	0.0625	ND	98.3	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.11	0.20	mg/L	0.0625	ND	175	80-120			D2, M1, J
Nickel	0.089	0.030	mg/L	0.0625	0.022	107	80-120			D2
Selenium	0.069	0.030	mg/L	0.0625	ND	111	80-120			D2
Thallium	0.0647	0.0200	mg/L	0.0625	ND	104	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U
Matrix Spike Dup (B042261-MSD1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:17									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	5.93	10.0	mg/L	6.25	ND	94.9	80-120	6.26	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	U, D2, M4
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD2)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	414	40.0	mg/L	6.25	384	484	80-120	4.92	20	D2, M1
Iron	16.4	10.0	mg/L	6.25	9.29	114	80-120	3.84	20	D2
Magnesium	155	20.0	mg/L	6.25	97.9	913	80-120	5.08	20	D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	85.4	26.0	mg/L	6.25	72.3	209	80-120	4.70	20	D2, M1





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike Dup (B042261-MSD3)	Source: 0092620-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2	2020 20:00									
Mercury	0.0027	0.0050	mg/L	0.00250	ND	107	80-120	3.90	20	D2, J
Antimony	0.071	0.050	mg/L	0.0625	ND	114	80-120	2.25	20	D2
Molybdenum	0.06	0.10	mg/L	0.0625	ND	104	80-120	4.25	20	D2, J
Arsenic	0.0678	0.0100	mg/L	0.0625	ND	109	80-120	2.47	20	D2
Barium	0.065	0.040	mg/L	0.0625	ND	104	80-120	1.34	20	D2
Beryllium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.33	20	D2
Cadmium	0.0632	0.0100	mg/L	0.0625	ND	101	80-120	2.66	20	D2
Chromium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.48	20	D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120	0.325	20	D2
Copper	0.062	0.030	mg/L	0.0625	ND	98.8	80-120	4.81	20	D2, B
Lead	0.064	0.020	mg/L	0.0625	ND	103	80-120	1.15	20	D2
Lithium	0.06	0.20	mg/L	0.0625	ND	99.1	80-120	2.77	20	D2, J
Nickel	0.063	0.030	mg/L	0.0625	ND	101	80-120	4.21	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	108	80-120	3.49	20	D2
Thallium	0.0644	0.0200	mg/L	0.0625	ND	103	80-120	1.56	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD4)	Source: 0092629-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2	2020 20:08									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	111	80-120	0.768	20	D2, J
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120	3.64	20	D2
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120	6.82	20	D2, J
Arsenic	0.0721	0.0100	mg/L	0.0625	ND	115	80-120	1.40	20	D2
Barium	0.080	0.040	mg/L	0.0625	0.014	105	80-120	2.21	20	D2
Beryllium	0.0622	0.0200	mg/L	0.0625	ND	99.6	80-120	2.65	20	D2
Cadmium	0.0628	0.0100	mg/L	0.0625	ND	100	80-120	4.34	20	D2
Chromium	0.0645	0.0200	mg/L	0.0625	ND	103	80-120	1.44	20	D2
Cobalt	0.081	0.040	mg/L	0.0625	ND	130	80-120	1.84	20	D2, M1
Copper	0.059	0.030	mg/L	0.0625	ND	93.7	80-120	4.77	20	D2, B
Lead	0.063	0.020	mg/L	0.0625	ND	101	80-120	2.71	20	D2
Lithium	0.11	0.20	mg/L	0.0625	ND	179	80-120	2.20	20	D2, M1, J
Nickel	0.088	0.030	mg/L	0.0625	0.022	106	80-120	0.909	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	107	80-120	2.91	20	D2
Thallium	0.0641	0.0200	mg/L	0.0625	ND	103	80-120	0.991	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U





	Por	orting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Analyte	Resuit	LIIIIII	Units	Level	Result	%KEU	LIIIIIIS	KPU	LIIIIII	Notes
Batch B042261 - EPA 200.2										
Post Spike (B042261-PS1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed	d: 10/15/2020 15:27									
Boron	113		ug/L	125	-0.57	90.4	75-125			D2
Calcium	6400		ug/L	6250	39.0	102	75-125			D2
Iron	5840		ug/L	6250	-0.050	93.5	75-125			D2
Magnesium	6590		ug/L	6250	2.27	105	75-125			D2
Potassium	6300		ug/L	6250	9.60	101	75-125			D2
Sodium	6100		ug/L	6250	21.6	97.3	75-125			D2
Post Spike (B042261-PS2)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed	d: 10/20/2020 20:11									
Molybdenum	67.2		ug/L	62.5	0.04	107	75-125			D2
Mercury	2.75		ug/L	2.50	0.0323	109	75-125			D2
Antimony	70.5		ug/L	62.5	0.083	113	75-125			D2
Arsenic	71.3		ug/L	62.5	-0.0088	114	75-125			D2
Barium	63.7		ug/L	62.5	0.095	102	75-125			D2
Beryllium	65.4		ug/L	62.5	-0.0105	105	75-125			D2
Cadmium	63.6		ug/L	62.5	0.0157	102	75-125			D2
Chromium	65.6		ug/L	62.5	0.355	104	75-125			D2
Cobalt	63.7		ug/L	62.5	-0.003	102	75-125			D2
Copper	60.7		ug/L	62.5	-1.80	97.1	75-125			D2, B
Lead	64.8		ug/L	62.5	0.522	103	75-115			D2
Lithium	64.9		ug/L	62.5	0.04	104	75-125			D2
Nickel	63.8		ug/L	62.5	-0.079	102	75-125			D2
Selenium	67.6		ug/L	62.5	0.009	108	75-125			D2
Thallium	64.7		ug/L	62.5	0.00002	104	75-125			D2
Zinc	77.9		ug/L	62.5	3.15	120	75-125			D2





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042498 - Default Prep Wet Chem										
Blank (B042498-BLK1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B042498-BS1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	1490	25	mg/L	1500		99.6	80-120			
Duplicate (B042498-DUP1) S	ource: 0092629-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	2240	50	mg/L		2290			2.56	10	
Duplicate (B042498-DUP2) S	ource: 0102128-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	364	50	mg/L		370			1.63	10	
Batch B042577 - Default Prep Wet Chem										
Blank (B042577-BLK1)										
Prepared: 10/19/2020 10:58, Analyzed: 10/19/2020	20 10:58									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B042577-BS1)										
Prepared: 10/19/2020 11:00, Analyzed: 10/19/2020	20 11:00									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B042577-DUP1) S	ource: 0100778-02									
Prepared: 10/19/2020 12:16, Analyzed: 10/19/2020	20 12:16									
Hardness as CaCO3	268	1	mg/L		260			3.03	10	
Matrix Spike (B042577-MS1)	ource: 0100778-02									
Prepared: 10/19/2020 12:18, Analyzed: 10/19/2020	20 12:18									
Hardness as CaCO3	648	1	mg/L	318	260	122	80-120			Y1
Batch B042587 - Default Prep Wet Chem										
Blank (B042587-BLK1)										
Prepared: 10/17/2020 18:08, Analyzed: 10/17/2020	20 18:08									
Total Organic Carbon	ND	0.5	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042587 - Default Prep Wet Chem										
LCS (B042587-BS1)										
Prepared: 10/17/2020 17:47, Analyzed: 10/	17/2020 17:47									
Total Organic Carbon	4.7	0.5	mg/L	5.00		94.1	80-120			
Duplicate (B042587-DUP1)	Source: 0092628-0	ļ								
Prepared: 10/17/2020 23:24, Analyzed: 10/	17/2020 23:24									
Total Organic Carbon	0.9	0.5	mg/L		1.0			8.76	25	
Duplicate (B042587-DUP2)	Source: 0100200-0	I								
Prepared: 10/18/2020 4:41, Analyzed: 10/	18/2020 4:41									
Total Organic Carbon	2.5	0.5	mg/L		2.4			2.64	25	
Matrix Spike (B042587-MS1)	Source: 0092629-0	1								
Prepared: 10/17/2020 23:45, Analyzed: 10/	17/2020 23:45									
Total Organic Carbon	3.9	0.5	mg/L	2.50	1.6	93.3	80-120			
Matrix Spike (B042587-MS2)	Source: 0100200-02	2								
Prepared: 10/18/2020 5:02, Analyzed: 10/	18/2020 5:02									
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.8	94.8	80-120			
Batch B043117 - Default Prep Wet Chem										
Blank (B043117-BLK1)										
Prepared: 10/21/2020 16:14, Analyzed: 10/	/21/2020 16:14									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK2)										
Prepared: 10/21/2020 18:13, Analyzed: 10/	21/2020 18:13									
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK3)										
Prepared: 10/21/2020 19:40, Analyzed: 10/	21/2020 19:40									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U



	Conventional Chemistry Analyses Madisonville - Quanty Control									
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043117 - Default Prep Wet Chem										
LCS (B043117-BS1)										
Prepared: 10/21/2020 18:06, Analyzed: 10/21/2020	20 18:06									
Total Alkalinity	249	4	mg/L	235		106	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	231	4	mg/L	225		103	0-200			
LCS (B043117-BS2)										
Prepared: 10/21/2020 19:35, Analyzed: 10/21/2020	20 19:35									
Carbonate Alkalinity as CaCO3	227	4	mg/L	225		101	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	254	4	mg/L	235		108	80-120			
Duplicate (B043117-DUP1) S	ource: 0092629-01	I								
Prepared: 10/21/2020 17:38, Analyzed: 10/21/2020	20 17:38									
Bicarbonate Alkalinity as CaCO3	295	4	mg/L		283			4.39	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Total Alkalinity	295	4	mg/L		283			4.39	10	
Duplicate (B043117-DUP2)	ource: 0092635-01	I								
Prepared: 10/21/2020 19:24, Analyzed: 10/21/2020	20 19:24									
Total Alkalinity	281	4	mg/L		268			4.88	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	281	4	mg/L		268			4.88	10	
Matrix Spike (B043117-MS1)	ource: 0092629-01	I								
Prepared: 10/21/2020 18:03, Analyzed: 10/21/2020	20 18:03									
Total Alkalinity	331	4	mg/L	49.4	283	98.6	80-120			
Matrix Spike (B043117-MS2)	ource: 0092635-01	I								
Prepared: 10/21/2020 19:30, Analyzed: 10/21/2020	20 19:30									
Total Alkalinity	301	4	mg/L	49.4	268	66.2	80-120			М3
Batch B043187 - Default Prep Wet Chem										
Blank (B043187-BLK1)										
Prepared: 10/20/2020 15:36, Analyzed: 10/20/2020	20 15:36									
Specific Conductance (Lab)	ND	1	umhos/cm							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043187 - Default Prep Wet Chem										
LCS (B043187-BS1)										
Prepared: 10/20/2020 15:37, Analyzed: 10/20	0/2020 15:37									
Specific Conductance (Lab)	1420		umhos/cm	1410		101	80-120			
Duplicate (B043187-DUP1)	Source: 0092629-01									
Prepared: 10/20/2020 15:54, Analyzed: 10/20)/2020 15:54									
Specific Conductance (Lab)	2600	1	umhos/cm		2610			0.307	1.24	
Duplicate (B043187-DUP2)	Source: 0102262-01									
Prepared: 10/20/2020 16:09, Analyzed: 10/20	0/2020 16:09									
Specific Conductance (Lab)	354	1	umhos/cm		351			0.851	1.24	
Batch B043582 - Default Prep Wet Chem										
Blank (B043582-BLK1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	ND	5	mg/L							U
LCS (B043582-BS1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	121	5	mg/L	125		96.8	90-110			
Duplicate (B043582-DUP1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:32									
Chemical Oxygen Demand	5	5	mg/L		ND				25	
Matrix Spike (B043582-MS1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	260	5	mg/L	250	ND	104	90-110			
Matrix Spike Dup (B043582-MSD1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	257	5	mg/L	250	ND	103	90-110	1.21	10	





on Chromatography Madisonville - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043121 - Default Prep IC										
Blank (B043121-BLK1)										
Prepared: 10/20/2020 22:42, Analyzed:	10/20/2020 22:42									
Fluoride	ND	0.20	mg/L							U
Chloride	ND	0.5	mg/L							U
Sulfate	ND	1.0	mg/L							U
LCS (B043121-BS1)										
Prepared: 10/20/2020 22:25, Analyzed:	: 10/20/2020 22:25									
Sulfate	9.2		mg/L	10.0		91.8	90-110			
Fluoride	9.25		mg/L	10.0		92.5	90-110			
Chloride	9.4		mg/L	10.0		93.7	90-110			
Matrix Spike (B043121-MS1)	Source: 0092635-0	01								
Prepared: 10/21/2020 5:58, Analyzed:	10/21/2020 5:58									
Chloride	48.6		mg/L	10.0	68.0	NR	80-120			M2
Sulfate	242		mg/L	10.0	593	NR	80-120			M2
Fluoride	9.28		mg/L	10.0	0.19	90.9	80-120			
Matrix Spike Dup (B043121-MSD1)	Source: 0092635-0)1								
Prepared: 10/21/2020 6:15, Analyzed:	10/21/2020 6:15									
Chloride	48.1		mg/L	10.0	68.0	NR	80-120	1.05	10	M2
Fluoride	9.21		mg/L	10.0	0.19	90.2	80-120	0.811	20	
Sulfate	240		mg/L	10.0	593	NR	80-120	0.795	20	M2
Certified Analyses included in this Rep										
Analyte	Certifications									
2320 B-2011 in Water										
Bicarbonate Alkalinity as CaCO3	KY Drinking Water Mo	dv (00030)								
Carbonate Alkalinity as CaCO3	KY Drinking Water Mo	dv (00030)								
Total Alkalinity	KY Drinking Water Mo	dv (00030)								
2340 C (as HACH 8226) in Water										
Hardness as CaCO3	KY Drinking Water Mo	dv (00030)								
2510 B-2011 in Water										
Specific Conductance (Lab)	KY Drinking Water Mo	dv (00030)								
2540 C-2011 in Water										
Total Dissolved Solids	KY Drinking Water Mo	dv (00030)								
5310 C-2011 in Water										
Total Organic Carbon	KY Drinking Water Mo	dv (00030)								
-										
EPA 300.0 REV 2.1 in Water Chloride	KY Drinking Water Mo	dv (00030)								
	KY Drinking Water Mo									
Fluoride	_									
Sulfate	KY Drinking Water Mo	av (00030)								
HACH 8000 in Water										
	I/\/\\/==t==t==.\\\data/	00020)								

KY Wastewater Mdv (00030)

Chemical Oxygen Demand

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0092631
Shipped By: Client	Temperature: 1.00° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	
Check if Collector Signature Present	
Check if bottles are intact	
Check if bottles are correct	abla
Check if bottles have sufficient volume	Ø
Check if samples received on ice	abla
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	☑

Chain of Custody

Scheduled for: 09/07/2020



					ļ 			
Client: Big Rivers Electric Co Station Project: MW-5 Wilson 092-00				Corporation Wilson	Invoice To: Big Rivers E Brian Edwar PO Box 24	Electric Corpor	ation Wilson	Station
		Henderson, K	Y 4241	19	Henderson,	KY 42419		•
		Phone: (270)	844-60	000	PO#:			1
Please Print Legibly		PWS ID#: State/	Κv		Quote#		-	1
Collected by (Signature):	of mi	find =	7			iance Monitori	ng? Yes	No
· · · · ·		red information*			·	es Chlorinated	•	No —
*For composite samples please					•			
Influent: Start Date								
Effluent: Start Date	Start time	End Date		End Time	Temp (oC)	<u></u>		
0032001	nformation* Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample	Analysis Reg	l l
Sample ID# 0092631-01 A 16-13-20	8155	Plastic 1L	<u>ŏ</u>	MW5	g / c		ty Carbonate	· .
0092631-01 B 10*13*20	_	Plastic 500mL pH<2	1	MVV5		Total Chlorid (Lab) Fluorid Alkalinity Bid	le 300.0 Cond de 300.0 Sulfa	ductivity ate 300.0
0032031-01B <u>10-13-20</u>		w/HNO3			g / c	Antimony To Boron Tot 60 Cadmium To 6010B Chron Tot 6020 Co Titration Iron	ot 6020 Arseni 010B Barium ot 6020 Calciu mium Tot 602 pper Tot 6020 1 Tot 6010B Li ssium Tot 6011	ic Tot 6020 Tot 6020 Im Tot O Cobalt O Hardness ithium Tot
0092631-01 C 10-13-70		Plastic 500mL pH<2	1	MW5	g/c	COD TOC		t -
		w/H2SO4 reservation Check: pH :	\angle		J			•
0092631-01 D 10-13-20	8:55	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW5	g / c	Radium 226	(sub)	1
	P	reservation Check: pH :						1
Preservation Check Performe	ed by:	<u> </u>						: :
Field data collected by:	vis Snee	Date (mm/dd/yy)	10-	- <i>[]3-2@</i> Time (24 hr) _	8:55			
pH <u>5.95</u> Co	nd (umho) <u>39</u> (Res CI (mg/L)		Tot CI (mg/L) _	Fre	ee Cl (mg/L) _		
Temp (oC) 16,68 or	(oF)	Static Water Level		DO (mg/L)	т	urb. (NTU) _		
Flow (MGD) or	(CFS)	or (g/min)						
Relinquished by: (Siggrature)		Received by: (Sign	ature)		Date (mm.	/dd/yy)	Time (24 hr)	
Cum Son a		11.	Ne	-	10.14	-20	0838	-
- July 800 C	<i>!</i>	- 	/ (<i></i>				 -
	,				_			}
							_	
PACE- Check here if t	rip charge appli	ed to associated COC	-	Printed: 9		:44AM	Dono:	10 of 20
L .	- ••				•		_l raye	18 of 30

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/07/2020



Client: Big Rivers Electric Corporation Wilson Station	Report To: Big Rivers Electric C Station	orporation Wilson	Invoice To: Big Rivers E	Electric Corporation Wils	on Station
Project: MW-5 Wilson 092-00004	Mike Galbraith PO Box 24 Henderson, KY 4241	9	Brian Edwar PO Box 24 Henderson,		,
·	Phone: (270) 844-60	<u>00</u>	PO#:	· 	!
Please Print Legibly	PWS ID#: State:/ KU	.	Quote#		1
Collected by (Signature):	d Information*		Compli	ance Monitoring? Yes _	
*For composite samples please indicate begin time		d time below:	Sample	es Chlorinated? Yes _	No
Influent: Start Date Start time	End Date E	End Time	Temp (oC)		
Effluent: Start Date Start time	End Date	End Time	Temp (oC)		
LAB USE ONLY *required information* Workorder # Date Collection 0092631 (mm/dd/yy): Time (24 hr): B Sample ID#	ottle and Preservative	Sample Description	Composite	Sample Analysis F	Requested
 	astic 1L pH<2 w/HNO3 1 Rad 228 (Sub)	MW5	g/c	Radium 228 (sub)	
0092631-01 F 10-13-20 8:55 Pla	astic 1L pH<2 w/HNO3 1 Rad 228 (Sub)	MW5	g/c	Radium 228 (sub)	
0092631-01 G 10-13-20 8:55 Pla	servation Check: pH : astic 1L pH<2 w/HNO3 1 (Sub) servation Check: pH :	MW5	g/c	Radium Total (sub)	
0092631-01 H 10-13-20 8:55	AG 250mL pH<2 1 w/H2SO4	MW5	g / c	тос	
Pre	servation Check: pH :				į
•					1
					ì
					1
Preservation Check Performed by:					
Field data collected by: Tegu's Sound	Date (mm/dd/yy) 10 - I	3.7c Time (24 hr)	8:55		
pH <u>5.95</u> Cond (umho) <u>396</u>				ee Cl (mg/L)	
Temp (oC) 16.68 or (oF)					
	or (g/min)			, , ,	
Relinquished by: (Signature)	Received by: (Signature)	·	Date (mm/	dd/yy) Time (24	hr)
Mer Much	My Yee)	10-14	·20 UF3	8
					1
PACE- Check here if trip charge applied	to associated COC	Printed: 9	/10/2020 10:06:	44AM Pag	e 19 of 30

(724)850-5600



November 04, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 92631

Pace Project No.: 30387825

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on October 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 - Greensburg

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

Sincerely,

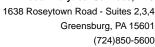
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 92631
Pace Project No.: 30387825

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

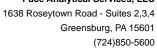
Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249 Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3 Utah/TNI Certification #: PA014572017-9 USDA Soil Permit #: P330-17-00091 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 9526 Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad Wyoming Certification #: 8TMS-L





SAMPLE SUMMARY

Project: 92631
Pace Project No.: 30387825

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30387825001	0092631-01	Water	10/13/20 08:55	10/15/20 09:25





SAMPLE ANALYTE COUNT

Project: 92631
Pace Project No.: 30387825

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30387825001	0092631-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92631
Pace Project No.: 30387825

Sample: 0092631-01 Lab ID: 30387825001 Collected: 10/13/20 08:55 Received: 10/15/20 09:25 Matrix: Water

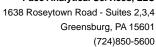
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.

• Upon receipt at the laboratory, 5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH

<2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 903.1	0.191 ± 0.297 (0.515) C:NA T:103%	pCi/L	11/04/20 12:59	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	1.51 ± 0.530 (0.743) C:72% T:85%	pCi/L	10/30/20 12:01	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.70 ± 0.827 (1.26)	pCi/L	11/04/20 14:23	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project:

92631

Pace Project No.:

30387825

QC Batch: QC Batch Method: 419199

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387825001

METHOD BLANK: 2026443

Matrix: Water

Associated Lab Samples:

30387825001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

-0.0904 ± 0.280 (0.637) C:NA T:89%

pCi/L

11/04/20 12:44

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: 92631 Pace Project No.:

30387825

QC Batch:

419200

QC Batch Method:

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387825001

METHOD BLANK: 2026444

Matrix: Water

Associated Lab Samples: 30387825001

Parameter

Act ± Unc (MDC) Carr Trac

Units

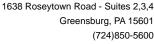
Analyzed

Qualifiers

Radium-228 0.598 ± 0.458 (0.907) C:69% T:82% pCi/L

10/30/20 12:00

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: 92631
Pace Project No.: 30387825

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.

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: 11/04/2020 02:24 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Chain of Custody

Face Analytical "

LAB USE ONLY WO#:30387825 Sample Intact Yor N Results Requested By: Comments Requested Analysis Workorder Name: MW-5 Wilson 092-00004 Owner Received Date: 10/14/2020 Received on Ice Y br N EPA 904.0 Radium Sum Calc UNS PO Date/Time £PA 903.1 Preserved Containers Pace Analytical Services LLC Greensburg PA Ground Matrix Water 3 Reveived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Custody Seal Y ov N Greensburg, PA 15601 Lab ID Date/Time Subcontract To: (724) 850-5615 10/13/20 08:55 Date/Time Collect ၁ Sample Type rob.whittington@pacelabs.com Cooler Temperature on Receipt Madisonville, KY 42409 Transfers |Released By Workorder: 92631 McCoy & McCoy Labs 0092631-01 Item | Sample ID 270-821-7375 P.O. Box 907 Report To: 19 ∞

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC This chain of custody is considered complete as is since this information is available in the owner laboratory.

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Page 9 of 11 Page 28 of 30

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0092631

#-30387825

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA

1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601

Phone: (724) 850-5615

Fax:

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0092631-01	Water	Sampled:10/13/2020 08:55	Specific Method		
Radium Total (sub)		04/11/2021 08:55	EPA 904,0 Radium S	um (
Radium 228 (sub)		04/11/2021 08:55	EPA 904,0 Radium S	um C	
Radium 226 (sub)		04/11/2021 08:55	EPA 903.1		

Received By

Date

Date

Released By

Date

Received By

Pittsburgh Lab Sample Condit	ion l	Jpon	Re	ceipt	
Face Analytical Client Name:	M	CIO	NSC	Project #	2 5
Courier: Fed Ex UPS USPS USPS USPS Tracking #: 1107 3386 9238/92	250		71	Pace Other Label WM LIMS Login WM	
Custody Seal on Cooler/Box Present:	Type	o of Ice:	77-7	intact: yes no	
Cooler Temperature Observed Temp 7.5	171	° C	Corre	ection Factor: 0.1.c Final Temp: 7.4/7.4/5	
Temp should be above freezing to 6°C	7	•			
Comments:	Yes	. No	N/A	pH paper Lot# Date and Initials of person examining contents: 10/0/20	
Chain of Custody Present:				1.	
Chain of Custody Filled Out:				2.	
Chain of Custody Relinquished:				3.	
Sampler Name & Signature on COC:				4.	~
Sample Labels match COC:				5. 10 De 1 (lade 5) Conte	<i>a</i> ~
-Includes date/time/ID Matrix:	WT		_	"notimeldate on contain	100
Samples Arrived within Hold Time:				6.	
Short Hold Time Analysis (<72hr remaining):				7.	
Rush Turn Around Time Requested:				8.	
Sufficient Volume:				9.	
Correct Containers Used:				10.	
-Pace Containers Used:					
Containers Intact:				11.	
Orthophosphate field filtered				12.	
Hex Cr Aqueous sample field filtered				13.	
Organic Samples checked for dechlorination:				14.	
Filtered volume received for Dissolved tests				15.	,
All containers have been checked for preservation.				16. Added 5.0 rnl of HW3 to	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon,			all bottles	
All containers meet method preservation				Initial when completed ET Date/time of preservation 10 16 2020 1745	
requirements.	L				
			· ·	preservative DOZO~ 1174	
Headspace in VOA Vials (>6mm):				17.	
Trip Blank Present:				18.	
Trip Blank Custody Seals Present					1.
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed: ET Date: 10-10-20-20	
Client Notification/ Resolution:					
Person Contacted:			-Date/	Fime:Gontacted-By:	
Comments/ Resolution:					

A check in this box indicates that additional information has been stored in ereports.

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0092632

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419 Customer ID: Report Printed:

44-100168 11/05/2020 13:51

Project Name: MW-6 Wilson 092-00004

Workorder: 0092632

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 10/14/2020 08:38.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0092632-01	MW6/		Groundwater	10/13/2020 09:40	10/14/2020 8:38	Phillip Hill
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0092632-01	Field Conductance	2410				
	Field pH	6.72				
	Field Temp (C)	16.60				



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ANALYTICAL RESULTS

Lab Sample ID: **0092632-01** Sample Collection Date Time: 10/13/2020 09:40

Description: MW6 Sample Received Date Time: 10/14/2020 08:38

Metals by SW846 6000 Series Methods

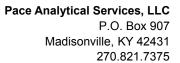
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Arsenic	0.0054		mg/L	0.0010	0.0004	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Barium	0.013		mg/L	0.004	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Boron	0.34		mg/L	0.10	0.10	SW846 6010 B	10/15/2020 07:52	10/20/2020 15:35	DMH
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Calcium	483	D1	mg/L	40.0	13.0	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:43	AKB
Chromium	0.0007	J	mg/L	0.0020	0.0006	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Cobalt	0.009		mg/L	0.004	0.004	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Copper	ND	U, B	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Iron	6.43	D2	mg/L	1.00	0.500	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:40	AKB
Lead	0.0006	J	mg/L	0.002	0.0005	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Lithium	0.04		mg/L	0.02	0.005	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Magnesium	223	D1	mg/L	20.0	9.00	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:43	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Molybdenum	0.007	J	mg/L	0.01	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Nickel	0.017		mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Potassium	11.0	D2	mg/L	5.00	2.20	SW846 6010 B	10/15/2020 07:52	10/16/2020 10:35	dmh
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Sodium	40.4	D2	mg/L	2.60	1.00	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:40	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:24	CAM

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	526		mg/L	4		2320 B-2011	10/21/2020 18:56	10/21/2020 18:56	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	10/21/2020 18:56	10/21/2020 18:56	HMF
Total Alkalinity	526		mg/L	4		2320 B-2011	10/21/2020 18:56	10/21/2020 18:56	HMF
Chemical Oxygen Demand	10		mg/L	5	5	HACH 8000	10/23/2020 13:24	10/23/2020 15:30	HMF
Specific Conductance	3140		umhos/cm	1	1	2510 B-2011	10/20/2020 15:59	10/20/2020 15:59	CML
(Lab)									
Hardness as CaCO3	2050	D	mg/L	5	5	2340 C (as HACH	10/19/2020 11:52	10/19/2020 11:52	CLL
Total Dissolved Solids	3030		ma/l	50	50	8226) 2540 C-2011	10/16/2020 11:40	10/19/2020 17:00	DJK
iotai Dissoiveu Solius	3030		mg/L	30	50	2040 0-2011	10/10/2020 11.40	10/13/2020 17:00	אנט
Total Organic Carbon	1.8		mg/L	0.5		5310 C-2011	10/18/2020 00:48	10/18/2020 00:48	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.060	_Sub	pCi/L			EPA 903.1	11/04/2020 00:00	11/04/2020 00:00	xxx
Radium-228	0.508	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	10/30/2020 00:00	10/30/2020 00:00	xxx
Radium	0.568	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	11/04/2020 00:00	11/04/2020 00:00	XXX





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Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	18.9		mg/L	0.5	0.4	EPA 300.0 REV 2.1	10/21/2020 02:30	10/21/2020 02:30	CSC
Fluoride	ND	U	mg/L	0.20		EPA 300.0 REV 2.1	10/21/2020 02:30	10/21/2020 02:30	CSC
Sulfate	1750	D	mg/L	100	50.0	EPA 300.0 REV 2.1	10/21/2020 02:47	10/21/2020 02:47	CSC



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Notes for work order 0092632

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.

Sample RPD exceeded the method control limit.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

Υ1

В	Target analyte detected in method blank at or above the method reporting limit.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
J	Estimated value.
L1	The associated blank spike recovery was above method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

Greater than Less than

Results relate only to the items tested.



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:52									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Blank (B042261-BLK2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:10									
Potassium	ND	0.50	mg/L							U
Blank (B042261-BLK3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:36									
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	0.003	0.003	mg/L							В
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		=					0/5=0			
	5 "	Reporting	11.89	Spike	Source	0/ 5=0	%REC	DE-	RPD	N
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/21/2020	12:43									
Molybdenum	ND	0.01	mg/L							U
Copper	0.003	0.003	mg/L							В
Selenium	ND	0.003	mg/L							U
LCS (B042261-BS1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:56									
Boron	0.13	0.10	mg/L	0.125		101	85-115			
Calcium	6.42	0.40	mg/L	6.25		103	85-115			
Iron	6.27	0.100	mg/L	6.25		100	85-115			
Magnesium	5.31	0.200	mg/L	6.25		85.0	85-115			
Potassium	8.21	0.50	mg/L	6.25		131	85-115			L1
Sodium	6.41	0.26	mg/L	6.25		103	85-115			
LCS (B042261-BS2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:13									
Potassium	6.67	0.50	mg/L	6.25		107	85-115			
LCS (B042261-BS3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:40									
Antimony	0.072	0.005	mg/L	0.0625		115	85-115			
Mercury	0.0025	0.0005	mg/L	0.00250		101	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		109	85-115			
Arsenic	0.0657	0.0010	mg/L	0.0625		105	85-115			
Barium	0.067	0.004	mg/L	0.0625		107	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		103	85-115			
Cadmium	0.0646	0.0010	mg/L	0.0625		103	85-115			
Chromium	0.0682	0.0020	mg/L	0.0625		109	85-115			
Cobalt	0.067	0.004	mg/L	0.0625		107	85-115			
Copper	0.068	0.003	mg/L	0.0625		109	85-115			В
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.07	0.02	mg/L	0.0625		107	85-115			
Nickel	0.066	0.003	mg/L	0.0625		106	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0663	0.0020	mg/L	0.0625		106	85-115			
Zinc	0.07	0.02	mg/L	0.0625		106	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
LCS (B042261-BS4)										
Prepared: 10/15/2020 7:52, Analyzed:	10/21/2020 12:47									
		0.01	ma/l	0.0625		107	0E 11E			
Molybdenum	0.07	0.01	mg/L	0.0625 0.0625		107	85-115 85-115			В
Copper Selenium	0.067 0.064	0.003 0.003	mg/L mg/L	0.0625		107 103	85-115			Б
Celeman	0.004	0.003	mg/L	0.0023		100	03-113			
Matrix Spike (B042261-MS1)	Source: 0092620-0	1								
Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:14									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	5.57	10.0	mg/L	6.25	ND	89.1	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			U, D2, M4
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, M4, U
Matrix Spike (B042261-MS2)	Source: 0092629-0	1								
Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	394	40.0	mg/L	6.25	384	166	80-120			D2, M1
Iron	15.8	10.0	mg/L	6.25	9.29	105	80-120			D2
Magnesium	147	20.0	mg/L	6.25	97.9	790	80-120			D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	81.5	26.0	mg/L	6.25	72.3	146	80-120			D2, M1
Matrix Spike (B042261-MS3)	Source: 0092620-0	1								
Prepared: 10/15/2020 7:52, Analyzed:	10/20/2020 19:57									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	112	80-120			D2, J
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120			D2, J
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120			D2
Arsenic	0.0695	0.0100	mg/L	0.0625	ND	111	80-120			D2
Barium	0.066	0.040	mg/L	0.0625	ND	105	80-120			D2
Beryllium	0.0628	0.0200	mg/L	0.0625	ND	101	80-120			D2
Cadmium	0.0649	0.0100	mg/L	0.0625	ND	104	80-120			D2
Chromium	0.0659	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120			D2
Copper	0.065	0.030	mg/L	0.0625	ND	104	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.06	0.20	mg/L	0.0625	ND	102	80-120			D2, J
Nickel	0.066	0.030	mg/L	0.0625	ND	105	80-120			D2
Selenium	0.070	0.030	mg/L	0.0625	ND	112	80-120			D2
Thallium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike (B042261-MS4)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/20/2020 20:04									
Molybdenum	0.07	0.10	mg/L	0.0625	ND	115	80-120			D2, J
Mercury	0.0028	0.0050	mg/L	0.00250	ND	110	80-120			D2, J
Antimony	0.075	0.050	mg/L	0.0625	ND	121	80-120			D2, M1
Arsenic	0.0732	0.0100	mg/L	0.0625	ND	117	80-120			D2
Barium	0.082	0.040	mg/L	0.0625	0.014	108	80-120			D2
Beryllium	0.0639	0.0200	mg/L	0.0625	ND	102	80-120			D2
Cadmium	0.0656	0.0100	mg/L	0.0625	ND	105	80-120			D2
Chromium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.082	0.040	mg/L	0.0625	ND	132	80-120			D2, M1
Copper	0.061	0.030	mg/L	0.0625	ND	98.3	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.11	0.20	mg/L	0.0625	ND	175	80-120			D2, M1, J
Nickel	0.089	0.030	mg/L	0.0625	0.022	107	80-120			D2
Selenium	0.069	0.030	mg/L	0.0625	ND	111	80-120			D2
Thallium	0.0647	0.0200	mg/L	0.0625	ND	104	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U
Matrix Spike Dup (B042261-MSD1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:17									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	5.93	10.0	mg/L	6.25	ND	94.9	80-120	6.26	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	U, D2, M4
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD2)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	414	40.0	mg/L	6.25	384	484	80-120	4.92	20	D2, M1
Iron	16.4	10.0	mg/L	6.25	9.29	114	80-120	3.84	20	D2
Magnesium	155	20.0	mg/L	6.25	97.9	913	80-120	5.08	20	D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	85.4	26.0	mg/L	6.25	72.3	209	80-120	4.70	20	D2, M1





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		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike Dup (B042261-MSD3)	Source: 0092620-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2	020 20:00									
Mercury	0.0027	0.0050	mg/L	0.00250	ND	107	80-120	3.90	20	D2, J
Antimony	0.071	0.050	mg/L	0.0625	ND	114	80-120	2.25	20	D2
Molybdenum	0.06	0.10	mg/L	0.0625	ND	104	80-120	4.25	20	D2, J
Arsenic	0.0678	0.0100	mg/L	0.0625	ND	109	80-120	2.47	20	D2
Barium	0.065	0.040	mg/L	0.0625	ND	104	80-120	1.34	20	D2
Beryllium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.33	20	D2
Cadmium	0.0632	0.0100	mg/L	0.0625	ND	101	80-120	2.66	20	D2
Chromium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.48	20	D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120	0.325	20	D2
Copper	0.062	0.030	mg/L	0.0625	ND	98.8	80-120	4.81	20	D2, B
Lead	0.064	0.020	mg/L	0.0625	ND	103	80-120	1.15	20	D2
Lithium	0.06	0.20	mg/L	0.0625	ND	99.1	80-120	2.77	20	D2, J
Nickel	0.063	0.030	mg/L	0.0625	ND	101	80-120	4.21	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	108	80-120	3.49	20	D2
Thallium	0.0644	0.0200	mg/L	0.0625	ND	103	80-120	1.56	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD4)	Source: 0092629-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2	020 20:08									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	111	80-120	0.768	20	D2, J
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120	3.64	20	D2
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120	6.82	20	D2, J
Arsenic	0.0721	0.0100	mg/L	0.0625	ND	115	80-120	1.40	20	D2
Barium	0.080	0.040	mg/L	0.0625	0.014	105	80-120	2.21	20	D2
Beryllium	0.0622	0.0200	mg/L	0.0625	ND	99.6	80-120	2.65	20	D2
Cadmium	0.0628	0.0100	mg/L	0.0625	ND	100	80-120	4.34	20	D2
Chromium	0.0645	0.0200	mg/L	0.0625	ND	103	80-120	1.44	20	D2
Cobalt	0.081	0.040	mg/L	0.0625	ND	130	80-120	1.84	20	D2, M1
Copper	0.059	0.030	mg/L	0.0625	ND	93.7	80-120	4.77	20	D2, B
Lead	0.063	0.020	mg/L	0.0625	ND	101	80-120	2.71	20	D2
Lithium	0.11	0.20	mg/L	0.0625	ND	179	80-120	2.20	20	D2, M1, J
Nickel	0.088	0.030	mg/L	0.0625	0.022	106	80-120	0.909	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	107	80-120	2.91	20	D2
Thallium	0.0641	0.0200	mg/L	0.0625	ND	103	80-120	0.991	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U





	Por	orting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Analyte	Resuit	LIIIIII	Units	Level	Result	%KEU	LIIIIIIS	KPU	LIIIIII	Notes
Batch B042261 - EPA 200.2										
Post Spike (B042261-PS1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed	d: 10/15/2020 15:27									
Boron	113		ug/L	125	-0.57	90.4	75-125			D2
Calcium	6400		ug/L	6250	39.0	102	75-125			D2
Iron	5840		ug/L	6250	-0.050	93.5	75-125			D2
Magnesium	6590		ug/L	6250	2.27	105	75-125			D2
Potassium	6300		ug/L	6250	9.60	101	75-125			D2
Sodium	6100		ug/L	6250	21.6	97.3	75-125			D2
Post Spike (B042261-PS2)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed	d: 10/20/2020 20:11									
Molybdenum	67.2		ug/L	62.5	0.04	107	75-125			D2
Mercury	2.75		ug/L	2.50	0.0323	109	75-125			D2
Antimony	70.5		ug/L	62.5	0.083	113	75-125			D2
Arsenic	71.3		ug/L	62.5	-0.0088	114	75-125			D2
Barium	63.7		ug/L	62.5	0.095	102	75-125			D2
Beryllium	65.4		ug/L	62.5	-0.0105	105	75-125			D2
Cadmium	63.6		ug/L	62.5	0.0157	102	75-125			D2
Chromium	65.6		ug/L	62.5	0.355	104	75-125			D2
Cobalt	63.7		ug/L	62.5	-0.003	102	75-125			D2
Copper	60.7		ug/L	62.5	-1.80	97.1	75-125			D2, B
Lead	64.8		ug/L	62.5	0.522	103	75-115			D2
Lithium	64.9		ug/L	62.5	0.04	104	75-125			D2
Nickel	63.8		ug/L	62.5	-0.079	102	75-125			D2
Selenium	67.6		ug/L	62.5	0.009	108	75-125			D2
Thallium	64.7		ug/L	62.5	0.00002	104	75-125			D2
Zinc	77.9		ug/L	62.5	3.15	120	75-125			D2





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042498 - Default Prep Wet Chem										
Blank (B042498-BLK1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B042498-BS1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	1490	25	mg/L	1500		99.6	80-120			
Duplicate (B042498-DUP1) S	ource: 0092629-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	2240	50	mg/L		2290			2.56	10	
Duplicate (B042498-DUP2) S	ource: 0102128-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	364	50	mg/L		370			1.63	10	
Batch B042577 - Default Prep Wet Chem										
Blank (B042577-BLK1)										
Prepared: 10/19/2020 10:58, Analyzed: 10/19/2020	20 10:58									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B042577-BS1)										
Prepared: 10/19/2020 11:00, Analyzed: 10/19/2020	20 11:00									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B042577-DUP1) S	ource: 0100778-02									
Prepared: 10/19/2020 12:16, Analyzed: 10/19/2020	20 12:16									
Hardness as CaCO3	268	1	mg/L		260			3.03	10	
Matrix Spike (B042577-MS1)	ource: 0100778-02									
Prepared: 10/19/2020 12:18, Analyzed: 10/19/2020	20 12:18									
Hardness as CaCO3	648	1	mg/L	318	260	122	80-120			Y1
Batch B042587 - Default Prep Wet Chem										
Blank (B042587-BLK1)										
Prepared: 10/17/2020 18:08, Analyzed: 10/17/2020	20 18:08									
Total Organic Carbon	ND	0.5	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042587 - Default Prep Wet Chem										
LCS (B042587-BS1)										
Prepared: 10/17/2020 17:47, Analyzed: 10/	17/2020 17:47									
Total Organic Carbon	4.7	0.5	mg/L	5.00		94.1	80-120			
Duplicate (B042587-DUP1)	Source: 0092628-0	Į								
Prepared: 10/17/2020 23:24, Analyzed: 10/	17/2020 23:24									
Total Organic Carbon	0.9	0.5	mg/L		1.0			8.76	25	
Duplicate (B042587-DUP2)	Source: 0100200-0	I								
Prepared: 10/18/2020 4:41, Analyzed: 10/	18/2020 4:41									
Total Organic Carbon	2.5	0.5	mg/L		2.4			2.64	25	
Matrix Spike (B042587-MS1)	Source: 0092629-0	1								
Prepared: 10/17/2020 23:45, Analyzed: 10/	17/2020 23:45									
Total Organic Carbon	3.9	0.5	mg/L	2.50	1.6	93.3	80-120			
Matrix Spike (B042587-MS2)	Source: 0100200-02	2								
Prepared: 10/18/2020 5:02, Analyzed: 10/	18/2020 5:02									
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.8	94.8	80-120			
Batch B043117 - Default Prep Wet Chem										
Blank (B043117-BLK1)										
Prepared: 10/21/2020 16:14, Analyzed: 10/	/21/2020 16:14									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK2)										
Prepared: 10/21/2020 18:13, Analyzed: 10/	21/2020 18:13									
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK3)										
Prepared: 10/21/2020 19:40, Analyzed: 10/	21/2020 19:40									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U



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		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043117 - Default Prep Wet Chem										
LCS (B043117-BS1)										
Prepared: 10/21/2020 18:06, Analyzed: 10/21/2020	20 18:06									
Total Alkalinity	249	4	mg/L	235		106	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	231	4	mg/L	225		103	0-200			
LCS (B043117-BS2)										
Prepared: 10/21/2020 19:35, Analyzed: 10/21/2020	20 19:35									
Carbonate Alkalinity as CaCO3	227	4	mg/L	225		101	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	254	4	mg/L	235		108	80-120			
Duplicate (B043117-DUP1) S	ource: 0092629-01	I								
Prepared: 10/21/2020 17:38, Analyzed: 10/21/2020	20 17:38									
Bicarbonate Alkalinity as CaCO3	295	4	mg/L		283			4.39	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Total Alkalinity	295	4	mg/L		283			4.39	10	
Duplicate (B043117-DUP2)	ource: 0092635-01	I								
Prepared: 10/21/2020 19:24, Analyzed: 10/21/2020	20 19:24									
Total Alkalinity	281	4	mg/L		268			4.88	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	281	4	mg/L		268			4.88	10	
Matrix Spike (B043117-MS1)	ource: 0092629-01	I								
Prepared: 10/21/2020 18:03, Analyzed: 10/21/2020	20 18:03									
Total Alkalinity	331	4	mg/L	49.4	283	98.6	80-120			
Matrix Spike (B043117-MS2)	ource: 0092635-01	I								
Prepared: 10/21/2020 19:30, Analyzed: 10/21/2020	20 19:30									
Total Alkalinity	301	4	mg/L	49.4	268	66.2	80-120			М3
Batch B043187 - Default Prep Wet Chem										
Blank (B043187-BLK1)										
Prepared: 10/20/2020 15:36, Analyzed: 10/20/2020	20 15:36									
Specific Conductance (Lab)	ND	1	umhos/cm							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043187 - Default Prep Wet Chem										
LCS (B043187-BS1)										
Prepared: 10/20/2020 15:37, Analyzed: 10/20	0/2020 15:37									
Specific Conductance (Lab)	1420		umhos/cm	1410		101	80-120			
Duplicate (B043187-DUP1)	Source: 0092629-01									
Prepared: 10/20/2020 15:54, Analyzed: 10/20)/2020 15:54									
Specific Conductance (Lab)	2600	1	umhos/cm		2610			0.307	1.24	
Duplicate (B043187-DUP2)	Source: 0102262-01									
Prepared: 10/20/2020 16:09, Analyzed: 10/20	0/2020 16:09									
Specific Conductance (Lab)	354	1	umhos/cm		351			0.851	1.24	
Batch B043582 - Default Prep Wet Chem										
Blank (B043582-BLK1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	ND	5	mg/L							U
LCS (B043582-BS1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	121	5	mg/L	125		96.8	90-110			
Duplicate (B043582-DUP1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:32									
Chemical Oxygen Demand	5	5	mg/L		ND				25	
Matrix Spike (B043582-MS1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	260	5	mg/L	250	ND	104	90-110			
Matrix Spike Dup (B043582-MSD1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	257	5	mg/L	250	ND	103	90-110	1.21	10	





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		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043121 - Default Prep IC										
Blank (B043121-BLK1)										
Prepared: 10/20/2020 22:42, Analyzed:	10/20/2020 22:42									
Fluoride	ND	0.20	mg/L							U
Chloride	ND	0.5	mg/L							U
Sulfate	ND	1.0	mg/L							U
LCS (B043121-BS1)										
Prepared: 10/20/2020 22:25, Analyzed:	: 10/20/2020 22:25									
Sulfate	9.2		mg/L	10.0		91.8	90-110			
Fluoride	9.25		mg/L	10.0		92.5	90-110			
Chloride	9.4		mg/L	10.0		93.7	90-110			
Matrix Spike (B043121-MS1)	Source: 0092635-0	01								
Prepared: 10/21/2020 5:58, Analyzed:	10/21/2020 5:58									
Chloride	48.6		mg/L	10.0	68.0	NR	80-120			M2
Sulfate	242		mg/L	10.0	593	NR	80-120			M2
Fluoride	9.28		mg/L	10.0	0.19	90.9	80-120			
Matrix Spike Dup (B043121-MSD1)	Source: 0092635-0)1								
Prepared: 10/21/2020 6:15, Analyzed:	10/21/2020 6:15									
Chloride	48.1		mg/L	10.0	68.0	NR	80-120	1.05	10	M2
Fluoride	9.21		mg/L	10.0	0.19	90.2	80-120	0.811	20	
Sulfate	240		mg/L	10.0	593	NR	80-120	0.795	20	M2
Certified Analyses included in this Rep										
Analyte	Certifications									
2320 B-2011 in Water										
Bicarbonate Alkalinity as CaCO3	KY Drinking Water Mo	dv (00030)								
Carbonate Alkalinity as CaCO3	KY Drinking Water Mo	dv (00030)								
Total Alkalinity	KY Drinking Water Mo	dv (00030)								
2340 C (as HACH 8226) in Water										
Hardness as CaCO3	KY Drinking Water Mo	dv (00030)								
2510 B-2011 in Water										
Specific Conductance (Lab)	KY Drinking Water Mo	dv (00030)								
2540 C-2011 in Water										
Total Dissolved Solids	KY Drinking Water Mo	dv (00030)								
5310 C-2011 in Water										
Total Organic Carbon	KY Drinking Water Mo	dv (00030)								
-										
EPA 300.0 REV 2.1 in Water Chloride	KY Drinking Water Mo	dv (00030)								
	KY Drinking Water Mo									
Fluoride	_									
Sulfate	KY Drinking Water Mo	av (00030)								
HACH 8000 in Water										
	I/\/\\/==t==t==.\\\data/	00020)								

KY Wastewater Mdv (00030)

Chemical Oxygen Demand

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0092632
Shipped By: Client	Temperature: 1.00° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	abla
Check if Collector Signature Present	☑
Check if bottles are intact	
Check if bottles are correct	☑
Check if bottles have sufficient volume	
Check if samples received on ice	✓
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	

Chain of Custody

Scheduled for: <u>09/07/2020</u>



Client: Big Rivers Electric (Station	Corporation Wils		: Corporation Wilson	Invoice To: Big Rivers E	Electric Corporation Wilson Station
Project: MW-6 Wilson 092-	00004	Mike Galbraith		Brian Edwar	ds
		PO Box 24	2410	PO Box 24 Henderson,	KV 42410
		Henderson, KY 42		nenderson,	NT 42419
		Phone: (270) 844-	<u>.6000</u>	PO#:	
Please Print Legibly	71	PWS ID#: State:		Quote#	
	4/1	77	·		
Collected by (Signature):	requ	uired information*		Compl	iance Monitoring? Yes No
*For composite samples plea	se indicate begin	time, end time and temp(oC) at	end time below:	Sample	es Chlorinated? Yes No
Influent: Start Date	Start time	End Date	_ End Time	Temp (oC)	
Effluent: Start Date	Start time	End Date	_ End Time	Temp (oC)	
Workorder # Date	d information* Collection Time (24 hr):	Bottle and Preservative So	Sample Description	Composite	Sample Analysis Requested
0092632-01 A 10/13/20	946	Plastic 1L 1	- MW6	g/c	TDS Alkalinity Carbonate Alkalinity Total Chloride 300.0 Conductivity (Lab) Fluoride 300.0 Sulfate 300.0
0092632-01 B /0/1/20	940	Plastic 500mL pH<2 1 w/HNO3	MW6	g/c	Alkalinity Bicarbonate Beryllium Tot 6020 Lead Tot 6020 Antimony Tot 6020 Arsenic Tot 6020 Boron Tot 6010B Barium Tot 6020 Cadmium Tot 6020 Calcium Tot
0092632-01 C <u>/۵//3/2</u> 0	940	Preservation Check: pH : Plastic 500mL pH<2 1 w/H2SO4 Preservation Check: pH :	/ MW6	g/c	6010B Chromium Tot 6020 Cobalt Tot 6020 Copper Tot 6020 Hardness Titration Iron Tot 6010B Lithium Tot 6020 Magnesium Tot 6010B COD TOC
0092632-01 D <u>10/13/20</u>		Plastic 1L pH<2 w/HNO3 1 Rad 226 (Sub) Preservation Check: pH :	MW6	g/c	Radium 226 (sub)
	ms/ca 2.	Date (mm/dd/yy) 19/1. Y Res Cl (mg/L) Static Water Level		Fr	ee CI (mg/L)
Flow (MGD) or	(CFS)	or (g/min)			
Relinquished by: (Sigrature)	/	Received by: (Signature	e)	Date (mm	/dd/yy) Time (24 hr)
Thispend		1740	in .	16-14	1.20 0835
PACE- Check here i	f trip charge app	lied to associated COC	Printed:	9/10/2020 10:07	:28AM Page 18 of 30

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/07/2020



				J	
Client: Big Rivers Electric Cor Station	poration Wilson		: Corporation Wilson	Invoice To: Big Rivers E	electric Corporation Wilson Stati
		Station Mike Galbraith		Brian Edwar	ds
Project: MW-6 Wilson 092-000	04	PO Box 24		PO Box 24	
		Henderson, KY 42	2419	Henderson,	KY 42419
		Phone: (270) 844- PWS ID#:	6000	PO#:	·
Please Print Legibly	-1	, State:	<u> </u>	Quote#	
Collected by (Signature):	7/1.m	2/		Compli	ance Monitoring? Yes No
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	*required in	nformation*		Sample	es Chlorinated? Yes No
*For composite samples please i	ndicate begin time, e	nd time and temp(oC) at	end time below:		<u> </u>
nfluent: Start Date	Start time	End Date	_ End Time	Temp (oC)	
Effluent: Start Date	Start time	End Date	End Time	Temp (oC)	
LAB USE ONLY *required inf Workorder # Date 0092632 (mm/dd/yy): 1 Sample ID#	Collection	e and Preservative	Sample Description	Composite	Sample Analysis Reques
0092632-01 E 19/12/20		c 1L pH<2 w/HNO3 1	, MW6	g/c	Radium 228 (sub)
0092632-01 F 10/13/20 _	940 Plasti	vation Check: pH: c 1L pH<2 w/HNO3	MW6	g/c	Radium 228 (sub)
1 1		vation Check: pH : 💆	<u>′</u>		
092632-01 G <u>10/12/2 s</u>	940 Plasti	c 1L pH<2 w/HNO3 1 (Sub)	/ MW6	g/c	Radium Total (sub)
1.1.1.		vation Check: pH :			
0092632-01 H <u>10/13/20</u> _	940 A	G 250mL pH<2 1 w/H2SO4	MW6	g/c	TOC
	Prese	rvation Check: pH :			
	Vo				
Preservation Check Performed	by:				
Field data collected by:	lip IL'U	Date (mm/dd/yy) <u>/0</u> /	/ <u>////////////////////////////////////</u>	940	
pH <u>4.72</u> Cond	ms/cn 2.41	Res CI (mg/L)	Tot CI (mg/L) _		
Temp (oC) 16,60 or	(oF)	Static Water Level	DO (mg/L) _	Т	urb. (NTU)
Flow (MGD) or	(CFS)	or (g/min)			
Relinquished by: (Signature)		Received by: (Signatur	e)	Date (mm/	/dd/yy) Time (24 hr)
The So	_d	11-11	w	16-14	-20 0838
•		1 /	•		

PACE- Check here if trip charge applied to associated COC

Printed: 9/10/2020 10:07:28AM

Page 19 of 30

(724)850-5600



November 04, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 92632

Pace Project No.: 30387826

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on October 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 - Greensburg

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

Sincerely,

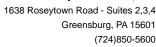
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 92632 Pace Project No.: 30387826

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

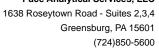
Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

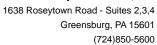




SAMPLE SUMMARY

Project: 92632
Pace Project No.: 30387826

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30387826001	0092632-01	Water	10/13/20 09:40	10/15/20 09:25



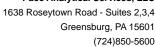


SAMPLE ANALYTE COUNT

Project: 92632
Pace Project No.: 30387826

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30387826001	0092632-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg





ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92632
Pace Project No.: 30387826

Sample: 0092632-01 Lab ID: 30387826001 Collected: 10/13/20 09:40 Received: 10/15/20 09:25 Matrix: Water

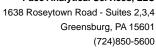
PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.

• Upon receipt at the laboratory, 5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH

<2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytica	Services - Greensburg				
Radium-226	EPA 903.1	0.0599 ± 0.389 (0.785) C:NA T:85%	pCi/L	11/04/20 12:59	13982-63-3	
	Pace Analytica	l Services - Greensburg				
Radium-228	EPA 904.0	0.508 ± 0.429 (0.865) C:67% T:87%	pCi/L	10/30/20 12:01	15262-20-1	
	Pace Analytica	l Services - Greensburg				
Total Radium	Total Radium Calculation	0.568 ± 0.818 (1.65)	pCi/L	11/04/20 14:23	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project: 92632
Pace Project No.: 30387826

QC Batch: 419199 Analysis Method:

QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

Laboratory: Pace Analytical Services - Greensburg

EPA 903.1

Associated Lab Samples: 30387826001

METHOD BLANK: 2026443 Matrix: Water

Associated Lab Samples: 30387826001

ParameterAct \pm Unc (MDC) Carr TracUnitsAnalyzedQualifiersRadium-226-0.0904 \pm 0.280 (0.637) C:NA T:89%pCi/L11/04/20 12:44

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:

92632

Pace Project No.:

30387826

QC Batch: QC Batch Method: 419200

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387826001

METHOD BLANK: 2026444

Matrix: Water

Associated Lab Samples:

30387826001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

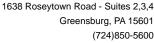
Radium-228

0.598 ± 0.458 (0.907) C:69% T:82%

pCi/L

10/30/20 12:00

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: 92632 Pace Project No.: 30387826

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.

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: 11/04/2020 02:24 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Chain of Custody

Face Analytical *

LAB USE ONLY JO#:30387826 Sample Intage Y or N Results Requested By: ***In order to maintain client confidentiality, location/name of the starpling site, sampler's name and signature may not be provided on this COE Comments Requested Analysis 30387826 Workorder Name: MW-6 Wilson 092-00004 Owner Received Date: 10/14/2020 Received on Ice Y or N PPA 904.0 Radium Sum Calc Date/Time EPA 903.1 This chain of custody is considered complete as is since this information is available in the owner laboratory. Preserved Containers Pace Analytical Services LLC Greensburg PA Growad Matrix Water 10/Kmg Reveived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Custody Seal Y or/N Greensburg, PA 15601 Lab ID Date/Time Subcontract To: (724) 850-5615 10/13/20 09:40 Date/Time Collect ပ Sample Type 3 rob.whittington@pacelabs.com Cooler Temperature on Receipt Madisonville, KY 42409 Transfers |Released By Workorder: 92632 McCoy & McCoy Labs 0092632-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 10

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Page 9 of 11 Page 28 of 30

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0092632

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601

Phone :(724) 850-5615

Fax:

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0092632-01	Water	Sampled:10/13/2020 09:40	Specific Method		
Radium Total (sub)		04/11/2021 09:40	EPA 904.0 Radium S	Sum C	
Radium 228 (sub)		04/11/2021 09:40	EPA 904,0 Radium S	Sum C	
Radium 226 (sub)		04/11/2021 09:40	EPA 903.1		

Released By Date

Received By

Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condit	ion l	Jpon	Re	ceipt	
Pace Analytical Client Name:	- 🗛	DIA	150	2010101	
Client Name:	<u> v </u>	UU	VVU	ONVIIX Project# 3038782	6
	г.		-aial	Pace Other Label SW	. •
Courier: Fed Ex UPS USPS Usient Tracking #: 107 3386 9238/92	25 <u>0</u>	omme 197	7/	LIMS Login S/M	
Custody Seal on Cooler/Box Present: yes	∠ /n	o	Seals	intact: yes no	
Thermometer Used	Туре	of Ice:	Wet	Blue None	
Cooler Temperature Observed Temp 751	<u> 17 </u>	°C	Corre	ection Factor: O · / °C Final Temp: 7.4/1.4/5	
Temp should be above freezing to 6°C	1				
Comments:	Yes	. No	N/A	pH paper Lot# Date and Initials of person examining contents: 10/0/20	
Chain of Custody Present:				1.	
Chain of Custody Filled Out:				2.	
Chain of Custody Relinquished:				3.	
Sampler Name & Signature on COC:				4.	- N MAIL INSTITUTE
Sample Labels match COC:				5. notine I date an conta	in X
-Includes date/time/ID Matrix:	WI			THE CONTRACTOR OF THE PROPERTY	WICI
Samples Arrived within Hold Time:				6.	
Short Hold Time Analysis (<72hr remaining):				7.	
Rush Turn Around Time Requested:				8.	
Sufficient Volume:				9.	
Correct Containers Used:				10.	
-Pace Containers Used:	L.,				
Containers Intact:				11.	
Orthophosphate field filtered				12.	
Hex Cr Aqueous sample field filtered				13,	
Organic Samples checked for dechlorination:	ļ			14	
Filtered volume received for Dissolved tests				15.	
All containers have been checked for preservation.		<u> </u>	<u> </u>	16. added 5.0mc of HN03 to	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Kadon			an bottles	
All containers meet method preservation			ſ	Initial when Date/time of	
requirements.	L		<u> </u>	completed ST preservation 10-lto-2020 1745	
		·····	<u> </u>	Lot# of added preservative DC00 - 1/74	
Headspace in VOA Vials (>6mm):				17.	
Trip Blank Present:			<u> </u>	18.	
Trip Blank Custody Seals Present					· .
Rad Samples Screened < 0.5 mrem/hr				Initial when completed: ET Date: 10-1 (g-2020)	
Client Notification/ Resolution:					
Person Contacted:			-Date/	Firme:Contacted-By:	
Comments/ Resolution:					

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)

 \square A check in this box indicates that additional information has been stored in ereports.

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0092633

Mike Galbraith
Big Rivers Electric Corporation Wilson Station
PO Box 24
Henderson KY, 42419

Customer ID: Report Printed:

44-100168 11/05/2020 13:53

Project Name: MW-7 Wilson 092-00004

Workorder:

0092633

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 10/14/2020 08:38.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0092633-01	MW7/		Groundwater	10/13/2020 10:25	10/14/2020 8:38	Travis Sneed
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0092633-01	Field Conductance	2450				
	Field pH	6.02				
	Field Temp (C)	16.29				



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

Lab Sample ID: 0092633-01 Sample Collection Date Time: 10/13/2020 10:25

Description: MW7 Sample Received Date Time: 10/14/2020 08:38

Metals by SW846 6000 Series Methods

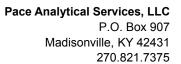
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Arsenic	0.0036		mg/L	0.0010	0.0004	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Barium	0.013		mg/L	0.004	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Boron	2.26	D1	mg/L	1.00	1.00	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:46	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Calcium	350	D1	mg/L	40.0	13.0	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:49	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Copper	ND	U, B	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Iron	4.27	D2	mg/L	1.00	0.500	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:46	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Lithium	0.03		mg/L	0.02	0.005	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Magnesium	94.6	D2	mg/L	2.00	0.900	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:46	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Molybdenum	0.005	J	mg/L	0.01	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Nickel	0.005		mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Potassium	7.60	D2	mg/L	5.00	2.20	SW846 6010 B	10/15/2020 07:52	10/16/2020 10:47	dmh
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Sodium	42.3	D2	mg/L	2.60	1.00	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:46	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:42	CAM

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	337		mg/L	4		2320 B-2011	10/21/2020 19:04	10/21/2020 19:04	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	10/21/2020 19:04	10/21/2020 19:04	HMF
Total Alkalinity	337		mg/L	4		2320 B-2011	10/21/2020 19:04	10/21/2020 19:04	HMF
Chemical Oxygen Demand	6		mg/L	5	5	HACH 8000	10/23/2020 13:24	10/23/2020 15:31	HMF
Specific Conductance	2340		umhos/cm	1	1	2510 B-2011	10/20/2020 16:00	10/20/2020 16:00	CML
(Lab)									
Hardness as CaCO3	1680	D	mg/L	5	5	2340 C (as HACH	10/19/2020 12:58	10/19/2020 12:58	CLL
						8226)			
Total Dissolved Solids	1950		mg/L	50	50	2540 C-2011	10/16/2020 11:40	10/19/2020 17:00	DJK
Total Organic Carbon	1.5		mg/L	0.5		5310 C-2011	10/18/2020 01:09	10/18/2020 01:09	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.276	_Sub	pCi/L			EPA 903.1	11/04/2020 00:00	11/04/2020 00:00	xxx
Radium-228	0.691	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	10/30/2020 00:00	10/30/2020 00:00	XXX
Radium	0.967	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	11/04/2020 00:00	11/04/2020 00:00	xxx





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Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	45.0	D	mg/L	1.0	0.7	EPA 300.0 REV 2.1	10/21/2020 03:22	10/21/2020 03:22	CSC
Fluoride	0.22		mg/L	0.20		EPA 300.0 REV 2.1	10/21/2020 03:04	10/21/2020 03:04	CSC
Sulfate	1050	D	mg/L	100	50.0	EPA 300.0 REV 2.1	10/21/2020 03:39	10/21/2020 03:39	CSC



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Notes for work order 0092633

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.

Sample RPD exceeded the method control limit.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

Υ1

% Rec

В	Target analyte detected in method blank at or above the method reporting limit.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
J	Estimated value.
L1	The associated blank spike recovery was above method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate

RPD Relative Percent Difference

Percent Recovery

Greater than Less than

Results relate only to the items tested.



