


2022 Annual Groundwater Monitoring and Corrective Action Report


for Compliance with the Coal Combustion
Residuals (CCR) Rule

Gibbons Creek Steam Electric Station

*Gibbons Creek Environmental Redevelopment
Group, LLC*



January 31, 2023



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Table of Abbreviations and Acronyms

Abbreviation	Definition
AMSL	Above Mean Sea Level
AP	Ash Ponds
ASD	Alternate Source Demonstration
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
cm/s	centimeters per second
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
ERCOT	Electric Reliability Council of Texas
GCERG	Gibbons Creek Environmental Redevelopment Group, LLC.
GCSSES	Gibbons Creek Steam Electric Station
GWPS	Groundwater Protection Standard
LCL	Lower Confidence Limit
LLDPE	Low-Linear Density Polyethylene
MDL	Method Detection Limit
MS/MSD	Matrix Spike/Matrix Spike Duplicate
RCL	Recompacted Clay Liner
RL	Reporting Limit
RPD	Relative Percent Difference
SFL	Site F Landfill
SSI	Statistically Significant Increase
SSL	Statistically Significant Level
SSP	Scrubber Sludge Pond
TAC	Texas Administrative Code
TCEQ	Texas Commission of Environmental Quality
TMPA	Texas Municipal Power Agency



Summary of 40 CFR Section § 257.90(e)(6) Groundwater Monitoring System Requirements and Site-Specific Compliance – Gibbons Creek Steam Electric Station		
<p>§ 257.90(e)(6) A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:</p>		<p>Site F Landfill, Scrubber Sludge Pond, Ash Ponds</p>
<p>§257.90(e)(6)(i)</p>	<p>At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95.</p>	<p>Assessment Monitoring Program</p>
<p>§257.90(e)(6)(ii)</p>	<p>At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95.</p>	<p>Assessment Monitoring Program</p>
<p>§257.90(e)(6)(iii)</p>	<p>If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to § 257.94(e):</p>	<p>Yes</p>
<p>§257.90(e)(6)(iii)(A)</p>	<p>Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase.</p> <p>Note: Site F Landfill, Scrubber Sludge Pond and Ash Ponds monitoring networks were all monitored under the Assessment Monitoring program during the 2022 calendar year; therefore, appendix IV constituents with statistically significant increases over background have been included in addition to appendix III constituents.</p>	<p>Site F Landfill SLF MW-2 <ul style="list-style-type: none"> Boron, Calcium, Chloride, pH, TDS, Beryllium, Cadmium, Cobalt, Radium 226+228 SLF MW-3 <ul style="list-style-type: none"> Boron, Calcium, Chloride, Fluoride, pH, TDS, Arsenic, Beryllium, Cadmium, Cobalt, Lead, Mercury, Selenium, Thallium SLF MW-4 <ul style="list-style-type: none"> Boron SLF MW-5 <ul style="list-style-type: none"> Boron, Calcium, Chloride, pH, TDS, Beryllium, Cadmium, Cobalt, Lead, Lithium, Thallium SLF MW-6 <ul style="list-style-type: none"> Calcium, Chloride, Fluoride, pH, Sulfate, TDS, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Radium 226+228, Lead, Lithium, Thallium SLF MW-7 <ul style="list-style-type: none"> Boron, Chloride, Barium MNW-15 <ul style="list-style-type: none"> Boron, Chloride, Fluoride, pH, Arsenic, Beryllium, Cadmium, Cobalt, Selenium, Thallium Scrubber Sludge Pond & Ash Ponds SSP MW-2 <ul style="list-style-type: none"> Calcium, Chloride, Fluoride, pH, Arsenic, Beryllium, Cadmium, Cobalt SSP MW-3 <ul style="list-style-type: none"> Boron, pH, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Radium 226+228, Mercury, Thallium </p>



Summary of 40 CFR Section § 257.90(e)(6) Groundwater Monitoring System Requirements and Site-Specific Compliance – Gibbons Creek Steam Electric Station		
§ 257.90(e)(6) A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:		Site F Landfill, Scrubber Sludge Pond, Ash Ponds
		<p><u>Scrubber Sludge Pond & Ash Ponds - continued</u></p> <p>SSP MW-4</p> <ul style="list-style-type: none"> Chromium, Molybdenum <p>AP MW-1D</p> <ul style="list-style-type: none"> Boron, Fluoride, Arsenic, Cobalt, Molybdenum <p>AP MW-3</p> <ul style="list-style-type: none"> Boron, pH, Beryllium, Cadmium, Cobalt, Radium 226+228, Mercury <p>AP MW-5</p> <ul style="list-style-type: none"> Boron, Fluoride, pH, Arsenic, Beryllium, Cadmium, Cobalt, Radium 226+228, Mercury, Thallium
§257.90(e)(6)(iii)(B)	Provide the date when the assessment monitoring program was initiated for the CCR unit.	March 2018
§257.90(e)(6)(iv)	If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to § 257.95(g) include all of the following:	Yes – Alternate Source Demonstration (ASD) provided as part of both the 2019 and 2021 Annual Groundwater Monitoring & Corrective Action Annual Reports.
§257.90(e)(6)(iv)(A)	Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase.	<p><u>Site F Landfill</u></p> <p>SLF MW-2</p> <ul style="list-style-type: none"> Cobalt <p>SLF MW-3</p> <ul style="list-style-type: none"> Beryllium, Cadmium, Cobalt, Lead, Thallium <p>SLF MW-5</p> <ul style="list-style-type: none"> Beryllium, Cobalt, Lithium, Radium 226+228 <p>SLF MW-6</p> <ul style="list-style-type: none"> Beryllium, Cadmium, Cobalt, Lithium, Radium 226+228, Thallium <p>MNW-15</p> <ul style="list-style-type: none"> Beryllium, Cadmium, Cobalt <p><u>Scrubber Sludge Pond & Ash Ponds</u></p> <p>SSP MW-2</p> <ul style="list-style-type: none"> Beryllium, Cobalt <p>SSP MW-3</p> <ul style="list-style-type: none"> Beryllium, Cadmium, Cobalt, Radium 226+228, Thallium <p>AP MW-1D</p> <ul style="list-style-type: none"> Cobalt <p>AP MW-3</p> <ul style="list-style-type: none"> Cobalt <p>AP MW-5</p> <ul style="list-style-type: none"> Beryllium, Cadmium, Cobalt, Thallium



Summary of 40 CFR Section § 257.90(e)(6) Groundwater Monitoring System Requirements and Site-Specific Compliance – Gibbons Creek Steam Electric Station		
§ 257.90(e)(6) A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:		Site F Landfill, Scrubber Sludge Pond, Ash Ponds
§257.90(e)(6)(iv)(B)	<i>Provide the date when the assessment of corrective measures was initiated for the CCR unit.</i>	N/A – Currently monitored under assessment monitoring.
§257.90(e)(6)(iv)(C)	<i>Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit.</i>	N/A – Currently monitored under assessment monitoring.
§257.90(e)(6)(iv)(D)	<i>Provide the date when the assessment of corrective measures was completed for the CCR unit.</i>	N/A – Currently monitored under assessment monitoring.
§257.90(e)(6)(v)	<i>Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection.</i>	N/A – Currently monitored under assessment monitoring.
§257.90(e)(6)(vi)	<i>Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.</i>	N/A – Currently monitored under assessment monitoring.



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1 Introduction

On April 17, 2015, the United States Environmental Protection Agency (EPA) published the final rule for the regulation and management of coal combustion residual (CCR) under Subtitle D of the Resource Conservation and Recovery Act. The CCR rule is formally promulgated in the U.S. Code of Federal Regulations (CFR), Title 40, Part 257. The rule – effective on October 19, 2015 – applies to electric utilities and independent power producers that fall within North American Industry Codes System code 221112, and facilities that produce or store CCR materials in surface impoundments or landfills (EPA, 2015). The CCR rule defines a set of requirements for the disposal and handling of CCR within units (defined as either landfills or surface impoundments).

The former Gibbons Creek Steam Electric Station (GCSES or Site) is the site of a former coal-fired power generation facility located in Anderson, Texas (**Figure 1**). The Texas Municipal Power Agency (TMPA) operated GCSES between 1982 and 2019. The Gibbons Creek Environmental Redevelopment Group, LLC (GCERG) acquired the TMPA property in 2021. At the GCSES, one CCR landfill identified as the Site F Landfill (SFL), and two CCR surface impoundments, the Scrubber Sludge Pond (SSP) and Ash Ponds (AP) are subject to the regulations under 40 CFR §257 Subpart D and Texas Commission of Environmental Quality's (TCEQ) Title 30, Texas Administrative Code (30 TAC), Chapter 352. On June 1, 2021, the EPA signed a Federal Register notice approving of the state permit program for the management of CCR in the state of Texas. The locations of the CCR units are shown on **Figure 2** and **Figure 3**.

In accordance with 40 CFR §257.91 and TCEQ TAC 30 Chapter 352, TMPA installed a groundwater monitoring system around both the SFL and the SSP/AP CCR units. GCERG has continued implementation of the federal CCR Rule groundwater monitoring program, as required by 40 CFR §257.90-95, as a continuation of the TMPA monitoring program.

2 Facility Description

The GCSES is located at 12824 FM 244 Road, Anderson, Texas 77830. The GCSES was a single unit, 470-megawatt, coal-fired power plant. The GCSES initially operated by burning lignite from the adjacent Gibbons Creek Lignite Mine in 1982. In 1996, the GCSES converted to Powder River Basin coal and the lignite mine was closed. The GCSES was retired from the Electric Reliability Council of Texas (ERCOT) System on October 30, 2019. The Site was obtained by GCERG in 2021.

The APs were clean closed in 2022. The APs were an unlined, interconnected, three-cell impoundment area which was separated by earthen dikes, constructed in 1977 to 1978 as part of the original GCSES construction. These ponds were approximately 260 ft wide, 1,800 ft long and 20 ft deep. The top of the perimeter berms/dikes were at an elevation of approximately 270 feet above mean sea level (AMSL). See **Figure 3** for location of the former APs.

The SSP was clean closed in 2022. The former SSP is located to the west of the APs and was a single impoundment constructed in 1977 to 1978. A liner was added to the bottom of the pond in 1983. The pond measurements were approximately 260 feet and 350 feet wide and 615 feet and 635 feet long (measured at the bottom of the impoundment). See **Figure 3** for location of the former SSP.

GCERG has completed the clean closure process of the SSP & AP CCR units by dewatering and removing all CCR material and soil material beneath the CCR units. The CCR clean closure is documented in the Closure Completion CCR Surface Impoundments, submitted on June 2, 2022. (HDR, 2022b). The CCR material removed from the SSP/AP CCR units was placed within the SFL CCR unit. In addition, the SFL CCR unit stormwater collection pond is currently being cleaned out, all stormwater control ditches around the area of the coal pile and coal pile runoff pond have been excavated, and the coal pile itself has been removed. These excavated materials are being dewatered and placed within the SFL CCR unit.

The SFL, located northeast of the decommissioned power generating plant and constructed in 1990, is approximately 114 acres and received solid CCR generated by the GCSES. The SFL CCR unit is currently being closed with the following capping system:

- 6-inches of erosion layer;
- Underlain by 18-inches of infiltration layer;
- Underlain by a geocomposite;
- Underlain by a 40-mil low-linear density polyethylene (LLDPE) geomembrane layer;
- Underlain by 2-feet of recompacted clay liner (RCL) with a hydraulic conductivity of 1×10^{-5} centimeters per second (cm/sec) or slower;
- Underlain by 1-foot of intermediate cover.

Closure activities associated with the SFL stormwater pond cleanout and SFL CCR unit is anticipated to be completed by end of year 2023.

3 Hydrogeology

3.1 Site F Landfill

The SFL is underlain by stratified, heterogeneous layers of clays, silts, and sands of varying thicknesses. Sandstone was observed at some boring locations as well. The elevation of screened intervals in monitoring wells range from approximately 250 feet to 220 feet AMSL. The screened intervals are generally completed in silty sands (SM) with intervals of clayey sands and silts.

Groundwater investigations by others (Wood, 2021) indicated that groundwater flow direction beneath the SFL was generally from the northwest towards the southeast. Groundwater level monitoring completed by Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), using an expanded monitoring network confirmed the general groundwater flow gradient from northwest to southeast, but influence from the Gibbons Creek Reservoir on groundwater flow direction was observed.

3.2 Scrubber Sludge Pond/Ash Ponds

The SSP/AP CCR units are underlain by interbedded silty and sandy clays, clay, clayey sands and silty sand. Hard sandstone intervals are intermittently present, as are thin lenses of lignite or lignitic silts. Groundwater is considered confined to semi-confined, and generally encountered at depths of 30 to 40 feet below ground surface. The elevation of monitoring well screened intervals ranges from approximately 240 ft to 220 ft AMSL.

Groundwater investigations by others (Wood, 2021) indicated that groundwater flow directions are controlled by the local topography and a groundwater divide exists between the AP CCR unit and the SSP CCR unit. Groundwater level monitoring completed by Amec Foster Wheeler using an expanded monitoring network confirms the presence of the groundwater divide and flow direction to the east beneath the APs. Groundwater flows to the southwest beneath the SSP. The background groundwater quality monitoring well (SSP/AP MW-1) is located on the groundwater divide and provides background data for both networks.

4 Monitoring Well Network

The CCR Rule requires, at a minimum, one upgradient and three downgradient monitoring wells per CCR unit to be completed in the uppermost aquifer. Section 40 CFR §257.90 of the Rule states that the operator: "...may install a multiunit groundwater monitoring system instead of separate groundwater monitoring systems for each CCR unit." In addition, the Rule states that downgradient monitoring wells should be installed to: "accurately represent the quality of groundwater passing the waste boundary of the CCR unit. The downgradient monitoring system must be installed at the waste boundary that ensures detection of groundwater contamination in the uppermost aquifer."

4.1 Site F Landfill

The SFL CCR unit monitoring well network (as shown on **Figure 2**) consists of both monitoring wells and piezometers installed by Amec Foster Wheeler in 2016 and 2017, and wells installed by Black and Veatch in 1988.

The SFL monitoring network consists of the following wells:

- Background Well: MNW-18
- Compliance Wells: SFL MW-2, SFL MW-3, SFL MW-4, SFL MW-5, SFL MW-6, SFL MW-7, and MNW-15
- Piezometers: MNW-11, MNW-16, and MNW-17

4.2 Scrubber Sludge Pond / Ash Ponds

The SSP/AP CCR unit monitoring well networks (as shown on **Figure 3**) consist of both monitoring wells and piezometers. The piezometers are used for water level data collection only, groundwater quality samples are only collected from monitoring wells. The monitoring well network includes:

- Background Well: SSP/AP MW-1 (used as background for both AP CCR unit and SSP CCR unit networks)
- Scrubber Sludge Pond Compliance Wells: SSP MW-2, SSP MW-3 and SSP MW-4
- Ash Ponds Compliance Wells: AP MW-1D, AP MW-3, AP MW-4 and AP MW-5
- Piezometers: SSP MW-1, AP MW-1, AP MW-6, AP MW-2, AP PZ-1, AP PZ-2, AP PZ-3 and AP PZ-4

5 Groundwater Monitoring

TMPA initiated sample collection for background monitoring in June 2016 and completed the eighth round of background sampling, as required by the CCR Rule, in August 2017. In accordance with 40 CFR §257.94(b), one round of detection monitoring was completed in

October 2017. A statistical evaluation of the groundwater quality data set for Appendix III constituents resulting from detection monitoring in accordance with 40 CFR § 257.94 was completed in January 2018. The data set used in the evaluation resulted from the collection and laboratory analysis of eight independent samples from background and downgradient wells in accordance with 40 CFR § 257.94(b). The statistical evaluation was completed using the prediction limit method outlined in 40 CFR § 257.93(f)(3) for the monitoring data obtained at the SFL CCR unit and the SSP/AP CCR units. The statistical evaluation concluded initial statistically significant increases (SSIs) over background levels for Appendix III constituents at the SFL CCR unit and the SSP/AP CCR units (Wood, 2019). Based upon the results of the statistical evaluation, an assessment monitoring program was implemented in March 2018.

The first two initial rounds of the assessment monitoring program were conducted in March 2018 and June 2018. Groundwater samples were collected from monitoring wells at the SFL CCR unit and the SSP/AP CCR units. During the initial assessment monitoring sampling event (March 2018), the groundwater samples were analyzed for all Appendix III and Appendix IV constituents. During the second assessment monitoring sampling event (June 2018), the groundwater samples were analyzed for all Appendix III constituents and those Appendix IV constituents that were detected at each CCR unit during the March 2018 monitoring event.

Assessment monitoring was continued in 2019, at which point multiple statistically significant levels (SSLs) of Appendix IV constituents were determined to be above their respective groundwater protection standard (GWPS) (Wood, 2020). As part of the 2019 Annual Groundwater Monitoring and Corrective Action Annual Report, and alternate source demonstration (ASD) was submitted (Wood, 2020). This ASD describes the natural conditions in and around the Site, as well as the impact of naturally occurring lignite within the area of the Site and its impact on the groundwater system. As documented in the 2019 ASD evaluation, potential SSLs identified for Appendix IV constituents are attributed to an alternate source under the CCR rule; therefore, no corrective action measures were required and groundwater monitoring under the assessment monitoring program was continued.

Assessment monitoring continued with both 2021 sampling events. Multiple Appendix IV constituents were observed as SSLs during 2021. These constituents were discussed in an expansion of the 2019 ASD and were deemed to share the same applicability as those 2019 ASD constituents. The 2022 reporting period consisted of two rounds of semi-annual groundwater sampling for assessment monitoring on the certified monitoring well networks. **Table 1** provides the well identification number, well gradient or use, the dates the samples were collected, and whether the sample was required by the CCR Rule for the background sampling, detection monitoring or assessment monitoring programs.



Table 1: Dates of groundwater samples collected for each well in 2022 and the required monitoring programs for the GCSES facility (40 CFR §257.90(e)(3))

Monitoring Well I.D.	Well Location	Dates Monitored	CCR Rule Monitoring Purpose
AP MW-1	Water Level Only	July 19-20, 2022 December 12-13, 2022	Water Level Monitoring
AP MW-1D	Downgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring
AP MW-2	Water Level Only	July 19-20, 2022 December 12-13, 2022	Water Level Monitoring
AP MW-3	Downgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring
AP MW-4	Downgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring
AP MW-5	Downgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring
AP MW-6	Water Level Only	July 19-20, 2022 December 12-13, 2022	Water Level Monitoring
AP PZ-1	Water Level Only	July 19-20, 2022 December 12-13, 2022	Water Level Monitoring
AP PZ-2	Water Level Only	July 19-20, 2022 December 12-13, 2022	Water Level Monitoring
AP PZ-3	Water Level Only	July 19-20, 2022 December 12-13, 2022	Water Level Monitoring
AP PZ-4	Water Level Only	July 19-20, 2022 December 12-13, 2022	Water Level Monitoring
SSP/AP MW-1	Background/Upgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring
SSP MW-1	Water Level Only	July 19-20, 2022 December 12-13, 2022	Water Level Monitoring
SSP MW-2	Downgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring
SSP MW-3	Downgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring
SSP MW-4	Downgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring
SFL MW-2	Downgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring
SFL MW-3*	Downgradient	September 12, 2022 December 12-13, 2022	Assessment Monitoring
SFL MW-4	Downgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring
SFL MW-5	Downgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring
SFL MW-6	Downgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring
SFL MW-7*	Downgradient	September 12, 2022 December 12-13, 2022	Assessment Monitoring
MNW-11	Water Level Only	July 19-20, 2022 December 12-13, 2022	Water Level Monitoring
MNW-15*	Downgradient	September 12, 2022 December 12-13, 2022	Assessment Monitoring
MNW-16	Water Level Only	July 19-20, 2022 December 12-13, 2022	Water Level Monitoring
MNW-17	Water Level Only	July 19-20, 2022 December 12-13, 2022	Water Level Monitoring
MNW-18	Background/Upgradient	July 19-20, 2022 December 12-13, 2022	Assessment Monitoring

Note: *Monitoring wells SFL MW-3, SFL MW-7, and MNW-15 were sampled in September 2022 rather than July 2022. Samples were originally collected in July 2022, but the cooler was lost in transit to the lab. The wells were resampled in September 2022.



5.1 Water Levels and Sample Collection

Water levels were collected at each well following the Groundwater Monitoring Plan (Amec Foster Wheeler, 2017). Water levels were measured before well purging began. Wells were purged until field parameters (pH, turbidity, conductivity, dissolved oxygen, temperature, and oxidation reduction potential) stabilized. Purging and sampling was conducted using either a peristaltic pump and dedicated tubing or submersible bladder pump with disposal bladder and disposable tubing, depending on the depth of water. The results of field measurements were recorded on field data forms (**Appendix B**), which are maintained as part of the field records. After field parameters stabilized, samples were collected and analyzed for the parameters listed in **Table 2**. Two rounds of assessment monitoring samples were collected from each well in 2022. For quality control, one field duplicate sample (DUP-1) was collected during each sampling event. Groundwater samples for the first and second semiannual 2022 events were delivered under Chain of Custody to Eurofins TestAmerica Laboratories in Pittsburgh, Pennsylvania.

5.2 Analytical Testing

Samples were obtained for semi-annual assessment monitoring in July & September 2022 and December 2022 and were analyzed for all Appendix III and Appendix IV parameters, as listed in **Table 2**.

Table 2: Constituents of Interest

Appendix III Constituents	Appendix IV Constituents	
Boron	Antimony	Lead
Calcium	Arsenic	Lithium
Chloride	Barium	Mercury
Fluoride	Beryllium	Molybdenum
pH ¹	Cadmium	Selenium
Sulfate	Chromium	Thallium
Total Dissolved Solids (TDS)	Cobalt	Radium 226 and 228-Combined
	Fluoride	

Note: ¹ pH measured with field instrument during sampling.

5.3 Data Validation and Data Management

Data validation was conducted to eliminate data that did not meet validation criteria and designate a data qualifier for any data quality limitation discovered. All samples and quality control were reviewed and evaluated, and no samples were rejected. Most quality control analyses were within reportable limits; however, when quality control was outside limit controls, samples were reported as estimated.

According to the *Practical Guide for Ground-Water Sampling*: “Duplicate sample values which differ by less than ±50% relative percent difference indicates good error control” (Barcelona, 1985). All relative percent difference (RPD) values for both the first and second semiannual 2022 sampling events are below the recommended 50 percent.



Laboratory qualifiers were evaluated to determine whether data was acceptable for further analysis. The following qualifiers were noted for some parameters in the Eurofins TestAmerica laboratory report but did not impact the use of data for further analysis.

- B – Compound was found in the blank and sample.
 - SSP/AP MW-1 – Boron
 - AP MW-1D – Boron
 - AP MW-3 – Boron
 - AP MW-5 – Boron
 - AP MW-4 – Boron
 - MNW-18 – Boron
 - SFL MW-6 – Boron
 - SSP MW-3 – Fluoride, Lead
 - SSP MW-2 – Fluoride, Lead
 - SFL MW-5 – Fluoride
 - SFL MW-2 – Fluoride, Lead
 - SFL MW-4 – Fluoride
- All Method Blank concentrations were noted as non-detects or within the specified acceptable range for percent recoverable; therefore, these notations are treated as non-significant.
- J – Result is less than the reporting limit (RL) but greater than or equal to the laboratory method detection limit (MDL) and the concentration is an approximate value. Detections with J-flags are not considered as statistically significant results during analysis.
- ^2 – Calibration Blank (ICB and/or CCB) is outside acceptable limits.
 - SFL MW-6 – Chloride
 - SFL MW-2 – Chloride
 - SFL MW-5 – Chloride
 - DUP-1 – Chloride
 - The continuing calibration blank (CCB) for analytical batch 180-421296 contained Chloride above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.
- F1 – Matrix Spike (MS) and or Matrix Spike Duplicate (MSD) recovery exceeds control limits.
 - SSP/AP MW-1 – Lithium
 - Lithium in control blanks was non-detect; therefore, no re-sample or re-analysis is necessary.
- U – Result is less than the sample detection limit.
- G – The sample Minimum Detectable Concentration (MDC) is greater than the requested RL.



6 Monitoring Results

6.1 Water Levels and Groundwater Flow Direction

Site water levels at the monitoring wells are provided in **Table 5**. Potentiometric surface maps (**Appendix A - Figures 4 through Figure 7**) were developed based on water levels measured in July and December 2022. The maps display the groundwater elevations at the monitoring wells/piezometers and the groundwater contours for both the SFL and the SSP/AP CCR units for both July and December 2022. Groundwater elevation ranges for both the SSP/AP unit area and the SFL unit area are provided below in **Table 3** and **Table 4**.

Table 3: Site F Landfill – Groundwater Elevation Ranges

Sampling Event	Minimum Elevation (feet AMSL)	Maximum Elevation (feet AMSL)
July 2022	247	267
December 2022	247	268

Table 4: Scrubber Sludge Pond & Ash Ponds – Groundwater Elevation Ranges

Sampling Event	Minimum Elevation (feet AMSL)	Maximum Elevation (feet AMSL)
July 2022	249	263
December 2022	249	263

Groundwater in the area of the SFL CCR unit continues to display flow patterns consistent with those historically observed.

Groundwater in the area of the SSP/AP CCR units continued to display a groundwater divide between the SSP CCR unit and the AP CCR unit for both the July 2022 and December 2022 sampling events.

Based on the July 2022 and December 2022 groundwater sampling events, the general groundwater flow patterns observed are consistent with historical observations for the SSP CCR unit (flow to the south-southwest), the AP CCR unit (flow to the east), and the SFL CCR unit (flow to the southeast).

Table 5. Groundwater Elevations Measured in 2022

Well ID	TOC Elevation (ft AMSL)	Groundwater Elevation (ft AMSL)	Groundwater Elevation (ft AMSL)
		July 19-20, 2022	December 12-13, 2022
AP MW-1 ¹	271.56	251.38	250.57
AP MW-1D	272.04	251.22	250.46
AP MW-2 ¹	274.97	257.57	258.29
AP MW-3	274.68	253.87	253.13
AP MW-4	274.16	250.66	251.10
AP MW-5	274.13	249.41	249.71
AP MW-6 ¹	277.95	255.30	255.78
AP PZ-1 ¹	265.67	255.92	258.01
AP PZ-2 ¹	274.91	255.58	254.46
AP PZ-3 ¹	259.11	250.67	249.56



Table 5. Groundwater Elevations Measured in 2022

Well ID	TOC Elevation (ft AMSL)	Groundwater Elevation (ft AMSL) July 19-20, 2022	Groundwater Elevation (ft AMSL) December 12-13, 2022
AP PZ-4 ¹	273.65	255.93	257.43
SSP MW-1 ¹	281.18	263.94	263.45
SSP MW-2	283.66	258.70	258.92
SSP MW-3	283.97	255.31	255.89
SSP MW-4	283.86	258.06	258.38
SSP/AP MW-1	272.53	262.22	261.69
SFL MW-2	268.31	257.80	257.27
SFL MW-3	275.00	258.26	257.81
SFL MW-4	269.53	254.40	254.18
SFL MW-5	276.25	260.37	260.11
SFL MW-6	286.66	267.85	268.29
SFL MW-7	264.63	249.23	250.22
MNW-11 ¹	267.95	247.31	247.79
MNW-15	257.331	251.92	251.47
MNW-16 ¹	263.191	249.30	248.31
MNW-17 ¹	293.724	256.60	264.47
MNW-18	270.755	261.07	261.20

Note: ¹ Wells are Water Level Only and are not sampled as part of the CCR monitoring networks.

6.2 Water Quality

In July and September 2022, semi-annual assessment monitoring samples were collected from the certified monitoring network wells for both the SFL CCR unit and the SSP/AP CCR units. All samples were analyzed for all Appendix III and Appendix IV constituents. Water quality data tables are included in **Appendix C** and laboratory reports are provided in **Appendix D**. In accordance with 40 CFR §257.95(e), downgradient well concentrations from the first semiannual assessment monitoring event were compared against background values, and some concentrations were found to be above their respective background values. In accordance with 40 CFR §257.95(f), detected Appendix IV concentrations in downgradient wells were compared against their respective GWPS. To determine if an exceedance of a GWPS was observed at a statistically significant level, the 95% lower confidence limit (LCL) was calculated for each of the downgradient wells for each of the Appendix IV constituents. The data set used to calculate the LCL included the most recent eight (8) Appendix IV results from samples collected at each specific well.

The July/September 2022 LCL results for the SFL CCR unit are provided in **Table 6** and for the SSP/AP CCR units are provided in **Table 7**. Results that exceeded their respective GWPS are shown in **bold and underline**.



Table 6: Evaluation for SSLs over GWPS – July/September 2022 (Site F Landfill)

	GWPS ^[1]	Units	SFL MW-2	SFL MW-3	SFL MW-4	SFL MW-5	SFL MW-6	SFL MW-7	MNW-15
<i>Appendix IV Constituents – Lower Confidence Levels</i>									
Antimony	0.006	mg/L	0.002	0.002	0.000534	0.002	0.002	0.000579	0.002
Arsenic	0.01	mg/L	0.00147	0.00303	0.000786	0.00145	0.009368	0.000479	0.005566
Barium	2	mg/L	0.02034	0.013	0.01975	0.0157	0.02769	0.03	0.0159
Beryllium	0.004	mg/L	0.001744	<u>0.03*</u>	0.001	<u>0.009204*</u>	<u>0.04258*</u>	0.001	<u>0.06885*</u>
Cadmium	0.005	mg/L	0.000761	<u>0.005641*</u>	0.001	0.004275	<u>0.009323</u>	0.00025	<u>0.0269*</u>
Chromium	0.1	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cobalt	0.006	mg/L	<u>0.01168*</u>	<u>0.05589*</u>	0.0005	<u>0.04577*</u>	<u>0.102*</u>	0.0005	<u>0.2924*</u>
Fluoride	4	mg/L	0.06462	0.3688	0.204	0.122	0.527	0.0599	0.5866
Lead	0.015	mg/L	0.000272	<u>0.01766*</u>	0.001	0.000527	0.006755	0.000208	0.0002687
Lithium	0.521 ^[2]	mg/L	0.4025	0.2376	0.322	<u>0.6154*</u>	<u>0.597*</u>	0.3738	0.08597
Mercury	0.002	mg/L	0.0002	0.001276	0.0002	0.0002	0.0002	0.0002	0.0002
Molybdenum	0.1	mg/L	0.00202	0.005	0.00106	0.0018	0.005	0.00173	0.005
Radium 226+228	9.82 ^[2]	pCi/L	6.69	3.812	1.091	<u>10.52*</u>	8.738	1.919	0.2149
Selenium	0.05	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Thallium	0.002	mg/L	0.000612	<u>0.005027*</u>	0.001	0.00115	<u>0.002726*</u>	0.001	0.000739

Note: **Bold and underlined** concentration indicates an SSL over the GWPS.

^[1] GWPS is established as the U.S. EPA Maximum Contaminant Level (MCL) or the GWPS specified in 40 CFR §257.95(h)(2); unless otherwise specified.

^[2] GWPS is established as the background threshold value (BTV) when the background level is higher than the U.S. EPA MCL or the GWPS specified in 40 CFR §257.95(h)(2).

* SSL has been previously noted and successfully demonstrated during the 2019 ASD and 2021 ASD Expansion.

As shown in **Table 6**, results of the first semiannual 2022 sampling event indicated 18 SSLs for the SFL CCR unit for beryllium, cadmium, cobalt, lead, lithium, radium 226+228, and thallium in various downgradient wells. The SSLs were previously detected SSLs. These SSLs were discussed in the 2019 Alternate Source Demonstration (ASD) completed by Wood Environment & Infrastructure Solutions, Inc. (Wood) as part of the 2019 Annual Groundwater Monitoring and Corrective Action Report (Wood, 2020), except for thallium in SFL MW-3 and SFL MW-6, which were discussed in the expansion of the 2019 ASD in the 2021 Annual Groundwater Monitoring and Corrective Action Report (HDR, 2022a).



Table 7: Evaluation for SSLs over GWPS – July/September 2022 (Scrubber Sludge and Ash Ponds)

	GWPS ^[1]	Units	SSP MW-2	SSP MW-3	SSP MW-4	AP MW-1D	AP MW-3	AP MW-4	AP MW-5
<i>Appendix IV Constituents – Lower Confidence Levels</i>									
Antimony	0.006	mg/L	0.002	0.00128	0.000415	0.002	0.002	0.002	0.000529
Arsenic	0.01	mg/L	0.00498	0.003474	0.000344	0.008036	0.001	0.000628	0.007433
Barium	2	mg/L	0.01643	0.01945	0.02	0.009502	0.01956	0.009721	0.009489
Beryllium	0.004	mg/L	0.04632*	0.09547*	0.001	0.001	0.002253	0.000204	0.05053*
Cadmium	0.005	mg/L	0.001	0.0706*	0.001	0.000343	0.004014	0.001	0.005849*
Chromium	0.1	mg/L	0.002	0.002348	0.002	0.002	0.00173	0.002	0.002
Cobalt	0.006	mg/L	0.05135*	0.5087*	0.000336	0.01353*	0.02869*	0.0005	0.1199*
Fluoride	4	mg/L	0.293	0.441	0.103	0.5008	0.0558	0.0488	1.294
Lead	0.015	mg/L	0.001184	0.003855	0.000161	0.000256	0.000219	0.000276	0.00133
Lithium	1.64 ^[2]	mg/L	0.564	0.5118	0.727	0.02477	0.03851	0.5352	0.3587
Mercury	0.002	mg/L	0.0002	0.000162	0.0002	0.0002	0.0002	0.0002	0.0001741
Molybdenum	0.1	mg/L	0.005	0.000667	0.000864	0.01443	0.000848	0.000686	0.005
Radium 226+228	5	pCi/L	1.799	29.08*	1.745	1.206	1.737	0.8181	1.12
Selenium	0.05	mg/L	0.005	0.000859	0.00441	0.00154	0.00135	0.005	0.005
Thallium	0.002	mg/L	0.000516	0.008252*	0.001	0.00031	0.000267	0.000172	0.002029*

Bold and underlined concentration indicates an SSL over the GWPS.

^[1] GWPS is established as the U.S. EPA Maximum Contaminant Level (MCL) or the GWPS specified in 40 CFR §257.95(h)(2); unless otherwise specified.

^[2] GWPS is established as the background threshold value (BTW) when the background level is higher than the U.S. EPA MCL or the GWPS specified in 40 CFR §257.95(h)(2).

* SSL has been previously noted and successfully demonstrated during the 2019 ASD and 2021 ASD Expansion.