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:52									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Blank (B042261-BLK2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:10									
Potassium	ND	0.50	mg/L							U
Blank (B042261-BLK3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:36									
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	0.003	0.003	mg/L							В
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		=					0/5=0			
	5 "	Reporting	11.89	Spike	Source	0/ 5=0	%REC	DE-	RPD	N
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/21/2020	12:43									
Molybdenum	ND	0.01	mg/L							U
Copper	0.003	0.003	mg/L							В
Selenium	ND	0.003	mg/L							U
LCS (B042261-BS1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:56									
Boron	0.13	0.10	mg/L	0.125		101	85-115			
Calcium	6.42	0.40	mg/L	6.25		103	85-115			
Iron	6.27	0.100	mg/L	6.25		100	85-115			
Magnesium	5.31	0.200	mg/L	6.25		85.0	85-115			
Potassium	8.21	0.50	mg/L	6.25		131	85-115			L1
Sodium	6.41	0.26	mg/L	6.25		103	85-115			
LCS (B042261-BS2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:13									
Potassium	6.67	0.50	mg/L	6.25		107	85-115			
LCS (B042261-BS3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:40									
Antimony	0.072	0.005	mg/L	0.0625		115	85-115			
Mercury	0.0025	0.0005	mg/L	0.00250		101	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		109	85-115			
Arsenic	0.0657	0.0010	mg/L	0.0625		105	85-115			
Barium	0.067	0.004	mg/L	0.0625		107	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		103	85-115			
Cadmium	0.0646	0.0010	mg/L	0.0625		103	85-115			
Chromium	0.0682	0.0020	mg/L	0.0625		109	85-115			
Cobalt	0.067	0.004	mg/L	0.0625		107	85-115			
Copper	0.068	0.003	mg/L	0.0625		109	85-115			В
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.07	0.02	mg/L	0.0625		107	85-115			
Nickel	0.066	0.003	mg/L	0.0625		106	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0663	0.0020	mg/L	0.0625		106	85-115			
Zinc	0.07	0.02	mg/L	0.0625		106	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
LCS (B042261-BS4)										
Prepared: 10/15/2020 7:52, Analyzed:	10/21/2020 12:47									
•		0.01	ma/l	0.0635		107	0E 11E			
Molybdenum	0.07	0.01	mg/L	0.0625 0.0625		107	85-115 85-115			В
Copper Selenium	0.067 0.064	0.003 0.003	mg/L mg/L	0.0625		107 103	85-115			Б
Celeman	0.004	0.003	mg/L	0.0023		100	03-113			
Matrix Spike (B042261-MS1)	Source: 0092620-0	1								
Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:14									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	5.57	10.0	mg/L	6.25	ND	89.1	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, M4, U
Matrix Spike (B042261-MS2)	Source: 0092629-0	1								
Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	394	40.0	mg/L	6.25	384	166	80-120			D2, M1
Iron	15.8	10.0	mg/L	6.25	9.29	105	80-120			D2
Magnesium	147	20.0	mg/L	6.25	97.9	790	80-120			D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	81.5	26.0	mg/L	6.25	72.3	146	80-120			D2, M1
Matrix Spike (B042261-MS3)	Source: 0092620-0	1								
Prepared: 10/15/2020 7:52, Analyzed:	10/20/2020 19:57									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	112	80-120			D2, J
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120			D2, J
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120			D2
Arsenic	0.0695	0.0100	mg/L	0.0625	ND	111	80-120			D2
Barium	0.066	0.040	mg/L	0.0625	ND	105	80-120			D2
Beryllium	0.0628	0.0200	mg/L	0.0625	ND	101	80-120			D2
Cadmium	0.0649	0.0100	mg/L	0.0625	ND	104	80-120			D2
Chromium	0.0659	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120			D2
Copper	0.065	0.030	mg/L	0.0625	ND	104	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.06	0.20	mg/L	0.0625	ND	102	80-120			D2, J
Nickel	0.066	0.030	mg/L	0.0625	ND	105	80-120			D2
Selenium	0.070	0.030	mg/L	0.0625	ND	112	80-120			D2
Thallium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, I





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike (B042261-MS4)	Source: 0092629-01	I								
Prepared: 10/15/2020 7:52, Analyzed:	: 10/20/2020 20:04									
Molybdenum	0.07	0.10	mg/L	0.0625	ND	115	80-120			D2, J
Mercury	0.0028	0.0050	mg/L	0.00250	ND	110	80-120			D2, J
Antimony	0.075	0.050	mg/L	0.0625	ND	121	80-120			D2, M1
Arsenic	0.0732	0.0100	mg/L	0.0625	ND	117	80-120			D2
Barium	0.082	0.040	mg/L	0.0625	0.014	108	80-120			D2
Beryllium	0.0639	0.0200	mg/L	0.0625	ND	102	80-120			D2
Cadmium	0.0656	0.0100	mg/L	0.0625	ND	105	80-120			D2
Chromium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.082	0.040	mg/L	0.0625	ND	132	80-120			D2, M1
Copper	0.061	0.030	mg/L	0.0625	ND	98.3	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.11	0.20	mg/L	0.0625	ND	175	80-120			D2, M1, J
Nickel	0.089	0.030	mg/L	0.0625	0.022	107	80-120			D2
Selenium	0.069	0.030	mg/L	0.0625	ND	111	80-120			D2
Thallium	0.0647	0.0200	mg/L	0.0625	ND	104	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U
Matrix Spike Dup (B042261-MSD1)	Source: 0092620-01	I								
Prepared: 10/15/2020 7:52, Analyzed:	: 10/15/2020 15:17									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	5.93	10.0	mg/L	6.25	ND	94.9	80-120	6.26	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD2)	Source: 0092629-01	1								
Prepared: 10/15/2020 7:52, Analyzed:	: 10/15/2020 15:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	414	40.0	mg/L	6.25	384	484	80-120	4.92	20	D2, M1
Iron	16.4	10.0	mg/L	6.25	9.29	114	80-120	3.84	20	D2
Magnesium	155	20.0	mg/L	6.25	97.9	913	80-120	5.08	20	D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	85.4	26.0	mg/L	6.25	72.3	209	80-120	4.70	20	D2, M1





		_								
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike Dup (B042261-MSD3)	Source: 0092620-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2	020 20:00									
Mercury	0.0027	0.0050	mg/L	0.00250	ND	107	80-120	3.90	20	D2, J
Antimony	0.071	0.050	mg/L	0.0625	ND	114	80-120	2.25	20	D2
Molybdenum	0.06	0.10	mg/L	0.0625	ND	104	80-120	4.25	20	D2, J
Arsenic	0.0678	0.0100	mg/L	0.0625	ND	109	80-120	2.47	20	D2
Barium	0.065	0.040	mg/L	0.0625	ND	104	80-120	1.34	20	D2
Beryllium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.33	20	D2
Cadmium	0.0632	0.0100	mg/L	0.0625	ND	101	80-120	2.66	20	D2
Chromium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.48	20	D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120	0.325	20	D2
Copper	0.062	0.030	mg/L	0.0625	ND	98.8	80-120	4.81	20	D2, B
Lead	0.064	0.020	mg/L	0.0625	ND	103	80-120	1.15	20	D2
Lithium	0.06	0.20	mg/L	0.0625	ND	99.1	80-120	2.77	20	D2, J
Nickel	0.063	0.030	mg/L	0.0625	ND	101	80-120	4.21	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	108	80-120	3.49	20	D2
Thallium	0.0644	0.0200	mg/L	0.0625	ND	103	80-120	1.56	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD4)	Source: 0092629-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2	020 20:08									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	111	80-120	0.768	20	D2, J
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120	3.64	20	D2
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120	6.82	20	D2, J
Arsenic	0.0721	0.0100	mg/L	0.0625	ND	115	80-120	1.40	20	D2
Barium	0.080	0.040	mg/L	0.0625	0.014	105	80-120	2.21	20	D2
Beryllium	0.0622	0.0200	mg/L	0.0625	ND	99.6	80-120	2.65	20	D2
Cadmium	0.0628	0.0100	mg/L	0.0625	ND	100	80-120	4.34	20	D2
Chromium	0.0645	0.0200	mg/L	0.0625	ND	103	80-120	1.44	20	D2
Cobalt	0.081	0.040	mg/L	0.0625	ND	130	80-120	1.84	20	D2, M1
Copper	0.059	0.030	mg/L	0.0625	ND	93.7	80-120	4.77	20	D2, B
Lead	0.063	0.020	mg/L	0.0625	ND	101	80-120	2.71	20	D2
Lithium	0.11	0.20	mg/L	0.0625	ND	179	80-120	2.20	20	D2, M1, J
Nickel	0.088	0.030	mg/L	0.0625	0.022	106	80-120	0.909	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	107	80-120	2.91	20	D2
Thallium	0.0641	0.0200	mg/L	0.0625	ND	103	80-120	0.991	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U





	Por	orting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Analyte	Resuit	LIIIIII	Units	Level	Result	%KEU	LIIIIIIS	KPU	LIIIIII	Notes
Batch B042261 - EPA 200.2										
Post Spike (B042261-PS1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed	d: 10/15/2020 15:27									
Boron	113		ug/L	125	-0.57	90.4	75-125			D2
Calcium	6400		ug/L	6250	39.0	102	75-125			D2
Iron	5840		ug/L	6250	-0.050	93.5	75-125			D2
Magnesium	6590		ug/L	6250	2.27	105	75-125			D2
Potassium	6300		ug/L	6250	9.60	101	75-125			D2
Sodium	6100		ug/L	6250	21.6	97.3	75-125			D2
Post Spike (B042261-PS2)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed	d: 10/20/2020 20:11									
Molybdenum	67.2		ug/L	62.5	0.04	107	75-125			D2
Mercury	2.75		ug/L	2.50	0.0323	109	75-125			D2
Antimony	70.5		ug/L	62.5	0.083	113	75-125			D2
Arsenic	71.3		ug/L	62.5	-0.0088	114	75-125			D2
Barium	63.7		ug/L	62.5	0.095	102	75-125			D2
Beryllium	65.4		ug/L	62.5	-0.0105	105	75-125			D2
Cadmium	63.6		ug/L	62.5	0.0157	102	75-125			D2
Chromium	65.6		ug/L	62.5	0.355	104	75-125			D2
Cobalt	63.7		ug/L	62.5	-0.003	102	75-125			D2
Copper	60.7		ug/L	62.5	-1.80	97.1	75-125			D2, B
Lead	64.8		ug/L	62.5	0.522	103	75-115			D2
Lithium	64.9		ug/L	62.5	0.04	104	75-125			D2
Nickel	63.8		ug/L	62.5	-0.079	102	75-125			D2
Selenium	67.6		ug/L	62.5	0.009	108	75-125			D2
Thallium	64.7		ug/L	62.5	0.00002	104	75-125			D2
Zinc	77.9		ug/L	62.5	3.15	120	75-125			D2





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042498 - Default Prep Wet Chem										
Blank (B042498-BLK1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B042498-BS1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	1490	25	mg/L	1500		99.6	80-120			
Duplicate (B042498-DUP1) S	ource: 0092629-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	2240	50	mg/L		2290			2.56	10	
Duplicate (B042498-DUP2) S	ource: 0102128-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	364	50	mg/L		370			1.63	10	
Batch B042577 - Default Prep Wet Chem										
Blank (B042577-BLK1)										
Prepared: 10/19/2020 10:58, Analyzed: 10/19/2020	20 10:58									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B042577-BS1)										
Prepared: 10/19/2020 11:00, Analyzed: 10/19/2020	20 11:00									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B042577-DUP1) S	ource: 0100778-02									
Prepared: 10/19/2020 12:16, Analyzed: 10/19/2020	20 12:16									
Hardness as CaCO3	268	1	mg/L		260			3.03	10	
Matrix Spike (B042577-MS1)	ource: 0100778-02									
Prepared: 10/19/2020 12:18, Analyzed: 10/19/2020	20 12:18									
Hardness as CaCO3	648	1	mg/L	318	260	122	80-120			Y1
Batch B042587 - Default Prep Wet Chem										
Blank (B042587-BLK1)										
Prepared: 10/17/2020 18:08, Analyzed: 10/17/2020	20 18:08									
Total Organic Carbon	ND	0.5	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042587 - Default Prep Wet Chem										
LCS (B042587-BS1)										
Prepared: 10/17/2020 17:47, Analyzed: 10/17	7/2020 17:47									
Total Organic Carbon	4.7	0.5	mg/L	5.00		94.1	80-120			
Duplicate (B042587-DUP1)	Source: 0092628-0	I								
Prepared: 10/17/2020 23:24, Analyzed: 10/17	7/2020 23:24									
Total Organic Carbon	0.9	0.5	mg/L		1.0			8.76	25	
Duplicate (B042587-DUP2)	Source: 0100200-0	I								
Prepared: 10/18/2020 4:41, Analyzed: 10/18/	/2020 4:41									
Total Organic Carbon	2.5	0.5	mg/L		2.4			2.64	25	
Matrix Spike (B042587-MS1)	Source: 0092629-0 ²	I								
Prepared: 10/17/2020 23:45, Analyzed: 10/17										
Total Organic Carbon	3.9	0.5	mg/L	2.50	1.6	93.3	80-120			
Matrix Spike (B042587-MS2)	Source: 0100200-02	2								
Prepared: 10/18/2020 5:02, Analyzed: 10/18/										
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.8	94.8	80-120			
Batch B043117 - Default Prep Wet Chem										
Blank (B043117-BLK1)										
Prepared: 10/21/2020 16:14, Analyzed: 10/21	/2020 16:14									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK2)										
Prepared: 10/21/2020 18:13, Analyzed: 10/21	/2020 18:13									
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK3)										
Prepared: 10/21/2020 19:40, Analyzed: 10/21	/2020 19:40									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043117 - Default Prep Wet Chem										
LCS (B043117-BS1)										
Prepared: 10/21/2020 18:06, Analyzed: 10/21/2020	18:06									
Total Alkalinity	249	4	mg/L	235		106	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	231	4	mg/L	225		103	0-200			
LCS (B043117-BS2)										
Prepared: 10/21/2020 19:35, Analyzed: 10/21/2020	19:35									
Carbonate Alkalinity as CaCO3	227	4	mg/L	225		101	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	254	4	mg/L	235		108	80-120			
Duplicate (B043117-DUP1) Soc	ırce: 0092629-01									
Prepared: 10/21/2020 17:38, Analyzed: 10/21/2020	17:38									
Bicarbonate Alkalinity as CaCO3	295	4	mg/L		283			4.39	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Total Alkalinity	295	4	mg/L		283			4.39	10	
Duplicate (B043117-DUP2) Soc	urce: 0092635-01									
Prepared: 10/21/2020 19:24, Analyzed: 10/21/2020	19:24									
Total Alkalinity	281	4	mg/L		268			4.88	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	281	4	mg/L		268			4.88	10	
Matrix Spike (B043117-MS1) Soc	urce: 0092629-01									
Prepared: 10/21/2020 18:03, Analyzed: 10/21/2020	18:03									
Total Alkalinity	331	4	mg/L	49.4	283	98.6	80-120			
Matrix Spike (B043117-MS2) Soc	urce: 0092635-01									
Prepared: 10/21/2020 19:30, Analyzed: 10/21/2020	19:30									
Total Alkalinity	301	4	mg/L	49.4	268	66.2	80-120			М3
Batch B043187 - Default Prep Wet Chem										
Blank (B043187-BLK1)										
Prepared: 10/20/2020 15:36, Analyzed: 10/20/2020	15:36									
Specific Conductance (Lab)	ND	1	umhos/cm							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043187 - Default Prep Wet Chem										
LCS (B043187-BS1)										
Prepared: 10/20/2020 15:37, Analyzed: 10/2	0/2020 15:37									
Specific Conductance (Lab)	1420		umhos/cm	1410		101	80-120			
Duplicate (B043187-DUP1)	Source: 0092629-01									
Prepared: 10/20/2020 15:54, Analyzed: 10/2	0/2020 15:54									
Specific Conductance (Lab)	2600	1	umhos/cm		2610			0.307	1.24	
Duplicate (B043187-DUP2)	Source: 0102262-01									
Prepared: 10/20/2020 16:09, Analyzed: 10/2	0/2020 16:09									
Specific Conductance (Lab)	354	1	umhos/cm		351			0.851	1.24	
Batch B043582 - Default Prep Wet Chem										
Blank (B043582-BLK1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/2	3/2020 15:21									
Chemical Oxygen Demand	ND	5	mg/L							U
LCS (B043582-BS1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/2	3/2020 15:21									
Chemical Oxygen Demand	121	5	mg/L	125		96.8	90-110			
Duplicate (B043582-DUP1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/2	3/2020 15:32									
Chemical Oxygen Demand	5	5	mg/L		ND				25	
Matrix Spike (B043582-MS1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/2	3/2020 15:33									
Chemical Oxygen Demand	260	5	mg/L	250	ND	104	90-110			
Matrix Spike Dup (B043582-MSD1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/2	3/2020 15:33									
Chemical Oxygen Demand	257	5	mg/L	250	ND	103	90-110	1.21	10	





on Chromatography Madisonville - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043121 - Default Prep IC										
Blank (B043121-BLK1)										
Prepared: 10/20/2020 22:42, Analyzed:	10/20/2020 22:42									
Fluoride	ND	0.20	mg/L							U
Chloride	ND	0.5	mg/L							U
Sulfate	ND	1.0	mg/L							U
LCS (B043121-BS1)										
Prepared: 10/20/2020 22:25, Analyzed:	: 10/20/2020 22:25									
Sulfate	9.2		mg/L	10.0		91.8	90-110			
Fluoride	9.25		mg/L	10.0		92.5	90-110			
Chloride	9.4		mg/L	10.0		93.7	90-110			
Matrix Spike (B043121-MS1)	Source: 0092635-0	01								
Prepared: 10/21/2020 5:58, Analyzed:	10/21/2020 5:58									
Chloride	48.6		mg/L	10.0	68.0	NR	80-120			M2
Sulfate	242		mg/L	10.0	593	NR	80-120			M2
Fluoride	9.28		mg/L	10.0	0.19	90.9	80-120			
Matrix Spike Dup (B043121-MSD1)	Source: 0092635-0)1								
Prepared: 10/21/2020 6:15, Analyzed:	10/21/2020 6:15									
Chloride	48.1		mg/L	10.0	68.0	NR	80-120	1.05	10	M2
Fluoride	9.21		mg/L	10.0	0.19	90.2	80-120	0.811	20	
Sulfate	240		mg/L	10.0	593	NR	80-120	0.795	20	M2
Certified Analyses included in this Rep										
Analyte	Certifications									
2320 B-2011 in Water										
Bicarbonate Alkalinity as CaCO3	KY Drinking Water Mo	dv (00030)								
Carbonate Alkalinity as CaCO3	KY Drinking Water Mo	dv (00030)								
Total Alkalinity	KY Drinking Water Mo	dv (00030)								
2340 C (as HACH 8226) in Water										
Hardness as CaCO3	KY Drinking Water Mo	dv (00030)								
2510 B-2011 in Water										
Specific Conductance (Lab)	KY Drinking Water Mo	dv (00030)								
2540 C-2011 in Water										
Total Dissolved Solids	KY Drinking Water Mo	dv (00030)								
5310 C-2011 in Water										
Total Organic Carbon	KY Drinking Water Mo	dv (00030)								
-										
EPA 300.0 REV 2.1 in Water Chloride	KY Drinking Water Mo	dv (00030)								
	KY Drinking Water Mo									
Fluoride	_									
Sulfate	KY Drinking Water Mo	av (00030)								
HACH 8000 in Water										
	I/\/\\/==t==t==.\\\data/	00020)								

KY Wastewater Mdv (00030)

Chemical Oxygen Demand

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0092633
Shipped By: Client	Temperature: 1.00° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	☑
Check if bottles are intact	
Check if bottles are correct	☑
Check if bottles have sufficient volume	
Check if samples received on ice	☑
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	☑

Chain of Custody

Scheduled for: 09/07/2020



Page 18 of 30

		<u> </u>			1
Client: Big Rivers Electric Corporation Wilso Station Project: MW-7 Wilson 092-00004	Big Rivers Elect Station Mike Galbraith	ric Corporation Wilson	Brian Edwa	Electric Corporation \	Wilson Station
	PO Box 24 Henderson, KY	42419	PO Box 24 Henderson,	KY 42419	i
	Phone: (270) 84	<u>4-6000</u>	PO#:		
Please Print Legibly	PWS ID#:	V	Quote#		
Collected by (Signature):		7		iance Monitoring? Y	'es No
requi	red information			es Chlorinated? Y	
*For composite samples please indicate begin til			•		, —
Influent: Start Date Start time					
Effluent: Start Date Start time	End Date	End Time	_ Temp (oC)		
LAB USE ONLY *required information* Workorder # Date Collection 0092633 (mm/dd/yy): Time (24 hr):	Bottle and Preservative	Sample Descriptio			•
Sample ID#		Sample Descriptio	·		sis Requested
0092633-01 A <u>10-13-20</u> <u>10'.\</u>	Plastic 1L 1	MW7	g/c	TDS Alkalinity Carl Total Chloride 300 (Lab) Fluoride 300 Alkalinity Bicarbon	.0 Conductivity .0 Sulfate 300.0
0092633-01 B <u>10-13-28</u> <u>10:25</u>	Plastic 500mL pH<2 1 w/HNO3	MW7	g/c	Beryllium Tot 6020 Antimony Tot 6020 Boron Tot 6010B E Cadmium Tot 6020 6010B Chromium Tot 6020 Copper T Titration Iron Tot 60 6020 Magnesium	Lead Tot 6020 Arsenic Tot 6020 Barium Tot 6020 Calcium Tot Tot 6020 Cobalt ot 6020 Hardness 010B Lithium Tot
	reservation Check: pH : 👱	<u>/</u>			
0092633-01 C <u>10-13-20</u> 10:25	Plastic 500mL pH<2 1 w/H2SO4 reservation Check: pH:	MW7	g/c	COD TOC	
•	Plastic 1L pH<2 w/HNO3 1 Rad 226 (Sub) reservation Check: pH:/	MW7	g/c	Radium 226 (sub)	
Preservation Check Performed by:	o <u>y</u>				
Field data collected by: Tracis Suc	Date (mm/dd/yy)	<i>10 -13 - 20</i> Time (24 hr)	10:25		
pH <u>6.02</u> Cond (umho) <u>245</u>	Res CI (mg/L)	Tot CI (mg/L)	Fre	ee CI (mg/L)	
Temp (oC) or (oF)	Static Water Level	DO (mg/L)	т	urb. (NTU)	
Flow (MGD) or (CFS)	or (g/min)				1
Relinquished by: (Signature)	Received by: (Signate	ure)	Date (mm/		(24 hr)
		· · · · · · · · · · · · · · · · · · ·			<u>. </u>
					
PACE- Check here if trip charge applie	ed to associated COC	Printed:	9/10/2020 10:07	:43AM	Page 18 of 30

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>09/07/2020</u>



Client: Big Rivers Elect Station	·		ctric Corporation Wilson	Invoice To: Big Rivers E Brian Edwar	Electric Corporation Wilso	on Station		
Project: MW-7 Wilson 0	92-0004	PO Box 24		PO Box 24				
		Henderson, KY	′ 42419	Henderson,	KY 42419			
		Phone: <u>(270) 8</u> PWS ID#:	<u>44-6000</u>	PO#:				
Please Print Legibly		State:	K1/	Quote#				
Collected by (Signature):	Jun &			Compl	iance Monitoring? Yes _	No_		
	rec	uired information*			es Chlorinated? Yes _			
	_	time, end time and temp(oC)		1				
Influent: Start Date	Start time	End Date	End Date End Time			•		
Effluent: Start Date	Start time	End Date	End Time	_ Temp (oC)		<u>.</u>		
Workorder # Dat	ired information* e Collection d/yy): Time (24 hr):	Bottle and Preservative	Sample Descriptio	n Composite	Sample Analysis F	Requested		
0092633-01 E 10~13	3-20 10:25	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)		g/c	Radium 228 (sub)			
•		Preservation Check: pH:_	<u></u>					
0092633-01 F <u>10-13-</u>	20 10:25	Rad 228 (Sub)	1 MW7	g/c	Radium 228 (sub)	•		
		Preservation Check: pH:_	<u>J</u>			1		
0092633-01 G <u>10 - 13 -</u>	20 10:25	Plastic 1L pH<2 w/HNO3 (Sub) Preservation Check: pH:	1 MW7	g/c ·	Radium Total (sub)			
0000000 04 11	20 1017		4 888/7	-1-	TOC			
0092633-01 Н <u>[0-В</u>	10.15	AG 250mL pH<2 w/H2SO4 Preservation Check: pH:	1 MW7	g/c	тос	,		
Preservation Check Per	formed by:N_	> <u>y</u>						
Field data collected by: _	Travis Sn	Date (mm/dd/yy)	10-13-2c Time (24 hr)	10125				
рН <u>60</u>	Cond (umho) 2	150 Res CI (mg/L)	Tot CI (mg/L)	Fre	ee CI (mg/L)	- ,		
Temp (oC) 14.29	or (oF)	Static Water Level _	DO (mg/L)	т	urb. (NTU)			
·		or (g/min) _						
Relinquished by: (Signatu	re)	Received by: (Signa	ture)	Date (mm	/dd/yy) Time (24	hr)		
Fine !	hand	174	<u></u>	18.14-20 0838				
				_				

(724)850-5600



November 04, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 92633

Pace Project No.: 30387827

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on October 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 - Greensburg

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

Sincerely,

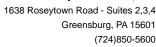
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 92633 Pace Project No.: 30387827

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

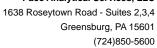
Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

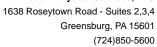




SAMPLE SUMMARY

Project: 92633
Pace Project No.: 30387827

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30387827001	0092633-01	Water	10/13/20 10:25	10/15/20 09:25





SAMPLE ANALYTE COUNT

Project: 92633
Pace Project No.: 30387827

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30387827001	0092633-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



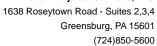
ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92633
Pace Project No.: 30387827

Sample: 0092633-01 Lab ID: 30387827001 Collected: 10/13/20 10:25 Received: 10/15/20 09:25 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collect	tion dates and times were r	not present on the sample containers.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 903.1	0.276 ± 0.288 (0.406) C:NA T:93%	pCi/L	11/04/20 12:59	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	0.691 ± 0.399 (0.725) C:72% T:87%	pCi/L	10/30/20 12:01	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.967 ± 0.687 (1.13)	pCi/L	11/04/20 14:23	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project: 92633

Pace Project No.:

30387827

QC Batch: QC Batch Method: 419199

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

30387827001

METHOD BLANK: 2026443

Matrix: Water

Associated Lab Samples:

30387827001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

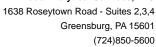
Radium-226

-0.0904 ± 0.280 (0.637) C:NA T:89%

pCi/L

11/04/20 12:44

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: 92633
Pace Project No.: 30387827

QC Batch Method:

QC Batch: 419200

419200 EPA 904.0 Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387827001

METHOD BLANK: 2026444

Matrix: Water

matrix.

Associated Lab Samples:

30387827001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

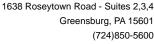
Radium-228

 $0.598 \pm 0.458 \quad (0.907) \text{ C:}69\% \text{ T:}82\%$

pCi/L

10/30/20 12:00

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: 92633 Pace Project No.: 30387827

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.

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: 11/04/2020 02:24 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Chain of Custody

Face Analytical *

LAB USE ONLY JO#:30387827 Sample Intact or N ***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC Results Requested By: Comments Requested Analysis Workorder Name: MW-7 Wilson 092-00004 Owner Received Date: 10/14/2020 10/15/10/CX Received on Ice Yor N EPA 904.0 Radium Sum Cald Date/Time EPA 903.1 Preserved Containers Pace Analytical Services LLC Greensburg PA Ground Matrix Water morto Reveived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Custody Seal Y or (N Greensburg, PA 15601 Lab ID Date/Time Subcontract To: (724)850-561510/13/20 10:25 Date/Time Collect 3. XX Sample Type rob.whittington@pacelabs.com Cooler Temperature on Receipt Madisonville, KY 42409 Transfers |Released By Workorder: 92633 McCoy & McCoy Labs 0092633-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: Ŋ 9 ∞ g

This chain of custody is considered complete as is since this information is available in the owner laboratory.

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Page 9 of 11 Page 28 of 30

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0092633

30387827

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA

1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601 Phone :(724) 850-5615

Fax:

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0092633-01	Water	Sampled:10/13/2020 10:25	Specific Method		
Radium Total (sub)		04/11/2021 10:25	EPA 904.0 Radium S	lum C	
Radium 228 (sub)		04/11/2021 10:25	EPA 904.0 Radium S	lum C	
Radium 226 (sub)		04/11/2021 10:25	EPA 903.1		

Released By Date

Received By

Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condit	ion l	Jpon	Re	ceipt
Pace Analytical Client Name:	M	ad	NST	Project# 3038782
Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client Tracking #: 1107 3386 9738/972	250		71	Pace Other Label MM LIMS Login MM
Custody Seal on Cooler/Box Present:	/n	_	~~~	intact: yes no
Thermometer Used			Wet	Blue None 7 / 100 7 1/1/1/1/
Cooler Temperature Observed Temp 7.5	<u>} </u>	. ° C	Corre	ection Factor: O. J. C Final Temp: 7.4/7.4/5
Temp should be above freezing to 6°C				pH paper Lot# Date and Initials of person examining
Comments:	Yes	. No	N/A	1000001 contents: 10/0/20 01
Chain of Custody Present:				1.
Chain of Custody Filled Out:			<u> </u>	2.
Chain of Custody Relinquished:				3.
Sampler Name & Signature on COC:				4.
Sample Labels match COC:				5 no dated time on containers
-Includes date/time/ID Matrix:	<u>W7</u>		=	110 proposit prime o . Con reporte
Samples Arrived within Hold Time:				6.
Short Hold Time Analysis (<72hr remaining):				7.
Rush Turn Around Time Requested:				8.
Sufficient Volume:				9,
Correct Containers Used:				10.
-Pace Containers Used:	<u></u>			
Containers Intact:				11.
Orthophosphate field filtered				12.
Hex Cr Aqueous sample field filtered				13.
Organic Samples checked for dechlorination:				14
Filtered volume received for Dissolved tests				15.
All containers have been checked for preservation.				16. 0117
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Ŕadon,			DHO
All containers meet method preservation requirements.				Initial when Date/time of preservation
requirements.				Lot# of added preservative
Headspace in VOA Vials (>6mm):				17.
Trip Blank Present:		/		18.
Trip Blank Custody Seals Present				
Rad Samples Screened < 0.5 mrem/hr				Initial when completed: OB Date: 10147
Client Notification/ Resolution:	1 .			
Person-Contacted:			-Date/	Fime: Contacted-By:
Comments/ Resolution:				

 \square A check in this box indicates that additional information has been stored in ereports.

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0092634

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419 Customer ID: Report Printed:

44-100168 11/05/2020 13:55

Project Name: M

MW-8 Wilson 092-00004

Workorder:

0092634

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 10/14/2020 08:38.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager

Printed on 11/5/2020 at 1:55:44PM



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0092634-01	MW8/		Groundwater	10/13/2020 08:05	10/14/2020 8:38	Phillip Hill
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0092634-01	Field Conductance	1530				
	Field pH	6.55				
	Field Temp (C)	13.67				



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ANALYTICAL RESULTS

Sample Collection Date Time: 10/13/2020 08:05 Lab Sample ID: 0092634-01 Sample Received Date Time: 10/14/2020 08:38

Description: MW8

Metals by SW846 6000 Series Methods

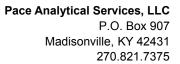
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Arsenic	0.0144		mg/L	0.0010	0.0004	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Barium	0.070		mg/L	0.004	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Boron	ND	U	mg/L	0.10	0.10	SW846 6010 B	10/15/2020 07:52	10/20/2020 15:51	DMH
Cadmium	0.0004	J	mg/L	0.0010	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Calcium	249	D1	mg/L	40.0	13.0	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:55	AKB
Chromium	0.0224		mg/L	0.0020	0.0006	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Cobalt	0.015		mg/L	0.004	0.004	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Copper	0.014	В	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/21/2020 12:50	CAM
Iron	47.4	D2	mg/L	1.00	0.500	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:52	AKB
Lead	0.012		mg/L	0.002	0.0005	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Lithium	0.02		mg/L	0.02	0.005	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Magnesium	95.3	D2	mg/L	2.00	0.900	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:52	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Molybdenum	0.01		mg/L	0.01	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Nickel	0.038		mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Potassium	8.43	D2	mg/L	5.00	2.20	SW846 6010 B	10/15/2020 07:52	10/16/2020 10:51	dmh
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Sodium	39.3	D2	mg/L	2.60	1.00	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:52	AKB
Thallium	0.0002	J	mg/L	0.0020	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM
Zinc	0.11		mg/L	0.02	0.02	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:46	CAM

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	296		mg/L	4		2320 B-2011	10/21/2020 19:10	10/21/2020 19:10	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	10/21/2020 19:10	10/21/2020 19:10	HMF
Total Alkalinity	296		mg/L	4		2320 B-2011	10/21/2020 19:10	10/21/2020 19:10	HMF
Chemical Oxygen Demand	86		mg/L	5	5	HACH 8000	10/23/2020 13:24	10/23/2020 15:31	HMF
Specific Conductance (Lab)	1880		umhos/cm	1	1	2510 B-2011	10/20/2020 16:01	10/20/2020 16:01	CML
Hardness as CaCO3	680	D	mg/L	2	2	2340 C (as HACH 8226)	10/19/2020 12:02	10/19/2020 12:02	CLL
Total Dissolved Solids	1680		mg/L	50	50	2540 C-2011	10/16/2020 11:40	10/19/2020 17:00	DJK
Total Organic Carbon	3.1	D	mg/L	1.0		5310 C-2011	10/18/2020 01:30	10/18/2020 01:30	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	1.36	_Sub	pCi/L			EPA 903.1	11/04/2020 00:00	11/04/2020 00:00	xxx
Radium-228	1.58	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	10/30/2020 00:00	10/30/2020 00:00	xxx
Radium	2.94	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	11/04/2020 00:00	11/04/2020 00:00	XXX





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Ion Chromatography Madisonville

Analyte	Result	Flag Uni	s MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	3.7	mg.	L 0.5	0.4	EPA 300.0 REV 2.1	10/21/2020 03:56	10/21/2020 03:56	CSC
Fluoride	0.23	mg	L 0.20		EPA 300.0 REV 2.1	10/21/2020 03:56	10/21/2020 03:56	CSC
Sulfate	992	D mg	L 100	50.0	EPA 300.0 REV 2.1	10/21/2020 04:14	10/21/2020 04:14	CSC



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Notes for work order 0092634

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.

Sample RPD exceeded the method control limit.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

Υ1

В	Target analyte detected in method blank at or above the method reporting limit.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
J	Estimated value.
L1	The associated blank spike recovery was above method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

Greater than Less than

Results relate only to the items tested.



		=		0 "			0/556			
	- ·	Reporting	11. %	Spike	Source	0/ DEC	%REC	222	RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:52									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Blank (B042261-BLK2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:10									
Potassium	ND	0.50	mg/L							U
Blank (B042261-BLK3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:36									
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Mercury	ND	0.0005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	0.003	0.003	mg/L							В
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		=					0/5=0			
	5 "	Reporting	11.89	Spike	Source	0/ 5=0	%REC	DE-	RPD	N
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/21/2020	12:43									
Molybdenum	ND	0.01	mg/L							U
Copper	0.003	0.003	mg/L							В
Selenium	ND	0.003	mg/L							U
LCS (B042261-BS1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:56									
Boron	0.13	0.10	mg/L	0.125		101	85-115			
Calcium	6.42	0.40	mg/L	6.25		103	85-115			
Iron	6.27	0.100	mg/L	6.25		100	85-115			
Magnesium	5.31	0.200	mg/L	6.25		85.0	85-115			
Potassium	8.21	0.50	mg/L	6.25		131	85-115			L1
Sodium	6.41	0.26	mg/L	6.25		103	85-115			
LCS (B042261-BS2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:13									
Potassium	6.67	0.50	mg/L	6.25		107	85-115			
LCS (B042261-BS3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:40									
Antimony	0.072	0.005	mg/L	0.0625		115	85-115			
Mercury	0.0025	0.0005	mg/L	0.00250		101	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		109	85-115			
Arsenic	0.0657	0.0010	mg/L	0.0625		105	85-115			
Barium	0.067	0.004	mg/L	0.0625		107	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		103	85-115			
Cadmium	0.0646	0.0010	mg/L	0.0625		103	85-115			
Chromium	0.0682	0.0020	mg/L	0.0625		109	85-115			
Cobalt	0.067	0.004	mg/L	0.0625		107	85-115			
Copper	0.068	0.003	mg/L	0.0625		109	85-115			В
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.07	0.02	mg/L	0.0625		107	85-115			
Nickel	0.066	0.003	mg/L	0.0625		106	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0663	0.0020	mg/L	0.0625		106	85-115			
Zinc	0.07	0.02	mg/L	0.0625		106	85-115			





	•	D (i					0/ DEC		222	
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
	Nesuit	LIIIII	Uillo	LCVCI	ixcouit	/OINEU	LIIIIII	IN D	LIIIII	INUICS
Batch B042261 - EPA 200.2										
LCS (B042261-BS4)										
Prepared: 10/15/2020 7:52, Analyzed:	10/21/2020 12:47									
Molybdenum	0.07	0.01	mg/L	0.0625		107	85-115			
Copper	0.067	0.003	mg/L	0.0625		107	85-115			В
Selenium	0.064	0.003	mg/L	0.0625		103	85-115			
Matrix Spike (B042261-MS1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:14									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	5.57	10.0	mg/L	6.25	ND	89.1	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			U, D2, M4
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, M4, U
Matrix Spike (B042261-MS2)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	394	40.0	mg/L	6.25	384	166	80-120			D2, M1
Iron	15.8	10.0	mg/L	6.25	9.29	105	80-120			D2
Magnesium	147	20.0	mg/L	6.25	97.9	790	80-120			D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	81.5	26.0	mg/L	6.25	72.3	146	80-120			D2, M1
Matrix Spike (B042261-MS3)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed:	10/20/2020 19:57									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	112	80-120			D2, J
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120			D2, J
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120			D2
Arsenic	0.0695	0.0100	mg/L	0.0625	ND	111	80-120			D2
Barium	0.066	0.040	mg/L	0.0625	ND	105	80-120			D2
Beryllium	0.0628	0.0200	mg/L	0.0625	ND	101	80-120			D2
Cadmium	0.0649	0.0100	mg/L	0.0625	ND	104	80-120			D2
Chromium	0.0659	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120			D2
Copper	0.065	0.030	mg/L	0.0625	ND	104	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.06	0.20	mg/L	0.0625	ND	102	80-120			D2, J
Nickel	0.066	0.030	mg/L	0.0625	ND	105	80-120			D2
Selenium	0.070	0.030	mg/L	0.0625	ND	112	80-120			D2
Thallium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike (B042261-MS4)	Source: 0092629-0	1								
Prepared: 10/15/2020 7:52, Analyzed:	10/20/2020 20:04									
Molybdenum	0.07	0.10	mg/L	0.0625	ND	115	80-120			D2, J
Mercury	0.0028	0.0050	mg/L	0.00250	ND	110	80-120			D2, J
Antimony	0.075	0.050	mg/L	0.0625	ND	121	80-120			D2, M1
Arsenic	0.0732	0.0100	mg/L	0.0625	ND	117	80-120			D2
Barium	0.082	0.040	mg/L	0.0625	0.014	108	80-120			D2
Beryllium	0.0639	0.0200	mg/L	0.0625	ND	102	80-120			D2
Cadmium	0.0656	0.0100	mg/L	0.0625	ND	105	80-120			D2
Chromium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.082	0.040	mg/L	0.0625	ND	132	80-120			D2, M1
Copper	0.061	0.030	mg/L	0.0625	ND	98.3	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.11	0.20	mg/L	0.0625	ND	175	80-120			D2, M1, J
Nickel	0.089	0.030	mg/L	0.0625	0.022	107	80-120			D2
Selenium	0.069	0.030	mg/L	0.0625	ND	111	80-120			D2
Thallium	0.0647	0.0200	mg/L	0.0625	ND	104	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U
Matrix Spike Dup (B042261-MSD1)	Source: 0092620-0	1								
Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:17									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	5.93	10.0	mg/L	6.25	ND	94.9	80-120	6.26	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	U, D2, M4
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD2)	Source: 0092629-0	1								
Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	414	40.0	mg/L	6.25	384	484	80-120	4.92	20	D2, M1
Iron	16.4	10.0	mg/L	6.25	9.29	114	80-120	3.84	20	D2
Magnesium	155	20.0	mg/L	6.25	97.9	913	80-120	5.08	20	D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	85.4	26.0	mg/L	6.25	72.3	209	80-120	4.70	20	D2, M1





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike Dup (B042261-MSD3)	Source: 0092620-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10/20	/2020 20:00									
Mercury	0.0027	0.0050	mg/L	0.00250	ND	107	80-120	3.90	20	D2, J
Antimony	0.071	0.050	mg/L	0.0625	ND	114	80-120	2.25	20	D2
Molybdenum	0.06	0.10	mg/L	0.0625	ND	104	80-120	4.25	20	D2, J
Arsenic	0.0678	0.0100	mg/L	0.0625	ND	109	80-120	2.47	20	D2
Barium	0.065	0.040	mg/L	0.0625	ND	104	80-120	1.34	20	D2
Beryllium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.33	20	D2
Cadmium	0.0632	0.0100	mg/L	0.0625	ND	101	80-120	2.66	20	D2
Chromium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.48	20	D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120	0.325	20	D2
Copper	0.062	0.030	mg/L	0.0625	ND	98.8	80-120	4.81	20	D2, B
Lead	0.064	0.020	mg/L	0.0625	ND	103	80-120	1.15	20	D2
Lithium	0.06	0.20	mg/L	0.0625	ND	99.1	80-120	2.77	20	D2, J
Nickel	0.063	0.030	mg/L	0.0625	ND	101	80-120	4.21	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	108	80-120	3.49	20	D2
Thallium	0.0644	0.0200	mg/L	0.0625	ND	103	80-120	1.56	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD4)	Source: 0092629-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10/20	/2020 20:08									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	111	80-120	0.768	20	D2, J
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120	3.64	20	D2
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120	6.82	20	D2, J
Arsenic	0.0721	0.0100	mg/L	0.0625	ND	115	80-120	1.40	20	D2
Barium	0.080	0.040	mg/L	0.0625	0.014	105	80-120	2.21	20	D2
Beryllium	0.0622	0.0200	mg/L	0.0625	ND	99.6	80-120	2.65	20	D2
Cadmium	0.0628	0.0100	mg/L	0.0625	ND	100	80-120	4.34	20	D2
Chromium	0.0645	0.0200	mg/L	0.0625	ND	103	80-120	1.44	20	D2
Cobalt	0.081	0.040	mg/L	0.0625	ND	130	80-120	1.84	20	D2, M1
Copper	0.059	0.030	mg/L	0.0625	ND	93.7	80-120	4.77	20	D2, B
Lead	0.063	0.020	mg/L	0.0625	ND	101	80-120	2.71	20	D2
		0.00	mg/L	0.0625	ND	179	80-120	2.20	20	D2, M1, J
Lithium	0.11	0.20	mg/L	0.00=0						
Lithium Nickel	0.11 0.088	0.20	mg/L	0.0625	0.022	106	80-120	0.909	20	D2
			•				80-120 80-120		20 20	D2 D2
Nickel	0.088	0.030	mg/L	0.0625	0.022	106		0.909		





	Donarti	na	Spiko	Source		%REC		RPD	
Analyte	Reporti	· ·	Spike		0/ DEC		RPD		Notes
Analyte	Result Li	mit Units	Level	Result	%REC	Limits	KPD	Limit	Notes
Batch B042261 - EPA 200.2									
Post Spike (B042261-PS1)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyzed	d: 10/15/2020 15:27								
Boron	113	ug/L	125	-0.57	90.4	75-125			D2
Calcium	6400	ug/L	6250	39.0	102	75-125			D2
Iron	5840	ug/L	6250	-0.050	93.5	75-125			D2
Magnesium	6590	ug/L	6250	2.27	105	75-125			D2
Potassium	6300	ug/L	6250	9.60	101	75-125			D2
Sodium	6100	ug/L	6250	21.6	97.3	75-125			D2
Post Spike (B042261-PS2)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyzed	d: 10/20/2020 20:11								
Molybdenum	67.2	ug/L	62.5	0.04	107	75-125			D2
Mercury	2.75	ug/L	2.50	0.0323	109	75-125			D2
Antimony	70.5	ug/L	62.5	0.083	113	75-125			D2
Arsenic	71.3	ug/L	62.5	-0.0088	114	75-125			D2
Barium	63.7	ug/L	62.5	0.095	102	75-125			D2
Beryllium	65.4	ug/L	62.5	-0.0105	105	75-125			D2
Cadmium	63.6	ug/L	62.5	0.0157	102	75-125			D2
Chromium	65.6	ug/L	62.5	0.355	104	75-125			D2
Cobalt	63.7	ug/L	62.5	-0.003	102	75-125			D2
Copper	60.7	ug/L	62.5	-1.80	97.1	75-125			D2, B
Lead	64.8	ug/L	62.5	0.522	103	75-115			D2
Lithium	64.9	ug/L	62.5	0.04	104	75-125			D2
Nickel	63.8	ug/L	62.5	-0.079	102	75-125			D2
Selenium	67.6	ug/L	62.5	0.009	108	75-125			D2
Thallium	64.7	ug/L	62.5	0.00002	104	75-125			D2
Zinc	77.9	ug/L	62.5	3.15	120	75-125			D2





Reporting Spike Source %REC RPD										
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042498 - Default Prep Wet Chem										
Blank (B042498-BLK1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/2020	0 17:00									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B042498-BS1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/2020	0 17:00									
Total Dissolved Solids	1490	25	mg/L	1500		99.6	80-120			
Duplicate (B042498-DUP1) So	urce: 0092629-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/2020	0 17:00									
Total Dissolved Solids	2240	50	mg/L		2290			2.56	10	
Duplicate (B042498-DUP2) So	urce: 0102128-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/2020	0 17:00									
Total Dissolved Solids	364	50	mg/L		370			1.63	10	
Batch B042577 - Default Prep Wet Chem										
Blank (B042577-BLK1)										
Prepared: 10/19/2020 10:58, Analyzed: 10/19/2020	0 10:58									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B042577-BS1)										
Prepared: 10/19/2020 11:00, Analyzed: 10/19/2020	0 11:00									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B042577-DUP1) So	urce: 0100778-02	!								
Prepared: 10/19/2020 12:16, Analyzed: 10/19/2020	0 12:16									
Hardness as CaCO3	268	1	mg/L		260			3.03	10	
Matrix Spike (B042577-MS1) So	urce: 0100778-02	!								
Prepared: 10/19/2020 12:18, Analyzed: 10/19/2020	0 12:18									
Hardness as CaCO3	648	1	mg/L	318	260	122	80-120			Y1
Batch B042587 - Default Prep Wet Chem										
Blank (B042587-BLK1)										
Prepared: 10/17/2020 18:08, Analyzed: 10/17/2020	0 18:08									
Total Organic Carbon	ND	0.5	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042587 - Default Prep Wet Chem										
LCS (B042587-BS1)										
Prepared: 10/17/2020 17:47, Analyzed: 10/17/20)20 17:47									
Total Organic Carbon	4.7	0.5	mg/L	5.00		94.1	80-120			
Duplicate (B042587-DUP1)	Source: 0092628-01									
Prepared: 10/17/2020 23:24, Analyzed: 10/17/20	020 23:24									
Total Organic Carbon	0.9	0.5	mg/L		1.0			8.76	25	
Duplicate (B042587-DUP2)	Source: 0100200-01									
Prepared: 10/18/2020 4:41, Analyzed: 10/18/20	20 4:41									
Total Organic Carbon	2.5	0.5	mg/L		2.4			2.64	25	
Matrix Spike (B042587-MS1)	Source: 0092629-01	<u> </u>		<u> </u>	<u> </u>					
Prepared: 10/17/2020 23:45, Analyzed: 10/17/20	020 23:45									
Total Organic Carbon	3.9	0.5	mg/L	2.50	1.6	93.3	80-120			
Matrix Spike (B042587-MS2)	Source: 0100200-02									
Prepared: 10/18/2020 5:02, Analyzed: 10/18/20	20 5:02									
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.8	94.8	80-120			
Batch B043117 - Default Prep Wet Chem										
Blank (B043117-BLK1)										
Prepared: 10/21/2020 16:14, Analyzed: 10/21/20	020 16:14									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK2)										
Prepared: 10/21/2020 18:13, Analyzed: 10/21/20	020 18:13									
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK3)										
Prepared: 10/21/2020 19:40, Analyzed: 10/21/20	020 19:40									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043117 - Default Prep Wet Chem										
LCS (B043117-BS1)										
Prepared: 10/21/2020 18:06, Analyzed: 10/21/2020	18:06									
Total Alkalinity	249	4	mg/L	235		106	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	231	4	mg/L	225		103	0-200			
LCS (B043117-BS2)										
Prepared: 10/21/2020 19:35, Analyzed: 10/21/2020	19:35									
Carbonate Alkalinity as CaCO3	227	4	mg/L	225		101	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	254	4	mg/L	235		108	80-120			
Duplicate (B043117-DUP1) Soc	urce: 0092629-01									
Prepared: 10/21/2020 17:38, Analyzed: 10/21/2020	17:38									
Bicarbonate Alkalinity as CaCO3	295	4	mg/L		283			4.39	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Total Alkalinity	295	4	mg/L		283			4.39	10	
Duplicate (B043117-DUP2) Soc	urce: 0092635-01									
Prepared: 10/21/2020 19:24, Analyzed: 10/21/2020	19:24									
Total Alkalinity	281	4	mg/L		268			4.88	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	281	4	mg/L		268			4.88	10	
Matrix Spike (B043117-MS1) Soc	urce: 0092629-01									
Prepared: 10/21/2020 18:03, Analyzed: 10/21/2020	18:03									
Total Alkalinity	331	4	mg/L	49.4	283	98.6	80-120			
Matrix Spike (B043117-MS2) Soil	urce: 0092635-01									
Prepared: 10/21/2020 19:30, Analyzed: 10/21/2020	19:30									
Total Alkalinity	301	4	mg/L	49.4	268	66.2	80-120			М3
Batch B043187 - Default Prep Wet Chem										
Blank (B043187-BLK1)										
Prepared: 10/20/2020 15:36, Analyzed: 10/20/2020	15:36									
Specific Conductance (Lab)	ND	1	umhos/cm							U





	R	eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043187 - Default Prep Wet Chem										
LCS (B043187-BS1)										
Prepared: 10/20/2020 15:37, Analyzed: 10/20/	/2020 15:37									
Specific Conductance (Lab)	1420		umhos/cm	1410		101	80-120			
Duplicate (B043187-DUP1)	Source: 0092629-01									
Prepared: 10/20/2020 15:54, Analyzed: 10/20/	/2020 15:54									
Specific Conductance (Lab)	2600	1	umhos/cm		2610			0.307	1.24	
Duplicate (B043187-DUP2)	Source: 0102262-01									
Prepared: 10/20/2020 16:09, Analyzed: 10/20/	/2020 16:09									
Specific Conductance (Lab)	354	1	umhos/cm		351			0.851	1.24	
Batch B043582 - Default Prep Wet Chem										
Blank (B043582-BLK1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	/2020 15:21									
Chemical Oxygen Demand	ND	5	mg/L							U
LCS (B043582-BS1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	/2020 15:21									
Chemical Oxygen Demand	121	5	mg/L	125		96.8	90-110			
Duplicate (B043582-DUP1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	/2020 15:32									
Chemical Oxygen Demand	5	5	mg/L		ND				25	
Matrix Spike (B043582-MS1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23/	/2020 15:33									
Chemical Oxygen Demand	260	5	mg/L	250	ND	104	90-110			
Matrix Spike Dup (B043582-MSD1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23/	/2020 15:33									
Chemical Oxygen Demand	257	5	mg/L	250	ND	103	90-110	1.21	10	





SW846 6010 B in Water

Ion Chromatography Madisonville - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043121 - Default Prep IC										
Blank (B043121-BLK1)										
Prepared: 10/20/2020 22:42, Analyzed:	10/20/2020 22:42									
Fluoride	ND	0.20	mg/L							U
Chloride	ND	0.5	mg/L							U
Sulfate	ND	1.0	mg/L							U
LCS (B043121-BS1)										
Prepared: 10/20/2020 22:25, Analyzed:	10/20/2020 22:25									
Sulfate	9.2		mg/L	10.0		91.8	90-110			
Fluoride	9.25		mg/L	10.0		92.5	90-110			
Chloride	9.4		mg/L	10.0		93.7	90-110			
Matrix Spike (B043121-MS1)	Source: 0092635-01									
Prepared: 10/21/2020 5:58, Analyzed:	10/21/2020 5:58									
Chloride	48.6		mg/L	10.0	68.0	NR	80-120			M2
Sulfate	242		mg/L	10.0	593	NR	80-120			M2
Fluoride	9.28		mg/L	10.0	0.19	90.9	80-120			
Matrix Spike Dup (B043121-MSD1)	Source: 0092635-01									
Prepared: 10/21/2020 6:15, Analyzed:	10/21/2020 6:15									
Chloride	48.1		mg/L	10.0	68.0	NR	80-120	1.05	10	M2
Fluoride	9.21		mg/L	10.0	0.19	90.2	80-120	0.811	20	
Sulfate	240		mg/L	10.0	593	NR	80-120	0.795	20	M2
Certified Analyses included in this Rep										
Analyte	Certifications									
2320 B-2011 in Water										
Bicarbonate Alkalinity as CaCO3	KY Drinking Water Mdv	(00030)								
Carbonate Alkalinity as CaCO3	KY Drinking Water Mdv	(00030)								
Total Alkalinity	KY Drinking Water Mdv	(00030)								
2340 C (as HACH 8226) in Water										
Hardness as CaCO3	KY Drinking Water Mdv	(00030)								
2510 B-2011 in Water										
Specific Conductance (Lab)	KY Drinking Water Mdv	(00030)								
2540 C-2011 in Water										
Total Dissolved Solids	KY Drinking Water Mdv	(00030)								
5310 C-2011 in Water Total Organic Carbon	KY Drinking Water Mdv	(00030)								
Total Organic Carbon		()								
EPA 300.0 REV 2.1 in Water	KV Drinking Water 84.	(00030)								
Chloride	KY Drinking Water Mdv									
Fluoride	KY Drinking Water Mdv	` '								
0.46-4-	KY Drinking Water Mdv	(00030)								
Sulfate	Tr. 2a rratea.	(00000)								
HACH 8000 in Water	Tributal States and	(00000)								





	Sample Acceptance Checklist for Work Order 0092634
Shipped By: Client	Temperature: 1.00° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	
Check if Collector Signature Present	$oldsymbol{arDelta}$
Check if bottles are intact	☑
Check if bottles are correct	
Check if bottles have sufficient volume	☑
Check if samples received on ice	
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	☑

Chain of Custody

Scheduled for: <u>09/07/2020</u>



Client: Big Rivers Electric Corporation Wilson Station	Report To: Big Rivers Elec Station	tric Corporation Wilson	Invoice To: Big Rivers Electric Corporation Wilson Station			
Project: MW-8 Wilson 092-00004		Brian Edwards				
	PO Box 24 Henderson, KY	42419	PO Box 24 Henderson,	KY 42419	1	
	Phone: (270) 8	44- <u>6000</u>	50#			
g	PWS ID#:	· V	PO#:	···		
Please Print Legibly	State: _F	<u>~/</u>	Quote#			
Collected by (Signature):	()() Information*		Compli	iance Monitoring? Yes	No	
*For composite samples please indicate begin time,	end time and temp(oC)	at end time below:	Sample	es Chlorinated? Yes	No	
Influent: Start Date Start time	End Date	End Time	, Temp (oC)			
Effluent: Start Date Start time	End Date	End Time	Temp (oC)	•	1	
	ttle and Preservative	Sample Description	Composite	Occupio Academic De-		
Sample ID# 0092634-01 A 19/13/20 8:05	Plastic 1L	<u>റ്</u> 1 MW8	0/0	Sample Analysis Rec TDS Alkalinity Carbonate	·	
0092634-01 A <u>Id/13/20</u> 805	Flastic IL	I WIVVO	g/c `	Total Chloride 300.0 Cond (Lab) Fluoride 300.0 Sulfa Alkalinity Bicarbonate	ductivity	
0092634-01 В <u>/0//3/2» 805</u> р	Plastic 500mL pH<2 w/HNO3	1 MW8	g/c	Beryllium Tot 6020 Lead Antimony Tot 6020 Arsen Boron Tot 6010B Barium Cadmium Tot 6020 Calciu 6010B Chromium Tot 602 Tot 6020 Copper Tot 6020	ic Tot 6020 Tot 6020 um Tot 10 Cobalt	
Pres	servation Check: pH:			Titration Iron Tot 6010B L 6020 Magnesium Tot 601	ithium Tot	
	Plastic 500mL pH<2 w/H2SO4	1 MW/8	g/c	COD TOC		
, ,	servation Check: pH:_	_			1	
	stic 1L pH<2 w/HNO3 Rad 226 (Sub) servation Check: pH :∠	1 MW8	g/c	Radium 226 (sub)		
Preservation Check Performed by:) y	0				
Field data collected by: Phillip Hill						
pH 6.55 Cond (umbo) 1.57	Res CI (mg/L)	Ťot CI (mg/L) _	Fre	ee CI (mg/L)		
Temp (oC) 13.67 or (oF)	Static Water Level _	DO (mg/L) _	Т	urb. (NTU)	:	
Flow (MGD) or (CFS)	or (g/min) _	<u> </u>		•	i	
Relinquished by: (Signature)	Received by: (Signa	ture)	Date (mm	/dd/yy) Time (24 hr))	
Im Sond	Myye	7	10-14.	25 0F38		
PACE- Check here if trip charge applied	to associated COC	Printed:	9/10/2020 10:07	:58AM Page	18 of 29	

(724)850-5600



November 04, 2020

Rob Whittington
Pace Analytical Madisonville
825 Industrial Rd
Madisonville, KY 42431

RE: Project: 92634

Pace Project No.: 30387828

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on October 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 - Greensburg

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

Sincerely,

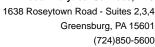
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 92634
Pace Project No.: 30387828

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

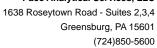
Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

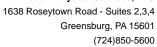




SAMPLE SUMMARY

Project: 92634
Pace Project No.: 30387828

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30387828001	0092634-01	Water	10/13/20 08:05	10/15/20 09:25





SAMPLE ANALYTE COUNT

Project: 92634
Pace Project No.: 30387828

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30387828001	0092634-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92634
Pace Project No.: 30387828

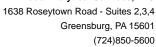
 Sample:
 0092634-01
 Lab ID:
 30387828001
 Collected:
 10/13/20 08:05
 Received:
 10/15/20 09:25
 Matrix: Water

 PWS:
 Site ID:
 Sample Type:

 Comments:
 • Sample collection dates and times were not present on the sample containers.

 Parameters
 Method
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 CAS No.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg		•		
Radium-226	EPA 903.1	1.36 ± 0.616 (0.587) C:NA T:91%	pCi/L	11/04/20 12:59	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	1.58 ± 0.591 (0.882) C:68% T:79%	pCi/L	10/30/20 12:01	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	2.94 ± 1.21 (1.47)	pCi/L	11/04/20 14:23	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project:

92634

Pace Project No.:

30387828

QC Batch:

419199

QC Batch Method: EPA 903.1 Analysis Method:

EPA 903.1

Analysis Description:

Matrix: Water

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

Associated Lab Samples:

30387828001

METHOD BLANK: 2026443

Parameter

30387828001

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

-0.0904 ± 0.280 (0.637) C:NA T:89%

pCi/L

11/04/20 12:44

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: 92634
Pace Project No.: 30387828

QC Batch: 419200 Analysis Method:

QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

Laboratory: Pace Analytical Services - Greensburg

EPA 904.0

Associated Lab Samples: 30387828001

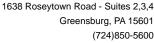
METHOD BLANK: 2026444 Matrix: Water

Associated Lab Samples: 30387828001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.598 ± 0.458 (0.907) C:69% T:82%
 pCi/L
 10/30/20 12:00

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: 92634
Pace Project No.: 30387828

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.

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: 11/04/2020 02:24 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Chain of Custody

Face Analytical *

LAB USE ONLY MO#:30387828 Sample Intact(Yor N Results Requested By: Comments Requested Analysis Owner Received Date: 10/14/2020 Received on Ige Yor N EPA 904.0 Radium Sum Calc Date/Time £PA 903.1 SIIO Preserved Containers Pace Analytical Services LLC Greensburg PA 100 V Matrix Water Workorder Name: MW-8 Wilson 092-00004 Reveived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Custody Seal Y or N Greensburg, PA 15601 Lab ID Date/Time (724) 850-5615 Subcontract To: 10/13/20 08:05 Date/Time Collect ပွ Sample 3 Type rob.whittington@pacelabs.com Cooler Temperature on Receipt Madisonville, KY 42409 Transfers | Released By Workorder: 92634 McCoy & McCoy Labs 0092634-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 70 9 ∞ 4

***In order to maintain client confidentiality, location/name of the sappling site, sampler's name and signature may not be provided on this COC This chain of custody is considered complete as is since this information is available in the owner laboratory.

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0092634

#	3	0	3	8	7	8	2	8

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA

1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601

Phone: (724) 850-5615

Fax:

Expires Laboratory ID Comments Analysis Sample ID: 0092634-01 Sampled: 10/13/2020 08:05 Specific Method Water Radium Total (sub) 04/11/2021 08:05 EPA 904.0 Radium Sum C Radium 228 (sub) 04/11/2021 08:05 EPA 904.0 Radium Sum C Radium 226 (sub) 04/11/2021 08:05 EPA 903.1

Received By

Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Cond	lition L	lpon	Red	ceipt			
Pace Analytical Client Name:	M	ad	NSC	nnik	# Project #	303878	<u> 2</u> 8
Courier: Fed Ex UPS USPS Clie Tracking #: 107 3386 9238/9	ent □ 256	ommer 92	cial 27/	Pace Other		Label SWN	
Custody Seal on Cooler/Box Present: yes			~~	intact: yes	no		
Thermometer Used	Type		(Wet)		n 1	nulni 1	
Cooler Temperature Observed Temp 75	1171	° C	Corre	ection Factor: $-U$)./·c Final	Temp: 7.4/1.4/5	
Temp should be above freezing to 6°C	\mathbb{Q}			pH paper Lot#	Date and	nitials of person examining	ı
Comments:	Yes	. No	· N/A	IDDOHO	contents		3
Chain of Custody Present:				1.			4
Chain of Custody Filled Out:				2.			_
Chain of Custody Relinquished:				3.			_
Sampler Name & Signature on COC:		_		4.			
Sample Labels match COC:				5. 67 AL	al dale	oncontained	٠,
-includes date/time/ID Matrix:	WT			1)0.01	M. WOOD	o concurre	4
Samples Arrived within Hold Time:				6.			
Short Hold Time Analysis (<72hr remaining):				7.			_
Rush Turn Around Time Requested:				8.			_
Sufficient Volume:				9.			
Correct Containers Used:				10.			
-Pace Containers Used:							_
Containers Intact:				11.			_
Orthophosphate field filtered				12.			_
Hex Cr Aqueous sample field filtered				13.			
Organic Samples checked for dechlorination	: <u>.</u>			14			
Filtered volume received for Dissolved tests				15.			<u>.</u>
All containers have been checked for preservation.				16.	\mathcal{N}		
exceptions: VOA, coliform, TOC, O&G, Phenolic Non-aqueous matrix	s, Radon,	_		tr.	_		
All containers meet method preservation requirements.				Initial when O)	Date/time of preservation		
i cyan en ama-	<u> </u>			Lot # of added preservative			
Headspace in VOA Vials (>6mm):				17.			
Trip Blank Present:				18.		•	
Trip Blank Custody Seals Present				, .,, ., .,			
Rad Samples Screened < 0.5 mrem/hr				Initial when completed:	Date: \(Shulzo	
Client Notification/ Resolution:				<u></u>			_
Person-Contacted:			-Date/	Fime:	Contac	sted-B <u>y:</u>	
Comments/ Resolution:							_
, , ,							_
							_

A check in this box indicates that additional information has been stored in ereports.

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0092622

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419

MW-10 Wilson 092-00004

Customer ID: Report Printed:

44-100168 11/05/2020 13:23

Workorder:

0092622

Dear Mike Galbraith

Project Name:

Enclosed are the analytical results for samples received at one of our laboratories on 10/14/2020 08:38.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0092622-01	MW10/		Groundwater	10/13/2020 10:25	10/14/2020 8:38	Phillip Hill
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0092622-01	Field Conductance	2620				
	Field pH	6.16				
	Field Temp (C)	19.86				



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

Lab Sample ID: **0092622-01** Sample Collection Date Time: 10/13/2020 10:25 Description: **MW10** Sample Received Date Time: 10/14/2020 08:38

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Arsenic	0.0009	J	mg/L	0.0010	0.0004	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Barium	0.010		mg/L	0.004	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Boron	0.39		mg/L	0.10	0.10	SW846 6010 B	10/15/2020 07:52	10/20/2020 14:54	DMH
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Calcium	404	D1	mg/L	40.0	13.0	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:21	AKB
Chromium	0.0007	J	mg/L	0.0020	0.0006	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Cobalt	0.078		mg/L	0.004	0.004	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Copper	ND	U, B	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Iron	13.7	D2	mg/L	1.00	0.500	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:18	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Lithium	0.008	J	mg/L	0.02	0.005	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Magnesium	222	D1	mg/L	20.0	9.00	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:21	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Nickel	0.036		mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Potassium	6.33	D2	mg/L	5.00	2.20	SW846 6010 B	10/15/2020 07:52	10/16/2020 10:19	dmh
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Sodium	165	D1	mg/L	26.0	10.0	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:21	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:27	CAM

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	189		mg/L	4		2320 B-2011	10/21/2020 16:54	10/21/2020 16:54	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	10/21/2020 16:54	10/21/2020 16:54	HMF
Total Alkalinity	189		mg/L	4		2320 B-2011	10/21/2020 16:54	10/21/2020 16:54	HMF
Chemical Oxygen Demand	23		mg/L	5	5	HACH 8000	10/23/2020 13:24	10/23/2020 15:28	HMF
Specific Conductance (Lab)	3320		umhos/cm	1	1	2510 B-2011	10/20/2020 15:40	10/20/2020 15:40	CML
Hardness as CaCO3	1300	D	mg/L	5	5	2340 C (as HACH 8226)	10/19/2020 11:12	10/19/2020 11:12	CLL
Total Dissolved Solids	3290		mg/L	50	50	2540 C-2011	10/16/2020 11:40	10/19/2020 17:00	DJK
Total Organic Carbon	1.5		mg/L	0.5		5310 C-2011	10/17/2020 19:32	10/17/2020 19:32	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.059	_Sub	pCi/L			EPA 903.1	11/04/2020 00:00	11/04/2020 00:00	xxx
Radium-228	0.885	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	10/30/2020 00:00	10/30/2020 00:00	xxx
Radium	0.944	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	11/04/2020 00:00	11/04/2020 00:00	XXX



270.821.7375 www.pacelabs.com



Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	89.2	D	mg/L	2.5	1.8	EPA 300.0 REV 2.1	10/21/2020 10:27	10/21/2020 10:27	CSC
Fluoride	ND	U	mg/L	0.20		EPA 300.0 REV 2.1	10/20/2020 17:11	10/20/2020 17:11	CSC
Sulfate	1380	D	mg/L	100	50.0	EPA 300.0 REV 2.1	10/20/2020 17:46	10/20/2020 17:46	CSC



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Notes for work order 0092622

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Target analyte detected in method blank at or above the method reporting limit.

- The Chain of Custody document is included as part of this report.

Sample RPD exceeded the method control limit.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

В

Υ1

D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
J	Estimated value.
L1	The associated blank spike recovery was above method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample

nple

MS Matrix Spike MSD Matrix Spike Duplicate DUP Sample Duplicate Percent Recovery % Rec

RPD Relative Percent Difference

Greater than Less than

Results relate only to the items tested.



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:52									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Blank (B042261-BLK2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:10									
Potassium	ND	0.50	mg/L							U
Blank (B042261-BLK3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:36									
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	0.003	0.003	mg/L							В
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/21/2020 1	12:43									
Molybdenum	ND	0.01	mg/L							U
Copper	0.003	0.003	mg/L							В
Selenium	ND	0.003	mg/L							U
LCS (B042261-BS1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 1	12:56									
Boron	0.13	0.10	mg/L	0.125		101	85-115			
Calcium	6.42	0.40	mg/L	6.25		103	85-115			
Iron	6.27	0.100	mg/L	6.25		100	85-115			
Magnesium	5.31	0.200	mg/L	6.25		85.0	85-115			
Potassium	8.21	0.50	mg/L	6.25		131	85-115			L1
Sodium	6.41	0.26	mg/L	6.25		103	85-115			
LCS (B042261-BS2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020 1	10:13									
Potassium	6.67	0.50	mg/L	6.25		107	85-115			
LCS (B042261-BS3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 1	16:40									
Molybdenum	0.07	0.01	mg/L	0.0625		109	85-115			
Antimony	0.072	0.005	mg/L	0.0625		115	85-115			
Mercury	0.0025	0.0005	mg/L	0.00250		101	85-115			
Arsenic	0.0657	0.0010	mg/L	0.0625		105	85-115			
Barium	0.067	0.004	mg/L	0.0625		107	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		103	85-115			
Cadmium	0.0646	0.0010	mg/L	0.0625		103	85-115			
Chromium	0.0682	0.0020	mg/L	0.0625		109	85-115			
Cobalt	0.067	0.004	mg/L	0.0625		107	85-115			
Copper	0.068	0.003	mg/L	0.0625		109	85-115			В
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.07	0.02	mg/L	0.0625		107	85-115			
Nickel	0.066	0.003	mg/L	0.0625		106	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0663	0.0020	mg/L	0.0625		106	85-115			
Zinc	0.07	0.02	mg/L	0.0625		106	85-115			





Paralle Para			Reporting		Spike	Source		%REC		RPD	
Propared: 1015/2020 7.52, Analyzed: 10/21/2020 12-47 Martix Spike (B042261-MS2) Source: 0092629-MS ND 10.0 mg/L 0.0625 107 85-115 B MS MS MS MS MS MS MS	Analyte	Result		Units	•		%REC		RPD		Notes
Propertic: 10/15/2020 7-52, Analyzed: 10/21/2020 12-47 Molybderum											
Prepared : 10/15/2020 7:52											
Molybdenum	,	10/21/2020 12:47									
Capper			0.01	ma/L	0.0625		107	85-115			
Selenium	•			-							В
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 15:14 Boron ND ND 10.0 mg/L 0.125 ND 80-120 D2, M4, Calcium ND 40.0 mg/L 6.25 ND 80-120 D2, M4, Iton 5.57 10.0 mg/L 6.25 ND 80-120 D2, M4, Iton 5.57 10.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 20.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 80-120 ND, M6, M6, M6, M6, M6, M6, M6, M6, M6, M6	Selenium	0.064	0.003	-	0.0625		103	85-115			
Boron	Matrix Spike (B042261-MS1)	Source: 0092620-0	1								
Calcium ND 40.0 mg/L 6.25 ND 80-120 D2, M4, Iron Iron 5.57 10.0 mg/L 6.25 ND 80-120 D2, J4 M2, D2, J4 M2, D2, J4 M2, D2, M4, D2, M2, M2, M2, M2, M2, M2, M2, M2, M2, M	Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:14									
Iron	Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Magnesium ND 20.0 mg/L 6.25 ND 80-120 D2, M4, Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, D2, M4, D2, M4, D2, M4, MD Potassium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, D2, M4, M4, M4, MD, Mg/L 6.25 ND 80-120 D2, M4, M4, M4, MM, M4, MM, MG/L MG/L 6.25 ND 80-120 D2, M4, M4, M4, MM, MG/L MG/L <td>Calcium</td> <td>ND</td> <td>40.0</td> <td>mg/L</td> <td>6.25</td> <td>ND</td> <td></td> <td>80-120</td> <td></td> <td></td> <td>D2, M4, U</td>	Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Polassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, B0-120 D2, M4, D2, M4, B0-120 D2, M4, Martix Spike (B042261-MS2) Source: 0992629-01 Case of Martix Spike (B042261-MS2) Source: 0992629-01 Source: 0992629-01 Source: 10/15/2020 7:52, Analyzed: 10/15/2020 15:21 Source: 0992629-01 ND 10.0 mg/L 0.125 ND 80-120 D2, M4, D2, M1 Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M4, D2, M1 Calcium 15.8 10.0 mg/L 6.25 9.29 105 80-120 D2, M4 Magnesium 147 20.0 mg/L 6.25 9.29 105 80-120 D2, M1 Polassium ND 50.0 mg/L 6.25 9.29 105 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0992620-01	Iron	5.57	10.0	mg/L	6.25	ND	89.1	80-120			D2, J
Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Matrix Spike (B042261-MS2) Source: 0092629-01	Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, M4, U
Matrix Spike (B042261-MS2)	Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 15:21 Boron ND 10.0 mg/L 0.125 ND 80-120 D2, M4, Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M1 Iron 15.8 10.0 mg/L 6.25 97.9 150 80-120 D2, M1 Potassium 147 20.0 mg/L 6.25 97.9 170 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 72.3 146 80-120 D2, M1 Potassium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M1 Potassium 81.5 26.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 80-120 ND 80-12	Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, M4, U
Boron ND 10.0 mg/L 0.125 ND 80-120 D2, M4, Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M4, D2, M1 Iron 15.8 10.0 mg/L 6.25 9.29 105 80-120 D2, M4 Magnesium 147 20.0 mg/L 6.25 9.79 79 80-120 D2, M4 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4 Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M4 Matrix Spike (B042261-MS3) Source: 092620-01 V V 6.25 ND 106 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 092620-01 V V 6.25 ND 108 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 092620-01 V V 6.25 ND 108 80-120 D2 D2, M1 Matrix	Matrix Spike (B042261-MS2)	Source: 0092629-0	1								
Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M1 Iron 15.8 10.0 mg/L 6.25 9.29 105 80-120 D2 Magnesium 147 20.0 mg/L 6.25 97.9 790 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 97.9 790 80-120 D2, M1 Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0092620-01 v	Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:21									
Iron	Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Magnesium 147 20.0 mg/L 6.25 97.9 790 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, Sodium 81.5 26.0 mg/L 6.25 ND 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0092620-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.0625 ND 116 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Beryllium 0.0626 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649	Calcium	394	40.0	mg/L	6.25	384	166	80-120			D2, M1
Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M4 Matrix Spike (B042261-MS3) Source: 0092620-01	Iron	15.8	10.0	mg/L	6.25	9.29	105	80-120			D2
Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0092620-01 Source: 0092620-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Antimony 0.0028 0.0050 mg/L 0.0625 ND 116 80-120 D2 D2, J Arsenic 0.0695 0.0100 mg/L 0.0625 ND 116 80-120 D2 D2 D2 Barium 0.0695 0.0100 mg/L 0.0625 ND 116 80-120 D2 D2 Beryllium 0.0666 0.040 mg/L 0.0625 ND 105 80-120 D2 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 D2 Chromium 0.0659 0.0200	Magnesium	147	20.0	mg/L	6.25	97.9	790	80-120			D2, M1
Matrix Spike (B042261-MS3) Source: 0092620-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.0666 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 104 80-120 D2 Copper </td <td>Potassium</td> <td>ND</td> <td>50.0</td> <td>mg/L</td> <td>6.25</td> <td>ND</td> <td></td> <td>80-120</td> <td></td> <td></td> <td>D2, M4, U</td>	Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 104 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104	Sodium	81.5	26.0	mg/L	6.25	72.3	146	80-120			D2, M1
Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Copper 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 D2	Matrix Spike (B042261-MS3)	Source: 0092620-0	1								
Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2 Lead <	Prepared: 10/15/2020 7:52, Analyzed:	10/20/2020 19:57									
Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2 Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Nickel 0.06	Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120			D2, J
Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2 D2 Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 105 80-120 D2	Mercury	0.0028	0.0050	mg/L	0.00250	ND	112	80-120			D2, J
Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 105 80-120 D2 Thallium 0.0	Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120			D2
Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium	Arsenic	0.0695	0.0100	mg/L	0.0625	ND	111	80-120			D2
Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Barium	0.066	0.040	mg/L	0.0625	ND	105	80-120			D2
Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Beryllium	0.0628	0.0200	mg/L	0.0625	ND	101	80-120			D2
Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Cadmium	0.0649	0.0100	mg/L	0.0625	ND	104	80-120			D2
Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Chromium	0.0659	0.0200	mg/L	0.0625	ND	105	80-120			D2
Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Cobalt	0.065		mg/L			104				
Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Copper										
Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Lead			_							
Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Lithium										
Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2				_							
·											
Zinc ND 0.20 mg/L 0.0625 ND 80-120 D2, M4,	Thallium Zinc		0.0200 0.20	-			105	80-120 80-120			D2 D2, M4, U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike (B042261-MS4)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/20/2020 20:04									
Antimony	0.075	0.050	mg/L	0.0625	ND	121	80-120			D2, M1
Mercury	0.0028	0.0050	mg/L	0.00250	ND	110	80-120			D2, J
Molybdenum	0.07	0.10	mg/L	0.0625	ND	115	80-120			D2, J
Arsenic	0.0732	0.0100	mg/L	0.0625	ND	117	80-120			D2
Barium	0.082	0.040	mg/L	0.0625	0.014	108	80-120			D2
Beryllium	0.0639	0.0200	mg/L	0.0625	ND	102	80-120			D2
Cadmium	0.0656	0.0100	mg/L	0.0625	ND	105	80-120			D2
Chromium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.082	0.040	mg/L	0.0625	ND	132	80-120			D2, M1
Copper	0.061	0.030	mg/L	0.0625	ND	98.3	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.11	0.20	mg/L	0.0625	ND	175	80-120			D2, M1, J
Nickel	0.089	0.030	mg/L	0.0625	0.022	107	80-120			D2
Selenium	0.069	0.030	mg/L	0.0625	ND	111	80-120			D2
Thallium	0.0647	0.0200	mg/L	0.0625	ND	104	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U
Matrix Spike Dup (B042261-MSD1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:17									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	5.93	10.0	mg/L	6.25	ND	94.9	80-120	6.26	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD2)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	414	40.0	mg/L	6.25	384	484	80-120	4.92	20	D2, M1
Iron	16.4	10.0	mg/L	6.25	9.29	114	80-120	3.84	20	D2
Magnesium	155	20.0	mg/L	6.25	97.9	913	80-120	5.08	20	D2, M1
Potassium	ND	50.0	mg/L	6.25	ND	-	80-120		20	D2, M4, U
Sodium	85.4	26.0	mg/L	6.25	72.3	209	80-120	4.70	20	D2, M1





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike Dup (B042261-MSD3)	Source: 0092620-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/	20/2020 20:00									
Molybdenum	0.06	0.10	mg/L	0.0625	ND	104	80-120	4.25	20	D2, J
Mercury	0.0027	0.0050	mg/L	0.00250	ND	107	80-120	3.90	20	D2, J
Antimony	0.071	0.050	mg/L	0.0625	ND	114	80-120	2.25	20	D2
Arsenic	0.0678	0.0100	mg/L	0.0625	ND	109	80-120	2.47	20	D2
Barium	0.065	0.040	mg/L	0.0625	ND	104	80-120	1.34	20	D2
Beryllium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.33	20	D2
Cadmium	0.0632	0.0100	mg/L	0.0625	ND	101	80-120	2.66	20	D2
Chromium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.48	20	D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120	0.325	20	D2
Copper	0.062	0.030	mg/L	0.0625	ND	98.8	80-120	4.81	20	D2, B
Lead	0.064	0.020	mg/L	0.0625	ND	103	80-120	1.15	20	D2
Lithium	0.06	0.20	mg/L	0.0625	ND	99.1	80-120	2.77	20	D2, J
Nickel	0.063	0.030	mg/L	0.0625	ND	101	80-120	4.21	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	108	80-120	3.49	20	D2
Thallium	0.0644	0.0200	mg/L	0.0625	ND	103	80-120	1.56	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD4)	Source: 0092629-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/	20/2020 20:08									
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120	3.64	20	D2
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120	6.82	20	D2, J
Mercury	0.0028	0.0050	mg/L	0.00250	ND	111	80-120	0.768	20	D2, J
Arsenic	0.0721	0.0100	mg/L	0.0625	ND	115	80-120	1.40	20	D2
Barium	0.080	0.040	mg/L	0.0625	0.014	105	80-120	2.21	20	D2
Beryllium	0.0622	0.0200	mg/L	0.0625	ND	99.6	80-120	2.65	20	D2
Cadmium	0.0628	0.0100	mg/L	0.0625	ND	100	80-120	4.34	20	D2
Chromium	0.0645	0.0200	mg/L	0.0625	ND	103	80-120	1.44	20	D2
Cobalt	0.081	0.040	mg/L	0.0625	ND	130	80-120	1.84	20	D2, M1
Copper	0.059	0.030	mg/L	0.0625	ND	93.7	80-120	4.77	20	D2, B
Lead	0.063	0.020	mg/L	0.0625	ND	101	80-120	2.71	20	D2
Lithium	0.11	0.20	mg/L	0.0625	ND	179	80-120	2.20	20	D2, M1, J
Nickel	0.088	0.030	mg/L	0.0625	0.022	106	80-120	0.909	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	107	80-120	2.91	20	D2
Thallium	0.0641	0.0200	mg/L	0.0625	ND	103	80-120	0.991	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U





	Repor	ting	Spike	Source		%REC		RPD	
Analyte	•	imit Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2									
Post Spike (B042261-PS1)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyzed	d: 10/15/2020 15:27								
Boron	113	ug/L	125	-0.57	90.4	75-125			D2
Calcium	6400	ug/L	6250	39.0	102	75-125			D2
Iron	5840	ug/L	6250	-0.050	93.5	75-125			D2
Magnesium	6590	ug/L	6250	2.27	105	75-125			D2
Potassium	6300	ug/L	6250	9.60	101	75-125			D2
Sodium	6100	ug/L	6250	21.6	97.3	75-125			D2
Post Spike (B042261-PS2)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyzed	d: 10/20/2020 20:11								
Antimony	70.5	ug/L	62.5	0.083	113	75-125			D2
Molybdenum	67.2	ug/L	62.5	0.04	107	75-125			D2
Mercury	2.75	ug/L	2.50	0.0323	109	75-125			D2
Arsenic	71.3	ug/L	62.5	-0.0088	114	75-125			D2
Barium	63.7	ug/L	62.5	0.095	102	75-125			D2
Beryllium	65.4	ug/L	62.5	-0.0105	105	75-125			D2
Cadmium	63.6	ug/L	62.5	0.0157	102	75-125			D2
Chromium	65.6	ug/L	62.5	0.355	104	75-125			D2
Cobalt	63.7	ug/L	62.5	-0.003	102	75-125			D2
Copper	60.7	ug/L	62.5	-1.80	97.1	75-125			D2, B
Lead	64.8	ug/L	62.5	0.522	103	75-115			D2
Lithium	64.9	ug/L	62.5	0.04	104	75-125			D2
Nickel	63.8	ug/L	62.5	-0.079	102	75-125			D2
Selenium	67.6	ug/L	62.5	0.009	108	75-125			D2
Thallium	64.7	ug/L	62.5	0.00002	104	75-125			D2
Zinc	77.9	ug/L	62.5	3.15	120	75-125			D2





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042498 - Default Prep Wet Chem										
Blank (B042498-BLK1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B042498-BS1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	1490	25	mg/L	1500		99.6	80-120			
Duplicate (B042498-DUP1) S	ource: 0092629-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	2240	50	mg/L		2290			2.56	10	
Duplicate (B042498-DUP2) S	ource: 0102128-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	364	50	mg/L		370			1.63	10	
Batch B042577 - Default Prep Wet Chem										
Blank (B042577-BLK1)										
Prepared: 10/19/2020 10:58, Analyzed: 10/19/2020	20 10:58									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B042577-BS1)										
Prepared: 10/19/2020 11:00, Analyzed: 10/19/2020	20 11:00									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B042577-DUP1) S	ource: 0100778-02									
Prepared: 10/19/2020 12:16, Analyzed: 10/19/2020	20 12:16									
Hardness as CaCO3	268	1	mg/L		260			3.03	10	
Matrix Spike (B042577-MS1)	ource: 0100778-02									
Prepared: 10/19/2020 12:18, Analyzed: 10/19/2020	20 12:18									
Hardness as CaCO3	648	1	mg/L	318	260	122	80-120			Y1
Batch B042587 - Default Prep Wet Chem										
Blank (B042587-BLK1)										
Prepared: 10/17/2020 18:08, Analyzed: 10/17/2020	20 18:08									
Total Organic Carbon	ND	0.5	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042587 - Default Prep Wet Chem										
LCS (B042587-BS1)										
Prepared: 10/17/2020 17:47, Analyzed: 10/17/2	020 17:47									
Total Organic Carbon	4.7	0.5	mg/L	5.00		94.1	80-120			
Duplicate (B042587-DUP1)	Source: 0092628-01									
Prepared: 10/17/2020 23:24, Analyzed: 10/17/2	2020 23:24									
Total Organic Carbon	0.9	0.5	mg/L		1.0			8.76	25	
Duplicate (B042587-DUP2)	Source: 0100200-01									
Prepared: 10/18/2020 4:41, Analyzed: 10/18/20	020 4:41									
Total Organic Carbon	2.5	0.5	mg/L		2.4			2.64	25	
Matrix Spike (B042587-MS1)	Source: 0092629-01									
Prepared: 10/17/2020 23:45, Analyzed: 10/17/2										
Total Organic Carbon	3.9	0.5	mg/L	2.50	1.6	93.3	80-120			
Matrix Spike (B042587-MS2)	Source: 0100200-02									
Prepared: 10/18/2020 5:02, Analyzed: 10/18/20	020 5:02									
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.8	94.8	80-120			
Batch B043117 - Default Prep Wet Chem										
Blank (B043117-BLK1)										
Prepared: 10/21/2020 16:14, Analyzed: 10/21/2	2020 16:14									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK2)										
Prepared: 10/21/2020 18:13, Analyzed: 10/21/2	020 18:13									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK3)										
Prepared: 10/21/2020 19:40, Analyzed: 10/21/2	020 19:40									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043117 - Default Prep Wet Chem										
LCS (B043117-BS1)										
Prepared: 10/21/2020 18:06, Analyzed: 10/21/2020	18:06									
Total Alkalinity	249	4	mg/L	235		106	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	231	4	mg/L	225		103	0-200			
LCS (B043117-BS2)										
Prepared: 10/21/2020 19:35, Analyzed: 10/21/2020	19:35									
Carbonate Alkalinity as CaCO3	227	4	mg/L	225		101	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	254	4	mg/L	235		108	80-120			
Duplicate (B043117-DUP1) Soc	urce: 0092629-01									
Prepared: 10/21/2020 17:38, Analyzed: 10/21/2020	17:38									
Total Alkalinity	295	4	mg/L		283			4.39	10	
Bicarbonate Alkalinity as CaCO3	295	4	mg/L		283			4.39	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Duplicate (B043117-DUP2) Sou	urce: 0092635-01									
Prepared: 10/21/2020 19:24, Analyzed: 10/21/2020	19:24									
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	281	4	mg/L		268			4.88	10	
Total Alkalinity	281	4	mg/L		268			4.88	10	
Matrix Spike (B043117-MS1) Sou	urce: 0092629-01									
Prepared: 10/21/2020 18:03, Analyzed: 10/21/2020	18:03									
Total Alkalinity	331	4	mg/L	49.4	283	98.6	80-120			
Matrix Spike (B043117-MS2) Sou	urce: 0092635-01									
Prepared: 10/21/2020 19:30, Analyzed: 10/21/2020	19:30									
Total Alkalinity	301	4	mg/L	49.4	268	66.2	80-120			М3
Batch B043187 - Default Prep Wet Chem										
Blank (B043187-BLK1)										
Prepared: 10/20/2020 15:36, Analyzed: 10/20/2020	15:36									
Specific Conductance (Lab)	ND	1	umhos/cm							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043187 - Default Prep Wet Chem										
LCS (B043187-BS1)										
Prepared: 10/20/2020 15:37, Analyzed: 10/20	0/2020 15:37									
Specific Conductance (Lab)	1420		umhos/cm	1410		101	80-120			
Duplicate (B043187-DUP1)	Source: 0092629-01									
Prepared: 10/20/2020 15:54, Analyzed: 10/20)/2020 15:54									
Specific Conductance (Lab)	2600	1	umhos/cm		2610			0.307	1.24	
Duplicate (B043187-DUP2)	Source: 0102262-01									
Prepared: 10/20/2020 16:09, Analyzed: 10/20	0/2020 16:09									
Specific Conductance (Lab)	354	1	umhos/cm		351			0.851	1.24	
Batch B043582 - Default Prep Wet Chem										
Blank (B043582-BLK1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	ND	5	mg/L							U
LCS (B043582-BS1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	121	5	mg/L	125		96.8	90-110			
Duplicate (B043582-DUP1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:32									
Chemical Oxygen Demand	5	5	mg/L		ND				25	
Matrix Spike (B043582-MS1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	260	5	mg/L	250	ND	104	90-110			
Matrix Spike Dup (B043582-MSD1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	257	5	mg/L	250	ND	103	90-110	1.21	10	





Ion Chromatography Madisonville - Quality Control

Ion Chromatography Madisonville - Quality Control											
		Reporting		Spike	Source		%REC		RPD		
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes	
Batch B043120 - Default Prep IC											
Blank (B043120-BLK1)											
Prepared: 10/20/2020 15:45, Analyzed:	10/20/2020 15:45										
Sulfate	ND	1.0	mg/L							U	
Chloride	ND	0.5	mg/L							U	
Fluoride	ND	0.20	mg/L							U	
LCS (B043120-BS1)											
Prepared: 10/20/2020 15:27, Analyzed:	10/20/2020 15:27										
Fluoride	9.42		mg/L	10.0		94.2	90-110				
Sulfate	9.4		mg/L	10.0		93.7	90-110				
Chloride	9.5		mg/L	10.0		95.4	90-110				
Matrix Spike (B043120-MS1)	Source: 0092620-01										
Prepared: 10/20/2020 21:50, Analyzed:	10/20/2020 21:50										
Fluoride	12.3		mg/L	10.0	0.00	123	80-120			M1	
Chloride	12.4		mg/L	10.0	0.2	122	80-120			M1	
Sulfate	12.3		mg/L	10.0	0.05	122	80-120			M1	
Matrix Spike Dup (B043120-MSD1)	Source: 0092620-01										
Prepared: 10/20/2020 22:07, Analyzed:	10/20/2020 22:07										
Chloride	11.7		mg/L	10.0	0.2	115	80-120	5.59	10		
Sulfate	11.6		mg/L	10.0	0.05	116	80-120	5.62	20		
Fluoride	11.7		mg/L	10.0	0.00	117	80-120	4.70	20		
Certified Analyses included in this Rep	oort										
Analyte	Certifications										

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0092622
Shipped By: Client	Temperature: 1.00° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	
Check if Collector Signature Present	
Check if bottles are intact	☑
Check if bottles are correct	abla
Check if bottles have sufficient volume	
Check if samples received on ice	
Check if VOA headspace is acceptable	
Check if samples received in holding time.	
Check if samples are preserved properly	

Chain of Custody

Scheduled for: <u>09/07/2020</u>



					,	
Client: Big Rivers Electric Corporation Wi Station		tric Corporation Wilson	Invoice To: Big Rivers E	Electric Corporation Wilso	n Station	
Project: MW-10 Wilson 092-00004	Mike Galbraith		Brian Edwards PO Box 24 Henderson, KY 42419			
•	PO Box 24 Henderson, KY	42419				
	Phone: (270) 84		PO#:		\ 	
	PWS ID#:	44				
Please Print Legibly	State:		Quote#			
Collected by (Signature):	quired information*		Compli	ance Monitoring? Yes	_ No	
*For composite samples please indicate begin	n time, end time and temp(oC)	at end time below:	Sample	es Chlorinated? Yes	_ No	
Influent: Start Date Start time _	End Date	End Time	_ Temp (oC)	· · · · · · · · · · · · · · · · · · ·		
Effluent: Start Date Start time _	End Date	End Time	_ Temp (oC)			
LAB USE ONLY *required information* Workorder # Date Collection 0092622 (mm/dd/yy): Time (24 hr):	Bottle and Preservative	્રા હાં હાં હાં હાં હાં હાં હાં હાં હાં હા	2			
Sample ID#	Dottio dila 1 1000/14/110	Sample Descriptio	n Composite	Sample Analysis Re	equested	
0092622-01 A 12/13/20 1025	Plastic 1L	MW10	g/c	TDS Alkalinity Carbonat Total Chloride 300.0 Co		
1 /				(Lab) Fluoride 300.0 Su Alkalinity Bicarbonate		
0092622-01 B <u>10/13/20</u> 1025	Plastic 500mL pH<2 1 w/HNO3	1 MW10	g/c	Beryllium Tot 6020 Leac Antimony Tot 6020 Arse Boron Tot 6010B Barium Cadmium Tot 6020 Calc 6010B Chromium Tot 60 Tot 6020 Copper Tot 60 Titration Iron Tot 6010B 6020 Magnesium Tot 60	nic Tot 6020 n Tot 6020 cium₁Tot 020 ©obalt 20 Hardnes Lithium Tot	
i /	Preservation Check: pH : <	<u>/</u>			•	
0092622-01 C 10/13/20 1025	Plastic 500mL pH<2 w/H2SO4 Preservation Check: pH:	1 MW10	g/c	COD TOC	1	
0092622-01 D 10/10/20 1025	· —	MW10	g/c ·	Radium 226 (sub)		
Preservation Check Performed by:	Hoy					
Field data collected by: Thilly 17		10/13/20 Time (24 hr)	1025			
pH 6,16 Cond (umho) 2	, 62 Res CI (mg/L) _	Tot CI (mg/L)	Fre	ee CI (mg/L)	: F	
Temp (oC) 19.86 or (oF)	Static Water Level	DO (mg/L)	т	urb. (NTU)	:	
Flow (MGD) or (CFS)				. ,	,	
Relinquished by: (Signature)	Received by: (Signat	ure)	Date (mm/	/dd/yy) Time (24 h	nr)	
Tun's of	174	ley	16.14.	6831		
			<u> </u>			
PACE- Check here if trip charge ap	plied to associated COC	Printed:	9/10/2020 10:03	:54AM Page	18 of 30	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>09/07/2020</u>



Client: Big Rivers Electric Corporation Wilson Station		ric Corporation Wilson	Invoice To: Big Rivers E	lectric Corporation Wilson Station	n			
Project: MW-10 Wilson 092-00004	Mike Galbraith		Brian Edwar	ds				
•	PO Box 24 Henderson, KY 4	12419	PO Box 24 Henderson, KY 42419					
	•		richaerson,	(() 72710				
1	Phone: (270) 844 PWS ID#:	<u>4-6000</u>	PO#:					
Please Print Legibly	State: F	<u> </u>	Quote#					
Collected by (Signature):	ed information*		Compli	ance Monitoring? Yes No _	_			
*For composite samples please indicate begin tim	e, end time and temp(oC) a	t end time below:	Sample	es Chlorinated? Yes No _	—			
Influent: Start Date Start time	End Date	End Time	Temp (oC)					
Effluent: Start Date Start time	End Date	End Time	Temp (oC)					
LAB USE ONLY *required information* Workorder # Date Collection 0092622 (mm/dd/yy): Time (24 hr): E Sample ID#	Sottle and Preservative	Sample Description	Composite	Sample Analysis Requeste	ed			
	lastic 1L pH<2 w/HNO3 1	MW10	g/c	Radium 228 (sub)				
Pr	Rad 228 (Sub) eservation Check: pH:	· ·	_					
0092622-01 F 10/13/20 1025 P	lastic 1L pH<2 w/HNO3 1 Rad 228 (Sub) eservation Check: pH: V	 MW10 /	g / c	Radium 228 (sub)				
/ /	-		-1-	Dadium Tatal (auta)				
	lastic 1L pH<2 w/HNO3 1 (Sub)	/ MW10	g/c	Radium Total (sub)				
1 1 .	eservation Check: pH :							
0092622-01 H <u>ID/I3/qo ID25</u>	AG 250mL pH<2 1 w/H2SO4	/ MW10	g/c	TOC				
Pro	eservation Check: pH : <u>V</u>	<u>'</u>						
Preservation Check Performed by: 10 1								
		1 /			- 1			
Field data collected by: Twilif 17-13		ر (24 hr) مرازه (24 hr) مرازه (24 hr)	1025					
pH 6.16 Cond (umho) 2.6) Res Cl (mg/L)	Tot CI (mg/L) _	Fre	ee CI (mg/L)				
Temp (oC) 19,86 or (oF)	Static Water Level	DO (mg/L)	т	urb. (NTU)				
Flow (MGD) or (CFS)								
Relinquished by: (Signature)	Received by: (Signatu	ıre)	Date (mm/	dd/yy) Time (24 hr)				
	1/1 1/-	-·-/	·					
The fred	- 170/4	7	18-14	·06 UT 50				
				<u> </u>	<u>•</u> .			
			_	<u> </u>				
		•		•				

PACE- Check here if trip charge applied to associated COC

Printed: 9/10/2020 10:03:54AM

Page 19 of 30

(724)850-5600



November 04, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 92622

Pace Project No.: 30387813

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on October 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 - Greensburg

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

Sincerely,

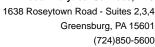
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 92622 Pace Project No.: 30387813

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

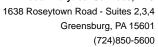
Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249 Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3 Utah/TNI Certification #: PA014572017-9 USDA Soil Permit #: P330-17-00091 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 9526 Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad Wyoming Certification #: 8TMS-L

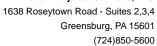




SAMPLE SUMMARY

Project: 92622
Pace Project No.: 30387813

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30387813001	0092622-01	Water	10/13/20 10:25	10/15/20 09:25



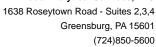


SAMPLE ANALYTE COUNT

Project: 92622
Pace Project No.: 30387813

Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30387813001	0092622-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg





ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92622
Pace Project No.: 30387813

Sample: 0092622-01 Lab ID: 30387813001 Collected: 10/13/20 10:25 Received: 10/15/20 09:25 Matrix: Water PWS: Site ID: Sample Type:

Comments: • Sample collection dates and times were not present on the sample containers.

Comments: • Sample collection dates and times were not present on the sample containers.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytica	Services - Greensburg				
Radium-226	EPA 903.1	0.0589 ± 0.306 (0.634) C:NA T:86%	pCi/L	11/04/20 12:44	13982-63-3	
	Pace Analytica	l Services - Greensburg				
Radium-228	EPA 904.0	0.885 ± 0.493 (0.898) C:63% T:90%	pCi/L	10/30/20 12:00	15262-20-1	
	Pace Analytica	l Services - Greensburg				
Total Radium	Total Radium Calculation	0.944 ± 0.799 (1.53)	pCi/L	11/04/20 14:03	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project:

92622

Pace Project No.:

30387813

QC Batch:
QC Batch Method:

419199

EPA 903.1

19199

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387813001

METHOD BLANK: 2026443

Matrix: Water

Associated Lab Samples: 3

30387813001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

 -0.0904 ± 0.280 (0.637) C:NA T:89%

pCi/L

11/04/20 12:44

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: 92622 Pace Project No.:

30387813

QC Batch: QC Batch Method: 419200

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387813001

METHOD BLANK: 2026444

Matrix: Water

Associated Lab Samples:

30387813001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

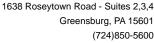
Radium-228

0.598 ± 0.458 (0.907) C:69% T:82%

pCi/L

10/30/20 12:00

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: 92622 Pace Project No.: 30387813

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.

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: 11/04/2020 02:04 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Chain of Custody

Face Analytical

LAB USE ONLY δ WO#:30387813 Sample Intact 'Y or N Results Requested By: Comments ***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this CO Requested Analysis 30387813 Workorder Name: MW-10 Wilson 092-00004 Owner Received Date: 10/14/2020 Received on Ice Y or N EPA 904.0 Radium Sum Calc Date/Time EPA 903.1 Preserved Containers Pace Analytical Services LLC Greensburg PA (greed po Matrix Water 122 Reveived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Custody Seal Y or/N Greensburg, PA 15601 Lab ID Date/Time Subcontract To: (724)850-561510/13/20 10:25 Date/Time Collect ار Sample びる Type rob.whittington@pacelabs.com Cooler Temperature on Receipt Madisonville, KY 42409 Transfers |Released By Workorder: 92622 McCoy & McCoy Labs 0092622-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 10 9 ∞ 6

FMT-ALL-C-002rev.00 24March2009

This chain of custody is considered complete as is since this information is available in the owner laboratory.

Page 1 of 1

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0092622



SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4 Greensburg, PA 15601 Phone: (724) 850-5615

Fax:

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0092622-01	Water	Sampled:10/13/2020 10:25	Specific Method		
Radium Total (sub)		04/11/2021 10:25	EPA 904.0 Radium	Sum (
Radium 228 (sub)		04/11/2021 10:25	EPA 904.0 Radium	Sum C	
Radium 226 (sub)		04/11/2021 10:25	EPA 903.1		

Norther 10-14-20
Released By Date

Received By Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condition Upon Receipt						
Pace Analytical Client Name:	M	ad	AST	Project # 30387813		
Courier: Fed Ex UPS USPS Client Commercial Pace Other Tracking #: 1107 3386 9238/9256/927/ Lims Login & Lim						
Custody Seal on Cooler/Box Present:	Z'n			intact: yes Zno		
Thermometer Used		of ice:	Wet	Blue None		
Cooler Temperature Observed Temp 751	<u> </u>	° C	Corre	ection Factor: O. / · C Final Temp: 7.417.45		
Temp should be above freezing to 6°C						
Comments:	Yes	. No	N/A	pH paper Lot# Date and Initials of person examining contents:		
Chain of Custody Present:				1.		
Chain of Custody Filled Out:				2.		
Chain of Custody Relinquished:				3.		
Sampler Name & Signature on COC:				4.		
Sample Labels match COC:				5. ash 'il dall's cate '		
-Includes date/time/ID Matrix:	WT			"notified date on contained		
Samples Arrived within Hold Time:				6.		
Short Hold Time Analysis (<72hr remaining):				7.		
Rush Turn Around Time Requested:				8.		
Sufficient Volume:				9.		
Correct Containers Used:				10.		
-Pace Containers Used:						
Containers Intact:				11.		
Orthophosphate field filtered				12.		
Hex Cr Aqueous sample field filtered				13.		
Organic Samples checked for dechlorination:				14		
Filtered volume received for Dissolved tests	ļ	<u> </u>		15.		
All containers have been checked for preservation.]		16. 70112		
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				Prior		
All containers meet method preservation requirements.			,	Initial when completed Date/time of preservation		
· ·		I		Lot # of added		
	Т.			preservative		
Headspace in VOA Vials (>6mm):				17.		
Trip Blank Present:	ļ			18.		
Trip Blank Custody Seals Present Rad Samples Screened < 0.5 mrem/hr	 			Initial when \bigcirc 0 1,11,12,2		
Rad damples detected 100 mount			·	completed: OB Date: 15/16/20		
Client Notification/ Resolution:						
Person-Contacted: Date/Filme: Contacted By:						
Comments/ Resolution:						

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)

A check in this box indicates that additional information has been stored in ereports.

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0092630

Mike Galbraith
Big Rivers Electric Corporation Wilson Station
PO Box 24
Henderson KY, 42419

Customer ID: Report Printed:

44-100168 11/05/2020 13:45

Project Name: MW-4D Wilson 092-00004

Workorder: 0092630

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 10/14/2020 08:38.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0092630-01	MW4D/		Groundwater	10/13/2020 15:20	10/14/2020 8:38	Phillip Hill
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0092630-01	Field Conductance	3960				
	Field pH	6.47				
	Field Temp (C)	20.19				



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

Lab Sample ID: **0092630-01** Sample Collection Date Time: 10/13/2020 15:20 Description: **MW4D** Sample Received Date Time: 10/14/2020 08:38

Metals by SW846 6000 Series Methods

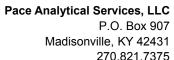
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Arsenic	0.0037		mg/L	0.0010	0.0004	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Barium	0.018		mg/L	0.004	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Boron	9.39	D1	mg/L	2.00	2.00	SW846 6010 B	10/15/2020 07:52	10/22/2020 09:23	DMH
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Calcium	659	D1	mg/L	40.0	13.0	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:30	AKB
Chromium	0.0010	J	mg/L	0.0020	0.0006	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Cobalt	0.012		mg/L	0.004	0.004	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Copper	ND	U, B	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Iron	10.8	D2	mg/L	1.00	0.500	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:18	AKB
Lead	0.0005	J	mg/L	0.002	0.0005	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Lithium	0.17		mg/L	0.02	0.005	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Magnesium	256	D1	mg/L	20.0	9.00	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:30	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Molybdenum	0.01		mg/L	0.01	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Nickel	0.038		mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Potassium	42.7	D2	mg/L	5.00	2.20	SW846 6010 B	10/15/2020 07:52	10/16/2020 10:29	dmh
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Sodium	230	D1	mg/L	26.0	10.0	SW846 6010 B	10/15/2020 07:52	10/15/2020 14:30	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM
Zinc	0.02		mg/L	0.02	0.02	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:17	CAM

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	414		mg/L	4		2320 B-2011	10/21/2020 18:42	10/21/2020 18:42	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	10/21/2020 18:42	10/21/2020 18:42	HMF
Total Alkalinity	414		mg/L	4		2320 B-2011	10/21/2020 18:42	10/21/2020 18:42	HMF
Chemical Oxygen Demand	424		mg/L	5	5	HACH 8000	10/23/2020 13:24	10/23/2020 15:30	HMF
Specific Conductance (Lab)	5140		umhos/cm	1	1	2510 B-2011	10/20/2020 15:57	10/20/2020 15:57	CML
Hardness as CaCO3	2410	D	mg/L	5	5	2340 C (as HACH 8226)	10/19/2020 11:40	10/19/2020 11:40	CLL
Total Dissolved Solids	4410		mg/L	50	50	2540 C-2011	10/16/2020 11:40	10/19/2020 17:00	DJK
Total Organic Carbon	0.9		mg/L	0.5		5310 C-2011	10/18/2020 00:06	10/18/2020 00:06	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.268	_Sub	pCi/L			EPA 903.1	11/04/2020 00:00	11/04/2020 00:00	xxx
Radium-228	1.44	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	10/30/2020 00:00	10/30/2020 00:00	xxx
Radium	1.71	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	11/04/2020 00:00	11/04/2020 00:00	XXX



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Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	1210	D	mg/L	50.0	36.0	EPA 300.0 REV 2.1	10/21/2020 01:02	10/21/2020 01:02	CSC
Fluoride	0.23		mg/L	0.20		EPA 300.0 REV 2.1	10/21/2020 00:44	10/21/2020 00:44	CSC
Sulfate	1260	D	mg/L	200	100	EPA 300.0 REV 2.1	10/21/2020 10:45	10/21/2020 10:45	CSC



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

Notes for work order 0092630

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.

Sample RPD exceeded the method control limit.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

Υ1

В	Target analyte detected in method blank at or above the method reporting limit.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
J	Estimated value.
L1	The associated blank spike recovery was above method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Snike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

Greater than
Less than

Results relate only to the items tested.



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:52									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Blank (B042261-BLK2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:10									
Potassium	ND	0.50	mg/L							U
Blank (B042261-BLK3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:36									
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	0.003	0.003	mg/L							В
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/21/2020 1:	2:43									
Molybdenum	ND	0.01	mg/L							U
Copper	0.003	0.003	mg/L							В
Selenium	ND	0.003	mg/L							U
LCS (B042261-BS1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 1:	2:56									
Boron	0.13	0.10	mg/L	0.125		101	85-115			
Calcium	6.42	0.40	mg/L	6.25		103	85-115			
Iron	6.27	0.100	mg/L	6.25		100	85-115			
Magnesium	5.31	0.200	mg/L	6.25		85.0	85-115			
Potassium	8.21	0.50	mg/L	6.25		131	85-115			L1
Sodium	6.41	0.26	mg/L	6.25		103	85-115			
LCS (B042261-BS2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020 1	0:13									
Potassium	6.67	0.50	mg/L	6.25		107	85-115			
LCS (B042261-BS3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 1	6:40									
Mercury	0.0025	0.0005	mg/L	0.00250		101	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		109	85-115			
Antimony	0.072	0.005	mg/L	0.0625		115	85-115			
Arsenic	0.0657	0.0010	mg/L	0.0625		105	85-115			
Barium	0.067	0.004	mg/L	0.0625		107	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		103	85-115			
Cadmium	0.0646	0.0010	mg/L	0.0625		103	85-115			
Chromium	0.0682	0.0020	mg/L	0.0625		109	85-115			
Cobalt	0.067	0.004	mg/L	0.0625		107	85-115			
Copper	0.068	0.003	mg/L	0.0625		109	85-115			В
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.07	0.02	mg/L	0.0625		107	85-115			
Nickel	0.066	0.003	mg/L	0.0625		106	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0663	0.0020	mg/L	0.0625		106	85-115			
Zinc	0.07	0.02	mg/L	0.0625		106	85-115			





	ivietals by 5	**046 6000	Jenes II	netilous - (Quality C					Metals by SW846 6000 Series Methods - Quality Control											
		Reporting		Spike	Source		%REC		RPD												
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes											
Batch B042261 - EPA 200.2																					
LCS (B042261-BS4)																					
Prepared: 10/15/2020 7:52, Analyzed: 1	10/21/2020 12:47																				
Molybdenum	0.07	0.01	mg/L	0.0625		107	85-115														
Copper	0.067	0.003	mg/L	0.0625		107	85-115			В											
Selenium	0.064	0.003	mg/L	0.0625		103	85-115														
Matrix Spike (B042261-MS1)	Source: 0092620-	01																			
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:14																				
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U											
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U											
Iron	5.57	10.0	mg/L	6.25	ND	89.1	80-120			D2, J											
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, M4, U											
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U											
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, M4, U											
Matrix Spike (B042261-MS2)	Source: 0092629-	01																			
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:21																				
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U											
Calcium	394	40.0	mg/L	6.25	384	166	80-120			D2, M1											
Iron	15.8	10.0	mg/L	6.25	9.29	105	80-120			D2											
Magnesium	147	20.0	mg/L	6.25	97.9	790	80-120			D2, M1											
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U											
Sodium	81.5	26.0	mg/L	6.25	72.3	146	80-120			D2, M1											
Matrix Spike (B042261-MS3)	Source: 0092620-	01																			
Prepared: 10/15/2020 7:52, Analyzed: 1	10/20/2020 19:57																				
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120			D2											
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120			D2, J											
Mercury	0.0028	0.0050	mg/L	0.00250	ND	112	80-120			D2, J											
Arsenic	0.0695	0.0100	mg/L	0.0625	ND	111	80-120			D2											
Barium	0.066	0.040	mg/L	0.0625	ND	105	80-120			D2											
Beryllium	0.0628	0.0200	mg/L	0.0625	ND	101	80-120			D2											
Cadmium	0.0649	0.0100	mg/L	0.0625	ND	104	80-120			D2											
Chromium	0.0659	0.0200	mg/L	0.0625	ND	105	80-120			D2											
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120			D2											
Copper	0.065	0.030	mg/L	0.0625	ND	104	80-120			D2, B											
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2											
Lithium	0.06	0.20	mg/L	0.0625	ND	102	80-120			D2, J											
Nickel	0.066	0.030	mg/L	0.0625	ND	105	80-120			D2											
Selenium	0.070	0.030	mg/L	0.0625	ND	112	80-120			D2											
Thallium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2											
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			U, D2, M4											





		Damantin :		Cailea	Carra		0/ DEC		DDD	
Analyta	D#	Reporting	Lla2ta	Spike	Source	0/ 050	%REC	DDD	RPD	Nat
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike (B042261-MS4)	Source: 0092629-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/20	0/2020 20:04									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	110	80-120			D2, J
Molybdenum	0.07	0.10	mg/L	0.0625	ND	115	80-120			D2, J
Antimony	0.075	0.050	mg/L	0.0625	ND	121	80-120			D2, M1
Arsenic	0.0732	0.0100	mg/L	0.0625	ND	117	80-120			D2
Barium	0.082	0.040	mg/L	0.0625	0.014	108	80-120			D2
Beryllium	0.0639	0.0200	mg/L	0.0625	ND	102	80-120			D2
Cadmium	0.0656	0.0100	mg/L	0.0625	ND	105	80-120			D2
Chromium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.082	0.040	mg/L	0.0625	ND	132	80-120			D2, M1
Copper	0.061	0.030	mg/L	0.0625	ND	98.3	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.11	0.20	mg/L	0.0625	ND	175	80-120			D2, M1, J
Nickel	0.089	0.030	mg/L	0.0625	0.022	107	80-120			D2
Selenium	0.069	0.030	mg/L	0.0625	ND	111	80-120			D2
Thallium	0.0647	0.0200	mg/L	0.0625	ND	104	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			U, D2, M4
Matrix Spike Dup (B042261-MSD1)	Source: 0092620-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/15	5/2020 15:17									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	5.93	10.0	mg/L	6.25	ND	94.9	80-120	6.26	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD2)	Source: 0092629-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/15	5/2020 15:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	414	40.0	mg/L	6.25	384	484	80-120	4.92	20	D2, M1
Iron	16.4	10.0	mg/L	6.25	9.29	114	80-120	3.84	20	D2
Magnesium	155	20.0	mg/L	6.25	97.9	913	80-120	5.08	20	D2, M1
Potassium	ND	50.0	mg/L	6.25	ND	0.0	80-120	0.00	20	D2, M4, U
Sodium	85.4	26.0	mg/L	6.25	72.3	209	80-120	4.70	20	D2, M1





Result			Reporting		Spike	Source		%REC		RPD	
Matrix Spike Dup (B042261-MSD3)	Analyte	Result		Units	•		%REC		RPD		Notes
Matrix Spike Dup (B042261-MSD3) Source: 0092620-01 Source: 10/15/2020 7:52, Analyzed: 10/20/2020 20:00 Source: 10/15/2020 7:52, Analyzed: 10/20/2020 20:00 Source: 10/15/2020 7:52, Analyzed: 10/20/2020 20:00 Source: 10/20/2020 Source: 10/20/2	,										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 20:00		Source: 0092620-0	1								
Molybdenum	,		•								
Antimony 0.071 0.050 mg/L 0.0625 ND 114 80-120 2.25 20 100 Mercury 0.0027 0.0050 mg/L 0.00250 ND 107 80-120 3.90 20 DD 200			0.10	ma/l	0.0625	ND	104	80 120	4.25	20	D2, J
Mercury 0.0027 0.0050 mg/L 0.00250 ND 107 80-120 3.90 20 D2 Arsenic 0.0078 0.0100 mg/L 0.0625 ND 109 80-120 2.47 20 D2 2.48 2.48 2.48 2.48 2.48 2.48 2.48 2.48 2.48	•			•							D2, 3 D2
Arsenic 0.0678 0.0100 mg/L 0.0625 ND 109 80-120 2.47 20 Eadum 0.065 0.040 mg/L 0.0625 ND 104 80-120 1.34 20 Eadum 0.0643 0.0200 mg/L 0.0625 ND 104 80-120 1.34 20 Eadum 0.0632 0.0100 mg/L 0.0625 ND 101 80-120 2.66 20 Eadum 0.0632 0.0100 mg/L 0.0625 ND 101 80-120 2.66 20 Eadum 0.0641 0.0653 0.040 mg/L 0.0625 ND 103 80-120 2.48 20 Eadum 0.0641 0.0653 0.040 mg/L 0.0625 ND 104 80-120 0.325 20 Eadum 0.0641 0.065 0.040 mg/L 0.0625 ND 104 80-120 0.325 20 Eadum 0.0661 0.064 0.020 mg/L 0.0625 ND 103 80-120 4.81 20 D.2 Eadum 0.064 0.020 mg/L 0.0625 ND 103 80-120 4.81 20 D.2 Eadum 0.064 0.020 mg/L 0.0625 ND 103 80-120 4.81 20 D.2 Eadum 0.064 0.020 mg/L 0.0625 ND 103 80-120 4.21 20 D.2 Eadum 0.064 0.063 0.030 mg/L 0.0625 ND 103 80-120 4.21 20 D.2 Eadum 0.064 0.020 mg/L 0.0625 ND 104 80-120 3.49 20 D.2 Eadum 0.064 0.020 mg/L 0.0625 ND 108 80-120 3.49 20 D.2 Eadum 0.064 0.020 mg/L 0.0625 ND 103 80-120 3.64 20 D.2 Eadum 0.064 0.020 mg/L 0.0625 ND 103 80-120 3.64 20 D.2 Eadum 0.064 0.020 mg/L 0.0625 ND 116 80-120 3.64 20 D.2 Eadum 0.064 0.020 mg/L 0.0625 ND 116 80-120 3.64 20 D.2 Eadum 0.064 0.020 mg/L 0.0625 ND 116 80-120 3.64 20 D.2 Eadum 0.064 0.020 mg/L 0.0625 ND 116 80-120 3.64 20 D.2 Eadum 0.064 0.020 mg/L 0.0625 ND 116 80-120 3.64 20 D.2 Eadum 0.062 0.020 mg/L 0.0625 ND 116 80-120 3.64 20 D.2 Eadum 0.062 0.020 mg/L 0.0625 ND 116 80-120 3.64 20 D.2 Eadum 0.062 0.020 mg/L 0.0625 ND 116 80-120 3.64 20 D.2 D.2 Eadum 0.062 0.020 mg/L 0.0625 ND 116 80-120 3.64 20 D.2	•			•							D2, J
Barlum	•			•							D2, 3
Beryllium				•							D2
Cadmium 0.0632 0.0100 mg/L 0.0625 ND 101 80-120 2.66 20 Control Chromium Cobalt 0.0643 0.0200 mg/L 0.0625 ND 103 80-120 2.48 20 Ed Cobalt 0.0655 0.040 mg/L 0.0625 ND 104 80-120 0.325 20 Ed Copper 0.062 0.030 mg/L 0.0625 ND 98.8 80-120 4.81 20 D2 Lead 0.064 0.020 mg/L 0.0625 ND 103 80-120 4.81 20 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 101 80-120 2.77 20 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 101 80-120 2.77 20 D2 Selenium 0.063 0.030 mg/L 0.0625 ND 108 80-120				-							D2 D2
Chromium 0.0643 0.0200 mg/L 0.0625 ND 103 80-120 2.48 20 Cobalt Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 0.325 20 0.062 Copper 0.062 0.030 mg/L 0.0625 ND 103 80-120 4.81 20 DD Lead 0.064 0.020 mg/L 0.0625 ND 103 80-120 4.81 20 DD Lithium 0.066 0.20 mg/L 0.0625 ND 101 80-120 2.77 20 DZ Selenium 0.063 0.030 mg/L 0.0625 ND 101 80-120 4.21 20 DE Selenium 0.067 0.030 mg/L 0.0625 ND 108 80-120 4.21 20 DE Thallium 0.067 0.030 mg/L 0.0625 ND 103 80-120	•			•							
Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 0.325 20 Copper Copper 0.062 0.030 mg/L 0.0625 ND 98.8 80-120 4.81 20 0.02 Lead 0.064 0.020 mg/L 0.0625 ND 103 80-120 1.15 20 D Lithium 0.06 0.20 mg/L 0.0625 ND 101 80-120 2.77 20 D2 Nickel 0.063 0.030 mg/L 0.0625 ND 101 80-120 4.21 20 D Selenium 0.067 0.030 mg/L 0.0625 ND 108 80-120 4.21 20 D Thallium 0.067 0.030 mg/L 0.0625 ND 103 80-120 1.56 20 D D D D 20 D D D D D D D				•							D2
Copper 0.062 0.030 mg/L 0.0625 ND 98.8 80-120 4.81 20 D2 Lead 0.064 0.020 mg/L 0.0625 ND 103 80-120 1.15 20 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 99.1 80-120 2.77 20 D2 Lithium 0.063 0.030 mg/L 0.0625 ND 101 80-120 4.21 20 D2 Lithium 0.064 0.0667 0.030 mg/L 0.0625 ND 101 80-120 4.21 20 D2 Lithium 0.0644 0.0200 mg/L 0.0625 ND 108 80-120 3.49 20 D2 Lithium 0.0644 0.0200 mg/L 0.0625 ND 103 80-120 1.56 20 D2 Lithium 0.0644 0.0200 mg/L 0.0625 ND 103 80-120 1.56 20 D2 Lithium 0.0644 0.0200 mg/L 0.0625 ND 103 80-120 1.56 20 D2 Lithium 0.0645 ND 0.0625 ND 108 80-120 3.64 20 D2 Lithium 0.0645 ND 0.0625 ND 116 80-120 3.64 20 D2 Lithium 0.0645 ND 0.0625 ND 116 80-120 3.64 20 D2 Lithium 0.0645 ND 0.0625 ND 116 80-120 3.64 20 D2 Lithium 0.0645 ND 0.0625 ND 116 80-120 3.64 20 D2 Lithium 0.0645 ND 0.0625 ND 116 80-120 3.64 20 D2 Lithium 0.0645 ND 0.0625 ND 0.0625 ND 0.0685				•							D2
Lead 0.064 0.020 mg/L 0.0625 ND 103 80-120 1.15 20 Edithium Nickel 0.063 0.030 mg/L 0.0625 ND 99.1 80-120 2.77 20 DZ Selenium 0.063 0.030 mg/L 0.0625 ND 101 80-120 4.21 20 E Selenium 0.0644 0.020 mg/L 0.0625 ND 108 80-120 3.49 20 E Thallium 0.0644 0.020 mg/L 0.0625 ND 103 80-120 1.56 20 E Zinc ND 0.0644 0.020 mg/L 0.0625 ND 103 80-120 1.56 20 D 20 D2.7 Matrix Spike Dup (B042261-MSD4) Source: 0092629-01 3.64 0.0625 ND 116 80-120 3.64 20 D 20 D2.7 Matrix Spike Dup (B042261-MSD4) Source: 009262				•							D2
Lithium 0.06 0.20 mg/L 0.0625 ND 99.1 80-120 2.77 20 D2 Nokel 0.0626 ND 99.1 80-120 2.77 20 D2 Nokel 0.063 0.030 mg/L 0.0625 ND 101 80-120 4.21 20 D2 Nokel 0.064 0.067 0.030 mg/L 0.0625 ND 108 80-120 3.49 20 D2 ND ND ND 0.0644 0.0200 mg/L 0.0625 ND 108 80-120 1.56 20 D2 ND ND ND 0.20 mg/L 0.0625 ND 103 80-120 1.56 20 D2 ND ND ND 0.20 mg/L 0.0625 ND 103 80-120 1.56 20 D2 ND ND ND ND 0.20 mg/L 0.0625 ND 103 80-120 1.56 20 D2 ND ND ND ND ND ND ND ND ND ND ND ND ND				-							D2, B
Nickel 0.063 0.030 mg/L 0.0625 ND 101 80-120 4.21 20 Elenium 0.067 0.030 mg/L 0.0625 ND 108 80-120 3.49 20 Elenium 0.0664 0.0200 mg/L 0.0625 ND 108 80-120 3.49 20 Elenium 0.0644 0.0200 mg/L 0.0625 ND 103 80-120 1.56 20 Elenium 0.0645 ND 0.20 mg/L 0.0625 ND 103 80-120 1.56 20 Elenium 0.0645 ND 0.20 mg/L 0.0625 ND 103 80-120 1.56 20 Elenium 0.0645 ND 0.0025 ND 100 80-120 1.56 20 Elenium 0.0645 ND 101 80-120 1.56 20 Elenium 0.0625 ND 100 80-120 1.56 20 Elenium 0.0625 ND 100 80-120 1.56 20 Elenium 0.0625 ND 100 80-120 1.56 20 Elenium 0.0625 ND 110 80-120 1.56 20 Elenium 0.07 0.0028 0.0050 mg/L 0.0625 ND 111 80-120 0.768 20 Elenium 0.071 0.0721 0.0700 mg/L 0.0625 ND 108 80-120 0.682 20 Elenium 0.080 0.040 mg/L 0.0625 ND 115 80-120 1.40 20 Elenium 0.0800 0.0622 0.0200 mg/L 0.0625 ND 105 80-120 2.21 20 Elenium 0.0622 0.0200 mg/L 0.0625 ND 99.6 80-120 2.21 20 Elenium 0.0622 0.0200 mg/L 0.0625 ND 99.6 80-120 2.65 20 Elenium 0.0645 0.0200 mg/L 0.0625 ND 99.6 80-120 1.44 20 Elenium 0.0645 0.0200 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.0645 0.0200 mg/L 0.0625 ND 103 80-120 1.44 20 Elenium 0.0645 0.081 0.081 0.040 mg/L 0.0625 ND 103 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.040 mg/L 0.0625 ND 100 80-120 1.44 20 Elenium 0.081 0.081 0.081 0.081 0.081 0.081 0.081				-							D2
Selenium 0.067 0.030 mg/L 0.0625 ND 108 80-120 3.49 20 Edition Thallium 0.0644 0.0200 mg/L 0.0625 ND 103 80-120 1.56 20 D2, Inc. Matrix Spike Dup (B042261-MSD4) Source: 0092629-01 Source: 0092629-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 20:08 Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 3.64 20 D2 Mercury 0.0028 0.0050 mg/L 0.00250 ND 111 80-120 3.64 20 D2 Molybdenum 0.07 0.10 mg/L 0.0625 ND 118 80-120 3.64 20 D2 Arsenic 0.0721 0.0100 mg/L 0.0625 ND 118 80-120 2.21 20 D2 Beryllium 0.0622 0.0200 mg/L 0.0625 ND 105 <td></td> <td></td> <td>0.20</td> <td>mg/L</td> <td>0.0625</td> <td>ND</td> <td></td> <td>80-120</td> <td></td> <td></td> <td>D2, J</td>			0.20	mg/L	0.0625	ND		80-120			D2, J
Thallium 0.0644 0.0200 mg/L 0.0625 ND 103 80-120 1.56 20 EQUID 101 ND 0.20 mg/L 0.0625 ND 80-120 20 D2, ND 103 80-120 1.56 20 D2, ND 103 80-120 1.56 20 D2, ND 103 80-120 1.56 20 D2, ND 103 80-120 1.56 20 D2, ND 103 80-120 1.56 20 D2, ND 104 80-120 1.56 20 D2, ND 104 80-120 1.56 20 D2, ND 104 80-120 1.56 20 D2, ND 104 80-120 1.56 20 D2, ND 104 80-120 1.56 20 D2, ND 104 80-120 1.56 20 D2, ND 105 80-120 1.56	Nickel	0.063	0.030	mg/L	0.0625	ND	101	80-120	4.21	20	D2
Zinc ND 0.20 mg/L 0.0625 ND 80-120 20 D2, N Matrix Spike Dup (B042261-MSD4) Source: 0092629-01 Source: 0092629-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 20:08 Source: 0092629-01 Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 3.64 20 D2 Mercury 0.0028 0.0050 mg/L 0.00250 ND 111 80-120 0.768 20 D2 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 6.82 20 D2 Arsenic 0.0721 0.0100 mg/L 0.0625 ND 115 80-120 1.40 20 D2 Barium 0.080 0.040 mg/L 0.0625 ND 115 80-120 2.21 20 D2 Beryllium 0.0622 0.0200 mg/L 0.0625 ND 100 <td< td=""><td>Selenium</td><td>0.067</td><td>0.030</td><td>mg/L</td><td>0.0625</td><td>ND</td><td>108</td><td>80-120</td><td>3.49</td><td>20</td><td>D2</td></td<>	Selenium	0.067	0.030	mg/L	0.0625	ND	108	80-120	3.49	20	D2
Matrix Spike Dup (B042261-MSD4) Source: 0092629-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 20:08 Antimony 0.073 0.050 mg/L 0.00250 ND 111 80-120 0.768 20 DZ Mercury 0.0028 0.007 0.10 mg/L 0.0625 ND 108 80-120 0.768 20 DZ Molybdenum 0.07 0.10 mg/L 0.0100 mg/L 0.0625 ND 115 80-120 1.40 20 DZ Arsenic 0.0721 0.0100 mg/L 0.0625 ND 115 80-120 1.40 20 DZ Barium 0.080 0.040 mg/L 0.0625 0.014 105 80-120 2.21 20 DZ Beryllium 0.0622 0.0200 mg/L 0.0625 ND 99.6 80-120 2.65 20 DZ Cadmium 0.0628 0.0100 mg/L 0.0625 ND 100 80-120 4.34 20 DZ Chromium 0.0645 0.0200 mg/L 0.0625 ND 103 80-120 1.44 20 DZ Cobalt 0.081 0.040 mg/L 0.0625 ND 130 80-120 1.84 20 DZ Copper 0.059 0.030 mg/L 0.0625 ND 93.7 80-120 4.77 20 DZ Lead 0.063 0.020 mg/L 0.0625 ND 101 80-120 2.71 20 DZ	Thallium	0.0644	0.0200	mg/L	0.0625	ND	103	80-120	1.56	20	D2
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 20:08 Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 3.64 20 EXAMPLED COMMENT OF CO	Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U
Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 3.64 20 EMercury 0.0028 0.0050 mg/L 0.00250 ND 111 80-120 0.768 20 D2 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 6.82 20 D2 Marsenic 0.0721 0.0100 mg/L 0.0625 ND 115 80-120 1.40 20 EMercury 0.080 0.040 mg/L 0.0625 ND 115 80-120 1.40 20 EMercury 0.080 0.0622 0.0200 mg/L 0.0625 ND 99.6 80-120 2.21 20 EMercury 0.0625 ND 99.6 80-120 2.21 20 EMercury 0.0625 ND 99.6 80-120 2.65 20 EMercury 0.0625 ND 99.6 80-120 2.65 20 EMercury 0.0625 ND 99.6 80-120 2.65 20 EMercury 0.0625 ND 99.6 80-120 2.65 20 EMercury 0.0625 ND 99.6 80-120 2.65 20 EMercury 0.0625 ND 99.6 80-120 2.65 20 EMercury 0.0625 ND 100 80-120 4.34 20 EMercury 0.0625 ND 100 80-120 1.44 20 EMercury 0.0625 ND 100 80-120 1.84 20 EMercury 0.0811 0.040 mg/L 0.0625 ND 130 80-120 1.84 20 EMercury 0.0625 ND 93.7 80-120 4.77 20 EMercury 0.0625 ND 93.7 80-120 4.77 20 EMercury 0.0625 ND 101 80-120 2.71	Matrix Spike Dup (B042261-MSD4)	Source: 0092629-0	1								
Mercury 0.0028 0.0050 mg/L mg/L 0.00250 ND 111 80-120 0.768 20 0.768 20 0.72 0.72 0.72 0.72 0.72 0.72 0.72 0.72	Prepared: 10/15/2020 7:52, Analyzed: 1	0/20/2020 20:08									
Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 6.82 20 D2 Arsenic 0.0721 0.0100 mg/L 0.0625 ND 115 80-120 1.40 20 E Barium 0.080 0.040 mg/L 0.0625 0.014 105 80-120 2.21 20 E Beryllium 0.0622 0.0200 mg/L 0.0625 ND 99.6 80-120 2.65 20 E Cadmium 0.0628 0.0100 mg/L 0.0625 ND 100 80-120 4.34 20 E Chromium 0.0645 0.0200 mg/L 0.0625 ND 103 80-120 1.44 20 E Cobalt 0.081 0.081 0.040 mg/L 0.0625 ND 130 80-120 1.84 20 D2 Copper 0.059 0.030 mg/L 0.0625 ND 101	Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120	3.64	20	D2
Arsenic 0.0721 0.0100 mg/L 0.0625 ND 115 80-120 1.40 20 Ed Barium 0.080 0.040 mg/L 0.0625 0.014 105 80-120 2.21 20 Ed Beryllium 0.0622 0.0200 mg/L 0.0625 ND 99.6 80-120 2.65 20 Ed Cadmium 0.0628 0.0100 mg/L 0.0625 ND 100 80-120 4.34 20 Ed Chromium 0.0645 0.0200 mg/L 0.0625 ND 103 80-120 1.44 20 Ed Cobalt 0.081 0.040 mg/L 0.0625 ND 130 80-120 1.84 20 D2 Copper 0.059 0.030 mg/L 0.0625 ND 101 80-120 4.77 20 D2 Lead 0.063 0.020 mg/L 0.0625 ND 101 80-120	Mercury	0.0028	0.0050	mg/L	0.00250	ND	111	80-120	0.768	20	D2, J
Arsenic 0.0721 0.0100 mg/L 0.0625 ND 115 80-120 1.40 20 Ed Barium 0.080 0.040 mg/L 0.0625 0.014 105 80-120 2.21 20 Ed Beryllium 0.0622 0.0200 mg/L 0.0625 ND 99.6 80-120 2.65 20 Ed Cadmium 0.0628 0.0100 mg/L 0.0625 ND 100 80-120 4.34 20 Ed Chromium 0.0645 0.0200 mg/L 0.0625 ND 103 80-120 1.44 20 Ed Cobalt 0.081 0.040 mg/L 0.0625 ND 130 80-120 1.84 20 D2 Copper 0.059 0.030 mg/L 0.0625 ND 101 80-120 4.77 20 D2 Lead 0.063 0.020 mg/L 0.0625 ND 101 80-120	Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120	6.82	20	D2, J
Barium 0.080 0.040 mg/L 0.0625 0.014 105 80-120 2.21 20 E Beryllium 0.0622 0.0200 mg/L 0.0625 ND 99.6 80-120 2.65 20 E Cadmium 0.0628 0.0100 mg/L 0.0625 ND 100 80-120 4.34 20 E Chromium 0.0645 0.0200 mg/L 0.0625 ND 103 80-120 1.44 20 E Cobalt 0.081 0.040 mg/L 0.0625 ND 130 80-120 1.84 20 D2 Copper 0.059 0.030 mg/L 0.0625 ND 93.7 80-120 4.77 20 D2 Lead 0.063 0.020 mg/L 0.0625 ND 101 80-120 2.71 20 D2	•	0.0721		•	0.0625	ND	115	80-120	1.40		D2
Beryllium 0.0622 0.0200 mg/L 0.0625 ND 99.6 80-120 2.65 20 D Cadmium 0.0628 0.0100 mg/L 0.0625 ND 100 80-120 4.34 20 D Chromium 0.0645 0.0200 mg/L 0.0625 ND 103 80-120 1.44 20 D Cobalt 0.081 0.040 mg/L 0.0625 ND 130 80-120 1.84 20 D2 Copper 0.059 0.030 mg/L 0.0625 ND 93.7 80-120 4.77 20 D2 Lead 0.063 0.020 mg/L 0.0625 ND 101 80-120 2.71 20 D2	Barium	0.080	0.040	•	0.0625	0.014	105	80-120	2.21	20	D2
Cadmium 0.0628 0.0100 mg/L 0.0625 ND 100 80-120 4.34 20 E Chromium 0.0645 0.0200 mg/L 0.0625 ND 103 80-120 1.44 20 D2 Cobalt 0.081 0.040 mg/L 0.0625 ND 130 80-120 1.84 20 D2 Copper 0.059 0.030 mg/L 0.0625 ND 93.7 80-120 4.77 20 D2 Lead 0.063 0.020 mg/L 0.0625 ND 101 80-120 2.71 20 D2				•							D2
Chromium 0.0645 0.0200 mg/L 0.0625 ND 103 80-120 1.44 20 D2 Cobalt 0.081 0.040 mg/L 0.0625 ND 130 80-120 1.84 20 D2 Copper 0.059 0.030 mg/L 0.0625 ND 93.7 80-120 4.77 20 D2 Lead 0.063 0.020 mg/L 0.0625 ND 101 80-120 2.71 20 D2	•			•							D2
Cobalt 0.081 0.040 mg/L 0.0625 ND ND 130 80-120 1.84 20 D2 20 D2 Copper 0.059 0.030 mg/L 0.0625 ND 93.7 80-120 4.77 20 D2 20 D2 Lead 0.063 0.020 mg/L 0.0625 ND 101 80-120 2.71 20 E2 2.71 20 D2				•							D2
Copper 0.059 0.030 mg/L 0.0625 ND 93.7 80-120 4.77 20 D2 Lead 0.063 0.020 mg/L 0.0625 ND 101 80-120 2.71 20 E				-							D2, M1
Lead 0.063 0.020 mg/L 0.0625 ND 101 80-120 2.71 20 E				-							D2, W1
,				•							D2, B D2
Lithium 0.11 0.20 mg/L 0.0625 ND 179 80-120 2.20 20 D2, I										20	D2, M1, J
·				-							D2, M1, J D2
· ·				•							D2 D2
· ·				-							
3				•			103		0.991		D2 D2, M4, U





	Reporti	ng	Spike	Source		%REC		RPD	
Analyte	Result Lin	mit Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2									
Post Spike (B042261-PS1)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyze	d: 10/15/2020 15:27								
Boron	113	ug/L	125	-0.57	90.4	75-125			D2
Calcium	6400	ug/L	6250	39.0	102	75-125			D2
Iron	5840	ug/L	6250	-0.050	93.5	75-125			D2
Magnesium	6590	ug/L	6250	2.27	105	75-125			D2
Potassium	6300	ug/L	6250	9.60	101	75-125			D2
Sodium	6100	ug/L	6250	21.6	97.3	75-125			D2
Post Spike (B042261-PS2)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyze	d: 10/20/2020 20:11								
Mercury	2.75	ug/L	2.50	0.0323	109	75-125			D2
Molybdenum	67.2	ug/L	62.5	0.04	107	75-125			D2
Antimony	70.5	ug/L	62.5	0.083	113	75-125			D2
Arsenic	71.3	ug/L	62.5	-0.0088	114	75-125			D2
Barium	63.7	ug/L	62.5	0.095	102	75-125			D2
Beryllium	65.4	ug/L	62.5	-0.0105	105	75-125			D2
Cadmium	63.6	ug/L	62.5	0.0157	102	75-125			D2
Chromium	65.6	ug/L	62.5	0.355	104	75-125			D2
Cobalt	63.7	ug/L	62.5	-0.003	102	75-125			D2
Copper	60.7	ug/L	62.5	-1.80	97.1	75-125			D2, B
Lead	64.8	ug/L	62.5	0.522	103	75-115			D2
Lithium	64.9	ug/L	62.5	0.04	104	75-125			D2
Nickel	63.8	ug/L	62.5	-0.079	102	75-125			D2
Selenium	67.6	ug/L	62.5	0.009	108	75-125			D2
Thallium	64.7	ug/L	62.5	0.00002	104	75-125			D2
Zinc	77.9	ug/L	62.5	3.15	120	75-125			D2





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042498 - Default Prep Wet Chem										
Blank (B042498-BLK1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B042498-BS1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	1490	25	mg/L	1500		99.6	80-120			
Duplicate (B042498-DUP1) S	ource: 0092629-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	2240	50	mg/L		2290			2.56	10	
Duplicate (B042498-DUP2) S	ource: 0102128-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	364	50	mg/L		370			1.63	10	
Batch B042577 - Default Prep Wet Chem										
Blank (B042577-BLK1)										
Prepared: 10/19/2020 10:58, Analyzed: 10/19/2020	20 10:58									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B042577-BS1)										
Prepared: 10/19/2020 11:00, Analyzed: 10/19/2020	20 11:00									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B042577-DUP1) S	ource: 0100778-02									
Prepared: 10/19/2020 12:16, Analyzed: 10/19/2020	20 12:16									
Hardness as CaCO3	268	1	mg/L		260			3.03	10	
Matrix Spike (B042577-MS1)	ource: 0100778-02									
Prepared: 10/19/2020 12:18, Analyzed: 10/19/2020	20 12:18									
Hardness as CaCO3	648	1	mg/L	318	260	122	80-120			Y1
Batch B042587 - Default Prep Wet Chem										
Blank (B042587-BLK1)										
Prepared: 10/17/2020 18:08, Analyzed: 10/17/2020	20 18:08									
Total Organic Carbon	ND	0.5	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042587 - Default Prep Wet Chem										
LCS (B042587-BS1)										
Prepared: 10/17/2020 17:47, Analyzed: 10/17.	72020 17:47									
Total Organic Carbon	4.7	0.5	mg/L	5.00		94.1	80-120			
		0.5	mg/L	3.00		34.1	00-120			
Duplicate (B042587-DUP1)	Source: 0092628-01									
Prepared: 10/17/2020 23:24, Analyzed: 10/17										
Total Organic Carbon	0.9	0.5	mg/L		1.0			8.76	25	
Duplicate (B042587-DUP2)	Source: 0100200-01									
Prepared: 10/18/2020 4:41, Analyzed: 10/18/	2020 4:41									
Total Organic Carbon	2.5	0.5	mg/L		2.4			2.64	25	
Matrix Spike (B042587-MS1)	Source: 0092629-01									
Prepared: 10/17/2020 23:45, Analyzed: 10/17	/2020 23:45									
Total Organic Carbon	3.9	0.5	mg/L	2.50	1.6	93.3	80-120			
Matrix Spike (B042587-MS2)	Source: 0100200-02									
Prepared: 10/18/2020 5:02, Analyzed: 10/18/	2020 5:02									
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.8	94.8	80-120			
Batch B043117 - Default Prep Wet Chem										
Blank (B043117-BLK1)										
Prepared: 10/21/2020 16:14, Analyzed: 10/21	/2020 16:14									
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Blank (B043117-BLK2)										
Prepared: 10/21/2020 18:13, Analyzed: 10/21	/2020 18:13									
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK3)										
Prepared: 10/21/2020 19:40, Analyzed: 10/21	/2020 19:40									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U



	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043117 - Default Prep Wet Chem										
LCS (B043117-BS1)										
Prepared: 10/21/2020 18:06, Analyzed: 10/21/2	2020 18:06									
Total Alkalinity	249	4	mg/L	235		106	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	231	4	mg/L	225		103	0-200			
LCS (B043117-BS2)										
Prepared: 10/21/2020 19:35, Analyzed: 10/21/2	2020 19:35									
Carbonate Alkalinity as CaCO3	227	4	mg/L	225		101	0-200			
Total Alkalinity	254	4	mg/L	235		108	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Duplicate (B043117-DUP1)	Source: 0092629-01									
Prepared: 10/21/2020 17:38, Analyzed: 10/21/2	2020 17:38									
Bicarbonate Alkalinity as CaCO3	295	4	mg/L		283			4.39	10	
Total Alkalinity	295	4	mg/L		283			4.39	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Duplicate (B043117-DUP2)	Source: 0092635-01									
Prepared: 10/21/2020 19:24, Analyzed: 10/21/2	2020 19:24									
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Total Alkalinity	281	4	mg/L		268			4.88	10	
Bicarbonate Alkalinity as CaCO3	281	4	mg/L		268			4.88	10	
Matrix Spike (B043117-MS1)	Source: 0092629-01									
Prepared: 10/21/2020 18:03, Analyzed: 10/21/2	2020 18:03									
Total Alkalinity	331	4	mg/L	49.4	283	98.6	80-120			
Matrix Spike (B043117-MS2)	Source: 0092635-01									
Prepared: 10/21/2020 19:30, Analyzed: 10/21/2	2020 19:30									
Total Alkalinity	301	4	mg/L	49.4	268	66.2	80-120			М3
Batch B043187 - Default Prep Wet Chem										
Blank (B043187-BLK1)										
Prepared: 10/20/2020 15:36, Analyzed: 10/20/2	2020 15:36									
Specific Conductance (Lab)	ND	1	umhos/cm							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043187 - Default Prep Wet Chem										
LCS (B043187-BS1)										
Prepared: 10/20/2020 15:37, Analyzed: 10/20	0/2020 15:37									
Specific Conductance (Lab)	1420		umhos/cm	1410		101	80-120			
Duplicate (B043187-DUP1)	Source: 0092629-01									
Prepared: 10/20/2020 15:54, Analyzed: 10/20)/2020 15:54									
Specific Conductance (Lab)	2600	1	umhos/cm		2610			0.307	1.24	
Duplicate (B043187-DUP2)	Source: 0102262-01									
Prepared: 10/20/2020 16:09, Analyzed: 10/20	0/2020 16:09									
Specific Conductance (Lab)	354	1	umhos/cm		351			0.851	1.24	
Batch B043582 - Default Prep Wet Chem										
Blank (B043582-BLK1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	ND	5	mg/L							U
LCS (B043582-BS1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	121	5	mg/L	125		96.8	90-110			
Duplicate (B043582-DUP1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:32									
Chemical Oxygen Demand	5	5	mg/L		ND				25	
Matrix Spike (B043582-MS1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	260	5	mg/L	250	ND	104	90-110			
Matrix Spike Dup (B043582-MSD1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	257	5	mg/L	250	ND	103	90-110	1.21	10	