As shown in **Table 7**, results of the first semiannual 2022 sampling event indicated 13 SSLs for the SSP/AP CCR units. The SSLs were all previously detected. The SSLs were discussed in the 2019 ASD, except for cadmium in AP MW-5 and thallium in SSP MW-3 and AP MW-5, which were discussed in the expansion of the 2019 ASD in the 2021 Annual Groundwater Monitoring and Corrective Action Report (HRD, 2022a).

In December 2022, semi-annual assessment monitoring samples were collected from the certified monitoring well network wells and all samples were analyzed for Appendix III and Appendix IV constituents. Water quality data tables are included in **Appendix C** and laboratory reports are provided in **Appendix D**. Multiple downgradient well concentrations from the December 2022 assessment monitoring event were found to be above background values. In accordance with 40 CFR §257.95(e), downgradient well concentrations from the first semiannual assessment monitoring event were compared against background values, and some concentrations were found to be above their respective background values. In accordance with 40 CFR §257.95(f), detected Appendix IV concentrations in downgradient wells were compared against their respective GWPS. To determine if an exceedance of a GWPS was observed at a statistically significant level, the 95% LCL was calculated for each of the downgradient wells for each of the Appendix IV constituents. The data set used to calculate the LCL included the most recent eight (8) Appendix IV results from samples collected at each specific well.

The December 2022 LCL results for the SFL are provided in **Table 8**. Results that exceeded their respective GWPS are shown in **bold and underline**.



Table 8: Evaluation for SSLs over GWPS – December 2022 (Site F Landfill)

	GWPS ^[1]	Units	SFL MW-2	SFL MW-3	SFL MW-4	SFL MW-5	SFL MW-6	SFL MW-7	MNW-15
<i>Appendix IV Constituents – Lower Confidence Levels</i>									
Antimony	0.006	mg/L	0.000968	0.000506	0.000534	0.00118	0.00108	0.000506	0.000506
Arsenic	0.01	mg/L	0.00147	0.00303	0.000786	0.00145	0.008452	0.000282	0.006168
Barium	2	mg/L	0.02057	0.013	0.02007	0.0157	0.02965	0.03077	0.0159
Beryllium	0.004	mg/L	0.0009765	<u>0.03038*</u>	0.000274	<u>0.00902*</u>	<u>0.0418*</u>	0.000274	<u>0.07532*</u>
Cadmium	0.005	mg/L	0.000649	<u>0.005479*</u>	0.000217	0.004018	<u>0.007883*</u>	0.000217	<u>0.0269*</u>
Chromium	0.1	mg/L	0.00153	0.00153	0.00153	0.00181	0.00237	0.00153	0.00153
Cobalt	0.006	mg/L	<u>0.01034*</u>	<u>0.05445*</u>	0.000261	<u>0.04517*</u>	<u>0.1*</u>	0.000261	<u>0.3016*</u>
Fluoride	4	mg/L	0.09153	0.4214	0.204	0.07194	0.527	0.04359	0.6221
Lead	0.015	mg/L	0.000199	<u>0.01768*</u>	0.000167	0.000527	0.008346	0.000167	0.000316
Lithium	0.552 ^[2]	mg/L	0.4243	0.2421	0.3003	<u>0.6215*</u>	<u>0.614*</u>	0.3811	0.08673
Mercury	0.002	mg/L	0.00013	0.001331	0.00013	0.00013	0.00013	0.00013	0.00013
Molybdenum	0.1	mg/L	0.00155	0.00061	0.00106	0.00103	0.00061	0.00061	0.00061
Radium 226+228	10.1 ^[2]	pCi/L	6.494	3.436	0.8826	<u>10.45*</u>	<u>10.58*</u>	1.916	0.1934
Selenium	0.05	mg/L	0.000739	0.00117	0.000739	0.000739	0.000739	0.000739	0.000739
Thallium	0.002	mg/L	0.000612	<u>0.005047*</u>	0.000472	0.00115	<u>0.002825*</u>	0.000472	0.000739

Bold and underlined concentration indicates an SSL over the GWPS.

^[1] GWPS is established as the U.S. EPA Maximum Contaminant Level (MCL) or the GWPS specified in 40 CFR §257.95(h)(2); unless otherwise specified.

^[2] GWPS is established as the background threshold value (BTB) when the background level is higher than the U.S. EPA MCL or the GWPS specified in 40 CFR §257.95(h)(2).

* SSL has been previously noted and successfully demonstrated during the 2019 ASD and 2021 ASD Expansion.

As shown in **Table 8**, results of the December 2022 sampling event indicated 19 SSLs for the SFL CCR unit for beryllium, cadmium, cobalt, lead, lithium, radium, and thallium in various downgradient wells. The SSLs were all previously detected. The SSLs were discussed in the 2019 ASD, except for cobalt in SFL MW-2, which was discussed in the expansion of the 2019 ASD in the 2021 Annual Groundwater Monitoring and Corrective Action Report (HRD, 2022a).



Table 9: Evaluation for SSLs over GWPS – December 2022 (Scrubber Sludge and Ash Ponds)

	GWPS ^[1]	Units	SSP MW-2	SSP MW-3	SSP MW-4	AP MW-1D	AP MW-3	AP MW-4	AP MW-5
<i>Appendix IV Constituents – Lower Confidence Levels</i>									
Antimony	0.006	mg/L	0.000506	0.000506	0.000415	0.000506	0.000506	0.000506	0.000506
Arsenic	0.01	mg/L	0.00498	0.004589	0.000404	0.008124	0.0009618	0.000628	0.007214
Barium	2	mg/L	0.0148	0.01937	0.02	0.01009	0.01993	0.01052	0.01
Beryllium	0.004	mg/L	0.04751*	0.09541*	0.000274	0.000274	0.002466	0.000204	0.04941*
Cadmium	0.005	mg/L	0.001	0.06784*	0.000217	0.00034	0.004018	0.000217	0.005835*
Chromium	0.1	mg/L	0.00153	0.002267	0.002	0.00153	0.00153	0.00153	0.00157
Cobalt	0.006	mg/L	0.05213*	0.5102*	0.000289	0.01235*	0.0279*	0.0005	0.1201*
Fluoride	4	mg/L	0.293	0.4181	0.04707	0.5456	0.054	0.0488	1.322
Lead	0.015	mg/L	0.0006413	0.003762	0.000161	0.000167	0.000167	0.000167	0.001354
Lithium	1.66 ^[2]	mg/L	0.564	0.5234	0.7347	0.02345	0.04536	0.4661	0.3586
Mercury	0.002	mg/L	0.00013	0.000162	0.00013	0.00013	0.0002	0.00013	0.0002469
Molybdenum	0.1	mg/L	0.00061	0.00061	0.000864	0.01667	0.00061	0.000686	0.00061
Radium 226+228	5	pCi/L	1.888	30.24*	1.744	1.019	1.8	0.7369	1.12
Selenium	0.05	mg/L	0.000739	0.000739	0.000739	0.00154	0.000739	0.000739	0.000739
Thallium	0.002	mg/L	0.000472	0.008216*	0.000472	0.00031	0.000267	0.000172	0.002068*

Bold and underlined concentration indicates an SSL over the GWPS.

^[1] GWPS is established as the U.S. EPA Maximum Contaminant Level (MCL) or the GWPS specified in 40 CFR §257.95(h)(2); unless otherwise specified.

^[2] GWPS is established as the background threshold value (BTV) when the background level is higher than the U.S. EPA MCL or the GWPS specified in 40 CFR §257.95(h)(2).

* SSL has been previously noted and successfully demonstrated during the 2019 ASD and 2021 ASD Expansion.

As shown in **Table 9**, results of the December 2022 sampling event indicated 13 SSLs for the SSP/AP CCR units. The SSLs were previously detected SSLs and discussed in the 2019 ASD as part of the 2019 Annual Groundwater Monitoring and Corrective Action Report (Wood, 2020).

7 Summary

The following observations are based on CCR Rule compliance groundwater monitoring program development during 2022:

- GCERG completed clean closure of the SSP/AP CCR units by completing dewatering of the CCR units and conducting ash and soil removal. Certification of clean closure submitted on June 2, 2022.
- Removal of coal from the coal pile storage area, excavation of coal pile stormwater runoff devices and cleaning out of the SFL CCR unit stormwater collection pond have been completed as of December 31, 2022.
- Placement of CCR material removed from the SSP/AP CCR units, coal from the coal pile storage area, excavated material from the coal pile stormwater runoff devices and material removed from the SFL CCR unit stormwater collection pond has been placed within the SFL CCR unit, which is currently being closed as described in **Section 2**. The final closure of the site is anticipated to be complete at the end of year 2023.

- Water levels were measured at all monitoring wells in July 2022 and December 2022. Potentiometric surfaces were contoured for both the SFL CCR unit and the SSP/AP CCR units for both July 2022 and December 2022. Following a slight variation in groundwater flow direction at the SSP/AP CCR units observed between the February 2021 and July 2021 sample events due to the dewatering of SSP/AP CCR units, the groundwater flow direction has remained consistent with the July 2021 groundwater flow direction following the completion of clean closure. Potentiometric surface maps are provided in **Attachment A**.
- All 16 wells of the certified well network for both the SLF CCR unit and SSP/AP CCR units were sampled in July/September 2022 for the assessment monitoring event. Assessment monitoring data was statistically evaluated, and SSLs above the GWPS were observed at multiple monitoring wells as provided in **Table 4** and **Table 5**.
- All 16 wells of the certified well network were sampled in December 2022 for the assessment monitoring event. Assessment monitoring data was statistically evaluated, and SSLs above the GWPS were observed at multiple monitoring wells as provided in **Table 6** and **Table 7**.
- No new SSLs have been observed during the 2022 reporting period.
- The status of the GCSES at the end of 2022 is assessment monitoring. The next semi-annual sampling event is anticipated to occur in March 2023.
- The SSP/AP CCR unit will continue to be monitored to satisfy regulations set forth by TCEQ.

8 References

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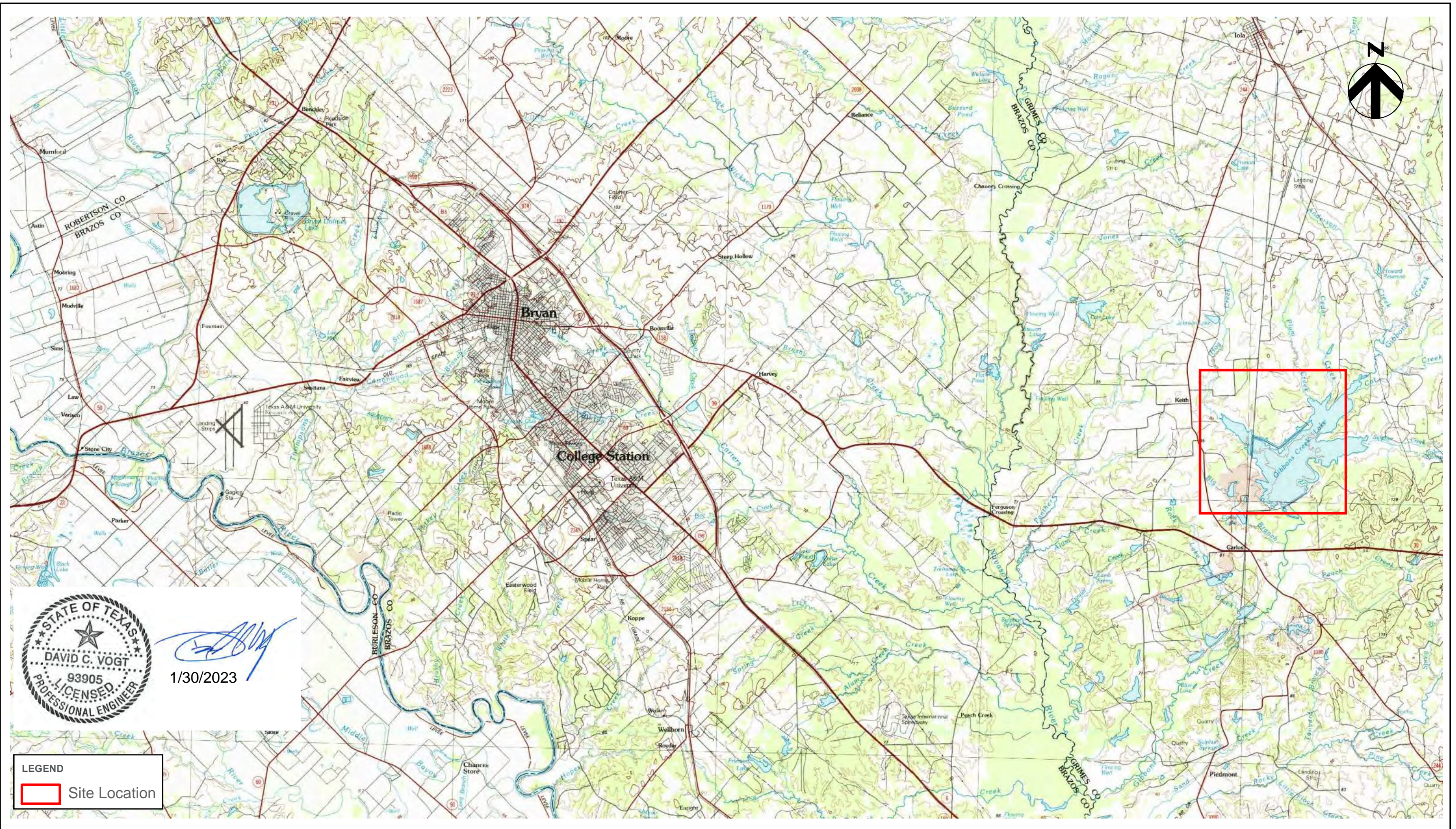


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Appendix A

Monitoring Networks & Potentiometric Surface Maps

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1/30/2023

LEGEND
 Site Location

**GIBBONS CREEK STEAM ELECTRIC STATION
 GC ENVIRONMENTAL REDEVELOPMENT GROUP
 SITE LOCATION MAP**

2022 GROUNDWATER MONITORING & CORRECTIVE ACTION REPORT



DATE
JANUARY 2023

FIGURE
FIGURE 1

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LEGEND:

-  MONITORING WELL
-  WASTE BOUNDARY



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1/30/2023



**GIBBONS CREEK STEAM ELECTRIC STATION
GCSES ENVIRONMENTAL REDEVELOPMENT GROUP
MONITORING NETWORK - SITE F LANDFILL**

2022 GROUNDWATER MONITORING & CORRECTIVE ACTION REPORT

DATE
JANUARY 2023

FIGURE
FIGURE 2

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LEGEND:

-  MONITORING WELL
-  POND BOUNDARIES



[Signature]
1/30/2023



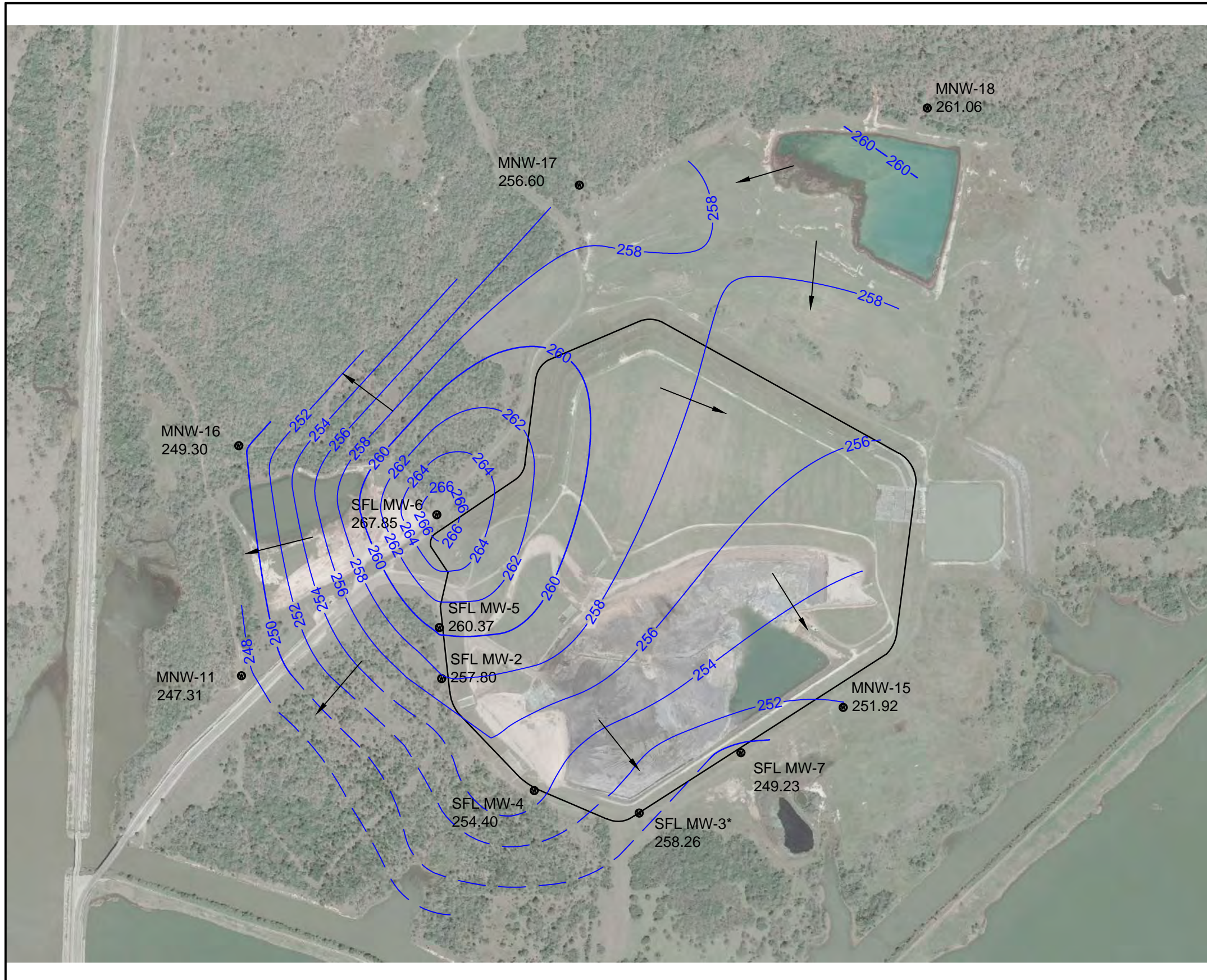
**GIBBONS CREEK STEAM ELECTRIC STATION
GCSES ENVIRONMENTAL REDEVELOPMENT GROUP
MONITORING NETWORK - ASH PONDS/SCRUBBER SLUDGE**

2022 GROUNDWATER MONITORING & CORRECTIVE ACTION REPORT

DATE
JANUARY 2023

FIGURE
FIGURE 3

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LEGEND:

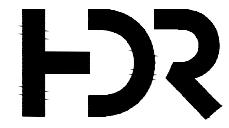
- MONITORING WELL
- WASTE BOUNDARY
- GROUNDWATER CONTOUR
- INFERRED GROUNDWATER CONTOUR
- FLOW DIRECTION

NOTES:

- "*" DENOTES STATIC WATER LEVEL WAS NOT UTILIZED IN GENERATION OF GROUNDWATER CONTOUR MAP DUE TO ANOMALOUS VALUE COMPARED TO SURROUNDING WELLS.

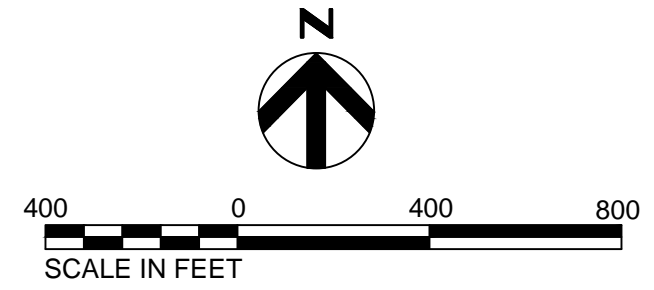
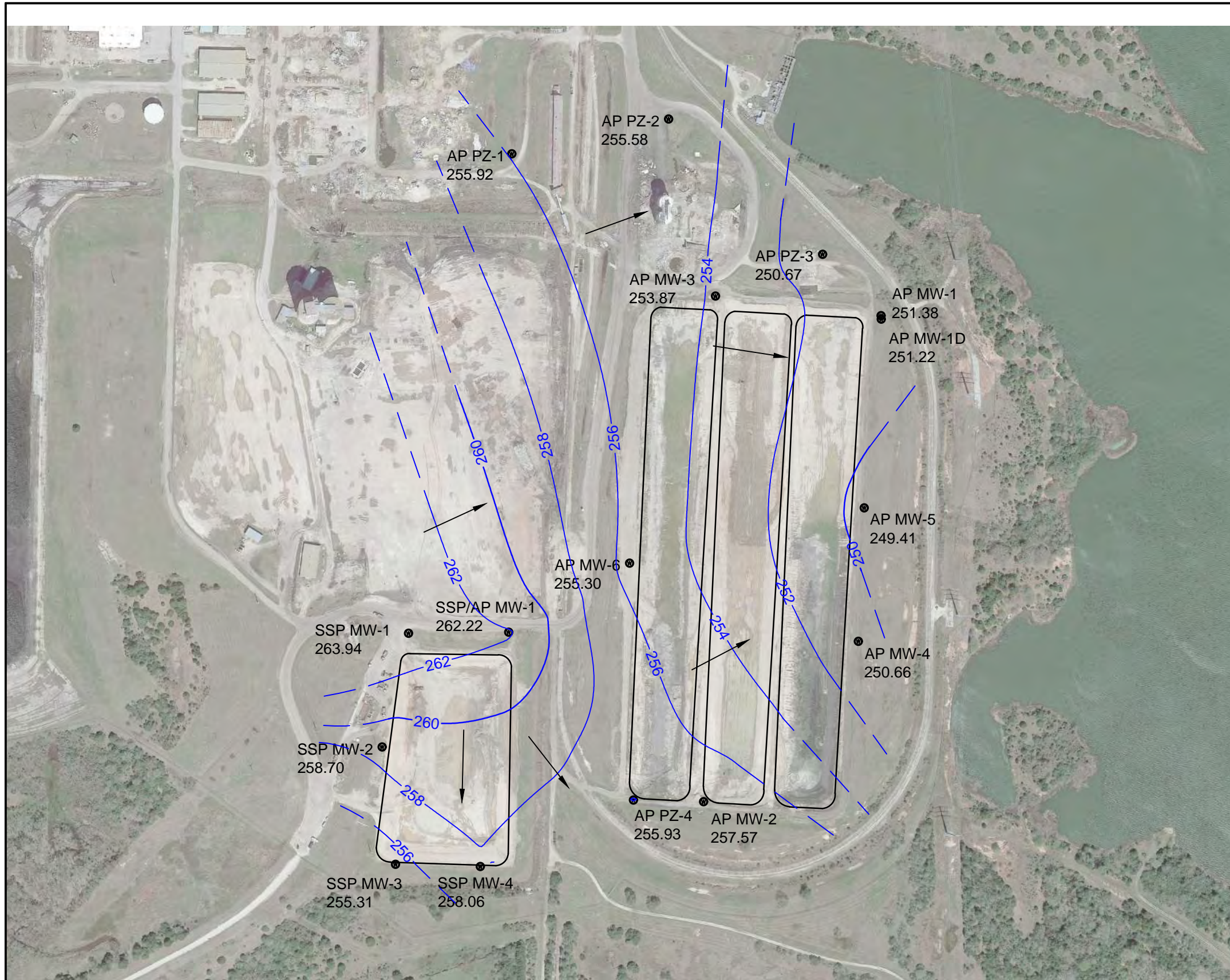







 1/30/2023




**GIBBONS CREEK STEAM ELECTRIC STATION
 GCSES ENVIRONMENTAL REDEVELOPMENT GROUP
 SITE F LANDFILL - JULY 2022 CONTOUR MAP**

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- LEGEND:**
-  MONITORING WELL
 -  POND BOUNDARIES
 -  GROUNDWATER CONTOUR
 -  INFERRED GROUNDWATER CONTOUR
 -  FLOW DIRECTION

- NOTES:**
- "*" DENOTES STATIC WATER LEVEL WAS NOT UTILIZED IN GENERATION OF GROUNDWATER CONTOUR MAP DUE TO ANOMALOUS VALUE COMPARED TO SURROUNDING WELLS.

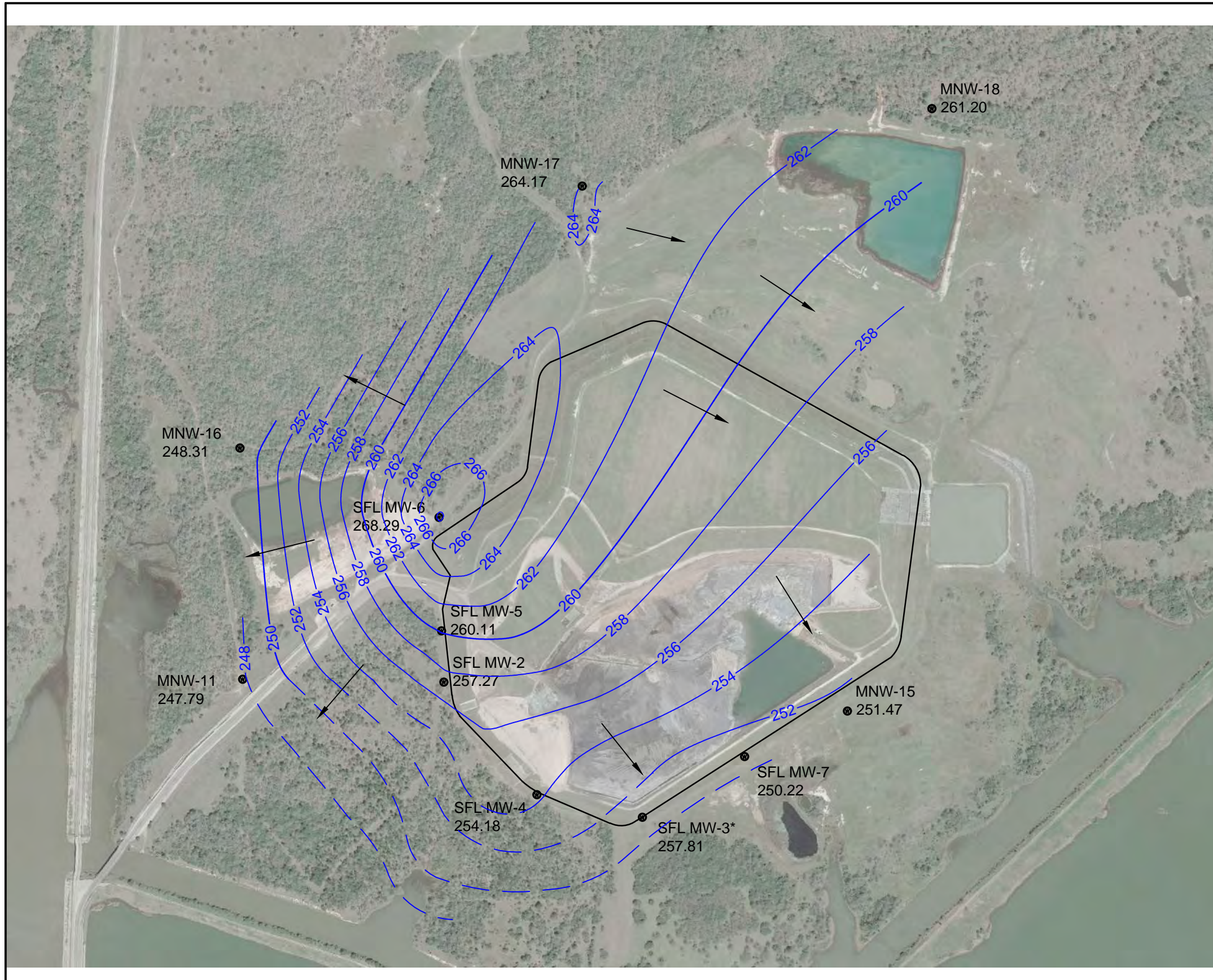


 1/30/2023








GIBBONS CREEK STEAM ELECTRIC STATION
GCSES ENVIRONMENTAL REDEVELOPMENT GROUP
ASH PONDS/SCRUBBER SLUDGE - JULY 2022 CONTOUR MAP

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LEGEND:

-  MONITORING WELL
-  WASTE BOUNDARY
-  GROUNDWATER CONTOUR
-  INFERRED GROUNDWATER CONTOUR
-  FLOW DIRECTION

NOTES:

1. "*" DENOTES STATIC WATER LEVEL WAS NOT UTILIZED IN GENERATION OF GROUNDWATER CONTOUR MAP DUE TO ANOMALOUS VALUE COMPARED TO SURROUNDING WELLS.



[Signature]
1/30/2023



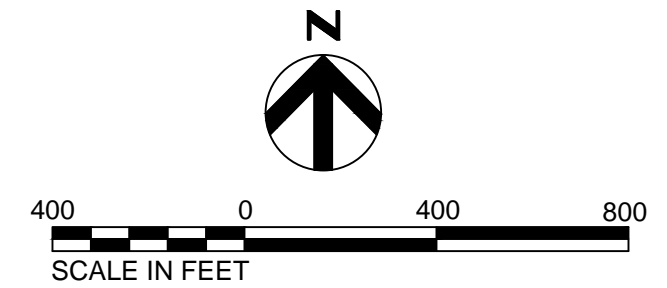
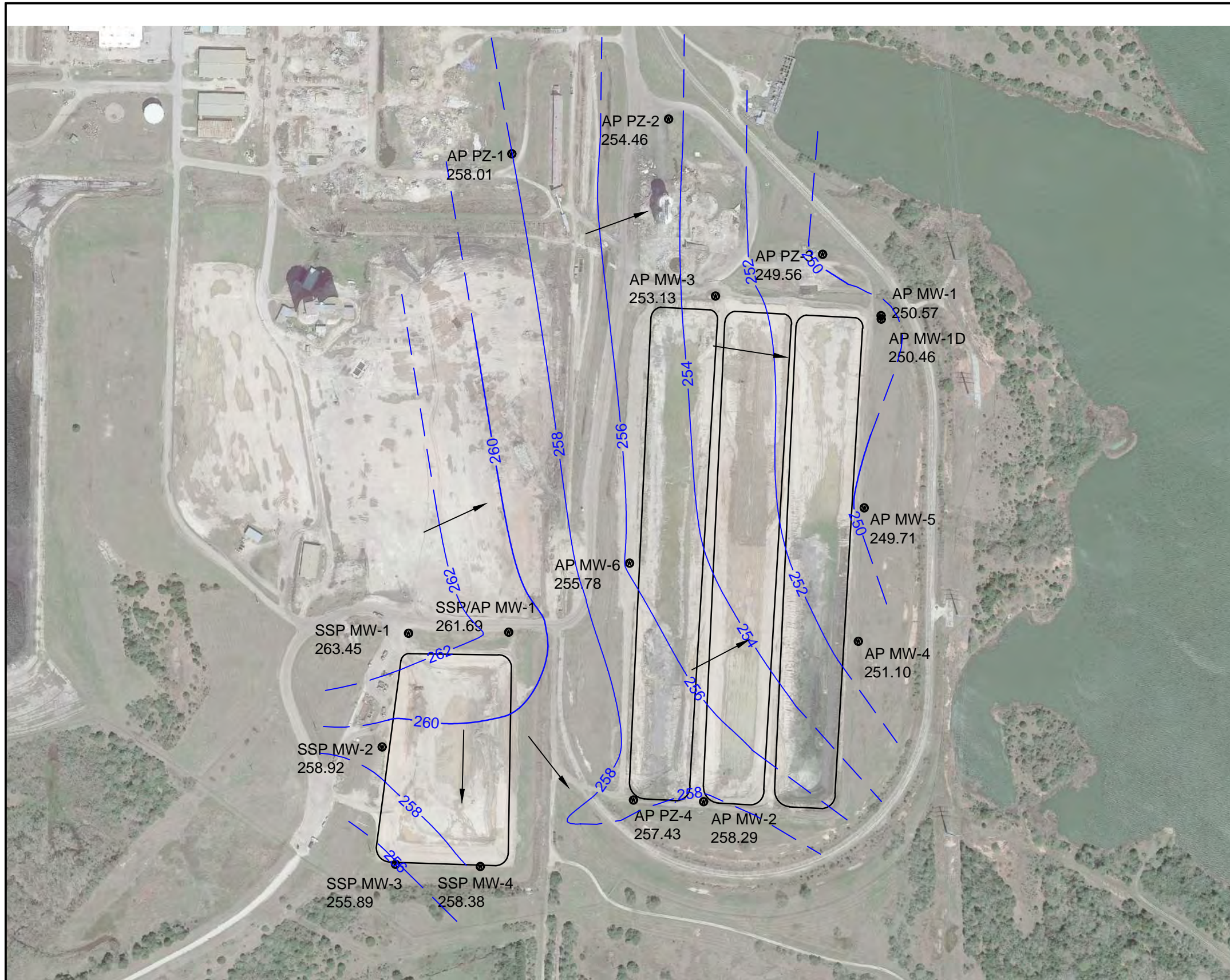
**GIBBONS CREEK STEAM ELECTRIC STATION
GCSES ENVIRONMENTAL REDEVELOPMENT GROUP
SITE F LANDFILL - DECEMBER 2022 CONTOUR MAP**

2022 GROUNDWATER MONITORING & CORRECTIVE ACTION REPORT

DATE
JANUARY 2023

FIGURE
FIGURE 6

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LEGEND:

- MONITORING WELL
- POND BOUNDARIES
- GROUNDWATER CONTOUR
- INFERRED GROUNDWATER CONTOUR
- FLOW DIRECTION

NOTES:

1. "*" DENOTES STATIC WATER LEVEL WAS NOT UTILIZED IN GENERATION OF GROUNDWATER CONTOUR MAP DUE TO ANOMALOUS VALUE COMPARED TO SURROUNDING WELLS.