Batch B043121 - Default Prep IC Blank (B043121-BLK1) Prepared: 10/20/2020 22:42, Analyzed: 10/20/2020 22:42 Sulfate ND 0.20 mg/L Fluoride ND 0.5 mg/L LCS (B043121-BS1) Prepared: 10/20/2020 22:25, Analyzed: 10/20/2020 22:25 Fluoride 9.25 mg/L 10.0 92.5 90.110 Sulfate 9.2 mg/L 10.0 91.8 90.110 Chloride 9.4 mg/L 10.0 93.7 90.110 Matrix Spike (B043121-MS1) Source: 0092635-01 Fluoride 9.28 mg/L 10.0 0.19 90.9 80.120 Fluoride 9.28 mg/L 10.0 0.99.9 80.120 Sulfate 9.28 mg/L 10.0 68.0 NR 80.120 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.			Reporting		Spike	Source		%REC		RPD	
Blank (B043121-BLK1) Prepared: 10/20/2020 22:42 Analyzed: 10/20/2020 22:42 Sulfate ND 1.0 mg/L Fluoride ND 0.20 mg/L Sulfate ND 0.5 mg/L Sulfate Sulfa	Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Prepared: 10/20/2020 22:42, Analyzed: 10/20/2020 22:42 Sulfate	Batch B043121 - Default Prep IC										
Sulfate	Blank (B043121-BLK1)										
Fluoride ND 0.20 mg/L Chloride ND 0.5 mg/L LCS (B043121-BS1) Prepared: 10/20/2020 22:25, Analyzed: 10/20/2020 22:25 Fluoride 9.25 mg/L 10.0 92.5 90-110 Sulfate 9.2 mg/L 10.0 91.8 90-110 Chloride 9.4 mg/L 10.0 93.7 90-110 Matrix Spike (B043121-MS1) Source: 0092635-01 Prepared: 10/21/2020 5:58, Analyzed: 10/21/2020 5:58 Fluoride 9.28 mg/L 10.0 0.19 90.9 80-120 Chloride 48.6 mg/L 10.0 68.0 NR 80-120 Sulfate 242 mg/L 10.0 593 NR 80-120 Matrix Spike Dup (B043121-MSD1) Source: 0092635-01 Prepared: 10/21/2020 6:15, Analyzed: 10/21/2020 6:15 Fluoride 9.21 mg/L 10.0 593 NR 80-120 Matrix Spike Dup (B043121-MSD1) Source: 0092635-01 Prepared: 10/21/2020 6:15, Analyzed: 10/21/2020 6:15 Fluoride 9.21 mg/L 10.0 0.19 90.2 80-120 0.811 20 Sulfate 9.21 mg/L 10.0 593 NR 80-120 0.795 20 I Chloride 48.1 mg/L 10.0 68.0 NR 80-120 1.05 10 I Certified Analyses included in this Report Analyte Certifications	Prepared: 10/20/2020 22:42, Analyzed:	: 10/20/2020 22:42									
Chloride ND 0.5 mg/L LCS (B043121-BS1) Prepared: 10/20/2020 22:25, Analyzed: 10/20/2020 22:25 Fluoride 9.25 mg/L 10.0 92.5 90-110 Sulfate 9.2 mg/L 10.0 93.7 90-110 Matrix Spike (B043121-MS1) Source: 0092635-01 Prepared: 10/21/2020 5:58, Analyzed: 10/21/2020 5:58 Fluoride 9.28 mg/L 10.0 0.19 90.9 80-120 Chloride 48.6 mg/L 10.0 68.0 NR 80-120 10/21/2020 5/242 mg/L 10.0 593 NR 80-120 10/21/2020 5/242 mg/L 10.0 593 NR 80-120 10/21/2020 5/242 mg/L 10.0 593 NR 80-120 10/21/2020 6:15, Analyzed: 10/21/2020 6:15, Analyzed: 10/21/2020 6:15 Fluoride 9.21 mg/L 10.0 0.19 90.2 80-120 0.811 20 Chloride 9.21 mg/L 10.0 593 NR 80-120 0.811 20 Chloride 9.21 mg/L 10.0 593 NR 80-120 0.811 20 Chloride 9.21 mg/L 10.0 593 NR 80-120 0.795 20 10/21/2020 6:15 Fluoride 9.240 mg/L 10.0 593 NR 80-120 0.795 20 10/21/2020 6:15 Chloride 48.1 mg/L 10.0 68.0 NR 80-120 1.05 10 10 10/21/2020 6:15 Certified Analyses included in this Report Analyte Certifications	Sulfate	ND	1.0	mg/L							U
CS (B043121-BS1)	Fluoride	ND	0.20	mg/L							U
Prepared: 10/20/2020 22:25, Analyzed: 10/20/2020 22:25 Fluoride 9.25 mg/L 10.0 92.5 90-110 Sulfate 9.2 mg/L 10.0 91.8 90-110 Chloride 9.4 mg/L 10.0 93.7 90-110 Matrix Spike (B043121-MS1) Source: 0092635-01 Prepared: 10/21/2020 5:58, Analyzed: 10/21/2020 5:58 Fluoride 9.28 mg/L 10.0 0.19 90.9 80-120 Chloride 48.6 mg/L 10.0 68.0 NR 80-120 1 Sulfate 242 mg/L 10.0 593 NR 80-120 1 Matrix Spike Dup (B043121-MSD1) Source: 0092635-01 Prepared: 10/21/2020 6:15, Analyzed: 10/21/2020 6:15 Fluoride 9.21 mg/L 10.0 0.19 90.2 80-120 0.811 20 Sulfate 9.21 mg/L 10.0 0.19 90.2 80-120 0.811 20 Sulfate 9.21 mg/L 10.0 593 NR 80-120 0.811 20 Sulfate 9.21 mg/L 10.0 593 NR 80-120 0.795 20 MR	Chloride	ND	0.5	mg/L							U
Fluoride 9.25 mg/L 10.0 92.5 90.110 Sulfate 9.2 mg/L 10.0 91.8 90.110 Chloride 9.4 mg/L 10.0 93.7 90.110 Matrix Spike (B043121-MS1) Source: 0092635-01 Prepared: 10/21/2020 5:58, Analyzed: 10/21/2020 5:58 Fluoride 9.28 mg/L 10.0 0.19 90.9 80.120 Chloride 48.6 mg/L 10.0 68.0 NR 80.120 1 Sulfate 242 mg/L 10.0 593 NR 80.120 1 Matrix Spike Dup (B043121-MSD1) Source: 0092635-01 Prepared: 10/21/2020 6:15, Analyzed: 10/21/2020 6:15 Fluoride 9.21 mg/L 10.0 0.19 90.2 80.120 0.811 20 Sulfate 240 mg/L 10.0 593 NR 80.120 1 Sulfate 9.21 mg/L 10.0 593 NR 80.120 1 Chloride 9.21 mg/L 10.0 593 NR 80.120 0.811 20 Chloride 9.21 mg/L 10.0 593 NR 80.120 1.05 10 1 Certified Analyses included in this Report Analyte Certifications 2320 B-2011 in Water Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	LCS (B043121-BS1)										
Sulfate 9.2 mg/L 10.0 91.8 90-110 Chloride 9.4 mg/L 10.0 93.7 90-110 Matrix Spike (B043121-MS1) Source: 0092635-01 Prepared: 10/21/2020 5:58, Analyzed: 10/21/2020 5:58 Fluoride 9.28 mg/L 10.0 0.19 90.9 80-120 Chloride 48.6 mg/L 10.0 68.0 NR 80-120 Sulfate 242 mg/L 10.0 593 NR 80-120 Matrix Spike Dup (B043121-MSD1) Source: 0092635-01 Prepared: 10/21/2020 6:15, Analyzed: 10/21/2020 6:15 Fluoride 9.21 mg/L 10.0 0.19 90.2 80-120 0.811 20 Sulfate 9.21 mg/L 10.0 593 NR 80-120 0.811 20 Chloride 9.21 mg/L 10.0 593 NR 80-120 0.795 20 Mg/L 10.0 68.0 NR 80-120 1.05 10 Mg/L 10.0 Mg/L 10.0 68.0 NR 80-120 1.05 10 Mg/L 10.0 Mg/L 10.0 68.0 NR 80-120 1.05 10 Mg/L 10.0 Mg/L 10.0 Mg/L 10.0 68.0 NR 80-120 1.05 10 Mg/L 10.0 Mg/	Prepared: 10/20/2020 22:25, Analyzed:	: 10/20/2020 22:25									
Matrix Spike (B043121-MS1) Source: 0092635-01	Fluoride	9.25		mg/L	10.0		92.5	90-110			
Matrix Spike (B043121-MS1) Source: 0092635-01 Prepared: 10/21/2020 5:58, Analyzed: 10/21/2020 5:58 Fluoride 9.28 mg/L 10.0 0.19 90.9 80-120 Chloride 48.6 mg/L 10.0 68.0 NR 80-120 Matrix Spike Dup (B043121-MSD1) Source: 0092635-01 Prepared: 10/21/2020 6:15, Analyzed: 10/21/2020 6:15 Fluoride 9.21 mg/L 10.0 0.19 90.2 80-120 0.811 20 Sulfate 240 mg/L 10.0 593 NR 80-120 0.811 20 Sulfate 9.21 mg/L 10.0 593 NR 80-120 0.811 20 Chloride 48.1 mg/L 10.0 593 NR 80-120 0.795 20 M Chloride 48.1 mg/L 10.0 68.0 NR 80-120 1.05 10 M Certified Analyses included in this Report Analyte Certifications EXAMBLE 10/21/2020 6:15 (KY Drinking Water Mdv (00030) (KY Drinking Water Mdv (00030)) Carbonate Alkalinity as CaCO3 (KY Drinking Water Mdv (00030))	Sulfate	9.2		mg/L	10.0		91.8	90-110			
Prepared: 10/21/2020 5:58, Analyzed: 10/21/2020 5:58 Fluoride 9.28 mg/L 10.0 0.19 90.9 80-120 Chloride 48.6 mg/L 10.0 68.0 NR 80-120 Matrix Spike Dup (B043121-MSD1) Source: 0092635-01 Prepared: 10/21/2020 6:15, Analyzed: 10/21/2020 6:15 Fluoride 9.21 mg/L 10.0 0.19 90.2 80-120 0.811 20 Sulfate 240 mg/L 10.0 593 NR 80-120 0.795 20 M Chloride 48.1 mg/L 10.0 593 NR 80-120 1.05 10 M Certified Analyses included in this Report Analyte Certifications KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	Chloride	9.4		mg/L	10.0		93.7	90-110			
Fluoride 9.28 mg/L 10.0 0.19 90.9 80-120 Chloride 48.6 mg/L 10.0 68.0 NR 80-120 Sulfate 242 mg/L 10.0 593 NR 80-120 Matrix Spike Dup (B043121-MSD1) Source: 0092635-01 Prepared: 10/21/2020 6:15, Analyzed: 10/21/2020 6:15 Fluoride 9.21 mg/L 10.0 0.19 90.2 80-120 0.811 20 Sulfate 240 mg/L 10.0 593 NR 80-120 0.795 20 M Chloride 48.1 mg/L 10.0 68.0 NR 80-120 1.05 10 M Certified Analyses included in this Report Analyte Certifications KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	Matrix Spike (B043121-MS1)	Source: 0092635-0	ı								
Chloride 48.6 mg/L 10.0 68.0 NR 80-120 MR 80-120 MR Sulfate 242 mg/L 10.0 593 NR 80-120 MR 80-12	Prepared: 10/21/2020 5:58, Analyzed:	10/21/2020 5:58									
Sulfate 242 mg/L 10.0 593 NR 80-120 Matrix Spike Dup (B043121-MSD1) Source: 0092635-01 Prepared: 10/21/2020 6:15, Analyzed: 10/21/2020 6:15 Fluoride 9.21 mg/L 10.0 0.19 90.2 80-120 0.811 20 Sulfate 240 mg/L 10.0 593 NR 80-120 0.795 20 M Chloride 48.1 mg/L 10.0 68.0 NR 80-120 1.05 10 M Certified Analyses included in this Report Analyte Certifications 2320 B-2011 in Water Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	Fluoride	9.28		mg/L	10.0	0.19	90.9	80-120			
Matrix Spike Dup (B043121-MSD1) Source: 0092635-01 Prepared: 10/21/2020 6:15, Analyzed: 10/21/2020 6:15 Fluoride 9.21 mg/L 10.0 0.19 90.2 80-120 0.811 20 Sulfate 240 mg/L 10.0 593 NR 80-120 0.795 20 N Chloride 48.1 mg/L 10.0 68.0 NR 80-120 1.05 10 N Certified Analyses included in this Report Analyte Certifications 2320 B-2011 in Water Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	Chloride	48.6		mg/L	10.0	68.0	NR	80-120			M2
Prepared: 10/21/2020 6:15, Analyzed: 10/21/2020 6:15 Fluoride 9.21 mg/L 10.0 0.19 90.2 80-120 0.811 20 Sulfate 240 mg/L 10.0 593 NR 80-120 0.795 20 N Chloride 48.1 mg/L 10.0 68.0 NR 80-120 1.05 10 N Certified Analyses included in this Report Analyte Certifications 2320 B-2011 in Water Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	Sulfate	242		mg/L	10.0	593	NR	80-120			M2
Fluoride 9.21 mg/L 10.0 0.19 90.2 80-120 0.811 20 Sulfate 240 mg/L 10.0 593 NR 80-120 0.795 20 M Chloride 48.1 mg/L 10.0 68.0 NR 80-120 1.05 10 M Certified Analyses included in this Report Analyte Certifications 2320 B-2011 in Water Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	Matrix Spike Dup (B043121-MSD1)	Source: 0092635-0	ı								
Sulfate 240 mg/L 10.0 593 NR 80-120 0.795 20 M Chloride 48.1 mg/L 10.0 68.0 NR 80-120 1.05 10 M Certified Analyses included in this Report Analyte Certifications 2320 B-2011 in Water Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	Prepared: 10/21/2020 6:15, Analyzed:	10/21/2020 6:15									
Chloride 48.1 mg/L 10.0 68.0 NR 80-120 1.05 10 M Certified Analyses included in this Report Analyte Certifications 2320 B-2011 in Water Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	Fluoride	9.21		mg/L	10.0	0.19	90.2	80-120	0.811	20	
Certified Analyses included in this Report Analyte Certifications 2320 B-2011 in Water Bicarbonate Alkalinity as CaCO3 Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) KY Drinking Water Mdv (00030)	Sulfate	240		mg/L	10.0	593	NR	80-120	0.795	20	M2
Analyte Certifications 2320 B-2011 in Water Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	Chloride	48.1		mg/L	10.0	68.0	NR	80-120	1.05	10	M2
2320 B-2011 in Water Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	Certified Analyses included in this Rep	port									
Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	Analyte	Certifications									
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)	2320 B-2011 in Water										
In Children W. J. Mar. (1999)	Bicarbonate Alkalinity as CaCO3	KY Drinking Water Mdv	(00030)								
INCOME IN THE CONTRACTOR OF TH	Carbonate Alkalinity as CaCO3	KY Drinking Water Mdv	(00030)								
	•	KY Drinking Water Mdv	v (00030)								
	2240 C (ac UACU 0226) in Mator										

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0092630
Shipped By: Client	Temperature: 1.00° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	abla
Check if bottles are intact	☑
Check if bottles are correct	☑
Check if bottles have sufficient volume	
Check if samples received on ice	☑
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: 09/07/2020



Client: Big Rivers Electric Corporation Wilson Station Project: MW-4D Wilson 092-00004	n Report To: Big Rivers Electric C Station Mike Galbraith PO Box 24 Henderson, KY 424		Big Rivers E Brian Edwar PO Box 24 Henderson,	Electric Corporation Wilso	n Station
	Phone: (270) 844-60	000	PO#:		
Please Print Legibly	PWS ID#: State:	, 	Quote#		
Collected by (Signature):	red information*	_	Compli	ance Monitoring? Yes	No
*For composite samples please indicate begin tin		nd time below:	Sample	es Chlorinated? Yes	_ No
Influent: Start Date Start time			emp (oC)		İ
Effluent: Start Date Start time					
Şample ID#	Containers	Sample Description	Composite	Sample Analysis R	equested
	Plastic 1L pH<2 w/HNO3 1 Rad 228 (Sub) reservation Check: pH :	MW4D	g/c	Radium 228 (sub)	! !
	Plastic 1L pH<2 w/HNO3 1 Rad 228 (Sub) reservation Check: pH :	MW4D	g/c	Radium 228 (sub)	
0092630-01 G 10/3/20 1520 F	Plastic 1L pH<2 w/HNO3 (Sub)	MW4D	g/c	Radium Total (sub)	
0092630-01 Н 10/13/20 1520	AG 250mL pH<2 1 w/H2SO4	MW4D	g/c	тос	;
P	reservation Check: pH :			·	!
					•
Preservation Check Performed by: No	1		· ~~		
Field data collected by: Thillp Hill	Date (mm/dd/yy) 10/13				
pH 6.47 Cond (umbo) 3.9				ee Cl (mg/L)	
Temp (oC) <u>20.19</u> or (oF) Flow (MGD) or (CFS)	Static Water Level or (g/min)		т	urb. (NTU)	
Relinquished by: (Signature)	Received by: (Signature)	_	Date (mm/		
					!

Printed: 9/10/2020 10:06:26AM

Page 18 of 30

PACE- Check here if trip charge applied to associated COC

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>09/07/2020</u>



								-
Client: Big Rivers Electric C Station	orporation Wilson	Report To: Big Rivers Ele Station	ctric C	orporation Wilson	Invoice To: Big Rivers E	Electric Corpora	ation Wilson S	Station
Project: MW-4D Wilson 092-	00004	Mike Galbraith	l		Brian Edwar	ds		
		PO Box 24 Henderson, K	V 4241	۵	PO Box 24 Henderson,	KY 42419		
		,			richaerson,			
		Phone: <u>(270) 8</u> PWS ID#:			PO#:		-	
Please Print Legibly	Ilm) State:	<u> </u>		Quote#			1
Collected by (Signature):		d information*		_	Compli	ance Monitorir	ng? Yes	No
*For composite samples pleas	•) at en	d time below:	Sample	es Chlorinated	? Yes	No
Influent: Start Date	Start time	End Date	E	End Time	Temp (oC)			
Effluent: Start Date	Start time	End Date	E	End Time	Temp (oC)	<u></u>		
Workorder # Date 0092630 (mm/dd/yy):	information* Collection Time (24 hr): B	ottle and Preservative	Containers	Sample Description	Composite			
Sample ID#			3		- 1-		Analysis Req	
0092630-01 A 10/13/2a	<u> 15 a.o.</u>	Plastic 1L	1	MW4D	g/c	Total Chlorid (Lab) Fluorid	ty Carbonate / le 300.0 Cond le 300.0 Sulfa	uctivity
0092630-01 В <u>/о//3/2о</u>	1520	Plastic 500mL pH<2 w/HNO3	1	MW4D	g/c	Antimony Tot Boron Tot 60	t 6020 Lead T t 6020 Arsenio 108 Barium T	c Tot 6020 Ct 6020
						6010B Chror Tot 6020 Cop Titration Iron	ot 6020 Calciu mium Tot 6020 pper Tot 6020 I Tot 6010B Lit sium Tot 6010	Cobalt Hardness thium Tot
, ,	Pre	servation Check: pH:	<u> </u>			J		ı
0092630-01 C 10/13/av	1520	Plastic 500mL pH<2 w/H2SO4	1	MW4D	g/c	COD TOC		1
1 1	Pre	servation Check: pH:	<u> </u>					
0092630-01 D 10/13/20		astic 1L pH<2 w/HNO3 Rad 226 (Sub)	1	MW4D	g/c	Radium 226	(sub)	!
	Pre	servation Check: pH:						
Preservation Check Perform	ed by: NO	1						· · · · · · · · · · · · · · · · · · ·
Field data collected by:	hillip Hill	Date (mm/dd/yy)	10/13	3/20 Time (24 hr)	1520			
pH <u>6,47</u> Co	and (umho) 3.9	Res CI (mg/L)		Tot CI (mg/L) _	Fre	ee CI (mg/L) _		.
Temp (oC) <u>20./1</u> or	(oF)	Static Water Level		DO (mg/L) _	T	urb. (NTU)		1
Flow (MGD) or	(CFS)	or (g/min)						1
Relinquished by: (Signature)	1 11	Received by: (Sign	ature)	· · · · · · · · · · · · · · · · · · ·	Date (mm	/dd/yy)	Time (24 hr)	
Mari A		11-14	4		11-14	·2)	0838	ļ
	9		-				 	İ
		_						1
PACE- Check here if	trip charge applied	to associated COC		Printed:		:26AM	D- 1	
					4.7%	•	∣ Page 1	9 of 30

(724)850-5600



November 04, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 92630

Pace Project No.: 30387824

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on October 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 - Greensburg

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

Sincerely,

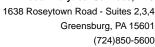
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 92630 Pace Project No.: 30387824

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

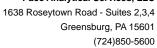
Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

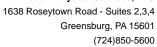




SAMPLE SUMMARY

Project: 92630
Pace Project No.: 30387824

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30387824001	0092630-01	Water	10/13/20 15:20	10/15/20 09:25





SAMPLE ANALYTE COUNT

Project: 92630
Pace Project No.: 30387824

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30387824001	0092630-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



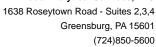
ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92630 Pace Project No.: 30387824

Sample: 0092630-01 Lab ID: 30387824001 Collected: 10/13/20 15:20 Received: 10/15/20 09:25 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collect	tion dates and times were r	not present on the sample containers.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 903.1	0.268 ± 0.350 (0.577) C:NA T:93%	pCi/L	11/04/20 12:59	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	1.44 ± 0.536 (0.787) C:67% T:87%	pCi/L	10/30/20 12:03	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.71 ± 0.886 (1.36)	pCi/L	11/04/20 14:03	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project: 9

92630

Pace Project No.:

30387824

QC Batch:
QC Batch Method:

419199

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387824001

METHOD BLANK: 2026443

Matrix: Water

Associated Lab Samples:

30387824001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

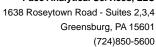
Radium-226

 $-0.0904 \pm 0.280 \quad (0.637) \text{ C:NA T:89\%}$

pCi/L

11/04/20 12:44

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: 92630
Pace Project No.: 30387824

QC Batch: 419200 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: 30387824001

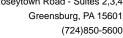
METHOD BLANK: 2026444 Matrix: Water

Associated Lab Samples: 30387824001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.598 ± 0.458 (0.907) C:69% T:82%
 pCi/L
 10/30/20 12:00

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: 92630 Pace Project No.: 30387824

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.

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: 11/04/2020 02:06 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Chain of Custody

Face Analytical

LAB USE ONLY MO#:30387824 Results Requested By: Comments Requested Analysis Workorder Name: MW-4D Wilson 092-00004 Owner Received Date: 10/14/2020 EPA 904.0 Radium Sum Calc Date/Time £.606 A93 Preserved Containers Pace Analytical Services LLC Greensburg PA Grace Water Matrix Reveived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Greensburg, PA 15601 Lab ID Date/Time Subcontract To: (724)850-561510/13/20 15:20 Date/Time Collect Sample Type rob.whittington@pacelabs.com Madisonville, KY 42409 Workorder: 92630 Transfers |Released By McCoy & McCoy Labs 0092630-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 10

Sample Intact Y or N ***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC Received on Ice Y or N This chain of custody is considered complete as is since this information is available in the owner laboratory. Custody Seal Y or/N SCLUX °C **Cooler Temperature on Receipt**

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Page 9 of 11 Page 28 of 30

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0092630

30387824

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA

1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601

Phone :(724) 850-5615

Fax:

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0092630-01	Water	Sampled: 10/13/2020 15:20	Specific Method		
Radium Total (sub)		04/11/2021 15:20	EPA 904.0 Radium S	um (
Radium 228 (sub)		04/11/2021 15:20	EPA 904.0 Radium S	um (
Radium 226 (sub)		04/11/2021 15:20	EPA 903.1		

Released By Date Received By Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condit					
Pace Analytical Client Name:	<u>M</u>	CAO	NSC	Project # 3038782	4
Courier: Fed Ex UPS USPS Client Tracking #: 107 3386 9238/92	□ SU	ommei 97	rcial 27/	Pace Other Label WM LIMS Login WM	
Custody Seal on Cooler/Box Present:	∠ /n	D	Seals	intact: yes no	
Thermometer Used	Туре		Wet	Blue None	
Cooler Temperature Observed Temp 75	<u> 17 </u>	°C	Corre	ection Factor: -0 - 1 °C Final Temp: 7.4/7.4/5	
Temp should be above freezing to 6°C				pH paper Lot# Date and initials of parson examining	
Comments:	Yes	- No	N/A	IDDOHOI contents: 10/0/20 OVB	
Chain of Custody Present:				1.	
Chain of Custody Filled Out:				2.	
Chain of Custody Relinquished:				3.	
Sampler Name & Signature on COC:			<u> </u>	4.	
Sample Labels match COC:				5 notineldate on contained	,
-Includes date/time/ID Matrix:	<u> [W</u>	·		170 (11-10000 0-0000	
Samples Arrived within Hold Time:			<u> </u>	6.	
Short Hold Time Analysis (<72hr remaining):	<u> </u>			7.	
Rush Turn Around Time Requested:				8.	
Sufficient Volume:				9.	
Correct Containers Used:			<u> </u>	10.	
-Pace Containers Used:					
Containers Intact:				11.	
Orthophosphate field filtered				12.	
Hex Cr Aqueous sample field filtered				13.	
Organic Samples checked for dechlorination:				14	
Filtered volume received for Dissolved tests		_		15.	
All containers have been checked for preservation.	<u> </u>			16. 0112	
exceptions: VOA, colliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon,	•			
All containers meet method preservation requirements.				Initial when Completed Date/time of preservation	
		•		Lot# of added	
	Ţ	Τ		preservative	•
Headspace in VOA Vials (>6mm):				17.	
Trip Blank Present:	. 15. 110 17:	<u> </u>		18.	
Trip Blank Custody Seals Present Rad Samples Screened < 0.5 mrem/hr	\vdash			Initial when	
Tad Samples derected 4 5.5 Mileston	/			completed: ONS Date: ONG PO	
Client Notification/ Resolution:					
Person Contacted:			-Date/-	Fime:Gontacted-By:	
Comments/ Resolution:					
		···			
A check in this box indicates that addi	tional	infor	natior	has been stored in ereports.	

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0092623

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419

MW-102 Wilson 092-00004

Customer ID: Report Printed: 44-100168 11/05/2020 13:25

Workorder: 0092623

Dear Mike Galbraith

Project Name:

Enclosed are the analytical results for samples received at one of our laboratories on 10/14/2020 08:38.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0092623-01	MW102/		Groundwater	10/13/2020 15:40	10/14/2020 8:38	Travis Sneed
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0092623-01	Field Conductance	1200				
	Field pH	6.33				
	Field Temp (C)	16.80				



Pace Analytical Services, LLC
P.O. Box 907
Madisonville, KY 42431
270.821.7375
www.pacelabs.com

ANALYTICAL RESULTS

 Lab Sample ID: 0092623-01
 Sample Collection Date Time: 10/13/2020 15:40

 Description: MW102
 Sample Received Date Time: 10/14/2020 08:38

Metals by SW846 6000 Series Methods

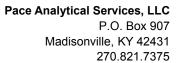
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Arsenic	0.0036		mg/L	0.0010	0.0004	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Barium	0.058		mg/L	0.004	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Boron	ND	U	mg/L	0.10	0.10	SW846 6010 B	10/15/2020 07:52	10/20/2020 14:57	DMH
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Calcium	86.8	D2	mg/L	4.00	1.30	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:24	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Copper	ND	B, U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Iron	4.48	D2	mg/L	1.00	0.500	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:24	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Lithium	ND	U	mg/L	0.02	0.005	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Magnesium	36.9	D2	mg/L	2.00	0.900	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:24	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Nickel	0.002	J	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Potassium	2.52	L1	mg/L	0.50	0.22	SW846 6010 B	10/15/2020 07:52	10/20/2020 14:57	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Sodium	131	D1	mg/L	26.0	10.0	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:27	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:31	CAM

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL MDL Method		Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	292		mg/L	4		2320 B-2011	10/21/2020 16:59	10/21/2020 16:59	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	10/21/2020 16:59	10/21/2020 16:59	HMF
Total Alkalinity	292		mg/L	4		2320 B-2011	10/21/2020 16:59	10/21/2020 16:59	HMF
Chemical Oxygen Demand	6		mg/L	5	5	HACH 8000	10/23/2020 13:24	10/23/2020 15:28	HMF
Specific Conductance (Lab)	1210		umhos/cm	1	1	2510 B-2011	10/20/2020 15:41	10/20/2020 15:41	CML
Hardness as CaCO3	376		mg/L	1	1	2340 C (as HACH 8226)	10/19/2020 11:14	10/19/2020 11:14	CLL
Total Dissolved Solids	836		mg/L	50	50	2540 C-2011	10/16/2020 11:40	10/19/2020 17:00	DJK
Total Organic Carbon	1.5		mg/L	0.5		5310 C-2011	10/17/2020 19:53	10/17/2020 19:53	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.195	_Sub	pCi/L			EPA 903.1	11/04/2020 00:00	11/04/2020 00:00	xxx
Radium-228	0.546	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	10/30/2020 00:00	10/30/2020 00:00	XXX
Radium	0.741	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	11/04/2020 00:00	11/04/2020 00:00	xxx



www.pacelabs.com



Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	32.9	D	mg/L	1.0	0.7	EPA 300.0 REV 2.1	10/20/2020 18:21	10/20/2020 18:21	CSC
Fluoride	0.30		mg/L	0.20		EPA 300.0 REV 2.1	10/20/2020 18:04	10/20/2020 18:04	CSC
Sulfate	261	D	mg/L	100	50.0	=::	10/20/2020 18:38	10/20/2020 18:38	CSC



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

Notes for work order 0092623

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Target analyte detected in method blank at or above the method reporting limit.

- The Chain of Custody document is included as part of this report.

Sample RPD exceeded the method control limit.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

В

Υ1

MS

% Rec

D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
J	Estimated value.
L1	The associated blank spike recovery was above method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
	1 - 5 1 0 1 - 1 0 1

LCS Laboratory Control Sample Matrix Spike

MSD Matrix Spike Duplicate DUP Sample Duplicate Percent Recovery

RPD Relative Percent Difference

Greater than Less than

Results relate only to the items tested.



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:52									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Blank (B042261-BLK2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:10									
Potassium	ND	0.50	mg/L							U
Blank (B042261-BLK3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:36									
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	0.003	0.003	mg/L							В
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/21/2020 1	12:43									
Molybdenum	ND	0.01	mg/L							U
Copper	0.003	0.003	mg/L							В
Selenium	ND	0.003	mg/L							U
LCS (B042261-BS1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 1	12:56									
Boron	0.13	0.10	mg/L	0.125		101	85-115			
Calcium	6.42	0.40	mg/L	6.25		103	85-115			
Iron	6.27	0.100	mg/L	6.25		100	85-115			
Magnesium	5.31	0.200	mg/L	6.25		85.0	85-115			
Potassium	8.21	0.50	mg/L	6.25		131	85-115			L1
Sodium	6.41	0.26	mg/L	6.25		103	85-115			
LCS (B042261-BS2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020 1	10:13									
Potassium	6.67	0.50	mg/L	6.25		107	85-115			
LCS (B042261-BS3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 1	16:40									
Molybdenum	0.07	0.01	mg/L	0.0625		109	85-115			
Antimony	0.072	0.005	mg/L	0.0625		115	85-115			
Mercury	0.0025	0.0005	mg/L	0.00250		101	85-115			
Arsenic	0.0657	0.0010	mg/L	0.0625		105	85-115			
Barium	0.067	0.004	mg/L	0.0625		107	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		103	85-115			
Cadmium	0.0646	0.0010	mg/L	0.0625		103	85-115			
Chromium	0.0682	0.0020	mg/L	0.0625		109	85-115			
Cobalt	0.067	0.004	mg/L	0.0625		107	85-115			
Copper	0.068	0.003	mg/L	0.0625		109	85-115			В
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.07	0.02	mg/L	0.0625		107	85-115			
Nickel	0.066	0.003	mg/L	0.0625		106	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0663	0.0020	mg/L	0.0625		106	85-115			
Zinc	0.07	0.02	mg/L	0.0625		106	85-115			





Paralle Para			Reporting		Spike	Source		%REC		RPD	
Propared: 1015/2020 7.52, Analyzed: 10/21/2020 12-47 Martix Spike (B042261-MS2) Source: 0092629-MS ND 10.0 mg/L 0.0625 107 85-115 B MS MS MS MS MS MS MS	Analyte	Result		Units	•		%REC		RPD		Notes
Propertic: 10/15/2020 7-52, Analyzed: 10/21/2020 12-47 Molybderum											
Prepared : 10/15/2020 7:52											
Molybdenum	,	10/21/2020 12:47									
Capper			0.01	ma/L	0.0625		107	85-115			
Selenium	•			-							В
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 15:14 Boron ND ND 10.0 mg/L 0.125 ND 80-120 D2, M4, Calcium ND 40.0 mg/L 6.25 ND 80-120 D2, M4, Iton 5.57 10.0 mg/L 6.25 ND 80-120 D2, M4, Iton 5.57 10.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 20.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 80-120 ND, M6, M6, M6, M6, M6, M6, M6, M6, M6, M6	Selenium	0.064	0.003	-	0.0625		103	85-115			
Boron	Matrix Spike (B042261-MS1)	Source: 0092620-0	1								
Calcium ND 40.0 mg/L 6.25 ND 80-120 D2, M4, Iron Iron 5.57 10.0 mg/L 6.25 ND 80-120 D2, J4 M2, D2, J4 M2, D2, J4 M2, D2, M4, D2, M2, M2, M2, M2, M2, M2, M2, M2, M2, M	Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:14									
Iron	Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Magnesium ND 20.0 mg/L 6.25 ND 80-120 D2, M4, Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, D2, M4, D2, M4, D2, M4, MD Potassium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, D2, M4, M4, M4, MD, Mg/L 6.25 ND 80-120 D2, M4, M4, M4, MM, M4, MB, MG, MG, MG, MG, MG, MG, MG, MG, MG, MG	Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Polassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, B0-120 D2, M4, D2, M4, B0-120 D2, M4, Martix Spike (B042261-MS2) Source: 0992629-01 Case of Martix Spike (B042261-MS2) Source: 0992629-01 Source: 0992629-01 Source: 10/15/2020 7:52, Analyzed: 10/15/2020 15:21 Source: 0992629-01 ND 10.0 mg/L 0.125 ND 80-120 D2, M4, D2, M1 Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M4, D2, M1 Calcium 15.8 10.0 mg/L 6.25 9.29 105 80-120 D2, M4 Magnesium 147 20.0 mg/L 6.25 9.29 105 80-120 D2, M1 Polassium ND 50.0 mg/L 6.25 9.29 105 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0992620-01	Iron	5.57	10.0	mg/L	6.25	ND	89.1	80-120			D2, J
Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Matrix Spike (B042261-MS2) Source: 0092629-01	Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, M4, U
Matrix Spike (B042261-MS2)	Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 15:21 Boron ND 10.0 mg/L 0.125 ND 80-120 D2, M4, Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M1 Iron 15.8 10.0 mg/L 6.25 97.9 150 80-120 D2, M1 Potassium 147 20.0 mg/L 6.25 97.9 170 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 72.3 146 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 72.3 146 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 80-120 D2, M1 Potassium ND 80-120 D2, M1 Potassium ND 80-120 ND 80-120 D2, M1 Potassium ND 80-120 N	Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, M4, U
Boron ND 10.0 mg/L 0.125 ND 80-120 D2, M4, Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M4, D2, M1 Iron 15.8 10.0 mg/L 6.25 9.29 105 80-120 D2, M4 Magnesium 147 20.0 mg/L 6.25 9.79 79 80-120 D2, M4 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4 Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M4 Matrix Spike (B042261-MS3) Source: 092620-01 V V 6.25 ND 106 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 092620-01 V V 6.25 ND 108 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 092620-01 V V 6.25 ND 108 80-120 D2 D2 M2 M2	Matrix Spike (B042261-MS2)	Source: 0092629-0	1								
Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M1 Iron 15.8 10.0 mg/L 6.25 9.29 105 80-120 D2 Magnesium 147 20.0 mg/L 6.25 97.9 790 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 97.9 790 80-120 D2, M1 Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0092620-01 v	Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:21									
Iron	Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Magnesium 147 20.0 mg/L 6.25 97.9 790 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, Sodium 81.5 26.0 mg/L 6.25 ND 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0092620-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.0625 ND 116 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Beryllium 0.0626 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649	Calcium	394	40.0	mg/L	6.25	384	166	80-120			D2, M1
Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M4 Matrix Spike (B042261-MS3) Source: 0092620-01	Iron	15.8	10.0	mg/L	6.25	9.29	105	80-120			D2
Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0092620-01 Source: 0092620-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Antimony 0.0028 0.0050 mg/L 0.0625 ND 116 80-120 D2 D2, J Arsenic 0.0695 0.0100 mg/L 0.0625 ND 116 80-120 D2 D2 D2 Barium 0.0695 0.0100 mg/L 0.0625 ND 116 80-120 D2 D2 Beryllium 0.0666 0.040 mg/L 0.0625 ND 105 80-120 D2 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 D2 Chromium 0.0659 0.0200	Magnesium	147	20.0	mg/L	6.25	97.9	790	80-120			D2, M1
Matrix Spike (B042261-MS3) Source: 0092620-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.0666 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 104 80-120 D2 Copper </td <td>Potassium</td> <td>ND</td> <td>50.0</td> <td>mg/L</td> <td>6.25</td> <td>ND</td> <td></td> <td>80-120</td> <td></td> <td></td> <td>D2, M4, U</td>	Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 104 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104	Sodium	81.5	26.0	mg/L	6.25	72.3	146	80-120			D2, M1
Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Copper 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 D2	Matrix Spike (B042261-MS3)	Source: 0092620-0	1								
Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2 Lead <	Prepared: 10/15/2020 7:52, Analyzed:	10/20/2020 19:57									
Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2 Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Nickel 0.06	Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120			D2, J
Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2 D2 Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 105 80-120 D2	Mercury	0.0028	0.0050	mg/L	0.00250	ND	112	80-120			D2, J
Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 105 80-120 D2 Thallium 0.0	Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120			D2
Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium	Arsenic	0.0695	0.0100	mg/L	0.0625	ND	111	80-120			D2
Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Barium	0.066	0.040	mg/L	0.0625	ND	105	80-120			D2
Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Beryllium	0.0628	0.0200	mg/L	0.0625	ND	101	80-120			D2
Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Cadmium	0.0649	0.0100	mg/L	0.0625	ND	104	80-120			D2
Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Chromium	0.0659	0.0200	mg/L	0.0625	ND	105	80-120			D2
Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Cobalt	0.065		mg/L			104				
Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Copper										
Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Lead			_							
Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Lithium										
Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2				_							
·											
Zinc ND 0.20 mg/L 0.0625 ND 80-120 D2, M4,	Thallium Zinc		0.0200 0.20	-			105	80-120 80-120			D2 D2, M4, U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike (B042261-MS4)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/20/2020 20:04									
Antimony	0.075	0.050	mg/L	0.0625	ND	121	80-120			D2, M1
Mercury	0.0028	0.0050	mg/L	0.00250	ND	110	80-120			D2, J
Molybdenum	0.07	0.10	mg/L	0.0625	ND	115	80-120			D2, J
Arsenic	0.0732	0.0100	mg/L	0.0625	ND	117	80-120			D2
Barium	0.082	0.040	mg/L	0.0625	0.014	108	80-120			D2
Beryllium	0.0639	0.0200	mg/L	0.0625	ND	102	80-120			D2
Cadmium	0.0656	0.0100	mg/L	0.0625	ND	105	80-120			D2
Chromium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.082	0.040	mg/L	0.0625	ND	132	80-120			D2, M1
Copper	0.061	0.030	mg/L	0.0625	ND	98.3	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.11	0.20	mg/L	0.0625	ND	175	80-120			D2, M1, J
Nickel	0.089	0.030	mg/L	0.0625	0.022	107	80-120			D2
Selenium	0.069	0.030	mg/L	0.0625	ND	111	80-120			D2
Thallium	0.0647	0.0200	mg/L	0.0625	ND	104	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U
Matrix Spike Dup (B042261-MSD1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:17									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	5.93	10.0	mg/L	6.25	ND	94.9	80-120	6.26	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD2)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	414	40.0	mg/L	6.25	384	484	80-120	4.92	20	D2, M1
Iron	16.4	10.0	mg/L	6.25	9.29	114	80-120	3.84	20	D2
Magnesium	155	20.0	mg/L	6.25	97.9	913	80-120	5.08	20	D2, M1
Potassium	ND	50.0	mg/L	6.25	ND	-	80-120		20	D2, M4, U
Sodium	85.4	26.0	mg/L	6.25	72.3	209	80-120	4.70	20	D2, M1





	-									
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike Dup (B042261-MSD3)	Source: 0092620-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10/20)/2020 20:00									
Molybdenum	0.06	0.10	mg/L	0.0625	ND	104	80-120	4.25	20	D2, J
Mercury	0.0027	0.0050	mg/L	0.00250	ND	107	80-120	3.90	20	D2, J
Antimony	0.071	0.050	mg/L	0.0625	ND	114	80-120	2.25	20	D2
Arsenic	0.0678	0.0100	mg/L	0.0625	ND	109	80-120	2.47	20	D2
Barium	0.065	0.040	mg/L	0.0625	ND	104	80-120	1.34	20	D2
Beryllium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.33	20	D2
Cadmium	0.0632	0.0100	mg/L	0.0625	ND	101	80-120	2.66	20	D2
Chromium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.48	20	D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120	0.325	20	D2
Copper	0.062	0.030	mg/L	0.0625	ND	98.8	80-120	4.81	20	D2, B
Lead	0.064	0.020	mg/L	0.0625	ND	103	80-120	1.15	20	D2
Lithium	0.06	0.20	mg/L	0.0625	ND	99.1	80-120	2.77	20	D2, J
Nickel	0.063	0.030	mg/L	0.0625	ND	101	80-120	4.21	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	108	80-120	3.49	20	D2
Thallium	0.0644	0.0200	mg/L	0.0625	ND	103	80-120	1.56	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD4)	Source: 0092629-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10/20	0/2020 20:08									
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120	3.64	20	D2
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120	6.82	20	D2, J
Mercury	0.0028	0.0050	mg/L	0.00250	ND	111	80-120	0.768	20	D2, J
Arsenic	0.0721	0.0100	mg/L	0.0625	ND	115	80-120	1.40	20	D2
Barium	0.080	0.040	mg/L	0.0625	0.014	105	80-120	2.21	20	D2
Beryllium	0.0622	0.0200	mg/L	0.0625	ND	99.6	80-120	2.65	20	D2
Cadmium	0.0628	0.0100	mg/L	0.0625	ND	100	80-120	4.34	20	D2
Chromium	0.0045	0.0200	mg/L	0.0625	ND	103	80-120	1.44	20	D2
	0.0645	0.0200								
Cobalt	0.0645 0.081	0.0200	mg/L	0.0625	ND	130	80-120	1.84	20	D2, M1
Cobalt Copper			•	0.0625 0.0625	ND ND	130 93.7	80-120 80-120	1.84 4.77	20 20	D2, M1 D2, B
	0.081	0.040	mg/L							
Copper	0.081 0.059	0.040 0.030	mg/L mg/L	0.0625	ND	93.7	80-120	4.77	20	D2, B
Copper Lead	0.081 0.059 0.063	0.040 0.030 0.020	mg/L mg/L mg/L	0.0625 0.0625	ND ND	93.7 101	80-120 80-120	4.77 2.71	20 20	D2, B D2
Copper Lead Lithium	0.081 0.059 0.063 0.11	0.040 0.030 0.020 0.20	mg/L mg/L mg/L mg/L	0.0625 0.0625 0.0625	ND ND ND	93.7 101 179	80-120 80-120 80-120	4.77 2.71 2.20	20 20 20	D2, B D2 D2, M1, J
Copper Lead Lithium Nickel	0.081 0.059 0.063 0.11 0.088	0.040 0.030 0.020 0.20 0.030	mg/L mg/L mg/L mg/L mg/L	0.0625 0.0625 0.0625 0.0625	ND ND ND 0.022	93.7 101 179 106	80-120 80-120 80-120 80-120	4.77 2.71 2.20 0.909	20 20 20 20	D2, B D2 D2, M1, J D2





	Repor	Reporting				%REC		RPD	
Analyte	•	imit Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2									
Post Spike (B042261-PS1)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyzed	d: 10/15/2020 15:27								
Boron	113	ug/L	125	-0.57	90.4	75-125			D2
Calcium	6400	ug/L	6250	39.0	102	75-125			D2
Iron	5840	ug/L	6250	-0.050	93.5	75-125			D2
Magnesium	6590	ug/L	6250	2.27	105	75-125			D2
Potassium	6300	ug/L	6250	9.60	101	75-125			D2
Sodium	6100	ug/L	6250	21.6	97.3	75-125			D2
Post Spike (B042261-PS2)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyzed	d: 10/20/2020 20:11								
Antimony	70.5	ug/L	62.5	0.083	113	75-125			D2
Molybdenum	67.2	ug/L	62.5	0.04	107	75-125			D2
Mercury	2.75	ug/L	2.50	0.0323	109	75-125			D2
Arsenic	71.3	ug/L	62.5	-0.0088	114	75-125			D2
Barium	63.7	ug/L	62.5	0.095	102	75-125			D2
Beryllium	65.4	ug/L	62.5	-0.0105	105	75-125			D2
Cadmium	63.6	ug/L	62.5	0.0157	102	75-125			D2
Chromium	65.6	ug/L	62.5	0.355	104	75-125			D2
Cobalt	63.7	ug/L	62.5	-0.003	102	75-125			D2
Copper	60.7	ug/L	62.5	-1.80	97.1	75-125			D2, B
Lead	64.8	ug/L	62.5	0.522	103	75-115			D2
Lithium	64.9	ug/L	62.5	0.04	104	75-125			D2
Nickel	63.8	ug/L	62.5	-0.079	102	75-125			D2
Selenium	67.6	ug/L	62.5	0.009	108	75-125			D2
Thallium	64.7	ug/L	62.5	0.00002	104	75-125			D2
Zinc	77.9	ug/L	62.5	3.15	120	75-125			D2





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042498 - Default Prep Wet Chem										
Blank (B042498-BLK1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B042498-BS1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	1490	25	mg/L	1500		99.6	80-120			
Duplicate (B042498-DUP1) S	ource: 0092629-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	2240	50	mg/L		2290			2.56	10	
Duplicate (B042498-DUP2) S	ource: 0102128-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	364	50	mg/L		370			1.63	10	
Batch B042577 - Default Prep Wet Chem										
Blank (B042577-BLK1)										
Prepared: 10/19/2020 10:58, Analyzed: 10/19/2020	20 10:58									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B042577-BS1)										
Prepared: 10/19/2020 11:00, Analyzed: 10/19/2020	20 11:00									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B042577-DUP1) S	ource: 0100778-02									
Prepared: 10/19/2020 12:16, Analyzed: 10/19/2020	20 12:16									
Hardness as CaCO3	268	1	mg/L		260			3.03	10	
Matrix Spike (B042577-MS1)	ource: 0100778-02									
Prepared: 10/19/2020 12:18, Analyzed: 10/19/2020	20 12:18									
Hardness as CaCO3	648	1	mg/L	318	260	122	80-120			Y1
Batch B042587 - Default Prep Wet Chem										
Blank (B042587-BLK1)										
Prepared: 10/17/2020 18:08, Analyzed: 10/17/2020	20 18:08									
Total Organic Carbon	ND	0.5	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042587 - Default Prep Wet Chem										
LCS (B042587-BS1)										
Prepared: 10/17/2020 17:47, Analyzed: 10/17/2	020 17:47									
Total Organic Carbon	4.7	0.5	mg/L	5.00		94.1	80-120			
Duplicate (B042587-DUP1)	Source: 0092628-01									
Prepared: 10/17/2020 23:24, Analyzed: 10/17/2	2020 23:24									
Total Organic Carbon	0.9	0.5	mg/L		1.0			8.76	25	
Duplicate (B042587-DUP2)	Source: 0100200-01									
Prepared: 10/18/2020 4:41, Analyzed: 10/18/20	020 4:41									
Total Organic Carbon	2.5	0.5	mg/L		2.4			2.64	25	
Matrix Spike (B042587-MS1)	Source: 0092629-01									
Prepared: 10/17/2020 23:45, Analyzed: 10/17/2										
Total Organic Carbon	3.9	0.5	mg/L	2.50	1.6	93.3	80-120			
Matrix Spike (B042587-MS2)	Source: 0100200-02									
Prepared: 10/18/2020 5:02, Analyzed: 10/18/20	020 5:02									
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.8	94.8	80-120			
Batch B043117 - Default Prep Wet Chem										
Blank (B043117-BLK1)										
Prepared: 10/21/2020 16:14, Analyzed: 10/21/2	2020 16:14									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK2)										
Prepared: 10/21/2020 18:13, Analyzed: 10/21/2	020 18:13									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK3)										
Prepared: 10/21/2020 19:40, Analyzed: 10/21/2	020 19:40									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043117 - Default Prep Wet Chem										
LCS (B043117-BS1)										
Prepared: 10/21/2020 18:06, Analyzed: 10/21/2020	18:06									
Total Alkalinity	249	4	mg/L	235		106	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	231	4	mg/L	225		103	0-200			
LCS (B043117-BS2)										
Prepared: 10/21/2020 19:35, Analyzed: 10/21/2020	19:35									
Carbonate Alkalinity as CaCO3	227	4	mg/L	225		101	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	254	4	mg/L	235		108	80-120			
Duplicate (B043117-DUP1) Soc	urce: 0092629-01									
Prepared: 10/21/2020 17:38, Analyzed: 10/21/2020	17:38									
Total Alkalinity	295	4	mg/L		283			4.39	10	
Bicarbonate Alkalinity as CaCO3	295	4	mg/L		283			4.39	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Duplicate (B043117-DUP2) Sou	urce: 0092635-01									
Prepared: 10/21/2020 19:24, Analyzed: 10/21/2020	19:24									
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	281	4	mg/L		268			4.88	10	
Total Alkalinity	281	4	mg/L		268			4.88	10	
Matrix Spike (B043117-MS1) Sou	urce: 0092629-01									
Prepared: 10/21/2020 18:03, Analyzed: 10/21/2020	18:03									
Total Alkalinity	331	4	mg/L	49.4	283	98.6	80-120			
Matrix Spike (B043117-MS2) Sou	urce: 0092635-01									
Prepared: 10/21/2020 19:30, Analyzed: 10/21/2020	19:30									
Total Alkalinity	301	4	mg/L	49.4	268	66.2	80-120			М3
Batch B043187 - Default Prep Wet Chem										
Blank (B043187-BLK1)										
Prepared: 10/20/2020 15:36, Analyzed: 10/20/2020	15:36									
Specific Conductance (Lab)	ND	1	umhos/cm							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043187 - Default Prep Wet Chem										
LCS (B043187-BS1)										
Prepared: 10/20/2020 15:37, Analyzed: 10/20	0/2020 15:37									
Specific Conductance (Lab)	1420		umhos/cm	1410		101	80-120			
Duplicate (B043187-DUP1)	Source: 0092629-01									
Prepared: 10/20/2020 15:54, Analyzed: 10/20)/2020 15:54									
Specific Conductance (Lab)	2600	1	umhos/cm		2610			0.307	1.24	
Duplicate (B043187-DUP2)	Source: 0102262-01									
Prepared: 10/20/2020 16:09, Analyzed: 10/20	0/2020 16:09									
Specific Conductance (Lab)	354	1	umhos/cm		351			0.851	1.24	
Batch B043582 - Default Prep Wet Chem										
Blank (B043582-BLK1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	ND	5	mg/L							U
LCS (B043582-BS1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	121	5	mg/L	125		96.8	90-110			
Duplicate (B043582-DUP1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:32									
Chemical Oxygen Demand	5	5	mg/L		ND				25	
Matrix Spike (B043582-MS1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	260	5	mg/L	250	ND	104	90-110			
Matrix Spike Dup (B043582-MSD1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	257	5	mg/L	250	ND	103	90-110	1.21	10	





Ion Chromatography Madisonville - Quality Control

Ion Chromatography Madisonville - Quality Control										
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043120 - Default Prep IC										
Blank (B043120-BLK1)										
Prepared: 10/20/2020 15:45, Analyzed:	10/20/2020 15:45									
Sulfate	ND	1.0	mg/L							U
Chloride	ND	0.5	mg/L							U
Fluoride	ND	0.20	mg/L							U
LCS (B043120-BS1)										
Prepared: 10/20/2020 15:27, Analyzed:	10/20/2020 15:27									
Fluoride	9.42		mg/L	10.0		94.2	90-110			
Sulfate	9.4		mg/L	10.0		93.7	90-110			
Chloride	9.5		mg/L	10.0		95.4	90-110			
Matrix Spike (B043120-MS1)	Source: 0092620-01									
Prepared: 10/20/2020 21:50, Analyzed:	10/20/2020 21:50									
Fluoride	12.3		mg/L	10.0	0.00	123	80-120			M1
Chloride	12.4		mg/L	10.0	0.2	122	80-120			M1
Sulfate	12.3		mg/L	10.0	0.05	122	80-120			M1
Matrix Spike Dup (B043120-MSD1)	Source: 0092620-01									
Prepared: 10/20/2020 22:07, Analyzed:	10/20/2020 22:07									
Chloride	11.7		mg/L	10.0	0.2	115	80-120	5.59	10	
Sulfate	11.6		mg/L	10.0	0.05	116	80-120	5.62	20	
Fluoride	11.7		mg/L	10.0	0.00	117	80-120	4.70	20	
Certified Analyses included in this Rep	oort									
Analyte	Certifications									

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0092623
Shipped By: Pace Analytical Services LL	Temperature: 1.00° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	
Check if Collector Signature Present	$oldsymbol{arDelta}$
Check if bottles are intact	
Check if bottles are correct	$oldsymbol{arDelta}$
Check if bottles have sufficient volume	
Check if samples received on ice	
Check if VOA headspace is acceptable	
Check if samples received in holding time.	✓
Check if samples are preserved properly	☑

Chain of Custody

Scheduled for: <u>09/07/2020</u>



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Client: Big Rivers Electric Con Station	rporation Wils			Corporation Wilson	Invoice To: Big Rivers E Brian Edwar		ration Wilson St	ation
Project: MW-102 Wilson 092-0	00004	PO Box 24			PO Box 24			
		Henderson, K			Henderson,	KY 42419		
		Phone: <u>(270) -</u> PWS ID#:	844-6	<u>000</u>	PO#:		_	
Please Print Legibly		State:	K	<u>Y</u>	Quote#			/
Collected by (Signature):	Juar rea	uired information*			Compli	ance Monitor	ing? Yes 🔽 N	No
*For composite samples please	indicate begin	time, end time and temp(oC	c) at e	nd time below:	Sample	es Chlorinated	d? Yes N	No
Influent: Start Date	Start time	End Date		End Time	Temp (oC)			
Effluent: Start Date				,				ı
LAB USE ONLY *required in Date 0092623 (mm/dd/yy):	Collection	Bottle and Preservative	Containers	Sample Description	Composite			
Sample ID#			<u>S</u>	•	,	<u>-</u>	Analysis Reque	
0092623-01 A 10-13-20	15:40	Plastic 1L	1	MW102	g/c	Total Chloric	ity Carbonate All de 300.0 Conduc de 300.0 Sulfate carbonate	ctivity
0092623-01 B <i>[c-13-Z0</i>	15140	Plastic 500mL pH<2 w/HNO3	1	MW102	g/c	Beryllium To Antimony To	ot 6020 Lead Tot ot 6020 Arsenic 010B Barium To	Tot 6020
					•	6010B Chro Tot 6020 Co Titration Iron	ot 6020 Calcium mium Tot 6020 opper Tot 6020 H n Tot 6010B Lith esium Tot 6010B	Cobalt lardness ium Tot
		Preservation Check: pH:	<u> </u>	_				
0092623-01 C 10-13-26	15:40	Plastic 500mL pH<2 w/H2SO4	1	MW102	g/c	COD TOC	;	
0092623-01 D <u>[0-13-20</u>	15:40	Preservation Check: pH: Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) Preservation Check: pH:)	- MW102	g/c	Radium 226	(sub)	
Preservation Check Performed	ı by: NO				ü		.	
Field data collected by:	wis Sne	Date (mm/dd/yy)	16-	<u>パースの</u> Time (24 hr) <u>1</u>	5:40			ľ
pH <u>6.33</u> Con	d (mppo)	Res CI (mg/L)		Tot CI (mg/L)	Fre	e CI (mg/L) _	 .	
Temp (oC) 16.80 or	(oF)	Static Water Level		DO (mg/L)	Т	urb. (NTU) _		
Flow (MGD) or	(CFS)	or (g/min)			•			
Relinquished by: (Signature)		Received by: (Sign	ature)		Date (mm/	dd/yy)	Time (24 hr)	
Mru Su	\mathcal{A}	_ 1/-	Jeg		10-14	- 20	0838	
					_			· ·
					_			
PACE- Check here if tr	ip charge app	olied to associated COC		Printed: 9	/10/2020 10:04:	09AM	Danie 40	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>09/07/2020</u>



Client: Big Rive Station	ers Electric C	orporation Wil		ctric Corporation Wilson	Invoice To: Big Rivers E	lectric Corporation Wilson Station			
Project: MW-10	12 Wilson 092	-00004	PO Box 24 Henderson, K		PO Box 24 Henderson, KY 42419				
			Phone: <u>(270) 8</u> PWS ID#:	344-600 <u>0</u>	PO#:	· !			
Please Print Le	 		State:	~ /	Quote#				
Collected by (Sig	nature):	Ture ret	julred information*	<u> </u>	•	ance Monitoring? Yes No			
•		•	time, end time and temp(oC)		·	es Chlorinated? Yes No			
			End Date						
Effluent: Start D	ate	Start time	End Date	End Time	Temp (oC)				
LAB USE ONLY Workorder # 0092623	Date	information* Collection Time (24 hr):	Bottle and Preservative	Sample Descripti	ion Composite	Controllo Application Progressional			
Sample ID# 0092623-01 E	10-13-20	15:40	Plastic 1L pH<2 w/HNO3	<u>3</u> 1 MW102	g/c	Sample Analysis Requested Radium 228 (sub)			
			Rad 228 (Sub) Preservation Check: pH:	<u>/</u>					
0092623-01 F	10-13-2e	15:40	Plastic 1L pH<2 w/HNO3 Rad 228 (Sub)	1 MW102	g/c	Radium 228 (sub)			
0092623-01 G	10-13-20	15140	Preservation Check: pH: _ Plastic 1L pH<2 w/HNO3 (Sub) Preservation Check: pH:	1 MW102	g/c	Radium Total (sub)			
0092623-01 H	10-13-20	15:40	AG 250mL pH<2 w/H2SO4 Preservation Check: pH:	1 MW102	g/c	тос			
			·						
Preservation Ch	eck Performe	ed by: NO							
Field data collect	~		•	16-13-20 Time (24 hr)					
		nd (umh o)		Tot CI (mg/L		•			
Temp (oC)		(oF)	Static Water Level _ or (g/min) _		Ti	urb. (NTU)			
Relinquished by:	(Signature)		Received by: (Signa	ture)	Date (mm/	dd/yy) Time (24 hr)			
1/n	m'S	nd	N-ye	4	10-14-	20 0838			
				·					
				 					

(724)850-5600



November 04, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 92623

Pace Project No.: 30387817

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on October 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 - Greensburg

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

Sincerely,

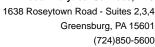
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 92623 Pace Project No.: 30387817

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

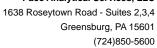
South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

REPORT OF LABORATORY ANALYSIS



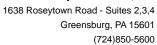


SAMPLE SUMMARY

Project: 92623
Pace Project No.: 30387817

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30387817001	0092623-01	Water	10/13/20 15:40	10/15/20 09:25

REPORT OF LABORATORY ANALYSIS





SAMPLE ANALYTE COUNT

Project: 92623
Pace Project No.: 30387817

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30387817001	0092623-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92623
Pace Project No.: 30387817

Sample: 0092623-01 Lab ID: 30387817001 Collected: 10/13/20 15:40 Received: 10/15/20 09:25 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collection	dates and times were no	ot present on the sample containers.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	Services - Greensburg				
Radium-226	EPA 903.1	0.195 ± 0.235 (0.359) C:NA T:101%	pCi/L	11/04/20 12:44	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	0.546 ± 0.404 (0.794) C:71% T:89%	pCi/L	10/30/20 12:00	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	0.741 ± 0.639 (1.15)	pCi/L	11/04/20 14:03	7440-14-4	

REPORT OF LABORATORY ANALYSIS





QUALITY CONTROL - RADIOCHEMISTRY

Project:

92623

Pace Project No.:

30387817

QC Batch: QC Batch Method: 419199

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387817001

METHOD BLANK: 2026443

Matrix: Water

Associated Lab Samples:

30387817001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

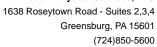
Radium-226

-0.0904 ± 0.280 (0.637) C:NA T:89%

pCi/L

11/04/20 12:44

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: 92623 Pace Project No.: 30387817

QC Batch: 419200

QC Batch Method:

EPA 904.0

Analysis Method: Analysis Description: EPA 904.0

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387817001

METHOD BLANK: 2026444

Matrix: Water

Associated Lab Samples: 30387817001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

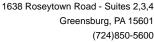
Radium-228

0.598 ± 0.458 (0.907) C:69% T:82%

pCi/L

10/30/20 12:00

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: 92623 Pace Project No.: 30387817

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.

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: 11/04/2020 02:05 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Chain of Custody

Pace Analytical

LAB USE ONLY $\overline{8}$ Sample Intact Y or N WO#:30387817 ***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC Results Requested By: Comments Requested Analysis 101512008 Workorder Name: MW-102 Wilson 092-0000 Owner Received Date: 10/14/2020 Received on Ige Y Jor N EPA 904.0 Radium Sum Calc Date/Time EPA 903.1 Preserved Containers Pace Analytical Services LLC Greensburg PA ground Matrix Water Reveived By from 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Custody Seal Y or/N Greensburg, PA 15601 Lab ID Date/Time Subcontract To: (724) 850-5615 10/13/20 15:40 Date/Time Collect ၁ Sample TEST Type rob.whittington@pacelabs.com Cooler Temperature on Receipt Madisonville, KY 42409 Workorder: 92623 Transfers | Released By McCoy & McCoy Labs 0092623-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 10 ന 4 Ŋ 9 ∞ 6

FMT-ALL-C-002rev.00 24March2009

This chain of custody is considered complete as is since this information is available in the owner laboratory.

Page 1 of 1

ba Friday, June 17, 2016 11:01:34 AM see the s

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0092623

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601 Phone: (724) 850-5615

Fax:

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0092623-01	Water	Sampled:10/13/2020 15:40	Specific Method		
Radium Total (sub)		04/11/2021 15:40	EPA 904.0 Radium S	um (
Radium 228 (sub)		04/11/2021 15:40	EPA 904.0 Radium S	um (
Radium 226 (sub)		04/11/2021 15:40	EPA 903.1		

Received By Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condit				
Pace Analytical Client Name:	M	CAC	NSC	Project # 30387817
Courier: Fed Ex UPS USPS Client Tracking #: 107 3386 9238/92	250		17/	Pace Other Label BM LIMS Login BM
Custody Seal on Cooler/Box Present: yes	/n	_	/	intact: yes no
Thermometer Used	Type		Wet	Blue None
Cooler Temperature Observed Temp 7.5	<u> </u>	. с	Corre	ection Factor: O · / °C Final Temp: 7.417.45
Temp should be above freezing to 6°C				pH paper Lot# Date and Initials of person examining
Comments:	Yes	No	N/A	1000H01 contents: 10/0/20 01
Chain of Custody Present:			<u> - </u>	1.
Chain of Custody Filled Out:		,	<u> </u>	2.
Chain of Custody Relinquished:				3.
Sampler Name & Signature on COC:		/,		4.
Sample Labels match COC:				ENDIO MINO
-Includes date/time/ID Matrix:	WT			notine date in container
Samples Arrived within Hold Time:				6.
Short Hold Time Analysis (<72hr remaining):				7.
Rush Turn Around Time Requested:				8.
Sufficient Volume:				9.
Correct Containers Used:				10.
-Pace Containers Used:				
Containers Intact:				11.
Orthophosphate field filtered				12.
Hex Cr Aqueous sample field filtered				13.
Organic Samples checked for dechlorination:				14
Filtered volume received for Dissolved tests				15.
All containers have been checked for preservation.			<u> </u>	16. 01.2
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon			Price
All containers meet method preservation	/			Initial when Completed Date/time of preservation
requirements.	/	l		Lot#of added
	т	г		preservative
Headspace in VOA Vials (>6mm):				17.
Trip Blank Present:			بزرا	18.
Trip Blank Custody Seals Present	ļ.,			Initial when
Rad Samples Screened < 0.5 mrem/hr				completed: \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
Client Notification/ Resolution:				· 1 ·
Person-Contacted:			-Date/	Fime: Gontacted By:
Comments/ Resolution:				

A check in this box indicates that additional information has been stored in ereports.

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0092624

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419 Customer ID: Report Printed:

44-100168 11/05/2020 13:27

Project Name: MW-104 Wilson 092-00004

Workorder:

0092624

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 10/14/2020 08:38.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0092624-01	MW104/		Groundwater	10/13/2020 14:55	10/14/2020 8:38	Travis sneed
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0092624-01	Field Conductance	1940				
	Field pH	6.41				
	Field Temp (C)	17.33				



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

 Lab Sample ID: 0092624-01
 Sample Collection Date Time: 10/13/2020 14:55

 Description: MW104
 Sample Received Date Time: 10/14/2020 08:38

Metals by SW846 6000 Series Methods

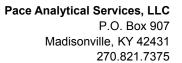
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Arsenic	0.0006	J	mg/L	0.0010	0.0004	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Barium	0.047		mg/L	0.004	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Boron	ND	U	mg/L	0.10	0.10	SW846 6010 B	10/15/2020 07:52	10/20/2020 15:00	DMH
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Calcium	267	D1	mg/L	40.0	13.0	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:33	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Copper	ND	B, U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Iron	3.58	D2	mg/L	1.00	0.500	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:30	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Lithium	0.03		mg/L	0.02	0.005	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Magnesium	69.7	D2	mg/L	2.00	0.900	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:30	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Nickel	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Potassium	8.26	L1	mg/L	0.50	0.22	SW846 6010 B	10/15/2020 07:52	10/20/2020 15:00	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Sodium	85.5	D2	mg/L	2.60	1.00	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:30	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:34	CAM

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	405		mg/L	4		2320 B-2011	10/21/2020 17:04	10/21/2020 17:04	HMF
CaCO3			Ü						
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	10/21/2020 17:04	10/21/2020 17:04	HMF
Total Alkalinity	405		mg/L	4		2320 B-2011	10/21/2020 17:04	10/21/2020 17:04	HMF
Chemical Oxygen Demand	5		mg/L	5	5	HACH 8000	10/23/2020 13:24	10/23/2020 15:28	HMF
Specific Conductance	1900		umhos/cm	1	1	2510 B-2011	10/20/2020 15:42	10/20/2020 15:42	CML
(Lab)									
Hardness as CaCO3	1040	D	mg/L	2	2	2340 C (as HACH 8226)	10/19/2020 11:18	10/19/2020 11:18	CLL
Total Dissolved Solids	1590		mg/L	50	50	,	10/16/2020 11:40	10/19/2020 17:00	DJK
Total Organic Carbon	0.9		mg/L	0.5		5310 C-2011	10/17/2020 20:14	10/17/2020 20:14	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.616	_Sub	pCi/L			EPA 903.1	11/04/2020 00:00	11/04/2020 00:00	xxx
Radium-228	1.26	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	10/30/2020 00:00	10/30/2020 00:00	XXX
Radium	1.88	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	11/04/2020 00:00	11/04/2020 00:00	xxx



www.pacelabs.com



Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	11.4		mg/L	0.5	0.4	EPA 300.0 REV 2.1	10/20/2020 19:31	10/20/2020 19:31	CSC
Fluoride	ND	U	mg/L	0.20		EPA 300.0 REV 2.1	10/20/2020 19:31	10/20/2020 19:31	CSC
Sulfate	628	D	mg/L	100	50.0	EPA 300.0 REV 2.1	10/20/2020 19:48	10/20/2020 19:48	CSC



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

Notes for work order 0092624

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Target analyte detected in method blank at or above the method reporting limit.

- The Chain of Custody document is included as part of this report.

Sample RPD exceeded the method control limit.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

В

Υ1

D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
J	Estimated value.
L1	The associated blank spike recovery was above method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected

LCS Laboratory Control Sample

MS Matrix Spike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

Greater than
Less than

Results relate only to the items tested.



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:52									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Blank (B042261-BLK2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:10									
Potassium	ND	0.50	mg/L							U
Blank (B042261-BLK3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:36									
Mercury	ND	0.0005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	0.003	0.003	mg/L							В
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/21/2020 12	2:43									
Molybdenum	ND	0.01	mg/L							U
Copper	0.003	0.003	mg/L							В
Selenium	ND	0.003	mg/L							U
LCS (B042261-BS1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 12	2:56									
Boron	0.13	0.10	mg/L	0.125		101	85-115			
Calcium	6.42	0.40	mg/L	6.25		103	85-115			
Iron	6.27	0.100	mg/L	6.25		100	85-115			
Magnesium	5.31	0.200	mg/L	6.25		85.0	85-115			
Potassium	8.21	0.50	mg/L	6.25		131	85-115			L1
Sodium	6.41	0.26	mg/L	6.25		103	85-115			
LCS (B042261-BS2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020 10	0:13									
Potassium	6.67	0.50	mg/L	6.25		107	85-115			
LCS (B042261-BS3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 16	6:40									
Antimony	0.072	0.005	mg/L	0.0625		115	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		109	85-115			
Mercury	0.0025	0.0005	mg/L	0.00250		101	85-115			
Arsenic	0.0657	0.0010	mg/L	0.0625		105	85-115			
Barium	0.067	0.004	mg/L	0.0625		107	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		103	85-115			
Cadmium	0.0646	0.0010	mg/L	0.0625		103	85-115			
Chromium	0.0682	0.0020	mg/L	0.0625		109	85-115			
Cobalt	0.067	0.004	mg/L	0.0625		107	85-115			
Copper	0.068	0.003	mg/L	0.0625		109	85-115			В
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.07	0.02	mg/L	0.0625		107	85-115			
Nickel	0.066	0.003	mg/L	0.0625		106	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0663	0.0020	mg/L	0.0625		106	85-115			
Zinc	0.07	0.02	mg/L	0.0625		106	85-115			





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		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
LCS (B042261-BS4)										
Prepared: 10/15/2020 7:52, Analyzed: 10	/21/2020 12:47									
Molybdenum	0.07	0.01	mg/L	0.0625		107	85-115			
Copper	0.067	0.003	mg/L	0.0625		107	85-115			В
Selenium	0.064	0.003	mg/L	0.0625		103	85-115			
Matrix Spike (B042261-MS1)	Source: 0092620-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10	/15/2020 15:14									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	5.57	10.0	mg/L	6.25	ND	89.1	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, M4, U
Matrix Spike (B042261-MS2)	Source: 0092629-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10	/15/2020 15:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	394	40.0	mg/L	6.25	384	166	80-120			D2, M1
Iron	15.8	10.0	mg/L	6.25	9.29	105	80-120			D2
Magnesium	147	20.0	mg/L	6.25	97.9	790	80-120			D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	81.5	26.0	mg/L	6.25	72.3	146	80-120			D2, M1
Matrix Spike (B042261-MS3)	Source: 0092620-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10	/20/2020 19:57									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	112	80-120			D2, J
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120			D2
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120			D2, J
Arsenic	0.0695	0.0100	mg/L	0.0625	ND	111	80-120			D2
Barium	0.066	0.040	mg/L	0.0625	ND	105	80-120			D2
Beryllium	0.0628	0.0200	mg/L	0.0625	ND	101	80-120			D2
Cadmium	0.0649	0.0100	mg/L	0.0625	ND	104	80-120			D2
Chromium	0.0659	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120			D2
Copper	0.065	0.030	mg/L	0.0625	ND	104	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.06	0.20	mg/L	0.0625	ND	102	80-120			D2, J
Nickel	0.066	0.030	mg/L	0.0625	ND	105	80-120			D2
Selenium	0.070	0.030	mg/L	0.0625	ND	112	80-120			D2
Thallium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U





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		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike (B042261-MS4)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 10/2	20/2020 20:04									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	110	80-120			D2, J
Antimony	0.075	0.050	mg/L	0.0625	ND	121	80-120			D2, M1
Molybdenum	0.07	0.10	mg/L	0.0625	ND	115	80-120			D2, J
Arsenic	0.0732	0.0100	mg/L	0.0625	ND	117	80-120			D2
Barium	0.082	0.040	mg/L	0.0625	0.014	108	80-120			D2
Beryllium	0.0639	0.0200	mg/L	0.0625	ND	102	80-120			D2
Cadmium	0.0656	0.0100	mg/L	0.0625	ND	105	80-120			D2
Chromium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.082	0.040	mg/L	0.0625	ND	132	80-120			D2, M1
Copper	0.061	0.030	mg/L	0.0625	ND	98.3	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.11	0.20	mg/L	0.0625	ND	175	80-120			D2, M1, J
Nickel	0.089	0.030	mg/L	0.0625	0.022	107	80-120			D2
Selenium	0.069	0.030	mg/L	0.0625	ND	111	80-120			D2
Thallium	0.0647	0.0200	mg/L	0.0625	ND	104	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U
Matrix Spike Dup (B042261-MSD1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed: 10/	15/2020 15:17									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	5.93	10.0	mg/L	6.25	ND	94.9	80-120	6.26	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD2)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 10/	15/2020 15:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	414	40.0	mg/L	6.25	384	484	80-120	4.92	20	D2, M1
Iron	16.4	10.0	mg/L	6.25	9.29	114	80-120	3.84	20	D2
Magnesium	155	20.0	mg/L	6.25	97.9	913	80-120	5.08	20	D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	85.4	26.0	mg/L	6.25	72.3	209	80-120	4.70	20	D2, M1





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
	0									
Matrix Spike Dup (B042261-MSD3)	Source: 0092620-0	7								
Prepared: 10/15/2020 7:52, Analyzed: 10/20	/2020 20:00									
Molybdenum	0.06	0.10	mg/L	0.0625	ND	104	80-120	4.25	20	D2, J
Antimony	0.071	0.050	mg/L	0.0625	ND	114	80-120	2.25	20	D2
Mercury	0.0027	0.0050	mg/L	0.00250	ND	107	80-120	3.90	20	D2, J
Arsenic	0.0678	0.0100	mg/L	0.0625	ND	109	80-120	2.47	20	D2
Barium	0.065	0.040	mg/L	0.0625	ND	104	80-120	1.34	20	D2
Beryllium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.33	20	D2
Cadmium	0.0632	0.0100	mg/L	0.0625	ND	101	80-120	2.66	20	D2
Chromium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.48	20	D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120	0.325	20	D2
Copper	0.062	0.030	mg/L	0.0625	ND	98.8	80-120	4.81	20	D2, B
Lead	0.064	0.020	mg/L	0.0625	ND	103	80-120	1.15	20	D2
Lithium	0.06	0.20	mg/L	0.0625	ND	99.1	80-120	2.77	20	D2, J
Nickel	0.063	0.030	mg/L	0.0625	ND	101	80-120	4.21	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	108	80-120	3.49	20	D2
Thallium	0.0644	0.0200	mg/L	0.0625	ND	103	80-120	1.56	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD4)	Source: 0092629-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/20	/2020 20:08									
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120	6.82	20	D2, J
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120	3.64	20	D2
Mercury	0.0028	0.0050	mg/L	0.00250	ND	111	80-120	0.768	20	D2, J
Arsenic	0.0721	0.0100	mg/L	0.0625	ND	115	80-120	1.40	20	D2
Barium	0.080	0.040	mg/L	0.0625	0.014	105	80-120	2.21	20	D2
Beryllium	0.0622	0.0200	mg/L	0.0625	ND	99.6	80-120	2.65	20	D2
Cadmium	0.0628	0.0100	mg/L	0.0625	ND	100	80-120	4.34	20	D2
Chromium	0.0645	0.0200	mg/L	0.0625	ND	103	80-120	1.44	20	D2
Cobalt	0.081	0.040	mg/L	0.0625	ND	130	80-120	1.84	20	D2, M1
Copper	0.059	0.030	mg/L	0.0625	ND	93.7	80-120	4.77	20	D2, B
Lead	0.063	0.020	mg/L	0.0625	ND	101	80-120	2.71	20	D2
Lithium	0.11	0.20	mg/L	0.0625	ND	179	80-120	2.20	20	D2, M1, J
Nickel	0.088	0.030	mg/L	0.0625	0.022	106	80-120	0.909	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	107	80-120	2.91	20	D2
Thallium	0.0641	0.0200	mg/L	0.0625	ND	103	80-120	0.991	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U





	Reporti	ing	Spike	Source		%REC		RPD	
Analyte	Result Lii	mit Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2									
Post Spike (B042261-PS1)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyze	d: 10/15/2020 15:27								
Boron	113	ug/L	125	-0.57	90.4	75-125			D2
Calcium	6400	ug/L	6250	39.0	102	75-125			D2
Iron	5840	ug/L	6250	-0.050	93.5	75-125			D2
Magnesium	6590	ug/L	6250	2.27	105	75-125			D2
Potassium	6300	ug/L	6250	9.60	101	75-125			D2
Sodium	6100	ug/L	6250	21.6	97.3	75-125			D2
Post Spike (B042261-PS2)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyze	d: 10/20/2020 20:11								
Molybdenum	67.2	ug/L	62.5	0.04	107	75-125			D2
Antimony	70.5	ug/L	62.5	0.083	113	75-125			D2
Mercury	2.75	ug/L	2.50	0.0323	109	75-125			D2
Arsenic	71.3	ug/L	62.5	-0.0088	114	75-125			D2
Barium	63.7	ug/L	62.5	0.095	102	75-125			D2
Beryllium	65.4	ug/L	62.5	-0.0105	105	75-125			D2
Cadmium	63.6	ug/L	62.5	0.0157	102	75-125			D2
Chromium	65.6	ug/L	62.5	0.355	104	75-125			D2
Cobalt	63.7	ug/L	62.5	-0.003	102	75-125			D2
Copper	60.7	ug/L	62.5	-1.80	97.1	75-125			D2, B
Lead	64.8	ug/L	62.5	0.522	103	75-115			D2
Lithium	64.9	ug/L	62.5	0.04	104	75-125			D2
Nickel	63.8	ug/L	62.5	-0.079	102	75-125			D2
Selenium	67.6	ug/L	62.5	0.009	108	75-125			D2
Thallium	64.7	ug/L	62.5	0.00002	104	75-125			D2
Zinc	77.9	ug/L	62.5	3.15	120	75-125			D2





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042498 - Default Prep Wet Chem										
Blank (B042498-BLK1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B042498-BS1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	1490	25	mg/L	1500		99.6	80-120			
Duplicate (B042498-DUP1) S	ource: 0092629-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	2240	50	mg/L		2290			2.56	10	
Duplicate (B042498-DUP2) S	ource: 0102128-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	364	50	mg/L		370			1.63	10	
Batch B042577 - Default Prep Wet Chem										
Blank (B042577-BLK1)										
Prepared: 10/19/2020 10:58, Analyzed: 10/19/2020	20 10:58									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B042577-BS1)										
Prepared: 10/19/2020 11:00, Analyzed: 10/19/2020	20 11:00									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B042577-DUP1) S	ource: 0100778-02									
Prepared: 10/19/2020 12:16, Analyzed: 10/19/2020	20 12:16									
Hardness as CaCO3	268	1	mg/L		260			3.03	10	
Matrix Spike (B042577-MS1)	ource: 0100778-02									
Prepared: 10/19/2020 12:18, Analyzed: 10/19/2020	20 12:18									
Hardness as CaCO3	648	1	mg/L	318	260	122	80-120			Y1
Batch B042587 - Default Prep Wet Chem										
Blank (B042587-BLK1)										
Prepared: 10/17/2020 18:08, Analyzed: 10/17/2020	20 18:08									
Total Organic Carbon	ND	0.5	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042587 - Default Prep Wet Chem					_					
LCS (B042587-BS1)										
Prepared: 10/17/2020 17:47, Analyzed: 10/17	7/2020 17:47									
Total Organic Carbon	4.7	0.5	mg/L	5.00		94.1	80-120			
Duplicate (B042587-DUP1)	Source: 0092628-01									
Prepared: 10/17/2020 23:24, Analyzed: 10/17										
Total Organic Carbon	0.9	0.5	mg/L		1.0			8.76	25	
Duplicate (B042587-DUP2)	Source: 0100200-01									
Prepared: 10/18/2020 4:41, Analyzed: 10/18/										
Total Organic Carbon	2.5	0.5	mg/L		2.4			2.64	25	
Matrix Spike (B042587-MS1)	Source: 0092629-01									
Prepared: 10/17/2020 23:45, Analyzed: 10/17										
Total Organic Carbon	3.9	0.5	mg/L	2.50	1.6	93.3	80-120			
Matrix Spike (B042587-MS2)	Source: 0100200-02									
Prepared: 10/18/2020 5:02, Analyzed: 10/18/										
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.8	94.8	80-120			
Batch B043117 - Default Prep Wet Chem										
Blank (B043117-BLK1)										
Prepared: 10/21/2020 16:14, Analyzed: 10/21	/2020 16:14									
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Blank (B043117-BLK2)										
Prepared: 10/21/2020 18:13, Analyzed: 10/21	/2020 18:13									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK3)										
Prepared: 10/21/2020 19:40, Analyzed: 10/21	/2020 19:40									
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U



	R	eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043117 - Default Prep Wet Chem			3,,,,0	20.07	. 1000.1	,,,,23	20	.,, 2		
LCS (B043117-BS1)	•									
Prepared: 10/21/2020 18:06, Analyzed: 1	10/21/2020 18:06									
Carbonate Alkalinity as CaCO3	231	4	mg/L	225		103	0-200			
Total Alkalinity	249	4	mg/L	235		106	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
LCS (B043117-BS2)										
Prepared: 10/21/2020 19:35, Analyzed: 1	10/21/2020 19:35									
Total Alkalinity	254	4	mg/L	235		108	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	227	4	mg/L	225		101	0-200			
Duplicate (B043117-DUP1)	Source: 0092629-01									
Prepared: 10/21/2020 17:38, Analyzed: 1	10/21/2020 17:38									
Total Alkalinity	295	4	mg/L		283			4.39	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	295	4	mg/L		283			4.39	10	
Duplicate (B043117-DUP2)	Source: 0092635-01									
Prepared: 10/21/2020 19:24, Analyzed: 1	10/21/2020 19:24									
Total Alkalinity	281	4	mg/L		268			4.88	10	
Bicarbonate Alkalinity as CaCO3	281	4	mg/L		268			4.88	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Matrix Spike (B043117-MS1)	Source: 0092629-01									
Prepared: 10/21/2020 18:03, Analyzed: 1	10/21/2020 18:03									
Total Alkalinity	331	4	mg/L	49.4	283	98.6	80-120			
Matrix Spike (B043117-MS2)	Source: 0092635-01									
Prepared: 10/21/2020 19:30, Analyzed: 1	10/21/2020 19:30									
Total Alkalinity	301	4	mg/L	49.4	268	66.2	80-120			М3
Batch B043187 - Default Prep Wet Chem	1									
Blank (B043187-BLK1)										
Prepared: 10/20/2020 15:36, Analyzed: 1	10/20/2020 15:36									
Specific Conductance (Lab)	ND	1	umhos/cm							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043187 - Default Prep Wet Chem										
LCS (B043187-BS1)										
Prepared: 10/20/2020 15:37, Analyzed: 10/20	0/2020 15:37									
Specific Conductance (Lab)	1420		umhos/cm	1410		101	80-120			
Duplicate (B043187-DUP1)	Source: 0092629-01									
Prepared: 10/20/2020 15:54, Analyzed: 10/20)/2020 15:54									
Specific Conductance (Lab)	2600	1	umhos/cm		2610			0.307	1.24	
Duplicate (B043187-DUP2)	Source: 0102262-01									
Prepared: 10/20/2020 16:09, Analyzed: 10/20	0/2020 16:09									
Specific Conductance (Lab)	354	1	umhos/cm		351			0.851	1.24	
Batch B043582 - Default Prep Wet Chem										
Blank (B043582-BLK1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	ND	5	mg/L							U
LCS (B043582-BS1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	121	5	mg/L	125		96.8	90-110			
Duplicate (B043582-DUP1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:32									
Chemical Oxygen Demand	5	5	mg/L		ND				25	
Matrix Spike (B043582-MS1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	260	5	mg/L	250	ND	104	90-110			
Matrix Spike Dup (B043582-MSD1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	257	5	mg/L	250	ND	103	90-110	1.21	10	





Ion Chromatography Madisonville - Quality Control										
	Re	eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043120 - Default Prep IC										
Blank (B043120-BLK1)										
Prepared: 10/20/2020 15:45, Analyzed:	10/20/2020 15:45									
Fluoride	ND	0.20	mg/L							U
Chloride	ND	0.5	mg/L							U
Sulfate	ND	1.0	mg/L							U
LCS (B043120-BS1)										
Prepared: 10/20/2020 15:27, Analyzed:	10/20/2020 15:27									
Fluoride	9.42		mg/L	10.0		94.2	90-110			
Chloride	9.5		mg/L	10.0		95.4	90-110			
Sulfate	9.4		mg/L	10.0		93.7	90-110			
Matrix Spike (B043120-MS1)	Source: 0092620-01									
Prepared: 10/20/2020 21:50, Analyzed:	10/20/2020 21:50									
Sulfate	12.3		mg/L	10.0	0.05	122	80-120			M1
Fluoride	12.3		mg/L	10.0	0.00	123	80-120			M1
Chloride	12.4		mg/L	10.0	0.2	122	80-120			M1
Matrix Spike Dup (B043120-MSD1)	Source: 0092620-01									
Prepared: 10/20/2020 22:07, Analyzed:	10/20/2020 22:07									
Chloride	11.7		mg/L	10.0	0.2	115	80-120	5.59	10	
Sulfate	11.6		mg/L	10.0	0.05	116	80-120	5.62	20	
Fluoride	11.7		mg/L	10.0	0.00	117	80-120	4.70	20	
Certified Analyses included in this Rep	ort									
Analyte	Certifications									
2320 B-2011 in Water										
Bicarbonate Alkalinity as CaCO3	KY Drinking Water Mdv (00	0030)								
Carbonate Alkalinity as CaCO3	KY Drinking Water Mdv (00	0030)								

KY Drinking Water Mdv (00030) **Total Alkalinity**

2340 C (as HACH 8226) in Water

KY Drinking Water Mdv (00030) Hardness as CaCO3

2510 B-2011 in Water

KY Drinking Water Mdv (00030) Specific Conductance (Lab)

2540 C-2011 in Water

KY Drinking Water Mdv (00030) **Total Dissolved Solids**

5310 C-2011 in Water

KY Drinking Water Mdv (00030) Total Organic Carbon

EPA 300.0 REV 2.1 in Water

KY Drinking Water Mdv (00030) Chloride KY Drinking Water Mdv (00030) Fluoride KY Drinking Water Mdv (00030) Sulfate

HACH 8000 in Water

KY Wastewater Mdv (00030) Chemical Oxygen Demand

SW846 6010 B in Water





Sample Acceptance Checklist for Work Order 0092624					
Shipped By: Client	Temperature: 1.00° Celcius				
Condition					
Check if Custody Seals are Present/Intact					
Check if Custody Signatures are Present					
Check if Collector Signature Present	$oldsymbol{arDelta}$				
Check if bottles are intact					
Check if bottles are correct	$oldsymbol{arnothing}$				
Check if bottles have sufficient volume					
Check if samples received on ice	$oldsymbol{arnothing}$				
Check if VOA headspace is acceptable					
Check if samples received in holding time.					
Check if samples are preserved properly					

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>09/07/2020</u>



Client: Big Rivers Electric Corporation \ Station		ectric (Corporation Wilson	•	Electric Cor	j poration Wilson Station
Project: MW-104 Wilson 092-00004	Mike Galbrait PO Box 24	th		Brian Edwar PO Box 24	ds	
	Henderson, F	CY 424	19	Henderson,	KY 42419	•
	Phone: <u>(270)</u> PWS ID#:	844-6	000	PO#:		<u>. </u>
Please Print Legibly	State: _	KI	<u>/</u>	Quote#		
Collected by (Signature):	Sund		/	Compli	ance Moni	toring? YesNo
	equired information*	O) -1 -	and discount of a second	Sample	es Chlorina	ited? Yes No
*For composite samples please indicate be						
Influent: Start Date Start time					·	
Effluent: Start Date Start time	End Date		End Time	Temp (oC)		1
LAB USE ONLY *required information Workorder # Date Collection 0092624 (mm/dd/yy): Time (24 h	<u>ı</u>	Containers	Sample Description	Composite		
Sample ID#		<u> </u>	Sample Description	Composite	Sam	ple Analysis Requested
0092624-01 A <u>10-17-7c</u> <u>14:55</u>	Plastic 1L	1	MW104	g/c	Total Chic (Lab) Flu	oride 300.0 Conductivity oride 300.0 Conductivity oride 300.0 Sulfate 300.0 Bicarbonate
0092624-01 B 16-13-78 14:55	Plastic 500mL pH<2 w/HNO3	1	MW104	g/c	Beryllium Antimony Boron To	Tot 6020 Lead Tot 6020 Tot 6020 Arsenic Tot 6020 t 6010B Barium Tot 6020 Tot 6020 Calcium Tot
	•	1	j		6010B Cl Tot 6020 Titration I	rrowium Tot 6020 Cobalt Copper Tot 6020 Hardness Iron Tot 6010B Lithium Tot gnesium Tot 6010B
	Preservation Check: pH :	: <u>J</u>	_			
0092624-01 C 10-13-70 14:56	Plastic 500mL pH<2 w/H2SO4 Preservation Check: pH :	1 . J	MW104	g/c	COD TO	C
0092624-01 D 10-13-20 14:55	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub)		– MW104	g/c	Radium 2	226 (sub)
	Preservation Check: pH :	: <u>J</u>	-			
Preservation Check Performed by:	Voy					
Field data collected by: \(\int \(\) (au) \(\) 5	need Date (mm/dd/m	110-	13-20 Time (24 hr)	14:55		,
ms ms			Tot CI (mg/L) _		ae Cl /ma/l	,
	ι					li li
	Static Water Level			'	urb. (NTO)	,
Flow (MGD) or (CFS)	or (g/min))	 			٠.
Relinquished by: (Signature)	Received by: (Sign	nature))	Date (mm/	/dd/yy)	Time (24 hr)
Inhell		ng			91	8838
		-		_		
PACE- Check here if trip charge	applied to associated COC		Printed: 9		:24AM	Page 18 of 30

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody
Scheduled for: 09/07/2020



Client: Big Rivers Electric Corporation Wilson Station	Report To: Big Rivers Electric Station	Corporation Wilson	Invoice To: Big Rivers E	Electric Corporation Wil	son Station
Project: MW-104 Wilson 092-00004	Mike Galbraith	•	Brian Edwar	rds	1
	PO Box 24	140	PO Box 24	KV 42410	i
	Henderson, KY 424	119	Henderson,	NT 42419	
	Phone: (270) 844-6	6000	PO#:		
Election Print Legible	PWS ID#:	/	Overted		
Please Print Legibly	State.		Quote#	 	
Collected by (Signature):	d information"		Compli	iance Monitoring? Yes	No_
*For composite samples please indicate begin time	end time and temp(oC) at e	end time below:	Sample	es Chlorinated? Yes	No
Influent: Start Date Start time	End Date	End Time	Temp (oC)		
Effluent: Start Date Start time	End Date	End Time	Temp (oC)		
Sample ID#	ottle and Preservative	Sample Description	Composite	Sample Analysis	Requested
	estic 1L pH<2 w/HNO3 1 Rad 228 (Sub) servation Check: pH :	MW104 _	g/c	Radium 228 (sub)	
	estic 1L pH<2 w/HNO3 1 Rad 228 (Sub) servation Check: pH :	MW104	g/c	Radium 228 (sub)	ı
	stic 1L pH<2 w/HNO3 1 (Sub) servation Check: pH :	MW104	g/c	Radium Total (sub)	
0092624-01 H 10-13-20 14:55	AG 250mL pH<2 1 / w/H2SO4 servation Check: pH :		g/c	тос	
Preservation Check Performed by:				·	
Field data collected by: Travis Snee	Date (mm/dd/yy) to-	13-30 Time (24 hr)	14155		
pH <u>6.41</u> Cond (umho) <u>1.99</u>		Tot CI (mg/L)		ee CI (mg/L)	_
Temp (oC) 17.3 3 or (oF)	Static Water Level	DO (mg/L)	Т	urb. (NTU)	_ ;
Flow (MGD) or (CFS)	or (g/min)				
Relinquished by: (Signature)	Received by: (Signature)		Date (mm/	'dd/yy) Time (2	
Im Sud	17 Men		_ 16.14 <u>.</u> .	26 183	
PACE- Check here if trip charge applied	to associated COC	Printed: 9	/10/2020 10:04	24AM Pa	ge 19 of 30

(724)850-5600



November 04, 2020

Rob Whittington
Pace Analytical Madisonville
825 Industrial Rd
Madisonville, KY 42431

RE: Project: 92624

Pace Project No.: 30387818

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on October 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 - Greensburg

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

Sincerely,

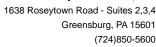
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 92624 Pace Project No.: 30387818

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

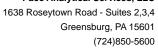
Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3 Utah/TNI Certification #: PA014572017-9 USDA Soil Permit #: P330-17-00091 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 9526 Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad Wyoming Certification #: 8TMS-L

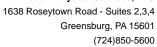




SAMPLE SUMMARY

Project: 92624
Pace Project No.: 30387818

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30387818001	0092624-01	Water	10/13/20 14:55	10/15/20 09:25





SAMPLE ANALYTE COUNT

Project: 92624
Pace Project No.: 30387818

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30387818001	0092624-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



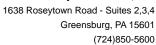
ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92624 30387818 Pace Project No.:

Sample: 0092624-01 Lab ID: 30387818001 Collected: 10/13/20 14:55 Received: 10/15/20 09:25 Matrix: Water

PWS: Site ID: Sample Type:

Comments: • Sample collecti	on dates and times were n	not present on the sample containers.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 903.1	0.616 ± 0.431 (0.520) C:NA T:87%	pCi/L	11/04/20 12:44	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	1.26 ± 0.555 (0.946) C:73% T:85%	pCi/L	10/30/20 12:00	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.88 ± 0.986 (1.47)	pCi/L	11/04/20 14:03	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project:

92624

Pace Project No.:

30387818

QC Batch: QC Batch Method:

419199

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

30387818001

METHOD BLANK: 2026443

Matrix: Water

Associated Lab Samples:

30387818001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

-0.0904 ± 0.280 (0.637) C:NA T:89%

pCi/L

11/04/20 12:44

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: 92624

Pace Project No.:

30387818

QC Batch: QC Batch Method: 419200

Analysis Method:

EPA 904.0

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

30387818001

METHOD BLANK: 2026444 Associated Lab Samples:

Parameter

30387818001

Matrix: Water

Units

Analyzed

Qualifiers

Radium-228

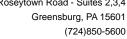
0.598 ± 0.458 (0.907) C:69% T:82%

Act ± Unc (MDC) Carr Trac

pCi/L

10/30/20 12:00

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: 92624 Pace Project No.: 30387818

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.

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: 11/04/2020 02:05 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Chain of Custody

Face Analytical

LAB USE ONLY WO#:30387818 Sample Intact (Y or N Results Requested By: Comments Requested Analysis 11 111 | 1 | 1 | 1 | 1 | 30387818 なな Workorder Name: MW-104 Wilson 092-0000 Owner Received Date: 10/14/2020 Received on Ice Y or N EPA 904.0 Radium Sum Calc 10/15/10 Date/Time £.£09 A93 Preserved Containers Pace Analytical Services LLC Greensburg PA 2 MO U.O. Matrix Water Reveived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Custody Seal Y or/N Greensburg, PA 15601 Lab ID Date/Time Subcontract To: (724)850-561510/13/20 14:55 Date/Time Collect ပ Sample Type rob.whittington@pacelabs.com Cooler Temperature on Receipt Madisonville, KY 42409 Transfers |Released By Workorder: 92624 McCoy & McCoy Labs 0092624-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 10 9 ∞

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC

This chain of custody is considered complete as is since this information is available in the owner laboratory.

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Friday, June 17, 2016 11:01:34 AM Page 28 of 30

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0092624

#-30387818

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA

1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601 Phone :(724) 850-5615

Fax:

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0092624-01	Water	Sampled:10/13/2020 14:55	Specific Method		
Radium Total (sub)		04/11/2021 14:55	EPA 904.0 Radium S	um (
Radium 228 (sub)		04/11/2021 14:55	EPA 904.0 Radium S	um C	
Radium 226 (sub)		04/11/2021 14:55	EPA 903.1		

No. of Released By

10-14-2

Received By

Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condit	ion l	Jpon	Re	#-303878	ي 🚯
Pittsburgh Lab Sample Condition Pace Analytical Client Name:	M	ad	ASC	ONNIK Project #	
Courier: Fed Ex UPS USPS Client Tracking #: 107 3386 9238/92	□ 250 ₁	ommei 197	7/	LIMS Login &M	
Custody Seal on Cooler/Box Present:	Туре	of Ice:	Wet	Blue None	
Cooler Temperature Observed Temp 7.5	<u>)[]</u> [. ° C	Corre	pH paper Lot# Date and Initials of person examining	
Comments:	Yes	. No	. N/A	1000401 contents: 10/6/201	,
Chain of Custody Present:			·	1.	
Chain of Custody Filled Out:				2.	
Chain of Custody Relinquished:				3.	
Sampler Name & Signature on COC:				4.	
Sample Labels match COC:				5 no time Container	
-Includes date/time/ID Matrix:	WT	-	_	dute	
Samples Arrived within Hold Time:		1		6.	
Short Hold Time Analysis (<72hr remaining):				7.	
Rush Turn Around Time Requested:				8.	
Sufficient Volume:				9.	
Correct Containers Used:				10.	
-Pace Containers Used:					
Containers Intact:				11.	
Orthophosphate field filtered				12.	
Hex Cr Aqueous sample field filtered				13.	
Organic Samples checked for dechlorination:				14	
Filtered volume received for Dissolved tests				15.	
All containers have been checked for preservation.		 		16) 1/2-	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon,	i	-	PHUZ	
All containers meet method preservation requirements.				Initial when Completed Date/time of preservation	
				Lot# of added preservative	
Headspace in VOA Vials (>6mm):				17.	
Trip Blank Present:			.,	18.	
Trip Blank Custody Seals Present					1
Rad Samples Screened < 0.5 mrem/hr				initial when OVB Date; 16 W 20	
Client Notification/ Resolution:	14		<u> </u>	losippeed.	
Person Contacted:			-Date/	Time: Contacted-By:	
Comments/ Resolution:				32,322	
Constitution (Coolean)					

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)

 \square A check in this box indicates that additional information has been stored in ereports.

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0092625

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419 Customer ID: Report Printed:

44-100168 11/05/2020 13:30

Project Name: MW-105 Wilson 092-00004 Workorder: 0092625

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 10/14/2020 08:38.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0092625-01	MW105/		Groundwater	10/13/2020 13:20	10/14/2020 8:38	Phillip Hill
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0092625-01	Field Conductance	642				
	Field pH	8.02				
	Field Temp (C)	19.75				



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ANALYTICAL RESULTS

 Lab Sample ID: 0092625-01
 Sample Collection Date Time: 10/13/2020 13:20

 Description: MW105
 Sample Received Date Time: 10/14/2020 08:38

Metals by SW846 6000 Series Methods

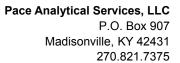
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Arsenic	ND	U	mg/L	0.0010	0.0004	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Barium	0.256		mg/L	0.004	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Boron	0.37		mg/L	0.10	0.10	SW846 6010 B	10/15/2020 07:52	10/20/2020 15:13	DMH
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Calcium	49.2	D2	mg/L	4.00	1.30	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:37	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Copper	ND	B, U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Iron	1.21	D2	mg/L	1.00	0.500	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:37	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Lithium	0.02		mg/L	0.02	0.005	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Magnesium	16.4	D2	mg/L	2.00	0.900	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:37	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Molybdenum	0.002	J	mg/L	0.01	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Nickel	0.001	J	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Potassium	6.87	L1	mg/L	0.50	0.22	SW846 6010 B	10/15/2020 07:52	10/20/2020 15:13	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Sodium	154	D1	mg/L	26.0	10.0	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:40	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:56	CAM

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	415		mg/L	4		2320 B-2011	10/21/2020 17:11	10/21/2020 17:11	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	10/21/2020 17:11	10/21/2020 17:11	HMF
Total Alkalinity	415		mg/L	4		2320 B-2011	10/21/2020 17:11	10/21/2020 17:11	HMF
Chemical Oxygen Demand	5		mg/L	5	5	HACH 8000	10/23/2020 13:24	10/23/2020 15:29	HMF
Specific Conductance (Lab)	970		umhos/cm	1	1	2510 B-2011	10/20/2020 15:43	10/20/2020 15:43	CML
Hardness as CaCO3	242		mg/L	1	1	2340 C (as HACH 8226)	10/19/2020 11:20	10/19/2020 11:20	CLL
Total Dissolved Solids	550		mg/L	50	50	2540 C-2011	10/16/2020 11:40	10/19/2020 17:00	DJK
Total Organic Carbon	1.3		mg/L	0.5		5310 C-2011	10/17/2020 20:35	10/17/2020 20:35	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.281	_Sub	pCi/L			EPA 903.1	11/04/2020 00:00	11/04/2020 00:00	xxx
Radium-228	1.02	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	10/30/2020 00:00	10/30/2020 00:00	XXX
Radium	1.30	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	11/04/2020 00:00	11/04/2020 00:00	xxx





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Ion Chromatography Madisonville

Analyte	Result	Flag Unit	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	8.7	mg/l	. 0.5	0.4	EPA 300.0 REV 2.1	10/20/2020 20:05	10/20/2020 20:05	CSC
Fluoride	0.61	mg/l	0.20		EPA 300.0 REV 2.1	10/20/2020 20:05	10/20/2020 20:05	CSC
Sulfate	75.4	D mg/l	50.0	25.0	EPA 300.0 REV 2.1	10/20/2020 20:23	10/20/2020 20:23	CSC



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Notes for work order 0092625

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Target analyte detected in method blank at or above the method reporting limit.

- The Chain of Custody document is included as part of this report.

Sample RPD exceeded the method control limit.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

В

Υ1

MS

D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
J	Estimated value.
L1	The associated blank spike recovery was above method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample

le Matrix Spike

MSD Matrix Spike Duplicate DUP Sample Duplicate Percent Recovery % Rec

RPD Relative Percent Difference

Greater than Less than

Results relate only to the items tested.



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:52									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Blank (B042261-BLK2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:10									
Potassium	ND	0.50	mg/L							U
Blank (B042261-BLK3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:36									
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	0.003	0.003	mg/L							В
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/21/2020 1	12:43									
Molybdenum	ND	0.01	mg/L							U
Copper	0.003	0.003	mg/L							В
Selenium	ND	0.003	mg/L							U
LCS (B042261-BS1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 1	12:56									
Boron	0.13	0.10	mg/L	0.125		101	85-115			
Calcium	6.42	0.40	mg/L	6.25		103	85-115			
Iron	6.27	0.100	mg/L	6.25		100	85-115			
Magnesium	5.31	0.200	mg/L	6.25		85.0	85-115			
Potassium	8.21	0.50	mg/L	6.25		131	85-115			L1
Sodium	6.41	0.26	mg/L	6.25		103	85-115			
LCS (B042261-BS2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020 1	10:13									
Potassium	6.67	0.50	mg/L	6.25		107	85-115			
LCS (B042261-BS3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 1	16:40									
Molybdenum	0.07	0.01	mg/L	0.0625		109	85-115			
Antimony	0.072	0.005	mg/L	0.0625		115	85-115			
Mercury	0.0025	0.0005	mg/L	0.00250		101	85-115			
Arsenic	0.0657	0.0010	mg/L	0.0625		105	85-115			
Barium	0.067	0.004	mg/L	0.0625		107	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		103	85-115			
Cadmium	0.0646	0.0010	mg/L	0.0625		103	85-115			
Chromium	0.0682	0.0020	mg/L	0.0625		109	85-115			
Cobalt	0.067	0.004	mg/L	0.0625		107	85-115			
Copper	0.068	0.003	mg/L	0.0625		109	85-115			В
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.07	0.02	mg/L	0.0625		107	85-115			
Nickel	0.066	0.003	mg/L	0.0625		106	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0663	0.0020	mg/L	0.0625		106	85-115			
Zinc	0.07	0.02	mg/L	0.0625		106	85-115			





Paralle Para			Reporting		Spike	Source		%REC		RPD	
Propared: 1015/2020 7.52, Analyzed: 10/21/2020 12-47 Martix Spike (B042261-MS2) Source: 0092629-MS ND 10.0 mg/L 0.0625 107 85-115 B MS MS MS MS MS MS MS	Analyte	Result		Units	•		%REC		RPD		Notes
Propertic: 10/15/2020 7-52, Analyzed: 10/21/2020 12-47 Molybderum											
Prepared : 10/15/2020 7:52											
Molybdenum	,	10/21/2020 12:47									
Capper			0.01	ma/L	0.0625		107	85-115			
Selenium	•			-							В
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 15:14 Boron ND ND 10.0 mg/L 0.125 ND 80-120 D2, M4, Calcium ND 40.0 mg/L 6.25 ND 80-120 D2, M4, Iton 5.57 10.0 mg/L 6.25 ND 80-120 D2, M4, Iton 5.57 10.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 20.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 80-120 ND, M6, M6, M6, M6, M6, M6, M6, M6, M6, M6	Selenium	0.064	0.003	-	0.0625		103	85-115			
Boron	Matrix Spike (B042261-MS1)	Source: 0092620-0	1								
Calcium ND 40.0 mg/L 6.25 ND 80-120 D2, M4, Iron Iron 5.57 10.0 mg/L 6.25 ND 80-120 D2, J4 M2, D2, J4 M2, D2, J4 M2, D2, M4, D2, M2, M2, M2, M2, M2, M2, M2, M2, M2, M	Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:14									
Iron	Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Magnesium ND 20.0 mg/L 6.25 ND 80-120 D2, M4, Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, D2, M4, D2, M4, D2, M4, MD Potassium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, D2, M4, M4, M4, MD, Mg/L 6.25 ND 80-120 D2, M4, M4, M4, MM, M4, MB, MG, MG, MG, MG, MG, MG, MG, MG, MG, MG	Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Polassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, B0-120 D2, M4, D2, M4, B0-120 D2, M4, Matrix Spike (B042261-MS2) Source: 0092629-01 mg/L 6.25 ND 80-120 B0-120 D2, M4, D2, M4, B0-120 D2, M4, M4, M2, M2, M2, M2, M2, M2, M2, M2, M2, M2	Iron	5.57	10.0	mg/L	6.25	ND	89.1	80-120			D2, J
Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Matrix Spike (B042261-MS2) Source: 0092629-01	Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, M4, U
Matrix Spike (B042261-MS2)	Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 15:21 Boron ND 10.0 mg/L 0.125 ND 80-120 D2, M4, Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M1 Iron 15.8 10.0 mg/L 6.25 97.9 150 80-120 D2, M1 Potassium 147 20.0 mg/L 6.25 97.9 170 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 72.3 146 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 72.3 146 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 80-120 D2, M1 Potassium ND 80-120 ND 80-120 D2, M1 Potassium ND 80-120 ND 80-12	Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, M4, U
Boron ND 10.0 mg/L 0.125 ND 80-120 D2, M4, Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M4, D2, M1 Iron 15.8 10.0 mg/L 6.25 9.29 105 80-120 D2, M4 Magnesium 147 20.0 mg/L 6.25 9.79 79 80-120 D2, M4 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4 Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M4 Matrix Spike (B042261-MS3) Source: 092620-01 V V 6.25 ND 106 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 092620-01 V V 6.25 ND 108 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 092620-01 V V 6.25 ND 108 80-120 D2 D2, M1 Matrix	Matrix Spike (B042261-MS2)	Source: 0092629-0	1								
Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M1 Iron 15.8 10.0 mg/L 6.25 9.29 105 80-120 D2 Magnesium 147 20.0 mg/L 6.25 97.9 790 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 97.9 790 80-120 D2, M1 Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0092620-01 v	Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:21									
Iron	Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Magnesium 147 20.0 mg/L 6.25 97.9 790 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, Sodium 81.5 26.0 mg/L 6.25 ND 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0092620-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.0625 ND 116 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Beryllium 0.0626 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649	Calcium	394	40.0	mg/L	6.25	384	166	80-120			D2, M1
Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M4 Matrix Spike (B042261-MS3) Source: 0092620-01	Iron	15.8	10.0	mg/L	6.25	9.29	105	80-120			D2
Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0092620-01 Source: 0092620-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Antimony 0.0028 0.0050 mg/L 0.0625 ND 116 80-120 D2 D2, J Arsenic 0.0695 0.0100 mg/L 0.0625 ND 116 80-120 D2 D2 D2 Barium 0.0695 0.0100 mg/L 0.0625 ND 116 80-120 D2 D2 Beryllium 0.0666 0.040 mg/L 0.0625 ND 105 80-120 D2 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 D2 Chromium 0.0659 0.0200	Magnesium	147	20.0	mg/L	6.25	97.9	790	80-120			D2, M1
Matrix Spike (B042261-MS3) Source: 0092620-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.0666 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 104 80-120 D2 Copper </td <td>Potassium</td> <td>ND</td> <td>50.0</td> <td>mg/L</td> <td>6.25</td> <td>ND</td> <td></td> <td>80-120</td> <td></td> <td></td> <td>D2, M4, U</td>	Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 104 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104	Sodium	81.5	26.0	mg/L	6.25	72.3	146	80-120			D2, M1
Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Copper 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 D2	Matrix Spike (B042261-MS3)	Source: 0092620-0	1								
Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2 Lead <	Prepared: 10/15/2020 7:52, Analyzed:	10/20/2020 19:57									
Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2 Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Nickel 0.06	Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120			D2, J
Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2 D2 Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 105 80-120 D2	Mercury	0.0028	0.0050	mg/L	0.00250	ND	112	80-120			D2, J
Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 105 80-120 D2 Thallium 0.0	Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120			D2
Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium	Arsenic	0.0695	0.0100	mg/L	0.0625	ND	111	80-120			D2
Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Barium	0.066	0.040	mg/L	0.0625	ND	105	80-120			D2
Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Beryllium	0.0628	0.0200	mg/L	0.0625	ND	101	80-120			D2
Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Cadmium	0.0649	0.0100	mg/L	0.0625	ND	104	80-120			D2
Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Chromium	0.0659	0.0200	mg/L	0.0625	ND	105	80-120			D2
Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Cobalt	0.065		mg/L			104				
Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Copper										
Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Lead			_							
Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Lithium										
Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2				_							
·											
Zinc ND 0.20 mg/L 0.0625 ND 80-120 D2, M4,	Thallium Zinc		0.0200 0.20	-			105	80-120 80-120			D2 D2, M4, U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike (B042261-MS4)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/20/2020 20:04									
Antimony	0.075	0.050	mg/L	0.0625	ND	121	80-120			D2, M1
Mercury	0.0028	0.0050	mg/L	0.00250	ND	110	80-120			D2, J
Molybdenum	0.07	0.10	mg/L	0.0625	ND	115	80-120			D2, J
Arsenic	0.0732	0.0100	mg/L	0.0625	ND	117	80-120			D2
Barium	0.082	0.040	mg/L	0.0625	0.014	108	80-120			D2
Beryllium	0.0639	0.0200	mg/L	0.0625	ND	102	80-120			D2
Cadmium	0.0656	0.0100	mg/L	0.0625	ND	105	80-120			D2
Chromium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.082	0.040	mg/L	0.0625	ND	132	80-120			D2, M1
Copper	0.061	0.030	mg/L	0.0625	ND	98.3	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.11	0.20	mg/L	0.0625	ND	175	80-120			D2, M1, J
Nickel	0.089	0.030	mg/L	0.0625	0.022	107	80-120			D2
Selenium	0.069	0.030	mg/L	0.0625	ND	111	80-120			D2
Thallium	0.0647	0.0200	mg/L	0.0625	ND	104	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U
Matrix Spike Dup (B042261-MSD1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:17									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	5.93	10.0	mg/L	6.25	ND	94.9	80-120	6.26	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD2)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	414	40.0	mg/L	6.25	384	484	80-120	4.92	20	D2, M1
Iron	16.4	10.0	mg/L	6.25	9.29	114	80-120	3.84	20	D2
Magnesium	155	20.0	mg/L	6.25	97.9	913	80-120	5.08	20	D2, M1
Potassium	ND	50.0	mg/L	6.25	ND	-	80-120		20	D2, M4, U
Sodium	85.4	26.0	mg/L	6.25	72.3	209	80-120	4.70	20	D2, M1





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike Dup (B042261-MSD3)	Source: 0092620-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/	20/2020 20:00									
Molybdenum	0.06	0.10	mg/L	0.0625	ND	104	80-120	4.25	20	D2, J
Mercury	0.0027	0.0050	mg/L	0.00250	ND	107	80-120	3.90	20	D2, J
Antimony	0.071	0.050	mg/L	0.0625	ND	114	80-120	2.25	20	D2
Arsenic	0.0678	0.0100	mg/L	0.0625	ND	109	80-120	2.47	20	D2
Barium	0.065	0.040	mg/L	0.0625	ND	104	80-120	1.34	20	D2
Beryllium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.33	20	D2
Cadmium	0.0632	0.0100	mg/L	0.0625	ND	101	80-120	2.66	20	D2
Chromium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.48	20	D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120	0.325	20	D2
Copper	0.062	0.030	mg/L	0.0625	ND	98.8	80-120	4.81	20	D2, B
Lead	0.064	0.020	mg/L	0.0625	ND	103	80-120	1.15	20	D2
Lithium	0.06	0.20	mg/L	0.0625	ND	99.1	80-120	2.77	20	D2, J
Nickel	0.063	0.030	mg/L	0.0625	ND	101	80-120	4.21	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	108	80-120	3.49	20	D2
Thallium	0.0644	0.0200	mg/L	0.0625	ND	103	80-120	1.56	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD4)	Source: 0092629-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/	20/2020 20:08									
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120	3.64	20	D2
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120	6.82	20	D2, J
Mercury	0.0028	0.0050	mg/L	0.00250	ND	111	80-120	0.768	20	D2, J
Arsenic	0.0721	0.0100	mg/L	0.0625	ND	115	80-120	1.40	20	D2
Barium	0.080	0.040	mg/L	0.0625	0.014	105	80-120	2.21	20	D2
Beryllium	0.0622	0.0200	mg/L	0.0625	ND	99.6	80-120	2.65	20	D2
Cadmium	0.0628	0.0100	mg/L	0.0625	ND	100	80-120	4.34	20	D2
Chromium	0.0645	0.0200	mg/L	0.0625	ND	103	80-120	1.44	20	D2
Cobalt	0.081	0.040	mg/L	0.0625	ND	130	80-120	1.84	20	D2, M1
Copper	0.059	0.030	mg/L	0.0625	ND	93.7	80-120	4.77	20	D2, B
Lead	0.063	0.020	mg/L	0.0625	ND	101	80-120	2.71	20	D2
Lithium	0.11	0.20	mg/L	0.0625	ND	179	80-120	2.20	20	D2, M1, J
Nickel	0.088	0.030	mg/L	0.0625	0.022	106	80-120	0.909	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	107	80-120	2.91	20	D2
Thallium	0.0641	0.0200	mg/L	0.0625	ND	103	80-120	0.991	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U





	Repor	ting	Spike	Source		%REC		RPD	
Analyte	•	imit Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2									
Post Spike (B042261-PS1)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyzed	d: 10/15/2020 15:27								
Boron	113	ug/L	125	-0.57	90.4	75-125			D2
Calcium	6400	ug/L	6250	39.0	102	75-125			D2
Iron	5840	ug/L	6250	-0.050	93.5	75-125			D2
Magnesium	6590	ug/L	6250	2.27	105	75-125			D2
Potassium	6300	ug/L	6250	9.60	101	75-125			D2
Sodium	6100	ug/L	6250	21.6	97.3	75-125			D2
Post Spike (B042261-PS2)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyzed	d: 10/20/2020 20:11								
Antimony	70.5	ug/L	62.5	0.083	113	75-125			D2
Molybdenum	67.2	ug/L	62.5	0.04	107	75-125			D2
Mercury	2.75	ug/L	2.50	0.0323	109	75-125			D2
Arsenic	71.3	ug/L	62.5	-0.0088	114	75-125			D2
Barium	63.7	ug/L	62.5	0.095	102	75-125			D2
Beryllium	65.4	ug/L	62.5	-0.0105	105	75-125			D2
Cadmium	63.6	ug/L	62.5	0.0157	102	75-125			D2
Chromium	65.6	ug/L	62.5	0.355	104	75-125			D2
Cobalt	63.7	ug/L	62.5	-0.003	102	75-125			D2
Copper	60.7	ug/L	62.5	-1.80	97.1	75-125			D2, B
Lead	64.8	ug/L	62.5	0.522	103	75-115			D2
Lithium	64.9	ug/L	62.5	0.04	104	75-125			D2
Nickel	63.8	ug/L	62.5	-0.079	102	75-125			D2
Selenium	67.6	ug/L	62.5	0.009	108	75-125			D2
Thallium	64.7	ug/L	62.5	0.00002	104	75-125			D2
Zinc	77.9	ug/L	62.5	3.15	120	75-125			D2





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042498 - Default Prep Wet Chem										
Blank (B042498-BLK1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B042498-BS1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	1490	25	mg/L	1500		99.6	80-120			
Duplicate (B042498-DUP1) S	ource: 0092629-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	2240	50	mg/L		2290			2.56	10	
Duplicate (B042498-DUP2) S	ource: 0102128-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	364	50	mg/L		370			1.63	10	
Batch B042577 - Default Prep Wet Chem										
Blank (B042577-BLK1)										
Prepared: 10/19/2020 10:58, Analyzed: 10/19/2020	20 10:58									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B042577-BS1)										
Prepared: 10/19/2020 11:00, Analyzed: 10/19/2020	20 11:00									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B042577-DUP1) S	ource: 0100778-02									
Prepared: 10/19/2020 12:16, Analyzed: 10/19/2020	20 12:16									
Hardness as CaCO3	268	1	mg/L		260			3.03	10	
Matrix Spike (B042577-MS1)	ource: 0100778-02									
Prepared: 10/19/2020 12:18, Analyzed: 10/19/2020	20 12:18									
Hardness as CaCO3	648	1	mg/L	318	260	122	80-120			Y1
Batch B042587 - Default Prep Wet Chem										
Blank (B042587-BLK1)										
Prepared: 10/17/2020 18:08, Analyzed: 10/17/2020	20 18:08									
Total Organic Carbon	ND	0.5	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042587 - Default Prep Wet Chem										
LCS (B042587-BS1)										
Prepared: 10/17/2020 17:47, Analyzed: 10/17/2020	20 17:47									
Total Organic Carbon	4.7	0.5	mg/L	5.00		94.1	80-120			
Duplicate (B042587-DUP1) S	ource: 0092628-01									
Prepared: 10/17/2020 23:24, Analyzed: 10/17/2020	20 23:24									
Total Organic Carbon	0.9	0.5	mg/L		1.0			8.76	25	
Duplicate (B042587-DUP2) S	ource: 0100200-01									
Prepared: 10/18/2020 4:41, Analyzed: 10/18/202	0 4:41									
Total Organic Carbon	2.5	0.5	mg/L		2.4			2.64	25	
Matrix Spike (B042587-MS1) S	ource: 0092629-01									
Prepared: 10/17/2020 23:45, Analyzed: 10/17/202										
Total Organic Carbon	3.9	0.5	mg/L	2.50	1.6	93.3	80-120			
Matrix Spike (B042587-MS2) S	ource: 0100200-02									
Prepared: 10/18/2020 5:02, Analyzed: 10/18/202	0 5:02									
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.8	94.8	80-120			
Batch B043117 - Default Prep Wet Chem										
Blank (B043117-BLK1)										
Prepared: 10/21/2020 16:14, Analyzed: 10/21/202	20 16:14									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK2)										
Prepared: 10/21/2020 18:13, Analyzed: 10/21/202	20 18:13									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK3)										
Prepared: 10/21/2020 19:40, Analyzed: 10/21/202	20 19:40									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U



		-								
		eporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043117 - Default Prep Wet Cher	m									
LCS (B043117-BS1)										
Prepared: 10/21/2020 18:06, Analyzed:	10/21/2020 18:06									
Total Alkalinity	249	4	mg/L	235		106	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	231	4	mg/L	225		103	0-200			
LCS (B043117-BS2)										
Prepared: 10/21/2020 19:35, Analyzed:	10/21/2020 19:35									
Carbonate Alkalinity as CaCO3	227	4	mg/L	225		101	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	254	4	mg/L	235		108	80-120			
Duplicate (B043117-DUP1)	Source: 0092629-01									
Prepared: 10/21/2020 17:38, Analyzed:	10/21/2020 17:38									
Total Alkalinity	295	4	mg/L		283			4.39	10	
Bicarbonate Alkalinity as CaCO3	295	4	mg/L		283			4.39	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Duplicate (B043117-DUP2)	Source: 0092635-01									
Prepared: 10/21/2020 19:24, Analyzed:	10/21/2020 19:24									
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	281	4	mg/L		268			4.88	10	
Total Alkalinity	281	4	mg/L		268			4.88	10	
Matrix Spike (B043117-MS1)	Source: 0092629-01									
Prepared: 10/21/2020 18:03, Analyzed:	10/21/2020 18:03									
Total Alkalinity	331	4	mg/L	49.4	283	98.6	80-120			
Matrix Spike (B043117-MS2)	Source: 0092635-01									
Prepared: 10/21/2020 19:30, Analyzed:	10/21/2020 19:30									
Total Alkalinity	301	4	mg/L	49.4	268	66.2	80-120			M3
Batch B043187 - Default Prep Wet Cher	m									
Blank (B043187-BLK1)										
Prepared: 10/20/2020 15:36, Analyzed:	10/20/2020 15:36									
Specific Conductance (Lab)	ND	1	umhos/cm							U
		•								





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043187 - Default Prep Wet Chem										
LCS (B043187-BS1)										
Prepared: 10/20/2020 15:37, Analyzed: 10/2	0/2020 15:37									
Specific Conductance (Lab)	1420		umhos/cm	1410		101	80-120			
Duplicate (B043187-DUP1)	Source: 0092629-01									
Prepared: 10/20/2020 15:54, Analyzed: 10/2	0/2020 15:54									
Specific Conductance (Lab)	2600	1	umhos/cm		2610			0.307	1.24	
Duplicate (B043187-DUP2)	Source: 0102262-01									
Prepared: 10/20/2020 16:09, Analyzed: 10/2	0/2020 16:09									
Specific Conductance (Lab)	354	1	umhos/cm		351			0.851	1.24	
Batch B043582 - Default Prep Wet Chem										
Blank (B043582-BLK1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/2	3/2020 15:21									
Chemical Oxygen Demand	ND	5	mg/L							U
LCS (B043582-BS1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/2	3/2020 15:21									
Chemical Oxygen Demand	121	5	mg/L	125		96.8	90-110			
Duplicate (B043582-DUP1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/2	3/2020 15:32									
Chemical Oxygen Demand	5	5	mg/L		ND				25	
Matrix Spike (B043582-MS1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/2	3/2020 15:33									
Chemical Oxygen Demand	260	5	mg/L	250	ND	104	90-110			
Matrix Spike Dup (B043582-MSD1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/2	3/2020 15:33									
Chemical Oxygen Demand	257	5	mg/L	250	ND	103	90-110	1.21	10	





Ion Chromatography Madisonville - Quality Control

	Ion Chrom	atograpny	waaisor	iville - Qi	uality Cor	itroi				
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043120 - Default Prep IC										
Blank (B043120-BLK1)										
Prepared: 10/20/2020 15:45, Analyzed:	10/20/2020 15:45									
Sulfate	ND	1.0	mg/L							U
Chloride	ND	0.5	mg/L							U
Fluoride	ND	0.20	mg/L							U
LCS (B043120-BS1)										
Prepared: 10/20/2020 15:27, Analyzed:	10/20/2020 15:27									
Fluoride	9.42		mg/L	10.0		94.2	90-110			
Sulfate	9.4		mg/L	10.0		93.7	90-110			
Chloride	9.5		mg/L	10.0		95.4	90-110			
Matrix Spike (B043120-MS1)	Source: 0092620-01									
Prepared: 10/20/2020 21:50, Analyzed:	10/20/2020 21:50									
Fluoride	12.3		mg/L	10.0	0.00	123	80-120			M1
Chloride	12.4		mg/L	10.0	0.2	122	80-120			M1
Sulfate	12.3		mg/L	10.0	0.05	122	80-120			M1
Matrix Spike Dup (B043120-MSD1)	Source: 0092620-01									
Prepared: 10/20/2020 22:07, Analyzed:	10/20/2020 22:07									
Chloride	11.7		mg/L	10.0	0.2	115	80-120	5.59	10	
Sulfate	11.6		mg/L	10.0	0.05	116	80-120	5.62	20	
Fluoride	11.7		mg/L	10.0	0.00	117	80-120	4.70	20	
Certified Analyses included in this Rep	oort									
Analyte	Certifications									

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0092625
Shipped By: Client	Temperature: 1.00° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	✓
Check if Collector Signature Present	☑
Check if bottles are intact	
Check if bottles are correct	☑
Check if bottles have sufficient volume	
Check if samples received on ice	
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>09/07/2020</u>



Client: Big Rivers Electric Corporation Wilson Station	Report To: Big Rivers Electory	ctric Co	rporation Wilson	Invoice To: Big Rivers Electric Corporation Wilson Station					
Project: MW-105 Wilson 092-00004	Mike Galbraith			Brian Edwar	ds				
	PO Box 24 Henderson, KY	Y 42419	9	PO Box 24 Henderson,	KY 42419		l		
	Phone: (270) 8						ļ		
•	PWS ID#: 1/	·	<u></u>	PO#:		-	!		
Please Print Legibly	State: <u>F</u>	4	<u> </u>	Quote#		<u> </u>			
Collected by (Signature):	nformation*		_	Compli	ance Monitorii	ng? Yes	No		
•		\	l timo bolow	Sample	es Chlorinated	? Yes	No		
*For composite samples please indicate begin time, e							1		
Influent: Start Date Start time	End Date	E	nd Time	Temp (oC)					
Effluent: Start Date Start time	End Date	E	nd Time	Temp (oC)	 		: 		
	e and Preservative	Containers	Sample Description	Composite	Carrala	Analosis Doo			
Sample ID#	Plastic 1L	<u>ŏ</u>	NAVA (4 O E	~ / o		Analysis Req			
0092625-01 A 101/3/a D 1720	Plastic 1L	1	MW105	g/c	Total Chlorid	ty Carbonate le 300.0 Cond le 300.0 Sulfa carbonate	luctivity		
0092625-01 B <u>19/13/2。 </u>	stic 500mL pH<2 w/HNO3	1	MW105	g/c	Beryllium To Antimony To Boron Tot 60 Cadmium To 6010B Chron Tot 6020 Cop Titration Iron	t 6020 Lead T t 6020 Arseni 010B Barium of 6020 Calciu mium Tot 6020 pper Tot 6020 1 Tot 6010B Li sium Tot 601	ic Tot 6020 Tot 6020 Im Tot 0 Cobalt 1 Hardness Ithium Tot		
Preser	vation Check: pH : _	<u> </u>							
0092625-01 C 10/13/20 1320 Pla	stic 500mL pH<2 w/H2SO4	1 :	MW105	g/c	COD TOC				
Presei	vation Check: pH : _	<u> </u>							
	c 1L pH<2 w/HNO3 Rad 226 (Sub)	/	MW105	g/c	Radium 226	(sub)			
Preservation Check Performed by:	vation Check: pH : _	<u> </u>							
Field data collected by: Philip Hill		12/12	/	702					
· ///							.		
pH <u>8,02</u> Cond (time ho) 0.642	Res Cl (mg/L)		Tot CI (mg/L) _	Fre	ee CI (mg/L) _	 -			
Temp (oC) <u>19.75</u> or (oF)	Static Water Level _		DO (mg/L) _	т	urb. (NTU)				
Flow (MGD) or (CFS)	or (g/min) _								
Delinquished by (Signature)	Bassivad by /Siana	\		Data (man	ad al to a d	Ti (0.4 b-s)			
Relinquished by: (Signature)	Received by: (Signa	iule)		Date (mm/	•••	Time (24 hr)	· ·		
PACE- Check here if trip charge applied to	associated COC		Printed: 9	9/10/2020 10:04	45AM	Page 1	18 of 30		

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>09/07/2020</u>



Client: Big Rivers Electric (Station	Corporation Wilson	Report To: Big Rivers Electric Station	c Corporation Wilson	Invoice To: Big Rivers E	Electric Corporation Wilson	n Station	
Project: MW-105 Wilson 09	2-0004	Mike Galbraith	-	Brian Edwar	ds	İ	
. , . ,		PO Box 24 Henderson, KY 42	2419	PO Box 24 Henderson,	KY 42419	İ	
		•		nenderson,	K1 42415		
	1	Phone: (270) 844- PWS ID#:	<u>-6000</u>	PO#:		1	
Please Print Legibly	7/ma	State:	4	Quote#		İ	
Collected by (Signature):	// ///	Information*	<u> </u>	Compli	iance Monitoring? Yes	No	
*For composite samples plea	•		end time helow:	Sample	es Chlorinated? Yes	_ Ńo	
	_			Town (aC)			
Influent: Start Date							
Effluent: Start Date	Start time	End Date	End Time	Temp (oC)		į	
Workorder # Date	d information* Collection): Time (24 hr): Bot	tle and Preservative	Sample Description	Composite			
Sample ID#	1000		_	•	Sample Analysis Requeste		
0092625-01 E <u>[₽//3/ ೩/</u>	_	itic 1L pH<2 w/HNO3 1 Rad 228 (Sub) ervation Check: pH:	MW105	g/c	Radium 228 (sub)		
0092625-01 F /0/13/20	140	tic 1L pH<2 w/HNO3 1	—— MW105	g/c	Radium 228 (sub)	1	
		Rad 228 (Sub)	/	g, c	. (000)		
11		ervation Check: pH :	<u>/</u>			•	
0092625-01 G 10/13/2.0) 1320 Plas	tic 1L pH<2 w/HNO3 1 (Sub)	MW105	g/c	Radium Total (sub)	1	
	Pres	ervation Check: pH :	<u> </u>			1	
0092625-01 Н 10/13/20	1320	AG 250mL pH<2 1 w/H2SO4	 MW105	g/c	тос		
	Pres	ervation Check: pH :	<u></u>				
						İ	
•							
•				•			
						•	
					•		
Preservation Check Perform	ned by: <i>Nb</i> y	<u>. </u>					
		· · · · · · · · · · · · · · · · · · ·	dula -	1221			
Field data collected by:		_					
	Cond (umhor 0,64		Tot CI (mg/L) _			,	
Temp (oC) 19,75 o	r (oF)	_ Static Water Level	DO (mg/L) _	т	urb. (NTU)		
Flow (MGD) 0	r (CFS)	_ or (g/min)					
Relinquished by: (Signature)		Received by: (Signatur	re)	Date (mm/	/dd/yy) Time (24 h] nr)	
		11 M.	_), (120 <u>0830</u>		
· one for		7 7 0	} ~~	<i>11</i> · / 7	· ~ 00 J (-	
				_			
						1	
				_		<u> </u>	

Printed: 9/10/2020 10:04:45AM

Page 19 of 30

PACE- Check here if trip charge applied to associated COC

(724)850-5600



November 04, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 92625

Pace Project No.: 30387819

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on October 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 - Greensburg

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

Sincerely,

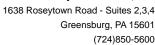
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 92625 Pace Project No.: 30387819

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

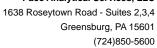
Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249 Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3 Utah/TNI Certification #: PA014572017-9 USDA Soil Permit #: P330-17-00091 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 9526 Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad Wyoming Certification #: 8TMS-L

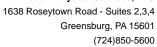




SAMPLE SUMMARY

Project: 92625
Pace Project No.: 30387819

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30387819001	0092625-01	Water	10/13/20 13:20	10/15/20 09:25





SAMPLE ANALYTE COUNT

Project: 92625
Pace Project No.: 30387819

				Analytes		
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory	
30387819001	0092625-01	EPA 903.1	MK1	1	PASI-PA	
		EPA 904.0	VAL	1	PASI-PA	
		Total Radium Calculation	CMC	1	PASI-PA	

PASI-PA = Pace Analytical Services - Greensburg



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92625
Pace Project No.: 30387819

Total Radium

Sample: 0092625-01 Lab ID: 30387819001 Collected: 10/13/20 13:20 Received: 10/15/20 09:25 Matrix: Water PWS: Site ID: Sample Type: Comments: • Sample collection dates and times were not present on the sample containers. Act ± Unc (MDC) Carr Trac Units **Parameters** Method Analyzed CAS No. Qual Pace Analytical Services - Greensburg Radium-226 EPA 903.1 0.281 ± 0.259 (0.152) pCi/L 11/04/20 12:44 13982-63-3 C:NA T:91% Pace Analytical Services - Greensburg EPA 904.0 1.02 ± 0.509 (0.896) Radium-228 pCi/L 10/30/20 12:00 15262-20-1 C:72% T:79%

pCi/L

11/04/20 14:03 7440-14-4

 $1.30 \pm 0.768 \quad (1.05)$

Pace Analytical Services - Greensburg

Total Radium

Calculation





QUALITY CONTROL - RADIOCHEMISTRY

Project:

92625

Pace Project No.:

30387819

QC Batch: QC Batch Method: 419199

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

30387819001

METHOD BLANK: 2026443 Associated Lab Samples:

Matrix: Water

30387819001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

-0.0904 ± 0.280 (0.637) C:NA T:89%

pCi/L

11/04/20 12:44

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: 92625 Pace Project No.:

30387819

QC Batch:

419200

QC Batch Method:

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387819001

METHOD BLANK: 2026444

Matrix: Water

Associated Lab Samples:

30387819001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

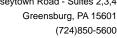
Radium-228

0.598 ± 0.458 (0.907) C:69% T:82%

pCi/L

10/30/20 12:00

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: 92625 Pace Project No.: 30387819

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.

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: 11/04/2020 02:05 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Chain of Custody

Face Analytical *

LAB USE ONLY B MO#:30387819 Sample Intact Y or N Results Requested By: Comments Requested Analysis 30387819 20052200 Workorder Name: MW-105 Wilson 092-0000 Owner Received Date: 10/14/2020 Received on Ice Y or N PlsO mu2 muibsЯ 0.409 A93 Date/Time EPA 903.1 Preserved Containers Pace Analytical Services LLC Greensburg PA Growad Matrix Water Reveived By 3 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Custody Seal Y or/N Greensburg, PA 15601 Lab ID Date/Time (724)850-5615Subcontract To: 10/13/20 13:20 Date/Time Collect ပ္ Sample Type 3 rob.whittington@pacelabs.com Cooler Temperature on Receipt Madisonville, KY 42409 Workorder: 92625 Transfers |Released By McCoy & McCoy Labs 0092625-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 10 ന 4 9 ∞ 9

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC This chain of custody is considered complete as is since this information is available in the owner laboratory.

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0092625

30387819

SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601 Phone :(724) 850-5615

Fax:

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0092625-01	Water	Sampled:10/13/2020 13:20	Specific Method		
Radium Total (sub)		04/11/2021 13:20	EPA 904.0 Radium S	Sum (
Radium 228 (sub)		04/11/2021 13:20	EPA 904.0 Radium S	Sum (
Radium 226 (sub)		04/11/2021 13:20	EPA 903.1		

May 10.14.20 Released By Date

Received By

Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condit	ion l	Jpon	Re	ceipt
Pace Analytical Client Name:	M	CLO	NSC	Project # # - 30387819
Courier: Fed Ex UPS USPS Client Tracking #: 107 3386 9238/922	250		71	Pace Other Label 9M LIMS Login 95M
Custody Seal on Cooler/Box Present: ☐yes	/L/n		/	infact: yes no
Thermometer Used	Type	of Ice:	. ,	
Cooler Temperature Observed Temp 15	<u> - </u>	. ° C	Corre	ection Factor: O-/°C Final Temp: 7.4/1.4/5
Temp should be above freezing to 6°C	1			pH paper Lot# Date and Initials of person examining
Comments:	Yes	- No	N/A	1000H01 contents: 10/0/20 01
Chain of Custody Present:			,	1.
Chain of Custody Filled Out:				2.
Chain of Custody Relinquished:				3.
Sampler Name & Signature on COC:				4.
Sample Labels match COC:			<u> </u>	5 notine date containers
-Includes date/time/ID Matrix:	WT			100000
Samples Arrived within Hold Time:		^		6.
Short Hold Time Analysis (<72hr remaining):				7.
Rush Turn Around Time Requested:				8.
Sufficient Volume:				9.
Correct Containers Used:				10.
-Pace Containers Used:				
Containers intact:				11.
Orthophosphate field filtered				12.
Hex Cr Aqueous sample field filtered				13.
Organic Samples checked for dechlorination:				14
Filtered volume received for Dissolved tests	<u> </u>			15.
All containers have been checked for preservation.		ļ		16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon,	•		PHU
All containers meet method preservation				Initial when O & Date/time of
requirements.				completed US preservation
				preservative
Headspace in VOA Vials (>6mm):	<u> </u>			17.
Trip Blank Present:	<u></u>			18.
Trip Blank Custody Seals Present				
Rad Samples Screened < 0.5 mrem/hr				Initial when TW Date: VOI VIZO
Client Notification/ Resolution:				
Person-Contacted:			Date/	Firme: Contacted By:
Comments/ Resolution:				
				

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)

 \square A check in this box indicates that additional information has been stored in ereports.

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0092626

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419 Customer ID: Report Printed:

44-100168 11/05/2020 13:32

Project Name: MW-110 Wilson 092-00004

Workorder:

0092626

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 10/14/2020 08:38.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0092626-01	MW110/		Groundwater	10/13/2020 14:05	10/14/2020 8:38	Phillip Hill
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0092626-01	Field Conductance	337				
	Field pH	6.87				
	Field Temp (C)	20.67				



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ANALYTICAL RESULTS

 Lab Sample ID: 0092626-01
 Sample Collection Date Time: 10/13/2020 14:05

 Description: MW110
 Sample Received Date Time: 10/14/2020 08:38

Metals by SW846 6000 Series Methods

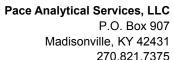
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Arsenic	0.0011		mg/L	0.0010	0.0004	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Barium	0.053		mg/L	0.004	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Boron	ND	U	mg/L	0.10	0.10	SW846 6010 B	10/15/2020 07:52	10/20/2020 15:16	DMH
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Calcium	37.9	D2	mg/L	4.00	1.30	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:52	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Copper	ND	B, U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Iron	4.24	D2	mg/L	1.00	0.500	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:52	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Lithium	ND	U	mg/L	0.02	0.005	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Magnesium	18.5	D2	mg/L	2.00	0.900	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:52	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Nickel	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Potassium	0.91	L1	mg/L	0.50	0.22	SW846 6010 B	10/15/2020 07:52	10/20/2020 15:16	DMH
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Sodium	31.3	D2	mg/L	2.60	1.00	SW846 6010 B	10/15/2020 07:52	10/15/2020 13:52	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:59	CAM

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst	
Bicarbonate Alkalinity as	146		mg/L	4		2320 B-2011	10/21/2020 17:18	10/21/2020 17:18	HMF	
CaCO3										
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	10/21/2020 17:18	10/21/2020 17:18	HMF	
Total Alkalinity	146		mg/L	4		2320 B-2011	10/21/2020 17:18	10/21/2020 17:18	HMF	
Chemical Oxygen Demand	ND	U	mg/L	5	5	HACH 8000	10/23/2020 13:24	10/23/2020 15:29	HMF	
Specific Conductance (Lab)	465		umhos/cm	1	1	2510 B-2011	10/20/2020 15:44	10/20/2020 15:44	CML	
Hardness as CaCO3	184		mg/L	1	1	2340 C (as HACH 8226)	10/19/2020 11:22	10/19/2020 11:22	CLL	
Total Dissolved Solids	278		mg/L	50	50	2540 C-2011	10/16/2020 11:40	10/19/2020 17:00	DJK	
Total Organic Carbon	1.9		mg/L	0.5		5310 C-2011	10/17/2020 20:56	10/17/2020 20:56	HMF	

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.669	_Sub	pCi/L			EPA 903.1	11/04/2020 00:00	11/04/2020 00:00	xxx
Radium-228	0.823	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	10/30/2020 00:00	10/30/2020 00:00	XXX
Radium	1.49	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	11/04/2020 00:00	11/04/2020 00:00	xxx







Ion Chromatography Madisonville

Analyte	Result	Flag L	Inits	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	10.5	r	ng/L	0.5	0.4	EPA 300.0 REV 2.1	10/20/2020 20:40	10/20/2020 20:40	CSC
Fluoride	0.24	r	ng/L	0.20		EPA 300.0 REV 2.1	10/20/2020 20:40	10/20/2020 20:40	CSC
Sulfate	56.0	D r	ng/L	50.0	25.0	EPA 300.0 REV 2.1	10/20/2020 20:58	10/20/2020 20:58	CSC



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Notes for work order 0092626

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra.
 Concentrations reported are estimated values.

Qualifiers

ort.
)

B Target analyte detected in method blank at or above the method reporting limit.

D Results reported from dilution.

D2 Sample required dilution due to matrix interference.

J Estimated value.

L1 The associated blank spike recovery was above method acceptance limits.

M1 Matrix spike recovery was high; the method control sample recovery was acceptable.

M3 The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is

disproportionate to spike level. The method control sample recovery was acceptable.

M4 The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the

reporting limit. The method control sample recovery was acceptable.

U Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the

laboratory method detection limit in our LIMS system).

Y1 Sample RPD exceeded the method control limit.

Standard Qualifiers/Acronymns

MDL Method Detection Limit
MRL Minimum Reporting Limit

ND Not Detected

LCS Laboratory Control Sample

MS Matrix Spike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

> Greater than
< Less than

Results relate only to the items tested.