[Signature]
1/30/2023



**GIBBONS CREEK STEAM ELECTRIC STATION
GCSES ENVIRONMENTAL REDEVELOPMENT GROUP
ASH PONDS/SCRUBBER SLUDGE - DECEMBER 2022 CONTOUR MAP**

2022 GROUNDWATER MONITORING & CORRECTIVE ACTION REPORT

DATE
JANUARY 2023
FIGURE
FIGURE 6

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Appendix B

Field Forms

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Sampler: WILL NICHOLSON
Equipment: GEOTECH 100'

Date: 7/19/22 thru 7/20/22
Decontamination: Alconox with DI Rinse

Well	Water Level below TOC	Bottom of Casing	Prevoius Water Level Below TOC (07/12/2021)	Prevoius Water Level Below TOC (02/10/2021)	Notes
AP PZ-1	9.25	-	5.36	6.64	
AP PZ-2	19.33	-	17.07	20.46	
AP PZ-3	8.44	-	4.76	6	
AP PZ-4	17.72	-	14.03	10.35	
AP MW-1	20.18	-	13.03	13.22	
AP MW-1D	20.82	43.01	14.48	14.83	
AP MW-2	17.40	-	12.65	7.51	
AP MW-3	20.81	43.42	12.59	11.39	
AP MW-4	23.50	52.83	14.69	13.52	
AP MW-5	24.72	43.13	14.47	12.09	
AP MW-6	18.84	23.11	17.03	16.64	22.65 - NEED NEW TOC ? COORD.
SSP/SP MW-1	10.31	43.20	7.71	8.34	
SSP MW-1	17.24	-	13.95	15.86	
SSP MW-2	24.96	47.05	23.02	23.84	
SSP MW-3	28.66	48.36	27.12	28.18	
SSP MW-4	25.80	51.57	24.48	24.65	
SFL MW-2	10.51	23.80	10.38	11.57	
SFL MW-3	16.74	28.21	17.92	18.12	
SFL MW-4	15.13	42.92	14.78	15.68	
SFL MW-5	15.88	24.28	16.08	16.44	
SFL MW-6	18.81	23.11	19	18.59	
SFL MW-7	15.40	58.19	13.22	14.58	
MNW-11	20.64	-	20.7	20.27	
MNW-15	5.41	27.26	4.88	6.22	
MNW-16	13.89	-	12.5	14.12	
MNW-17	37.12	-	29.36	33.5	
MNW-18	9.69	45.0051, 03	8.7	8.35	

22.65

Low Stress Groundwater Sampling Data Sheet

	Facility Name: <u>Gibbons Creek Steam Electric Station</u>	Sampler Name(s): <u>Will Nicholson/Justin MacManus</u>
	MW Identification: <u>SSP/HR MW-1</u>	Date/Time: <u>7/19/2022 1235</u>
	Sample Number: <u>1</u>	PID Readings: <u>N/A</u>
	Weather Conditions: <u>98°F CALM SUNNY</u>	
	Wellhead Inspection: <u>NO LOCK</u>	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: Yes / <u>No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: Yes / <u>No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: Yes / <u>No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>10.31</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>35.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>43.20</u> | 9. Purge Equipment Used <u>BLADDER</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) Yes / <u>No</u> |
| 5. Actual Volume of Water Purged (mL) <u>6300</u> | 11. Immiscible layer observed Yes / <u>No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>None</u> Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |
- LOTHERM MEDIUM

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1236	-	24.9	9135	66.5	1.35	41.56	6.13	11.18	
1239	900	24.6	9077	74.0	0.59	91.18	5.90	11.57	
1242	1800	24.5	9024	74.9	0.52	108.87	5.87	11.90	
1245	2700	24.7	9037	77.9	0.47	156.61	5.86	12.37	
1248	3600	24.4	9011	68.0	0.45	154.37	5.84	12.60	
1251	4500	24.7	9005	56.9	0.42	110.01	5.81	13.00	
1254	5400	24.7	9020	49.4	0.42	64.20	5.80	13.10	
1257	6300	25.3	9009	41.7	0.41	87.21	5.80	13.18	

- | | | |
|--|---|---|
| 1. Well evacuated to dryness? Yes / <u>No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? Yes / <u>No</u> | 8. Sample Time: <u>1300</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used: <u>BLADDER</u> | 9. Parameter/Container/Pres.: <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen): <u>AIR/NITROGEN/N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min): <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity: <u>MEDIUM</u> | | Conduct. |
| Color: <u>LIGHT BROWN</u> | | ORP |
| Odor: <u>None</u> | | D.O. |
| | | Turbidity |
- See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
	MW Identification: MNW-16	Date/Time: 7/19/2022 1335
	Sample Number: 2	PID Readings: N/A
	Weather Conditions: 98°F CLEAR CALM	
	Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|--|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>9.69</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>45.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>51.03</u> | 9. Purge Equipment Used <u>BLADDER</u> |
| 4. Casing Diameter (inches) <u>4</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>4500</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>NONE</u> Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1343	-	25.1	2836	-22.0	6.35	19.85	7.27	9.47	
1346	900	23.4	3247	-56.0	1.76	2.92	6.93	9.75	
1349	1800	23.1	3761	-67.4	0.58	2.25	6.89	10.13	
1352	2700	23.0	2434 3742	-82.3	0.49	1.79	6.89	10.68	
1355	3600	22.9	3738	-77.8	0.45	1.44	6.88	10.94	
1358	4500	22.9	3726	-75.4	0.44	1.68	6.88	11.15	

- | | | |
|--|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1400</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>BLADDER</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR/NITROGEN/ N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | <u>Std.</u> <u>Reading</u> <u>Adjust.</u> |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity <u>LOW</u> | | Conduct. |
| Color <u>CLEAR</u> | | ORP |
| Odor <u>NONE</u> | | D.O. |
| | | Turbidity |

See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
MW Identification: SFL-6	Date/Time: 7/19/2022 1430
Sample Number: 3	PID Readings: N/A
Weather Conditions: 103° F CLEAR CALM	
Wellhead Inspection: NO COMMENTS	

Visual Inspection:

- | | | | |
|--------------------------------|-----------------|---------------------------|-----------------|
| 1. Survey Mark Present: | <u>Yes</u> / No | 5. Standing/Ponded Water: | Yes / <u>No</u> |
| 2. Collision/Vandalism Damage: | Yes / <u>No</u> | 6. Frost Heaving: | Yes / <u>No</u> |
| 3. Casing Degradation: | Yes / <u>No</u> | 7. Lock in Place: | <u>Yes</u> / No |
| 4. Well Subsidence: | Yes / <u>No</u> | | |

Ground Water Measurements/Purge data:

- | | | | |
|--|----------------------|-----------------------------------|-----------------------------|
| 1. Static Water Level (±0.01 feet [ft.]) | <u>18.81</u> | 7. Purge Rate (mL/min) | <u>300</u> |
| 2. Intake Depth (±0.01 ft.) | <u>20</u> | 8. Water Level Measuring Equip. | <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) | <u>23.11</u> | 9. Purge Equipment Used | <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) | <u>2</u> | 10. Dedicated? (Yes/No) | Yes / <u>No</u> |
| 5. Actual Volume of Water Purged (mL) | <u>4500</u> | 11. Immiscible layer observed | Yes / <u>No</u> |
| 6. Purge Water Characteristics: | | 12. Thickness of immiscible layer | <u>N/A</u> |
| Odor <u>NONE</u> | Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) | <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | | | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1435	-	27.7	16242	260.3	1.59	0.49	4.25	19.31	
1438	900	25.9	16351	377.2	0.62	2.54	3.65	19.64	
1441	1800	25.6	16539	397.2	0.49	8.50	3.76	19.99	
1444	2700	26.3	16826	411.2	0.45	16.49	3.71	20.35	
1447	3600	26.8	16994	413.2	0.44	15.10	3.70	20.64	
1450	4500	26.4	16932	410.4	0.41	17.55	3.70	20.85	

- | | | | | | | |
|-------------------------------|-----------------------------|------------------------------|-------------------------|--|---|---------|
| 1. Well evacuated to dryness? | Yes / No | 7. Time to recharge (min): | <u>N/A</u> | 11. Decontamination Procedures: | <u>Alconox/DI Rinse</u> | |
| 2. Sample Filtered? | Yes / <u>No</u> | 8. Sample Time: | <u>1450</u> | 12. Instrument type: <u>YSI ProDSS</u> | | |
| 3. Sampling Equip. Used | <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. | <u>See Attached COC</u> | Calibration Date: | <u>LAB</u> | |
| 4. Drive Gas (Air/Nitrogen) | <u>AIR / NITROGEN / N/A</u> | | | Calibration Time: | <u>LAB</u> | |
| 5. Sample Rate (mL/min) | <u>300</u> | | | Std. | Reading | Adjust. |
| 6. Sample Appearance: | | 10. Other Information: | | pH | | |
| Turbidity | <u>LOW</u> | | | Conduct. | <u>See attached Lab Form for Calibration Data</u> | |
| Color | <u>SLIGHT BROWN</u> | | | ORP | | |
| Odor | <u>NONE</u> | | | D.O. | | |
| | | | | Turbidity | | |

→ GOING DRY ON LAST 1/2 BOTTLE OF RADIUM

FB-1 HERE @ 1450

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
MW Identification: MW + AP MW-10	Date/Time: 7/19/2022 1530
Sample Number: 4	PID Readings: N/A
Weather Conditions: 100° F CALM CLEAR	
Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | | | |
|--------------------------------|-----------------|---------------------------|-----------------|
| 1. Survey Mark Present: | <u>Yes</u> / No | 5. Standing/Ponded Water: | Yes / <u>No</u> |
| 2. Collision/Vandalism Damage: | Yes / <u>No</u> | 6. Frost Heaving: | Yes / <u>No</u> |
| 3. Casing Degradation: | Yes / <u>No</u> | 7. Lock in Place: | <u>Yes</u> / No |
| 4. Well Subsidence: | Yes / <u>No</u> | | |

Ground Water Measurements/Purge data:

- | | | | |
|---|-----------------------|------------------------------------|-----------------------------|
| 1. Static Water Level (±0.01 feet [ft.]): | <u>20.62</u> | 7. Purge Rate (mL/min): | <u>300</u> |
| 2. Intake Depth (±0.01 ft.): | <u>35.00</u> | 8. Water Level Measuring Equip.: | <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.): | <u>16.01</u> | 9. Purge Equipment Used: | <u>BEADDER</u> |
| 4. Casing Diameter (inches): | <u>2</u> | 10. Dedicated? (Yes/No): | Yes / <u>No</u> |
| 5. Actual Volume of Water Purged (mL): | <u>4500</u> | 11. Immiscible layer observed: | Yes / <u>No</u> |
| 6. Purge Water Characteristics: | | 12. Thickness of immiscible layer: | <u>N/A</u> |
| Odor: <u>NONE</u> | Turbidity: <u>LOW</u> | 13. Drive Gas (Air/Nitrogen): | <u>AIR</u> / NITROGEN / N/A |
| Color: <u>CLEAR</u> | | | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1536	-	29.6	1930	226.1	2.99	2.74	6.25	21.08	
1539	900	25.9	1400	206.4	1.81	2.33	6.27	21.19	
1542	1600	25.6	1441	197.0	1.74	1.36	6.21	21.15	
1545	2700	25.5	1539	185.3	0.70	1.41	6.16	21.20	
1549	3600	24.8	1581	178.7	0.47	1.50	6.13	21.16	
1551	4500	25.1	1585	177.9	0.45	1.48	6.13	21.20	

- | | | | | | | |
|-------------------------------|-------------------------|-------------------------------|-------------------------|--|-------------------------|---------|
| 1. Well evacuated to dryness? | Yes / <u>No</u> | 7. Time to recharge (min): | <u>N/A</u> | 11. Decontamination Procedures: | <u>Alconox/DI Rinse</u> | |
| 2. Sample Filtered? | Yes / <u>No</u> | 8. Sample Time: | <u>1555</u> | 12. Instrument type: <u>YSI ProDSS</u> | | |
| 3. Sampling Equip. Used: | <u>BEADDER</u> | 9. Parameter/Container/Pres.: | <u>See Attached COC</u> | Calibration Date: | <u>LAB</u> | |
| 4. Drive Gas (Air/Nitrogen): | <u>AIR/NITROGEN/N/A</u> | 10. Other Information: | | Calibration Time: | <u>LAB</u> | |
| 5. Sample Rate (mL/min): | <u>300</u> | | | Std. | Reading | Adjust. |
| 6. Sample Appearance: | | | | pH | | |
| Turbidity: | <u>LOW</u> | | | Conduct. | | |
| Color: | <u>CLEAR</u> | | | ORP | | |
| Odor: | <u>NONE</u> | | | D.O. | | |
| | | | | Turbidity | | |
| | | | | | | |

See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
	MW Identification: AD MWS-5	Date/Time: 7/19/2022 1640-1615
	Sample Number: 5	PID Readings: N/A
	Weather Conditions: 100°F CALM CLEAR	
	Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |


Ground Water Measurements/Purge data:

- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>24.72</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>35.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>43.13</u> | 9. Purge Equipment Used <u>BLADDER</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>4500</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>NONE</u> Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
11023	-	27.1	4705	428.9	4.01	5.88	3.84	25.03	
11026	900	26.2	5394	390.3	0.90	22.61	3.57	25.11	
11029	1800	25.8	5679	361.2	0.59	9.11	3.54	25.14	
11032	2700	25.4	5713	347.2	0.45	8.32	3.54	25.10	
11035	3600	25.4	5691	345.2	0.42	9.52	3.54	25.16	
11038	4500	25.5	5675	343.7	0.46	9.17	3.54	25.20	

- | | | |
|---|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1640</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>BLADDER</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR/NITROGEN/N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity <u>LOW</u> | | Conduct. |
| Color <u>CLEAR</u> | | ORP |
| Odor <u>NONE</u> | | D.O. |
| | | Turbidity |
| | | See attached Lab Form for Calibration Data |

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
	MW Identification: AP MW-4	Date/Time: 7/19/2022 1705
	Sample Number: 6	PID Readings: N/A
	Weather Conditions: 100°F CALM CLEAR	
	Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes</u> / No | 5. Standing/Ponded Water: Yes / <u>No</u> |
| 2. Collision/Vandalism Damage: Yes / <u>No</u> | 6. Frost Heaving: Yes / <u>No</u> |
| 3. Casing Degradation: Yes / <u>No</u> | 7. Lock in Place: <u>Yes</u> / No |
| 4. Well Subsidence: Yes / <u>No</u> | |

Ground Water Measurements/Purge data:

- | | |
|--|---|
| 1. Static Water Level (±0.01 feet [ft.]): <u>23.50</u> | 7. Purge Rate (mL/min): <u>300</u> |
| 2. Intake Depth (±0.01 ft.): <u>45.00</u> | 8. Water Level Measuring Equip.: <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.): <u>52.83</u> | 9. Purge Equipment Used: <u>BLADDER</u> |
| 4. Casing Diameter (inches): <u>2</u> | 10. Dedicated? (Yes/No): Yes / <u>No</u> |
| 5. Actual Volume of Water Purged (mL): <u>4500</u> | 11. Immiscible layer observed: Yes / <u>No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer: <u>N/A</u> |
| Odor: <u>NONE</u> Turbidity: <u>LOW</u> | 13. Drive Gas (Air/Nitrogen): <u>AIR</u> / NITROGEN / N/A |
| Color: <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1715	-	28.1	2158	177.8	3.76	9.10	6.04	23.76	
1718	900	25.3	2057	175.7	0.95	5.95	6.05	23.84	
1721	1800	24.8	2052	170.9	0.62	2.85	6.06	23.95	
1724	2700	24.5	2048	167.7	0.56	2.61	6.07	24.01	
1727	3600	24.8	2048	162.3	0.51	3.13	6.09	24.03	
1730	4500	24.6	2051	162.3	0.48	3.03	6.10	24.07	

- | | | |
|--|---|---|
| 1. Well evacuated to dryness? Yes / <u>No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? Yes / <u>No</u> | 8. Sample Time: <u>1730</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used: <u>BLADDER</u> | 9. Parameter/Container/Pres.: <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen): <u>AIR/NITROGEN/N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min): <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity: <u>LOW</u> | | Conduct. |
| Color: <u>CLEAR</u> | | ORP |
| Odor: <u>NONE</u> | | D.O. |
| | | Turbidity |

FB-2 HERE @ 1730

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
MW Identification: AP MW-3	Date/Time: 7/20/2022 0620
Sample Number: 7	PID Readings: N/A
Weather Conditions: 85° F CALM PARTLY CLOUDY	
Wellhead Inspection: NO COMMENT SOIL TO BE PLACED AROUND BASE	

Visual Inspection:

- | | | | |
|--------------------------------|-----------------|---------------------------|-----------------|
| 1. Survey Mark Present: | <u>Yes / No</u> | 5. Standing/Ponded Water: | <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: | <u>Yes / No</u> | 6. Frost Heaving: | <u>Yes / No</u> |
| 3. Casing Degradation: | <u>Yes / No</u> | 7. Lock in Place: | <u>Yes / No</u> |
| 4. Well Subsidence: | <u>Yes / No</u> | | |

GRADING

Ground Water Measurements/Purge data:

- | | | | |
|--|----------------------|-----------------------------------|-----------------------------|
| 1. Static Water Level (±0.01 feet [ft.]) | <u>20.81</u> | 7. Purge Rate (mL/min) | <u>300</u> |
| 2. Intake Depth (±0.01 ft.) | <u>35.00</u> | 8. Water Level Measuring Equip. | <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) | <u>43.42</u> | 9. Purge Equipment Used | <u>BLADDER</u> |
| 4. Casing Diameter (inches) | <u>2</u> | 10. Dedicated? (Yes/No) | <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) | <u>4500</u> | 11. Immiscible layer observed | <u>Yes / No</u> |
| 6. Purge Water Characteristics: | | 12. Thickness of immiscible layer | <u>N/A</u> |
| Odor <u>NONE</u> | Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) | <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | | | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
0632	-	23.7	1809	136.3	4.47	18.63	5.73	21.06	
0635	900	23.1	1791	277.9	1.14	14.26	5.19	21.12	
0638	1800	23.1	1794	110.4	0.88	3.32	5.09	21.15	
0641	2700	23.1	1793	477.1	0.79	1.24	5.05	21.24	
0644	3600	23.0	1795	500.8	0.75	1.91	5.05	21.27	
0647	4500	23.0	1789	515.1	0.70	2.03	5.05	21.30	

- | | | | | | |
|-------------------------------|-------------------------|------------------------------|-------------------------|--|---|
| 1. Well evacuated to dryness? | <u>Yes / No</u> | 7. Time to recharge (min): | <u>N/A</u> | 11. Decontamination Procedures: | <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? | <u>Yes / No</u> | 8. Sample Time: | <u>0650</u> | 12. Instrument type: <u>YSI ProDSS</u> | |
| 3. Sampling Equip. Used | <u>BLADDER</u> | 9. Parameter/Container/Pres. | <u>See Attached COC</u> | Calibration Date: | <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) | <u>AIR/NITROGEN/N/A</u> | | | Calibration Time: | <u>LAB</u> |
| 5. Sample Rate (mL/min) | <u>300</u> | | | | <u>Std. Reading Adjust.</u> |
| 6. Sample Appearance: | | 10. Other Information: | | pH | |
| Turbidity | <u>LOW</u> | | | Conduct. | |
| Color | <u>CLEAR</u> | | | ORP | <u>See attached Lab Form for Calibration Data</u> |
| Odor | <u>NONE</u> | | | D.O. | |
| | | | | Turbidity | |

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
MW Identification: SSP MW-4	Date/Time: 7/20/2024 0720
Sample Number: 8	PID Readings: N/A
Weather Conditions: 90° F CALM CLEAR	
Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | | | |
|--------------------------------|---|---------------------------|---|
| 1. Survey Mark Present: | <input checked="" type="radio"/> Yes / <input type="radio"/> No | 5. Standing/Ponded Water: | <input type="radio"/> Yes / <input checked="" type="radio"/> No |
| 2. Collision/Vandalism Damage: | <input type="radio"/> Yes / <input checked="" type="radio"/> No | 6. Frost Heaving: | <input type="radio"/> Yes / <input checked="" type="radio"/> No |
| 3. Casing Degradation: | <input type="radio"/> Yes / <input checked="" type="radio"/> No | 7. Lock in Place: | <input checked="" type="radio"/> Yes / <input type="radio"/> No |
| 4. Well Subsidence: | <input type="radio"/> Yes / <input checked="" type="radio"/> No | | |

Ground Water Measurements/Purge data:


- | | | | |
|---|-----------------------|------------------------------------|---|
| 1. Static Water Level (±0.01 feet [ft.]): | <u>25.60</u> | 7. Purge Rate (mL/min): | <u>300</u> |
| 2. Intake Depth (±0.01 ft.): | <u>45.00</u> | 8. Water Level Measuring Equip.: | <u>GEO TECH</u> |
| 3. Bottom of casing (±0.01 ft.): | <u>51.57</u> | 9. Purge Equipment Used: | <u>BLADDER</u> |
| 4. Casing Diameter (inches): | <u>2</u> | 10. Dedicated? (Yes/No): | <input type="radio"/> Yes / <input checked="" type="radio"/> No |
| 5. Actual Volume of Water Purged (mL): | <u>4500</u> | 11. Immiscible layer observed: | <input type="radio"/> Yes / <input checked="" type="radio"/> No |
| 6. Purge Water Characteristics: | | 12. Thickness of immiscible layer: | <u>N/A</u> |
| Odor: <u>NONE</u> | Turbidity: <u>LOW</u> | 13. Drive Gas (Air/Nitrogen): | <input checked="" type="radio"/> AIR / <input type="radio"/> NITROGEN / <input type="radio"/> N/A |
| Color: <u>CLEAR</u> | | | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
0725	-	23.8	5413	226.7	3.20	3.68	6.14	25.96	
0728	900	23.7	5539	179.8	1.27	3.47	6.19	26.31	
0731	1800	23.7	5505	157.8	0.60	3.49	6.25	27.49	
0734	2700	23.7	5553	143.7	0.55	3.13	6.27	28.09	
0737	3600	23.7	5549	132.7	0.51	4.12	6.28	28.95	
0740	4500	23.8	5551	130.3	0.49	4.73	6.29	29.58	

- | | | | | | | |
|-------------------------------|---|-------------------------------|-------------------------|--|-------------------------|---------|
| 1. Well evacuated to dryness? | <input type="radio"/> Yes / <input checked="" type="radio"/> No | 7. Time to recharge (min): | <u>N/A</u> | 11. Decontamination Procedures: | <u>Alconox/DI Rinse</u> | |
| 2. Sample Filtered? | <input type="radio"/> Yes / <input checked="" type="radio"/> No | 8. Sample Time: | <u>0745</u> | 12. Instrument type: <u>YSI ProDSS</u> | | |
| 3. Sampling Equip. Used: | <u>BLADDER</u> | 9. Parameter/Container/Pres.: | <u>See Attached COC</u> | Calibration Date: | <u>LAB</u> | |
| 4. Drive Gas (Air/Nitrogen): | <input checked="" type="radio"/> AIR / <input type="radio"/> NITROGEN / <input type="radio"/> N/A | 10. Other Information: | | Calibration Time: | <u>LAB</u> | |
| 5. Sample Rate (mL/min): | <u>300</u> | | | Std. | Reading | Adjust. |
| 6. Sample Appearance: | | | | pH | | |
| Turbidity: | <u>LOW</u> | | | Conduct. | | |
| Color: | <u>CLEAR</u> | | | ORP | | |
| Odor: | <u>NONE</u> | | | D.O | | |
| | | | | Turbidity | | |

See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
	MW Identification: SSP MW-3	Date/Time: 7/20/2022 0820
	Sample Number: 9	PID Readings: N/A
	Weather Conditions: 82° F S MAH EAST CLEAR	
	Wellhead Inspection: NO COMPLAINT	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>28.66</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>40.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>48.36</u> | 9. Purge Equipment Used <u>BLADDER</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>7200</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>NONE</u> Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
0824	-	26.1	1310	121.8	6.20	3.69	7.59	29.01	
0827	900	24.2	1304	125.5	2.02	3.59	6.53	29.40	
0830	1800	24.0	3649	162.3	1.33	2.57	5.77	29.66	
0833	2700	23.9	5651	162.3	1.15	2.06	5.42	29.80	
0836	3600	23.9	6901	214.0	0.97	1.80	5.04	29.91	
0839	4500	23.8	7205	231.6	0.84	8.68	4.82	30.00	
0842	5400	23.9	7882	270.1	0.69	11.10	4.55	30.02	
0845	6300	23.9	8050	283.3	0.64	9.81	4.48	30.05	
0848	7200	23.9	6154	293.4	0.57	11.11	4.42	30.11	

- | | | |
|---|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>0830</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>BLADDER</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | <u>Std.</u> <u>Reading</u> <u>Adjust.</u> |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity | | Conduct. |
| Color | | ORP |
| Odor | | D.O. |
| | | Turbidity |
- See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
	MW Identification: SSP MW-2	Date/Time: 7/20/2022 0910
	Sample Number: 10	PID Readings: N/A
	Weather Conditions: 90° F CLEAR 5 MPH EAST	
	Wellhead Inspection: NO COMMENT PAD TO BE REPOURED - LOOSE HOUSING	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>24.96</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>40.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>97.05</u> | 9. Purge Equipment Used <u>BLADDER</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) _____ | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: _____ | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>NONE</u> Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
0917	-	26.0	8065	488.3	6.05	10.40	4.31	25.08	
0920	900	23.7	7996	532.5	2.86	12.61	4.02	25.98	
0923	1800	23.2	7999	536.2	2.57	14.47	4.00	26.48	
0926	2700	23.3	8060	522.4	2.42	25.74	4.07	26.95	
0929	3600	23.4	8800	345.5	1.70	20.70	4.59	27.50	
0932	4500	23.5	8983	332.8	1.50	27.67	4.46	27.97	
0935	5400	23.5	9030	329.8	1.42	25.33	4.48	28.40	
0938	6300	23.4	9029	325.8	1.43	26.07	4.49	28.85	

- | | | |
|--|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>0940</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>BLADDER</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR/NITROGEN/ N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: <u>LOW</u> | 10. Other Information: _____ | pH _____ |
| Turbidity <u>LOW</u> | | Conduct. _____ |
| Color <u>CLEAR</u> | | ORP <u>See attached Lab Form for</u> |
| Odor <u>NONE</u> | | D.O. <u>Calibration Data</u> |
| | | Turbidity _____ |

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
	MW Identification: SFL MW-5	Date/Time: 7/20/2022 1005
	Sample Number: 11	PID Readings: N/A
	Weather Conditions: 92° F CLEAR CALM	
	Wellhead Inspection: NO COMMENT CONCRETE PAD LOOSE	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |


Ground Water Measurements/Purge data:

- | | |
|--|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>215.88</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>22.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>24.28</u> | 9. Purge Equipment Used <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>5400</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>NONE</u> Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1017	-	25.2	10769	375.2	1.97	17.03	4.43	16.50	
1020	900	24.1	10751	409.9	0.67	20.01	4.37	16.82	
1023	1800	23.9	10761	361.4	0.45	20.73	4.34	17.21	
1026	2700	23.8	10759	403.8	0.40	25.93	4.33	17.58	
1029	3600	23.6	10715	415.6	0.49	14.10	4.31	17.85	
1032	4500	23.7	10720	415.7	0.66	5.27	4.31	18.07	
1035	5400	23.7	10698	408.9	0.70	3.00	4.30	18.29	

- | | | |
|---|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1035</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | <u>Std.</u> <u>Reading</u> <u>Adjust.</u> |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity <u>LOW</u> | | Conduct. |
| Color <u>CLEAR</u> | | ORP |
| Odor <u>NONE</u> | | D.O |
| | | Turbidity |
- See attached Lab Form for Calibration Data**

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
	MW Identification: SFL MW-2	Date/Time: 7/20/2022 1105
	Sample Number: 12	PID Readings: N/A
	Weather Conditions: 102° F CALM CLEAR	
	Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | |
|---|--|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|---|---|
| 1. Static Water Level (±0.01 feet [ft.]) <u>10.51</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>21.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>23.80</u> | 9. Purge Equipment Used <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>6300</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>NONE</u> Turbidity <u>NONE</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |
| | <u>LOW</u> |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1112	-	24.7	11494	340.6	1.33	6.67	5.27	11.36	
1115	900	24.4	11403	343.7	0.78	5.56	5.32	11.82	
1116	1800	24.5	11410	341.0	0.71	4.95	5.35	12.01	
1121	2700	24.5	11378	337.4	0.62	4.12	5.42	12.22	
1124	3600	24.6	11360	329.9	0.60	6.12	5.50	12.36	
1127	4500	24.4	11389	321.3	0.58	8.41	5.58	12.49	
1130	5400	24.4	11360	316.5	0.55	18.17	5.60	12.59	
1133	6300	24.7	11362	313.5	0.55	18.43	5.60	12.79	

- | | | |
|--|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1135</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR/NITROGEN/N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | <u>Std. Reading Adjust.</u> |
| 6. Sample Appearance: | 10. Other Information: | pH _____ |
| Turbidity <u>LOW</u> | | Conduct. _____ |
| Color <u>CLEAR</u> | | ORP _____ |
| Odor <u>NONE</u> | | D.O. _____ |
| | | Turbidity _____ |

See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet

HDR	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
	MW Identification: SFL MW-4	Date/Time: 7/20/2022 1155
	Sample Number: 13	PID Readings: N/A
	Weather Conditions: 103°F CALM CLEAR	
	Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|--|---|
| 1. Static Water Level (±0.01 feet [ft.]): <u>15.13</u> | 7. Purge Rate (mL/min): <u>300</u> |
| 2. Intake Depth (±0.01 ft.): <u>30.00</u> | 8. Water Level Measuring Equip.: <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.): <u>42.92</u> | 9. Purge Equipment Used: <u>BLADDER</u> |
| 4. Casing Diameter (inches): <u>2</u> | 10. Dedicated? (Yes/No): <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL): <u>5400</u> | 11. Immiscible layer observed: <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer: <u>N/A</u> |
| Odor: <u>NONE</u> Turbidity: <u>LOW</u> | 13. Drive Gas (Air/Nitrogen): <u>AIR / NITROGEN / N/A</u> |
| Color: <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1201	-	27.8	608	191.5	5.81	1.57	7.41	15.75	
1204	900	26.9	607	192.2	5.41	1.30	7.36	15.90	
1207	1800	26.4	594	190.9	5.34	0.60	7.37	16.25	
1210	2700	26.0	593	190.3	5.34	0.67	7.37	16.30	
1213	3600	26.0	590	189.3	5.31	0.53	7.37	16.30	
1216	4500	26.2	590	189.3	5.31	0.49	7.38	16.34	
1219	5400	26.0	590	189.2	5.29	0.48	7.37	16.35	

- | | | |
|---|---|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1220</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used: <u>BLADDER</u> | 9. Parameter/Container/Pres.: <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen): <u>AIR/NITROGEN/ N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min): <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity: <u>LOW</u> | | Conduct. |
| Color: <u>CLEAR</u> | | ORP |
| Odor: <u>NONE</u> | | D.O. |
| | | Turbidity |

EQ-1 HERS
3834 1-03
@ 1700

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
	MW Identification: SFL MW-3	Date/Time: 7/20/2022 1300
	Sample Number: 14	PID Readings: N/A
	Weather Conditions: 104° F CLEAR CALM	
	Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:


- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>16.74</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>18.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>28.21</u> | 9. Purge Equipment Used <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>5400</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>NONE</u> Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1302	25.2	25.2	5923	347.2	2.06	14.14	4.32	17.09	
1305	24.5 900	24.5	6027	371.2	0.56	10.10	3.82	17.18	
1308	1600	24.1	6025	372.1	0.44	7.94	3.75	17.19	
1311	2700	24.2	6047	374.1	0.40	3.70	3.74	17.22	
1314	3600	24.4	6027	372.1	0.37	6.77	3.73	17.23	
1317	4500	24.5	6029	371.5	0.36	6.37	3.74	17.24	
1320	5400	24.3	6041	372.5	0.34	4.33	3.74	17.25	

- | | | |
|---|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1320</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR/NITROGEN/N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: | 10. Other Information: | pH _____ |
| Turbidity <u>LOW</u> | | Conduct. _____ |
| Color <u>CLEAR</u> | | ORP _____ |
| Odor <u>NONE</u> | | D.O. _____ |
| | | Turbidity _____ |

See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
	MW Identification: SFL MW-7	Date/Time: 7/20/2022 1345
	Sample Number: 15	PID Readings: N/A
	Weather Conditions: 104°F	
	Wellhead Inspection: NO COMMENT HOUSING LID STUCK	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>15.40</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>52.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>58.19</u> | 9. Purge Equipment Used <u>BLADDER</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>6300</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>NONE</u> Turbidity <u>NONE</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1353	-	28.6	16689	74.8	5.22	1.24	6.38	15.62	
1356	900	26.8	16949	-53.2	3.31	1.94	6.53	16.04	
1359	1800	26.5	16975	-86.9	1.00	2.01	6.53	16.04	
1402	2700	26.3	16958	-102.9	0.62	2.36	6.55	16.12	
1405	3600	26.4	16959	-115.9	0.53	4.16	6.57	16.18	
1408	4500	26.1	16955	-123.4	0.48	7.28	6.58	16.22	
1411	5400	26.2	16956	-124.9	0.47	7.24	6.58	16.24	
1414	6300	26.2	16982	-126.7	0.45	7.20	6.58	16.25	

- | | | |
|--|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1415</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>BLADDER</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR/NITROGEN/ N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity <u>LOW</u> | | Conduct. |
| Color <u>CLEAR</u> | | ORP |
| Odor <u>NONE</u> | | D.O. |
| | | Turbidity |

See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Justin MacManus
	MW Identification: MNW-15	Date/Time: 7/20/2022 1440
	Sample Number: 16	PID Readings: N/A
	Weather Conditions: 104° F CALM CLEAR	
	Wellhead Inspection: ANT INFESTATION	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|--|---|
| 1. Static Water Level (±0.01 feet [ft.]) <u>5.41</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>25.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>27.26</u> | 9. Purge Equipment Used <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>5400</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>NONE</u> Turbidity <u>NONE</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR/ NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1447	-	27.6	4295	176.0	1.91	5.57	4.04	5.88	
1450	900	26.3	4139	257.7	0.59	9.02	3.66	5.98	
1453	1800	26.3	2667	264.4	0.46	10.63	3.61	6.01	
1456	2700	26.2	4145	260.3	0.40	11.45	3.60	6.02	
1459	3600	25.9	4145	257.2	0.37	9.18	3.59	6.03	
1502	4500	25.8	4147	249.0	0.34	12.07	3.59	6.02	
1505	5400	26.1	4137	247.1	0.34	5.31	3.59	6.03	

- | | | |
|--|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1505</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR/NITROGEN/ N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity <u>LOW</u> | | Conduct. |
| Color <u>CLEAR</u> | | ORP <u>See attached Lab Form for Calibration Data</u> |
| Odor <u>NONE</u> | | D.O. |
| | | Turbidity |

DUP-1 HERE
 @ "1730"



Calibrated at Geotech's Texas service center

1600 North I 35E Suite 114

Carrollton, TX 75006

(800) 276-5325 Fax: (972) 245-8889

YSI Pro DSS Calibration Certificate

Unit Number: 7133

Calibration Date 7/18/2022

Serial Number: 20J102920

Technician: Isaiah Lastra-Gonzale

Installed Probes

- Conductivity
- PH/ORP
- DO
- TURB

- Display is clear, and free of damage
- Cable and accessories are free of damage
- Firmware version is up to date.

Display Battery 100 % **Pass**
 Cable Flex Test: **Pass**

Cable Length	10M	pH/ORP Serial #	20K100843
Cable Lot #	20J101926	DO Probe Serial #	20J104129
Cond Probe Lot #	20J104279	Turb Probe Serial #	20H103828
Bath Temp	23 °C		
Meter Temp	22.9 °C		
Variance	-0.10	Pass	

Conductivity			
Calibration	Reading		
1.413 mS	1.413 mS	Pass	
Buffer Lot #	Exp. Date		
1GI058	9/22	Pass	

pH						
Point Test	Calibration	Reading	mV	Slope	Buffer Lot #	Exp. Date
2 Point	pH 7.00	pH 7.00	-25 mV		.	4/23
	pH 4.00	pH 4.00	140.3 mV	165.3	Pass	4/23
					1GD680	Pass

ORP			
Calibration	Reading		
220 mV	220 mV	Pass	
Buffer Lot #	Exp. Date		
2GA770	8/23	Pass	

Turbidity									
Zero	Reading	Variance		Cal	Reading	Variance	Buffer Lot #	Exp. Date	
0 ntu	0 ntu	0 ntu	Pass	124 ntu	124 ntu	0.0%	Pass	21K21370185	10/22
									Pass


DO					
Barometer	Calibration	Reading	Variance		Test Fluid
746.8 mmHg	98.3 %	98.3 %	0.0%	Pass	Water Saturated Air
Time:	Min.	Sec.	Reading		Nitrogen Lot #
	3	0	1 %	Pass	.

Geotech Environmental Equipment, Inc. takes pride in ensuring this instrument is tested to function as specified by the manufacturer and was calibrated in accordance to manufacturer specifications. All calibration standards used are NIST traceable. With the provided lot numbers we can provide NIST documents on request. Call us at (800) 833-7958 and we will be glad to help.

Sampler: Jonathan Thompson Date: 9-12-2022
 Equipment: Geotech 100' Decontamination: Alconox with DI Rinse

Well	Water Level below TOC	Bottom of Casing	Prevoius Water Level Below TOC (07/12/2021)	Prevoius Water Level Below TOC (02/10/2021)	Notes
AP PZ-1			5.36	6.64	
AP PZ-2			17.07	20.46	
AP PZ-3			4.76	6	
AP PZ-4			14.03	10.35	
AP MW-1			13.03	13.22	
AP MW-1D			14.48	14.83	
AP MW-2			12.65	7.51	
AP MW-3			12.59	11.39	
AP MW-4			14.69	13.52	
AP MW-5			14.47	12.09	
AP MW-6			17.03	16.64	
SSP/SP MW-1			7.71	8.34	
SSP MW-1			13.95	15.86	
SSP MW-2			23.02	23.84	
SSP MW-3			27.12	28.18	
SSP MW-4			24.48	24.65	
SFL MW-2			10.38	11.57	
SFL MW-3	17.02	28.22	17.92	18.12	
SFL MW-4			14.78	15.68	
SFL MW-5			16.08	16.44	
SFL MW-6			19	18.59	
SFL MW-7	15.20	58.22	13.22	14.58	
MNW-11			20.7	20.27	
MNW-15	5.89	27.31	4.88	6.22	
MNW-16			12.5	14.12	
MNW-17			29.36	33.5	
MNW-18			8.7	8.35	

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Jonathan Thompson
	MW Identification: MNW-15	Date/Time: 9-12-2022 1220
	Sample Number: 1	PID Readings: N/A
	Weather Conditions: 82°F Sunny Calm Clear	
	Wellhead Inspection: Rusty	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|--|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>5.89</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>25.00</u> | 8. Water Level Measuring Equip. <u>LEOT ECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>27.31</u> | 9. Purge Equipment Used <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>5400</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>NA</u> |
| Odor <u>NONE</u> Turbidity <u>NONE</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1230	—	26.9	2413	300.5	8.4	3.54	3.57	5.89	
1233	900	26.4	2381	303.8	0.54	2.30	3.57	6.37	
1236	1800	26.7	2336	302.8	0.53	1.15	3.57	6.35	
1239	2700	26.4	2323	302.9	0.50	2.21	3.57	6.36	
1242	3600	26.3	2277	301.9	0.48	0.60	3.57	6.36	
1245	4500	26.4	2269	300.6	0.47	0.35	3.57	6.38	
1248	5400	26.4	2259	295.7	0.46	0.30	3.57	6.38	

- | | | |
|---|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>NA</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1252</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR/NITROGEN/N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | <u>Std. Reading Adjust.</u> |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity <u>LOW</u> | | Conduct. |
| Color <u>CLEAR</u> | | ORP |
| Odor <u>NONE</u> | | D.O. |
| | | Turbidity |

DUP-1 HERE
@ 1340

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Jonathan Thompson JT
MW Identification: SFL MW-7	Date/Time: 9-12-22 1350
Sample Number: 2	PID Readings: N/A
Weather Conditions: Sunny CLEAR 85°F	
Wellhead Inspection: Overshadow with Weeds - Housing lid broken.	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |


Ground Water Measurements/Purge data:

- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>15.20</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>52.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>58.22</u> | 9. Purge Equipment Used <u>BLADDER</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>JT 4500-5400</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>NA</u> |
| Odor <u>Sulfur</u> Turbidity <u>None</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>Clear</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1400	—	23.5	3222	66.2	2.27	5.80	7.65	16.24	
1405	900	24.0	3001	78.8	1.70	4.91	7.43	16.50	
1406	1800	23.9	2977	74.0	1.45	3.60	7.44	16.66	
1409	2700	23.8	2970	68.6	1.41	1.95	7.42	16.74	
1412	3600	23.8	2966	35.0	1.38	2.05	7.40	16.76	
1415	4500	23.7	2965	-13.0	1.31	1.90	7.35	16.78	
1418	5400	23.9	2968	-15.0	1.30	1.50	7.33	16.76	

- | | | |
|--|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1420</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>BLADDER</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR/NITROGEN/ N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity <u>None</u> | | Conduct. |
| Color <u>CLEAR</u> | | ORP <u>See attached Lab Form for Calibration Data</u> |
| Odor <u>Sulfur</u> | | D.O. |
| | | Turbidity |

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Jonathan Thompson
	MW Identification: SFL MW-3	Date/Time: 9-12-22 1500
	Sample Number: 3	PID Readings: N/A
	Weather Conditions: 87°F Clear Sunny	
	Wellhead Inspection:	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>17.02</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>29.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>28.22</u> | 9. Purge Equipment Used <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>5400</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>NA</u> |
| Odor <u>None</u> Turbidity <u>None</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>Clear</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1508	—	24.4	2869	392.6	0.87	9.62	4.32	17.35	
1511	900	23.9	2795	385.4	0.71	22.42	3.80	17.41	
1514	1800	23.8	2771	372.3	0.61	21.24	3.77	17.45	
1517	2700	23.9	2749	367.7	0.56	4.21	3.75	17.46	
1520	3600	23.7	2747	355.1	0.57	19.42	3.74	17.48	
1523	4500	23.6	2739	346.3	0.55	21.11	3.73	17.45	
1526	5400	23.6	2735	343.8	0.55	21.02	3.73	17.44	

- | | | | | | |
|---|--|--|-------------|----------------|----------------|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>NA</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> | | | |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1530</u> | 12. Instrument type: <u>YSI ProDSS</u> | | | |
| 3. Sampling Equip. Used <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> | | | |
| 4. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> | | Calibration Time: <u>LAB</u> | | | |
| 5. Sample Rate (mL/min) <u>300</u> | | <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><u>Std.</u></td> <td style="width:33%;"><u>Reading</u></td> <td style="width:33%;"><u>Adjust.</u></td> </tr> </table> | <u>Std.</u> | <u>Reading</u> | <u>Adjust.</u> |
| <u>Std.</u> | <u>Reading</u> | <u>Adjust.</u> | | | |
| 6. Sample Appearance: | 10. Other Information: | pH | | | |
| Turbidity <u>None</u> | | Conduct. | | | |
| Color <u>Clear</u> | | ORP | | | |
| Odor <u>None</u> | | D.O. | | | |
| | | Turbidity | | | |

See attached Lab Form for Calibration Data



Calibrated at Geotech's Texas service center

1600 North I 35E Suite 114

Carrollton, TX 75006

(800) 276-5325 Fax: (972) 245-8889

YSI Pro DSS Calibration Certificate

Unit Number: 7133

Calibration Date 8/25/2022

Serial Number: 20J102920

Technician: Isaiah Lastra-Gonzale

Installed Probes

<input checked="" type="checkbox"/> Conductivity	<input checked="" type="checkbox"/> Display is clear, and free of damage	Cable Length	10M	pH/ORP Serial #	20K100843
<input checked="" type="checkbox"/> PH/ORP	<input checked="" type="checkbox"/> Cable and accessories are free of damage	Cable Lot #	20J101926	DO Probe Serial #	20J104129
<input checked="" type="checkbox"/> DO	<input checked="" type="checkbox"/> Firmware version is up to date.	Cond Probe Lot #	20J104279	Turb Probe Serial #	20H103828
<input checked="" type="checkbox"/> TURB	Display Battery 99 % Pass	Bath Temp	21.9 °C		
	Cable Flex Test: Pass	Meter Temp	21.9 °C		
		Variance	0.00	Pass	

Cond		
Calibration	Reading	Pass
1.413 mS	1.413 mS	Pass
Buffer Lot #	Exp. Date	Pass
1GI058	9/22	Pass

pH							
Point Test	Calibration	Reading	mV	Slope	Buffer Lot #	Exp. Date	Pass
2 Point	pH 7.00	pH 7.00	-30.9 mV			4/23	Pass
	pH 4.00	pH 4.00	135 mV	165.9	Pass	1GD680	4/23

ORP			
Calibration	Reading	Pass	
220 mV	220 mV	Pass	
Buffer Lot #	Exp. Date	Pass	
2GA770	8/23	Pass	

Turbidity									
Zero	Reading	Variance	Pass	Cal	Reading	Variance	Pass	Buffer Lot #	Exp. Date
0 ntu	0 ntu	0 ntu	Pass	124 ntu	124 ntu	0.0%	Pass	21K21370185	10/22

DO						
Barometer	Calibration	Reading	Variance	Pass	Test Fluid	
749.5 mmHg	98.6 %	98.6 %	0.0%	Pass	Water Saturated Air	
Time:	Min.	Sec.	Reading	Pass	Nitrogen Lot #	
	2	0	1 %	Pass		

Geotech Environmental Equipment, Inc. takes pride in ensuring this instrument is tested to function as specified by the manufacturer and was calibrated in accordance to manufacturer specifications. All calibration standards used are NIST traceable. With the provided lot numbers we can provide NIST documents on request. Call us at (800) 833-7958 and we will be glad to help.

Sampler: WILL NICHOLSON / JONATHAN THOMPSON Date: 12/12 - 12/13/2022
 Equipment: Geotech 100' Decontamination: Alconox with DI Rinse

Well	Water Level below TOC	Bottom of Casing	Prevoius Water Level Below TOC (07/12/2022)	Prevoius Water Level Below TOC (07/12/2021)	Notes
AP PZ-1	7.66	-	9.75	5.36	
AP PZ-2	20.45	-	19.33	17.07	CHANGE LOCK
AP PZ-3	9.55	-	8.44	4.76	
AP PZ-4	16.22	-	17.72	14.03	
AP MW-1	20.99	-	20.18	13.03	
AP MW-1D	21.58	43.02	20.82	14.48	
AP MW-2	16.68	-	17.4	12.65	
AP MW-3	21.55	43.56	20.81	12.59	
AP MW-4	23.06	52.98	23.5	14.69	
AP MW-5	24.42	43.14	24.82	14.47	
AP MW-6	22.17	-	22.65	17.03	
SSP AP MW-1	10.84	43.25	10.31	7.71	
SSP MW-1	17.73	-	17.24	13.95	
SSP MW-2	24.74	47.08	24.96	23.02	
SSP MW-3	28.08	48.36	28.66	27.12	
SSP MW-4	25.48	51.58	25.8	24.48	
SFL MW-2	11.04	23.82	10.51	10.38	
SFL MW-3	17.19	28.36	16.74	17.92	
SFL MW-4	15.35	43.06	15.13	14.78	
SFL MW-5	16.14	24.43	15.88	16.08	
SFL MW-6	18.37	23.15	18.81	19	
SFL MW-7	14.41	58.19	15.4	13.22	
MNW-11	20.16	-	20.64	20.7	
MNW-15	5.86	27.26	5.4	4.88	
MNW-16	14.88	-	13.89	12.5	
MNW-17	29.55	29.55	37.12	29.36	
MNW-18	9.56	51.05	9.69	8.7	

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
MW Identification: SFL MW-2	Date/Time: 12/12/22 1320
Sample Number: 3	PID Readings: N/A
Weather Conditions: 64°F CLOUDY 10 MPH	
Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | | | |
|--------------------------------|-----------------|---------------------------|-----------------|
| 1. Survey Mark Present: | <u>Yes</u> / No | 5. Standing/Ponded Water: | Yes / <u>No</u> |
| 2. Collision/Vandalism Damage: | Yes / <u>No</u> | 6. Frost Heaving: | Yes / <u>No</u> |
| 3. Casing Degradation: | Yes / <u>No</u> | 7. Lock in Place: | <u>Yes</u> / No |
| 4. Well Subsidence: | Yes / <u>No</u> | | |

Ground Water Measurements/Purge data:


- | | | | |
|--|----------------------|-----------------------------------|-----------------------------|
| 1. Static Water Level (±0.01 feet [ft.]) | <u>11.04</u> | 7. Purge Rate (mL/min) | <u>300</u> |
| 2. Intake Depth (±0.01 ft.) | <u>20</u> | 8. Water Level Measuring Equip. | <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) | <u>23.82</u> | 9. Purge Equipment Used | <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) | <u>2</u> | 10. Dedicated? (Yes/No) | Yes / <u>No</u> |
| 5. Actual Volume of Water Purged (mL) | <u>4500</u> | 11. Immiscible layer observed | Yes / <u>No</u> |
| 6. Purge Water Characteristics: | | 12. Thickness of immiscible layer | <u>N/A</u> |
| Odor <u>NONE</u> | Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) | AIR / NITROGEN / <u>N/A</u> |
| Color <u>CLEAR</u> | | | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1322	-	22.5	9170	67.0	1.65	3.41	6.34	11.70	
1325	900	22.7	8821	38.5	0.82	3.68	6.45	12.19	
1328	1600	22.6	8767	46.3	0.61	4.29	6.45	12.47	
1331	2700	22.6	8800	49.5	0.53	3.93	6.44	12.56	
1334	3600	22.6	8800	51.5	0.49	3.39	6.44	12.64	
1337	4500	22.6	8611	54.7	0.45	4.06	6.42	12.66	

- | | | | | | | |
|-------------------------------|-------------------------|------------------------------|-------------------------|--|-------------------------|---------|
| 1. Well evacuated to dryness? | Yes / <u>No</u> | 7. Time to recharge (min): | <u>N/A</u> | 11. Decontamination Procedures: | <u>Alconox/DI Rinse</u> | |
| 2. Sample Filtered? | Yes / <u>No</u> | 8. Sample Time: | <u>1340</u> | 12. Instrument type: <u>YSI ProDSS</u> | | |
| 3. Sampling Equip. Used | <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. | <u>See Attached COC</u> | Calibration Date: | <u>LAB</u> | |
| 4. Drive Gas (Air/Nitrogen) | <u>AIR/NITROGEN/N/A</u> | | | Calibration Time: | <u>LAB</u> | |
| 5. Sample Rate (mL/min) | <u>300</u> | | | Std. | Reading | Adjust. |
| 6. Sample Appearance: | | 10. Other Information: | | pH | | |
| Turbidity | <u>LOW</u> | | | Conduct. | | |
| Color | <u>CLEAR</u> | | | ORP | | |
| Odor | <u>NONE</u> | | | D.O. | | |
| | | | | Turbidity | | |
| | | | | | | |

See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
	MW Identification: SFL MW-3	Date/Time: 12/2/22 1600
	Sample Number: 6	PID Readings: N/A
	Weather Conditions: 68° F CLOUDY 10 MPH	
	Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>17.19</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>20.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>28.36</u> | 9. Purge Equipment Used <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>4500</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>None</u> Turbidity <u>Low</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>Clear</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1603	-	21.2	5684	98.9	4.10	6.74	3.65	17.44	
1606	900	22.2	5864	198.1	0.57	4.64	3.47	17.53	
1609	1800	22.2	5861	242.9	0.31	3.97	3.50	17.57	
1612	2700	22.2	5860	265.5	0.27	5.02	3.51	17.59	
1615	3600	22.2	5858	287.9	0.24	3.71	3.51	17.60	
1616	4500	22.2	5858	303.6	0.22	3.02	3.51	17.62	

- | | | |
|---|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>—</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>16:21</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>Peristaltic</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | <u>Std.</u> <u>Reading</u> <u>Adjust.</u> |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity <u>Low</u> | | Conduct. |
| Color <u>Not Clear</u> | | ORP |
| Odor <u>None</u> | | D.O. |
| | | Turbidity |

See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
	MW Identification: SFL MW-4	Date/Time: 12/12/22 1300
	Sample Number: 5	PID Readings: N/A
	Weather Conditions: 68°F CLOUDY 8 MPH	
	Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>15.35</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>20.00</u> | 8. Water Level Measuring Equip. <u>Geotech 100</u> |
| 3. Bottom of casing (±0.01 ft.) <u>43.06</u> | 9. Purge Equipment Used <u>Peristaltic</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>4500</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>NA</u> |
| Odor <u>None</u> Turbidity <u>None</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>Clear</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
13:22	0	22.1	775	124.2	4.35	3.96	6.36	15.99	
13:25	900	22.6	649	2.7	1.51	4.11	6.80	17.40	16.40
15:28	1800	22.7	558	-144.4	2.69	5.14	6.92	16.75	
15:31	2700	22.6	565	-144.0	0.59	3.17	6.93	16.94	
15:34	3600	22.5	569	-148.1	0.49	2.41	6.92	17.09	
15:37	4500	22.4	571	-143.7	0.43	2.22	6.91	17.15	

- | | | |
|---|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1540</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>AIR / NITROGEN / N/A</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity <u>LOW</u> | | Conduct. |
| Color <u>CLEAR</u> | | ORP |
| Odor <u>SULFUR</u> | | D.O. |
| | | Turbidity |

FB-1 HERE
@ ~~1540~~ 1500

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
	MW Identification: SFL MW-5	Date/Time: 12/12/22 1400
	Sample Number: 4	PID Readings: N/A
	Weather Conditions: 68°F CLOUDY 10 MPH	
	Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>16.14</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>23</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>24.43</u> | 9. Purge Equipment Used <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) _____ | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: _____ | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>NONE</u> Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1400	-	22.3	10476	-41.8	0.95	1.84	4.89	16.99	
1403	900	22.4	10474	16.9	0.51	6.51	4.50	17.14	
1406	1800	22.4	10402	79.1	0.33	4.35	4.50	17.47	
1409	2700	22.4	10395	113.9	0.29	4.16	4.48	17.84	
1412	3600	22.5	10398	125.1	0.28	3.46	4.45	17.96	
1415	4500	22.5	10393	138.8	0.31	3.28	4.45	18.05	

- | | | |
|---|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1415</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR/NITROGEN/N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | <u>Std.</u> <u>Reading</u> <u>Adjust.</u> |
| 6. Sample Appearance: _____ | 10. Other Information: _____ | pH _____ |
| Turbidity <u>LOW</u> | | Conduct. _____ |
| Color <u>CLEAR</u> | | ORP _____ |
| Odor <u>NONE</u> | | D.O. _____ |
| | | Turbidity _____ |

DUP-1 HERE @ 1730

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
	MW Identification: MED SFC MW-6	Date/Time: 12/12/2022 1235
	Sample Number: 2	PID Readings: N/A
	Weather Conditions: 64°F CLOUDY 10 MPH	
	Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>18.37</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>23.00</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>2.00 23.15</u> | 9. Purge Equipment Used <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>4500</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>Sulfur</u> Turbidity <u>Cloudy</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>Brown</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1235	0	23.1	20890	155.1	1.50	37.04	3.52	18.37	
1238	900	23.4	20617	155.3	0.46	7.70	3.61	18.09	
1241	1800	23.4	20460	132.5	0.37	5.62	3.63	19.56	
1244	2700	23.5	19950	118.4	0.35	6.96	3.59	19.87	
1247	3600	23.5	19006	117.6	0.34	3.99	3.82	19.87	
1250	4500	23.6	19536	116.6	0.29	3.49	3.89	20.12	

- | | | |
|---|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1230</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | <u>Std.</u> <u>Reading</u> <u>Adjust.</u> |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity <u>LOW</u> | | Conduct. |
| Color <u>CLEAR</u> | | ORP |
| Odor <u>SLIGHT SULFUR</u> | | D.O. |
| | | Turbidity |

See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
	MW Identification: SFL MW7	Date/Time: 12/12/22 1645
	Sample Number: 7	PID Readings: N/A
	Weather Conditions: Cloudy 66°F 10mph SE	
	Wellhead Inspection: Broken Lid	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Stick up lid is broken.


Ground Water Measurements/Purge data:

- | | |
|---|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>14.41</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>2500</u> | 8. Water Level Measuring Equip. <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) <u>58.19</u> | 9. Purge Equipment Used <u>Peristaltic</u> |
| 4. Casing Diameter (inches) <u>2</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>4500</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>NA</u> |
| Odor <u>None</u> Turbidity <u>Low</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>Clear</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
16:44	0	22.1	6432	58.4	1.46	1.24	6.27	14.88	
16:47	900	22.3	6619	-107.7	0.52	1.67	6.58	15.23	
16:50	1800	22.3	6760	-127.1	0.35	1.82	6.64	15.42	
16:53	2700	22.3	6855	-123.9	0.28	1.34	6.57	15.55	
16:56	3600	22.3	6947	-108.8	0.24	1.57	6.48	15.65	
16:59	4500	22.2	6996	-84.6	0.23	1.39	6.43	15.67	

- | | | |
|---|--|--|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>17:02</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>Peristaltic</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: | 10. Other Information: _____ | pH _____ |
| Turbidity <u>LOW</u> | | Conduct. <u>See attached Lab Form for Calibration Data</u> |
| Color <u>CLEAR</u> | | ORP _____ |
| Odor <u>NONE</u> | | D.O. _____ |
| | | Turbidity _____ |

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
	MW Identification: MNW-15	Date/Time: 12/12/22 1715
	Sample Number: 0	PID Readings: N/A
	Weather Conditions: Cloudy 66°F 12 mph East	
	Wellhead Inspection: ANT INFESTATION	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:


- | | |
|---|---|
| 1. Static Water Level (±0.01 feet [ft.]): <u>5.86</u> | 7. Purge Rate (mL/min): <u>300</u> |
| 2. Intake Depth (±0.01 ft.): <u>15</u> | 8. Water Level Measuring Equip. <u>Geo Tech</u> |
| 3. Bottom of casing (±0.01 ft.): <u>27.26</u> | 9. Purge Equipment Used: <u>Peristaltic</u> |
| 4. Casing Diameter (inches): <u>2</u> | 10. Dedicated? (Yes/No): <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL): <u>4500</u> | 11. Immiscible layer observed: <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer: <u>NA</u> |
| Odor: <u>None</u> Turbidity: <u>Low</u> | 13. Drive Gas (Air/Nitrogen): <u>AIR / NITROGEN / N/A</u> |
| Color: <u>Clear</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
17:23	0	22.6	4128	172.2	4.16	2.55	3.25	6.26	
17:26	900	23.3	4071	347.1	1.00	2.07	3.22	6.40	
17:29	1800	23.4	4053	322.7	0.42	2.55	3.35	6.46	
17:32	2700	23.3	4049	312.5	0.25	2.29	3.37	6.46	
17:35	3600	23.3	4082	302.8	0.20	1.95	3.35	6.46	
17:38	4500	23.2	4096	300.3	0.18	2.25	3.34	6.46	

- | | | |
|--|---|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u> </u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>17:40</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used: <u>Peristaltic</u> | 9. Parameter/Container/Pres.: <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen): <u>AIR / NITROGEN / N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min): <u>300</u> | | <u>Std.</u> <u>Reading</u> <u>Adjust.</u> |
| 6. Sample Appearance: | 10. Other Information: <u> </u> | pH: <u> </u> |
| Turbidity: <u>LOW</u> | | Conduct.: <u> </u> |
| Color: <u>CLEAR</u> | | ORP: <u> </u> |
| Odor: <u>NONE</u> | | D.O.: <u> </u> |
| | | Turbidity: <u> </u> |

See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet

	Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
	MW Identification: MWW-1B	Date/Time: 12/12/2022 1130
	Sample Number: 1	PID Readings: N/A
	Weather Conditions: 65°F CLOUDY 10 MPH	
	Wellhead Inspection: NO COMMENTS	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|--|--|
| 1. Static Water Level (±0.01 feet [ft.]) <u>9.56</u> | 7. Purge Rate (mL/min) <u>300</u> |
| 2. Intake Depth (±0.01 ft.) <u>20</u> | 8. Water Level Measuring Equip. <u>GEOTECH 100</u> |
| 3. Bottom of casing (±0.01 ft.) <u>51.05</u> | 9. Purge Equipment Used <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) <u>4</u> | 10. Dedicated? (Yes/No) <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) <u>4500</u> | 11. Immiscible layer observed <u>Yes / No</u> |
| 6. Purge Water Characteristics: | 12. Thickness of immiscible layer <u>N/A</u> |
| Odor <u>NONE</u> Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1139	-	21.5	2167	172.1	5.63	1.50	7.20	9.92	
1142	900	21.4	2173	120.8	5.34	1.06	7.23	10.18	
1145	1800	21.4	2174	119.5	5.30	1.12	7.26	10.72	
1148	2700	21.4	2174	119.4	5.29	1.40	7.26	11.02	
1151	3600	21.4	2175	119.4	5.28	1.49	7.27	11.41	
1155	4500	21.3	2173	119.9	5.24	2.83	7.27	11.69	

- | | | |
|---|--|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>1155</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) <u>AIR / NITROGEN / N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min) <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: | 10. Other Information: _____ | pH _____ |
| Turbidity <u>LOW</u> | | Conduct. _____ |
| Color <u>CLEAR</u> | | ORP _____ |
| Odor <u>NONE</u> | | D.O _____ |
| | | Turbidity _____ |

See attached Lab Form for Calibration Data

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
MW Identification: SSP/AP MW-1	Date/Time: 12/13/22 0730
Sample Number: 9	PID Readings: N/A
Weather Conditions: 65° CLOUDY 12 MPH	
Wellhead Inspection: NO LOCK	

Visual Inspection:

- | | | | |
|--------------------------------|-----------------|---------------------------|-----------------|
| 1. Survey Mark Present: | <u>Yes / No</u> | 5. Standing/Ponded Water: | <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: | <u>Yes / No</u> | 6. Frost Heaving: | <u>Yes / No</u> |
| 3. Casing Degradation: | <u>Yes / No</u> | 7. Lock in Place: | <u>Yes / No</u> |
| 4. Well Subsidence: | <u>Yes / No</u> | | |

Ground Water Measurements/Purge data:

- | | | | |
|--|----------------------|-----------------------------------|-----------------------------|
| 1. Static Water Level (±0.01 feet [ft.]) | <u>10.84</u> | 7. Purge Rate (mL/min) | <u>300</u> |
| 2. Intake Depth (±0.01 ft.) | <u>25</u> | 8. Water Level Measuring Equip. | <u>PERISTALTIC</u> |
| 3. Bottom of casing (±0.01 ft.) | <u>43.25</u> | 9. Purge Equipment Used | <u>GEOTECH</u> |
| 4. Casing Diameter (inches) | <u>2</u> | 10. Dedicated? (Yes/No) | <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) | <u>4500</u> | 11. Immiscible layer observed | <u>Yes / No</u> |
| 6. Purge Water Characteristics: | | 12. Thickness of immiscible layer | <u>N/A</u> |
| Odor <u>NONE</u> | Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) | <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | | | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
0734	-	22.3	8629	157.1	7.64	12.23	5.46	11.40	
0737	900	22.3	8622	146.5	0.70	6.01	5.57	11.86	
0740	1800	22.3	8635	174.6	0.35	3.48	5.61	12.67	
0743	2700	22.3	8638	118.0	0.29	4.84	5.62	13.06	
0746	3600	22.3	8871	95.6	0.31	6.12	5.61	13.35	
0749	4500	22.3	8906	42.5	0.29	7.61	5.60	13.65	

- | | | | | | | |
|-------------------------------|-----------------------------|------------------------------|-------------------------|---------------------------------|---|---------|
| 1. Well evacuated to dryness? | <u>Yes / No</u> | 7. Time to recharge (min): | <u>N/A</u> | 11. Decontamination Procedures: | <u>Alconox/DI Rinse</u> | |
| 2. Sample Filtered? | <u>Yes / No</u> | 8. Sample Time: | <u>0730</u> | 12. Instrument type: YSI ProDSS | | |
| 3. Sampling Equip. Used | <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. | <u>See Attached COC</u> | Calibration Date: | <u>LAB</u> | |
| 4. Drive Gas (Air/Nitrogen) | <u>AIR / NITROGEN / N/A</u> | 10. Other Information: | | Calibration Time: | <u>LAB</u> | |
| 5. Sample Rate (mL/min) | <u>300</u> | | | Std. | Reading | Adjust. |
| 6. Sample Appearance: | | | | pH | | |
| Turbidity | <u>LOW</u> | | | Conduct. | <u>See attached Lab Form for Calibration Data</u> | |
| Color | <u>CLEAR</u> | | | ORP | | |
| Odor | <u>NONE</u> | | | D.O. | | |
| | | | | Turbidity | | |

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
MW Identification: SSP MW-2	Date/Time: 12/13/2022 0950
Sample Number: 12	PID Readings: N/A
Weather Conditions: 74° F CLOUDY 15 MPH	
Wellhead Inspection: NO COMMENT	

Visual Inspection:

1. Survey Mark Present:	<u>Yes</u> / No	5. Standing/Ponded Water:	Yes / <u>No</u>
2. Collision/Vandalism Damage:	Yes / <u>No</u>	6. Frost Heaving:	Yes / <u>No</u>
3. Casing Degradation:	Yes / <u>No</u>	7. Lock in Place:	<u>Yes</u> / No
4. Well Subsidence:	Yes / <u>No</u>		

Ground Water Measurements/Purge data:

1. Static Water Level (±0.01 feet [ft.])	<u>24.74</u>	7. Purge Rate (mL/min)	<u>300</u>
2. Intake Depth (±0.01 ft.)	<u>40</u>	8. Water Level Measuring Equip.	<u>GEOTECH</u>
3. Bottom of casing (±0.01 ft.)	<u>47.08</u>	9. Purge Equipment Used	<u>BLADDER</u>
4. Casing Diameter (inches)	<u>2</u>	10. Dedicated? (Yes/No)	Yes / <u>No</u>
5. Actual Volume of Water Purged (mL)	<u>4500</u>	11. Immiscible layer observed	Yes / <u>No</u>
6. Purge Water Characteristics:		12. Thickness of immiscible layer	<u>N/A</u>
Odor <u>NONE</u>	Turbidity <u>LOW</u>	13. Drive Gas (Air/Nitrogen)	<u>AIR</u> / NITROGEN / N/A
Color <u>CLEAR</u>			


Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1000	-	22.6	9401	198.5	2.21	4.52	4.61	25.40	
1003	900	22.2	9603	188.7	0.72	3.27	4.61	25.78	
1006	1800	22.2	9623	186.7	0.48	3.37	4.60	26.32	
1009	2700	22.2	9637	186.1	0.42	3.07	4.60	26.59	
1012	3600	22.2	9635	186.7	0.39	3.33	4.60	27.31	
1015	4500	22.0	9631	187.5	0.37	3.23	4.60	27.70	

1. Well evacuated to dryness?	Yes / <u>No</u>	7. Time to recharge (min):	<u>N/A</u>	11. Decontamination Procedures:	<u>Alconox/DI Rinse</u>	
2. Sample Filtered?	Yes / <u>No</u>	8. Sample Time:	<u>1015</u>	12. Instrument type: <u>YSI ProDSS</u>		
3. Sampling Equip. Used	<u>BLADDER</u>	9. Parameter/Container/Pres.	<u>See Attached COC</u>	Calibration Date:	<u>LAB</u>	
4. Drive Gas (Air/Nitrogen)	<u>AIR/NITROGEN/N/A</u>			Calibration Time:	<u>LAB</u>	
5. Sample Rate (mL/min)	<u>300</u>			Std.	Reading	Adjust.
6. Sample Appearance:		10. Other Information:		pH		
Turbidity	<u>LOW</u>			Conduct.	<u>See attached Lab Form for Calibration Data</u>	
Color	<u>CLEAR</u>			ORP		
Odor	<u>NONE</u>			D.O.		
				Turbidity		

EQ-1 HERE @ 1300

Low Stress Groundwater Sampling Data Sheet

4

	Facility Name: <u>Gibbons Creek Steam Electric Station</u>	Sampler Name(s): <u>Will Nicholson/Jonathan Thompson</u>
	MW Identification: <u>SSP MW-3</u>	Date/Time: <u>12/13/22 0900</u>
	Sample Number: <u>11</u>	PID Readings: <u>N/A</u>
	Weather Conditions: <u>68° F CLOUDY 12 MPH</u>	
	Wellhead Inspection: <u>UNLOCKED</u>	

Visual Inspection:

- | | |
|--|---|
| 1. Survey Mark Present: <u>Yes / No</u> | 5. Standing/Ponded Water: <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: <u>Yes / No</u> | 6. Frost Heaving: <u>Yes / No</u> |
| 3. Casing Degradation: <u>Yes / No</u> | 7. Lock in Place: <u>Yes / No</u> |
| 4. Well Subsidence: <u>Yes / No</u> | |

Ground Water Measurements/Purge data:

- | | |
|--|---|
| 1. Static Water Level (±0.01 feet [ft.]): <u>28.08</u> | 7. Purge Rate (mL/min): <u>300</u> |
| 2. Intake Depth (±0.01 ft.): <u>40</u> | 8. Water Level Measuring Equip.: <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.): <u>48.36</u> | 9. Purge Equipment Used: <u>BLADDER</u> |
| 4. Casing Diameter (inches): <u>2</u> | 10. Dedicated? (Yes/No): <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL): <u>7200</u> | 11. Immiscible layer observed: <u>Yes / No</u> |
| 6. Purge Water Characteristics: <u>HIGH → LOW/MSD</u> | 12. Thickness of immiscible layer: <u>N/A</u> |
| Odor: <u>SLIGHT SULFUR</u> | 13. Drive Gas (Air/Nitrogen): <u>AIR / NITROGEN / N/A</u> |
| Color: <u>BLACK → THEN CLEAR → SLIGHT BROW</u> | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
0908	1800	22.7	6747	121.9	1.73	9.30	4.62	29.10	
0909	2700	22.7	6974	173.3	0.77	9.60	4.41	29.16	
0912	3600	22.7	7372	202.0	0.46	21.82	4.22	29.38	
0915	4500	22.7	7465	179.7	0.41	25.38	4.19	29.43	
0916	5400	22.7	7605	128.7	0.36	30.21	4.15	29.48	
0921	6300	22.7	7640	98.5	0.33	39.15	4.16	29.52	
0924	7200	22.7	7669	80.7	0.30	38.92	4.17	29.58	