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:52									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Blank (B042261-BLK2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:10									
Potassium	ND	0.50	mg/L							U
Blank (B042261-BLK3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:36									
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	0.003	0.003	mg/L							В
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/21/2020 1	12:43									
Molybdenum	ND	0.01	mg/L							U
Copper	0.003	0.003	mg/L							В
Selenium	ND	0.003	mg/L							U
LCS (B042261-BS1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 1	12:56									
Boron	0.13	0.10	mg/L	0.125		101	85-115			
Calcium	6.42	0.40	mg/L	6.25		103	85-115			
Iron	6.27	0.100	mg/L	6.25		100	85-115			
Magnesium	5.31	0.200	mg/L	6.25		85.0	85-115			
Potassium	8.21	0.50	mg/L	6.25		131	85-115			L1
Sodium	6.41	0.26	mg/L	6.25		103	85-115			
LCS (B042261-BS2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020 1	10:13									
Potassium	6.67	0.50	mg/L	6.25		107	85-115			
LCS (B042261-BS3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 1	16:40									
Molybdenum	0.07	0.01	mg/L	0.0625		109	85-115			
Antimony	0.072	0.005	mg/L	0.0625		115	85-115			
Mercury	0.0025	0.0005	mg/L	0.00250		101	85-115			
Arsenic	0.0657	0.0010	mg/L	0.0625		105	85-115			
Barium	0.067	0.004	mg/L	0.0625		107	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		103	85-115			
Cadmium	0.0646	0.0010	mg/L	0.0625		103	85-115			
Chromium	0.0682	0.0020	mg/L	0.0625		109	85-115			
Cobalt	0.067	0.004	mg/L	0.0625		107	85-115			
Copper	0.068	0.003	mg/L	0.0625		109	85-115			В
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.07	0.02	mg/L	0.0625		107	85-115			
Nickel	0.066	0.003	mg/L	0.0625		106	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0663	0.0020	mg/L	0.0625		106	85-115			
Zinc	0.07	0.02	mg/L	0.0625		106	85-115			





Paralle Para			Reporting		Spike	Source		%REC		RPD	
Propared: 1015/2020 7.52, Analyzed: 10/21/2020 12-47 Martix Spike (B042261-MS2) Source: 0092629-MS ND 10.0 mg/L 0.0625 107 85-115 B MS MS MS MS MS MS MS	Analyte	Result		Units	•		%REC		RPD		Notes
Propertic: 10/15/2020 7-52, Analyzed: 10/21/2020 12-47 Molybderum											
Prepared : 10/15/2020 7:52											
Molybdenum	,	10/21/2020 12:47									
Capper			0.01	ma/L	0.0625		107	85-115			
Selenium	•			-							В
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 15:14 Boron ND ND 10.0 mg/L 0.125 ND 80-120 D2, M4, Calcium ND 40.0 mg/L 6.25 ND 80-120 D2, M4, Iton 5.57 10.0 mg/L 6.25 ND 80-120 D2, M4, Iton 5.57 10.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 20.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Sodium ND 80-120 ND, M6, M6, M6, M6, M6, M6, M6, M6, M6, M6	Selenium	0.064	0.003	-	0.0625		103	85-115			
Boron	Matrix Spike (B042261-MS1)	Source: 0092620-0	1								
Calcium ND 40.0 mg/L 6.25 ND 80-120 D2, M4, Iron Iron 5.57 10.0 mg/L 6.25 ND 80-120 D2, J4 M2, D2, J4 M2, D2, J4 M2, D2, M4, D2, M2, M2, M2, M2, M2, M2, M2, M2, M2, M	Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:14									
Iron	Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Magnesium ND 20.0 mg/L 6.25 ND 80-120 D2, M4, Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, D2, M4, D2, M4, D2, M4, MD Potassium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, D2, M4, M4, M4, MD, Mg/L 6.25 ND 80-120 D2, M4, M4, M4, MM, MB, MB, MB, MB, MB, MB, MB, MB, MB	Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Polassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, B0-120 D2, M4, D2, M4, B0-120 D2, M4, Martix Spike (B042261-MS2) Source: 0992629-01 Case of Martix Spike (B042261-MS2) Source: 0992629-01 Source: 0992629-01 Source: 10/15/2020 7:52, Analyzed: 10/15/2020 15:21 Source: 0992629-01 ND 10.0 mg/L 0.125 ND 80-120 D2, M4, D2, M1 Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M4, D2, M1 Calcium 15.8 10.0 mg/L 6.25 9.29 105 80-120 D2, M4 Magnesium 147 20.0 mg/L 6.25 9.29 105 80-120 D2, M1 Polassium ND 50.0 mg/L 6.25 9.29 105 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0992620-01	Iron	5.57	10.0	mg/L	6.25	ND	89.1	80-120			D2, J
Sodium ND 26.0 mg/L 6.25 ND 80-120 D2, M4, Matrix Spike (B042261-MS2) Source: 0092629-01	Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, M4, U
Matrix Spike (B042261-MS2)	Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 15:21 Boron ND 10.0 mg/L 0.125 ND 80-120 D2, M4, Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M1 Iron 15.8 10.0 mg/L 6.25 97.9 150 80-120 D2, M1 Potassium 147 20.0 mg/L 6.25 97.9 170 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 72.3 146 80-120 D2, M1 Potassium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M1 Potassium 81.5 26.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M1 Potassium ND 80-120 ND 80-12	Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, M4, U
Boron ND 10.0 mg/L 0.125 ND 80-120 D2, M4, Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M4, D2, M1 Iron 15.8 10.0 mg/L 6.25 9.29 105 80-120 D2, M4 Magnesium 147 20.0 mg/L 6.25 9.79 79 80-120 D2, M4 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4 Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M4 Matrix Spike (B042261-MS3) Source: 092620-01 V V 6.25 ND 106 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 092620-01 V V 6.25 ND 108 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 092620-01 V V 6.25 ND 108 80-120 D2 D2 M2 M2	Matrix Spike (B042261-MS2)	Source: 0092629-0	1								
Calcium 394 40.0 mg/L 6.25 384 166 80-120 D2, M1 Iron 15.8 10.0 mg/L 6.25 9.29 105 80-120 D2 Magnesium 147 20.0 mg/L 6.25 97.9 790 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 97.9 790 80-120 D2, M1 Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0092620-01 v	Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:21									
Iron	Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Magnesium 147 20.0 mg/L 6.25 97.9 790 80-120 D2, M1 Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, Sodium 81.5 26.0 mg/L 6.25 ND 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0092620-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.0625 ND 116 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Beryllium 0.0626 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649	Calcium	394	40.0	mg/L	6.25	384	166	80-120			D2, M1
Potassium ND 50.0 mg/L 6.25 ND 80-120 D2, M4, Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M4 Matrix Spike (B042261-MS3) Source: 0092620-01	Iron	15.8	10.0	mg/L	6.25	9.29	105	80-120			D2
Sodium 81.5 26.0 mg/L 6.25 72.3 146 80-120 D2, M1 Matrix Spike (B042261-MS3) Source: 0092620-01 Source: 0092620-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Source: 0092620-01 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 1	Magnesium	147	20.0	mg/L	6.25	97.9	790	80-120			D2, M1
Matrix Spike (B042261-MS3) Source: 0092620-01 Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.0666 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 104 80-120 D2 Copper </td <td>Potassium</td> <td>ND</td> <td>50.0</td> <td>mg/L</td> <td>6.25</td> <td>ND</td> <td></td> <td>80-120</td> <td></td> <td></td> <td>D2, M4, U</td>	Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 19:57 Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 104 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104	Sodium	81.5	26.0	mg/L	6.25	72.3	146	80-120			D2, M1
Molybdenum 0.07 0.10 mg/L 0.0625 ND 108 80-120 D2, J Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Copper 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 D2	Matrix Spike (B042261-MS3)	Source: 0092620-0	1								
Mercury 0.0028 0.0050 mg/L 0.00250 ND 112 80-120 D2, J Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2 Lead <	Prepared: 10/15/2020 7:52, Analyzed:	10/20/2020 19:57									
Antimony 0.073 0.050 mg/L 0.0625 ND 116 80-120 D2 Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2 Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Nickel 0.06	Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120			D2, J
Arsenic 0.0695 0.0100 mg/L 0.0625 ND 111 80-120 D2 Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2 D2 Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 105 80-120 D2	Mercury	0.0028	0.0050	mg/L	0.00250	ND	112	80-120			D2, J
Barium 0.066 0.040 mg/L 0.0625 ND 105 80-120 D2 Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 105 80-120 D2 Thallium 0.0	Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120			D2
Beryllium 0.0628 0.0200 mg/L 0.0625 ND 101 80-120 D2 Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium	Arsenic	0.0695	0.0100	mg/L	0.0625	ND	111	80-120			D2
Cadmium 0.0649 0.0100 mg/L 0.0625 ND 104 80-120 D2 Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Barium	0.066	0.040	mg/L	0.0625	ND	105	80-120			D2
Chromium 0.0659 0.0200 mg/L 0.0625 ND 105 80-120 D2 Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Beryllium	0.0628	0.0200	mg/L	0.0625	ND	101	80-120			D2
Cobalt 0.065 0.040 mg/L 0.0625 ND 104 80-120 D2 Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Cadmium	0.0649	0.0100	mg/L	0.0625	ND	104	80-120			D2
Copper 0.065 0.030 mg/L 0.0625 ND 104 80-120 D2, B Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Chromium	0.0659	0.0200	mg/L	0.0625	ND	105	80-120			D2
Lead 0.065 0.020 mg/L 0.0625 ND 104 80-120 D2 Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Cobalt	0.065		mg/L			104				
Lithium 0.06 0.20 mg/L 0.0625 ND 102 80-120 D2, J Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Copper										
Nickel 0.066 0.030 mg/L 0.0625 ND 105 80-120 D2 Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Lead			_							
Selenium 0.070 0.030 mg/L 0.0625 ND 112 80-120 D2 Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2	Lithium										
Thallium 0.0654 0.0200 mg/L 0.0625 ND 105 80-120 D2				_							
·											
Zinc ND 0.20 mg/L 0.0625 ND 80-120 D2, M4,	Thallium Zinc		0.0200 0.20	-			105	80-120 80-120			D2 D2, M4, U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike (B042261-MS4)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/20/2020 20:04									
Antimony	0.075	0.050	mg/L	0.0625	ND	121	80-120			D2, M1
Mercury	0.0028	0.0050	mg/L	0.00250	ND	110	80-120			D2, J
Molybdenum	0.07	0.10	mg/L	0.0625	ND	115	80-120			D2, J
Arsenic	0.0732	0.0100	mg/L	0.0625	ND	117	80-120			D2
Barium	0.082	0.040	mg/L	0.0625	0.014	108	80-120			D2
Beryllium	0.0639	0.0200	mg/L	0.0625	ND	102	80-120			D2
Cadmium	0.0656	0.0100	mg/L	0.0625	ND	105	80-120			D2
Chromium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.082	0.040	mg/L	0.0625	ND	132	80-120			D2, M1
Copper	0.061	0.030	mg/L	0.0625	ND	98.3	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.11	0.20	mg/L	0.0625	ND	175	80-120			D2, M1, J
Nickel	0.089	0.030	mg/L	0.0625	0.022	107	80-120			D2
Selenium	0.069	0.030	mg/L	0.0625	ND	111	80-120			D2
Thallium	0.0647	0.0200	mg/L	0.0625	ND	104	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U
Matrix Spike Dup (B042261-MSD1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:17									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	5.93	10.0	mg/L	6.25	ND	94.9	80-120	6.26	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD2)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed: 1	10/15/2020 15:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	414	40.0	mg/L	6.25	384	484	80-120	4.92	20	D2, M1
Iron	16.4	10.0	mg/L	6.25	9.29	114	80-120	3.84	20	D2
Magnesium	155	20.0	mg/L	6.25	97.9	913	80-120	5.08	20	D2, M1
Potassium	ND	50.0	mg/L	6.25	ND	-	80-120		20	D2, M4, U
Sodium	85.4	26.0	mg/L	6.25	72.3	209	80-120	4.70	20	D2, M1





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike Dup (B042261-MSD3)	Source: 0092620-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/	20/2020 20:00									
Molybdenum	0.06	0.10	mg/L	0.0625	ND	104	80-120	4.25	20	D2, J
Mercury	0.0027	0.0050	mg/L	0.00250	ND	107	80-120	3.90	20	D2, J
Antimony	0.071	0.050	mg/L	0.0625	ND	114	80-120	2.25	20	D2
Arsenic	0.0678	0.0100	mg/L	0.0625	ND	109	80-120	2.47	20	D2
Barium	0.065	0.040	mg/L	0.0625	ND	104	80-120	1.34	20	D2
Beryllium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.33	20	D2
Cadmium	0.0632	0.0100	mg/L	0.0625	ND	101	80-120	2.66	20	D2
Chromium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.48	20	D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120	0.325	20	D2
Copper	0.062	0.030	mg/L	0.0625	ND	98.8	80-120	4.81	20	D2, B
Lead	0.064	0.020	mg/L	0.0625	ND	103	80-120	1.15	20	D2
Lithium	0.06	0.20	mg/L	0.0625	ND	99.1	80-120	2.77	20	D2, J
Nickel	0.063	0.030	mg/L	0.0625	ND	101	80-120	4.21	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	108	80-120	3.49	20	D2
Thallium	0.0644	0.0200	mg/L	0.0625	ND	103	80-120	1.56	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD4)	Source: 0092629-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/	20/2020 20:08									
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120	3.64	20	D2
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120	6.82	20	D2, J
Mercury	0.0028	0.0050	mg/L	0.00250	ND	111	80-120	0.768	20	D2, J
Arsenic	0.0721	0.0100	mg/L	0.0625	ND	115	80-120	1.40	20	D2
Barium	0.080	0.040	mg/L	0.0625	0.014	105	80-120	2.21	20	D2
Beryllium	0.0622	0.0200	mg/L	0.0625	ND	99.6	80-120	2.65	20	D2
Cadmium	0.0628	0.0100	mg/L	0.0625	ND	100	80-120	4.34	20	D2
Chromium	0.0645	0.0200	mg/L	0.0625	ND	103	80-120	1.44	20	D2
Cobalt	0.081	0.040	mg/L	0.0625	ND	130	80-120	1.84	20	D2, M1
Copper	0.059	0.030	mg/L	0.0625	ND	93.7	80-120	4.77	20	D2, B
Lead	0.063	0.020	mg/L	0.0625	ND	101	80-120	2.71	20	D2
Lithium	0.11	0.20	mg/L	0.0625	ND	179	80-120	2.20	20	D2, M1, J
Nickel	0.088	0.030	mg/L	0.0625	0.022	106	80-120	0.909	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	107	80-120	2.91	20	D2
Thallium	0.0641	0.0200	mg/L	0.0625	ND	103	80-120	0.991	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U





	Repor	ting	Spike	Source		%REC		RPD	
Analyte	•	imit Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2									
Post Spike (B042261-PS1)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyzed	d: 10/15/2020 15:27								
Boron	113	ug/L	125	-0.57	90.4	75-125			D2
Calcium	6400	ug/L	6250	39.0	102	75-125			D2
Iron	5840	ug/L	6250	-0.050	93.5	75-125			D2
Magnesium	6590	ug/L	6250	2.27	105	75-125			D2
Potassium	6300	ug/L	6250	9.60	101	75-125			D2
Sodium	6100	ug/L	6250	21.6	97.3	75-125			D2
Post Spike (B042261-PS2)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyzed	d: 10/20/2020 20:11								
Antimony	70.5	ug/L	62.5	0.083	113	75-125			D2
Molybdenum	67.2	ug/L	62.5	0.04	107	75-125			D2
Mercury	2.75	ug/L	2.50	0.0323	109	75-125			D2
Arsenic	71.3	ug/L	62.5	-0.0088	114	75-125			D2
Barium	63.7	ug/L	62.5	0.095	102	75-125			D2
Beryllium	65.4	ug/L	62.5	-0.0105	105	75-125			D2
Cadmium	63.6	ug/L	62.5	0.0157	102	75-125			D2
Chromium	65.6	ug/L	62.5	0.355	104	75-125			D2
Cobalt	63.7	ug/L	62.5	-0.003	102	75-125			D2
Copper	60.7	ug/L	62.5	-1.80	97.1	75-125			D2, B
Lead	64.8	ug/L	62.5	0.522	103	75-115			D2
Lithium	64.9	ug/L	62.5	0.04	104	75-125			D2
Nickel	63.8	ug/L	62.5	-0.079	102	75-125			D2
Selenium	67.6	ug/L	62.5	0.009	108	75-125			D2
Thallium	64.7	ug/L	62.5	0.00002	104	75-125			D2
Zinc	77.9	ug/L	62.5	3.15	120	75-125			D2





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042498 - Default Prep Wet Chem										
Blank (B042498-BLK1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B042498-BS1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	1490	25	mg/L	1500		99.6	80-120			
Duplicate (B042498-DUP1) S	ource: 0092629-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	2240	50	mg/L		2290			2.56	10	
Duplicate (B042498-DUP2) S	ource: 0102128-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	364	50	mg/L		370			1.63	10	
Batch B042577 - Default Prep Wet Chem										
Blank (B042577-BLK1)										
Prepared: 10/19/2020 10:58, Analyzed: 10/19/2020	20 10:58									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B042577-BS1)										
Prepared: 10/19/2020 11:00, Analyzed: 10/19/2020	20 11:00									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B042577-DUP1) S	ource: 0100778-02									
Prepared: 10/19/2020 12:16, Analyzed: 10/19/2020	20 12:16									
Hardness as CaCO3	268	1	mg/L		260			3.03	10	
Matrix Spike (B042577-MS1)	ource: 0100778-02									
Prepared: 10/19/2020 12:18, Analyzed: 10/19/2020	20 12:18									
Hardness as CaCO3	648	1	mg/L	318	260	122	80-120			Y1
Batch B042587 - Default Prep Wet Chem										
Blank (B042587-BLK1)										
Prepared: 10/17/2020 18:08, Analyzed: 10/17/2020	20 18:08									
Total Organic Carbon	ND	0.5	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042587 - Default Prep Wet Chem										
LCS (B042587-BS1)										
Prepared: 10/17/2020 17:47, Analyzed: 10/17/2	020 17:47									
Total Organic Carbon	4.7	0.5	mg/L	5.00		94.1	80-120			
Duplicate (B042587-DUP1)	Source: 0092628-01									
Prepared: 10/17/2020 23:24, Analyzed: 10/17/2	2020 23:24									
Total Organic Carbon	0.9	0.5	mg/L		1.0			8.76	25	
Duplicate (B042587-DUP2)	Source: 0100200-01									
Prepared: 10/18/2020 4:41, Analyzed: 10/18/20	020 4:41									
Total Organic Carbon	2.5	0.5	mg/L		2.4			2.64	25	
Matrix Spike (B042587-MS1)	Source: 0092629-01									
Prepared: 10/17/2020 23:45, Analyzed: 10/17/2										
Total Organic Carbon	3.9	0.5	mg/L	2.50	1.6	93.3	80-120			
Matrix Spike (B042587-MS2)	Source: 0100200-02									
Prepared: 10/18/2020 5:02, Analyzed: 10/18/20	020 5:02									
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.8	94.8	80-120			
Batch B043117 - Default Prep Wet Chem										
Blank (B043117-BLK1)										
Prepared: 10/21/2020 16:14, Analyzed: 10/21/2	2020 16:14									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK2)										
Prepared: 10/21/2020 18:13, Analyzed: 10/21/2	020 18:13									
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK3)										
Prepared: 10/21/2020 19:40, Analyzed: 10/21/2	020 19:40									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043117 - Default Prep Wet Chem										
LCS (B043117-BS1)										
Prepared: 10/21/2020 18:06, Analyzed: 10/21/2020	18:06									
Total Alkalinity	249	4	mg/L	235		106	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	231	4	mg/L	225		103	0-200			
LCS (B043117-BS2)										
Prepared: 10/21/2020 19:35, Analyzed: 10/21/2020	19:35									
Carbonate Alkalinity as CaCO3	227	4	mg/L	225		101	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Total Alkalinity	254	4	mg/L	235		108	80-120			
Duplicate (B043117-DUP1) Soc	urce: 0092629-01									
Prepared: 10/21/2020 17:38, Analyzed: 10/21/2020	17:38									
Total Alkalinity	295	4	mg/L		283			4.39	10	
Bicarbonate Alkalinity as CaCO3	295	4	mg/L		283			4.39	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Duplicate (B043117-DUP2) Sou	urce: 0092635-01									
Prepared: 10/21/2020 19:24, Analyzed: 10/21/2020	19:24									
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	281	4	mg/L		268			4.88	10	
Total Alkalinity	281	4	mg/L		268			4.88	10	
Matrix Spike (B043117-MS1) Sou	urce: 0092629-01									
Prepared: 10/21/2020 18:03, Analyzed: 10/21/2020	18:03									
Total Alkalinity	331	4	mg/L	49.4	283	98.6	80-120			
Matrix Spike (B043117-MS2) Sou	urce: 0092635-01									
Prepared: 10/21/2020 19:30, Analyzed: 10/21/2020	19:30									
Total Alkalinity	301	4	mg/L	49.4	268	66.2	80-120			М3
Batch B043187 - Default Prep Wet Chem										
Blank (B043187-BLK1)										
Prepared: 10/20/2020 15:36, Analyzed: 10/20/2020	15:36									
Specific Conductance (Lab)	ND	1	umhos/cm							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043187 - Default Prep Wet Chem										
LCS (B043187-BS1)										
Prepared: 10/20/2020 15:37, Analyzed: 10/20	0/2020 15:37									
Specific Conductance (Lab)	1420		umhos/cm	1410		101	80-120			
Duplicate (B043187-DUP1)	Source: 0092629-01									
Prepared: 10/20/2020 15:54, Analyzed: 10/20)/2020 15:54									
Specific Conductance (Lab)	2600	1	umhos/cm		2610			0.307	1.24	
Duplicate (B043187-DUP2)	Source: 0102262-01									
Prepared: 10/20/2020 16:09, Analyzed: 10/20	0/2020 16:09									
Specific Conductance (Lab)	354	1	umhos/cm		351			0.851	1.24	
Batch B043582 - Default Prep Wet Chem										
Blank (B043582-BLK1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	ND	5	mg/L							U
LCS (B043582-BS1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:21									
Chemical Oxygen Demand	121	5	mg/L	125		96.8	90-110			
Duplicate (B043582-DUP1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:32									
Chemical Oxygen Demand	5	5	mg/L		ND				25	
Matrix Spike (B043582-MS1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	260	5	mg/L	250	ND	104	90-110			
Matrix Spike Dup (B043582-MSD1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23	3/2020 15:33									
Chemical Oxygen Demand	257	5	mg/L	250	ND	103	90-110	1.21	10	





Ion Chromatography Madisonville - Quality Control

Ion Chromatography Madisonville - Quality Control										
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043120 - Default Prep IC										
Blank (B043120-BLK1)										
Prepared: 10/20/2020 15:45, Analyzed:	10/20/2020 15:45									
Sulfate	ND	1.0	mg/L							U
Chloride	ND	0.5	mg/L							U
Fluoride	ND	0.20	mg/L							U
LCS (B043120-BS1)										
Prepared: 10/20/2020 15:27, Analyzed:	10/20/2020 15:27									
Fluoride	9.42		mg/L	10.0		94.2	90-110			
Sulfate	9.4		mg/L	10.0		93.7	90-110			
Chloride	9.5		mg/L	10.0		95.4	90-110			
Matrix Spike (B043120-MS1)	Source: 0092620-01									
Prepared: 10/20/2020 21:50, Analyzed:	10/20/2020 21:50									
Fluoride	12.3		mg/L	10.0	0.00	123	80-120			M1
Chloride	12.4		mg/L	10.0	0.2	122	80-120			M1
Sulfate	12.3		mg/L	10.0	0.05	122	80-120			M1
Matrix Spike Dup (B043120-MSD1)	Source: 0092620-01									
Prepared: 10/20/2020 22:07, Analyzed:	10/20/2020 22:07									
Chloride	11.7		mg/L	10.0	0.2	115	80-120	5.59	10	
Sulfate	11.6		mg/L	10.0	0.05	116	80-120	5.62	20	
Fluoride	11.7		mg/L	10.0	0.00	117	80-120	4.70	20	
Certified Analyses included in this Rep	oort									
Analyte	Certifications									

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030)
Total Alkalinity KY Drinking Water Mdv (00030)

2340 C (as HACH 8226) in Water

Hardness as CaCO3 KY Drinking Water Mdv (00030)

2510 B-2011 in Water

Specific Conductance (Lab) KY Drinking Water Mdv (00030)

2540 C-2011 in Water

Total Dissolved Solids KY Drinking Water Mdv (00030)

5310 C-2011 in Water

Total Organic Carbon KY Drinking Water Mdv (00030)

EPA 300.0 REV 2.1 in Water

Chloride KY Drinking Water Mdv (00030)
Fluoride KY Drinking Water Mdv (00030)
Sulfate KY Drinking Water Mdv (00030)

HACH 8000 in Water

Chemical Oxygen Demand KY Wastewater Mdv (00030)

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0092626
Shipped By: Client	Temperature: 1.00° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	abla
Check if bottles are intact	☑
Check if bottles are correct	☑
Check if bottles have sufficient volume	☑
Check if samples received on ice	☑
Check if VOA headspace is acceptable	
Check if samples received in holding time.	☑
Check if samples are preserved properly	

Chain of Custody

Scheduled for: 09/07/2020



Page 18 of 30

Client: Big Rivers Electric Corporation Wilson Station	Report To: Big Rivers Electric Corporation Wilson Station Mike Galbraith PO Box 24			Invoice To: Big Rivers Electric Corporation Wilson Station Brian Edwards PO Box 24			
Project: MW-110 Wilson 092-00004							
	Henderson, K			Henderson,	KY 42419		
	Phone: <u>(270) 8</u> PWS ID#:	844-60	<u>, 000</u>	PO#:			
Please Print Legibly	State:	ry		Quote#			
Collected by (Signature): *required in	7 / iformation*	· -		Compli	ance Monitor	ing? Yes No	
*For composite samples please indicate begin time, er	nd time and temp(oC) at er	nd time below:	Sample	es Chlorinated	d? Yes No	
Influent: Start Date Start time	End Date		End Time T	emp (oC)			
Effluent: Start Date Start time	End Date		End Time1	Temp (oC)			
LAB USE ONLY *required information*		· ·				• •	
Workorder # Date Collection		iner					
0092626 (mm/dd/yy): Time (24 hr): Bottle Sample ID#	e and Preservative	Containers	Sample Description	Composite	Sample	Analysis Requested	
0092626-01 A 10/13/20 1405	Plastic 1L	1	MW110	g/c	Total Chloric	ity Carbonate Alkalinity de 300.0 Conductivity	
0092626-01 B 10/13/20 1405 Plas					Alkalinity Bi		
0092626-01 B <u>)0//3/3/8 /403</u> Plas	stic 500mL pH<2 w/HNO3	1	MW110	g/c	Antimony To Boron Tot 6	ot 6020 Lead To: 6020 ot 6020 Arsenic Tot 6020 010B Barium Tot 6020	
		/			6010B Chro Tot 6020 Co Titration Iron	ot 6020 Calcium Tot mium Tot 6020 Cobalt opper Tot 6020 Hardness of Tot 6010B Lithium Tot desium Tot 6010B	
1 1	vation Check: pH:	<u>/</u>			-		
	stic 500mL pH<2 w/H2SO4	1 /	MW110	g / c	COD TOC		
11.01.	vation Check: pH:	<u></u>					
F 18300	: 1L pH<2 w/HNO3 Rad 226 (Sub) vation Check: pH:	<u></u>	MW110	g/c	Radium 226	i (sub)	
	·						
Preservation Check Performed by:							
Field data collected by: Philip Hill	_ Date (mm/dd/yy)	ıdı	1/20 Time (24 hr) /	105			
pH <u>4.87</u> Cond (umhe) 0.337	Res CI (mg/L)		Tot CI (mg/L)	Fre	e CI (mg/L) _		
Temp (oC) <u>20,67</u> or (oF)	Static Water Level		DO (mg/L)	т	urb. (NTU) _		
Flow (MGD) or (CFS)	or (g/min)						
Relinquished by: (Signature)	Received by: (Signa	ature)		Date (mm/	dd/yy)	Time (24 hr)	
Man Sund	NJU	4		10.14	20	0838	
	1/				·		
PACE- Check here if trip charge applied to	associated COC		Printed: 9/	10/2020 10:05:	06AM		

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>09/07/2020</u>



			<u> </u>			
Client: Big Rivers Electric Corporation Wilson Station	Report To: Big Rivers Electric (Big Rivers Electric Corporation Wilson		Invoice To: Big Rivers Electric Corporation Wilson Station		
Project: MW-110 Wilson 092-00004	Mike Galbraith PO Box 24 Henderson, KY 42419		Brian Edwards PO Box 24 Henderson, KY 42419			
	Phone: (270) 844-6 PWS ID#: 1/ /	000	PO#:			
Please Print Legibly	State: hy	_	Quote#			
Collected by (Signature): *required inf	ormation*		Compli	ance Monitoring? Yes _	No	
*For composite samples please indicate begin time, end		nd time below:	Sample	es Chlorinated? Yes _	_ No	
Influent: Start Date Start time	_ End Date	End Time	Temp (oC)			
Effluent: Start Date Start time	_ End Date	End Time	Temp (oC)			
LAB USE ONLY *required information* Workorder # Date Collection 0092626 (mm/dd/yy): Time (24 hr): Bottle Sample ID#	and Preservative So	Sample Description	Composite	Sample Analysis R	equested	
0092626-01 E 10/13/20 1405 Plastic	1L pH<2 w/HNO3 1 ad 228 (Sub)	MW110	g/c	Radium 228 (sub)	·	
0092626-01 F 10/13/20 1405 Plastic	1L pH<2 w/HNO3 1 ad 228 (Sub)		g/c	Radium 228 (sub)		
0092626-01 G 10/13/20 1405 Plastic	ation Check: pH :	- MW110	g/c	Radium Total (sub)		
0092626-01 H <u>Jo/J3/а</u> <u>/405</u> AG	250mL pH<2 1 w/H2SO4 ation Check: pH:	- MW110	g/c	TOC		
		•				
					:	
Preservation Check Performed by:			<u>.</u>			
Field data collected by: Phillip Hill		<u>2/20</u> Time (24 hr) _				
pH <u>[87]</u> Cond (umho) <u>0.337</u>				e CI (mg/L)		
Temp (oC) <u>20.67</u> or (oF) s	Static Water Level or (g/min)		Ti	urb. (NTU)		
Relinquished by: (Signature)	Received by: (Signature)		Date (mm/	_	/	
		·····				

(724)850-5600



November 04, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 92626

Pace Project No.: 30387820

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on October 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 - Greensburg

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

Sincerely,

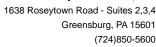
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 92626 Pace Project No.: 30387820

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

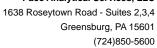
Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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: 92626
Pace Project No.: 30387820

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30387820001	0092626-01	Water	10/13/20 14:05	10/15/20 09:25



SAMPLE ANALYTE COUNT

Project: 92626
Pace Project No.: 30387820

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30387820001	0092626-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

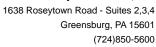
PASI-PA = Pace Analytical Services - Greensburg



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92626
Pace Project No.: 30387820

Sample: 0092626-01 PWS:	Lab ID: 3038 Site ID:	7820001 Collected: 10/13/20 14:05 Sample Type:	Received:	10/15/20 09:25	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 903.1	0.669 ± 0.399 (0.379) C:NA T:97%	pCi/L	11/04/20 12:44	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	0.823 ± 0.514 (0.974) C:70% T:74%	pCi/L	10/30/20 12:00	0 15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	1.49 ± 0.913 (1.35)	pCi/L	11/04/20 14:03	3 7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project: 92626 Pace Project No.: 30387820

QC Batch:

419199

QC Batch Method:

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387820001

METHOD BLANK: 2026443

Matrix: Water

Associated Lab Samples: 30387820001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

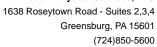
Radium-226

-0.0904 ± 0.280 (0.637) C:NA T:89%

pCi/L

11/04/20 12:44

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:

92626

Pace Project No.:

30387820

QC Batch:
QC Batch Method:

419200

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

METHOD BLANK: 2026444

30387820001

Matrix: Water

Associated Lab Samples:

30387820001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

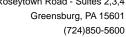
Radium-228

 $0.598 \pm 0.458 \quad (0.907) \text{ C:}69\% \text{ T:}82\%$

pCi/L

10/30/20 12:00

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: 92626 Pace Project No.: 30387820

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.

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: 11/04/2020 02:05 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Chain of Custody

Face Analytical *

LAB USE ONLY 00 MO#:30387820 Sample Intact (Y or N Results Requested By: Comments Requested Analysis Workorder Name: MW-110 Wilson 092-0000 Owner Received Date: 10/14/2020 Received on Ige Y or N EPA 904.0 Radium Sum Calc Date/Time EPA 903.1 Preserved Containers Pace Analytical Services LLC Greensburg PA Stowal Matrix Water m Reveived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Custody Seal Y or/N Greensburg, PA 15601 Lab ID Date/Time (724) 850-5615 Subcontract To: 10/13/20 14:05 Date/Time Collect ပ္ Sample Type 250 rob.whittington@pacelabs.com Cooler Temperature on Receipt Madisonville, KY 42409 Workorder: 92626 Released By McCoy & McCoy Labs 0092626-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: Transfers 10 4 Ŋ 9 / ∞

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC This chain of custody is considered complete as is since this information is available in the owner laboratory.

Friday, June 17, 2016 11:01:34 AM

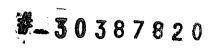
FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

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SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0092626



SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA 1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601 Phone :(724) 850-5615

Fax:

Analysis		Expires	Laboratory ID	Comments
Sample ID: 0092626-01	Water	Sampled:10/13/2020 14:05	Specific Method	
Radium Total (sub)		04/11/2021 14:05	EPA 904.0 Radium Sun	n C
Radium 228 (sub)		04/11/2021 14:05	EPA 904.0 Radium Sun	n C
Radium 226 (sub)		04/11/2021 14:05	EPA 903.1	

Released By Date

Received By

Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condit	ion l	Jpon	Re	ceipt	
Page Analytical Client Name:	<u>M</u>	ad	NSZ	Project # 303878	2.0
Courier: Fed Ex UPS USPS Uclient Tracking #: 107 3386 9238/92	□ 256	ommer 92	71	Pace Other Label W	
Custody Seal on Cooler/Box Present:	Z'n			intact: yes no	
Thermometer Used	Туре	of ice:	(Wet	Blue None	
Cooler Temperature Observed Temp 75	<u> 1711</u>	. C	Corre	ection Factor: -0 · / °C Final Temp: 7.4/11.4/5	
Temp should be above freezing to 6°C	1			pH paper Lot# Date and Initials of person examining	
Comments:	Yes	No	· N/A	1000401 contents: 10/0/25 0V	
Chain of Custody Present:			ļ	1.	
Chain of Custody Filled Out:				2.	
Chain of Custody Relinquished:				3.	
Sampler Name & Signature on COC:	<u> </u>			4.	,
Sample Labels match COC:				5 notine dale a contact	ners
-includes date/time/ID Matrix:	WI	<u> </u>	-		•
Samples Arrived within Hold Time:	$\!$			6.	
Short Hold Time Analysis (<72hr remaining):	<u> </u>		-	7.	
Rush Turn Around Time Requested:	 			8.	
Sufficient Volume:		<u> </u>		9.	
Correct Containers Used:				1 10.	
-Pace Containers Used:	├				
Containers Intact:	\vdash			11,	
Orthophosphate field filtered	 	:		12.	
Hex Cr Aqueous sample field filtered	 			13.	
Organic Samples checked for dechlorination:	-			14	
Filtered volume received for Dissolved tests All containers have been checked for preservation.	 			15.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon,			16. PHL2	
All containers meet method preservation				Initial when Date/time of preservation	
requirements.		<u> </u>		Lot # of added	
***************************************	т			preservative	
Headspace in VOA Vials (>6mm):				77.	
Trip Blank Present:			· · · 7	18.	
Trip Blank Custody Seals Present			_	Initial when	·.
Rad Samples Screened < 0.5 mrem/hr				completed: OD Date: VOIG 20	
Client Notification/ Resolution:				· •	
Person-Gontacted:			-Date/	Fime: Contacted-By:	
Comments/ Resolution:					
		·· · · · · · · · · · · · · · · · · · ·			

 \square A check in this box indicates that additional information has been stored in ereports.

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





Certificate of Analysis 0092635

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419

Well Duplicate Wilson 092-00004

Customer ID: Report Printed:

44-100168 11/09/2020 09:39

Workorder:

0092635

Dear Mike Galbraith

Project Name:

Enclosed are the analytical results for samples received at one of our laboratories on 10/14/2020 08:38.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias		Matrix	Date Collected	Date Received	Sampled By
0092635-01	Well Duplicate/		Groundwater	10/13/2020 12:25	10/14/2020 8:38	Phillip Hill
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>				
0092635-01	Field Conductance	1250				
	Field pH	6.81				
	Field Temp (C)	18.87				



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ANALYTICAL RESULTS

Lab Sample ID: **0092635-01** Sample Collection Date Time: 10/13/2020 12:25 Description: **Well Duplicate** Sample Received Date Time: 10/14/2020 08:38

Metals by SW846 6000 Series Methods

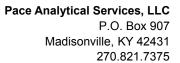
Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Arsenic	0.0025		mg/L	0.0010	0.0004	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Barium	0.017		mg/L	0.004	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Boron	0.76		mg/L	0.10	0.10	SW846 6010 B	10/15/2020 07:52	10/20/2020 15:54	DMH
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Calcium	259	D1	mg/L	40.0	13.0	SW846 6010 B	10/15/2020 07:52	10/15/2020 15:11	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Cobalt	0.008		mg/L	0.004	0.004	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Copper	ND	U, B	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Iron	6.34	D2	mg/L	1.00	0.500	SW846 6010 B	10/15/2020 07:52	10/15/2020 15:08	AKB
Lead	ND	U	mg/L	0.002	0.0005	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Lithium	0.03		mg/L	0.02	0.005	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Magnesium	64.6	D2	mg/L	2.00	0.900	SW846 6010 B	10/15/2020 07:52	10/15/2020 15:08	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Molybdenum	0.003	J	mg/L	0.01	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Nickel	0.006		mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Potassium	6.65	D2	mg/L	5.00	2.20	SW846 6010 B	10/15/2020 07:52	10/16/2020 10:54	dmh
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Sodium	36.4	D2	mg/L	2.60	1.00	SW846 6010 B	10/15/2020 07:52	10/15/2020 15:08	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM
Zinc	ND	U	mg/L	0.02	0.02	SW846-6020 A	10/15/2020 07:52	10/20/2020 19:50	CAM

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as	268	М3	mg/L	4		2320 B-2011	10/21/2020 19:16	10/21/2020 19:16	HMF
CaCO3									
Carbonate Alkalinity as CaCO3	ND	U, M3	mg/L	4		2320 B-2011	10/21/2020 19:16	10/21/2020 19:16	HMF
Total Alkalinity	268	М3	mg/L	4		2320 B-2011	10/21/2020 19:16	10/21/2020 19:16	HMF
Chemical Oxygen Demand	ND	U	mg/L	5	5	HACH 8000	10/23/2020 13:24	10/23/2020 15:32	HMF
Specific Conductance (Lab)	1700		umhos/cm	1	1	2510 B-2011	10/20/2020 16:02	10/20/2020 16:02	CML
Hardness as CaCO3	792	D	mg/L	2	2	2340 C (as HACH 8226)	10/19/2020 12:06	10/19/2020 12:06	CLL
Total Dissolved Solids	1400		mg/L	50	50	2540 C-2011	10/16/2020 11:40	10/19/2020 17:00	DJK
Total Organic Carbon	0.9		mg/L	0.5		5310 C-2011	10/18/2020 01:51	10/18/2020 01:51	HMF

Subcontracted Analyses

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	0.151	_Sub	pCi/L			EPA 903.1	11/04/2020 00:00	11/04/2020 00:00	xxx
Radium-228	2.64	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	10/30/2020 00:00	10/30/2020 00:00	xxx
Radium	2.79	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	11/04/2020 00:00	11/04/2020 00:00	xxx





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Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	75.6	D, M2	mg/L	5.0	3.6	EPA 300.0 REV 2.1	10/21/2020 11:19	10/21/2020 11:19	CSC
Fluoride	0.21	M2	mg/L	0.20		EPA 300.0 REV 2.1	10/21/2020 04:31	10/21/2020 04:31	CSC
Sulfate	659	D, M2	mg/L	50.0	25.0	EPA 300.0 REV 2.1	10/21/2020 04:48	10/21/2020 04:48	CSC



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Notes for work order 0092635

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.

Sample RPD exceeded the method control limit.

See subcontractors report.

- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub

Υ1

В	Target analyte detected in method blank at or above the method reporting limit.
D	Results reported from dilution.
D1	Sample required dilution due to high concentration of target analyte.
D2	Sample required dilution due to matrix interference.
J	Estimated value.
L1	The associated blank spike recovery was above method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
M2	Matrix spike recovery was low; the method control sample recovery was acceptable.
M3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Qualifiers/Acronymns

MDL	Method Detection Limit
MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike

MSD Matrix Spike Duplicate
DUP Sample Duplicate
% Rec Percent Recovery

RPD Relative Percent Difference

Greater than Less than

Results relate only to the items tested.



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:52									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Blank (B042261-BLK2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:10									
Potassium	ND	0.50	mg/L							U
Blank (B042261-BLK3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:36									
Molybdenum	ND	0.01	mg/L							U
Mercury	ND	0.0005	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	0.003	0.003	mg/L							В
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/21/2020 1:	2:43									
Molybdenum	ND	0.01	mg/L							U
Copper	0.003	0.003	mg/L							В
Selenium	ND	0.003	mg/L							U
LCS (B042261-BS1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020 1:	2:56									
Boron	0.13	0.10	mg/L	0.125		101	85-115			
Calcium	6.42	0.40	mg/L	6.25		103	85-115			
Iron	6.27	0.100	mg/L	6.25		100	85-115			
Magnesium	5.31	0.200	mg/L	6.25		85.0	85-115			
Potassium	8.21	0.50	mg/L	6.25		131	85-115			L1
Sodium	6.41	0.26	mg/L	6.25		103	85-115			
LCS (B042261-BS2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020 1	0:13									
Potassium	6.67	0.50	mg/L	6.25		107	85-115			
LCS (B042261-BS3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020 1	6:40									
Mercury	0.0025	0.0005	mg/L	0.00250		101	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		109	85-115			
Antimony	0.072	0.005	mg/L	0.0625		115	85-115			
Arsenic	0.0657	0.0010	mg/L	0.0625		105	85-115			
Barium	0.067	0.004	mg/L	0.0625		107	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		103	85-115			
Cadmium	0.0646	0.0010	mg/L	0.0625		103	85-115			
Chromium	0.0682	0.0020	mg/L	0.0625		109	85-115			
Cobalt	0.067	0.004	mg/L	0.0625		107	85-115			
Copper	0.068	0.003	mg/L	0.0625		109	85-115			В
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.07	0.02	mg/L	0.0625		107	85-115			
Nickel	0.066	0.003	mg/L	0.0625		106	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0663	0.0020	mg/L	0.0625		106	85-115			
Zinc	0.07	0.02	mg/L	0.0625		106	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
LCS (B042261-BS4)										
,	0/21/2020 12:47									
Prepared: 10/15/2020 7:52, Analyzed: 10		0.04		0.0005		407	05.445			
Molybdenum	0.07	0.01	mg/L	0.0625 0.0625		107	85-115 85-115			В
Copper Selenium	0.067 0.064	0.003 0.003	mg/L mg/L	0.0625		107 103	85-115			ь
Geleman	0.004	0.003	mg/L	0.0023		100	00-110			
Matrix Spike (B042261-MS1)	Source: 0092620-01	l								
Prepared: 10/15/2020 7:52, Analyzed: 10	0/15/2020 15:14									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	5.57	10.0	mg/L	6.25	ND	89.1	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, M4, U
Matrix Spike (B042261-MS2)	Source: 0092629-01	l								
Prepared: 10/15/2020 7:52, Analyzed: 10	0/15/2020 15:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	394	40.0	mg/L	6.25	384	166	80-120			D2, M1
Iron	15.8	10.0	mg/L	6.25	9.29	105	80-120			D2
Magnesium	147	20.0	mg/L	6.25	97.9	790	80-120			D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	81.5	26.0	mg/L	6.25	72.3	146	80-120			D2, M1
Matrix Spike (B042261-MS3)	Source: 0092620-01	I								
Prepared: 10/15/2020 7:52, Analyzed: 1	0/20/2020 19:57									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	112	80-120			D2, J
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120			D2
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120			D2, J
Arsenic	0.0695	0.0100	mg/L	0.0625	ND	111	80-120			D2
Barium	0.066	0.040	mg/L	0.0625	ND	105	80-120			D2
Beryllium	0.0628	0.0200	mg/L	0.0625	ND	101	80-120			D2
Cadmium	0.0649	0.0100	mg/L	0.0625	ND	104	80-120			D2
Chromium	0.0659	0.0200	mg/L	0.0625	ND	105	80-120			D2
	0.065	0.040	mg/L	0.0625	ND	104	80-120			D2
Cobalt		ሀ ሀ ያበ	mg/L	0.0625	ND	104	80-120			D2, B
Copper	0.065	0.030		0.000		46.	00 :			
Copper Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Copper Lead Lithium	0.065 0.06	0.020 0.20	mg/L mg/L	0.0625	ND	102	80-120			D2, J
Copper Lead Lithium Nickel	0.065 0.06 0.066	0.020 0.20 0.030	mg/L mg/L mg/L	0.0625 0.0625	ND ND	102 105	80-120 80-120			D2, J D2
Copper Lead Lithium	0.065 0.06	0.020 0.20	mg/L mg/L	0.0625	ND	102	80-120			D2, J





	•	5 "		0.11			W DEC		222	
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike (B042261-MS4)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed:	10/20/2020 20:04									
Antimony	0.075	0.050	mg/L	0.0625	ND	121	80-120			D2, M1
Molybdenum	0.07	0.10	mg/L	0.0625	ND	115	80-120			D2, J
Mercury	0.0028	0.0050	mg/L	0.00250	ND	110	80-120			D2, J
Arsenic	0.0732	0.0100	mg/L	0.0625	ND	117	80-120			D2
Barium	0.082	0.040	mg/L	0.0625	0.014	108	80-120			D2
Beryllium	0.0639	0.0200	mg/L	0.0625	ND	102	80-120			D2
Cadmium	0.0656	0.0100	mg/L	0.0625	ND	105	80-120			D2
Chromium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.082	0.040	mg/L	0.0625	ND	132	80-120			D2, M1
Copper	0.061	0.030	mg/L	0.0625	ND	98.3	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.11	0.20	mg/L	0.0625	ND	175	80-120			D2, M1, J
Nickel	0.089	0.030	mg/L	0.0625	0.022	107	80-120			D2
Selenium	0.069	0.030	mg/L	0.0625	ND	111	80-120			D2
Thallium	0.0647	0.0200	mg/L	0.0625	ND	104	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U
Matrix Spike Dup (B042261-MSD1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:17									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	5.93	10.0	mg/L	6.25	ND	94.9	80-120	6.26	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD2)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	414	40.0	mg/L	6.25	384	484	80-120	4.92	20	D2, M1
Iron	16.4	10.0	mg/L	6.25	9.29	114	80-120	3.84	20	D2
Magnesium	155	20.0	mg/L	6.25	97.9	913	80-120	5.08	20	D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	85.4	26.0	mg/L	6.25	72.3	209	80-120	4.70	20	D2, M1





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike Dup (B042261-MSD3)	Source: 0092620-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10/20/	2020 20:00									
Mercury	0.0027	0.0050	mg/L	0.00250	ND	107	80-120	3.90	20	D2, J
Antimony	0.071	0.050	mg/L	0.0625	ND	114	80-120	2.25	20	D2
Molybdenum	0.06	0.10	mg/L	0.0625	ND	104	80-120	4.25	20	D2, J
Arsenic	0.0678	0.0100	mg/L	0.0625	ND	109	80-120	2.47	20	D2
Barium	0.065	0.040	mg/L	0.0625	ND	104	80-120	1.34	20	D2
Beryllium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.33	20	D2
Cadmium	0.0632	0.0100	mg/L	0.0625	ND	101	80-120	2.66	20	D2
Chromium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.48	20	D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120	0.325	20	D2
Copper	0.062	0.030	mg/L	0.0625	ND	98.8	80-120	4.81	20	D2, B
Lead	0.064	0.020	mg/L	0.0625	ND	103	80-120	1.15	20	D2
Lithium	0.06	0.20	mg/L	0.0625	ND	99.1	80-120	2.77	20	D2, J
Nickel	0.063	0.030	mg/L	0.0625	ND	101	80-120	4.21	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	108	80-120	3.49	20	D2
Thallium	0.0644	0.0200	mg/L	0.0625	ND	103	80-120	1.56	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD4)	Source: 0092629-	01								
Prepared: 10/15/2020 7:52, Analyzed: 10/20/	2020 20:08									
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120	3.64	20	D2
Mercury	0.0028	0.0050	mg/L	0.00250	ND	111	80-120	0.768	20	D2, J
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120	6.82	20	D2, J
Arsenic	0.0721	0.0100	mg/L	0.0625	ND	115	80-120	1.40	20	D2
Barium	0.080	0.040	mg/L	0.0625	0.014	105	80-120	2.21	20	D2
Beryllium	0.0622	0.0200	mg/L	0.0625	ND	99.6	80-120	2.65	20	D2
Cadmium	0.0628	0.0100	mg/L	0.0625	ND	100	80-120	4.34	20	D2
Chromium	0.0645	0.0200	mg/L	0.0625	ND	103	80-120	1.44	20	D2
			U							DO 144
Cobalt	0.081	0.040	mg/L	0.0625	ND	130	80-120	1.84	20	D2, M1
		0.040 0.030	•	0.0625 0.0625	ND ND	130 93.7	80-120 80-120	1.84 4.77	20 20	
Cobalt Copper Lead	0.081		mg/L							D2, M1 D2, B D2
Copper	0.081 0.059	0.030	mg/L mg/L	0.0625	ND	93.7	80-120	4.77	20	D2, B
Copper Lead	0.081 0.059 0.063	0.030 0.020	mg/L mg/L mg/L	0.0625 0.0625	ND ND	93.7 101	80-120 80-120	4.77 2.71	20 20	D2, B D2
Copper Lead Lithium Nickel	0.081 0.059 0.063 0.11 0.088	0.030 0.020 0.20 0.030	mg/L mg/L mg/L mg/L	0.0625 0.0625 0.0625 0.0625	ND ND ND 0.022	93.7 101 179 106	80-120 80-120 80-120 80-120	4.77 2.71 2.20 0.909	20 20 20 20	D2, B D2 D2, M1, J D2
Copper Lead Lithium	0.081 0.059 0.063 0.11	0.030 0.020 0.20	mg/L mg/L mg/L	0.0625 0.0625 0.0625	ND ND ND	93.7 101 179	80-120 80-120 80-120	4.77 2.71 2.20	20 20 20	D2, B D2 D2, M1, J





	Reporti	ing	Spike	Source		%REC		RPD	
Analyte	Result Lii	mit Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2									
Post Spike (B042261-PS1)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyze	d: 10/15/2020 15:27								
Boron	113	ug/L	125	-0.57	90.4	75-125			D2
Calcium	6400	ug/L	6250	39.0	102	75-125			D2
Iron	5840	ug/L	6250	-0.050	93.5	75-125			D2
Magnesium	6590	ug/L	6250	2.27	105	75-125			D2
Potassium	6300	ug/L	6250	9.60	101	75-125			D2
Sodium	6100	ug/L	6250	21.6	97.3	75-125			D2
Post Spike (B042261-PS2)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyze	d: 10/20/2020 20:11								
Molybdenum	67.2	ug/L	62.5	0.04	107	75-125			D2
Antimony	70.5	ug/L	62.5	0.083	113	75-125			D2
Mercury	2.75	ug/L	2.50	0.0323	109	75-125			D2
Arsenic	71.3	ug/L	62.5	-0.0088	114	75-125			D2
Barium	63.7	ug/L	62.5	0.095	102	75-125			D2
Beryllium	65.4	ug/L	62.5	-0.0105	105	75-125			D2
Cadmium	63.6	ug/L	62.5	0.0157	102	75-125			D2
Chromium	65.6	ug/L	62.5	0.355	104	75-125			D2
Cobalt	63.7	ug/L	62.5	-0.003	102	75-125			D2
Copper	60.7	ug/L	62.5	-1.80	97.1	75-125			D2, B
Lead	64.8	ug/L	62.5	0.522	103	75-115			D2
Lithium	64.9	ug/L	62.5	0.04	104	75-125			D2
Nickel	63.8	ug/L	62.5	-0.079	102	75-125			D2
Selenium	67.6	ug/L	62.5	0.009	108	75-125			D2
Thallium	64.7	ug/L	62.5	0.00002	104	75-125			D2
Zinc	77.9	ug/L	62.5	3.15	120	75-125			D2





		Donortin-		Cnike	Course		0/ DEC		DDD	
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B042498 - Default Prep Wet Chem										
Blank (B042498-BLK1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/2020	17:00									
Total Dissolved Solids	ND	25	mg/L							U
	.,,,		9/=							
LCS (B042498-BS1)	17:00									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/2020 Total Dissolved Solids	1490	25	mg/L	1500		99.6	80-120			
			IIIg/L	1500		99.0	00-120			
, ,	ırce: 0092629-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/2020		=0			2222			0.50	40	
Total Dissolved Solids	2240	50	mg/L		2290			2.56	10	
Duplicate (B042498-DUP2) Soc	urce: 0102128-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/2020										
Total Dissolved Solids	364	50	mg/L		370			1.63	10	
Batch B042577 - Default Prep Wet Chem										
Blank (B042577-BLK1)										
Prepared: 10/19/2020 10:58, Analyzed: 10/19/2020	10:58									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B042577-BS1)										
Prepared: 10/19/2020 11:00, Analyzed: 10/19/2020	11:00									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B042577-DUP1) Sou	urce: 0100778-02									
Prepared: 10/19/2020 12:16, Analyzed: 10/19/2020	12:16									
Hardness as CaCO3	268	1	mg/L		260			3.03	10	
Matrix Spike (B042577-MS1) Sou	urce: 0100778-02									
Prepared: 10/19/2020 12:18, Analyzed: 10/19/2020										
Hardness as CaCO3	648	1	mg/L	318	260	122	80-120			Y1
Batch B042587 - Default Prep Wet Chem										
Blank (B042587-BLK1)										
Prepared: 10/17/2020 18:08, Analyzed: 10/17/2020		0 -								
Total Organic Carbon	ND	0.5	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042587 - Default Prep Wet Chem										
LCS (B042587-BS1)										
Prepared: 10/17/2020 17:47, Analyzed: 10/17/20	20 17:47									
Total Organic Carbon	4.7	0.5	mg/L	5.00		94.1	80-120			
Duplicate (B042587-DUP1)	Source: 0092628-01									
Prepared: 10/17/2020 23:24, Analyzed: 10/17/20	020 23:24									
Total Organic Carbon	0.9	0.5	mg/L		1.0			8.76	25	
Duplicate (B042587-DUP2)	Source: 0100200-01									
Prepared: 10/18/2020 4:41, Analyzed: 10/18/20	20 4:41									
Total Organic Carbon	2.5	0.5	mg/L		2.4			2.64	25	
Matrix Spike (B042587-MS1)	Source: 0092629-01									
Prepared: 10/17/2020 23:45, Analyzed: 10/17/20										
Total Organic Carbon	3.9	0.5	mg/L	2.50	1.6	93.3	80-120			
Matrix Spike (B042587-MS2)	Source: 0100200-02									
Prepared: 10/18/2020 5:02, Analyzed: 10/18/20	20 5:02									
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.8	94.8	80-120			
Batch B043117 - Default Prep Wet Chem										
Blank (B043117-BLK1)										
Prepared: 10/21/2020 16:14, Analyzed: 10/21/20	20 16:14									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK2)										
Prepared: 10/21/2020 18:13, Analyzed: 10/21/20	020 18:13									
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK3)										
Prepared: 10/21/2020 19:40, Analyzed: 10/21/20	020 19:40									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043117 - Default Prep Wet Chem										
LCS (B043117-BS1)										
Prepared: 10/21/2020 18:06, Analyzed: 10/21/2020	18:06									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	231	4	mg/L	225		103	0-200			
Total Alkalinity	249	4	mg/L	235		106	80-120			
LCS (B043117-BS2)										
Prepared: 10/21/2020 19:35, Analyzed: 10/21/2020	19:35									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	227	4	mg/L	225		101	0-200			
Total Alkalinity	254	4	mg/L	235		108	80-120			
Duplicate (B043117-DUP1) Soul	rce: 0092629-01									
Prepared: 10/21/2020 17:38, Analyzed: 10/21/2020	17:38									
Total Alkalinity	295	4	mg/L		283			4.39	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	295	4	mg/L		283			4.39	10	
Duplicate (B043117-DUP2) Sour	rce: 0092635-01									
Prepared: 10/21/2020 19:24, Analyzed: 10/21/2020	19:24									
Bicarbonate Alkalinity as CaCO3	281	4	mg/L		268			4.88	10	
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Total Alkalinity	281	4	mg/L		268			4.88	10	
Matrix Spike (B043117-MS1) Sour	rce: 0092629-01									
Prepared: 10/21/2020 18:03, Analyzed: 10/21/2020	18:03									
Total Alkalinity	331	4	mg/L	49.4	283	98.6	80-120			
Matrix Spike (B043117-MS2) Sour	rce: 0092635-01									
Prepared: 10/21/2020 19:30, Analyzed: 10/21/2020	19:30									
Total Alkalinity	301	4	mg/L	49.4	268	66.2	80-120			М3
Batch B043187 - Default Prep Wet Chem										
Blank (B043187-BLK1)										
Prepared: 10/20/2020 15:36, Analyzed: 10/20/2020	15:36									
Specific Conductance (Lab)	ND	1	umhos/cm							U





Reporting Spike Source %REC RPD										
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043187 - Default Prep Wet Chem										
LCS (B043187-BS1)										
Prepared: 10/20/2020 15:37, Analyzed: 10/20/2020	15:37									
Specific Conductance (Lab)	1420		umhos/cm	1410		101	80-120			
Duplicate (B043187-DUP1) Sour	ce: 0092629-0	1								
Prepared: 10/20/2020 15:54, Analyzed: 10/20/2020	15:54									
Specific Conductance (Lab)	2600	1	umhos/cm		2610			0.307	1.24	
Duplicate (B043187-DUP2) Sour	ce: 0102262-0	1								
Prepared: 10/20/2020 16:09, Analyzed: 10/20/2020	16:09									
Specific Conductance (Lab)	354	1	umhos/cm		351			0.851	1.24	
Batch B043582 - Default Prep Wet Chem										
Blank (B043582-BLK1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23/2020	15:21									
Chemical Oxygen Demand	ND	5	mg/L							U
LCS (B043582-BS1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23/2020	15:21									
Chemical Oxygen Demand	121	5	mg/L	125		96.8	90-110			
Duplicate (B043582-DUP1) Sour	ce: 0092635-0	1								
Prepared: 10/23/2020 13:24, Analyzed: 10/23/2020	15:32									
Chemical Oxygen Demand	5	5	mg/L		ND				25	
Matrix Spike (B043582-MS1) Sour	ce: 0092635-0	1								
Prepared: 10/23/2020 13:24, Analyzed: 10/23/2020	15:33									
Chemical Oxygen Demand	260	5	mg/L	250	ND	104	90-110			
Matrix Spike Dup (B043582-MSD1) Sour	ce: 0092635-0	1								
Prepared: 10/23/2020 13:24, Analyzed: 10/23/2020	15:33									
Chemical Oxygen Demand	257	5	mg/L	250	ND	103	90-110	1.21	10	





Chemical Oxygen Demand

SW846 6010 B in Water

Ion Chromatography Madisonville - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043121 - Default Prep IC										
Blank (B043121-BLK1)										
Prepared: 10/20/2020 22:42, Analyzed:	10/20/2020 22:42									
Sulfate	ND	1.0	mg/L							U
Fluoride	ND	0.20	mg/L							U
Chloride	ND	0.5	mg/L							U
LCS (B043121-BS1)										
Prepared: 10/20/2020 22:25, Analyzed:	10/20/2020 22:25									
Chloride	9.4		mg/L	10.0		93.7	90-110			
Sulfate	9.2		mg/L	10.0		91.8	90-110			
Fluoride	9.25		mg/L	10.0		92.5	90-110			
Matrix Spike (B043121-MS1)	Source: 0092635-01									
Prepared: 10/21/2020 5:58, Analyzed:	10/21/2020 5:58									
Chloride	48.6		mg/L	10.0	68.0	NR	80-120			M2
Sulfate	242		mg/L	10.0	593	NR	80-120			M2
Fluoride	9.28		mg/L	10.0	0.19	90.9	80-120			
Matrix Spike Dup (B043121-MSD1)	Source: 0092635-01									
Prepared: 10/21/2020 6:15, Analyzed:	10/21/2020 6:15									
Fluoride	9.21		mg/L	10.0	0.19	90.2	80-120	0.811	20	
Sulfate	240		mg/L	10.0	593	NR	80-120	0.795	20	M2
Chloride	48.1		mg/L	10.0	68.0	NR	80-120	1.05	10	M2
Certified Analyses included in this Rep										
Analyte	Certifications									
2320 B-2011 in Water										
Bicarbonate Alkalinity as CaCO3	KY Drinking Water Mdv	(00030)								
Carbonate Alkalinity as CaCO3	KY Drinking Water Mdv	(00030)								
Total Alkalinity	KY Drinking Water Mdv	(00030)								
2340 C (as HACH 8226) in Water										
Hardness as CaCO3	KY Drinking Water Mdv	(00030)								
2510 B-2011 in Water										
Specific Conductance (Lab)	KY Drinking Water Mdv	(00030)								
. , ,										
2540 C-2011 in Water	KY Drinking Water Mdv	(00030)								
Total Dissolved Solids	Ter Britishing Water Way	(00000)								
5310 C-2011 in Water										
Total Organic Carbon	KY Drinking Water Mdv	(00030)								
EPA 300.0 REV 2.1 in Water										
Chloride	KY Drinking Water Mdv	(00030)								
Fluoride	KY Drinking Water Mdv	(00030)								
Sulfate	KY Drinking Water Mdv	(00030)								
HACH 8000 in Water										
Chemical Oxygen Demand	KY Wastewater Mdv (00	030)								
Chemical Oxygen Demand		,								





	Sample Acceptance Checklist for Work Order 0092635
Shipped By: Client	Temperature: 1.00° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	
Check if Collector Signature Present	$oldsymbol{arDelta}$
Check if bottles are intact	
Check if bottles are correct	
Check if bottles have sufficient volume	
Check if samples received on ice	
Check if VOA headspace is acceptable	
Check if samples received in holding time.	
Check if samples are preserved properly	

Chain of Custody

Scheduled for: 09/07/2020



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Client: Big Rivers Electric Corporation V Station Project: Well Duplicate Wilson 092-0000	Big Rivers Ele Station Mike Galbrait	h	ation Wilson	Invoice To: Big Rivers E Brian Edwar PO Box 24 Henderson,	lectric Corpo	ration Wilson Station
	Phone: (270)	844-6000		PO#:		
	PWS ID#:	KY				_
Please Print Legibly	M			Quote#	anaa Manitaa	 ing? Yes No
Collected by (Signature):	equired information*			•		-
*For composite samples please indicate beg	gin time, end time and temp(oC	c) at end time	e below:	Sample	es Chionnale	d? Yes No
Influent: Start Date Start time	End Date	End Ti	me T	emp (oC)		
Effluent: Start Date Start time	Start Date End Date End Time					
LAB USE ONLY *required information* Workorder # Date Collection 0092635 (mm/dd/yy): Time (24 hr Sample ID#	l	Containers S &	mple Description	Composite	Sample	· Analysis Requested
0092635-01 A 10/13/20 1225	Plastic 1L		Well Duplicate	g/c		ity Carbonate Alkalinity de 300.0 Conductivity
0092635-01B <u>1413/20</u> 1225	Plastic 500mL pH<2 w/HNO3	1 V	Well Duplicate	g/c	(Lab) Fluoric Alkalinity Bi Beryllium To Antimony To Boron Tot 6 Cadmium T 6010B Chro Tot 6020 Co Titration Iron	de 300.0 Sulfate 300.0 carbonate of 6020 Lead Tot 6020 of 6020 Arsenic Tot 6020 of 6020 Calcium Tot 6020 calcium Tot 6020 Calcium Tot 6020 Calcium Tot 6020 Calcium Tot 6020 Calcium Tot 6020 Hardness of Tot 6010B Lithium Tot
0092635-01 C 10/13/20 1225	Preservation Check: pH: Plastic 500mL pH<2 w/H2SO4 Preservation Check: pH:	1 \	Well Duplicate	g/c	COD TOC	esium Tot 6010B
	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) Preservation Check: pH:	,	Well Duplicate	g/c	Radium 226	6 (sub)
Preservation Check Performed by: N	104					7
Field data collected by: Philip Hil	Date (mm/dd/yy	10/13/20		225		
·	1. 25 Res Cl (mg/L)	_ Tot CI (mg/L)	Fre	ee Cl (mg/L)	
100 7	Static Water Level					li li
Relinquished by: (Signature)	Received by: (Sign	nature) My		Date (mm.		Time (24 hr) UF 35
PACE- Check here if trip charge a	applied to associated COC		Printed: 9/	10/2020 10:08	:14AM	Page 18 of 31

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>09/07/2020</u>



Client: Big Rivers Electric Station	·	Report To: Big Rivers Electri Station Mike Galbraith	ic Corporation Wilson	Invoice To: Big Rivers Electric Corporation Wilson Station Brian Edwards				
Project: Well Duplicate	vviison u92-00004	PO Box 24 Henderson, KY 4	2419	PO Box 24 Henderson,	KY 42419			
		Phone: (270) 844 PWS ID#:	1 <u>-6000</u> Y	PO#: Quote#				
Please Print Legibly	M.M.	State:						
Collected by (Signature):	required	information*		·	iance Monitoring? Yes No			
*For composite samples p	please indicate begin time,	end time and temp(oC) at	t end time below:	Sample	es Chlorinated? Yes No			
Influent: Start Date	Start time	End Date	End Time	Temp (oC)				
Effluent: Start Date	luent: Start Date Start time		End Time	Temp (oC)				
Workorder # Date	U) T (0415)	ttle and Preservative	Sample Description	Composite	Sample Analysis Requested			
0092635-01 E 10/13/2		stic 1L pH<2 w/HNO3 1 Rad 228 (Sub) servation Check: pH :	Well Duplicate	g/c	Radium 228 (sub)			
0092635-01 F 10/13/	20 1225 Pla	stic 1L pH<2 w/HNO3 1 Rad 228 (Sub)	Well Duplicate	g/c	Radium 228 (sub)			
0092635-01 G 10/13/	100.5	ervation Check: pH : stic 1L pH<2 w/HNO3 (Sub)	Well Duplicate	g / c	Radium Total (sub)			
0092635-01 Н <u>J<i>0</i>//3</u> /2	1225	AG 250mL pH<2 1 w/H2SO4 servation Check: pH :	Well Duplicate	g/c	тос			
Preservation Check Perl	formed by:	<u>/</u>						
Field data collected by: _	Phillip Hill	Date (mm/dd/yy) _/	0/13/20 Time (24 hr)	1225				
pH <u>6.81</u>	Cond (umho) 1.25	Res CI (mg/L)	Tot CI (mg/L) _	Fre	ee CI (mg/L)			
Temp (oC) 18.87		Static Water Level						
Flow (MGD)	or (CFS)							
Relinquished by: (Signatu	re	Received by: (Signatu	re)	Date (mm/	//dd/yy) Time (24 hr) //-2a			

PACE- Check here if trip charge applied to associated COC

Printed: 9/10/2020 10:08:14AM

Page 19 of 31

(724)850-5600



November 04, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 92635

Pace Project No.: 30387830

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on October 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 - Greensburg

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

Sincerely,

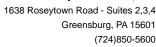
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 92635 Pace Project No.: 30387830

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

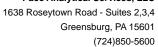
Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

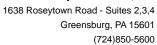




SAMPLE SUMMARY

Project: 92635
Pace Project No.: 30387830

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30387830001	0092635-01	Water	10/13/20 12:25	10/15/20 09:25



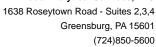


SAMPLE ANALYTE COUNT

Project: 92635
Pace Project No.: 30387830

		Analytes Analytes						
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory			
30387830001	0092635-01	EPA 903.1	MK1	1	PASI-PA			
		EPA 904.0	VAL	1	PASI-PA			
		Total Radium Calculation	CMC	1	PASI-PA			

PASI-PA = Pace Analytical Services - Greensburg



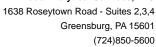


ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92635 Pace Project No.: 30387830

Sample: 0092635-01 Lab ID: 30387830001 Collected: 10/13/20 12:25 Received: 10/15/20 09:25 Matrix: Water PWS: Site ID: Sample Type:

Comments: • Sample collect	ion dates and times were r	not present on the sample containers.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical	Services - Greensburg				
Radium-226	EPA 903.1	0.151 ± 0.230 (0.370) C:NA T:104%	pCi/L	11/04/20 13:13	13982-63-3	
	Pace Analytical	Services - Greensburg				
Radium-228	EPA 904.0	2.64 ± 0.734 (0.801) C:66% T:87%	pCi/L	10/30/20 12:01	15262-20-1	
	Pace Analytical	Services - Greensburg				
Total Radium	Total Radium Calculation	2.79 ± 0.964 (1.17)	pCi/L	11/04/20 14:23	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project:

92635

Pace Project No.:

30387830

QC Batch: QC Batch Method: 419199

EPA 903.1

Analysis Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387830001

Associated Lab Samples:

Matrix: Water

METHOD BLANK: 2026443

30387830001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

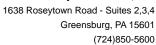
Radium-226

-0.0904 ± 0.280 (0.637) C:NA T:89%

pCi/L

11/04/20 12:44

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: 92635
Pace Project No.: 30387830

QC Batch: 419200

QC Batch Method: EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387830001

METHOD BLANK: 2026444

Matrix: Water

Associated Lab Samples: 30

30387830001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

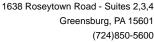
Radium-228

 $0.598 \pm 0.458 \quad (0.907) \text{ C:69\% T:82\%}$

pCi/L

10/30/20 12:00

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: 92635 Pace Project No.: 30387830

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.

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: 11/04/2020 02:25 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Chain of Custody

Face Analytical *

LAB USE ONLY S S WO#:30387830 Sample Intact (V. Or N Results Requested By: Comments Requested Analysis 10/15/20/24/SI Workorder Name: Well Duplicate Wilson 092 Owner Received Date: 10/14/2020 Received on Ice / or N EPA 904.0 Radium Sum Calc Date/Time £.£06 A93 Preserved Containers Pace Analytical Services LLC Greensburg PA Green Matrix Water emport. Reveived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Custody Seal Y or/N Greensburg, PA 15601 Lab ID Date/Time Subcontract To: (724)850-561510/13/20 12:25 Date/Time Collect ပ Sample Type rob.whittington@pacelabs.com Cooler Temperature on Receipt Madisonville, KY 42409 Workorder: 92635 Transfers | Released By McCoy & McCoy Labs 0092635-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 10 ന 4 Ŋ 9 ∞

FMT-ALL-C-002rev.00 24March2009

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC

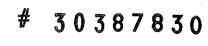
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Page 1 of 1

Friday, June 17, 2016 11:01:34 AM Page 28 of 31

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0092635



SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375

Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA

1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601

Phone: (724) 850-5615

Fax:

Analysis		Expires	Laboratory ID	Comments	Comments		
Sample ID: 0092635-01	Water	Sampled:10/13/2020 12:25	Specific Method				
Radium Total (sub)		04/11/2021 12:25	EPA 904.0 Radium S	um (
Radium 228 (sub)		04/11/2021 12:25	EPA 904.0 Radium S	ium (
Radium 226 (sub)		04/11/2021 12:25	EPA 903.1				

Neleased By

Date

Received By

Date

Released By

Date

Received By

Date

Pittsburgh Lab Sample Condition Upon Receipt					
Pacs Analytical Client Name:	<u>M</u>	ad	NSC	ONVIK Project # 30387830	
Courier: Fed Ex UPS USPS Client Commercial Pace Other Tracking #: 1107 3386 9238 9256 9271 Lims Login 6567					
Custody Seal on Cooler/Box Present:					
Cooler Temperature Observed Temp 75/17/ °C Correction Factor: 0.1°C Final Temp: 1.41/1.45					
Temp should be above freezing to 6°C pH paper Lot# Date and Initials of person examining					
Comments:	Yes	No	N/A		
Chain of Custody Present:		<u>†</u>	·	11.	
Chain of Custody Filled Out:	+			2.	
Chain of Custody Relinquished:			2	3.	
Sampler Name & Signature on COC:	 		ļ	4.	
Sample Labels match COC:				5 nodatel time ancentainers.	
-Includes date/time/ID Matrix:	<u>M1</u>	T		1100001 Give so Carlescent	
Samples Arrived within Hold Time:		<u> </u>		6.	
Short Hold Time Analysis (<72hr remaining):	<u> </u>			7,	
Rush Turn Around Time Requested:				8.	
Sufficient Volume:				9.	
Correct Containers Used:				10.	
-Pace Containers Used:					
Containers Intact:		<u> </u>		11.	
Orthophosphate field filtered				12.	
Hex Cr Aqueous sample field filtered				13.	
Organic Samples checked for dechlorination:				14	
Filtered volume received for Dissolved tests				15.	
All containers have been checked for preservation.		-		16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.				Initial when Date/time of preservation	
requierients.			· · · · · ·	Lot # of added preservative	
Headspace in VOA Vials (>6mm):				17.	
Trip Blank Present:				18.	
Trip Blank Custody Seals Present	A AM /AT 111				
Rad Samples Screened < 0.5 mrem/hr				Initial when completed: Date: VOI 16120	
Client Notification/ Resolution:					
Person-Contacted:Date/Fime:Contacted By:					
Comments/ Resolution:					
-					
W-1-1					

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

A check in this box indicates that additional information has been stored in ereports.

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Sample Custody

- 30387830

By Abbey Larkins Printed 10/14/2020 12:00

	OwnBenartmehhcatiorHome	e Locatitatus Dispositio@ustody Date
	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092620-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Statistical CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092620-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Statistation CooleAEL 0092620-01 Plastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092621-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Statistical CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092621-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Statiguit CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092621-01 @lastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092622-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Statishult CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092622-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Statiguit CooleAEL		Batched Active (Out)10/14/2020 11:59
0092622-01 @lastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	
0092623-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Statishult CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092623-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Statishult CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092623-01 @lastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092624-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Statishult CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092624-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Statianit CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092624-01 @lastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092625-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Statifault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092625-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Statilault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092625-01 @lastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092626-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Statiault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092626-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Subfault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092626-01 @lastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092627-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Statiault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092627-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Statfault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092627-01 @lastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092628-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Satfault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092628-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Statiault Coole AEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092628-01 @lastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092629-01 Plastic 1L pH<2 w/HNO3 Rad 226 (SDaffault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092629-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Statisault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092629-01 @lastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092630-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Shelfault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092630-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Sudfault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092630-01 @lastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092631-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Statiault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092631-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Statiatile CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092631-01 @lastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092632-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Statiault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092632-01 Plastic 1L pH<2 w/HNO3 Rad 228 (\$\frac{1}{2}\text{effault CooleAEL}	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092632-01 Plastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092633-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Statiault CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092633-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Statishult CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092633-01 Plastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092634-01 Plastic 1L pH<2 w/HNO3 Rad 226 (Statishult CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092634-01 Plastic 1L pH<2 W/HNO3 Rad 228 (Substitution CooleAEL	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
	- Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092634-01 @lastic 1L pH<2-w/HNO3 (Sub) Default CooleAEL Religions Substitution (Substitution of Substitution	Received By In-Transit	Batched Active (Out)10/14/2020 11:59
111111111111111111111111111111111111111	Wet Chem In-Transit	Batched Active (Out)10/14/2020 11:59
0092635-01 Plastic 1L pH<2 w/HNO3 Rad 228 (Statishult CooleAEL		
0092635-01 Blastic 1L pH<2 w/HNO3 (Sub) Default CooleAEL Relinquished By	Wet Chem In-Transit Received By	Batched Active (Out)10/14/2020 11:59

appry Laure 10-14-20

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Certificate of Analysis 0092620

Mike Galbraith Big Rivers Electric Corporation Wilson Station PO Box 24 Henderson KY, 42419 Customer ID: Report Printed: 44-100168 11/05/2020 13:17

Project Name:

Field Blank Wilson 092-00004

Workorder:

0092620

Dear Mike Galbraith

Enclosed are the analytical results for samples received at one of our laboratories on 10/14/2020 08:38.

Pace Analytical Services LLC Kentucky is a commercial laboratory accredited by various state and national authorities, including Indiana, Kentucky, Tennessee, and Virginia's National Environmental Laboratory Accreditation Program (NELAP). With the NELAP accreditation, applicable test results are certified to meet the requirements of the National Environmental Laboratory Accreditation Program.

If you have any questions concerning this report please contact the individual listed below.

Please note that this certificate of analysis may not be reproduced without the written consent of Pace Analytical Services, LLC Kentucky.