- | | | |
|--|---|---|
| 1. Well evacuated to dryness? <u>Yes / No</u> | 7. Time to recharge (min): <u>N/A</u> | 11. Decontamination Procedures: <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? <u>Yes / No</u> | 8. Sample Time: <u>0925</u> | 12. Instrument type: <u>YSI ProDSS</u> |
| 3. Sampling Equip. Used: <u>BLADDER</u> | 9. Parameter/Container/Pres.: <u>See Attached COC</u> | Calibration Date: <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen): <u>AIR / NITROGEN / N/A</u> | | Calibration Time: <u>LAB</u> |
| 5. Sample Rate (mL/min): <u>300</u> | | Std. Reading Adjust. |
| 6. Sample Appearance: | 10. Other Information: | pH |
| Turbidity: <u>LOW</u> | | Conduct. |
| Color: <u>TAN</u> | | ORP |
| Odor: <u>SULFUR</u> | | D.O. |
| | | Turbidity |

FB-2 HERE @ 0930

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
MW Identification: SSP MW-4	Date/Time: 12/13/22 0815
Sample Number: 10	PID Readings: N/A
Weather Conditions: _____	
Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | | | |
|--------------------------------|-----------------|---------------------------|-----------------|
| 1. Survey Mark Present: | <u>Yes</u> / No | 5. Standing/Ponded Water: | Yes / <u>No</u> |
| 2. Collision/Vandalism Damage: | Yes / <u>No</u> | 6. Frost Heaving: | Yes / <u>No</u> |
| 3. Casing Degradation: | Yes / <u>No</u> | 7. Lock in Place: | <u>Yes</u> / No |
| 4. Well Subsidence: | Yes / <u>No</u> | | |

Ground Water Measurements/Purge data:

- | | | | |
|--|----------------------|-----------------------------------|-----------------------------|
| 1. Static Water Level (±0.01 feet [ft.]) | <u>25.48</u> | 7. Purge Rate (mL/min) | <u>300</u> |
| 2. Intake Depth (±0.01 ft.) | <u>40</u> | 8. Water Level Measuring Equip. | <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) | <u>51.58</u> | 9. Purge Equipment Used | <u>BLADDER</u> |
| 4. Casing Diameter (inches) | <u>2</u> | 10. Dedicated? (Yes/No) | Yes / <u>No</u> |
| 5. Actual Volume of Water Purged (mL) | <u>4500</u> | 11. Immiscible layer observed | Yes / <u>No</u> |
| 6. Purge Water Characteristics: | | 12. Thickness of immiscible layer | <u>N/A</u> |
| Odor <u>SLIGHT SULFUR</u> | Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) | <u>AIR</u> / NITROGEN / N/A |
| Color <u>CLEAR</u> | | | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
<u>0816</u>	<u>-</u>	<u>22.7</u>	<u>5558</u>	<u>-42.9</u>	<u>3.10</u>	<u>2.14</u>	<u>6.12</u>	<u>26.06</u>	
<u>0821</u>	<u>900</u>	<u>22.7</u>	<u>5415</u>	<u>-40.9</u>	<u>0.51</u>	<u>2.59</u>	<u>6.20</u>	<u>27.32</u>	
<u>0824</u>	<u>1800</u>	<u>22.8</u>	<u>5411</u>	<u>-75.9</u>	<u>0.39</u>	<u>1.28</u>	<u>6.23</u>	<u>28.14</u>	
<u>0827</u>	<u>2700</u>	<u>22.8</u>	<u>5409</u>	<u>-78.1</u>	<u>0.37</u>	<u>1.33</u>	<u>6.26</u>	<u>26.98</u>	
<u>0830</u>	<u>3600</u>	<u>22.8</u>	<u>5403</u>	<u>-78.6</u>	<u>0.31</u>	<u>1.20</u>	<u>6.31</u>	<u>30.11</u>	
<u>0833</u>	<u>4500</u>	<u>22.8</u>	<u>5401</u>	<u>-77.8</u>	<u>0.29</u>	<u>0.98</u>	<u>6.31</u>	<u>31.07</u>	

- | | | | | | | |
|-------------------------------|-----------------------------|------------------------------|-------------------------|--|---|---------|
| 1. Well evacuated to dryness? | Yes / <u>No</u> | 7. Time to recharge (min): | <u>N/A</u> | 11. Decontamination Procedures: | <u>Alconox/DI Rinse</u> | |
| 2. Sample Filtered? | Yes / <u>No</u> | 8. Sample Time: | <u>0835</u> | 12. Instrument type: <u>YSI ProDSS</u> | | |
| 3. Sampling Equip. Used | <u>BLADDER</u> | 9. Parameter/Container/Pres. | <u>See Attached COC</u> | Calibration Date: | <u>LAB</u> | |
| 4. Drive Gas (Air/Nitrogen) | <u>AIR / NITROGEN / N/A</u> | | | Calibration Time: | <u>LAB</u> | |
| 5. Sample Rate (mL/min) | <u>300</u> | | | Std. | Reading | Adjust. |
| 6. Sample Appearance: | | 10. Other Information: | | pH | | |
| Turbidity | <u>LOW</u> | | | Conduct. | <u>See attached Lab Form for Calibration Data</u> | |
| Color | <u>CLEAR</u> | | | ORP | | |
| Odor | <u>NONE</u> | | | D.O. | | |
| | | | | Turbidity | | |

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
MW Identification: M AD MW-10	Date/Time: 12/13/22 1135
Sample Number: 14	PID Readings: N/A
Weather Conditions: 76° F LIGHT RAIN 15 MPH	
Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | | | |
|--------------------------------|-----------------|---------------------------|-----------------|
| 1. Survey Mark Present: | Yes / No | 5. Standing/Ponded Water: | Yes / No |
| 2. Collision/Vandalism Damage: | Yes / No | 6. Frost Heaving: | Yes / No |
| 3. Casing Degradation: | Yes / No | 7. Lock in Place: | Yes / No |
| 4. Well Subsidence: | Yes / No | | |

Ground Water Measurements/Purge data:

- | | | | |
|---|-----------------------|------------------------------------|----------------------------------|
| 1. Static Water Level (±0.01 feet [ft.]): | <u>21.58</u> | 7. Purge Rate (mL/min): | <u>300</u> |
| 2. Intake Depth (±0.01 ft.): | <u>25</u> | 8. Water Level Measuring Equip.: | <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.): | <u>43.02</u> | 9. Purge Equipment Used: | <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches): | <u>2</u> | 10. Dedicated? (Yes/No): | Yes / No |
| 5. Actual Volume of Water Purged (mL): | <u>4500</u> | 11. Immiscible layer observed: | Yes / No |
| 6. Purge Water Characteristics: | | 12. Thickness of immiscible layer: | <u>N/A</u> |
| Odor: <u>NONE</u> | Turbidity: <u>LOW</u> | 13. Drive Gas (Air/Nitrogen): | <u>AIR / NITROGEN</u> N/A |
| Color: <u>CLEAR</u> | | | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1139	-	23.2	1355	212.1	2.25	1.16	6.20	21.93	
1142	900	22.7	1329	200.0	0.54	1.24	6.15	21.97	
1145	1800	22.7	1327	193.3	0.37	2.24	6.11	21.96	
1148	2700	22.7	1328	187.5	0.30	1.35	6.11	21.98	
1151	3600	22.6	1328	186.9	0.26	1.77	6.10	21.98	
1154	4500	22.6	1328	177.5	0.23	1.89	6.10	21.99	

- | | | | | | | |
|-------------------------------|-----------------------------|-------------------------------|-------------------------|--|---|---------|
| 1. Well evacuated to dryness? | Yes / No | 7. Time to recharge (min): | <u>N/A</u> | 11. Decontamination Procedures: | <u>Alconox/DI Rinse</u> | |
| 2. Sample Filtered? | Yes / No | 8. Sample Time: | <u>1155</u> | 12. Instrument type: YSI ProDSS | | |
| 3. Sampling Equip. Used: | <u>PERISTALTIC</u> | 9. Parameter/Container/Pres.: | <u>See Attached COC</u> | Calibration Date: | <u>LAB</u> | |
| 4. Drive Gas (Air/Nitrogen): | <u>AIR / NITROGEN / N/A</u> | | | Calibration Time: | <u>LAB</u> | |
| 5. Sample Rate (mL/min): | <u>300</u> | | | Std. | Reading | Adjust. |
| 6. Sample Appearance: | | 10. Other Information: | | pH | | |
| Turbidity: | <u>LOW</u> | | | Conduct. | <u>See attached Lab Form for Calibration Data</u> | |
| Color: | <u>CLEAR</u> | | | ORP | | |
| Odor: | <u>NONE</u> | | | D.O. | | |
| | | | | Turbidity | | |

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
MW Identification: AP MW-3	Date/Time: 12/13/22 1050
Sample Number: 13	PID Readings: N/A
Weather Conditions: 75° F RAIN 10 MPH	
Wellhead Inspection: SOIL SUBSIDENCE	

Visual Inspection:

- | | | | |
|--------------------------------|-----------------|---------------------------|-----------------|
| 1. Survey Mark Present: | <u>Yes / No</u> | 5. Standing/Ponded Water: | <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: | <u>Yes / No</u> | 6. Frost Heaving: | <u>Yes / No</u> |
| 3. Casing Degradation: | <u>Yes / No</u> | 7. Lock in Place: | <u>Yes / No</u> |
| 4. Well Subsidence: | <u>Yes / No</u> | | |

Ground Water Measurements/Purge data:

- | | | | |
|--|----------------------|-----------------------------------|-----------------------------|
| 1. Static Water Level (±0.01 feet [ft.]) | <u>21.55</u> | 7. Purge Rate (mL/min) | <u>300</u> |
| 2. Intake Depth (±0.01 ft.) | <u>25</u> | 8. Water Level Measuring Equip. | <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) | <u>43.56</u> | 9. Purge Equipment Used | <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) | <u>2</u> | 10. Dedicated? (Yes/No) | <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) | <u>5400</u> | 11. Immiscible layer observed | <u>Yes / No</u> |
| 6. Purge Water Characteristics: | | 12. Thickness of immiscible layer | <u>N/A</u> |
| Odor <u>NONE</u> | Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) | <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | | | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1057	-	23.4	7075	172.5	1.06	3.70	5.00	21.56	
1000	900	23.3	1716	213.5	0.49	2.93	4.99	21.65	
1103	1800	23.3	1686	242.2	0.36	2.86	4.98	21.68	
1106	2700	23.3	1661	261.0	0.29	2.54	4.97	21.70	
1109	3600	23.3	1679	277.6	0.26	2.64	4.97	21.72	
1112	4500	23.3	1680	289.3	0.24	3.01	4.96	21.73	
1115	5400	23.3	1682	299.1	0.22	3.16	4.95	21.74	

- | | | | | | |
|-------------------------------|-----------------------------|------------------------------|-------------------------|---------------------------------|---|
| 1. Well evacuated to dryness? | <u>Yes / No</u> | 7. Time to recharge (min): | <u>N/A</u> | 11. Decontamination Procedures: | <u>Alconox/DI Rinse</u> |
| 2. Sample Filtered? | <u>Yes / No</u> | 8. Sample Time: | <u>1115</u> | 12. Instrument type: YSI ProDSS | |
| 3. Sampling Equip. Used | <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. | <u>See Attached COC</u> | Calibration Date: | <u>LAB</u> |
| 4. Drive Gas (Air/Nitrogen) | <u>AIR / NITROGEN / N/A</u> | | | Calibration Time: | <u>LAB</u> |
| 5. Sample Rate (mL/min) | <u>300</u> | | | Std. | <u>Reading</u> <u>Adjust.</u> |
| 6. Sample Appearance: | | 10. Other Information: | | pH | |
| Turbidity | <u>LOW</u> | | | Conduct. | <u>See attached Lab Form for Calibration Data</u> |
| Color | <u>CLEAR</u> | | | ORP | |
| Odor | <u>NONE</u> | | | D.O. | |
| | | | | Turbidity | |

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
MW Identification: AP MW-5	Date/Time: 12/13/22 1215
Sample Number: 15	PID Readings: N/A
Weather Conditions: 77° F RAIN 15 MPH	
Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | | | |
|--------------------------------|-----------------|---------------------------|-----------------|
| 1. Survey Mark Present: | <u>Yes</u> / No | 5. Standing/Ponded Water: | Yes / <u>No</u> |
| 2. Collision/Vandalism Damage: | Yes / <u>No</u> | 6. Frost Heaving: | Yes / <u>No</u> |
| 3. Casing Degradation: | Yes / <u>No</u> | 7. Lock in Place: | <u>Yes</u> / No |
| 4. Well Subsidence: | Yes / <u>No</u> | | |

Ground Water Measurements/Purge data:

- | | | | |
|--|----------------------|-----------------------------------|-----------------------------|
| 1. Static Water Level (±0.01 feet [ft.]) | <u>24.42</u> | 7. Purge Rate (mL/min) | <u>300</u> |
| 2. Intake Depth (±0.01 ft.) | <u>25 30</u> | 8. Water Level Measuring Equip. | <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) | <u>43.14</u> | 9. Purge Equipment Used | <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) | <u>2</u> | 10. Dedicated? (Yes/No) | Yes / <u>No</u> |
| 5. Actual Volume of Water Purged (mL) | <u>4500</u> | 11. Immiscible layer observed | Yes / <u>No</u> |
| 6. Purge Water Characteristics: | | 12. Thickness of immiscible layer | <u>N/A</u> |
| Odor <u>NONE</u> | Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) | <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | | | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1223	-	23.1	2870	364.2	6.43	1.42	3.29	24.61	
1226	900	22.6	3552	479.2	3.98	1.31	3.17	24.71	
1229	1800	22.4	4978	496.8	1.72	1.41	3.20	24.73	
1232	2700	22.4	5439	413.5	0.55	1.91	3.24	24.74	
1235	3600	22.3	5543	358.1	0.32	1.76	3.30	24.76	
1238	4500	22.3	5558	348.4	0.25	2.11	3.80	24.79	

- | | | | | | | |
|-------------------------------|-----------------------------|------------------------------|-------------------------|--|---|---------|
| 1. Well evacuated to dryness? | Yes / <u>No</u> | 7. Time to recharge (min): | <u>N/A</u> | 11. Decontamination Procedures: | <u>Alconox/DI Rinse</u> | |
| 2. Sample Filtered? | Yes / <u>No</u> | 8. Sample Time: | <u>1240</u> | 12. Instrument type: <u>YSI ProDSS</u> | | |
| 3. Sampling Equip. Used | <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. | <u>See Attached COC</u> | Calibration Date: | <u>LAB</u> | |
| 4. Drive Gas (Air/Nitrogen) | <u>AIR / NITROGEN / N/A</u> | | | Calibration Time: | <u>LAB</u> | |
| 5. Sample Rate (mL/min) | <u>300</u> | | | Std. | Reading | Adjust. |
| 6. Sample Appearance: | | 10. Other Information: | | pH | | |
| Turbidity | <u>LOW</u> | | | Conduct. | <u>See attached Lab Form for Calibration Data</u> | |
| Color | <u>CLEAR</u> | | | ORP | | |
| Odor | <u>NONE</u> | | | D.O. | | |
| | | | | Turbidity | | |

Low Stress Groundwater Sampling Data Sheet



Facility Name: Gibbons Creek Steam Electric Station	Sampler Name(s): Will Nicholson/Jonathan Thompson
MW Identification: AP MW-4	Date/Time: 12/12/22 1255
Sample Number: 16	PID Readings: N/A
Weather Conditions: 75° F LIGHT RAIN 12 MPH	
Wellhead Inspection: NO COMMENT	

Visual Inspection:

- | | | | |
|--------------------------------|-----------------|---------------------------|-----------------|
| 1. Survey Mark Present: | <u>Yes / No</u> | 5. Standing/Ponded Water: | <u>Yes / No</u> |
| 2. Collision/Vandalism Damage: | <u>Yes / No</u> | 6. Frost Heaving: | <u>Yes / No</u> |
| 3. Casing Degradation: | <u>Yes / No</u> | 7. Lock in Place: | <u>Yes / No</u> |
| 4. Well Subsidence: | <u>Yes / No</u> | | |

Ground Water Measurements/Purge data:

- | | | | |
|--|----------------------|-----------------------------------|-----------------------------|
| 1. Static Water Level (±0.01 feet [ft.]) | <u>23.06</u> | 7. Purge Rate (mL/min) | <u>300</u> |
| 2. Intake Depth (±0.01 ft.) | <u>30</u> | 8. Water Level Measuring Equip. | <u>GEOTECH</u> |
| 3. Bottom of casing (±0.01 ft.) | <u>52.98</u> | 9. Purge Equipment Used | <u>PERISTALTIC</u> |
| 4. Casing Diameter (inches) | <u>2</u> | 10. Dedicated? (Yes/No) | <u>Yes / No</u> |
| 5. Actual Volume of Water Purged (mL) | <u>5400</u> | 11. Immiscible layer observed | <u>Yes / No</u> |
| 6. Purge Water Characteristics: | | 12. Thickness of immiscible layer | <u>N/A</u> |
| Odor <u>NONE</u> | Turbidity <u>LOW</u> | 13. Drive Gas (Air/Nitrogen) | <u>AIR / NITROGEN / N/A</u> |
| Color <u>CLEAR</u> | | | |

Time	Volume Purged (mL)	Temp (°C)	Conductivity (µs/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	pH	Drawdown	Notes
1301	-	22.1	2196	231.9	2.22	2.10	6.15	23.01	
1304	900	21.6	2024	191.2	0.54	1.37	6.21	23.12	
1307	1800	21.5	2012	190.4	0.40	1.02	6.09	23.18	
1310	2700	21.5	2157	22.0	0.31	1.29	5.90	23.23	
1313	3600	21.5	2298	34.9	0.27	1.17	5.86	23.26	
1816	4500	21.4	2316	24.4	0.24	1.83	5.85	23.29	
1319	5400	21.4	2319	18.2	0.21	3.51	5.65	23.33	

- | | | | | | | |
|-------------------------------|-----------------------------|------------------------------|-------------------------|---------------------------------|---|---------|
| 1. Well evacuated to dryness? | <u>Yes / No</u> | 7. Time to recharge (min): | <u>N/A</u> | 11. Decontamination Procedures: | <u>Alconox/DI Rinse</u> | |
| 2. Sample Filtered? | <u>Yes / No</u> | 8. Sample Time: | <u>1320</u> | 12. Instrument type: YSI ProDSS | | |
| 3. Sampling Equip. Used | <u>PERISTALTIC</u> | 9. Parameter/Container/Pres. | <u>See Attached COC</u> | Calibration Date: | <u>LAB</u> | |
| 4. Drive Gas (Air/Nitrogen) | <u>AIR / NITROGEN / N/A</u> | | | Calibration Time: | <u>LAB</u> | |
| 5. Sample Rate (mL/min) | <u>300</u> | | | Std. | Reading | Adjust. |
| 6. Sample Appearance: | | 10. Other Information: | | pH | | |
| Turbidity | <u>LOW</u> | | | Conduct. | <u>See attached Lab Form for Calibration Data</u> | |
| Color | <u>CLEAR</u> | | | ORP | | |
| Odor | <u>NONE</u> | | | D.O. | | |
| | | | | Turbidity | | |



Calibrated at Geotech's Texas service center

1600 North I 35E Suite 114
Carrollton, TX 75006
(800) 276-5325 Fax: (972) 245-8889

YSI Pro DSS Calibration Certificate

Unit Number: 7127

Calibration Date 12/8/2022

Serial Number: 20F161183

Technician: Isaiah Lastra-Gonzale

Installed Probes

- Display is clear, and free of damage
- Conductivity
- PH/ORP
- DO
- TURB
- Cable and accessories are free of damage
- Firmware version is up to date.
- Display Battery 90 % **Pass**
- Cable Flex Test: **Pass**

Cable Length	10M	pH/ORP Serial #	21J626964
Cable Lot #	.	DO Probe Serial #	19E103060
Cond Probe Lot #	20J104225	Turb Probe Serial #	20H103765
Bath Temp	21 °C		
Meter Temp	21 °C		
Variance	0.00	Pass	

Cond		
<u>Calibration</u>	<u>Reading</u>	<u>Pass</u>
1.413 mS	1.413 mS	Pass
<u>Buffer Lot #</u>	<u>Exp. Date</u>	<u>Pass</u>
2GH818	8/23	Pass

pH						
<u>Point Test</u>	<u>Calibration</u>	<u>Reading</u>	<u>mV</u>	<u>Slope</u>	<u>Buffer Lot #</u>	<u>Exp. Date</u>
2 Point	pH 7.00	pH 7.00	-20 mV		.	4/23
	pH 4.00	pH 4.00	150 mV	170	Pass	4/23
						Pass

ORP		
<u>Calibration</u>	<u>Reading</u>	<u>Pass</u>
220 mV	220 mV	Pass
<u>Buffer Lot #</u>	<u>Exp. Date</u>	<u>Pass</u>
2GA770	8/23	Pass

Turbidity									
<u>Zero</u>	<u>Reading</u>	<u>Variance</u>	<u>Pass</u>	<u>Cal</u>	<u>Reading</u>	<u>Variance</u>	<u>Pass</u>	<u>Buffer Lot #</u>	<u>Exp. Date</u>
0 ntu	0 ntu	0 ntu	Pass	124 ntu	124 ntu	0.0%	Pass	22122350162	9/23
									Pass

DO					
<u>Barometer</u>	<u>Calibration</u>	<u>Reading</u>	<u>Variance</u>	<u>Pass</u>	<u>Test Fluid</u>
750 mmHg	98.7 %	98.7 %	0.0%	Pass	.
Time:	<u>Min.</u>	<u>Sec.</u>	<u>Reading</u>	<u>Pass</u>	<u>Nitrogen Lot #</u>
	3	0	1 %	Pass	

Geotech Environmental Equipment, Inc. takes pride in ensuring this instrument is tested to function as specified by the manufacturer and was calibrated in accordance to manufacturer specifications. All calibration standards used are NIST traceable. With the provided lot numbers we can provide NIST documents on request. Call us at (800) 833-7958 and we will be glad to help.

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Appendix C

Lab Results Summary Tables

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Sample Location:					MNW-18																		
Compliance Phase:					Background									Initial A.M.			Assessment Monitoring						
Sample Dates:					5/3/2017	5/30/2017	6/13/2017	6/27/2017	7/19/2017	8/23/2017	8/31/2017	9/7/2017	3/20/2018	6/8/2018	1/16/2019	6/26/2019	12/17/2019	6/16/2020	2/9/2021	7/13/2021	7/19/2022	12/12/2022	
Constituent	Unit	MCL	Site BTV	MDL	RDL																		
Field Parameters																							
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Appendix III																							
Boron	mg/L	N/A	0.621	0.0386	0.08	0.45	0.44	0.44	0.43	0.44	0.54	0.44	0.30	-	ND	ND	0.297	-	0.485	0.422	0.0451J	0.358	0.331
Calcium	mg/L	N/A	542	0.127	0.5	301	330	350	394	440	447	444	439	-	396	316	104.0	-	322	299	<0.127	299	139
Chloride	mg/L	N/A	649	71.3	100	547	590	543	534	544	529	521	529	-	491	504	146	-	437	369	383	386	188
Fluoride	mg/L	N/A	0.5	0.26	1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	ND	ND	2.01	ND	0.138	ND	0.120J	0.158J	0.223J	0.105J
pH, Field	SU	N/A	6.02-7.56			7.39	7.16	6.95	6.84	6.68	6.70	6.55	6.47	6.86	6.75	6.94	6.56	7.0	6.4	6.8	6.69	6.89	7.27
Sulfate	mg/L	N/A	2,640	7.56	10	1,470	1,790	1,790	1,960	2,150	2,090	2,120	2,200	-	1,890	1,720	520	-	1,480	1,300	1,430	1,210	648
Total Dissolved Solids	mg/L	N/A	4,930	100	100	3,050	3,460	3,670	3,680	4,050	3,920	4,020	4,070	-	3,730	3,750	1,270	-	3,160	2,080	2,880	2,750	1,560
Appendix IV																							
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	<0.000378	<0.000506	0.00184J
Arsenic	mg/L	0.01	0.00255	0.000313	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.0016	0.0014	0.00255	<0.000313	0.00282	0.00129
Barium	mg/L	2	0.06	0.0016	0.01	0.05	0.05	0.05	0.06	0.06	0.06	0.05	0.05	ND	-	-	-	0.0142	0.0477	0.0467	<0.00160	0.0432	0.00404J
Beryllium	mg/L	0.004	0.001	0.000182	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	0.000184	<0.000182	<0.000274	<0.000274
Cadmium	mg/L	0.005	0.001	0.000217	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	ND	ND	ND	<0.000217	<0.000217	<0.000217	<0.000217
Chromium	mg/L	0.1	0.00617	0.00153	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	0.0	0.00249	<0.00153	<0.00153	<0.00153
Cobalt	mg/L	0.006	0.00226	0.000134	0.0005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	ND	ND	ND	ND	ND	0.000561	0.00226	<0.000134	0.00135	<0.000261
Radium-226/228	pCi/L	10.1	9.82	0.491	5	3.5	3.3	4.8	6.1	5.1	6.700	7.6	7.2	4.65	4.79	3.72	0.47	0.662	4.25	4.610	4.59	4.44	0.999
Fluoride	mg/L	4	0.5	0.26	1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	ND	ND	2.01	ND	0.138	ND	0.12	0.158J	0.223J	0.105J
Lead	mg/L	0.015	0.01	0.000128	0.001	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	ND	ND	ND	ND	ND	ND	<0.000128	<0.000128	0.000183J	<0.000167
Lithium	mg/L	0.552	0.521	0.00339	0.005	0.39	0.41	0.48	0.45	0.44	0.44	0.4	0.36	0.443	0.417	0.403	0.2	0.197	0.365	0.332	<0.00339	0.333	0.213
Mercury	mg/L	0.002	0.0002	0.00013	0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	<0.000130	<0.000130	<0.000130	<0.000130
Molybdenum	mg/L	0.1	0.005	0.00061	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	-	-	-	ND	ND	<0.000610	<0.000610	<0.000610	<0.000610
Selenium	mg/L	0.05	0.005	0.00151	0.005	0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00151	<0.00151	<0.000739	<0.000739
Thallium	mg/L	0.002	0.001	0.000148	0.001	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	ND	ND	ND	ND	ND	ND	<0.000148	<0.000148	<0.000472	<0.000472

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Constituent	Unit	MCL	Site BTV	MDL	RDL	Sample Location: SFL MW-2																			
						Background							Initial A.M.			Assessment Monitoring									
						6/23/2016	8/25/2016	10/19/2016	12/22/2016	2/22/2017	5/3/2017	6/14/2017	8/23/2017	3/20/2018	6/12/2018	1/16/2019	6/26/2019	12/17/2019	6/16/2020	2/9/2021	7/13/2021	7/19/2022	12/12/2022		
Field Parameters																									
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	5.96	6.69	6.5	6.64	5.58	6.55	5.74	5.60	6.42
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,410	1,130	9,940	9,890	1,000	1,080	7,329	11,333	11,362	8,811
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	2.9	1.8	0	54.4	25.7	5.54	9.98	18.43	4.06
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0	3.14	2.59	2.24	0.62	0.23	0.19	0.33	0.55	0.45	
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	23.12	27.29	19.75	29.7	21.5	30.05	19.8	23.9	24.7	22.6	
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	229	197	210	206	158	235	224.0	266.7	313.5	54.7	
Appendix III																									
Boron	mg/L	N/A	0.621	0.0386	0.08	0.52	0.60	0.57	0.54	0.55	0.55	0.51	0.57	-	ND	ND	0.515	-	0.489	0.464	0.552	0.945	0.677		
Calcium	mg/L	N/A	542	0.127	0.5	797	890	944	692	578	806	829	833	-	805	585	937.0	-	944	691	946	945	711		
Chloride	mg/L	N/A	649	71.3	100	2,900	2,810	2,790	2,590	2,480	2,760	2,910	2,910	-	2,650	2,450	3,140	-	3,250	2,100	3,290	3,220	2,330		
Fluoride	mg/L	N/A	0.5	0.26	1	0.3	0.1	0.2	0.3	0.4	0.3	0.3	0.3	ND	ND	3.06	ND	ND	ND	0.190J	0.433J	0.268	0.207		
pH, Field	SU	N/A	6.02-7.56			6.32	5.61	6.40	6.60	6.80	6.19	6.05	6.09	6.25	5.96	6.69	6.54	6.6	5.6	6.6	5.74	5.60	6.42		
Sulfate	mg/L	N/A	2,640	7.56	10	2,010	1,900	1,980	1,770	1,740	1,810	1,890	1,890	-	1,720	1,480	1,720	-	1,760	1,290	1,890	2,000	1,400		
Total Dissolved Solids	mg/L	N/A	4,930	100	100	7,950	7,680	6,480	6,830	6,630	6,720	6,940	7,120	-	8,340	6,090	7,630	-	6,970	5,730	6,760	8,070	5,820		
Appendix IV																									
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	<0.000378	<0.000506	0.000968J	
Arsenic	mg/L	0.01	0.00255	0.000313	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.0015	0.0016	0.00227	0.00147	0.00161	0.0017	
Barium	mg/L	2	0.06	0.0016	0.01	0.03	0.03	0.03	0.02	0.02	0.02	0.03	0.02	ND	-	-	-	0.0235	0.0262	0.0235	0.0265	0.0222	0.0208		
Beryllium	mg/L	0.004	0.001	0.000182	0.001	0.002	0.002	0.002	0.001	<0.001	0.002	0.002	0.003	ND	0.00475	ND	0.00444	0.00247	0.00722	0.00132	0.00626	0.00961	0.00105		
Cadmium	mg/L	0.005	0.001	0.000217	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	0.00	0.00185	0.00277	0.000761J	0.00285	0.00303	0.000649J		
Chromium	mg/L	0.1	0.00617	0.00153	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00153	<0.00153	<0.00153	<0.00153		
Cobalt	mg/L	0.006	0.00226	0.000134	0.0005	0.02	0.02	0.02	0.06	<0.02	<0.02	<0.02	0.02	0.0112	0.0178	0.0103	0.0187	0.0136	0.0214	0.011	0.0159	0.0211	0.0104		
Radium-226/228	pCi/L	10.1	9.82	0.491	5	11	20.6	12.9	6.6	7.1	7.20	8.4	9	7.46	8.33	6.91	7.57	6.53	8.27	8.220	8.1	11.0	6.76		
Fluoride	mg/L	4	0.5	0.26	1	0.3	0.1	0.2	0.3	0.4	0.3	0.3	0.3	ND	ND	3.06	ND	ND	ND	0.190J	0.433J	0.268	0.207		
Lead	mg/L	0.015	0.01	0.000128	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	ND	ND	ND	ND	ND	0.00132	0.000272J	0.00104	0.000199J		
Lithium	mg/L	0.552	0.521	0.00339	0.005	0.51	0.53	0.58	0.6	0.49	0.53	0.59	0.33	0.476	0.378	0.408	0.4	0.449	0.487	0.476	0.475	0.421	0.487		
Mercury	mg/L	0.002	0.0002	0.00013	0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	<0.000130	<0.000130	<0.000130	<0.000130		
Molybdenum	mg/L	0.1	0.005	0.00061	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	-	-	-	ND	ND	0.00202J	<0.000610	<0.000610	0.00155J		
Selenium	mg/L	0.05	0.005	0.00151	0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00151	<0.00151	<0.000739	<0.000739		
Thallium	mg/L	0.002	0.001	0.000148	0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	ND	ND	ND	0.00103	ND	ND	0.000612J	0.000865J	0.00076J	0.000634J		

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Constituent	Unit	MCL	Site BTV	MDL	RDL	SFL MW-3																			
						Background											Initial A.M.			Assessment Monitoring					
						6/23/2016	8/25/2016	10/19/2016	12/22/2016	2/23/2017	5/2/2017	6/14/2017	8/22/2017	3/20/2018	6/12/2018	1/16/2019	6/26/2019	12/17/2019	6/16/2020	2/10/2021	7/13/2021	9/12/2022	12/12/2022		
Field Parameters																									
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.8	3.82	3.9	3.8	3.89	3.45	3.79	3.70	3.73	3.51
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6,980	6,690	7,500	6,420	6,750	6,160	5,292	6,323	2,735	5,858
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40.6	25.8	9.5	1	0.3	0	1.01	4.04	21.02	3.02
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.48	0.97	0.52	0.54	0.06	0.00	0.00	0.55	0.22
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22.49	26.89	19.49	24.47	21.12	27.01	18.7	24.2	23.6	22.2
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	410	407	345	392	3.57	432	335.4	402.0	343.8	303.6
Appendix III																									
Boron	mg/L	N/A	0.621	0.0386	0.08	2.40	2.50	2.87	2.81	2.54	2.49	2.93	2.64	-	3.8	3.06	3.850	-	-	3.67	3.75	3.87	5.00	4.88	
Calcium	mg/L	N/A	542	0.127	0.5	687	666	727	735	628	590	672	587	-	567	520	661.0	-	-	600	599	594	615	617	
Chloride	mg/L	N/A	649	71.3	100	1,560	1,490	1,480	1,480	1,440	1,390	1,440	1,390	-	1,040	1,140	1,090	-	-	1,090	897	946	829	794	
Fluoride	mg/L	N/A	0.5	0.26	1	0.8	0.7	0.5	0.6	0.6	0.6	0.6	0.6	ND	ND	1.49	ND	0.577	0.526	0.479J	0.427J	0.640	0.576		
pH, Field	SU	N/A	6.02-7.56			3.76	3.50	3.80	3.80	3.80	3.67	3.64	3.67	3.83	3.82	3.9	3.82	3.9	3.5	3.8	3.70	3.73	3.51		
Sulfate	mg/L	N/A	2,640	7.56	10	2,220	2,210	2,170	2,240	2,280	2,290	2,380	2,310	-	2,070	2,460	2,100	-	-	2,350	2,280	2,330	2,430	2,260	
Total Dissolved Solids	mg/L	N/A	4,930	100	100	5,940	5,660	5,010	5,640	5,440	5,130	4,710	5,260	-	5,540	5,240	4,480	-	-	5,180	5,040	4,990	4,920	4,760	
Appendix IV																									
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	<0.000378	<0.000506	<0.000506	
Arsenic	mg/L	0.01	0.00255	0.000313	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.0056	0.0032	0.00317	0.00303	0.00610	0.00367	
Barium	mg/L	2	0.06	0.0016	0.01	0.04	0.06	0.05	0.03	0.02	0.03	0.03	0.07	ND	-	-	-	0.0136	0.0131	0.013	0.0133	0.0140	0.0147		
Beryllium	mg/L	0.004	0.001	0.000182	0.001	0.042	0.04	0.034	0.037	0.04	0.034	0.037	0.038	0.0386	0.0308	0.0289	0.0334	0.0357	0.0335	0.0316	0.0315	0.0319	0.0336		
Cadmium	mg/L	0.005	0.001	0.000217	0.001	0.009	0.01	0.008	0.008	0.008	0.008	0.007	0.008	0.00648	0.00641	0.0072	0.01	0.0069	0.0062	0.00587	0.00608	0.00569	0.00552		
Chromium	mg/L	0.1	0.00617	0.00153	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.0024	ND	<0.00153	<0.00153	<0.00153	<0.00153		
Cobalt	mg/L	0.006	0.00226	0.000134	0.0005	0.07	0.07	0.07	0.1	0.07	0.07	0.07	0.07	0.0558	0.0598	0.0614	0.0622	0.0556	0.0598	0.0601	0.0606	0.0530	0.0537		
Radium-226/228	pCi/L	10.1	9.82	0.491	5	8.19	16.6	10	5.8	7.6	6.900	5	6.1	4.4	4.48	4.62	5.43	3.74	3.65	4.220	4.97	5.74	3.04		
Fluoride	mg/L	4	0.5	0.26	1	0.8	0.7	0.5	0.6	0.6	0.6	0.6	0.6	ND	ND	1.49	ND	0.577	0.526	0.479J	0.0185	0.640	0.576		
Lead	mg/L	0.015	0.01	0.000128	0.001	0.02	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.0191	0.0183	0.0183	0.0178	0.0192	0.0206	0.0185	0.29	0.0177	0.0186		
Lithium	mg/L	0.552	0.521	0.00339	0.005	0.4	0.41	0.44	0.47	0.35	0.29	0.4	0.25	0.322	0.263	ND	0.3	0.325	0.296	0.291	0.00144	0.283	0.31		
Mercury	mg/L	0.002	0.0002	0.00013	0.0002	0.003	0.003	0.003	0.003	0.002	0.002	0.001	0.002	0.00182	0.00162	0.00176	0.00338	2.73	0.00191	0.00204	<0.000610	0.00129	0.00192		
Molybdenum	mg/L	0.1	0.005	0.00061	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	-	-	-	ND	ND	<0.000610	<0.00151	<0.000610	<0.000610		
Selenium	mg/L	0.05	0.005	0.00151	0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.0	ND	<0.00151	0.427J	0.0410	0.00117J		
Thallium	mg/L	0.002	0.001	0.000148	0.001	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.00549	0.00552	0.00605	0.0045	0.00634	0.00566	0.00556	0.00538	0.00581	0.00568		

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Sample Location:					SFL MW-4																		
Compliance Phase:					Background								Initial A.M.				Assessment Monitoring						
Sample Dates:					6/23/2016	8/25/2016	10/19/2016	12/22/2016	2/22/2017	5/2/2017	6/14/2017	8/22/2017	3/20/2018	6/12/2018	1/6/2019	6/26/2019	12/17/2019	6/16/2020	2/10/2021	7/13/2021	7/19/2022	12/12/2022	
Constituent	Unit	MCL	Site BTV	MDL	RDL																		
Field Parameters																							
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	6.3	6.17	6.27	6.2	6.52	5.82	6.45	6.12	7.37	6.91
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	8,140	7,810	8,730	7,870	8,200	7,620	6,391	7,630	590	571
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	0	16.2	0.1	0	1	8	0.34	3.11	0.48	2.22
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.97	0.54	0	0.79	11.9	0.03	0.01	0.00	5.29	0.43
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	21.62	27.59	20.31	23.51	19.31	26.21	18.6	23.6	26.0	22.4
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	56	56	48	65	18	-20	-31.8	-35.7	189.2	-143.7
Appendix III																							
Boron	mg/L	N/A	0.621	0.0386	0.08	0.6	0.6	0.69	0.61	0.55	0.58	0.59	0.55	-	ND	ND	0.7	-	0.711	0.648	0.809	0.677	0.748
Calcium	mg/L	N/A	542	0.127	0.5	799	768	826	858	721	735	780	740	-	673	714	801	-	759	704	752	48.9	220
Chloride	mg/L	N/A	649	71.3	100	1,690	1,680	1,750	1,670	1,730	1,730	1,740	1,730	-	1,410	1,640	1,660	-	1,760	1,580	1,560	19.1	556
Fluoride	mg/L	N/A	0.5	0.26	1	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	ND	ND	1.7	ND	ND	ND	<0.130	0.204J	0.484	0.315
pH, Field	SU	N/A	6.02-7.56			6.38	5.94	6.18	6.45	6.35	6.17	5.98	6.01	6.31	6.17	6.27	6.15	6.5	5.8	6.5	6.12	7.37	6.91
Sulfate	mg/L	N/A	2,640	7.56	10	2,150	2,100	2,190	2,100	2,230	2,280	2,280	2,240	-	2,010	2,220	2,080	-	2,320	1,870	2,390	174	791
Total Dissolved Solids	mg/L	N/A	4,930	100	100	6,200	6,160	5,850	6,000	6,000	5,700	5,700	5,900	-	6,470	6,170	5,310	-	6,010	5,720	5,770	411	1,110
Appendix IV																							
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	<0.000378	0.000534J	0.000971J
Arsenic	mg/L	0.01	0.00255	0.000313	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	0.00106	<0.000313	0.000786J	0.00106
Barium	mg/L	2	0.06	0.0016	0.01	0.04	0.03	0.03	0.03	0.02	0.03	0.02	0.02	ND	-	-	-	0.023	0.024	0.0247	0.0262	0.0201	0.0275
Beryllium	mg/L	0.004	0.001	0.000182	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	<0.000182	<0.000182	<0.000274	<0.000274
Cadmium	mg/L	0.005	0.001	0.000217	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	ND	ND	ND	<0.000217	<0.000217	<0.000217	<0.000217
Chromium	mg/L	0.1	0.00617	0.00153	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00153	<0.00153	0.00379	<0.00153
Cobalt	mg/L	0.006	0.00226	0.000134	0.0005	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	ND	ND	ND	ND	ND	ND	<0.000134	<0.000134	<0.000261	<0.000261
Radium-226/228	pCi/L	10.1	9.82	0.491	5	6.85	5.28	4.2	0.4	3.2	1.500	2.6	2.1	1.65	1.81	1.18	1.28	1.28	1.26	1.120	1.66	0.447U	0.752
Fluoride	mg/L	4	0.5	0.26	1	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	ND	ND	1.7	ND	ND	ND	<0.130	0.204J	0.484	0.315
Lead	mg/L	0.015	0.01	0.000128	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	ND	ND	ND	ND	ND	<0.000128	<0.000128	<0.000167	<0.000167
Lithium	mg/L	0.552	0.521	0.00339	0.005	0.48	0.49	0.52	0.58	0.45	0.42	0.48	0.34	0.478	0.348	0.401	0.377	0.418	0.432	0.402	0.401	0.02	0.124
Mercury	mg/L	0.002	0.0002	0.00013	0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	<0.000130	<0.000130	<0.000130	<0.000130
Molybdenum	mg/L	0.1	0.005	0.00061	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	-	-	-	ND	ND	0.00106J	0.00208J	0.00196J	0.00234J
Selenium	mg/L	0.05	0.005	0.00151	0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00151	<0.00151	<0.000739	<0.000739
Thallium	mg/L	0.002	0.001	0.000148	0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.006	ND	ND	ND	ND	ND	ND	<0.000148	<0.000148	<0.000472	<0.000472

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Sample Location: SFL MW-5																								
Compliance Phase: Background																								
Sample Dates:																								
Constituent	Unit	MCL	Site BTV	MDL	RDL	6/23/2016	8/25/2016	10/19/2016	12/21/2016	2/23/2017	5/3/2017	6/14/2017	8/23/2017	3/20/2018	6/8/2018	1/16/2019	6/26/2019	12/17/2019	6/16/2020	2/9/2021	7/13/2021	7/20/2022	12/12/2022	
Field Parameters																								
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	1,140	1,160	1,150	1,070	1,170	1,110	8,840	10,864	10,698	10,393	
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	0.5	7.3	0	0	8.6	4.5	11.01	4.88	3.00	3.28	
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	0	0.69	3.03	2.97	0.74	0.41	0.19	0.00	0.70	0.31	
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	21.98	27.13	18.52	24.09	21.37	25.3	21.4	23.3	23.7	22.5	
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	367	388	359	363	308	356	353.9	400.4	408.9	138.8	
Appendix III																								
Boron	mg/L	N/A	0.621	0.0386	0.08	3.5	3.6	3.74	3.93	2.98	3.97	4.18	4.12	-	4.42	4.08	6.04	-	5.35	4.34	5.1	2.8	4.42	
Calcium	mg/L	N/A	542	0.127	0.5	878	906	903	944	755	883	899	864	-	873	715	857	-	812	837	816	829	812	
Chloride	mg/L	N/A	649	71.3	100	2,990	2,950	3,070	3,160	3,020	3,040	3,160	3,190	-	3,010	2,880	3,180	-	3,000	2,340	2,930	2,890	2,680	
Fluoride	mg/L	N/A	0.5	0.26	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	ND	ND	5.89	ND	ND	ND	<0.260	0.342J	0.122	0.126	
pH, Field	SU	N/A	6.02-7.56			5.05	4.34	4.7	4.48	5.1	4.49	4.44	4.58	4.67	4.43	4.64	4.4	4.91	4.27	4.64	4.24	4.30	4.45	
Sulfate	mg/L	N/A	2,640	7.56	10	2,150	2,090	2,100	2,170	2,120	2,150	2,220	2,240	-	2,290	2,070	2,100	-	2,190	1,720	2,330	2,250	2,010	
Total Dissolved Solids	mg/L	N/A	4,930	100	100	8,350	7,960	7,530	7,910	7,530	7,380	7,600	7,520	-	7,470	7,300	6,890	-	7,250	7,820	8,110	7,930	7,540	
Appendix IV																								
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	<0.000378	<0.000506	0.00118J	
Arsenic	mg/L	0.01	0.00255	0.000313	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.00234	0.00145	0.0033	0.00151	0.00157	0.0021	
Barium	mg/L	2	0.06	0.0016	0.01	0.04	0.08	0.06	0.03	0.02	0.03	0.02	0.02	ND	-	-	-	0.0209	0.0192	0.0212	0.0179	0.0157	0.0199	
Beryllium	mg/L	0.004	0.001	0.000182	0.001	0.008	0.011	0.01	0.01	0.01	0.012	0.011	0.01	ND	0.0105	0.00885	0.0123	0.0101	0.0113	0.00918	0.0104	0.0103	0.00942	
Cadmium	mg/L	0.005	0.001	0.000217	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.006	ND	0.00538	0.00531	0.00511	0.00509	0.00564	0.00385	0.0047	0.00426	0.00388	
Chromium	mg/L	0.1	0.00617	0.00153	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	0.00241	0.00441	0.0044	0.00327	0.00181J	
Cobalt	mg/L	0.006	0.00226	0.000134	0.0005	0.07	0.06	0.05	0.06	0.05	0.05	0.05	0.05	0.0398	0.0486	0.0492	0.0559	0.0453	0.0512	0.045	0.0515	0.0493	0.0458	
Radium-226/228	pCi/L	10.1	9.82	0.491	5	7.52	25.6	11.5	8.7	11.9	9.9	11.6	12.3	12.1	9.65	11.3	11.2	12.1	11.5	13.5	13.6	12.3	9.46	
Fluoride	mg/L	4	0.5	0.26	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	ND	ND	5.89	ND	ND	ND	<0.260	0.342J	0.122	0.126	
Lead	mg/L	0.015	0.01	0.000128	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	ND	ND	0.00459	0.00102	ND	0.000725J	0.000721J	0.000527J	0.000606J	
Lithium	mg/L	0.552	0.521	0.00339	0.005	0.66	0.79	0.9	0.99	0.72	0.79	0.92	0.62	0.685	0.629	0.643	0.643	0.67	0.704	0.677	0.645	0.594	0.696	
Mercury	mg/L	0.002	0.0002	0.00013	0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	<0.000130	<0.000130	<0.000130	<0.000130	
Molybdenum	mg/L	0.1	0.005	0.00061	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	-	-	-	ND	ND	0.00180J	<0.000610	<0.000610	0.00103J	
Selenium	mg/L	0.05	0.005	0.00151	0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.00989	ND	<0.00151	<0.00151	<0.000739	<0.000739	
Thallium	mg/L	0.002	0.001	0.000148	0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	ND	ND	ND	0.00115	0.00136	0.00118	0.0012	0.00133	0.00115	0.00125	

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Sample Location:					SFL MW-6																			
Compliance Phase:					Background								Initial A.M.			Assessment Monitoring								
Sample Dates:					6/23/2016	8/25/2016	10/19/2016	12/21/2016	2/22/2017	5/3/2017	6/13/2017	8/23/2017	3/20/2018	6/8/2018	1/15/2019	6/27/2019	12/17/2019	6/16/2020	2/9/2021	7/13/2021	7/19/2022	12/12/2022		
Constituent	Unit	MCL	Site BTV	MDL	RDL																			
Field Parameters																								
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Appendix III																								
Boron	mg/L	N/A	0.621	0.0386	0.08	0.5	0.39	0.41	0.4	0.24	0.3	0.16	0.35	-	ND	ND	0.29	-	0.384	0.329	0.38	0.32	0.554	
Calcium	mg/L	N/A	542	0.127	0.5	910	929	983	977	852	955	892	864	-	915	824	800	-	950	953	937	1400	1510	
Chloride	mg/L	N/A	649	71.3	100	3,350	3,470	3,500	3,580	3,570	3,560	3,640	3,730	-	3,670	3,490	3,240	-	3,760	3,310	3,340	4,810	6,800	
Fluoride	mg/L	N/A	0.5	0.26	1	0.7	0.8	0.8	0.8	0.9	0.8	0.7	0.7	ND	ND	8.72	ND	ND	ND	0.531J	0.527J	1.08	1.04	
pH, Field	SU	N/A	6.02-7.56			4.4	3.84	4.15	3.92	4.21	3.99	3.99	3.98	3.94	3.95	4.07	3.91	4.16	3.9	3.82	3.76	3.70	3.89	
Sulfate	mg/L	N/A	2,640	7.56	10	2,230	2,240	2,170	2,120	2,260	2,260	2,330	2,470	-	2,520	2,500	1,870	-	2,350	2,070	2,190	2,830	2,200	
Total Dissolved Solids	mg/L	N/A	4,930	100	100	8,650	8,850	8,170	8,640	8,790	8,020	9,200	8,260	-	6,330	8,850	7,040	-	11,000	8,350	7,420	12,000	14,300	
Appendix IV																								
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	<0.000378	<0.000506	0.00108J
Arsenic	mg/L	0.01	0.00255	0.000313	0.001	0.02	0.01	<0.01	<0.01	0.01	0.02	<0.01	0.01	ND	-	-	-	0.02	0.01	0.0135	0.0125	0.0214	0.0351	
Barium	mg/L	2	0.06	0.0016	0.01	0.30	0.08	0.06	0.05	0.04	0.03	0.04	0.04	ND	-	-	-	0.0247	0.0309	0.0537	0.0376	0.039	0.0487	
Beryllium	mg/L	0.004	0.001	0.000182	0.001	0.028	0.049	0.051	0.047	0.056	0.054	0.047	0.056	0.0599	0.0449	0.0418	0.0496	0.052	0.0503	0.0489	0.0463	0.0646	0.0933	
Cadmium	mg/L	0.005	0.001	0.000217	0.001	0.007	0.01	0.011	0.011	0.013	0.01	0.011	0.012	0.00875	0.00942	0.00955	0.01	0.0118	0.0104	0.0105	0.0104	0.0124	0.00497	
Chromium	mg/L	0.1	0.00617	0.00153	0.002	0.01	<0.01	0.01	0.011	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.00797	ND	0.00757	0.00551	0.00895	0.00593	
Cobalt	mg/L	0.006	0.00226	0.000134	0.0005	0.11	0.12	0.12	0.12	0.13	0.11	0.11	0.12	0.104	0.1	0.112	0.105	0.104	0.109	0.116	0.111	0.173	0.242	
Radium-226/228	pCi/L	10.1	9.82	0.491	5	11.6	28.8	10.8	14.3	6.8	8.6	9	3.9	9.22	9.02	10.1	11.8	28.3	17.8	14.6	13.7	16.0	14.5	
Fluoride	mg/L	4	0.5	0.26	1	0.7	0.8	0.8	0.8	0.9	0.8	0.7	0.7	ND	ND	8.72	ND	ND	ND	0.531J	0.527J	1.08	1.04	
Lead	mg/L	0.015	0.01	0.000128	0.001	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0054	ND	0.00549	0.0	0.0171	0.0115	0.015	0.0109	0.0135	0.0109	
Lithium	mg/L	0.552	0.521	0.00339	0.005	0.55	0.8	0.88	0.93	0.74	0.72	0.69	0.56	0.739	0.597	0.619	0.663	0.64	0.709	0.614	0.64	0.868	1.34	
Mercury	mg/L	0.002	0.0002	0.00013	0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	<0.000130	<0.000130	<0.000130	<0.000130	
Molybdenum	mg/L	0.1	0.005	0.00061	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	-	-	-	ND	ND	<0.000610	<0.000610	<0.000610	<0.000610	
Selenium	mg/L	0.05	0.005	0.00151	0.005	<0.01	0.01	0.02	<0.01	0.01	0.01	<0.01	<0.01	ND	-	-	-	0.0525	ND	<0.00151	<0.00151	<0.000739	<0.000739	
Thallium	mg/L	0.002	0.001	0.000148	0.001	0.004	0.002	0.004	0.003	0.004	0.003	0.004	0.003	0.00322	0.00305	0.00315	0.00264	0.0041	0.00333	0.00339	0.00329	0.00495	0.00489	

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 -- - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Sample Location:					SFL MW-7																		
Compliance Phase:					Background								Initial A.M.			Assessment Monitoring							
Sample Dates:					5/11/2017	5/31/2017	6/14/2014	6/28/2017	7/20/2017	8/23/2017	8/31/2017	9/7/2017	3/20/2018	6/12/2018	1/16/2019	6/26/2019	12/17/2019	6/16/2020	2/10/2021	7/13/2021	9/12/2022	12/12/2022	
Constituent	Unit	MCL	Site BTV	MDL	RDL																		
Field Parameters																							
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	6.5	6.33	6.69	6.8	6.7	6.01	6.64	6.34	6.58	6.45
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	9,210	8,820	9,800	8,830	9,370	8,240	5,680	6,956	6,982	6,996
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	0	7.6	0	0	20.3	0	2.43	2.26	7.20	1.39
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.29	2.53	1.74	3.48	0.83	0.34	0.10	0.27	0.45	0.23
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	20.43	28.91	18.84	23.25	18.8	25.31	19.5	23.9	26.2	22.2
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-102	-42	19	18	-82	-43	-28.6	-9.9	-126.7	-84.6
Appendix III																							
Boron	mg/L	N/A	0.621	0.0386	0.08	0.75	0.78	0.76	0.73	0.83	0.92	0.7	0.59	-	ND	ND	0.879	-	0.832	0.792	0.795	0.832	0.916
Calcium	mg/L	N/A	542	0.127	0.5	678	654	662	620	664	693	628	613	-	591	523	588	-	643	400	395	475	451
Chloride	mg/L	N/A	649	71	100	2,870	2,740	2,800	2,850	2,780	2,810	2,770	2,820	-	2,600	2,580	2,700	-	2,880	1,920	1,900	2,020	1,900
Fluoride	mg/L	N/A	0.5	0.26	1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	ND	ND	2.62	ND	ND	ND	<0.130	0.190J	0.0599J	0.0881J
pH, Field	SU	N/A	6.02-7.56			6.37	6.43	6.17	6.32	6.34	6.21	6.11	6.24	-	6.47	6.69	6.79	6.7	6.01	6.64	6.34	6.58	6.45
Sulfate	mg/L	N/A	2,640	7.56	10	811	778	779	787	770	801	768	770	-	743	694	630	-	816	576	672	528	662
Total Dissolved Solids	mg/L	N/A	4,930	100	100	7,260	6,810	6,460	6,620	6,640	6,230	6,650	6,810	-	6,840	6,090	5,410	-	5,830	4,430	4,200	4,120	4,160
Appendix IV																							
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	0.000579J	<0.000378	0.000978J	<0.000506
Arsenic	mg/L	0.01	0.00255	0.000313	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.000313	<0.000313	0.000479J	<0.000282
Barium	mg/L	2	0.06	0.0016	0.01	0.04	0.04	0.03	0.03	0.04	0.03	0.03	0.04	ND	-	-	-	0.037	0.0342	0.051	0.0476	0.102	0.053
Beryllium	mg/L	0.004	0.001	0.000182	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	<0.000182	<0.000182	<0.000274	<0.000274
Cadmium	mg/L	0.005	0.001	0.000217	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	ND	ND	ND	<0.000217	<0.000217	0.000250J	<0.000217
Chromium	mg/L	0.1	0.00617	0.00153	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00153	<0.00153	<0.00153	<0.00153
Cobalt	mg/L	0.006	0.00226	0.000134	0.0005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	ND	ND	ND	ND	ND	ND	<0.000134	<0.000134	<0.000261	<0.000261
Radium-226/228	pCi/L	10.1	9.82	0.491	5	1.9	4.4	2.3	2.6	2.6	3.4	1.4	2.9	1.98	2	2.36	2.2	1.96	1.99	2.56	2.77	1.98	3.14
Fluoride	mg/L	4	0.5	0.26	1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	ND	ND	2.62	ND	ND	ND	<0.130	0.190J	0.0599J	0.0881J
Lead	mg/L	0.015	0.01	0.000128	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	ND	ND	ND	ND	ND	0.000211J	<0.000128	0.000208J	<0.000167
Lithium	mg/L	0.552	0.521	0.00339	0.005	0.46	0.45	0.5	0.46	0.43	0.4	0.4	0.37	0.466	0.379	0.388	0.408	0.45	0.447	0.375	0.389	0.401	0.437
Mercury	mg/L	0.002	0.0002	0.00013	0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	<0.000130	<0.000130	<0.000130	<0.000130
Molybdenum	mg/L	0.1	0.005	0.00061	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	-	-	-	ND	ND	<0.000610	<0.000610	0.00173J	<0.000610
Selenium	mg/L	0.05	0.005	0.00151	0.005	<0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00151	<0.00151	<0.000739	<0.000739
Thallium	mg/L	0.002	0.001	0.000148	0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	ND	ND	ND	ND	ND	ND	<0.000148	<0.000148	<0.000472	<0.000472

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Sample Location:	MNW-15																			
Compliance Phase:	Background										Initial A.M.			Assessment Monitoring						
Sample Dates:	5/2/2017	5/31/2017	6/14/2017	6/28/2017	7/20/2017	8/22/2017	8/31/2017	9/7/2017	3/20/2018	6/12/2018	1/16/2019	6/26/2019	12/17/2019	6/16/2020	2/9/2021	7/13/2021	9/12/2022	12/12/2022		

Constituent	Unit	MCL	Site BTV	MDL	RDL	5/2/2017	5/31/2017	6/14/2017	6/28/2017	7/20/2017	8/22/2017	8/31/2017	9/7/2017	3/20/2018	6/12/2018	1/16/2019	6/26/2019	12/17/2019	6/16/2020	2/9/2021	7/13/2021	9/12/2022	12/12/2022	
Field Parameters																								
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Appendix III																								
Boron	mg/L	N/A	0.621	0.039	0.080	9.51	8.75	8.62	9.67	9.38	9.22	9.43	9.26	-	11.8	8.56	9.64	-	8.30	9.06	8.44	12.8	9.76	
Calcium	mg/L	N/A	542	0.127	0.5	280	269	256	263	275	254	264	260	-	249	244	272	-	327	325	304	337	328	
Chloride	mg/L	N/A	649	71	100	730	704	688	734	704	718	721	740	-	581	667	578	-	654	584	669	652	632	
Fluoride	mg/L	N/A	0.5	0.26	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	ND	ND	1.04	0.718	1.03	0.794	0.84	0.617	0.738	0.608	
pH, Field	SU	N/A	6.02-7.56			3.7	3.64	3.53	3.48	3.46	3.42	3.32	3.48	3.61	3.65	3.7	3.44	3.78	3.21	3.63	3.57	3.59	3.34	
Sulfate	mg/L	N/A	2,640	8	10	1,270	1,230	1,190	1,290	1,240	1,250	1,260	1,280	-	1,250	1,310	1,210	-	1,370	1,350	1,480	1,450	1,350	
Total Dissolved Solids	mg/L	N/A	4,930	100	100	2,540	2,720	2,620	2,580	2,690	2,620	2,700	2,750	-	2,940	3,030	2,690	-	3,170	6,150	4,100	3,540	3,120	
Appendix IV																								
Antimony	mg/L	0.006	0.002	0.000	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	<0.000378	<0.000506	<0.000506	
Arsenic	mg/L	0.01	0.00255	0.00031	0.00100	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.0114	0.00624	0.00774	0.00734	0.0153	0.00977	
Barium	mg/L	2	0.06	0.00	0.01	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.03	ND	-	-	-	0.016	0.0171	0.0175	0.0159	0.0171	0.0179	
Beryllium	mg/L	0.004	0.001	0.000	0.001	0.077	0.071	0.072	0.076	0.068	0.074	0.073	0.067	0.0792	0.0619	0.0606	0.0818	0.091	0.088	0.0902	0.0789	0.0884	0.0924	
Cadmium	mg/L	0.005	0.001	0.000	0.001	0.093	0.106	0.116	0.089	0.091	0.084	0.088	0.089	0.0895	0.0886	0.0945	0.03	0.0313	0.0388	0.0421	0.0393	0.0409	0.0414	
Chromium	mg/L	0.1	0.00617	0.00153	0.00200	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	0.0579	<0.00153	<0.00153	<0.00153	<0.00153	
Cobalt	mg/L	0.006	0.00226	0.00013	0.00050	0.27	0.28	0.26	0.3	0.3	0.29	0.29	0.29	0.253	0.281	0.297	0.359	0.3	0.315	0.356	0.349	0.336	0.313	
Radium-226/228	pCi/L	10.1	9.82	0.491	5	0.7	0.3	1.2	1.5	0.8	0.3	2.1	1.9	0.446	0.39	0.619	0.29	0.414	0.167	0.577	0.525	1.44	0.977	
Fluoride	mg/L	4	0.5	0.26	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	ND	ND	1.04	0.718	1.03	0.794	0.84	0.617	0.738	0.608	
Lead	mg/L	0.015	0.01	0.00	0.00	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	ND	ND	0.00297	ND	ND	0.00225	0.000555J	0.000404J	0.000577J	0.000561J	
Lithium	mg/L	0.552	0.521	0.003	0.005	0.09	0.07	0.11	0.08	0.06	0.05	0.05	0.05	ND	0.0701	ND	0.0898	0.108	0.106	0.111	0.102	0.104	0.113	
Mercury	mg/L	0.002	0.0002	0.0001	0.0002	<0.001	<0.001	0.012	<0.001	<0.001	<0.001	<0.001	<0.001	0.000949	0.000396	0.000942	ND	ND	ND	<0.000130	<0.000130	<0.000130	<0.000130	
Molybdenum	mg/L	0.1	0.005	0.001	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	-	-	-	ND	ND	<0.000610	<0.000610	<0.000610	<0.000610	
Selenium	mg/L	0.05	0.005	0.002	0.005	<0.01	0.03	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.0345	ND	<0.00151	<0.00151	0.109	<0.000739	
Thallium	mg/L	0.002	0.001	0.000	0.001	<0.002	0.002	0.002	<0.002	<0.002	0.002	<0.002	0.002	0.00232	0.00233	0.00248	ND	ND	ND	0.000739J	0.000901J	0.00101	0.000976J	

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Constituent	Unit	MCL	Site BTV	MDL	RDL	AP MW-1D																			
						Background					Initial A.M.			Assessment Monitoring											
						6/22/2016	8/24/2016	10/18/2016	12/21/2016	2/21/2017	5/4/2017	6/13/2017	8/24/2017	3/21/2018	6/13/2018	1/15/2019	6/25/2019	12/18/2019	6/17/2020	2/10/2021	7/12/2021	7/19/2022	12/13/2022		
Field Parameters																									
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	5.69	5.93	5.8	5.75	5.48	6.13	5.91	6.13	6.10
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,960	1,960	1,690	1,950	1,910	1,970	1,453	1,613	1,585	1,328
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.4	12.7	0.4	8.8	0	0	0.45	3.96	1.48	1.89
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	1.1	0	0.61	0	0.31	0.00	0.03	0.45	0.23
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.93	26.43	19.96	26.6	19.28	24.52	20.1	22.3	25.1	22.6
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	94	143	138	180	137	141	135.2	106.5	177.9	177.5
Appendix III																									
Boron	mg/L	N/A	1.490	0.0386	0.08	4.9	4.81	4.62	4.8	4.88	4.72	4.59	4.28	-	5.67	4.35	4.84	-	-	4.46	6.27	5.15	5.19	5.63	
Calcium	mg/L	N/A	728	0.127	0.5	88	78	77	77	77	74	71	70	-	76.1	81.4	93.3	-	-	108	96.5	77.1	93.9	83.7	
Chloride	mg/L	N/A	1,770	35.7	50	227	221	233	229	228	227	229	227	-	191	197	178	-	-	201	151	141	129	120	
Fluoride	mg/L	N/A	0.5	0.13	0.5	0.6	0.7	0.6	0.6	0.7	0.7	0.6	0.8	ND	ND	0.904	0.532	0.529	0.626	0.606	0.764	0.801	0.869		
pH, Field	SU	N/A	5.26-6.35			5.4	5.69	6	6.1	6.1	5.94	5.62	5.74	5.81	5.69	5.93	5.8	5.75	5.48	6.13	5.91	6.13	6.10		
Sulfate	mg/L	N/A	3,320	37.8	50	664	621	590	546	543	527	525	517	-	523	532	511	-	-	552	456	430	431	422	
Total Dissolved Solids	mg/L	N/A	8,180	100	100	1,490	1,440	1,410	1,360	1,310	1,240	1,310	1,270	-	1,360	1,350	1,410	-	-	1,400	1,250	1,140	1,150	1,110	
Appendix IV																									
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	<0.000378	<0.000506	<0.000506	
Arsenic	mg/L	0.01	0.00100	0.000313	0.001	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	0.00935	0.00861	0.00884	0.00912	0.00756	0.00818	0.00953	0.00898	0.0101	0.00949	
Barium	mg/L	2	0.183	0.0016	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	ND	-	-	-	0	0	0.0137	0.0137	0.0138	0.0129	
Beryllium	mg/L	0.004	0.00157	0.000182	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	ND	<0.000182	<0.000182	<0.000274	<0.000274	
Cadmium	mg/L	0.005	0.001	0.000217	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	ND	ND	ND	ND	0.000408J	0.000343J	0.000498J	0.00034J	
Chromium	mg/L	0.1	0.00248	0.00153	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	ND	<0.00153	<0.00153	<0.00153	<0.00153	
Cobalt	mg/L	0.006	0.00174	0.000134	0.0005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0106	0.0129	0.0164	0.0143	0.0146	0.0163	0.0139	0.0177	0.0154	0.00996		
Radium-226/228	pCi/L	10.1	3.96	0.375	5	2.07	3.83	2.8	2.5	0.6	2.5	0.7	1.8	0.971	1.72	1.71	1.66	2.5	1.86	1.100	2.69	1.17	0.918		
Fluoride	mg/L	4	0.5	0.000128	0.001	0.6	0.7	0.6	0.6	0.7	0.7	0.6	0.8	ND	ND	0.904	0.532	0.529	0.626	0.606	0.764	0.801	0.869		
Lead	mg/L	0.015	0.0106	0.00339	0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.000128	0.000256J	<0.000167	<0.000167		
Lithium	mg/L	0.552	1.64	0.00013	0.0002	0.07	0.04	0.05	0.08	0.04	0.03	0.04	0.01	ND	ND	ND	0.0328	0.0346	0.0327	0.027	0.0242	0.0243	0.0233		
Mercury	mg/L	0.002	0.0002	0.00061	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	ND	<0.000130	<0.000130	<0.000130	<0.000130	
Molybdenum	mg/L	0.1	0.005	0.00151	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.0	0.0144	0.0174	0.0177	0.0157	0.0201	0.0283	0.0304	0.0327	0.0302		
Selenium	mg/L	0.05	0.005	0.13	0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	0.00154J	0.00164J	0.00236J	0.00158J		
Thallium	mg/L	0.002	0.001	0.000148	0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	ND	-	-	-	ND	ND	0.000310J	0.000636J	<0.000472	<0.000472		