#460210 Madisonville, KY #460293 Pikeville, KY

> This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Rob Whittington

Rob Whittington, Project Manager



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
0092620-01	Field Blank/	Water	10/13/2020 11:55	10/14/2020 8:38	Travis Sneed



Pace Analytical Services, LLC P.O. Box 907 Madisonville, KY 42431 270.821.7375 www.pacelabs.com

ANALYTICAL RESULTS

Lab Sample ID: 0092620-01 Sample Collection Date Time: 10/13/2020 11:55
Description: Field Blank Sample Received Date Time: 10/14/2020 08:38

Metals by SW846 6000 Series Methods

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Antimony	ND	U	mg/L	0.005	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Arsenic	ND	U	mg/L	0.0010	0.0004	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Barium	ND	U	mg/L	0.004	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Beryllium	ND	U	mg/L	0.0020	0.0010	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Boron	ND	M4, U	mg/L	0.10	0.10	SW846 6010 B	10/15/2020 07:52	10/15/2020 12:59	AKB
Cadmium	ND	U	mg/L	0.0010	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Calcium	ND	M4, U	mg/L	0.40	0.13	SW846 6010 B	10/15/2020 07:52	10/15/2020 12:59	AKB
Chromium	ND	U	mg/L	0.0020	0.0006	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Cobalt	ND	U	mg/L	0.004	0.004	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Copper	ND	B, U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Iron	ND	U	mg/L	0.100	0.050	SW846 6010 B	10/15/2020 07:52	10/15/2020 12:59	AKB
Lead	0.0005	J	mg/L	0.002	0.0005	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Lithium	ND	U	mg/L	0.02	0.005	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Magnesium	ND	M4, U	mg/L	0.200	0.090	SW846 6010 B	10/15/2020 07:52	10/15/2020 12:59	AKB
Mercury	ND	U	mg/L	0.0005	0.0002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Molybdenum	ND	U	mg/L	0.01	0.002	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Nickel	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Potassium	ND	L1,	mg/L	0.50	0.22	SW846 6010 B	10/15/2020 07:52	10/15/2020 12:59	AKB
		M4, U							
Selenium	ND	U	mg/L	0.003	0.001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Sodium	ND	M4, U	mg/L	0.26	0.10	SW846 6010 B	10/15/2020 07:52	10/15/2020 12:59	AKB
Thallium	ND	U	mg/L	0.0020	0.0001	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM
Zinc	ND	M4, U	mg/L	0.02	0.02	SW846-6020 A	10/15/2020 07:52	10/20/2020 18:20	CAM

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Bicarbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	10/21/2020 16:49	10/21/2020 16:49	HMF
Carbonate Alkalinity as CaCO3	ND	U	mg/L	4		2320 B-2011	10/21/2020 16:49	10/21/2020 16:49	HMF
Total Alkalinity	ND	U	mg/L	4		2320 B-2011	10/21/2020 16:49	10/21/2020 16:49	HMF
Chemical Oxygen Demand	ND	U	mg/L	5	5	HACH 8000	10/23/2020 13:24	10/23/2020 15:28	HMF
Specific Conductance (Lab)	4		umhos/cm	1	1	2510 B-2011	10/20/2020 15:38	10/20/2020 15:38	CML
Hardness as CaCO3	24		mg/L	1	1	2340 C (as HACH 8226)	10/19/2020 11:02	10/19/2020 11:02	CLL
Total Dissolved Solids	ND	U	mg/L	50	50	2540 C-2011	10/16/2020 11:40	10/19/2020 17:00	DJK
Total Organic Carbon	ND	U	mg/L	0.5		5310 C-2011	10/17/2020 18:50	10/17/2020 18:50	HMF

Subcontracted Analyses

Analyte	Result I	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Radium-226	-0.112	_Sub	pCi/L			EPA 903.1	11/04/2020 00:00	11/04/2020 00:00	XXX
Radium-228	0.751	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	10/30/2020 00:00	10/30/2020 00:00	XXX
Radium	0.751	_Sub	pCi/L			EPA 904.0 Radium Sum Calc	11/04/2020 00:00	11/04/2020 00:00	XXX





Ion Chromatography Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chloride	ND	M1, U	mg/L	0.5	0.4	EPA 300.0 REV 2.1	10/20/2020 16:02	10/20/2020 16:02	CSC
Fluoride	ND	M1, U	mg/L	0.20		EPA 300.0 REV 2.1	10/20/2020 16:02	10/20/2020 16:02	CSC
Sulfate	ND	M1, U	mg/L	1.0	0.5	EPA 300.0 REV 2.1	10/20/2020 16:02	10/20/2020 16:02	CSC

Notes for work order 0092620

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

_Sub	See subcontractors report.
В	Target analyte detected in method blank at or above the method reporting limit.
D2	Sample required dilution due to matrix interference.
J	Estimated value.
L1	The associated blank spike recovery was above method acceptance limits.
M1	Matrix spike recovery was high; the method control sample recovery was acceptable.
М3	The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to spike level. The method control sample recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.
U	Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).
Y1	Sample RPD exceeded the method control limit.

Standard Qualifiers/Acronymns

MDL

MRL	Minimum Reporting Limit
ND	Not Detected
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
% Rec	Percent Recovery
RPD	Relative Percent Difference
>	Greater than
`	Less than

Method Detection Limit

Results relate only to the items tested.



		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	12:52									
Boron	ND	0.10	mg/L							U
Calcium	ND	0.40	mg/L							U
Iron	ND	0.100	mg/L							U
Magnesium	ND	0.200	mg/L							U
Potassium	ND	0.50	mg/L							U
Sodium	ND	0.26	mg/L							U
Blank (B042261-BLK2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	10:10									
Potassium	ND	0.50	mg/L							U
Blank (B042261-BLK3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	16:36									
Mercury	ND	0.0005	mg/L							U
Molybdenum	ND	0.01	mg/L							U
Antimony	ND	0.005	mg/L							U
Arsenic	ND	0.0010	mg/L							U
Barium	ND	0.004	mg/L							U
Beryllium	ND	0.0020	mg/L							U
Cadmium	ND	0.0010	mg/L							U
Chromium	ND	0.0020	mg/L							U
Cobalt	ND	0.004	mg/L							U
Copper	0.003	0.003	mg/L							В
Lead	ND	0.002	mg/L							U
Lithium	ND	0.02	mg/L							U
Nickel	ND	0.003	mg/L							U
Selenium	ND	0.003	mg/L							U
Thallium	ND	0.0020	mg/L							U
Zinc	ND	0.02	mg/L							U





		D "		0 "	0		0/ DE0		DDD	
Analyta	Dec. It	Reporting	I Imit -	Spike	Source	0/ DEO	%REC	DDD	RPD	Matri
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Blank (B042261-BLK4)										
Prepared: 10/15/2020 7:52, Analyzed: 10/21/2020	2:43									
Molybdenum	ND	0.01	mg/L							U
Copper	0.003	0.003	mg/L							В
Selenium	ND	0.003	mg/L							U
LCS (B042261-BS1)										
Prepared: 10/15/2020 7:52, Analyzed: 10/15/2020	2:56									
Boron	0.13	0.10	mg/L	0.125		101	85-115			
Calcium	6.42	0.40	mg/L	6.25		103	85-115			
Iron	6.27	0.100	mg/L	6.25		100	85-115			
Magnesium	5.31	0.200	mg/L	6.25		85.0	85-115			
Potassium	8.21	0.50	mg/L	6.25		131	85-115			L1
Sodium	6.41	0.26	mg/L	6.25		103	85-115			
LCS (B042261-BS2)										
Prepared: 10/15/2020 7:52, Analyzed: 10/16/2020	0:13									
Potassium	6.67	0.50	mg/L	6.25		107	85-115			
LCS (B042261-BS3)										
Prepared: 10/15/2020 7:52, Analyzed: 10/20/2020	6:40									
Mercury	0.0025	0.0005	mg/L	0.00250		101	85-115			
Antimony	0.072	0.005	mg/L	0.0625		115	85-115			
Molybdenum	0.07	0.01	mg/L	0.0625		109	85-115			
Arsenic	0.0657	0.0010	mg/L	0.0625		105	85-115			
Barium	0.067	0.004	mg/L	0.0625		107	85-115			
Beryllium	0.0647	0.0020	mg/L	0.0625		103	85-115			
Cadmium	0.0646	0.0010	mg/L	0.0625		103	85-115			
Chromium	0.0682	0.0020	mg/L	0.0625		109	85-115			
Cobalt	0.067	0.004	mg/L	0.0625		107	85-115			
Copper	0.068	0.003	mg/L	0.0625		109	85-115			В
Lead	0.065	0.002	mg/L	0.0625		104	85-115			
Lithium	0.07	0.02	mg/L	0.0625		107	85-115			
Nickel	0.066	0.003	mg/L	0.0625		106	85-115			
Selenium	0.066	0.003	mg/L	0.0625		105	85-115			
Thallium	0.0663	0.0020	mg/L	0.0625		106	85-115			
Zinc	0.07	0.02	mg/L	0.0625		106	85-115			





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
LCS (B042261-BS4)										
Prepared: 10/15/2020 7:52, Analyzed	: 10/21/2020 12:47									
Molybdenum	0.07	0.01	mg/L	0.0625		107	85-115			
Copper	0.067	0.003	mg/L	0.0625		107	85-115			В
Selenium	0.064	0.003	mg/L	0.0625		103	85-115			
Matrix Spike (B042261-MS1)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed	: 10/15/2020 15:14									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120			D2, M4, U
Iron	5.57	10.0	mg/L	6.25	ND	89.1	80-120			D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120			D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120			D2, M4, U
Matrix Spike (B042261-MS2)	Source: 0092629-01									
Prepared: 10/15/2020 7:52, Analyzed	: 10/15/2020 15:21									
Boron	ND	10.0	mg/L	0.125	ND		80-120			D2, M4, U
Calcium	394	40.0	mg/L	6.25	384	166	80-120			D2, M1
Iron	15.8	10.0	mg/L	6.25	9.29	105	80-120			D2
Magnesium	147	20.0	mg/L	6.25	97.9	790	80-120			D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120			D2, M4, U
Sodium	81.5	26.0	mg/L	6.25	72.3	146	80-120			D2, M1
Matrix Spike (B042261-MS3)	Source: 0092620-01									
Prepared: 10/15/2020 7:52, Analyzed	: 10/20/2020 19:57									
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120			D2
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120			D2, J
Mercury	0.0028	0.0050	mg/L	0.00250	ND	112	80-120			D2, J
Arsenic	0.0695	0.0100	mg/L	0.0625	ND	111	80-120			D2
Barium	0.066	0.040	mg/L	0.0625	ND	105	80-120			D2
Beryllium	0.0628	0.0200	mg/L	0.0625	ND	101	80-120			D2
Cadmium	0.0649	0.0100	mg/L	0.0625	ND	104	80-120			D2
Chromium	0.0659	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.065	0.040	mg/L	0.0625	ND	104	80-120			D2
Copper	0.065	0.030	mg/L	0.0625	ND	104	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.06	0.20	mg/L	0.0625	ND	102	80-120			D2, J
Nickel	0.066	0.030	mg/L	0.0625	ND	105	80-120			D2
Selenium	0.070	0.030	mg/L	0.0625	ND	112	80-120			D2
Thallium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Analyte	resuit	Liiiii	Office	LCVCI	Nesun	/IIILO	Liiiilo	IN D	Liiiii	Notes
Batch B042261 - EPA 200.2										
Matrix Spike (B042261-MS4)	Source: 0092629-01	l								
Prepared: 10/15/2020 7:52, Analyzed:	10/20/2020 20:04									
Mercury	0.0028	0.0050	mg/L	0.00250	ND	110	80-120			D2, J
Molybdenum	0.07	0.10	mg/L	0.0625	ND	115	80-120			D2, J
Antimony	0.075	0.050	mg/L	0.0625	ND	121	80-120			D2, M1
Arsenic	0.0732	0.0100	mg/L	0.0625	ND	117	80-120			D2
Barium	0.082	0.040	mg/L	0.0625	0.014	108	80-120			D2
Beryllium	0.0639	0.0200	mg/L	0.0625	ND	102	80-120			D2
Cadmium	0.0656	0.0100	mg/L	0.0625	ND	105	80-120			D2
Chromium	0.0654	0.0200	mg/L	0.0625	ND	105	80-120			D2
Cobalt	0.082	0.040	mg/L	0.0625	ND	132	80-120			D2, M1
Copper	0.061	0.030	mg/L	0.0625	ND	98.3	80-120			D2, B
Lead	0.065	0.020	mg/L	0.0625	ND	104	80-120			D2
Lithium	0.11	0.20	mg/L	0.0625	ND	175	80-120			D2, M1, J
Nickel	0.089	0.030	mg/L	0.0625	0.022	107	80-120			D2
Selenium	0.069	0.030	mg/L	0.0625	ND	111	80-120			D2
Thallium	0.0647	0.0200	mg/L	0.0625	ND	104	80-120			D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120			D2, M4, U
Matrix Spike Dup (B042261-MSD1)	Source: 0092620-01	l								
Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:17									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	ND	40.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Iron	5.93	10.0	mg/L	6.25	ND	94.9	80-120	6.26	20	D2, J
Magnesium	ND	20.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	ND	26.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD2)	Source: 0092629-01	I								
Prepared: 10/15/2020 7:52, Analyzed:	10/15/2020 15:24									
Boron	ND	10.0	mg/L	0.125	ND		80-120		20	D2, M4, U
Calcium	414	40.0	mg/L	6.25	384	484	80-120	4.92	20	D2, M1
Iron	16.4	10.0	mg/L	6.25	9.29	114	80-120	3.84	20	D2
Magnesium	155	20.0	mg/L	6.25	97.9	913	80-120	5.08	20	D2, M1
Potassium	ND	50.0	mg/L	6.25	ND		80-120		20	D2, M4, U
Sodium	85.4	26.0	mg/L	6.25	72.3	209	80-120	4.70	20	D2, M1
		-0.0								,





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042261 - EPA 200.2										
Matrix Spike Dup (B042261-MSD3)	Source: 0092620-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/2										
Antimony	0.071	0.050	mg/L	0.0625	ND	114	80-120	2.25	20	D2
Mercury	0.0027	0.0050	mg/L	0.00250	ND	107	80-120	3.90	20	D2, J
Molybdenum	0.06	0.10	mg/L	0.0625	ND	104	80-120	4.25	20	D2, J
Arsenic	0.0678	0.0100	mg/L	0.0625	ND	109	80-120	2.47	20	D2
Barium	0.065	0.040	mg/L	0.0625	ND	104	80-120	1.34	20	D2
Beryllium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.33	20	D2
Cadmium	0.0632	0.0100	mg/L	0.0625	ND	101	80-120	2.66	20	D2
Chromium	0.0643	0.0200	mg/L	0.0625	ND	103	80-120	2.48	20	D2
Cobalt	0.065	0.0200	mg/L	0.0625	ND	103	80-120	0.325	20	D2 D2
	0.062	0.040	•	0.0625	ND	98.8	80-120	4.81	20	D2, B
Copper Lead	0.062	0.030	mg/L	0.0625	ND	103	80-120	1.15	20	D2, Б D2
Lithium	0.064	0.020	mg/L	0.0625	ND	99.1	80-120	2.77	20	D2, J
			mg/L							
Nickel	0.063	0.030	mg/L	0.0625	ND	101	80-120	4.21	20	D2 D2
Selenium	0.067	0.030	mg/L	0.0625	ND	108	80-120	3.49	20	
Thallium	0.0644	0.0200	mg/L	0.0625	ND	103	80-120	1.56	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120		20	D2, M4, U
Matrix Spike Dup (B042261-MSD4)	Source: 0092629-0	1								
Prepared: 10/15/2020 7:52, Analyzed: 10/2	20/2020 20:08									
Antimony	0.073	0.050	mg/L	0.0625	ND	116	80-120	3.64	20	D2
Molybdenum	0.07	0.10	mg/L	0.0625	ND	108	80-120	6.82	20	D2, J
Mercury	0.0028	0.0050	mg/L	0.00250	ND	111	80-120	0.768	20	D2, J
Arsenic	0.0721	0.0100	mg/L	0.0625	ND	115	80-120	1.40	20	D2
Barium	0.080	0.040	mg/L	0.0625	0.014	105	80-120	2.21	20	D2
Beryllium	0.0622	0.0200	mg/L	0.0625	ND	99.6	80-120	2.65	20	D2
Cadmium	0.0628	0.0100	mg/L	0.0625	ND	100	80-120	4.34	20	D2
Chromium	0.0645	0.0200	mg/L	0.0625	ND	103	80-120	1.44	20	D2
Cobalt	0.081	0.040	mg/L	0.0625	ND	130	80-120	1.84	20	D2, M1
Copper	0.059	0.030	mg/L	0.0625	ND	93.7	80-120	4.77	20	D2, B
Lead	0.063	0.020	mg/L	0.0625	ND	101	80-120	2.71	20	D2
Lithium	0.11	0.20	mg/L	0.0625	ND	179	80-120	2.20	20	D2, M1, J
Nickel	0.088	0.030	mg/L	0.0625	0.022	106	80-120	0.909	20	D2
Selenium	0.067	0.030	mg/L	0.0625	ND	107	80-120	2.91	20	D2
Thallium	0.0641	0.0200	mg/L	0.0625	ND	103	80-120	0.991	20	D2
Zinc	ND	0.20	mg/L	0.0625	ND		80-120	0.00.	20	D2, M4, U





	Donarti	ina	Spiko	Course		%REC		RPD	
Analyte	Reporti	· ·	Spike	Source	0/ DEC		RPD		Notes
Analyte	Result Lii	mit Units	Level	Result	%REC	Limits	KPD	Limit	Notes
Batch B042261 - EPA 200.2									
Post Spike (B042261-PS1)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyzed	d: 10/15/2020 15:27								
Boron	113	ug/L	125	-0.57	90.4	75-125			D2
Calcium	6400	ug/L	6250	39.0	102	75-125			D2
Iron	5840	ug/L	6250	-0.050	93.5	75-125			D2
Magnesium	6590	ug/L	6250	2.27	105	75-125			D2
Potassium	6300	ug/L	6250	9.60	101	75-125			D2
Sodium	6100	ug/L	6250	21.6	97.3	75-125			D2
Post Spike (B042261-PS2)	Source: 0092620-01								
Prepared: 10/15/2020 7:52, Analyzed	d: 10/20/2020 20:11								
Antimony	70.5	ug/L	62.5	0.083	113	75-125			D2
Molybdenum	67.2	ug/L	62.5	0.04	107	75-125			D2
Mercury	2.75	ug/L	2.50	0.0323	109	75-125			D2
Arsenic	71.3	ug/L	62.5	-0.0088	114	75-125			D2
Barium	63.7	ug/L	62.5	0.095	102	75-125			D2
Beryllium	65.4	ug/L	62.5	-0.0105	105	75-125			D2
Cadmium	63.6	ug/L	62.5	0.0157	102	75-125			D2
Chromium	65.6	ug/L	62.5	0.355	104	75-125			D2
Cobalt	63.7	ug/L	62.5	-0.003	102	75-125			D2
Copper	60.7	ug/L	62.5	-1.80	97.1	75-125			D2, B
Lead	64.8	ug/L	62.5	0.522	103	75-115			D2
Lithium	64.9	ug/L	62.5	0.04	104	75-125			D2
Nickel	63.8	ug/L	62.5	-0.079	102	75-125			D2
Selenium	67.6	ug/L	62.5	0.009	108	75-125			D2
Thallium	64.7	ug/L	62.5	0.00002	104	75-125			D2
Zinc	77.9	ug/L	62.5	3.15	120	75-125			D2





	F	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042498 - Default Prep Wet Chem										
Blank (B042498-BLK1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	ND	25	mg/L							U
LCS (B042498-BS1)										
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	1490	25	mg/L	1500		99.6	80-120			
Duplicate (B042498-DUP1) S	ource: 0092629-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	2240	50	mg/L		2290			2.56	10	
Duplicate (B042498-DUP2) S	ource: 0102128-01									
Prepared: 10/16/2020 11:40, Analyzed: 10/19/202	20 17:00									
Total Dissolved Solids	364	50	mg/L		370			1.63	10	
Batch B042577 - Default Prep Wet Chem										
Blank (B042577-BLK1)										
Prepared: 10/19/2020 10:58, Analyzed: 10/19/2020	20 10:58									
Hardness as CaCO3	ND	1	mg/L							U
LCS (B042577-BS1)										
Prepared: 10/19/2020 11:00, Analyzed: 10/19/2020	20 11:00									
Hardness as CaCO3	230	1	mg/L	225		102	80-120			
Duplicate (B042577-DUP1) S	ource: 0100778-02									
Prepared: 10/19/2020 12:16, Analyzed: 10/19/2020	20 12:16									
Hardness as CaCO3	268	1	mg/L		260			3.03	10	
Matrix Spike (B042577-MS1)	ource: 0100778-02									
Prepared: 10/19/2020 12:18, Analyzed: 10/19/2020	20 12:18									
Hardness as CaCO3	648	1	mg/L	318	260	122	80-120			Y1
Batch B042587 - Default Prep Wet Chem										
Blank (B042587-BLK1)										
Prepared: 10/17/2020 18:08, Analyzed: 10/17/2020	20 18:08									
Total Organic Carbon	ND	0.5	mg/L							U





		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B042587 - Default Prep Wet Chem										
LCS (B042587-BS1)										
Prepared: 10/17/2020 17:47, Analyzed: 10/1	7/2020 17:47									
Total Organic Carbon	4.7	0.5	mg/L	5.00		94.1	80-120			
Duplicate (B042587-DUP1)	Source: 0092628-01									
Prepared: 10/17/2020 23:24, Analyzed: 10/1	7/2020 23:24									
Total Organic Carbon	0.9	0.5	mg/L		1.0			8.76	25	
Duplicate (B042587-DUP2)	Source: 0100200-01									
Prepared: 10/18/2020 4:41, Analyzed: 10/18	3/2020 4:41									
Total Organic Carbon	2.5	0.5	mg/L		2.4			2.64	25	
Matrix Spike (B042587-MS1)	Source: 0092629-01	<u> </u>					<u> </u>			
Prepared: 10/17/2020 23:45, Analyzed: 10/1	7/2020 23:45									
Total Organic Carbon	3.9	0.5	mg/L	2.50	1.6	93.3	80-120			
Matrix Spike (B042587-MS2)	Source: 0100200-02									
Prepared: 10/18/2020 5:02, Analyzed: 10/18	3/2020 5:02									
Total Organic Carbon	6.5	0.5	mg/L	5.00	1.8	94.8	80-120			
Batch B043117 - Default Prep Wet Chem										
Blank (B043117-BLK1)										
Prepared: 10/21/2020 16:14, Analyzed: 10/2	1/2020 16:14									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK2)										
Prepared: 10/21/2020 18:13, Analyzed: 10/2	1/2020 18:13									
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Total Alkalinity	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U
Blank (B043117-BLK3)										
Prepared: 10/21/2020 19:40, Analyzed: 10/2	1/2020 19:40									
Total Alkalinity	ND	4	mg/L							U
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L							U
Carbonate Alkalinity as CaCO3	ND	4	mg/L							U



Conventional Chemistry Analyses madisonvine - Quality Control										
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B043117 - Default Prep Wet Chem										
LCS (B043117-BS1)										
Prepared: 10/21/2020 18:06, Analyzed: 10/21/	/2020 18:06									
Total Alkalinity	249	4	mg/L	235		106	80-120			
Carbonate Alkalinity as CaCO3	231	4	mg/L	225		103	0-200			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
LCS (B043117-BS2)										
Prepared: 10/21/2020 19:35, Analyzed: 10/21/	/2020 19:35									
Total Alkalinity	254	4	mg/L	235		108	80-120			
Bicarbonate Alkalinity as CaCO3	ND	4	mg/L	0.106			0-200			U
Carbonate Alkalinity as CaCO3	227	4	mg/L	225		101	0-200			
Duplicate (B043117-DUP1)	Source: 0092629-01									
Prepared: 10/21/2020 17:38, Analyzed: 10/21/	/2020 17:38									
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Total Alkalinity	295	4	mg/L		283			4.39	10	
Bicarbonate Alkalinity as CaCO3	295	4	mg/L		283			4.39	10	
Duplicate (B043117-DUP2)	Source: 0092635-01									
Prepared: 10/21/2020 19:24, Analyzed: 10/21/	/2020 19:24									
Carbonate Alkalinity as CaCO3	ND	4	mg/L		ND				10	U
Bicarbonate Alkalinity as CaCO3	281	4	mg/L		268			4.88	10	
Total Alkalinity	281	4	mg/L		268			4.88	10	
Matrix Spike (B043117-MS1)	Source: 0092629-01									
Prepared: 10/21/2020 18:03, Analyzed: 10/21/	/2020 18:03									
Total Alkalinity	331	4	mg/L	49.4	283	98.6	80-120			
Matrix Spike (B043117-MS2)	Source: 0092635-01									
Prepared: 10/21/2020 19:30, Analyzed: 10/21/	/2020 19:30									
Total Alkalinity	301	4	mg/L	49.4	268	66.2	80-120			МЗ
Batch B043187 - Default Prep Wet Chem										
Blank (B043187-BLK1)										
Prepared: 10/20/2020 15:36, Analyzed: 10/20/	/2020 15:36									
Specific Conductance (Lab)	ND	1	umhos/cm							U





				0-:1	0		0/ DEC		DDD	
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
,	Nesuit	LIIIII	Office	LCVCI	resuit	/orceo	LIIIIIG	IN D	LIIIII	110163
Batch B043187 - Default Prep Wet Chem										
LCS (B043187-BS1)										
Prepared: 10/20/2020 15:37, Analyzed: 10/20/2	2020 15:37									
Specific Conductance (Lab)	1420		umhos/cm	1410		101	80-120			
Duplicate (B043187-DUP1)	Source: 0092629-01									
Prepared: 10/20/2020 15:54, Analyzed: 10/20/2	020 15:54									
Specific Conductance (Lab)	2600	1	umhos/cm		2610			0.307	1.24	
Duplicate (B043187-DUP2)	Source: 0102262-01									
Prepared: 10/20/2020 16:09, Analyzed: 10/20/2	2020 16:09									
Specific Conductance (Lab)	354	1	umhos/cm		351			0.851	1.24	
Batch B043582 - Default Prep Wet Chem										
Blank (B043582-BLK1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23/2	2020 15:21									
Chemical Oxygen Demand	ND	5	mg/L							U
LCS (B043582-BS1)										
Prepared: 10/23/2020 13:24, Analyzed: 10/23/2	2020 15:21									
Chemical Oxygen Demand	121	5	mg/L	125		96.8	90-110			
	Source: 0092635-01									
Duplicate (B043582-DUP1) Prepared: 10/23/2020 13:24, Analyzed: 10/23/2										
Chemical Oxygen Demand	5	5	mg/L		ND				25	
			mg/L		ND				20	
Matrix Spike (B043582-MS1)	Source: 0092635-01									
Prepared: 10/23/2020 13:24, Analyzed: 10/23/2		_		050	ND	101	00.446			
Chemical Oxygen Demand	260	5	mg/L	250	ND	104	90-110			
Matrix Spike Dup (B043582-MSD1) Source: 0092635-01										
Prepared: 10/23/2020 13:24, Analyzed: 10/23/2	020 15:33									
Chemical Oxygen Demand	257	5	mg/L	250	ND	103	90-110	1.21	10	





	Ion Chromatography Madisonville - Quality Control											
		Reporting		Spike	Source		%REC		RPD			
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes		
Batch B043120 - Default Prep IC												
Blank (B043120-BLK1)												
Prepared: 10/20/2020 15:45, Analyzed:	: 10/20/2020 15:45											
Sulfate	ND	1.0	mg/L							U		
Fluoride	ND	0.20	mg/L							U		
Chloride	ND	0.5	mg/L							U		
LCS (B043120-BS1)												
Prepared: 10/20/2020 15:27, Analyzed:	: 10/20/2020 15:27											
Sulfate	9.4		mg/L	10.0		93.7	90-110					
Fluoride	9.42		mg/L	10.0		94.2	90-110					
Chloride	9.5		mg/L	10.0		95.4	90-110					
Matrix Spike (B043120-MS1)	Source: 0092620-01											
Prepared: 10/20/2020 21:50, Analyzed:	: 10/20/2020 21:50											
Fluoride	12.3		mg/L	10.0	0.00	123	80-120			M1		
Sulfate	12.3		mg/L	10.0	0.05	122	80-120			M1		
Chloride	12.4		mg/L	10.0	0.2	122	80-120			M1		
Matrix Spike Dup (B043120-MSD1)	Source: 0092620-01											
Prepared: 10/20/2020 22:07, Analyzed:	: 10/20/2020 22:07											
Fluoride	11.7		mg/L	10.0	0.00	117	80-120	4.70	20			
Chloride	11.7		mg/L	10.0	0.2	115	80-120	5.59	10			
Sulfate	11.6		mg/L	10.0	0.05	116	80-120	5.62	20			
Certified Analyses included in this Rep	port											
Analyte	Certifications											

Bicarbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) KY Drinking Water Mdv (00030) Carbonate Alkalinity as CaCO3 KY Drinking Water Mdv (00030) **Total Alkalinity**

2340 C (as HACH 8226) in Water

KY Drinking Water Mdv (00030) Hardness as CaCO3

2510 B-2011 in Water

KY Drinking Water Mdv (00030) Specific Conductance (Lab)

2540 C-2011 in Water

KY Drinking Water Mdv (00030) **Total Dissolved Solids**

5310 C-2011 in Water

KY Drinking Water Mdv (00030) Total Organic Carbon

EPA 300.0 REV 2.1 in Water

KY Drinking Water Mdv (00030) Chloride KY Drinking Water Mdv (00030) Fluoride KY Drinking Water Mdv (00030) Sulfate

HACH 8000 in Water

KY Wastewater Mdv (00030) Chemical Oxygen Demand

SW846 6010 B in Water





	Sample Acceptance Checklist for Work Order 0092620
Shipped By: Other	Temperature: 1.00° Celcius
Condition	
Check if Custody Seals are Present/Intact	
Check if Custody Signatures are Present	☑
Check if Collector Signature Present	\square
Check if bottles are intact	
Check if bottles are correct	
Check if bottles have sufficient volume	
Check if samples received on ice	
Check if VOA headspace is acceptable	
Check if samples received in holding time.	
Check if samples are preserved properly	

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>09/07/2020</u>



					
Client: Big Rivers Electric Corporation Wilson Station	Report To: Big Rivers Electric (Station	Corporation Wilson	Invoice To: Big Rivers E	lectric Corporatio	on Wilson Station
Due to star Start Bland Miles an 000 00004	Mike Galbraith		Brian Edwar	ds	
Project: Field Blank Wilson 092-00004	PO Box 24		PO Box 24		†
	Henderson, KY 424		Henderson,	KY 42419	
	Phone: <u>(270) 844-6</u> PWS ID#:	000	PO#:		
Please Print Legibly	State: 51	_	Quote#		
Collected by (Signature):			Compli	ance Monitoring?	YesNo
required in	formation*		Sample	es Chlorinated?	Yes No
*For composite samples please indicate begin time, en	d time and temp(oC) at e	nd time below:	oap.c		
Influent: Start Date Start time	_ End Date	End Time To	emp (oC)		
Effluent: Start Date Start time	_ End Date	End TimeT	emp (oC)		
LAB USE ONLY *required information* Workorder # Date Collection 0092620 (mm/dd/yy): Time (24 hr): Bottle Sample ID#	O Containers	Sample Description	Composite	Sample An	alysis Requested
R	ad 228 (Sub) vation Check: pH :	Field Blank	g/c	Radium 228 (su	(b)
	1L pH<2 w/HNO3 1 ad 228 (Sub) vation Check: pH :	Field Blank	g/c	Radium 228 (su	ı b)
	:1L pH<2 w/HNO3 1 (Sub) vation Check: pH :	Field Blank	g / c	Radium Total (s	ub)
	6 250mL pH<2 1 w/H2SO4 vation Check: pH :	Field Blank	g/c	тос	
Preservation Check Performed by: <u>ND </u>		_			
	/		. – –		
Field data collected by: 159-15 Sneed	Date (mm/dd/yy) 10.	- <u>13 - 2 </u>	11:55		1
pH Cond (umho)	Res CI (mg/L)	Tot CI (mg/L)	Fre	ee CI (mg/L)	
Temp (oC) or (oF)	Static Water Level	DO (mg/L)	т	urb. (NTU)	•
Flow (MGD) or (CFS)					1
Relinquished by: (Signature)	Received by: (Signature))	Date (mm/	'dd/yy) Ti	me (24 hr)
In Sneff	My yes	7	16-14.	20 0	v8 38

Printed: 9/10/2020 10:02:46AM

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PACE- Check here if trip charge applied to associated COC

Pace Analytical Services LLC Kentucky P.O. Box 907 Madisonville, KY 42431

Chain of Custody

Scheduled for: <u>09/07/2020</u>



									
Client: Big Rive	ers Electric C	orporation Wils	Big Rivers Elec Station		Corporation Wilson	•		ation Wilson S	tation
Project: Field E	Blank Wilson	092-00004	Mike Galbraith PO Box 24			Brian Edwar PO Box 24	ds ·		
			Henderson, K	Y 424 1	19	Henderson,	KŸ 42419		
			Phone: <u>(270) 8</u> PWS ID#:	<u>344-60</u>	000	PO#:		-	
Please Print Le	egibly	,	State:	54		Quote#		•	
Collected by (Sig	nature):	June "	ured information			Compli	ance Monitori	ng? Yes 🔽	No
*Ear composito s	ramples place		time, end time and temp(oC)) at en	nd time below:	Sample	es Chlorinated	l? Yes	No
			End Date			Temp (oC)			
Effluent: Start D	ate	Start time	End Date		End Time				<u> </u>
LAB USE ONLY Workorder # 0092620	Date	information* Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample	Analysis Requ	ested
Sample ID# 0092620-01 A	10~13-26	11:55	Plastic 1L	1	Field Blank	g/c	TDS Alkalini Total Chlorid	ty Carbonate A le 300.0 Condu de 300.0 Sulfate	lkalinity activity
0092620-01 B	10-13-70	11:55	Plastic 500mL pH<2 w/HNO3	1	Field Blank	g/c	Alkalinity Bio Beryllium To Antimony To Boron Tot 60 Cadmium To	carbonate It 6020 Lead To It 6020 Arsenic 010B Barium To It 6020 Calciun	t 6020 Tot 6020 ot 6020 n Tot
			Preservation Check: pH :		-		Tot 6020 Co Titration Iron	mium Tot 6020 pper Tot 6020 I n Tot 6010B Litt esium Tot 6010I	Hardness hium Tot
0092620-01 C	10-13-20	(1:55	Plastic 500mL pH<2 w/H2SO4 Preservation Check: pH:	<u></u>	Field Blank	g/c	COD TOC		
0092620-01 D	10-13-20	11:55	Plastic 1L pH<2 w/HNO3 Rad 226 (Sub) Preservation Check: pH:		Field Blank	g/c	Radium 226	(sub)	
Preservation C	heck Perform	ned by:N	Гоч						
Field data collec	ted by:	avis SA	eed Date (mm/dd/yy)	10-1	3-20 Time (24 hr) _	11:55		ļ	
pH	• •	ond (umho)	/		Tot CI (mg/L) _		ee CI (mg/L) _		
Temp (oC)	or	· (oF)	Static Water Level		DO (mg/L)	Т	urb. (NTU) _		
Flow (MGD)	or	(CFS)	or (g/min)					i	
Relinquished by	(Signatura)		Received by: (Signa	ature\		Date (mm	/dd/vv)	Time (24 hr)	
Lnc	(Signature)	nd	Market by (Signi	2		18-14	•••	0838	
						<u> </u>		· ·	
PACE-	Check here if	trip charge app	olied to associated COC		Printed: 9	9/10/2020 10:02	:46AM	Page 18	3 of 29

(724)850-5600



November 04, 2020

Rob Whittington Pace Analytical Madisonville 825 Industrial Rd Madisonville, KY 42431

RE: Project: 92620

Pace Project No.: 30387814

Dear Rob Whittington:

Enclosed are the analytical results for sample(s) received by the laboratory on October 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 - Greensburg

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

Sincerely,

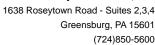
Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com 724-850-5615 Project Manager

Enclosures

cc: Doug Wolfe, Pace Analytical Madisonville







CERTIFICATIONS

Project: 92620 Pace Project No.: 30387814

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 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706

Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

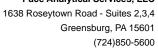
South Dakota Certification
Tennessee Certification #: 02867

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

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

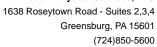




SAMPLE SUMMARY

Project: 92620
Pace Project No.: 30387814

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30387814001	0092620-01	Water	10/13/20 11:55	10/15/20 09:25





SAMPLE ANALYTE COUNT

Project: 92620
Pace Project No.: 30387814

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
30387814001	0092620-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

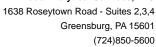


ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 92620 30387814 Pace Project No.:

Sample: 0092620-01 Lab ID: 30387814001 Collected: 10/13/20 11:55 Received: 10/15/20 09:25 Matrix: Water PWS: Site ID: Sample Type:

Comments: • Sample collect	tion dates and times were r	not present on the sample containers.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytica	Services - Greensburg				
Radium-226	EPA 903.1	-0.112 ± 0.268 (0.670) C:NA T:87%	pCi/L	11/04/20 12:44	13982-63-3	
	Pace Analytica	l Services - Greensburg				
Radium-228	EPA 904.0	0.751 ± 0.479 (0.912) C:69% T:81%	pCi/L	10/30/20 12:00	15262-20-1	
	Pace Analytica	l Services - Greensburg				
Total Radium	Total Radium Calculation	0.751 ± 0.747 (1.58)	pCi/L	11/04/20 14:03	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project:

92620

Pace Project No.:

30387814

QC Batch:

419199

-10100

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: 30387814001

METHOD BLANK: 2026443

Matrix: Water

Associated Lab Samples:

Parameter

30387814001

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

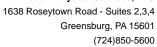
Radium-226

 -0.0904 ± 0.280 (0.637) C:NA T:89%

pCi/L

11/04/20 12:44

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:

92620

Pace Project No.:

30387814

QC Batch:
QC Batch Method:

419200

EPA 904.0

Analysis Method:
Analysis Description:

od: EPA 904.0

:

904.0 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 30387814001

METHOD BLANK: 2026444

Matrix: Water

Associated Lab Samples:

30387814001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

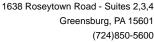
Radium-228

 $0.598 \pm 0.458 \quad (0.907) \text{ C:}69\% \text{ T:}82\%$

pCi/L

10/30/20 12:00

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: 92620 Pace Project No.: 30387814

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.

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: 11/04/2020 02:04 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(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.

Chain of Custody

Face Analytical

LAB USE ONLY Ì WO#:30387814 Sample Intact Y or N Results Requested By: Comments Requested Analysis || || || || || || 30387814 Workorder Name: Field Blank Wilson 092-000 Owner Received Date: 10/14/2020 Received on Ice Y or N Ĭ EPA 904.0 Radium Sum Calc Date/Time EPA 903.1 Preserved Containers Pace Analytical Services LLC Greensburg PA Matrix 700 Water * lmlr Reveived By 1638 Rosey Town Rd Suite 2,3,4 IR44-McCoy Greensburg, PA 15601 Lab ID Date/Time Subcontract To: (724)850-561510/13/20 11:55 Date/Time Collect ၁ Sample Type rob.whittington@pacelabs.com Madisonville, KY 42409 Workorder: 92620 Transfers |Released By McCoy & McCoy Labs 0092620-01 Item Sample ID 270-821-7375 P.O. Box 907 Report To: 10 4 9 ∞ 6

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC

Custody Seal Y or/N

Cooler Temperature on Receipt

This chain of custody is considered complete as is since this information is available in the owner laboratory.

Friday, June 17, 2016 11:01:34 AM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

Page 27 of 29

SUBCONTRACT ORDER

Pace Analytical Services, LLC Kentucky 0092620



SENDING LABORATORY:

Pace Analytical Services, LLC Kentucky

PO BOX 907

Madisonville, KY 42431 Phone: (270) 821-7375 Fax: 844-270-7904

Project Manager:

Rob Whittington

RECEIVING LABORATORY:

Pace Analytical Services LLC Greensburg PA

1638 Rosey Town Rd Suite 2,3,4

Greensburg, PA 15601 Phone :(724) 850-5615

Fax:

Analysis		Expires	Laboratory ID	Comments	
Sample ID: 0092620-01	Water	Sampled: 10/13/2020 11:55	Specific Method		
Radium Total (sub)		04/11/2021 11:55	EPA 904.0 Radium S	Sum C	
Radium 228 (sub)		04/11/2021 11:55	EPA 904,0 Radium S	Sum C	
Radium 226 (sub)		04/11/2021 11:55	EPA 903.1		

M-y Hey 10.14-20
Released, By Date Received By Date

Released By

Date

Received By

Date

Pittsburgh Lab	Sample Condit					
Pace Analytical (Client Name:	1	میما	làs.	min' - 4 207070	4 /4
(Client Name:	1 4	I (AU)	VIDC	<u> 20001人 Project# 303878</u>	
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Tracking #: 1107 30	181. 9238/92		97		Lims Login &	
Custody Seal on Cooler/B		7	_	,	s intact: yes no	
Thermometer Used		/	of Ice:	/7***		
	Observed Temp 7.5	171	° C	\ <i>/</i>	ection Factor: -0 / °C Final Temp: 7.4/7.4/5	
Temp should be above freezing	·	1		00,,,	7.7	
	<i>J,</i> Y	ſ			pH paper Lot# Date and Initials of person examining contents:	>
Comments:		Yes	No	N/A	10004011 101612 UM	•
Chain of Custody Present:			<u></u>	٠	1.	
Chain of Custody Filled Out	•		٠	ļ.,	2.	
Chain of Custody Relinquish	ned:		1		3.	
Sampler Name & Signature	on COC:			ļ	4.	
Sample Labels match COC:	:				5 no date time on containe	25
-includes date/time/ID	Matrix:	W I	<i>\</i>	Τ	110 Mical Olde D. Colocost	-0
Samples Arrived within Hold	i Time:				6.	
Short Hold Time Analysis				-	7.	
Rush Turn Around Time R	equested:				8.	
Sufficient Volume:		AFFECT AND ASSESSEDA ASSESSED ASSESSED ASSESSED ASSESSED ASSESSED ASSESSED ASSESSEDA			9.	
Correct Containers Used:		_	 			
-Pace Containers Used:						
Containers Intact:					11.	
Orthophosphate field filtered					12.	
Hex Cr Aqueous sample fiel					13.	
Organic Samples checke Filtered volume received for					14.	
All containers have been check					16.	
exceptions: VOA, coliform,	TOC, O&G, Phenolics, F	Radon,	1	1	16. DHV2	
Not-addedus matrix						
All containers meet method requirements.	preservation				Initial when completed Date/time of preservation	
	,			,	Lot # of added	
					preservative	
Headspace in VOA VIals (>	6mm):				17.	
Trip Blank Present:					18.	
Trip Blank Custody Seals Pr Rad Samples Screened < 0					Initial when	· .
					completed: () \\Date: \\O \\U \\Date	
Client Notification/ Resolut	tion:					
Person Contacted: Comments/ Resolution:				-Date/	Fime: Gontacted By:	
CORRECTED RESOLUTION.		·				
A check in this box	cindicates that addit	ional	inform	natior	n has been stored in ereports.	

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Appendix C Statistical Evaluation

WILSON PHASE II LANDFILL STATISTICAL ANALYSIS

2020 Annual Groundwater Monitoring Report

1.0 INTRODUCTION

Previous statistical analysis of Wilson Phase II Landfill groundwater monitoring data has indicated that certain 40 CFR Part 257 Appendix III constituents at downgradient monitoring wells MW-5, MW-6, MW-7, and MW-10 occur at statistically significant higher concentrations than in background monitoring well MW-8. Based on these results, assessment monitoring is conducted for both 40 CFR Part 257 Appendix III and IV parameters.

The 40 CFR Part 257 Appendix III and IV 2020 groundwater monitoring data at the Wilson Phase II Landfill were evaluated to determine the occurrence of any statistically significant increases over background (SSIs) and whether or not any of the SSIs for Appendix IV parameters occurred at a statistically significant level (SSL) above the groundwater protection standard as defined at 40 CFR.95(h).

2.0 STATISTICAL ANALYSIS

A determination of whether SSIs have occurred is required by 40 CFR 257.93(h)(2) for each semiannual monitoring event. The occurrence of SSIs was evaluated using an *interwell* prediction limit approach that statistically compared constituent concentrations at downgradient monitoring wells to those present at the background monitoring well. For the Wilson Phase II Landfill, monitoring well MW-8 is designated as the background well, whereas monitoring wells MW-5, MW-6, MW-7, and MW-10 are designated downgradient detection monitoring wells.

The statistical analyses were performed in accordance with the U.S. Environmental Protection Agency's Final CCR Rule 40 CFR Parts 257.93(f), 257.93(g), and 257.93(h), the Groundwater Monitoring System and Statistical Methods Certification, and following guidance presented in ASTM D6312-17 Standard Guide for Developing Appropriate Statistical Approaches for Ground-Water Detection Monitoring Programs, and US EPA (2009) Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. The test procedures were designed to balance facility-wide false positive rate and statistical power.

Site data are maintained in a SanitasTM statistical evaluation database that was used to conduct the analyses presented herein.

2.1 Prediction Limits

Appropriate statistical prediction limits (PLs) were developed for each of the 21 Appendix III and Appendix IV monitoring constituents, as outline below, and followed the following general procedures.

- 1. Analytical Data Review
- 2. Goodness-of-Fit Testing
- 3. Perform adjustments to data based on the frequency on non-detect values
- 4. Comparison to interstation background

The background data set for the statistical analyses consisted of analytical measurements at MW-8 from April 2016 to April 2020 for the April monitoring event. The background utilized for the October September 2020 analysis was updated to include the data from that event.

2.2 Analytical Data Review

Analytical data were reviewed for consistency with historic data prior to any statistical evaluation. Background data were checked for high or low outliers that were removed following EPA (1989) procedures prior to statistical analysis. Outliers include some previous values with elevated detection limits.

2.2.1 Goodness-of-Fit Testing

Four types of background monitoring data sets.

- 1. Normally distributed (or transformed normal) data sets with the frequency of censored (non-detect) values less than 50 percent
- 2. Non-normal (or transformed non-normal) data sets with the frequency of censored values less than 50 percent
- 3. Data sets for which the population distribution is not known due to the frequency of censored values greater than 50 percent
- 4. Data consisting of 100 percent censored values

The appropriate statistical comparison depends on the type of data set under consideration. Parametric test procedures are utilized wherever possible to increase statistical power. In general, parametric tests are utilized where the data distribution may be assumed to be normal, or transformed normal (data set 1, above). Non-parametric procedures are used where data may not confidently be assumed to be normal (data set 2, above), or where the frequency of non-detect values precludes the testing of normality (data set 3, above). Finally, it is recognized that for 100 percent non-detect data (data set 4, above) no valid statistical comparison may be made, and comparisons must be made to fixed, arbitrary values, such as the analytical method detection or quantitation limit.

To determine the type of dataset, goodness-of-fit testing was performed on both the raw data and natural logarithm of the raw greater than detection limit values using the Shapiro-Wilk W-test as recommended by US EPA (1992) and Gilbert (1987). The tests were conducted at a 95 percent confidence level with outliers removed from the dataset.

Data sets that could not confidently be determined to be normally or log normally distributed were used to determine *nonparametric* prediction limits. Data that were normally or log normally distributed were considered as a basis for calculating *parametric* prediction limits, providing that the percentage of less than detection limit values was greater than 50 percent.

2.2.2 Adjustments to Data Based on the Frequency of Non-Detect Values

After goodness-of-fit testing was completed, the frequency of less than detection limit (left censored) values was be evaluated. If the degree of left-censoring was greater than 15%, Aitchison's adjustment was used to obtain adjusted estimates of the sample mean and standard deviation. These adjusted values were then used to calculate the upper prediction limit for those data determined to be normally or log normally distributed during goodness-of-fit testing. For the statistical analysis, non-detect values were represented as one-half the detection limit.

If the degree of censoring is 50% to 100%, no method exists to reasonably estimate the sample mean and standard deviation. In this case, non-parametric procedures are utilized. If the degree of censoring is 100%, as is commonly the case with volatile organic compounds, no estimates of statistics can be calculated. In this case, a simple comparison to method reporting limit (RL) of the individual analyte is employed as the initial statistical evaluation.

2.2.3 Comparison to Background

Based on the results for goodness-of-fit testing and the degree of censoring of the various data sets, comparisons to background were made using prediction limit procedures (US EPA, 2009). Parametric prediction limits were utilized where the data may be assumed to be normally or log normally distributed.

If the data are determined to be not normal or log normal, or the frequency of non-detect values is greater than 50%, nonparametric upper prediction limits were calculated, as recommended by US EPA (2009).

The prediction limit comparisons balance statistical power and false positive rate, as recommended by US EPA (1992, 2009) and ASTM D6312-17 using verification resampling as discussed below.

2.2.4 False Positive Rate Control

A groundwater monitoring event involves a large number of individual statistical comparisons. For normal prediction limits, if the significance level of an individual statistical comparison (test) is α (defined as the *per-test* false positive rate), the *annual* false positive rate (α *) is given by (Gibbons 1994):

$$\alpha^* = 1 - (1-\alpha)^r$$

where,

r = the number of annual statistical comparisons to be made (downgradient monitoring stations × analytes × events per year.

For a typical monitoring scenario, the per-test α is held to a value *no less* than 0.01 (40 CFR 257.93(g)(2). Limiting α to the minimum value of 0.01 guards against an excessive false negative rate, or Type II error, but may result in too large an *event-wide* false positive rate. For each of the 2020 monitoring events there are 21 parameters requiring statistical evaluation (Table C1, c = 21). There are four downgradient detection monitoring wells in the evaluation (Table C1, c = 21). Assuming two annual statistical evaluations, one associated with each semiannual sample event (c = 1), the number of annual statistical comparisons (c = 1) is equal to c = 10. From Equation 1, the annual false positive rate for the two sampling events is about 0.82 (Table C1, Row 1). Thus, during each sampling year there would be about an 82 percent probability that a statistically significant result would be obtained even though no real statistical exceedance occurred.

To limit the annual false positive rate to 0.1, as suggested by EPA (2009) (or to a corresponding event-wide false positive rate of 0.05 for semiannual sampling per 40 CFR 257.93(g)(2)), Equation 1 indicates that individual tests would have to be conducted at a significance levels of about 0.00063 (Table C1, Row 2). Very large statistical limits would have to be employed, and the individual *false negative* rate would be unacceptably high at this significance level.

Alternatively, a *verification resampling* strategy is employed to limit the annual-wide false positive rate while maintaining adequate statistical power (EPA 1992, 2009; Gibbons 1994; ASTM 2017). A *statistically* significant increase is not declared until both the original sample and some number of verification resamples fail the statistical test procedures. For the case of one or two verification resampling events, and assuming independence of measurements, α^* may be calculated as (EPA 2009):

$$\alpha^* = 1 - (1 - \alpha^m)^r$$

where,

m = the sum of the original sample and number of retest verification samples (1 or 2).

Passing any resample passes the statistical evaluation procedure.

Table C1 Row 3 illustrate a single resample strategy with the resample required to pass. Table C1 Row 4 Row 4 illustrate the case of two verification resamples with one of the two required to pass.

EPA (2009) and 40 CFR 257.93(g)(2) defines two criteria applicable to statistical analysis of groundwater monitoring data:

- 1. The per-event false positive rate (α^*) shall be no less than 0.05 per evert, or 0.1 annually, and,
- 2. The per-test false positive rate (α) shall be no less than 0.01.

These criteria were deemed by EPA to provide acceptable balance between false positive rate control and statistical power and are used for this project. The single verification sample resampling strategy (Table C1, Row 3) fits the EPA criteria and minimizes sampling and analytical cost. A single verification resampling strategy (referred to as "Pass 1 of 2") using a per-test significance level of 0.02504 was

therefore used for this statistical analysis. An SSI does not occur unless the original sample and the verification resample both fail the statistical testing.

2.3 Comparison to Groundwater Protection Standard

Appendix IV well / constituents with SSIs indicated by the PL analysis were further evaluated to determine whether they are present at statistically significant levels (SSLs) over the groundwater protection standards (GWPSs). This evaluation was conducted by calculating the parametric or non-parametric 95% confidence limits for each well / constituent identified as an SSI using the baseline, detection, and assessment monitoring results collected to date. For a constituent to be present at an SSL over the GWPS, its 95% lower mean confidence limit must be greater than the GWPS.

3.0 RESULTS

Prediction limit results for the two 2020 sampling events are provided in Tables C2 (April) and C3 (October). Interwell exceedances of the relevant PL values are highlighted. Time series plots showing prediction limit results are provided for each downgradient well / parameter in Attachment 1 (April 22, 2020 event) and Attachment 2 (October 13 22 event). Plots in the attachments are arranged in the constituent order listed in the tables.

Comparison to groundwater protection standard results are provided in Tables C4 and C5.

3.1 Exceedances of Background

The following SSIs were noted for the April 22 event (Table C2) with Appendix IV constituents shown in boldface.

MW-5	boron, calcium, chloride, cobalt , lithium , sulfate, total dissolved solids
MW-6	boron, calcium, chloride, cobalt , lithium , sulfate, total dissolved solids
MW-7	boron, calcium, chloride, ${\it chromium}$, ${\it cobalt}$, ${\it lead}$, ${\it lithium}$, pH (field), total dissolved solids
MW-10	boron, calcium, chloride, cobalt , sulfate, total dissolved solids

Similar results were noted for the October 13 event with exceedances for the following (Table C3).

MW-5	boron, calcium, chloride, cobalt , lithium , pH (field), sulfate, total dissolved solids
MW-6	boron, calcium, chloride, cobalt, lead, lithium, sulfate, total dissolved solids
MW-7	boron, calcium, chloride, lithium, total dissolved solids
MW-10	boron, calcium, chloride, cobalt , total dissolved solids

Results for exceedances of background were generally consistent between the two events and consistent with the 2019 results. A number of Appendix III parameters showed SSIs: boron (all wells), calcium (all wells), chloride (all wells), field pH (MW-5, MW-7), sulfate (MW-5, MW-6, MW-10), and total dissolved solids (all wells). The boron exceedances at MW-5, MW-6, and MW-10 were not noted in the November 2019 analysis because of the higher detection limits used for those analyses. The calcium SSIs at MW-7 did not occur in 2019. Inspection of the time series plot for this well suggests an increasing calcium trend in recent monitoring.

Appendix IV SSIs were largely similar to November 2019 with the exception of new SSIs for lead and chromium at MW-7 in April. Inspection of the time series plots for these analytes suggests anomalously high values were reported for the April event. These exceedances were not confirmed in the October event.

3.2 Comparison to Groundwater Protection Standards

Pursuant to 40 CFR 257.95(f) Appendix IV well / parameters with 2020 SSIs were further evaluated to determine whether they are present at a statistically significant level over the groundwater protection standard. This analysis was conducted by calculating the appropriate parametric or nonparametric 95 percent lower confidence limit (95% LCL) for each well / parameter identified as an SSI for each 2020 event.

The nine Appendix IV SSIs occurring in April are listed in Table C4 showing the 95% LCL computation results compared to the relevant GWPS. The seven Appendix IV SSIs occurring in October are similarly listed in Table C5. The only exceedances of GWPSs for either 2020 sampling event are for cobalt at MW-5, MW-6, and MW-10, and for lithium at MW-6. The exceedances for cobalt at MW-5 and MW-6 are new and not occur in 2019. Cobalt concentrations at these wells have recently been consistently above the GWPS and thereby increasing the 95% LCL values to points where they exceed the GWPS value of 6 ug/L.

For the assessment wells (MW-102, MW-104, MW-105, MW-110, and MW-4D) the only 2020 GWPS exceedances were for cobalt and lithium at MW-4D.

4.0 REFERENCES

- American Society for Testing and Materials (ASTM), 2017, Standard Guide for Developing Appropriate Statistical Approaches for Groundwater Detection Monitoring Programs at Waste Disposal Facilities. Designation D 6312-17.
- Gibbons, R.D. 1994. Statistical Methods in Ground-Water Monitoring. John Wiley & Sons.
- Gilbert, R.O., 1987, Statistical Methods for Environmental Pollution Monitoring: Van Nostrand Reinhold, New York, 320p.
- US EPA, 1989, Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Final Guidance. Office of Solid Waste Management Division, US EPA, Washington, DC.
- -----, 1992, Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities: Addendum to Interim Final Guidance, Office of Solid Waste, Permits and State Programs Division, July.
- -----, 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, Office of Resource Conservation and Recovery, Program Implementation and Information Division, March.

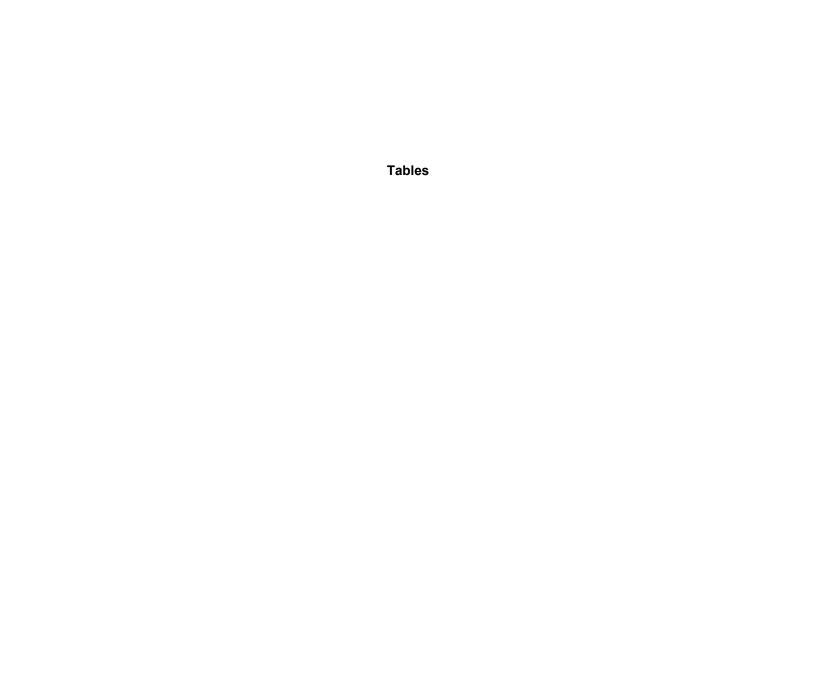


Table C1
2020 Annual Monitoring Report
BREC Wilson LF
Calculation of False Positive Rates

Row Number	Number of Downgradient Stations (w)	Number of Constituents (c)	Number of Annual Evaluations (n _E)	Number of Annual Comparisons (r = w x c x n _E)	Target Annual False Positive Rate (α [*])	Retest Strategy (1 of m)	Individual Comparison False Positive Rate (α)
1	4	21	2	168	0.82	1	0.01016
2	4	21	2	168	0.1	1	0.00063
3	4	21	2	168	0.1	2	0.02504
4	4	21	2	168	0.1	3	0.08559

Table C2: 2020 Annual Monitoring Report, BREC Wilson Landfill, April 2020 Prediction Limit Results

											%				
Constituent Name	Station	Upper	Lower	Data	Observation	Fyeede	Background	Background	Background	Standard	Non-	Non-detect	Transformation	Alpha	Method
Constituent Name Antimony (mg/L)	Station MW-5	Limit 0.001	Limit n/a	Date 4/22/2020	Observation 0.001ND	Exceeds No	N 13	Stations MW-8	Mean n/a	Deviation n/a	detects 46.15	Adjustment n/a	Transformation n/a	Alpha 0.06487	NP Inter (xform)
Antimony (mg/L)	MW-6	0.001	n/a	4/22/2020	0.001ND	No	13	MW-8	n/a	n/a	46.15	n/a	n/a	0.06487	NP Inter (xform)
Antimony (mg/L)	MW-7	0.001	n/a	4/22/2020	0.001ND	No	13	MW-8	n/a	n/a	46.15	n/a	n/a	0.06487	NP Inter (xform)
Antimony (mg/L)	MW-10	0.001	n/a	4/22/2020	0.001ND	No	13	MW-8	n/a	n/a	46.15	n/a	n/a	0.06487	NP Inter (xform)
Arsenic (ug/L)	MW-5	9.588	n/a	4/22/2020	2.5	No	14	MW-8	1.844	0.1862	0	None	ln(x)	0.00407	Param Inter
Arsenic (ug/L)	MW-6	9.588	n/a	4/22/2020	5	No	14	MW-8	1.844	0.1862	0	None	ln(x)	0.02504	Param Inter
Arsenic (ug/L)	MW-7	9.588	n/a	4/22/2020	7.5	No	14	MW-8	1.844	0.1862	0	None	ln(x)	0.02504	Param Inter
Arsenic (ug/L)	MW-10	9.588	n/a	4/22/2020	1.1	No	14	MW-8	1.844	0.1862	0	None	ln(x)	0.02504	Param Inter
Barium (ug/L)	MW-5	26.93	n/a	4/22/2020	11	No	13	MW-8	22.18	2.102	0	None	No	0.02504	Param Inter
Barium (ug/L)	MW-6	26.93	n/a	4/22/2020	12	No	13	MW-8	22.18	2.102	0	None	No	0.02504	Param Inter
Barium (ug/L)	MW-7	26.93	n/a	4/22/2020	25	No	13	MW-8	22.18	2.102	0	None	No	0.02504	Param Inter
Barium (ug/L)	MW-10	26.93	n/a	4/22/2020	8	No	13	MW-8	22.18	2.102	0	None	No	0.02504	Param Inter
Beryllium (ug/L)	MW-5	1	n/a	4/22/2020	0.5ND	No	11	MW-8	n/a	n/a	100	n/a	n/a	0.07461	NP Inter (NDs)
Beryllium (ug/L)	MW-6	1	n/a	4/22/2020	0.5ND	No	11	MW-8	n/a	n/a	100	n/a	n/a	0.07461	NP Inter (NDs)
Beryllium (ug/L)	MW-7	1	n/a	4/22/2020	0.5ND	No	11	MW-8	n/a	n/a	100	n/a	n/a	0.07461	NP Inter (NDs)
Beryllium (ug/L)	MW-10	1	n/a	4/22/2020	0.5ND	No	11	MW-8	n/a	n/a	100	n/a	n/a	0.07461	NP Inter (NDs)
Boron (ug/L)	MW-5	54.67	n/a	4/22/2020	660	Yes	11	MW-8	41.55	5.644	9.091	None	No	0.02504	Param Inter
Boron (ug/L)	MW-6	54.67	n/a	4/22/2020	310	Yes	11	MW-8	41.55	5.644	9.091	None	No	0.02504	Param Inter
Boron (ug/L)	MW-7	54.67	n/a	4/22/2020	1580	Yes	11	MW-8	41.55	5.644	9.091	None	No	0.02504	Param Inter
Boron (ug/L)	MW-10	54.67	n/a	4/22/2020	280	Yes	11	MW-8	41.55	5.644	9.091	None	No	0.02504	Param Inter
Cadmium (ug/L)	MW-5	0.1	n/a	4/22/2020	0.05ND	No	11	MW-8	n/a	n/a	100	n/a	n/a	0.07461	NP Inter (NDs)
Cadmium (ug/L)	MW-6	0.1	n/a	4/22/2020	0.05ND	No	11	MW-8	n/a	n/a	100	n/a	n/a	0.07461	NP Inter (NDs)
Cadmium (ug/L)	MW-7	0.1	n/a	4/22/2020	0.05ND	No	11	MW-8	n/a	n/a	100	n/a	n/a	0.07461	NP Inter (NDs)
Cadmium (ug/L)	MW-10	0.1	n/a	4/22/2020	0.05ND	No	11	MW-8	n/a	n/a	100	n/a	n/a	0.07461	NP Inter (NDs)
Calcium (ug/L)	MW-5	329000	n/a	4/22/2020	600000	Yes	14	MW-8	n/a	n/a	0	n/a	n/a	0.0609	NP Inter
Calcium (ug/L)	MW-6	329000	n/a	4/22/2020	511000	Yes	14	MW-8	n/a	n/a	0	n/a	n/a	0.0609	NP Inter
Calcium (ug/L)	MW-7	329000	n/a	4/22/2020	369000	Yes	14	MW-8	n/a	n/a	0	n/a	n/a	0.0609	NP Inter
Calcium (ug/L)	MW-10	329000	n/a	4/22/2020	415000	Yes	14	MW-8	n/a	n/a	0	n/a	n/a	0.0609	NP Inter
Chloride (mg/L)	MW-5	5.534	n/a	4/22/2020	208	Yes	14	MW-8	4.466	0.4774	0	None	No	0.02504	Param Inter
Chloride (mg/L)	MW-6	5.534	n/a	4/22/2020	10.2	Yes	14	MW-8	4.466	0.4774	0	None	No	0.02504	Param Inter
Chloride (mg/L)	MW-7	5.534	n/a	4/22/2020	40	Yes	14	MW-8	4.466	0.4774	0	None	No	0.02504	Param Inter
Chloride (mg/L)	MW-10	5.534	n/a	4/22/2020	68.6	Yes	14	MW-8	4.466	0.4774	0	None	No	0.02504	Param Inter
Chromium (ug/L)	MW-5	1.14	n/a	4/22/2020	0.3ND	No	12	MW-8	n/a	n/a	50	n/a	n/a	0.0694	NP Inter
Chromium (ug/L)	MW-6	1.14	n/a	4/22/2020	0.3ND	No	12	MW-8	n/a	n/a	50	n/a	n/a	0.0694	NP Inter
Chromium (ug/L)	MW-7	1.14	n/a	4/22/2020	5.3	Yes	12	MW-8	n/a	n/a	50	n/a	n/a	0.0694	NP Inter
Chromium (ug/L)	MW-10	1.14	n/a	4/22/2020	0.3ND	No	12	MW-8	n/a	n/a	50	n/a	n/a	0.0694	NP Inter
Cobalt (ug/L)	MW-5	1.669	n/a	4/22/2020	8	Yes	14	MW-8	1.082	0.2627	28.57	Kaplan-Meie	No	0.02504	Param Inter
Cobalt (ug/L)	MW-6	1.669	n/a	4/22/2020	9	Yes	14	MW-8	1.082	0.2627	28.57	Kaplan-Meie	No	0.02504	Param Inter
Cobalt (ug/L)	MW-7	1.669	n/a	4/22/2020	6	Yes	14	MW-8	1.082	0.2627	28.57	Kaplan-Meie	No	0.02504	Param Inter
Cobalt (ug/L)	MW-10	1.669	n/a	4/22/2020	82	Yes	14	MW-8	1.082	0.2627	28.57	Kaplan-Meie	No	0.02504	Param Inter
Fluoride (mg/L)	MW-5	1.21	n/a	4/22/2020	0.09ND	No	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Fluoride (mg/L)	MW-6	1.21	n/a	4/22/2020	0.21	No	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Fluoride (mg/L)	MW-7	1.21	n/a	4/22/2020	0.27	No	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Fluoride (mg/L)	MW-10	1.21	n/a	4/22/2020	0.09ND	No	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Lead (ug/L)	MW-5	0.5	n/a	43943	0.25ND	No	12	MW-8	n/a	n/a	83.33	n/a	n/a	0.0694	NP Inter
Lead (ug/L)	MW-6	0.5	n/a	43943	0.5	No	12	MW-8	n/a	n/a	83.33	n/a	n/a	0.0694	NP Inter
Lead (ug/L)	MW-7	0.5	n/a	4/22/2020	4	Yes	12	MW-8	n/a	n/a	83.33	n/a	n/a	0.0694	NP Inter
Lead (ug/L)	MW-10	0.5	n/a	43943	0.25ND	No	12	MW-8	n/a	n/a	83.33	n/a	n/a	0.0694	NP Inter

Table C2: 2020 Annual Monitoring Report, BREC Wilson Landfill, April 2020 Prediction Limit Results

											%				
Compatitude of Name	04-4:	Upper	Lower	D-4-	06	F	Background	Background	Background	Standard	Non-	Non-detect	T	A I = I = =	NA - 411
Constituent Name Lithium (ug/L)	Station MW-5	Limit 15.48	Limit n/a	Date 4/22/2020	Observation 30	Exceeds Yes	N 14	Stations MW-8	Mean 10.35	Deviation 2.293	detects 28.57	Adjustment Kaplan-Meie	Transformation No	Alpha 0.02504	Method Param Inter
Lithium (ug/L)	MW-6	15.48	n/a	4/22/2020	40	Yes	14	MW-8	10.35	2.293	28.57	Kaplan-Meie	No	0.02504	Param Inter
	MW-7	15.48		4/22/2020	30	Yes	14	MW-8	10.35	2.293	28.57	Kaplan-Meie	No	0.02504	
Lithium (ug/L)		15.48	n/a	4/22/2020	6					2.293			-		Param Inter
Lithium (ug/L)	MW-10		n/a			No	14	MW-8	10.35		28.57	Kaplan-Meier	No ,	0.02504	Param Inter
Mercury (ug/L)	MW-5	0.2	n/a	4/22/2020	0.1ND	No	12	MW-8	n/a	n/a	100	n/a	n/a	0.0694	NP Inter (NDs)
Mercury (ug/L)	MW-6	0.2	n/a	4/22/2020	0.1ND	No	12	MW-8	n/a	n/a	100	n/a	n/a	0.0694	NP Inter (NDs)
Mercury (ug/L)	MW-7	0.2	n/a	4/22/2020	0.1ND	No	12	MW-8	n/a	n/a	100	n/a	n/a	0.0694	NP Inter (NDs)
Mercury (ug/L)	MW-10	0.2	n/a	4/22/2020	0.1ND	No	12	MW-8	n/a	n/a	100	n/a	n/a	0.0694	NP Inter (NDs)
Molybdenum (ug/L)	MW-5	20.3	n/a	4/22/2020	4	No	14	MW-8	13.96	2.836	0	None	No	0.02504	Param Inter
Molybdenum (ug/L)	MW-6	20.3	n/a	4/22/2020	6	No	14	MW-8	13.96	2.836	0	None	No	0.02504	Param Inter
Molybdenum (ug/L)	MW-7	20.3	n/a	4/22/2020	3	No	14	MW-8	13.96	2.836	0	None	No	0.02504	Param Inter
Molybdenum (ug/L)	MW-10	20.3	n/a	4/22/2020	1ND	No	14	MW-8	13.96	2.836	0	None	No	0.02504	Param Inter
pH [Field] (SU)	MW-5	6.795	5.952	4/30/2020	6.71	No	14	MW-8	6.374	0.1607	0	None	No	0.01252	Param Inter
pH [Field] (SU)	MW-6	6.795	5.952	4/22/2020	6.21	No	14	MW-8	6.374	0.1607	0	None	No	0.01252	Param Inter
pH [Field] (SU)	MW-7	6.795	5.952	4/22/2020	6.9	Yes	14	MW-8	6.374	0.1607	0	None	No	0.01252	Param Inter
pH [Field] (SU)	MW-10	6.795	5.952	4/22/2020	6.26	No	14	MW-8	6.374	0.1607	0	None	No	0.01252	Param Inter
Radium 226 + 228 (pCi/L)	MW-5	2.8	n/a	4/22/2020	1.22	No	13	MW-8	n/a	n/a	0	n/a	n/a	0.06487	NP Inter
Radium 226 + 228 (pCi/L)	MW-6	2.8	n/a	4/22/2020	0.804	No	13	MW-8	n/a	n/a	0	n/a	n/a	0.06487	NP Inter
Radium 226 + 228 (pCi/L)	MW-7	2.8	n/a	4/22/2020	1.05	No	13	MW-8	n/a	n/a	0	n/a	n/a	0.06487	NP Inter
Radium 226 + 228 (pCi/L)	MW-10	2.8	n/a	4/22/2020	0.414	No	13	MW-8	n/a	n/a	0	n/a	n/a	0.06487	NP Inter
Selenium (ug/L)	MW-5	0.501	n/a	4/22/2020	0.5ND	No	12	MW-8	n/a	n/a	83.33	n/a	n/a	0.0694	NP Inter
Selenium (ug/L)	MW-6	0.501	n/a	4/22/2020	0.5ND	No	12	MW-8	n/a	n/a	83.33	n/a	n/a	0.0694	NP Inter
Selenium (ug/L)	MW-7	0.501	n/a	4/22/2020	0.5ND	No	12	MW-8	n/a	n/a	83.33	n/a	n/a	0.0694	NP Inter
Selenium (ug/L)	MW-10	0.501	n/a	4/22/2020	0.5ND	No	12	MW-8	n/a	n/a	83.33	n/a	n/a	0.0694	NP Inter
Sulfate (mg/L)	MW-5	1480	n/a	4/22/2020	2820	Yes	14	MW-8	n/a	n/a	0	n/a	n/a	0.0609	NP Inter
Sulfate (mg/L)	MW-6	1480	n/a	4/22/2020	2370	Yes	14	MW-8	n/a	n/a	0	n/a	n/a	0.0609	NP Inter
Sulfate (mg/L)	MW-7	1480	n/a	4/22/2020	1310	No	14	MW-8	n/a	n/a	0	n/a	n/a	0.0609	NP Inter
Sulfate (mg/L)	MW-10	1480	n/a	4/22/2020	3580	Yes	14	MW-8	n/a	n/a	0	n/a	n/a	0.0609	NP Inter
Thallium (ug/L)	MW-5	0.1	n/a	4/22/2020	0.05ND	No	12	MW-8	n/a	n/a	91.67	n/a	n/a	0.0694	NP Inter
Thallium (ug/L)	MW-6	0.1	n/a	4/22/2020	0.05ND	No	12	MW-8	n/a	n/a	91.67	n/a	n/a	0.0694	NP Inter
Thallium (ug/L)	MW-7	0.1	n/a	4/22/2020	0.05ND	No	12	MW-8	n/a	n/a	91.67	n/a	n/a	0.0694	NP Inter
Thallium (ug/L)	MW-10	0.1	n/a	4/22/2020	0.05ND	No	12	MW-8	n/a	n/a	91.67	n/a	n/a	0.0694	NP Inter
Total Dissolved Solids (mg/L)	MW-5	1691	n/a	4/22/2020	3460	Yes	14	MW-8	1559	58.9	0	None	No	0.02504	Param Inter
Total Dissolved Solids (mg/L)	MW-6	1691	n/a	4/22/2020	2750	Yes	14	MW-8	1559	58.9	0	None	No	0.02504	Param Inter
Total Dissolved Solids (mg/L)	MW-7	1691	n/a	4/22/2020	1910	Yes	14	MW-8	1559	58.9	0	None	No	0.02504	Param Inter
Total Dissolved Solids (mg/L)	MW-10	1691	n/a	4/22/2020	3170	Yes	14	MW-8	1559	58.9	0	None	No	0.02504	Param Inter

Concentration units are as specified in Column 1.

mg/L - milligram per liter

ug/L - microgram per liter

Inter - Parametric interstation prediction limit

n/a - not applicable

ND - Compound not detected, preceding number is one-half the reporting limit.