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Sample Location:					SSP/AP MW-1																			
Compliance Phase:					Background								Initial A.M.				Assessment Monitoring							
Sample Dates:					6/21/2016	8/23/2016	10/17/2016	12/20/2016	2/21/2017	5/3/2017	6/12/2017	8/23/2017	3/21/2018	6/9/2018	1/15/2019	6/27/2019	12/18/2019	6/17/2020	2/9/2021	7/12/2021	7/19/2022	12/13/2022		
Constituent	Unit	MCL	Site BTV	MDL	RDL																			
Field Parameters																								
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	5.7	5.73	5.87	6.0	6.06	5.42	5.77	5.60	5.60	
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	9,270	7,720	8,970	8,980	9,010	8,310	7,389	8,918	9,009	8,906
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	48	413	19.9	0	48.1	20.9	141.70	170.11	87.21	7.61
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0.52	2.95	3.67	0.62	0.08	0.04	0.00	0.41	0.29
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	26.4	18.99	23.97	19.69	27.81	20.0	22.0	25.3	22.3
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	15	18	57	76	32	107	71.1	-100.3	41.7	42.5
Appendix III																								
Boron	mg/L	N/A	1.490	0.039	0.080	1.10	1.00	0.93	0.83	0.77	0.81	0.74	0.81	-	ND	1.43	0.81	-	-	0.8	0.69	0.757	0.686	0.793
Calcium	mg/L	N/A	728	0.127	0.5	659	683	673	685	617	681	666	653	-	647	563	659	-	-	643	667	619	722	638
Chloride	mg/L	N/A	1770	36	50	1390	1460	1540	1500	1530	1550	1600	1600	-	1480	1500	1640	-	-	1730	1520	1460	1530	1560
Fluoride	mg/L	N/A	0.5	0.13	0.5	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	ND	ND	ND	ND	ND	ND	ND	<0.130	0.423J	0.105J	0.0712J
pH, Field	SU	N/A	5.26-6.35			5.9	5.93	6.03	6.01	5.56	5.80	5.73	5.80	5.69	5.73	5.9	5.97	6.06	5.42	5.77	5.60	5.80	5.60	
Sulfate	mg/L	N/A	3,320	38	50	2,890	2,950	2,960	2,760	2,900	3,050	3,060	3,070	-	3,160	3,070	2,980	-	-	3,210	2,920	3,050	3,060	3,080
Total Dissolved Solids	mg/L	N/A	8,180	100	100	6,950	6,800	6,750	6,470	6,520	6,460	6,720	6,530	-	6,700	7,060	7,240	-	-	7,890	5,630	5,930	7,380	7,170
Appendix IV																								
Antimony	mg/L	0.006	0.002	0.000	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	0.000721J	0.000732J	0.00157J	0.000582J	
Arsenic	mg/L	0.01	0.00100	0.00031	0.00100	<0.01	<0.01	0.01	0	<0.01	<0.01	<0.01	<0.01	ND	ND	0.0	ND	0.0019	0.00169	0.00501	0.00415	0.00309	0.0022	
Barium	mg/L	2	0.18	0.00	0.01	0.05	0.05	<0.1	0.07	0.05	0.04	0.06	0.05	ND	-	-	-	0.025	0.0284	0.184	0.0638	0.068	0.0265	
Beryllium	mg/L	0.004	0.002	0.000	0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.001	ND	ND	ND	ND	ND	ND	0.00157	0.00101	0.000706J	0.000584J	
Cadmium	mg/L	0.005	0.001	0.000	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	ND	ND	ND	<0.000217	<0.000217	<0.000217	<0.000217	
Chromium	mg/L	0.1	0.00248	0.00153	0.00200	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	0.00248	<0.00153	<0.00153	<0.00153	
Cobalt	mg/L	0.006	0.00174	0.00013	0.00050	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	ND	ND	ND	ND	ND	ND	0.00174	0.000649	0.000521	<0.000261	
Radium-226/228	pCi/L	10.1	3.96	0.375	5	2.6	2.92	2.2	-0.06	0.6	1.5	1.7	1.7	1.51	1.22	1.81	1.07	1.47	1.33	3.380	2.09	2.90	1.58	
Fluoride	mg/L	4	0.5	0.000128	0.001	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	ND	ND	ND	ND	ND	ND	<0.130	0.423J	0.105J	0.0712J	
Lead	mg/L	0.015	0.01	0.00	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	ND	ND	ND	ND	ND	0.001	0.0106	0.00343	0.00378	0.000702J
Lithium	mg/L	0.552	1.640	0.000	0.000	1.36	1.15	1.3	1.28	1.21	1.5	1.51	1.35	2.15	1.21	1.25	1.39	1.05	1.43	1.23	1.24	1.24	1.51	
Mercury	mg/L	0.002	0.0002	0.0006	0.0050	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	-	-	-	ND	ND	<0.000130	<0.000130	<0.000130	<0.000130	
Molybdenum	mg/L	0.1	0.005	0.002	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	-	-	-	ND	ND	0.00199J	0.000961J	0.00112J	<0.000610	
Selenium	mg/L	0.05	0.005	0.130	0.500	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00151	<0.00151	<0.000739	<0.000739	
Thallium	mg/L	0.002	0.001	0.000	0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	ND	ND	ND	ND	ND	ND	0.000206J	0.000388J	<0.000472	<0.000472	

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Sample Location: AP MW-3					AP MW-3																			
Compliance Phase: Background					Initial A.M.				Assessment Monitoring															
Sample Dates:					6/22/2016	8/24/2016	11/10/2016	12/21/2016	2/20/2017	5/3/2017	6/12/2017	8/22/2017	3/20/2018	6/8/2018	1/15/2019	6/25/2019	12/17/2019	6/17/2020	2/10/2021	7/12/2021	7/19/2022	12/13/2022		
Constituent	Unit	MCL	Site BTV	MDL	RDL																			
Field Parameters																								
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	1,830	1,830	1,530	1,770	1,790	1,700	1,473	1,827	1,789	1,682	
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	0	28.1	0	9.7	0.5	0	3.74	8.47	2.03	3.16	
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	0	0.93	0.07	1.06	0.49	0.67	0.06	0.21	0.70	0.22	
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	23.49	24.89	19.42	26.36	19.39	26.96	19.3	22.2	23.0	23.3	
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	309	303	273	184	309	407	166.1	88.6	515.1	299.1	
Appendix III																								
Boron	mg/L	N/A	1,490	0.0386	0.08	3.7	3.63	3.56	3.88	3.61	3.73	3.58	3.82	-	3.67	3.49	4.18	-	-	3.23	4.13	3.54	4.26	4.83
Calcium	mg/L	N/A	728	0.127	0.5	138	123	127	137	132	139	129	134	-	135	121	134	-	139	134	146	144	153	
Chloride	mg/L	N/A	1,770	35.7	50	129	128	143	141	146	148	152	155	-	144	153	147	-	160	144	146	153	145	
Fluoride	mg/L	N/A	0.5	0.13	0.5	0.2	0.2	0.1	0.1	<0.1	0.1	0.1	0.1	ND	ND	0.223	ND	ND	ND	0.0558J	0.0577J	0.0634J	0.054J	
pH, Field	SU	N/A	5.26-6.35			5.38	5.09	5.4	5.11	5.05	5.02	5.12	4.79	5.09	5.12	5.22	5.14	4.99	4.34	5.18	4.96	5.05	4.95	
Sulfate	mg/L	N/A	3,320	37.8	50	700	731	733	729	720	739	740	751	-	673	653	637	-	807	645	722	596	583	
Total Dissolved Solids	mg/L	N/A	8,180	100	100	1,390	1,400	1,370	1,400	1,400	1,300	1,400	1,360	-	1,770	1,360	1,390	-	1,330	1,370	1,420	1,410	1,340	
Appendix IV																								
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	<0.000378	<0.000506	<0.000506	
Arsenic	mg/L	0.01	0.00100	0.000313	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	ND	ND	ND	ND	0.00129	0.00154	0.00129	0.00169	0.0014	
Barium	mg/L	2	0.183	0.0016	0.01	0.04	0.03	0.02	0.03	0.02	0.02	0.02	0.02	ND	-	-	-	0.0243	0.0238	0.0236	0.0294	0.0211	0.0231	
Beryllium	mg/L	0.004	0.00157	0.000182	0.001	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	ND	ND	0.00269	0.00241	0.00301	0.00236	0.00264	0.00286	0.00291	0.00301	
Cadmium	mg/L	0.005	0.001	0.000217	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	ND	0.00482	0.00	0.00424	0.00432	0.00382	0.00469	0.00437	0.00438	
Chromium	mg/L	0.1	0.00248	0.00153	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	0.00173J	<0.00153	<0.00153	<0.00153	
Cobalt	mg/L	0.006	0.00174	0.000134	0.0005	0.05	0.05	0.05	0.05	0.04	0.05	0.04	0.04	0.0351	0.0396	0.0428	0.024	0.0306	0.0358	0.0476	0.0392	0.0328	0.0331	
Radium-226/228	pCi/L	10.1	3.96	0.375	5	1.11	7.54	1.7	2.9	2.4	2.9	2.5	4.8	1.82	1.89	2.09	2.07	2.17	1.6	1.870	2.7	5.13U	2.58	
Fluoride	mg/L	4	0.5	0.000128	0.001	0.2	0.2	0.1	0.1	<0.1	0.1	0.1	0.1	ND	ND	0.223	ND	ND	ND	0.0558J	0.000470J	0.0634J	0.054J	
Lead	mg/L	0.015	0.0106	0.00339	0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	0.00121	0.000456J	0.0514	0.000219J	<0.000167	
Lithium	mg/L	0.552	1.64	0.00013	0.0002	0.06	0.06	0.07	0.07	0.06	0.06	0.06	0.04	ND	0.047	ND	0.0461	0.0546	0.0531	0.053	0.00149	0.0431	0.0488	
Mercury	mg/L	0.002	0.0002	0.00061	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	0.00025	ND	0.000324	0.000455	<0.000610	0.00158	0.00141	
Molybdenum	mg/L	0.1	0.005	0.00151	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	ND	ND	ND	ND	ND	0.000848J	<0.00151	<0.000610	<0.000610	
Selenium	mg/L	0.05	0.005	0.13	0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00151	0.0577J	0.00135J	<0.000739	
Thallium	mg/L	0.002	0.001	0.000148	0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	ND	-	-	-	ND	ND	0.000267J	0.000271J	0.000529J	<0.000472	

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Sample Location:					AP MW-4																		
Compliance Phase:					Background							Initial A.M.			Assessment Monitoring								
Sample Dates:					6/22/2016	8/24/2016	10/18/2016	12/21/2016	2/21/2017	5/4/2017	6/12/2017	8/24/2017	3/21/2018	6/13/2018	1/15/2019	6/27/2019	12/18/2019	6/17/2020	2/10/2021	7/13/2021	7/19/2022	12/13/2022	
Constituent	Unit	MCL	Site BTV	MDL	RDL																		
Field Parameters																							
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Appendix III																							
Boron	mg/L	N/A	1.490	0.0386	0.08	2	2.1	2.1	2.11	1.89	2.07	1.95	1.96	-	2.39	2.17	2.45	-	2.18	2.58	2.41	0.566	0.677
Calcium	mg/L	N/A	728	0.127	0.5	497	497	538	551	488	532	519	489	-	416	451	498	-	523	533	499	545	204
Chloride	mg/L	N/A	1,770	35.7	50	485	485	511	507	503	505	526	543	-	427	465	435	-	472	436	434	524	191
Fluoride	mg/L	N/A	0.5	0.13	0.5	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND	ND	ND	ND	ND	ND	<0.130	0.0996J	0.0488J	0.0719J
pH, Field	SU	N/A	5.26-6.35			5.79	5.49	5.69	5.45	5.62	5.71	5.48	5.47	5.62	5.58	5.76	5.69	5.71	5.28	5.74	5.48	6.10	5.85
Sulfate	mg/L	N/A	3,320	37.8	50	2,210	2,310	2,290	2,250	2,290	2,330	2,380	2,500	-	2,110	2,250	2,140	-	2,190	2,050	2,380	1,530	876
Total Dissolved Solids	mg/L	N/A	8,180	100	100	4,130	4,140	4,150	4,120	4,130	3,930	4,130	4,000	-	4,270	4,010	4,080	-	3,780	4,040	4,200	3,370	1,790
Appendix IV																							
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	<0.000378	<0.000506	<0.000506
Arsenic	mg/L	0.01	0.00100	0.000313	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	ND	ND	ND	ND	ND	0.000628J	<0.000313	0.00226	0.00156
Barium	mg/L	2	0.183	0.0016	0.01	0.02	0.03	0.02	0.02	0.01	0.01	0.01	0.02	ND	-	-	-	0.0137	0.0155	0.0144	0.0135	0.0302	0.0197
Beryllium	mg/L	0.004	0.00157	0.000182	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	0.000436J	0.000204J	<0.000274	<0.000274
Cadmium	mg/L	0.005	0.001	0.000217	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	ND	ND	ND	<0.000217	<0.000217	<0.000217	<0.000217
Chromium	mg/L	0.1	0.00248	0.00153	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00153	<0.00153	<0.00153	<0.00153
Cobalt	mg/L	0.006	0.00174	0.000134	0.0005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	ND	ND	ND	0.00109	ND	ND	<0.000134	<0.000134	0.00107	0.00286
Radium-226/228	pCi/L	10.1	3.96	0.375	5	1.98	3.67	2.3	3	1.2	2.4	2.2	2.6	0.678	1.13	0.759	1.26	1.27	1.11	1.720	1.07	0.791	0.743
Fluoride	mg/L	4	0.5	0.000128	0.001	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND	ND	ND	ND	ND	ND	<0.130	0.0996J	0.0488J	0.0719J
Lead	mg/L	0.015	0.0106	0.00339	0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	0.000276J	<0.000128	0.000338J	<0.000167
Lithium	mg/L	0.552	1.64	0.00013	0.0002	0.96	0.92	1.09	1.03	0.87	0.93	0.95	0.85	0.766	0.661	0.8	0.781	0.72	0.959	0.875	0.808	0.317	0.277
Mercury	mg/L	0.002	0.0002	0.00061	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	<0.000130	<0.000130	<0.000130	<0.000130
Molybdenum	mg/L	0.1	0.005	0.00151	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	ND	ND	ND	ND	ND	<0.000610	<0.000610	0.000686J	0.000944J
Selenium	mg/L	0.05	0.005	0.13	0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00151	<0.00151	<0.000739	<0.000739
Thallium	mg/L	0.002	0.001	0.000148	0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	ND	-	-	-	ND	ND	0.000172J	<0.000148	<0.000472	<0.000472

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Sample Location:		AP MW-5																					
Compliance Phase:		Background										Initial A.M.		Assessment Monitoring									
Sample Dates:		6/22/2016	8/24/2016	10/18/2016	12/21/2016	2/21/2017	5/4/2017	6/12/2017	8/24/2017	3/21/2018	6/13/2018	1/15/2019	6/25/2019	12/18/2019	6/17/2020	2/10/2021	7/12/2021	7/19/2022	12/13/2022				
Constituent	Unit	MCL	Site BTV	MDL	RDL																		
Field Parameters																							
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Appendix III																							
Boron	mg/L	N/A	1.490	0.0386	0.08	3.3	3.4	3.33	3.66	3.32	3.39	3.38	3.26	-	4.2	3.38	3.57	-	3.25	3.53	3.48	3.25	3.79
Calcium	mg/L	N/A	728	0.127	0.5	387	468	503	575	494	522	512	498	-	476	601	369	-	362	354	491	615	578
Chloride	mg/L	N/A	1,770	35.7	50	410	469	451	480	480	472	479	473	-	404	460	368	-	361	322	373	491	494
Fluoride	mg/L	N/A	0.5	0.13	0.5	1.5	1.6	1.3	1.2	1.2	1.2	1	1.2	2.82	3.02	2.5	1.57	2.32	ND	1.18	1.7	2.66	2.39
pH, Field	SU	N/A	5.26-6.35			3.58	3.61	3.70	3.43	3.65	3.63	3.35	3.55	4.22	3.64	3.33	3.40	3.47	3.21	3.68	3.22	3.54	3.30
Sulfate	mg/L	N/A	3,320	37.8	50	2,640	2,960	2,630	2,960	2,880	2,930	2,900	2,960	-	2,780	2,590	2,180	-	2,030	1,670	2,580	2,810	2,730
Total Dissolved Solids	mg/L	N/A	8,180	100	100	4,170	4,770	5,040	4,940	4,860	4,530	4,830	4,720	-	4,730	4,600	4,380	-	3,430	3,380	4,170	5,030	4,960
Appendix IV																							
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	0.000664J	0.000529J	<0.000506	<0.000506
Arsenic	mg/L	0.01	0.00100	0.000313	0.001	0.02	<0.01	0.01	0.01	0.01	0.02	0.01	0.01	ND	0.0139	0.0117	ND	0.0168	0.00859	0.0095	0.0122	0.0176	0.0206
Barium	mg/L	2	0.183	0.0016	0.01	0.01	0.03	0.02	<0.01	0.04	0.02	0.02	0.01	ND	-	-	-	ND	0.0249	0.0556	0.0232	0.0128	0.0126
Beryllium	mg/L	0.004	0.00157	0.000182	0.001	0.077	0.088	0.087	0.088	0.089	0.084	0.081	0.084	0.0935	0.0746	0.0778	0.06	0.0743	0.0492	0.052	0.0711	0.112	0.119
Cadmium	mg/L	0.005	0.001	0.000217	0.001	0.006	0.01	0.009	0.011	0.01	0.009	0.01	0.01	0.00843	0.00909	0.00985	0.00583	0.00879	0.00594	0.00523	0.00823	0.00959	0.0102
Chromium	mg/L	0.1	0.00248	0.00153	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	0.00228	<0.00153	<0.00153	0.00157J
Cobalt	mg/L	0.006	0.00174	0.000134	0.0005	0.15	0.19	0.18	0.2	0.18	0.19	0.19	0.18	0.148	0.173	0.175	0.129	0.149	0.117	0.115	0.168	0.206	0.184
Radium-226/228	pCi/L	10.1	3.96	0.375	5	4.55	5.96	5.2	4.5	1.8	2.90	2.1	3.4	1.3	1.64	1.49	1.17	1.6	1.12	1.4	2.18	4.38	1.53
Fluoride	mg/L	4	0.5	0.000128	0.001	1.5	1.6	1.3	1.2	1.2	1.2	1	1.2	2.82	3.02	2.5	1.57	2.32	ND	1.18	1.7	2.66	2.39
Lead	mg/L	0.015	0.0106	0.00339	0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.00149	0.00632	0.00473	0.00235	0.00203	0.00239
Lithium	mg/L	0.552	1.64	0.00013	0.0002	0.49	0.57	0.6	0.66	0.53	0.5	0.59	0.45	0.478	0.374	0.446	0.36	0.416	0.395	0.381	0.413	0.522	0.585
Mercury	mg/L	0.002	0.0002	0.00061	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000241	0.000224	ND	0.000878	0.736	0.000753	0.00643	0.00235	0.0026	0.000762
Molybdenum	mg/L	0.1	0.005	0.00151	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	ND	ND	ND	ND	ND	<0.000610	<0.000610	<0.000610	<0.000610
Selenium	mg/L	0.05	0.005	0.13	0.5	<0.01	<0.01	0.01	0.01	0.01	0.01	0.01	<0.01	<0.01	ND	-	-	0.0533	ND	<0.00151	<0.00151	<0.000739	<0.000739
Thallium	mg/L	0.002	0.001	0.000148	0.001	<0.002	<0.002	<0.002	0.002	0.002	0.002	0.002	0.002	0.00221	-	-	-	0.00238	0.00224	0.00213	0.00212	0.00228	0.00248

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 -- - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Sample Location:					SSP MW-2																			
Compliance Phase:					Background								Initial A.M.			Assessment Monitoring								
Sample Dates:					6/21/2016	8/23/2016	10/18/2016	12/20/2016	2/21/2017	5/3/2017	6/14/2017	8/24/2017	3/20/2018	6/9/2018	1/15/2019	6/28/2019	12/18/2019	6/17/2020	2/10/2021	7/13/2021	7/20/2022	12/13/2022		
Constituent	Unit	MCL	Site BTV	MDL	RDL																			
Field Parameters																								
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	4.43	3.96	3.9	4.95	4.14	4.00	4.52	4.49	4.60
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	9,970	8,650	1,030	1,350	8,690	8,450	7,095	9,564	9,029	9,631
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	67.1	46.4	42.1	39.9	55.4	14.6	4.11	11.89	26.07	3.23
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0	2.01	2.49	0.43	0.43	0.3	0.13	0.23	1.43	0.37
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	22.51	26.68	18.01	26.49	23.25	29.22	18.3	23.3	23.4	22.0
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	224	310	332	316	222	290	341.5	277.9	325.8	187.5
Appendix III																								
Boron	mg/L	N/A	1,490	0.0386	0.08	0.8	0.6	0.6	0.53	0.47	0.5	0.46	0.45	-	ND	ND	1.14	-	1	0.81	0.585	0.689	0.72	
Calcium	mg/L	N/A	728	0.127	0.5	742	838	931	925	818	899	872	811	-	881	756	658	-	822	728	867	812	846	
Chloride	mg/L	N/A	1,770	35.7	50	2,070	2,470	2,610	2,550	2,550	2,520	2,640	2,790	-	2,560	2,500	1,640	-	2,650	1,810	2,300	2,150	2,300	
Fluoride	mg/L	N/A	0.5	0.13	0.5	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	ND	ND	2.56	ND	0.622	ND	0.509	0.293J	0.563	0.295	
pH, Field	SU	N/A	5.26-6.35			5.68	5.39	5.26	5.03	4.84	4.96	4.76	4.55	4.66	4.43	3.96	3.87	4.95	4.14	4	4.52	4.49	4.60	
Sulfate	mg/L	N/A	3,320	37.8	50	2,030	2,070	2,080	1,970	2,080	2,080	2,120	2,070	-	2,170	2,030	2,300	-	2,610	2,250	2,090	2,230	2,120	
Total Dissolved Solids	mg/L	N/A	8,180	100	100	6,690	7,070	7,370	6,990	6,990	5,960	6,940	6,910	-	6,630	6,790	6,100	-	5,850	6,120	6,410	6,700	6,700	
Appendix IV																								
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	<0.000378	<0.000506	<0.000506	
Arsenic	mg/L	0.01	0.00100	0.000313	0.001	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.0303	ND	0.00552	ND	0.00918	0.00622	0.00643	0.00498	0.00551	0.00539	
Barium	mg/L	2	0.183	0.0016	0.01	0.39	0.04	0.06	0.14	0.03	0.06	0.03	0.06	ND	-	-	-	0.028	0.0261	0.0197	0.0497	0.017	0.0201	
Beryllium	mg/L	0.004	0.00157	0.000182	0.001	0.009	0.006	0.016	0.025	0.026	0.03	0.03	0.04	0.231	0.0475	0.0475	0.0713	0.0587	0.0587	0.0704	0.0461	0.0548	0.0525	
Cadmium	mg/L	0.005	0.001	0.000217	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	ND	0.00689	0.0046	0.0041	0.00446	0.00109	0.00294	0.00179		
Chromium	mg/L	0.1	0.00248	0.00153	0.002	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00153	<0.00153	<0.00153	<0.00153	
Cobalt	mg/L	0.006	0.00174	0.000134	0.0005	0.06	0.05	0.07	0.07	0.06	0.06	0.06	0.06	0.0571	0.0539	0.0645	0.19	0.0922	0.0933	0.116	0.0539	0.0788	0.0569	
Radium-226/228	pCi/L	10.1	3.96	0.375	5	2.79	3.11	1.9	1.7	14.6	2.100	2.3	4.3	1.7	2.11	2.27	1.62	2.3	2.13	2.33	3.36	3.21	2.83	
Fluoride	mg/L	4	0.5	0.000128	0.001	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	ND	ND	2.56	ND	0.622	ND	0.509	0.293J	0.563	0.295	
Lead	mg/L	0.015	0.0106	0.00339	0.005	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	ND	0.00219	0.00539	0.00304	0.00597	0.00227	0.00108	0.00107	0.000841J	
Lithium	mg/L	0.552	1.64	0.00013	0.0002	0.87	0.84	1.07	1.03	0.86	0.9	0.95	0.67	4.9	0.751	0.77	0.597	0.579	0.739	0.564	0.752	0.593	0.805	
Mercury	mg/L	0.002	0.0002	0.00061	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	-	-	-	ND	ND	<0.000130	<0.000130	<0.000130	<0.000130	
Molybdenum	mg/L	0.1	0.005	0.00151	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	-	-	-	ND	ND	<0.000610	<0.000610	<0.000610	<0.000610	
Selenium	mg/L	0.05	0.005	0.13	0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.025	ND	<0.00151	<0.00151	<0.000739	<0.000739	
Thallium	mg/L	0.002	0.001	0.000148	0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	ND	ND	ND	0.00112	0.0013	ND	0.000516J	<0.000148	<0.000472	<0.000472	

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Constituent	Unit	MCL	Site BTV	MDL	RDL	SSP MW-3																			
						Background					Initial A.M.		Assessment Monitoring												
						6/21/2016	8/23/2016	10/18/2016	12/20/2016	2/21/2017	5/4/2017	6/13/2017	8/24/2017	3/21/2018	6/11/2018	1/15/2019	6/27/2019	12/18/2019	6/17/2020	2/9/2021	7/13/2021	7/19/2022	12/13/2022		
Field Parameters																									
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.3	4.29	4.15	4.3	4.73	3.6	4.29	4.18	4.42	4.17
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,670	7,490	8,980	8,520	8,510	7,870	6,797	8,264	8,154	7,669
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49.1	44.8	19.1	7.7	20.1	42.6	6.50	2.87	11.11	38.92
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.09	0.67	17.22	0.42	1.99	3.99	0.06	0.03	0.57	0.30
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21.91	28.11	20.45	26.99	22.81	25.61	17.5	23.3	23.9	22.7
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	282	323	323	272	299	331	301.3	274.4	193.4	80.7
Appendix III																									
Boron	mg/L	N/A	1,490	0.0386	0.08	3.2	2.9	2.7	2.86	2.68	2.24	2.84	2.59	-	2.5	2.47	2.94	-	-	-	2.78	2.87	2.57	2.35	3.14
Calcium	mg/L	N/A	728	0.127	0.5	647	693	699	703	694	694	673	646	-	689	618	712	-	722	712	690	658	673		
Chloride	mg/L	N/A	1,770	35.7	50	1,560	1,790	1,880	1,700	1,830	1,860	1,810	1,790	-	1,720	1,770	1,870	-	2,060	1,700	1,690	1,670	1,480		
Fluoride	mg/L	N/A	0.5	0.13	0.5	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.8	ND	1.82	2.72	ND	0.551	ND	0.441J	0.466J	0.441	0.435		
pH, Field	SU	N/A	5.26-6.35			4.4	4.3	4.31	4.16	4.45	4.34	4.16	4.20	4.26	4.29	4.15	4.25	4.73	3.6	4.29	4.18	4.42	4.17		
Sulfate	mg/L	N/A	3,320	37.8	50	2,400	2,500	2,440	2,480	2,520	2,380	2,510	2,510	-	2,500	2,550	2,370	-	2,760	2,430	2,370	2,200	2,210		
Total Dissolved Solids	mg/L	N/A	8,180	100	100	6,510	6,610	6,690	5,780	6,450	6,670	6,370	6,260	-	6,370	6,410	5,780	-	6,330	2,200	5,860	6,180	6,020		
Appendix IV																									
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	<0.000378	0.00128J	<0.000506		
Arsenic	mg/L	0.01	0.00100	0.000313	0.001	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	ND	ND	0.00655	ND	0.00314	0.00695	0.00831	0.0065	0.00636	0.00829		
Barium	mg/L	2	0.183	0.0016	0.01	0.03	0.05	0.04	0.09	0.03	0.03	0.02	0.03	ND	-	-	-	0.0192	0.0239	0.0218	0.0217	0.0221	0.0265		
Beryllium	mg/L	0.004	0.00157	0.000182	0.001	0.122	0.118	0.12	0.121	0.121	0.12	0.116	0.113	0.139	0.11	0.101	0.107	0.0992	0.105	0.12	0.104	0.0904	0.116		
Cadmium	mg/L	0.005	0.001	0.000217	0.001	0.064	0.055	0.05	0.062	0.067	0.081	0.066	0.078	0.0686	0.0775	0.0877	0.0711	0.0788	0.0787	0.0736	0.0752	0.0698	0.0655		
Chromium	mg/L	0.1	0.00248	0.00153	0.002	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.0	0.00616	0.00575	0.0135	0.00235	0.00319		
Cobalt	mg/L	0.006	0.00174	0.000134	0.0005	0.64	0.56	0.58	0.59	0.62	0.62	0.56	0.58	0.506	0.58	0.621	0.524	0.35	0.558	0.584	0.566	0.495	0.511		
Radium-226/228	pCi/L	10.1	3.96	0.375	5	24.5	49.8	24.7	37	27.8	23.2	28.4	32.2	30.8	29.2	35.4	33.4	34.3	32	40.2	34.2	27.3	36.6		
Fluoride	mg/L	4	0.5	0.000128	0.001	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.8	ND	1.82	2.72	ND	0.551	ND	0.441J	0.466J	0.441	0.435		
Lead	mg/L	0.015	0.0106	0.00339	0.005	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	0.00652	ND	0.00441	0.0044	0.00519	0.00545	0.00533	0.00468	0.0028	0.00582		
Lithium	mg/L	0.552	1.64	0.00013	0.0002	0.72	0.64	0.75	0.73	0.66	0.61	0.67	0.53	0.644	0.526	0.514	0.587	0.549	0.662	0.593	0.589	0.511	0.622		
Mercury	mg/L	0.002	0.0002	0.00061	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	-	-	-	ND	ND	0.000162J	<0.000130	0.000669	0.000461		
Molybdenum	mg/L	0.1	0.005	0.00151	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	-	-	-	ND	ND	<0.000610	0.000667J	0.0011J	<0.000610		
Selenium	mg/L	0.05	0.005	0.13	0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	0.00676	ND	<0.00151	<0.00151	0.000859J	<0.000739		
Thallium	mg/L	0.002	0.001	0.000148	0.001	0.009	0.008	0.01	0.01	0.01	0.01	0.01	0.008	0.00982	0.0097	0.0112	0.0076	0.00961	0.0102	0.0101	0.00971	0.00795	0.0094		

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.



Constituent	Unit	MCL	Site BTV	MDL	RDL	SSP MW-4																		
						Background						Initial A.M.		Assessment Monitoring										
						6/21/2016	8/23/2016	10/18/2016	12/20/2016	2/21/2017	5/4/2014	6/14/2017	8/24/2017	3/21/2018	6/11/2018	1/15/2019	6/27/2019	12/18/2019	6/17/2020	2/10/2021	7/13/2021	7/20/2022	12/12/2022	
Field Parameters																								
pH	su	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	6.12	6.35	6.2	6.61	5.67	6.63	11.96	6.29	6.31
Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-	-	-	5,690	5,390	5,710	5,660	5,640	5,260	4,313	4,917	5,551	5,401
Turbidity	NTU	-	-	-	-	-	-	-	-	-	-	-	-	-	38.5	38.6	12.8	5.2	35.1	0	7.07	2.79	4.73	0.98
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0.14	0.72	2.19	0.71	0.41	2.45	0.22	0.63	0.49	0.29
Temperature	°C	-	-	-	-	-	-	-	-	-	-	-	-	-	23.64	27.83	19.92	25.63	22.52	25.55	18.4	23.2	23.8	22.8
Oxidation Reduction Potential	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-25	5	32	139	81	41	18.5	-122.7	130.3	-77.8
Appendix III																								
Boron	mg/L	N/A	1.490	0.0386	0.08	1.3	1.3	1.31	1.28	1.24	1.47	1.31	1.15	-	1.35	ND	1.51	-	1.17	1.12	0.102	1.39	1.16	
Calcium	mg/L	N/A	728	0.127	0.5	399	395	413	413	390	455	413	365	-	408	371	414	-	403	398	389	428	428	
Chloride	mg/L	N/A	1,770	35.7	50	1,120	1,110	1,240	1,170	1,180	1,120	1,190	1,190	-	1,090	1,150	1,120	-	1,350	990	378	1,140	1,110	
Fluoride	mg/L	N/A	0.5	0.13	0.5	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND	ND	2.84	ND	ND	ND	<0.130	0.227J	0.103J	0.0585J	
pH, Field	SU	N/A	5.26-6.35			6.38	6.12	6.26	5.78	5.95	6.26	6.26	6.05	6.26	6.12	6.35	6.15	6.61	5.67	6.63	11.96	6.29	6.31	
Sulfate	mg/L	N/A	3,320	37.8	50	1,190	1,140	1,210	1,140	1,240	1,180	1,200	1,170	-	1,220	1,170	1,060	-	1,340	982	82	1,090	1,080	
Total Dissolved Solids	mg/L	N/A	8,180	100	100	3,940	3,880	3,930	3,850	3,890	3,390	3,660	3,630	-	3,870	3,790	4,040	-	3,880	2,890	3,080	3,740	3,660	
Appendix IV																								
Antimony	mg/L	0.006	0.002	0.000378	0.002	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	ND	-	-	-	ND	ND	<0.000378	0.000415J	<0.000506	<0.000506	
Arsenic	mg/L	0.01	0.00100	0.000313	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	ND	0.00203	ND	ND	0.00103	0.000941J	0.000344J	0.00084J	0.000497J	
Barium	mg/L	2	0.183	0.0016	0.01	0.06	0.04	0.03	0.05	0.03	0.03	0.02	0.02	ND	-	-	-	0.0203	0.0273	0.027	0.103	0.0204	0.0212	
Beryllium	mg/L	0.004	0.00157	0.000182	0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	ND	ND	ND	ND	ND	ND	<0.000182	<0.000182	<0.000274	<0.000274	
Cadmium	mg/L	0.005	0.001	0.000217	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	ND	ND	ND	<0.000217	<0.000217	<0.000217	<0.000217	
Chromium	mg/L	0.1	0.00248	0.00153	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	0.00762	0.00259	0.176	0.00284	0.00493	
Cobalt	mg/L	0.006	0.00174	0.000134	0.0005	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	ND	ND	ND	ND	ND	ND	0.000336J	<0.000134	<0.000261	0.000289J	
Radium-226/228	pCi/L	10.1	3.96	0.375	5	5.38	6.82	2.3	3	3.5	4.4	3.2	2.7	3.19	2.77	2.82	2.02	3.07	2.6	1.62	1.46	2.68	3.08	
Fluoride	mg/L	4	0.5	0.000128	0.001	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND	ND	2.84	ND	ND	ND	<0.130	0.227J	0.103J	0.0585J	
Lead	mg/L	0.015	0.0106	0.00339	0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	ND	ND	ND	ND	ND	0.000161J	0.000276J	0.000234J	<0.000167	
Lithium	mg/L	0.552	1.64	0.00013	0.0002	0.94	0.87	1.02	1	0.87	0.87	0.95	0.78	1.01	0.81	0.858	0.919	0.706	0.911	0.727	0.146	0.767	0.875	
Mercury	mg/L	0.002	0.0002	0.00061	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ND	-	-	-	ND	ND	<0.000130	<0.000130	<0.000130	<0.000130	
Molybdenum	mg/L	0.1	0.005	0.00151	0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	-	-	-	ND	ND	0.00321J	0.0629	0.000864J	0.00594	
Selenium	mg/L	0.05	0.005	0.13	0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	ND	-	-	-	ND	ND	<0.00151	0.00441J	<0.000739	<0.000739	
Thallium	mg/L	0.002	0.001	0.000148	0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	ND	ND	ND	ND	ND	ND	<0.000148	<0.000148	<0.000472	<0.000472	

Notes:
 NTU - Nephelometric Turbidity Unit.
 mV - milli Volt
 mg/L - milligrams per liter.
 SU - standard units; pH is a field parameter.
 pCi/L - picocuries per liter.
 J - Value is below the Reporting Limit and above the Method Detection Limit; therefore, value is estimated and not considered significant.
 MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
 - - not analyzed.
 All metals were analyzed as total unless otherwise specified.