NP Inter - Non-parametric interstation prediction limit. Text in parenthesis indicates reason for non-parametric determination, as follows.

NDs - background data contain too high a percentage of non-detect values.

Param - Parametric Prediction Limit

Table C3: 2020 Annual Monitoring Report, BREC Wilson Landfill, October 2020 Prediction Limit Results

		Upper	Lower				Background	Background	Background	Standard	% Non-	Non-detect			,
Constituent Name	Station	Limit	Limit	Date	Observation	Exceeds	N	Stations	Mean	Deviation	detects	Adjustment	Transformation	Alpha	Method
Antimony (mg/L)	MW-5	0.001	n/a	10/13/2020	0.001ND	No	14	MW-8	n/a	n/a	50	n/a	n/a	0.0609	NP Inter (xform)
Antimony (mg/L)	MW-6	0.001	n/a	10/13/2020	0.001ND	No	14	MW-8	n/a	n/a	50	n/a	n/a	0.0609	NP Inter (xform)
Antimony (mg/L)	MW-7	0.001	n/a	10/13/2020	0.001ND	No	14	MW-8	n/a	n/a	50	n/a	n/a	0.0609	NP Inter (xform)
Antimony (mg/L)	MW-10	0.001	n/a	10/13/2020	0.001ND	No	14	MW-8	n/a	n/a	50	n/a	n/a	0.0609	NP Inter (xform)
Arsenic (ug/L)	MW-5	9.588	n/a	10/13/2020	2.9	No	14	MW-8	1.844	0.1862	0	None	ln(x)	0.02504	Param Inter
Arsenic (ug/L)	MW-6	9.588	n/a	10/13/2020	5.4	No	14	MW-8	1.844	0.1862	0	None	ln(x)	0.02504	Param Inter
Arsenic (ug/L)	MW-7	9.588	n/a	10/13/2020	3.6	No	14	MW-8	1.844	0.1862	0	None	ln(x)	0.02504	Param Inter
Arsenic (ug/L)	MW-10	9.588	n/a	10/13/2020	0.9	No	14	MW-8	1.844	0.1862	0	None	ln(x)	0.02504	Param Inter
Barium (ug/L)	MW-5	26.93	n/a	10/13/2020	11	No	13	MW-8	22.18	2.102	0	None	No	0.02504	Param Inter
Barium (ug/L)	MW-6	26.93	n/a	10/13/2020	13	No	13	MW-8	22.18	2.102	0	None	No	0.02504	Param Inter
Barium (ug/L)	MW-7	26.93	n/a	10/13/2020	13	No	13	MW-8	22.18	2.102	0	None	No	0.02504	Param Inter
Barium (ug/L)	MW-10	26.93	n/a	10/13/2020	10	No	13	MW-8	22.18	2.102	0	None	No	0.02504	Param Inter
Beryllium (ug/L)	MW-5	1	n/a	10/13/2020	0.5ND	No	13	MW-8	n/a	n/a	100	n/a	n/a	0.06487	NP Inter
Beryllium (ug/L)	MW-6	1	n/a	10/13/2020	0.5ND	No	13	MW-8	n/a	n/a	100	n/a	n/a	0.06487	NP Inter
Beryllium (ug/L)	MW-7	1	n/a	10/13/2020	0.5ND	No	13	MW-8	n/a	n/a	100	n/a	n/a	0.06487	NP Inter
Beryllium (ug/L)	MW-10	1	n/a	10/13/2020	0.5ND	No	13	MW-8	n/a	n/a	100	n/a	n/a	0.06487	NP Inter
Boron (ug/L)	MW-5	51.8	n/a	10/13/2020	690	Yes	13	MW-8	n/a	n/a	15.38	n/a	n/a	0.06487	NP Inter
Boron (ug/L)	MW-6	51.8	n/a	10/13/2020	340	Yes	13	MW-8	n/a	n/a	15.38	n/a	n/a	0.06487	NP Inter
Boron (ug/L)	MW-7	51.8	n/a	10/13/2020	2260	Yes	13	MW-8	n/a	n/a	15.38	n/a	n/a	0.06487	NP Inter
Boron (ug/L)	MW-10	51.8	n/a	10/13/2020	390	Yes	13	MW-8	n/a	n/a	15.38	n/a	n/a	0.06487	NP Inter
Cadmium (ug/L)	MW-5	0.4	n/a	10/13/2020	0.05ND	No	12	MW-8	n/a	n/a	91.67	n/a	n/a	0.0694	NP Inter (NDs)
Cadmium (ug/L)	MW-6	0.4	n/a	10/13/2020	0.05ND	No	12	MW-8	n/a	n/a	91.67	n/a	n/a	0.0694	NP Inter (NDs)
Cadmium (ug/L)	MW-7	0.4	n/a	10/13/2020	0.05ND	No	12	MW-8	n/a	n/a	91.67	n/a	n/a	0.0694	NP Inter (NDs)
Cadmium (ug/L)	MW-10	0.4	n/a	10/13/2020	0.05ND	No	12	MW-8	n/a	n/a	91.67	n/a	n/a	0.0694	NP Inter (NDs)
Calcium (ug/L)	MW-5	329000	n/a	10/13/2020	571000	Yes	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Calcium (ug/L)	MW-6	329000	n/a	10/13/2020	483000	Yes	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Calcium (ug/L)	MW-7	329000	n/a	10/13/2020	350000	Yes	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Calcium (ug/L)	MW-10	329000	n/a	10/13/2020	404000	Yes	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Chloride (mg/L)	MW-5	5.524	n/a	10/13/2020	199	Yes	15	MW-8	4.415	0.5008	0	None	No	0.02504	Param Inter
Chloride (mg/L)	MW-6	5.524	n/a	10/13/2020	18.9	Yes	15	MW-8	4.415	0.5008	0	None	No	0.02504	Param Inter
Chloride (mg/L)	MW-7	5.524	n/a	10/13/2020	45	Yes	15	MW-8	4.415	0.5008	0	None	No	0.02504	Param Inter
Chloride (mg/L)	MW-10	5.524	n/a	10/13/2020	89.2	Yes	15	MW-8	4.415	0.5008	0	None	No	0.02504	Param Inter
Chromium (ug/L)	MW-5	2.5	n/a	10/13/2020	0.3ND	No	13	MW-8	n/a	n/a	53.85	n/a	n/a	0.06487	NP Inter (NDs)
Chromium (ug/L)	MW-6	2.5	n/a	10/13/2020	0.7	No	13	MW-8	n/a	n/a	53.85	n/a	n/a	0.06487	NP Inter (NDs)
Chromium (ug/L)	MW-7	2.5	n/a	10/13/2020	0.3ND	No	13	MW-8	n/a	n/a	53.85	n/a	n/a	0.06487	NP Inter (NDs)
Chromium (ug/L)	MW-10	2.5	n/a	10/13/2020	0.7	No	13	MW-8	n/a	n/a	53.85	n/a	n/a	0.06487	NP Inter (NDs)
Cobalt (ug/L)	MW-5	2.034	n/a	10/13/2020	10	Yes	13	MW-8	0.8324	0.5317	23.08	Aitchison`s	No	0.02504	Param Inter
Cobalt (ug/L)	MW-6	2.034	n/a	10/13/2020	9	Yes	13	MW-8	0.8324	0.5317	23.08	Aitchison`s	No	0.02504	Param Inter
Cobalt (ug/L)	MW-7	2.034	n/a	10/13/2020	2ND	No	13	MW-8	0.8324	0.5317	23.08	Aitchison's	No	0.02504	Param Inter
Cobalt (ug/L)	MW-10	2.034	n/a	10/13/2020	78	Yes	13	MW-8	0.8324	0.5317	23.08	Aitchison`s	No	0.02504	Param Inter
Fluoride (mg/L)	MW-5	1.21	n/a	10/13/2020	0.09ND	No	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Fluoride (mg/L)	MW-6	1.21	n/a	10/13/2020	0.09ND	No	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Fluoride (mg/L)	MW-7	1.21	n/a	10/13/2020	0.22	No	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Fluoride (mg/L)	MW-10	1.21	n/a	10/13/2020	0.09ND	No	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Lead (ug/L)	MW-5	0.5	n/a	10/13/2020	0.25ND	No	12	MW-8	n/a	n/a	83.33	n/a	n/a	0.0694	NP Inter
Lead (ug/L)	MW-6	0.5	n/a	10/13/2020	0.6	Yes	12	MW-8	n/a	n/a	83.33	n/a	n/a	0.0694	NP Inter
Lead (ug/L)	MW-7	0.5	n/a	10/13/2020	0.25ND	No	12	MW-8	n/a	n/a	83.33	n/a	n/a	0.0694	NP Inter
Lead (ug/L)											4	•			

Table C3: 2020 Annual Monitoring Report, BREC Wilson Landfill, October 2020 Prediction Limit Results

											%				
Constituent Name	Station	Upper Limit	Lower Limit	Date	Observation	Exceeds	Background N	Background Stations	Background Mean	Standard Deviation	Non- detects	Non-detect Adjustment	Transformation	Alpha	Method
Lithium (ug/L)	MW-5	22.69	n/a	10/13/2020	30	Yes	15	MW-8	8.947	6.205	26.67	Aitchison`s	No	0.02504	Param Inter
Lithium (ug/L)	MW-6	22.69	n/a	10/13/2020	40	Yes	15	MW-8	8.947	6.205	26.67	Aitchison`s	No	0.02504	Param Inter
Lithium (ug/L)	MW-7	22.69	n/a	10/13/2020	30	Yes	15	MW-8	8.947	6.205	26.67	Aitchison`s	No	0.02504	Param Inter
Lithium (ug/L)	MW-10	22.69	n/a	10/13/2020	8	No	15	MW-8	8.947	6.205	26.67	Aitchison`s	No	0.02504	Param Inter
Mercury (ug/L)	MW-5	0.2	n/a	10/13/2020	0.1ND	No	13	MW-8	n/a	n/a	100	n/a	n/a	0.06487	NP Inter (NDs)
Mercury (ug/L)	MW-6	0.2	n/a	10/13/2020	0.1ND	No	13	MW-8	n/a	n/a	100	n/a	n/a	0.06487	NP Inter (NDs)
Mercury (ug/L)	MW-7	0.2	n/a	10/13/2020	0.1ND	No	13	MW-8	n/a	n/a	100	n/a	n/a	0.06487	NP Inter (NDs)
Mercury (ug/L)	MW-10	0.2	n/a	10/13/2020	0.1ND	No	13	MW-8	n/a	n/a	100	n/a	n/a	0.06487	NP Inter (NDs)
Molybdenum (ug/L)	MW-5	20.16	n/a	10/13/2020	4	No	15	MW-8	13.7	2.918	0	None	No	0.02504	Param Inter
Molybdenum (ug/L)	MW-6	20.16	n/a	10/13/2020	7	No	15	MW-8	13.7	2.918	0	None	No	0.02504	Param Inter
Molybdenum (ug/L)	MW-7	20.16	n/a	10/13/2020	5	No	15	MW-8	13.7	2.918	0	None	No	0.02504	Param Inter
Molybdenum (ug/L)	MW-10	20.16	n/a	10/13/2020	1ND	No	15	MW-8	13.7	2.918	0	None	No	0.02504	Param Inter
pH [Field] (SU)	MW-5	6.804	5.967	10/13/2020	5.95	Yes	15	MW-8	6.385	0.1615	0	None	No	0.01252	Param Inter
pH [Field] (SU)	MW-6	6.804	5.967	10/13/2020	6.72	No	15	MW-8	6.385	0.1615	0	None	No	0.01252	Param Inter
pH [Field] (SU)	MW-7	6.804	5.967	10/13/2020	6.02	No	15	MW-8	6.385	0.1615	0	None	No	0.01252	Param Inter
pH [Field] (SU)	MW-10	6.804	5.967	10/13/2020	6.16	No	15	MW-8	6.385	0.1615	0	None	No	0.01252	Param Inter
Radium 226 + 228 (pCi/L)	MW-5	2.94	n/a	10/13/2020	1.7	No	14	MW-8	n/a	n/a	0	n/a	n/a	0.0609	NP Inter
Radium 226 + 228 (pCi/L)	MW-6	2.94	n/a	10/13/2020	0.568	No	14	MW-8	n/a	n/a	0	n/a	n/a	0.0609	NP Inter
Radium 226 + 228 (pCi/L)	MW-7	2.94	n/a	10/13/2020	0.967	No	14	MW-8	n/a	n/a	0	n/a	n/a	0.0609	NP Inter
Radium 226 + 228 (pCi/L)	MW-10	2.94	n/a	10/13/2020	0.944	No	14	MW-8	n/a	n/a	0	n/a	n/a	0.0609	NP Inter
Selenium (ug/L)	MW-5	0.501	n/a	10/13/2020	0.5ND	No	13	MW-8	n/a	n/a	84.62	n/a	n/a	0.06487	NP Inter
Selenium (ug/L)	MW-6	0.501	n/a	10/13/2020	0.5ND	No	13	MW-8	n/a	n/a	84.62	n/a	n/a	0.06487	NP Inter
Selenium (ug/L)	MW-7	0.501	n/a	10/13/2020	0.5ND	No	13	MW-8	n/a	n/a	84.62	n/a	n/a	0.06487	NP Inter
Selenium (ug/L)	MW-10	0.501	n/a	10/13/2020	0.5ND	No	13	MW-8	n/a	n/a	84.62	n/a	n/a	0.06487	NP Inter
Sulfate (mg/L)	MW-5	1480	n/a	10/13/2020	1800	Yes	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Sulfate (mg/L)	MW-6	1480	n/a	10/13/2020	1750	Yes	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Sulfate (mg/L)	MW-7	1480	n/a	10/13/2020	1050	No	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Sulfate (mg/L)	MW-10	1480	n/a	10/13/2020	1380	No	15	MW-8	n/a	n/a	0	n/a	n/a	0.05738	NP Inter
Thallium (ug/L)	MW-5	0.2	n/a	10/13/2020	0.05ND	No	13	MW-8	n/a	n/a	84.62	n/a	n/a	0.06487	NP Inter
Thallium (ug/L)	MW-6	0.2	n/a	10/13/2020	0.05ND	No	13	MW-8	n/a	n/a	84.62	n/a	n/a	0.06487	NP Inter
Thallium (ug/L)	MW-7	0.2	n/a	10/13/2020	0.05ND	No	13	MW-8	n/a	n/a	84.62	n/a	n/a	0.06487	NP Inter
Thallium (ug/L)	MW-10	0.2	n/a	10/13/2020	0.05ND	No	13	MW-8	n/a	n/a	84.62	n/a	n/a	0.06487	NP Inter
Total Dissolved Solids (mg/L)	MW-5	1711	n/a	10/13/2020	3770	Yes	15	MW-8	1567	64.75	0	None	No	0.02504	Param Inter
Total Dissolved Solids (mg/L)	MW-6	1711	n/a	10/13/2020	3030	Yes	15	MW-8	1567	64.75	0	None	No	0.02504	Param Inter
Total Dissolved Solids (mg/L)	MW-7	1711	n/a	10/13/2020	1950	Yes	15	MW-8	1567	64.75	0	None	No	0.02504	Param Inter
Total Dissolved Solids (mg/L)	MW-10	1711	n/a	10/13/2020	3290	Yes	15	MW-8	1567	64.75	0	None	No	0.02504	Param Inter

Concentration units are as specified in Column 1.

mg/L - milligram per liter

ug/L - microgram per liter

Inter - Parametric interstation prediction limit

n/a - not applicable

ND - Compound not detected, preceding number is one-half the reporting limit.

NP Inter - Non-parametric interstation prediction limit. Text in parenthesis indicates reason for non-parametric determination, as follows.

NDs - background data contain too high a percentage of non-detect values.

Param - Parametric Prediction Limit

Table C4: 2020 Annual Monitoring Report, BREC Wilson Landfill, April 2020 Comparison of 95% LCL to GWPS

Constituent Name	Well	Upper Limit	Lower Limit	GWPS	Exceeds	N	Mean	Standard Deviation	% Non- detects	Non-detect Adjustment	Transform	Alpha	Method
Chromium (ug/L)	MW-7	2.5	0.1695	100	No	13	2.992	6.706	61.54	None	No	0.05	NP (NDs)
Cobalt (ug/L)	MW-5	7.74	6.333	6	Yes	14	7.036	1.486	0	None	No	0.05	Param.
Cobalt (ug/L)	MW-6	7.484	6.578	6	Yes	14	7.031	0.957	0	None	No	0.05	Param.
Cobalt (ug/L)	MW-7	5.418	3.834	6	No	14	4.626	1.673	7.143	None	No	0.05	Param.
Cobalt (ug/L)	MW-10	117.4	87.48	6	Yes	14	102.5	31.65	0	None	No	0.05	Param.
Lead (ug/L)	MW-7	0.25	0.03375	15	No	13	0.4612	1.097	69.23	None	No	0.05	NP (NDs)
Lithium (ug/L)	MW-5	38.92	32.56	40	No	14	35.74	6.719	0	None	No	0.05	Param.
Lithium (ug/L)	MW-6	47.12	42.26	40	Yes	14	44.69	5.137	0	None	No	0.05	Param.
Lithium (ug/L)	MW-7	29.01	25.88	40	No	14	27.44	3.31	0	None	No	0.05	Param.

Concentration units are as specified in Column 1.

ug/L - microgram per liter

In(x) - logarithmic transform applied

NP - Non-parametric Confidence Limit

Param - Parametric Confidence Limit

Table C5: 2020 Annual Monitoring Report, BREC Wilson Landfill, October 2020 Comparison of 95% LCL to GWPS

Constituent Name	Well	Upper Limit	Lower Limit	GWPS	Exceeds	N	Mean	Standard Deviation	% Non- detects	Non-detect Adjustment	Transform	Alpha	Method
Cobalt (ug/L)	MW-5	7.972	6.496	6	Yes	15	7.234	1.623	0	None	No	0.05	Param.
Cobalt (ug/L)	MW-6	7.641	6.683	6	Yes	15	7.162	1.053	0	None	No	0.05	Param.
Cobalt (ug/L)	MW-10	115	86.66	6	Yes	15	100.8	31.14	0	None	No	0.05	Param.
Lead (ug/L)	MW-6	0.5178	0.2481	15	No	14	0.4681	0.3627	14.29	None	ln(x)	0.05	Param.
Lithium (ug/L)	MW-5	38.38	32.34	40	No	15	35.36	6.642	0	None	No	0.05	Param.
Lithium (ug/L)	MW-6	46.7	42.06	40	Yes	15	44.38	5.096	0	None	No	0.05	Param.
Lithium (ug/L)	MW-7	29.09	26.13	40	No	15	27.61	3.257	0	None	No	0.05	Param.

Concentration units are as specified in Column 1.

ug/L - microgram per liter

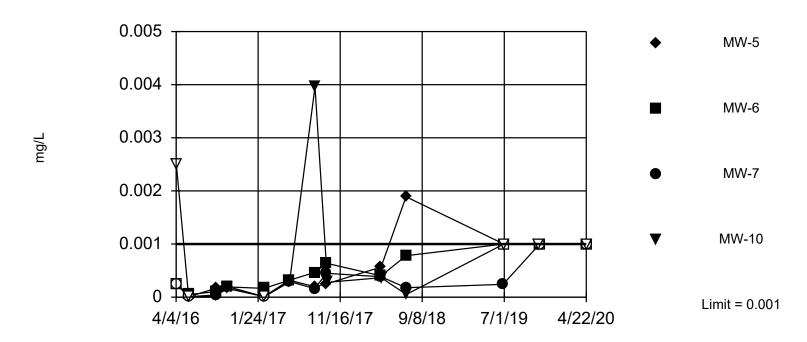
In(x) - logarithmic transform applied

Param - Parametric Confidence Limit

Attachment 1 April 2020 Time Series Plots and Prediction Limit Results

Prediction Limit

Interwell Non-parametric

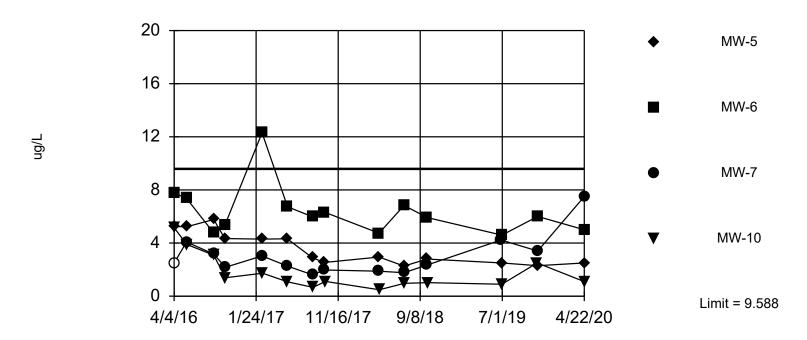


Non-parametric test used after natural log transformation resulted in a parametric limit of 278.8, which exceeds 10 times the highest background value (user-adjustable cutoff). Limit is highest of 13 background values. 46.15% NDs. Report alpha = 0.2353. Individual comparison alpha = 0.06487. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Antimony Analysis Run 12/16/2020 12:30 PM

Prediction Limit

Interwell Parametric

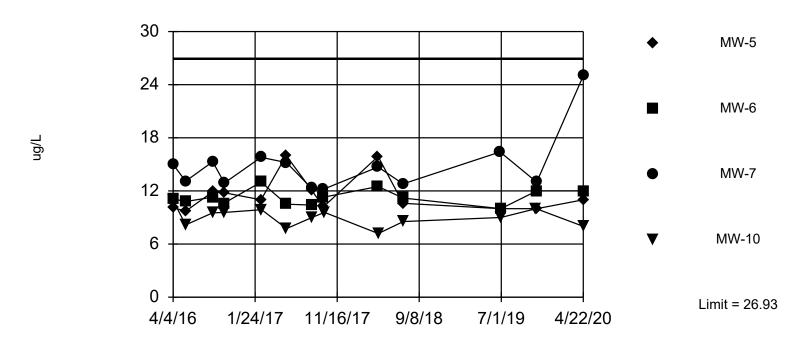


Background Data Summary (based on natural log transformation): Mean=1.844, Std. Dev.=0.1862, n=14. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Arsenic Analysis Run 12/16/2020 12:36 PM

Prediction Limit

Interwell Parametric

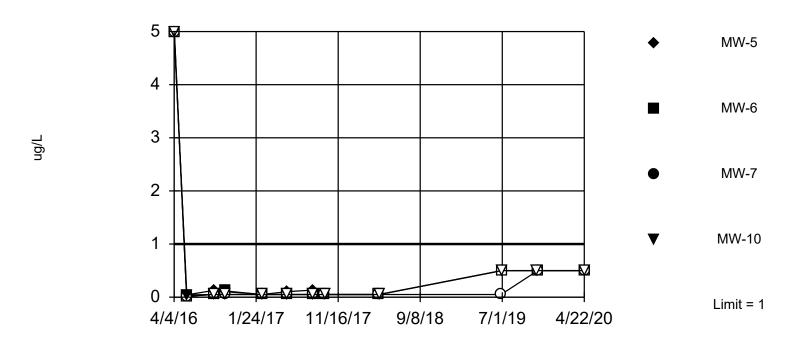


Background Data Summary: Mean=22.18, Std. Dev.=2.102, n=13. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Barium Analysis Run 12/16/2020 12:39 PM

Prediction Limit

Interwell Non-parametric



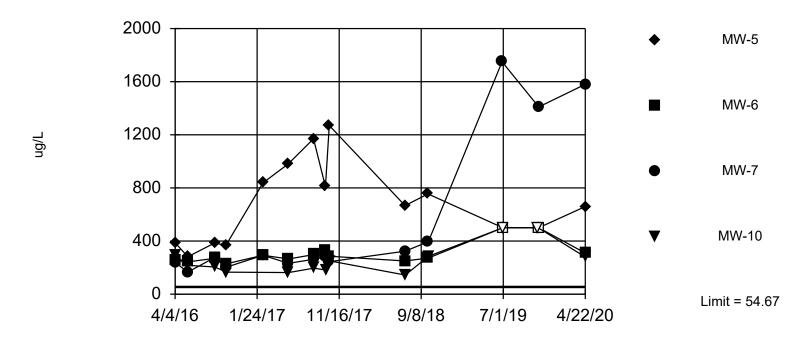
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 11) were censored; limit is most recent reporting limit. Report alpha = 0.2667. Individual comparison alpha = 0.07461. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. After outlier removal distribution was non-normal; user chose to continue. One background outlier was removed: $<10 \ (4/4/2016)$.

Constituent: Beryllium Analysis Run 12/16/2020 12:42 PM

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit

Interwell Parametric

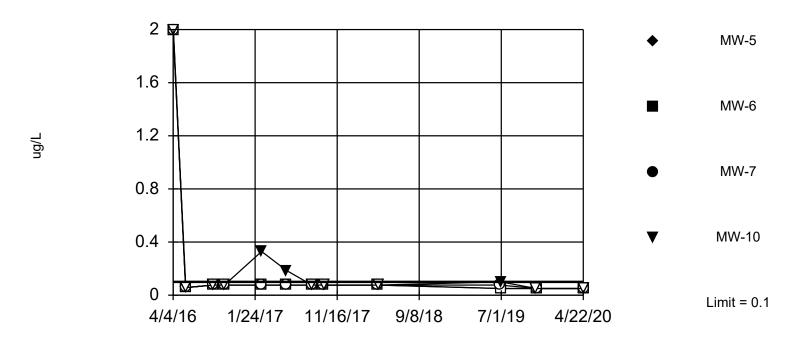


Background Data Summary: Mean=41.55, Std. Dev.=5.644, n=11, 9.091% NDs. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. One background outlier was removed: 20.7 (9/28/2017).

Constituent: Boron Analysis Run 12/16/2020 12:52 PM

Prediction Limit

Interwell Non-parametric



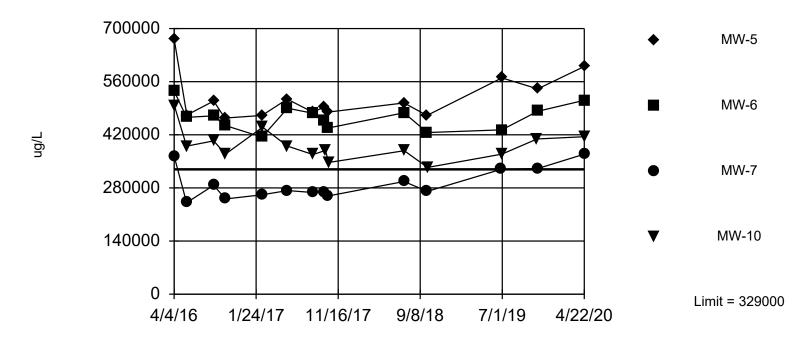
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 11) were censored; limit is most recent reporting limit. Report alpha = 0.2667. Individual comparison alpha = 0.07461. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. After outlier removal distribution was non-normal; user chose to continue. One background outlier was removed: <4 (4/4/2016).

Constituent: Cadmium Analysis Run 12/16/2020 1:00 PM

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit

Interwell Non-parametric



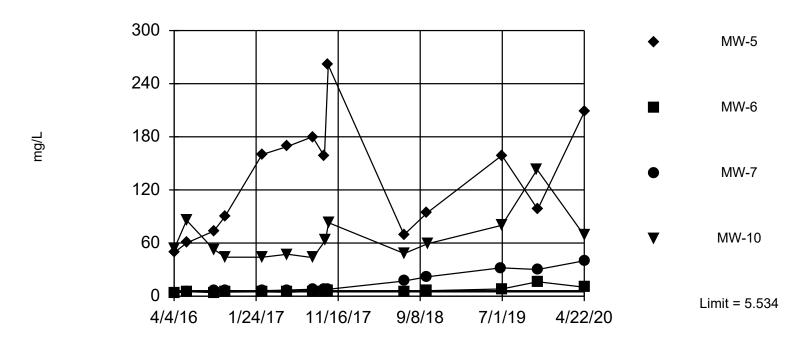
NP test selected by user. Limit is highest of 14 background values. Report alpha = 0.2222. Individual comparison alpha = 0.0609. Most recent point for each compliance well compared to limit.

Constituent: Calcium Analysis Run 12/16/2020 1:08 PM

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit

Interwell Parametric



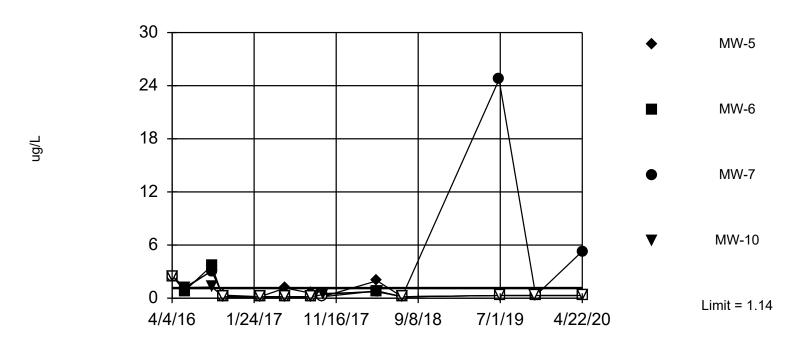
Background Data Summary: Mean=4.466, Std. Dev.=0.4774, n=14. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Chloride Analysis Run 12/16/2020 1:12 PM

Exceeds Limit: MW-7

Prediction Limit

Interwell Non-parametric



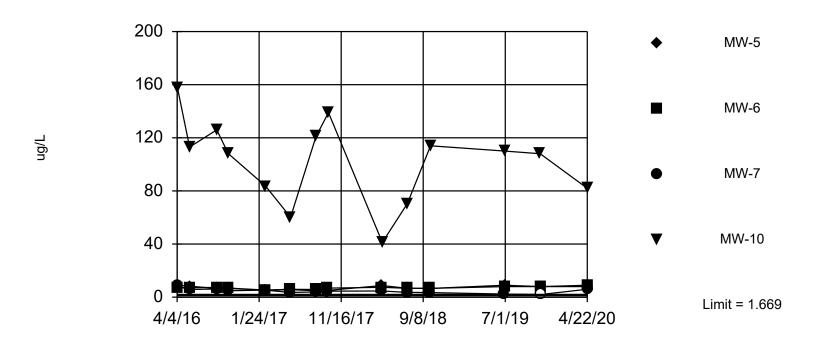
NP test selected by user. Limit is highest of 12 background values. 50% NDs. Report alpha = 0.25. Individual comparison alpha = 0.0694. Most recent point for each compliance well compared to limit. After outlier removal all values were the same, so outlier results were invalidated.

Constituent: Chromium Analysis Run 12/16/2020 1:23 PM

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit

Interwell Parametric

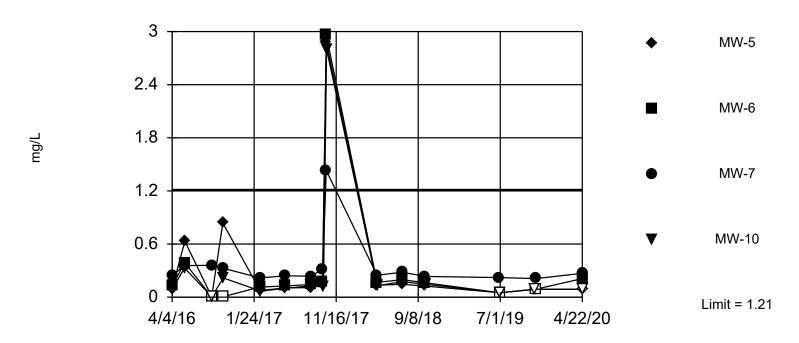


Background Data Summary (after Kaplan-Meier Adjustment): Mean=1.082, Std. Dev.=0.2627, n=14, 28.57% NDs. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Cobalt Analysis Run 12/16/2020 1:27 PM

Prediction Limit

Interwell Non-parametric



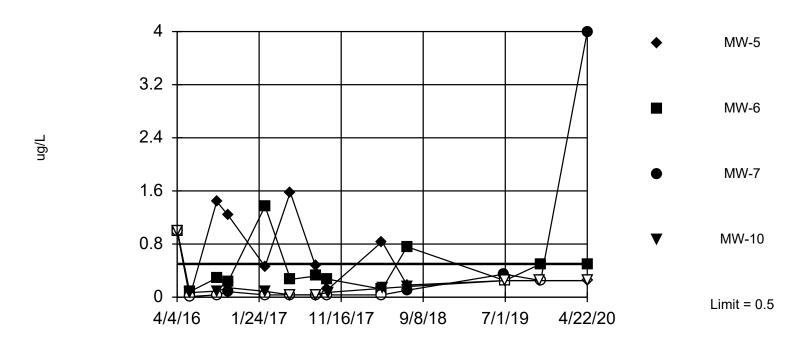
NP test selected by user. Limit is highest of 15 background values. Report alpha = 0.2105. Individual comparison alpha = 0.05738. Most recent point for each compliance well compared to limit.

Constituent: Fluoride Analysis Run 12/16/2020 1:35 PM

Exceeds Limit: MW-7

Prediction Limit

Interwell Non-parametric



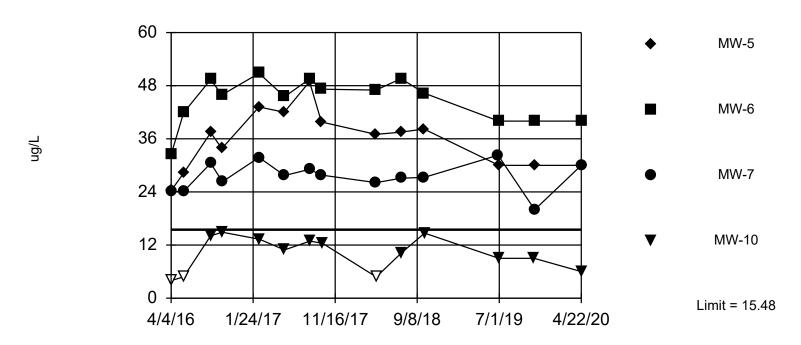
NP test selected by user. Limit is highest of 12 background values. 83.33% NDs. Report alpha = 0.25. Individual comparison alpha = 0.0694. Most recent point for each compliance well compared to limit.

Constituent: Lead Analysis Run 12/16/2020 1:46 PM

Exceeds Limit: MW-5, MW-6, MW-7

Prediction Limit

Interwell Parametric

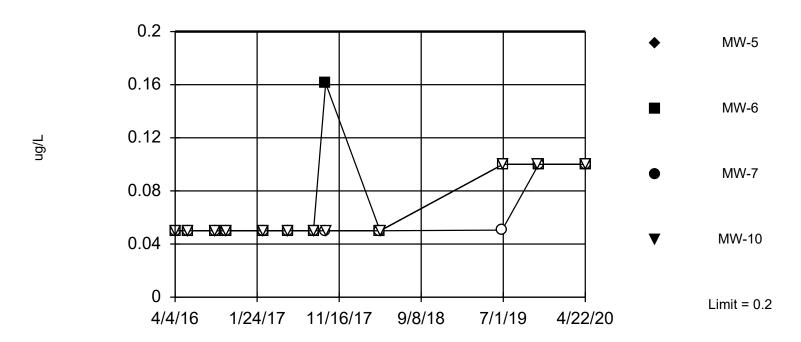


Background Data Summary (after Kaplan-Meier Adjustment): Mean=10.35, Std. Dev.=2.293, n=14, 28.57% NDs. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Lithium Analysis Run 12/16/2020 1:50 PM

Prediction Limit

Interwell Non-parametric

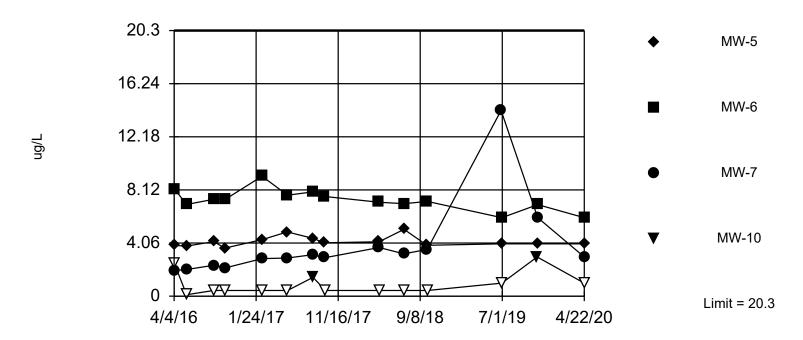


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 12) were censored; limit is most recent reporting limit. Report alpha = 0.25. Individual comparison alpha = 0.0694. Most recent point for each compliance well compared to limit. After outlier removal all values were the same, so outlier results were invalidated.

Constituent: Mercury Analysis Run 12/16/2020 1:54 PM

Prediction Limit

Interwell Parametric



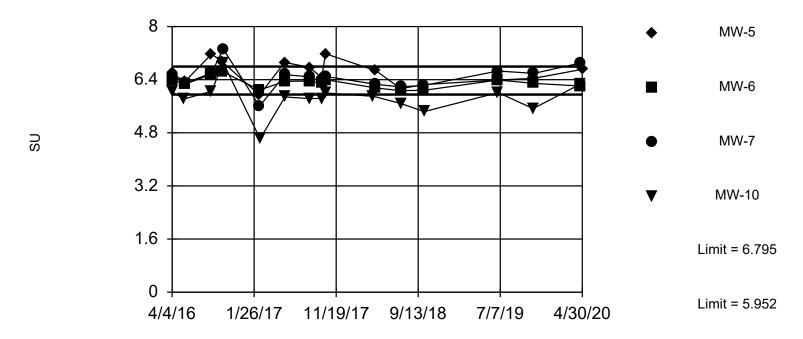
Background Data Summary: Mean=13.96, Std. Dev.=2.836, n=14. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Molybdenum Analysis Run 12/16/2020 1:57 PM

Exceeds Limits: MW-7

Prediction Limit

Interwell Parametric

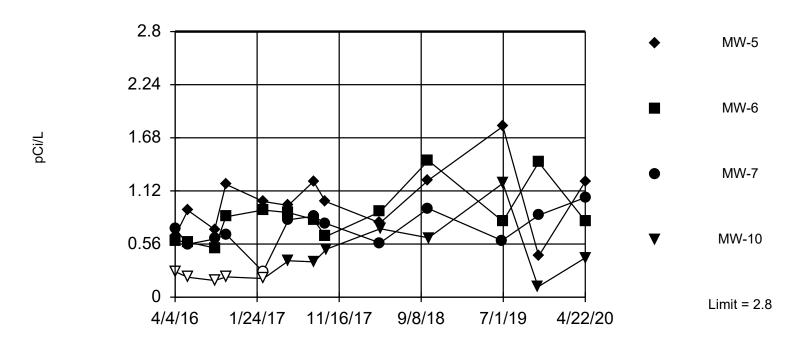


Background Data Summary: Mean=6.374, Std. Dev.=0.1607, n=14. Report alpha = 0.09646. Individual comparison alpha = 0.01252. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. One background outlier was removed: 4.91 (2/15/2017).

Constituent: pH [Field] Analysis Run 12/16/2020 2:59 PM

Prediction Limit

Interwell Non-parametric

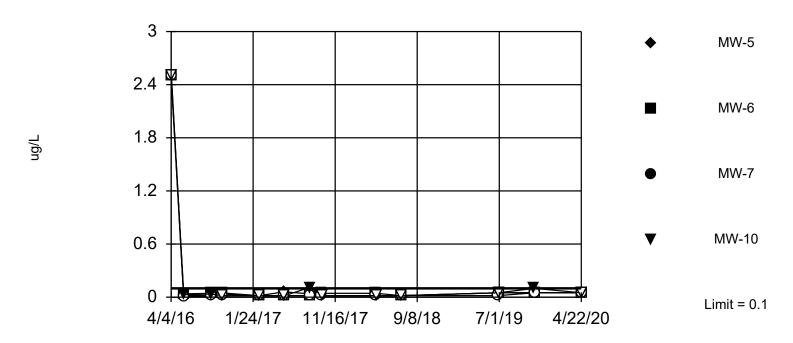


NP test selected by user. Limit is highest of 13 background values. Report alpha = 0.2353. Individual comparison alpha = 0.06487. Most recent point for each compliance well compared to limit.

Constituent: Radium 226 + 228 Analysis Run 12/16/2020 3:10 PM

Prediction Limit

Interwell Non-parametric



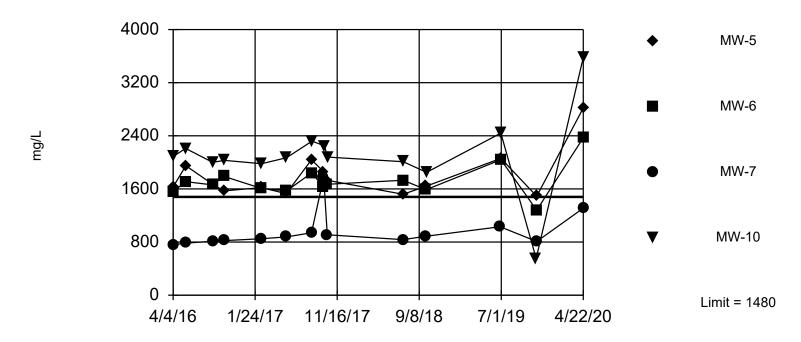
NP test selected by user. Limit is highest of 12 background values. 91.67% NDs. Report alpha = 0.25. Individual comparison alpha = 0.0694. Most recent point for each compliance well compared to limit.

Constituent: Thallium Analysis Run 12/16/2020 3:22 PM

Exceeds Limit: MW-5, MW-6, MW-10

Prediction Limit

Interwell Non-parametric

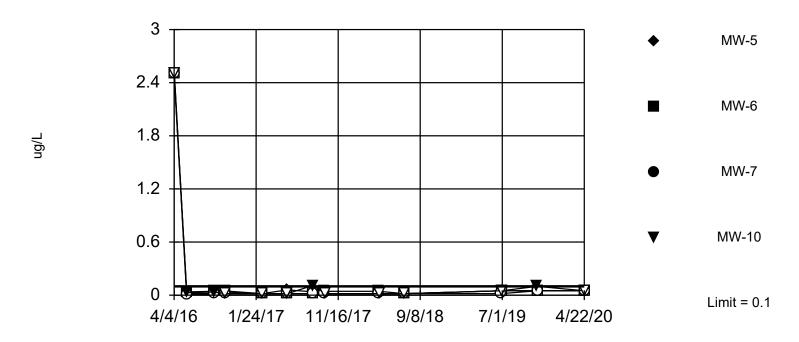


NP test selected by user. Limit is highest of 14 background values. Report alpha = 0.2222. Individual comparison alpha = 0.0609. Most recent point for each compliance well compared to limit.

Constituent: Sulfate Analysis Run 12/16/2020 3:18 PM

Prediction Limit

Interwell Non-parametric



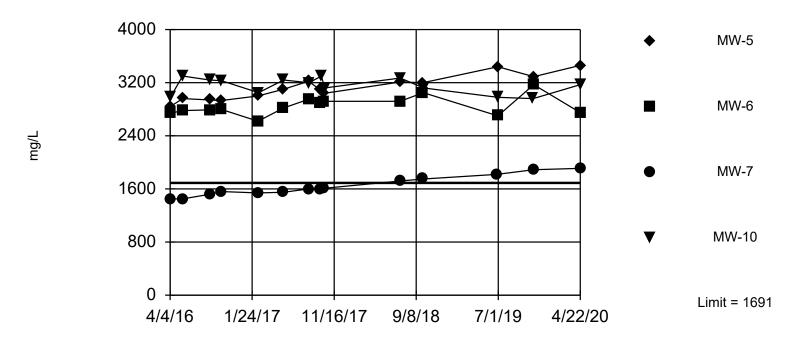
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Report alpha = 0.25. Individual comparison alpha = 0.0694. Most recent point for each compliance well compared to limit. After outlier removal all values were the same, so outlier results were invalidated.

Constituent: Thallium Analysis Run 12/17/2020 9:19 AM

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit

Interwell Parametric



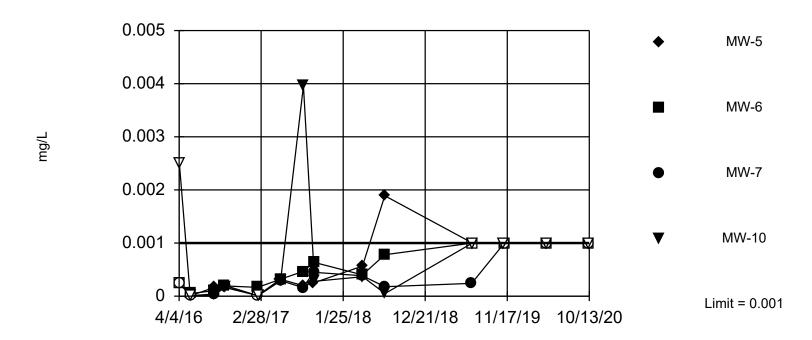
Background Data Summary: Mean=1559, Std. Dev.=58.9, n=14. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Total Dissolved Solids Analysis Run 12/16/2020 3:24 PM

Attachment 2 October 2020 Time Series Plots and Prediction Limit Results

Prediction Limit

Interwell Non-parametric

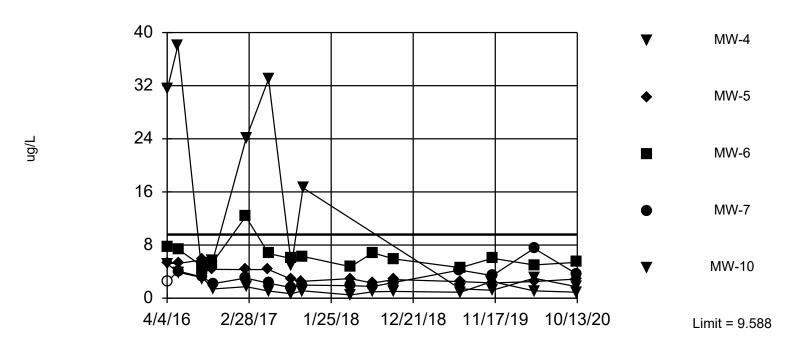


Non-parametric test used after natural log transformation resulted in a parametric limit of 346.9, which exceeds 10 times the highest background value (user-adjustable cutoff). Limit is highest of 14 background values. 50% NDs. Report alpha = 0.2222. Individual comparison alpha = 0.0609. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Antimony Analysis Run 12/14/2020 12:01 PM

Prediction Limit

Interwell Parametric

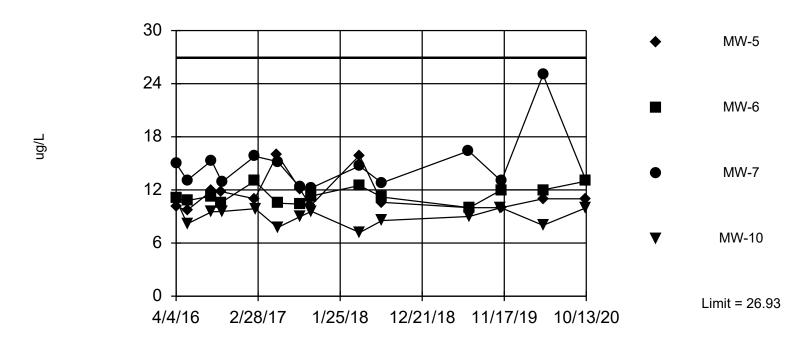


Background Data Summary (based on natural log transformation): Mean=1.844, Std. Dev.=0.1862, n=14. Report alpha = 0.1191. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. One background outlier was removed: 14.4 (10/13/2020).

Constituent: Arsenic Analysis Run 12/14/2020 12:21 PM

Prediction Limit

Interwell Parametric

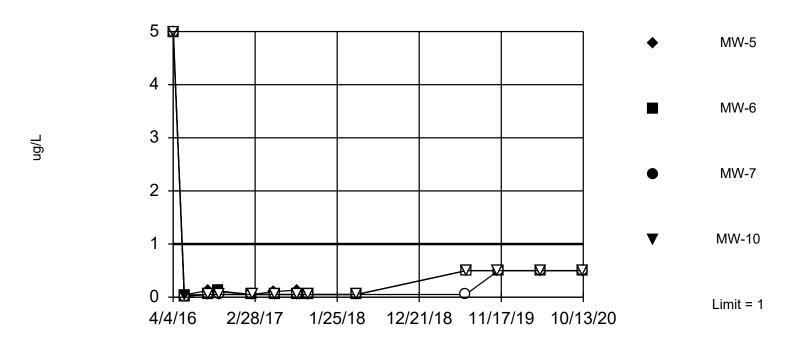


Background Data Summary: Mean=22.18, Std. Dev.=2.102, n=13. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Barium Analysis Run 12/14/2020 12:30 PM

Prediction Limit

Interwell Non-parametric



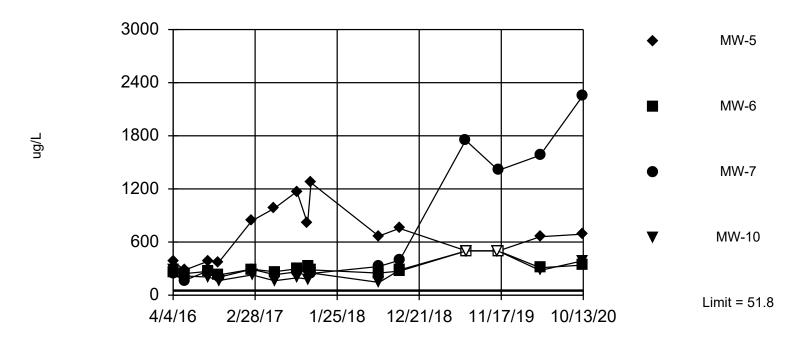
NP test selected by user. All background values (n = 13) were censored; limit is most recent reporting limit. Report alpha = 0.2353. Individual comparison alpha = 0.06487. Most recent point for each compliance well compared to limit. After outlier removal all values were the same, so outlier results were invalidated.

Constituent: Beryllium Analysis Run 12/14/2020 12:37 PM

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit

Interwell Non-parametric

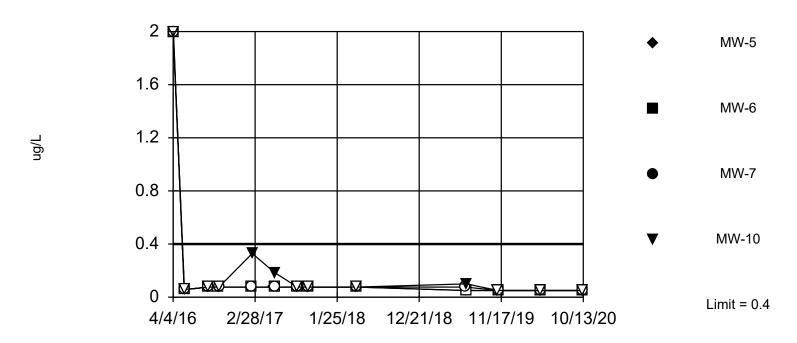


NP test selected by user. Limit is highest of 13 background values. 15.38% NDs. Report alpha = 0.2353. Individual comparison alpha = 0.06487. Most recent point for each compliance well compared to limit.

Constituent: Boron Analysis Run 12/14/2020 1:21 PM

Prediction Limit

Interwell Non-parametric



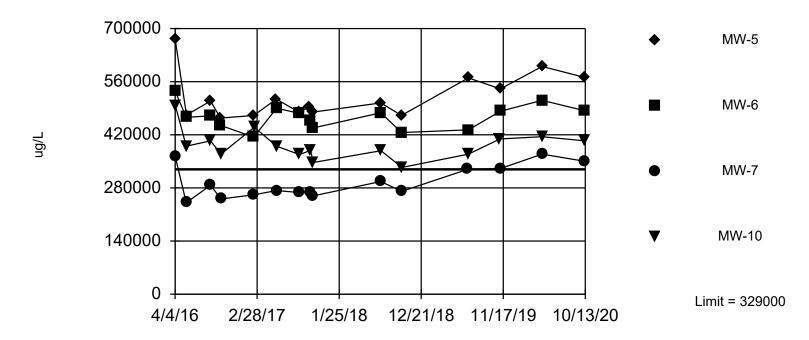
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Report alpha = 0.25. Individual comparison alpha = 0.0694. Most recent point for each compliance well compared to limit.

Constituent: Cadmium Analysis Run 12/14/2020 1:31 PM

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit

Interwell Non-parametric



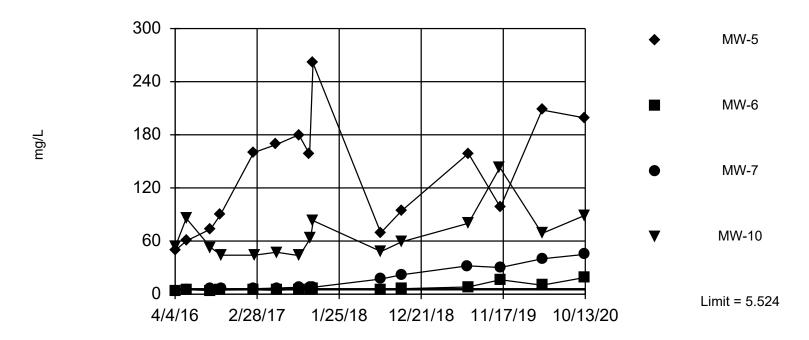
NP test selected by user. Limit is highest of 15 background values. Report alpha = 0.2105. Individual comparison alpha = 0.05738. Most recent point for each compliance well compared to limit.

Constituent: Calcium Analysis Run 12/14/2020 1:38 PM

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit

Interwell Parametric

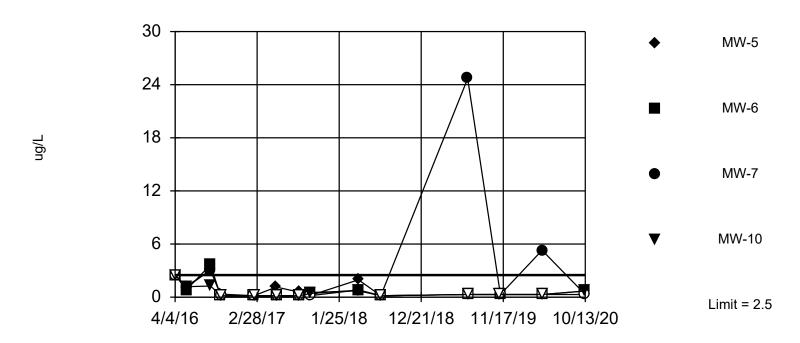


Background Data Summary: Mean=4.415, Std. Dev.=0.5008, n=15. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Chloride Analysis Run 12/14/2020 1:45 PM

Prediction Limit

Interwell Non-parametric



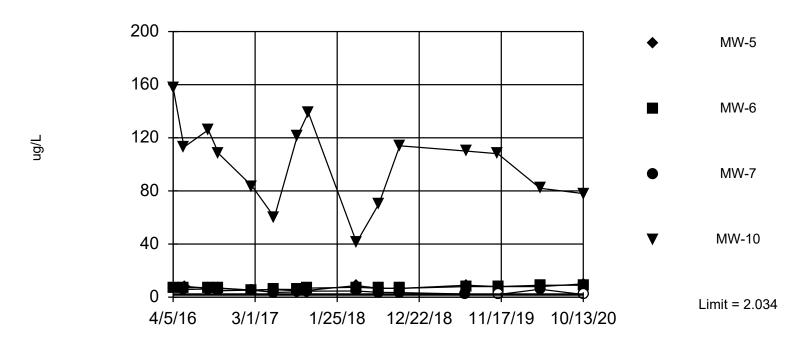
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 13 background values. 53.85% NDs. Report alpha = 0.2353. Individual comparison alpha = 0.06487. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. After outlier removal distribution was non-normal; user chose to continue. One background outlier was removed: 22.4 (10/13/2020).

Constituent: Chromium Analysis Run 12/14/2020 1:59 PM

Exceeds Limit: MW-5, MW-6, MW-10

Prediction Limit

Interwell Parametric

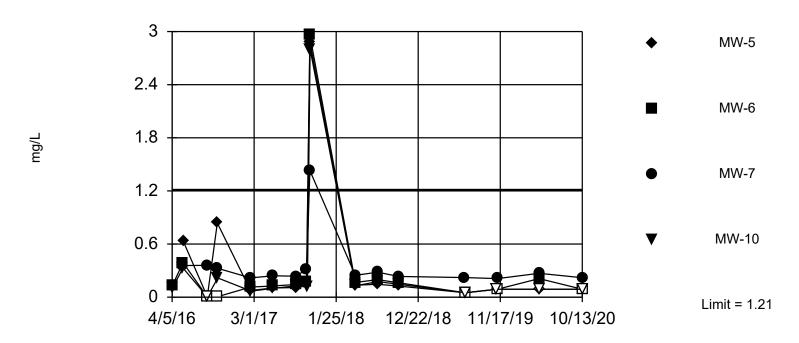


Background Data Summary (after Aitchison's Adjustment): Mean=0.8324, Std. Dev.=0.5317, n=13, 23.08% NDs. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. One background outlier was removed: 15 (10/13/2020).

Constituent: Cobalt Analysis Run 12/14/2020 2:08 PM

Prediction Limit

Interwell Non-parametric



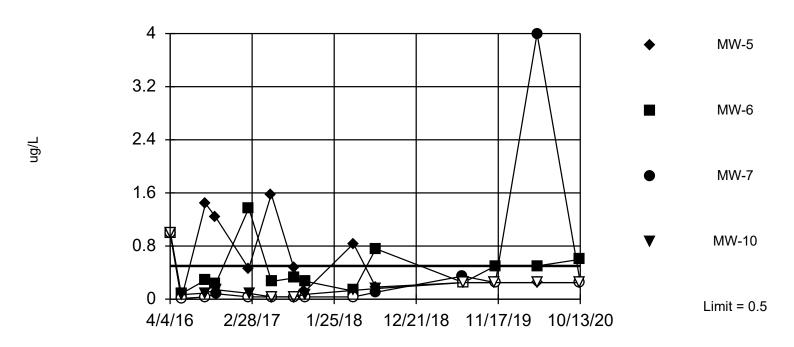
NP test selected by user. Limit is highest of 15 background values. Report alpha = 0.2105. Individual comparison alpha = 0.05738. Most recent point for each compliance well compared to limit.

Constituent: Fluoride Analysis Run 12/14/2020 2:20 PM

Exceeds Limit: MW-6

Prediction Limit

Interwell Non-parametric



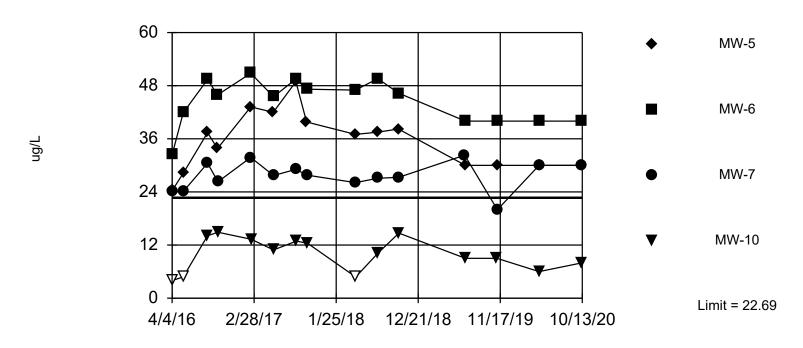
NP test selected by user. Limit is highest of 12 background values. 83.33% NDs. Report alpha = 0.25. Individual comparison alpha = 0.0694. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. After outlier removal distribution was non-normal; user chose to continue. One background outlier was removed: 12 (10/13/2020).

Constituent: Lead Analysis Run 12/15/2020 9:16 AM

Exceeds Limit: MW-5, MW-6, MW-7

Prediction Limit

Interwell Parametric

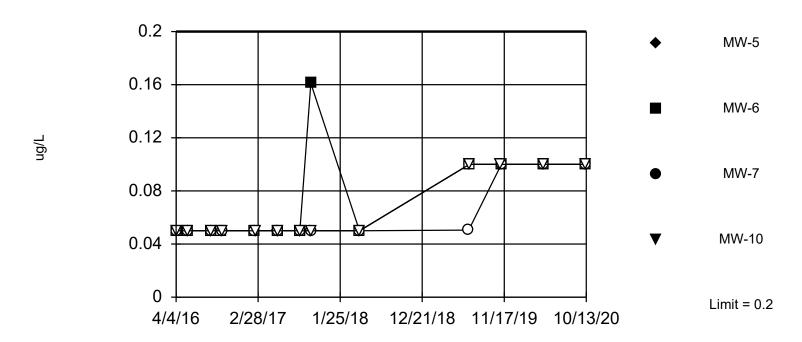


Background Data Summary (after Aitchison's Adjustment): Mean=8.947, Std. Dev.=6.205, n=15, 26.67% NDs. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Lithium Analysis Run 12/15/2020 9:26 AM

Prediction Limit

Interwell Non-parametric

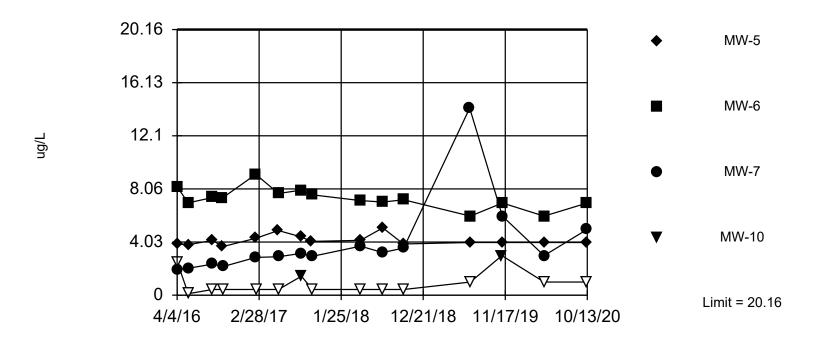


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 13) were censored; limit is most recent reporting limit. Report alpha = 0.2353. Individual comparison alpha = 0.06487. Most recent point for each compliance well compared to limit. After outlier removal all values were the same, so outlier results were invalidated.

Constituent: Mercury Analysis Run 12/15/2020 9:36 AM

Prediction Limit

Interwell Parametric



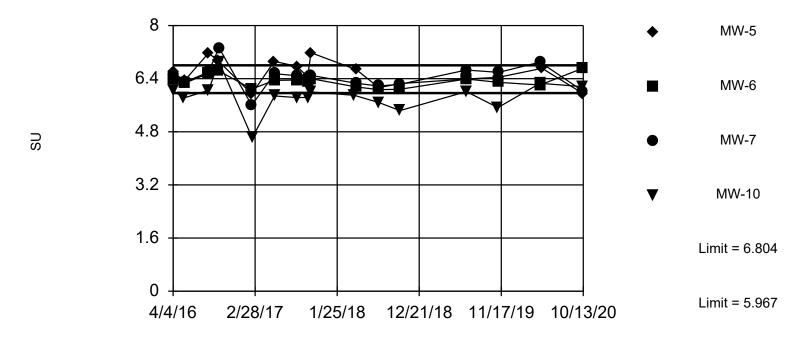
Background Data Summary: Mean=13.7, Std. Dev.=2.918, n=15. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Molybdenum Analysis Run 12/15/2020 9:42 AM

Exceeds Limits: MW-5

Prediction Limit

Interwell Parametric

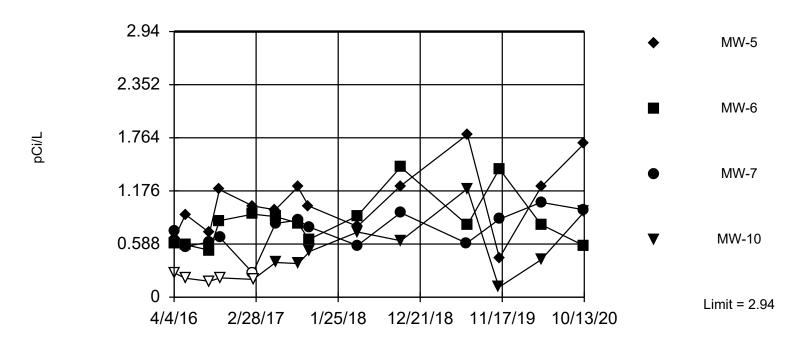


Background Data Summary: Mean=6.385, Std. Dev.=0.1615, n=15. Report alpha = 0.09646. Individual comparison alpha = 0.01252. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. One background outlier was removed: 4.91 (2/15/2017).

Constituent: pH [Field] Analysis Run 12/16/2020 2:54 PM

Prediction Limit

Interwell Non-parametric

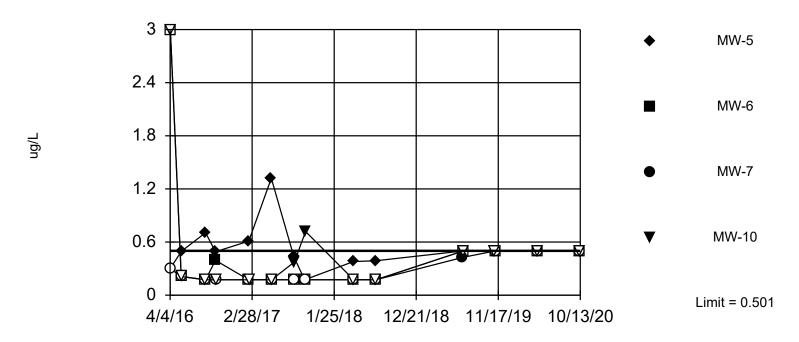


NP test selected by user. Limit is highest of 14 background values. Report alpha = 0.2222. Individual comparison alpha = 0.0609. Most recent point for each compliance well compared to limit. After outlier removal all values were the same, so outlier results were invalidated.

Constituent: Radium 226 + 228 Analysis Run 12/15/2020 9:57 AM

Prediction Limit

Interwell Non-parametric



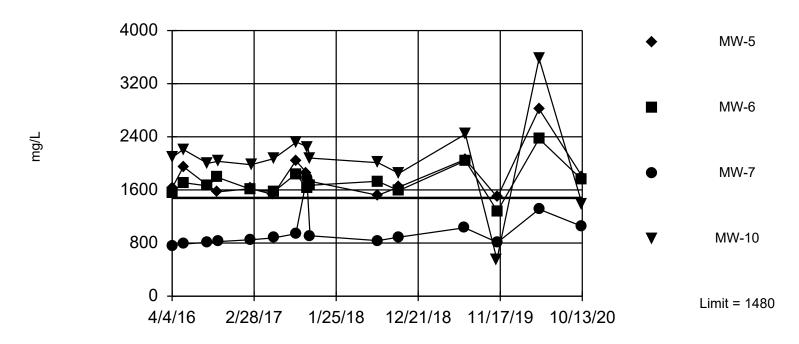
NP test selected by user. Limit is highest of 13 background values. 84.62% NDs. Report alpha = 0.2353. Individual comparison alpha = 0.06487. Most recent point for each compliance well compared to limit. After outlier removal all values were the same, so outlier results were invalidated.

Constituent: Selenium Analysis Run 12/15/2020 10:10 AM

Exceeds Limit: MW-5, MW-6

Prediction Limit

Interwell Non-parametric

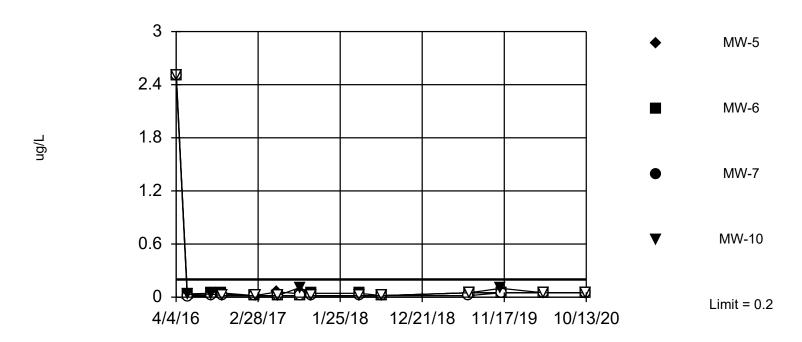


NP test selected by user. Limit is highest of 15 background values. Report alpha = 0.2105. Individual comparison alpha = 0.05738. Most recent point for each compliance well compared to limit.

Constituent: Sulfate Analysis Run 12/15/2020 10:20 AM

Prediction Limit

Interwell Non-parametric



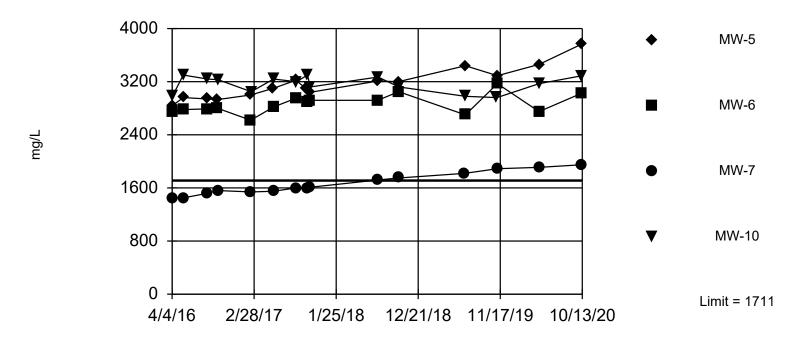
NP test selected by user. Limit is highest of 13 background values. 84.62% NDs. Report alpha = 0.2353. Individual comparison alpha = 0.06487. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. After outlier removal distribution was non-normal; user chose to continue. One background outlier was removed: <5 (4/4/2016).

Constituent: Thallium Analysis Run 12/15/2020 10:36 AM

Exceeds Limit: MW-5, MW-6, MW-7, MW-10

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=1567, Std. Dev.=64.75, n=15. Report alpha = 0.09646. Individual comparison alpha = 0.02504. Most recent point for each compliance well compared to limit. The EPA 1989 Outlier Test was performed on the background data. No background outliers were found.

Constituent: Total Dissolved Solids Analysis Run 12/15/2020 10:56 AM

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