Appendix D

Lab Reports

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ANALYTICAL REPORT

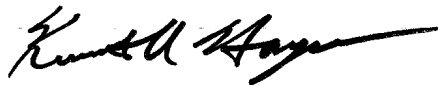
Eurofins Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-141590-1

Client Project/Site: Gibbons Creek Steam Electric Station

For:
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Attn: David Vogt



Authorized for release by:
8/3/2022 10:45:02 AM

Ken Hayes, Project Manager II
(615)301-5035
Ken.Hayes@et.eurofinsus.com

LINKS

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results through



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Job ID: 180-141590-1

Laboratory: Eurofins Pittsburgh

Narrative

**Job Narrative
180-141590-1**

Comments

No additional comments.

Receipt

The samples were received on 7/20/2022 8:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.1° C.

GC Semi VOA

Method 9056A: The following samples were diluted due to the conductivity of the sample matrix: AP MW-5 (180-141590-2) and AP MW-4 (180-141590-3). Elevated reporting limits (RLs) are provided.

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

Metals

Method 6020B: The following sample was diluted due to the nature of the sample matrix: AP MW-10 (180-141590-1). Elevated reporting limits (RLs) are provided.

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

General Chemistry

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



Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Laboratory: Eurofins Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704528	03-31-23

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

Analysis Method	Prep Method	Matrix	Analyte
SM 2540C		Water	Total Dissolved Solids

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-141590-1	AP MW-10	Water	07/19/22 15:55	07/20/22 08:45
180-141590-2	AP MW-5	Water	07/19/22 16:40	07/20/22 08:45
180-141590-3	AP MW-4	Water	07/19/22 17:30	07/20/22 08:45
180-141590-4	EB-2	Water	07/19/22 17:30	07/20/22 08:45

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Client Sample ID: AP MW-10

Lab Sample ID: 180-141590-1

Date Collected: 07/19/22 15:55

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406178	07/25/22 16:10	SNL	TAL PIT
Instrument ID: CHIC2100A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406366	07/26/22 15:20	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		2			406474	07/27/22 10:14	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407008	08/01/22 12:34	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 11:36	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	406042	07/22/22 18:01	JCR	TAL PIT
Instrument ID: NOEQUIP										

Client Sample ID: AP MW-5

Lab Sample ID: 180-141590-2

Date Collected: 07/19/22 16:40

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406178	07/25/22 16:25	SNL	TAL PIT
Instrument ID: CHIC2100A										
Total/NA	Analysis	EPA 9056A		5			406446	07/27/22 19:04	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406366	07/26/22 15:35	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406474	07/27/22 10:17	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407008	08/01/22 12:34	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 11:37	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	406042	07/22/22 18:01	JCR	TAL PIT
Instrument ID: NOEQUIP										

Client Sample ID: AP MW-4

Lab Sample ID: 180-141590-3

Date Collected: 07/19/22 17:30

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406178	07/25/22 16:40	SNL	TAL PIT
Instrument ID: CHIC2100A										
Total/NA	Analysis	EPA 9056A		2.5			406306	07/26/22 20:11	SNL	TAL PIT
Instrument ID: CHIC2100A										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Client Sample ID: AP MW-4

Lab Sample ID: 180-141590-3

Date Collected: 07/19/22 17:30

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406366	07/26/22 15:38	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406474	07/27/22 10:19	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407008	08/01/22 12:34	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 11:38	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	406042	07/22/22 18:01	JCR	TAL PIT
Instrument ID: NOEQUIP										

Client Sample ID: EB-2

Lab Sample ID: 180-141590-4

Date Collected: 07/19/22 17:30

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406178	07/25/22 16:55	SNL	TAL PIT
Instrument ID: CHIC2100A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406366	07/26/22 15:42	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406474	07/27/22 10:27	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407008	08/01/22 12:34	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 11:39	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	406045	07/22/22 18:11	JCR	TAL PIT
Instrument ID: NOEQUIP										

Laboratory References:

TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

EMR = Elizabeth Rarick

RJR = Ron Rosenbaum

Batch Type: Analysis

JCR = Jessica Rodgers

RJR = Ron Rosenbaum

RSK = Robert Kurtz

SNL = Sean Lordo

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Client Sample ID: AP MW-10

Lab Sample ID: 180-141590-1

Date Collected: 07/19/22 15:55

Matrix: Water

Date Received: 07/20/22 08:45

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	129		1.00	0.713	mg/L			07/25/22 16:10	1
Fluoride	0.801		0.100	0.0260	mg/L			07/25/22 16:10	1
Sulfate	431		1.00	0.756	mg/L			07/25/22 16:10	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0101		0.00100	0.000282	mg/L		07/22/22 13:53	07/26/22 15:20	1
Barium	0.0138		0.0100	0.00314	mg/L		07/22/22 13:53	07/26/22 15:20	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		07/22/22 13:53	07/26/22 15:20	1
Boron	5.19	B	0.160	0.120	mg/L		07/22/22 13:53	07/27/22 10:14	2
Cadmium	0.000498	J	0.00100	0.000217	mg/L		07/22/22 13:53	07/26/22 15:20	1
Calcium	93.9		0.500	0.127	mg/L		07/22/22 13:53	07/26/22 15:20	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/22/22 13:53	07/26/22 15:20	1
Cobalt	0.0154		0.000500	0.000261	mg/L		07/22/22 13:53	07/26/22 15:20	1
Molybdenum	0.0327		0.00500	0.000610	mg/L		07/22/22 13:53	07/26/22 15:20	1
Lead	<0.000167		0.00100	0.000167	mg/L		07/22/22 13:53	07/26/22 15:20	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/22/22 13:53	07/26/22 15:20	1
Selenium	0.00236	J	0.00500	0.000739	mg/L		07/22/22 13:53	07/26/22 15:20	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/22/22 13:53	07/26/22 15:20	1
Lithium	0.0243		0.00500	0.000831	mg/L		07/22/22 13:53	07/26/22 15:20	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 12:34	08/02/22 11:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1150		10.0	10.0	mg/L			07/22/22 18:01	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Client Sample ID: AP MW-5

Lab Sample ID: 180-141590-2

Date Collected: 07/19/22 16:40

Matrix: Water

Date Received: 07/20/22 08:45

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	491		1.00	0.713	mg/L			07/25/22 16:25	1
Fluoride	2.66		0.100	0.0260	mg/L			07/25/22 16:25	1
Sulfate	2810		5.00	3.78	mg/L			07/27/22 19:04	5

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0176		0.00100	0.000282	mg/L		07/22/22 13:53	07/26/22 15:35	1
Barium	0.0128		0.0100	0.00314	mg/L		07/22/22 13:53	07/26/22 15:35	1
Beryllium	0.112		0.00100	0.000274	mg/L		07/22/22 13:53	07/26/22 15:35	1
Boron	3.25	B	0.0800	0.0601	mg/L		07/22/22 13:53	07/27/22 10:17	1
Cadmium	0.00959		0.00100	0.000217	mg/L		07/22/22 13:53	07/26/22 15:35	1
Calcium	615		0.500	0.127	mg/L		07/22/22 13:53	07/26/22 15:35	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/22/22 13:53	07/26/22 15:35	1
Cobalt	0.206		0.000500	0.000261	mg/L		07/22/22 13:53	07/26/22 15:35	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/22/22 13:53	07/26/22 15:35	1
Lead	0.00203		0.00100	0.000167	mg/L		07/22/22 13:53	07/26/22 15:35	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/22/22 13:53	07/26/22 15:35	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/22/22 13:53	07/26/22 15:35	1
Thallium	0.00228		0.00100	0.000472	mg/L		07/22/22 13:53	07/26/22 15:35	1
Lithium	0.522		0.00500	0.000831	mg/L		07/22/22 13:53	07/26/22 15:35	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00260		0.000200	0.000130	mg/L		08/01/22 12:34	08/02/22 11:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	5030		40.0	40.0	mg/L			07/22/22 18:01	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Client Sample ID: AP MW-4

Lab Sample ID: 180-141590-3

Date Collected: 07/19/22 17:30

Matrix: Water

Date Received: 07/20/22 08:45

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	524		1.00	0.713	mg/L			07/25/22 16:40	1
Fluoride	0.0488	J	0.100	0.0260	mg/L			07/25/22 16:40	1
Sulfate	1530		2.50	1.89	mg/L			07/26/22 20:11	2.5

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00226		0.00100	0.000282	mg/L		07/22/22 13:53	07/26/22 15:38	1
Barium	0.0302		0.0100	0.00314	mg/L		07/22/22 13:53	07/26/22 15:38	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		07/22/22 13:53	07/26/22 15:38	1
Boron	0.566	B	0.0800	0.0601	mg/L		07/22/22 13:53	07/27/22 10:19	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		07/22/22 13:53	07/26/22 15:38	1
Calcium	545		0.500	0.127	mg/L		07/22/22 13:53	07/26/22 15:38	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/22/22 13:53	07/26/22 15:38	1
Cobalt	0.00107		0.000500	0.000261	mg/L		07/22/22 13:53	07/26/22 15:38	1
Molybdenum	0.000686	J	0.00500	0.000610	mg/L		07/22/22 13:53	07/26/22 15:38	1
Lead	0.000338	J	0.00100	0.000167	mg/L		07/22/22 13:53	07/26/22 15:38	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/22/22 13:53	07/26/22 15:38	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/22/22 13:53	07/26/22 15:38	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/22/22 13:53	07/26/22 15:38	1
Lithium	0.317		0.00500	0.000831	mg/L		07/22/22 13:53	07/26/22 15:38	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 12:34	08/02/22 11:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3370		40.0	40.0	mg/L			07/22/22 18:01	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Client Sample ID: EB-2

Lab Sample ID: 180-141590-4

Date Collected: 07/19/22 17:30

Matrix: Water

Date Received: 07/20/22 08:45

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			07/25/22 16:55	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/25/22 16:55	1
Sulfate	0.966	J	1.00	0.756	mg/L			07/25/22 16:55	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		07/22/22 13:53	07/26/22 15:42	1
Barium	<0.00314		0.0100	0.00314	mg/L		07/22/22 13:53	07/26/22 15:42	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		07/22/22 13:53	07/26/22 15:42	1
Boron	<0.0601		0.0800	0.0601	mg/L		07/22/22 13:53	07/27/22 10:27	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		07/22/22 13:53	07/26/22 15:42	1
Calcium	<0.127		0.500	0.127	mg/L		07/22/22 13:53	07/26/22 15:42	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/22/22 13:53	07/26/22 15:42	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		07/22/22 13:53	07/26/22 15:42	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/22/22 13:53	07/26/22 15:42	1
Lead	<0.000167		0.00100	0.000167	mg/L		07/22/22 13:53	07/26/22 15:42	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/22/22 13:53	07/26/22 15:42	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/22/22 13:53	07/26/22 15:42	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/22/22 13:53	07/26/22 15:42	1
Lithium	0.000898	J	0.00500	0.000831	mg/L		07/22/22 13:53	07/26/22 15:42	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 12:34	08/02/22 11:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			07/22/22 18:11	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-406178/6
Matrix: Water
Analysis Batch: 406178

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			07/25/22 12:57	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/25/22 12:57	1
Sulfate	<0.756		1.00	0.756	mg/L			07/25/22 12:57	1

Lab Sample ID: LCS 180-406178/7
Matrix: Water
Analysis Batch: 406178

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.69		mg/L		99	80 - 120
Fluoride	2.50	2.525		mg/L		101	80 - 120
Sulfate	50.0	49.44		mg/L		99	80 - 120

Lab Sample ID: 180-141590-4 MS
Matrix: Water
Analysis Batch: 406178

Client Sample ID: EB-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	<0.713		50.0	50.20		mg/L		100	80 - 120
Fluoride	<0.0260		2.50	2.533		mg/L		101	80 - 120
Sulfate	0.966	J	50.0	49.89		mg/L		98	80 - 120

Lab Sample ID: 180-141590-4 MSD
Matrix: Water
Analysis Batch: 406178

Client Sample ID: EB-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	<0.713		50.0	49.85		mg/L		100	80 - 120	1	15
Fluoride	<0.0260		2.50	2.502		mg/L		100	80 - 120	1	15
Sulfate	0.966	J	50.0	49.60		mg/L		97	80 - 120	1	15

Lab Sample ID: MB 180-406306/30
Matrix: Water
Analysis Batch: 406306

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			07/26/22 18:42	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/26/22 18:42	1
Sulfate	<0.756		1.00	0.756	mg/L			07/26/22 18:42	1

Lab Sample ID: LCS 180-406306/31
Matrix: Water
Analysis Batch: 406306

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.07		mg/L		100	80 - 120
Fluoride	2.50	2.580		mg/L		103	80 - 120
Sulfate	50.0	49.50		mg/L		99	80 - 120

Eurofins Pittsburgh

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 180-141443-D-1 MS
Matrix: Water
Analysis Batch: 406306

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	<0.713		50.0	51.96		mg/L		104	80 - 120
Fluoride	<0.0260		2.50	2.620		mg/L		105	80 - 120
Sulfate	<0.756		50.0	51.54		mg/L		103	80 - 120

Lab Sample ID: 180-141443-D-1 MSD
Matrix: Water
Analysis Batch: 406306

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	<0.713		50.0	51.30		mg/L		103	80 - 120	1	15
Fluoride	<0.0260		2.50	2.603		mg/L		104	80 - 120	1	15
Sulfate	<0.756		50.0	51.20		mg/L		102	80 - 120	1	15

Lab Sample ID: MB 180-406446/34
Matrix: Water
Analysis Batch: 406446

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			07/27/22 19:34	1
Fluoride	0.02745	J	0.100	0.0260	mg/L			07/27/22 19:34	1
Sulfate	<0.756		1.00	0.756	mg/L			07/27/22 19:34	1

Lab Sample ID: MB 180-406446/57
Matrix: Water
Analysis Batch: 406446

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			07/28/22 01:16	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/28/22 01:16	1
Sulfate	<0.756		1.00	0.756	mg/L			07/28/22 01:16	1

Lab Sample ID: MB 180-406446/6
Matrix: Water
Analysis Batch: 406446

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			07/27/22 12:37	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/27/22 12:37	1
Sulfate	<0.756		1.00	0.756	mg/L			07/27/22 12:37	1

Lab Sample ID: LCS 180-406446/35
Matrix: Water
Analysis Batch: 406446

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.03		mg/L		100	80 - 120
Fluoride	2.50	2.753		mg/L		110	80 - 120
Sulfate	50.0	50.60		mg/L		101	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 180-406446/58
Matrix: Water
Analysis Batch: 406446

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	53.61		mg/L		107	80 - 120
Fluoride	2.50	2.731		mg/L		109	80 - 120
Sulfate	50.0	51.74		mg/L		103	80 - 120

Lab Sample ID: LCS 180-406446/7
Matrix: Water
Analysis Batch: 406446

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	51.24		mg/L		102	80 - 120
Fluoride	2.50	2.744		mg/L		110	80 - 120
Sulfate	50.0	51.67		mg/L		103	80 - 120

Lab Sample ID: 180-141525-D-4 MS
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	6.00		50.0	58.51		mg/L		105	80 - 120
Fluoride	0.0937	J B	2.50	2.575		mg/L		99	80 - 120
Sulfate	561		50.0	613.7	4	mg/L		105	80 - 120

Lab Sample ID: 180-141525-D-4 MSD
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	6.00		50.0	52.46		mg/L		93	80 - 120	11	15
Fluoride	0.0937	J B	2.50	2.353		mg/L		90	80 - 120	9	15
Sulfate	561		50.0	581.3	4	mg/L		40	80 - 120	5	15

Lab Sample ID: 180-141759-D-1 MS
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	7.18	F1	50.0	16.52	F1	mg/L		19	80 - 120
Fluoride	0.0884	J F1 B	2.50	0.5416	F1	mg/L		18	80 - 120
Sulfate	20.9	F1	50.0	29.86	F1	mg/L		18	80 - 120

Lab Sample ID: 180-141759-D-1 MSD
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	7.18	F1	50.0	16.76	F1	mg/L		19	80 - 120	1	15
Fluoride	0.0884	J F1 B	2.50	0.5686	F1	mg/L		19	80 - 120	5	15
Sulfate	20.9	F1	50.0	29.90	F1	mg/L		18	80 - 120	0	15

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-406016/1-A
Matrix: Water
Analysis Batch: 406366

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	<0.000282		0.00100	0.000282	mg/L		07/22/22 13:53	07/26/22 14:47	1
Barium	<0.00314		0.0100	0.00314	mg/L		07/22/22 13:53	07/26/22 14:47	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		07/22/22 13:53	07/26/22 14:47	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		07/22/22 13:53	07/26/22 14:47	1
Calcium	<0.127		0.500	0.127	mg/L		07/22/22 13:53	07/26/22 14:47	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/22/22 13:53	07/26/22 14:47	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		07/22/22 13:53	07/26/22 14:47	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/22/22 13:53	07/26/22 14:47	1
Lead	<0.000167		0.00100	0.000167	mg/L		07/22/22 13:53	07/26/22 14:47	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/22/22 13:53	07/26/22 14:47	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/22/22 13:53	07/26/22 14:47	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/22/22 13:53	07/26/22 14:47	1
Lithium	<0.000831		0.00500	0.000831	mg/L		07/22/22 13:53	07/26/22 14:47	1

Lab Sample ID: MB 180-406016/1-A
Matrix: Water
Analysis Batch: 406474

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Boron	<0.0601		0.0800	0.0601	mg/L		07/22/22 13:53	07/27/22 10:01	1

Lab Sample ID: LCS 180-406016/2-A
Matrix: Water
Analysis Batch: 406366

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	1.00	1.038		mg/L		104	80 - 120
Beryllium	0.500	0.5356		mg/L		107	80 - 120
Cadmium	0.500	0.5207		mg/L		104	80 - 120
Calcium	25.0	29.71		mg/L		119	80 - 120
Chromium	0.500	0.5117		mg/L		102	80 - 120
Cobalt	0.500	0.5379		mg/L		108	80 - 120
Molybdenum	0.500	0.5374		mg/L		107	80 - 120
Lead	0.500	0.5265		mg/L		105	80 - 120
Antimony	0.250	0.2760		mg/L		110	80 - 120
Selenium	1.00	0.9944		mg/L		99	80 - 120
Thallium	1.00	1.053		mg/L		105	80 - 120
Lithium	0.500	0.5164		mg/L		103	80 - 120

Lab Sample ID: LCS 180-406016/2-A
Matrix: Water
Analysis Batch: 406474

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

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QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-141637-F-1-B MS
Matrix: Water
Analysis Batch: 406366

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Sample	Sample Qualifier	Spike Added	MS	MS	Unit	D	%Rec	%Rec	
	Result			Result	Qualifier				Limits	Limits
Arsenic	0.00309		1.00	1.092		mg/L		109	75 - 125	
Barium	0.0680		1.00	1.094		mg/L		103	75 - 125	
Beryllium	0.000706	J	0.500	0.4099		mg/L		82	75 - 125	
Cadmium	<0.000217		0.500	0.4859		mg/L		97	75 - 125	
Calcium	722		25.0	771.6	4	mg/L		198	75 - 125	
Chromium	<0.00153		0.500	0.4923		mg/L		98	75 - 125	
Cobalt	0.000521		0.500	0.5360		mg/L		107	75 - 125	
Molybdenum	0.00112	J	0.500	0.5521		mg/L		110	75 - 125	
Lead	0.00378		0.500	0.5233		mg/L		104	75 - 125	
Antimony	0.00157	J	0.250	0.2545		mg/L		101	75 - 125	
Selenium	<0.000739		1.00	0.9135		mg/L		91	75 - 125	
Thallium	<0.000472		1.00	1.046		mg/L		105	75 - 125	
Lithium	1.24	F1	0.500	1.573	F1	mg/L		66	75 - 125	

Lab Sample ID: 180-141637-F-1-B MS
Matrix: Water
Analysis Batch: 406474

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Sample	Sample Qualifier	Spike Added	MS	MS	Unit	D	%Rec	%Rec	
	Result			Result	Qualifier				Limits	Limits
Boron	0.686	B	1.25	1.769		mg/L		87	75 - 125	

Lab Sample ID: 180-141637-F-1-C MSD
Matrix: Water
Analysis Batch: 406366

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Sample	Sample Qualifier	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec		RPD	
	Result			Result	Qualifier				Limits	Limits	RPD	Limit
Arsenic	0.00309		1.00	1.082		mg/L		108	75 - 125	1	20	
Barium	0.0680		1.00	1.098		mg/L		103	75 - 125	0	20	
Beryllium	0.000706	J	0.500	0.4137		mg/L		83	75 - 125	1	20	
Cadmium	<0.000217		0.500	0.4829		mg/L		97	75 - 125	1	20	
Calcium	722		25.0	766.0	4	mg/L		176	75 - 125	1	20	
Chromium	<0.00153		0.500	0.4832		mg/L		97	75 - 125	2	20	
Cobalt	0.000521		0.500	0.5315		mg/L		106	75 - 125	1	20	
Molybdenum	0.00112	J	0.500	0.5520		mg/L		110	75 - 125	0	20	
Lead	0.00378		0.500	0.5174		mg/L		103	75 - 125	1	20	
Antimony	0.00157	J	0.250	0.2543		mg/L		101	75 - 125	0	20	
Selenium	<0.000739		1.00	0.9116		mg/L		91	75 - 125	0	20	
Thallium	<0.000472		1.00	1.027		mg/L		103	75 - 125	2	20	
Lithium	1.24	F1	0.500	1.628		mg/L		78	75 - 125	3	20	

Lab Sample ID: 180-141637-F-1-C MSD
Matrix: Water
Analysis Batch: 406474

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Sample	Sample Qualifier	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec		RPD	
	Result			Result	Qualifier				Limits	Limits	RPD	Limit
Boron	0.686	B	1.25	1.815		mg/L		90	75 - 125	3	20	

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-407008/1-A
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 407008

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 12:34	08/02/22 11:22	1

Lab Sample ID: LCS 180-407008/2-A
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 407008

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00250	0.002617		mg/L		105	80 - 120

Lab Sample ID: 180-142145-A-1-B MS
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 407008

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.000130	F1 F2	0.00100	0.0005550	F1	mg/L		56	75 - 125

Lab Sample ID: 180-142145-A-1-C MSD
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 407008

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.000130	F1 F2	0.00100	0.001037	F2	mg/L		104	75 - 125	61	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-406042/2
Matrix: Water
Analysis Batch: 406042

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			07/22/22 18:01	1

Lab Sample ID: LCS 180-406042/1
Matrix: Water
Analysis Batch: 406042

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	186	204.0		mg/L		110	85 - 115

Lab Sample ID: 180-141584-C-1 DU
Matrix: Water
Analysis Batch: 406042

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	51.0		54.00		mg/L		6	10

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QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: MB 180-406045/2
Matrix: Water
Analysis Batch: 406045

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			07/22/22 18:11	1

Lab Sample ID: LCS 180-406045/1
Matrix: Water
Analysis Batch: 406045

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	186	166.0		mg/L		89	85 - 115

Lab Sample ID: 180-141637-C-2 DU
Matrix: Water
Analysis Batch: 406045

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	2750		2712		mg/L		1	10

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

HPLC/IC

Analysis Batch: 406178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-1	AP MW-10	Total/NA	Water	EPA 9056A	
180-141590-2	AP MW-5	Total/NA	Water	EPA 9056A	
180-141590-3	AP MW-4	Total/NA	Water	EPA 9056A	
180-141590-4	EB-2	Total/NA	Water	EPA 9056A	
MB 180-406178/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-406178/7	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-141590-4 MS	EB-2	Total/NA	Water	EPA 9056A	
180-141590-4 MSD	EB-2	Total/NA	Water	EPA 9056A	

Analysis Batch: 406306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-3	AP MW-4	Total/NA	Water	EPA 9056A	
MB 180-406306/30	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-406306/31	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-141443-D-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-141443-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Analysis Batch: 406446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-2	AP MW-5	Total/NA	Water	EPA 9056A	
MB 180-406446/34	Method Blank	Total/NA	Water	EPA 9056A	
MB 180-406446/57	Method Blank	Total/NA	Water	EPA 9056A	
MB 180-406446/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-406446/35	Lab Control Sample	Total/NA	Water	EPA 9056A	
LCS 180-406446/58	Lab Control Sample	Total/NA	Water	EPA 9056A	
LCS 180-406446/7	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-141525-D-4 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-141525-D-4 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	
180-141759-D-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-141759-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 406016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-1	AP MW-10	Total Recoverable	Water	3005A	
180-141590-2	AP MW-5	Total Recoverable	Water	3005A	
180-141590-3	AP MW-4	Total Recoverable	Water	3005A	
180-141590-4	EB-2	Total Recoverable	Water	3005A	
MB 180-406016/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-406016/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-141637-F-1-B MS	Matrix Spike	Total Recoverable	Water	3005A	
180-141637-F-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Analysis Batch: 406366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-1	AP MW-10	Total Recoverable	Water	EPA 6020B	406016
180-141590-2	AP MW-5	Total Recoverable	Water	EPA 6020B	406016
180-141590-3	AP MW-4	Total Recoverable	Water	EPA 6020B	406016
180-141590-4	EB-2	Total Recoverable	Water	EPA 6020B	406016
MB 180-406016/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	406016

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QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

Metals (Continued)

Analysis Batch: 406366 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-406016/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	406016
180-141637-F-1-B MS	Matrix Spike	Total Recoverable	Water	EPA 6020B	406016
180-141637-F-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	EPA 6020B	406016

Analysis Batch: 406474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-1	AP MW-10	Total Recoverable	Water	EPA 6020B	406016
180-141590-2	AP MW-5	Total Recoverable	Water	EPA 6020B	406016
180-141590-3	AP MW-4	Total Recoverable	Water	EPA 6020B	406016
180-141590-4	EB-2	Total Recoverable	Water	EPA 6020B	406016
MB 180-406016/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	406016
LCS 180-406016/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	406016
180-141637-F-1-B MS	Matrix Spike	Total Recoverable	Water	EPA 6020B	406016
180-141637-F-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	EPA 6020B	406016

Prep Batch: 407008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-1	AP MW-10	Total/NA	Water	7470A	
180-141590-2	AP MW-5	Total/NA	Water	7470A	
180-141590-3	AP MW-4	Total/NA	Water	7470A	
180-141590-4	EB-2	Total/NA	Water	7470A	
MB 180-407008/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-407008/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-142145-A-1-B MS	Matrix Spike	Total/NA	Water	7470A	
180-142145-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Analysis Batch: 407162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-1	AP MW-10	Total/NA	Water	EPA 7470A	407008
180-141590-2	AP MW-5	Total/NA	Water	EPA 7470A	407008
180-141590-3	AP MW-4	Total/NA	Water	EPA 7470A	407008
180-141590-4	EB-2	Total/NA	Water	EPA 7470A	407008
MB 180-407008/1-A	Method Blank	Total/NA	Water	EPA 7470A	407008
LCS 180-407008/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	407008
180-142145-A-1-B MS	Matrix Spike	Total/NA	Water	EPA 7470A	407008
180-142145-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	407008

General Chemistry

Analysis Batch: 406042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-1	AP MW-10	Total/NA	Water	SM 2540C	
180-141590-2	AP MW-5	Total/NA	Water	SM 2540C	
180-141590-3	AP MW-4	Total/NA	Water	SM 2540C	
MB 180-406042/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-406042/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-141584-C-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 406045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-4	EB-2	Total/NA	Water	SM 2540C	

Eurofins Pittsburgh

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-1

General Chemistry (Continued)

Analysis Batch: 406045 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-406045/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-406045/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-141637-C-2 DU	Duplicate	Total/NA	Water	SM 2540C	

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- 13

Chain of Custody Record



Client Information Client Contact: David Vogt (Will Nicholson) Company: HDR Inc Address: 17111 Preston Road Suite 200 City: Dallas State, Zip: TX, 75248-1232 Phone: 972-960-4461 (Tel) Email: david.vogt@hdrinc.com (william.nicholson@hdrinc.com) Project Name: Gibbons Creek Steam Electric Station Site:		Lab PM: Hayes, Ken E-Mail: Ken.Hayes@Eurofinset.com Carrier Tracking No(s): 180-67956-13428-2 State of Origin:	
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: WO #: Project #: 18023511 SSOW#:		Analysis Requested 903.0 - Standard Target List 904.0 - Standard Target List 9056A_ORGFM_28D - (MOD) Local Method 6020B, 7470A 2540C_Calcd - Local Method	
Sample Identification Sample Date Sample Time Sample Type (C=Comp, G=grab) Preservation Code: Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air)		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 903.0 - Standard Target List 904.0 - Standard Target List 9056A_ORGFM_28D - (MOD) Local Method 6020B, 7470A 2540C_Calcd - Local Method	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/Note: Total Number of containers:	
Empty Kit Relinquished by:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Relinquished by: <i>Will Nicholson</i> Date/Time: 7/19/22 1800 Company:		Relinquished by: <i>Ken Hayes</i> Date/Time: 7/20/22 845 Company: EPA, IT	
Relinquished by:		Relinquished by:	
Relinquished by:		Relinquished by:	
Custody Seal No.: 022 Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141590-1

Login Number: 141590

List Number: 1

Creator: Abernathy, Eric L

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

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

Laboratory Job ID: 180-141637-1

Client Project/Site: Gibbons Creek Steam Electric Station

For:
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Attn: David Vogt



Authorized for release by:
8/3/2022 10:45:35 AM

Ken Hayes, Project Manager II
(615)301-5035
Ken.Hayes@et.eurofinsus.com

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results through



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Job ID: 180-141637-1

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-141637-1

Comments

No additional comments.

Receipt

The samples were received on 7/20/2022 8:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.0° C.

GC Semi VOA

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

Metals

Method 6020B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 180-406016 and analytical batch 180-406366 were outside control limits for aluminum and lithium. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 6020B: The serial dilution performed for the following sample associated with batch 180-406366 was outside control limits for lithium: SSP/AP MW-1 (180-141637-1)

Method 6020B: The post digestion spike % recovery for barium and lithium associated with batch 180-406366 was outside of control limits. The associated sample is: SSP/AP MW-1 (180-141637-1).

Method 6020B: The following sample was diluted to bring the concentration of target analytes within the calibration range: SFL-6 (180-141637-3). Elevated reporting limits (RLs) are provided.

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

General Chemistry

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



Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Laboratory: Eurofins Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704528	03-31-23

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

Analysis Method	Prep Method	Matrix	Analyte
SM 2540C		Water	Total Dissolved Solids

- 1
- 2
- 3
- 4
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- 10
- 11
- 12
- 13

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-141637-1	SSP/AP MW-1	Water	07/19/22 13:00	07/20/22 08:45
180-141637-2	MNW-18	Water	07/19/22 14:00	07/20/22 08:45
180-141637-3	SFL-6	Water	07/19/22 14:50	07/20/22 08:45
180-141637-4	FB-1	Water	07/19/22 14:50	07/20/22 08:45

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Client Sample ID: SSP/AP MW-1

Lab Sample ID: 180-141637-1

Date Collected: 07/19/22 13:00

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		2.5			406312	07/26/22 20:23	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total/NA	Analysis	EPA 9056A		5			406446	07/27/22 18:50	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406366	07/26/22 15:56	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406474	07/27/22 10:32	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407010	08/01/22 12:36	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 12:07	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	20 mL	100 mL	406042	07/22/22 18:01	JCR	TAL PIT
Instrument ID: NOEQUIP										

Client Sample ID: MNW-18

Lab Sample ID: 180-141637-2

Date Collected: 07/19/22 14:00

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		2.5			406312	07/26/22 20:37	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406366	07/26/22 16:58	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406474	07/27/22 11:08	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407010	08/01/22 12:36	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 12:08	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	406045	07/22/22 18:11	JCR	TAL PIT
Instrument ID: NOEQUIP										

Client Sample ID: SFL-6

Lab Sample ID: 180-141637-3

Date Collected: 07/19/22 14:50

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406312	07/26/22 20:52	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total/NA	Analysis	EPA 9056A		10			406312	07/26/22 21:07	SNL	TAL PIT
Instrument ID: CHICS2100B										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Client Sample ID: SFL-6
Date Collected: 07/19/22 14:50
Date Received: 07/20/22 08:45

Lab Sample ID: 180-141637-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406366	07/26/22 17:01	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406474	07/27/22 11:16	RSK	TAL PIT
Instrument ID: NEMO										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		10			406474	07/27/22 11:19	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407010	08/01/22 12:36	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 12:09	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	406045	07/22/22 18:11	JCR	TAL PIT
Instrument ID: NOEQUIP										

Client Sample ID: FB-1
Date Collected: 07/19/22 14:50
Date Received: 07/20/22 08:45

Lab Sample ID: 180-141637-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406312	07/26/22 21:22	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406366	07/26/22 17:05	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406016	07/22/22 13:53	EMR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406474	07/27/22 11:21	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407010	08/01/22 12:36	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 12:11	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	406045	07/22/22 18:11	JCR	TAL PIT
Instrument ID: NOEQUIP										

Laboratory References:

TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

EMR = Elizabeth Rarick

RJR = Ron Rosenbaum

Batch Type: Analysis

JCR = Jessica Rodgers

RJR = Ron Rosenbaum

RSK = Robert Kurtz

SNL = Sean Lordo

Eurofins Pittsburgh

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Client Sample ID: SSP/AP MW-1

Lab Sample ID: 180-141637-1

Date Collected: 07/19/22 13:00

Matrix: Water

Date Received: 07/20/22 08:45

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1530		2.50	1.78	mg/L			07/26/22 20:23	2.5
Fluoride	0.105	J	0.250	0.0650	mg/L			07/26/22 20:23	2.5
Sulfate	3060		5.00	3.78	mg/L			07/27/22 18:50	5

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00309		0.00100	0.000282	mg/L		07/22/22 13:53	07/26/22 15:56	1
Barium	0.0680		0.0100	0.00314	mg/L		07/22/22 13:53	07/26/22 15:56	1
Beryllium	0.000706	J	0.00100	0.000274	mg/L		07/22/22 13:53	07/26/22 15:56	1
Boron	0.686	B	0.0800	0.0601	mg/L		07/22/22 13:53	07/27/22 10:32	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		07/22/22 13:53	07/26/22 15:56	1
Calcium	722		0.500	0.127	mg/L		07/22/22 13:53	07/26/22 15:56	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/22/22 13:53	07/26/22 15:56	1
Cobalt	0.000521		0.000500	0.000261	mg/L		07/22/22 13:53	07/26/22 15:56	1
Molybdenum	0.00112	J	0.00500	0.000610	mg/L		07/22/22 13:53	07/26/22 15:56	1
Lead	0.00378		0.00100	0.000167	mg/L		07/22/22 13:53	07/26/22 15:56	1
Antimony	0.00157	J	0.00200	0.000506	mg/L		07/22/22 13:53	07/26/22 15:56	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/22/22 13:53	07/26/22 15:56	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/22/22 13:53	07/26/22 15:56	1
Lithium	1.24	F1	0.00500	0.000831	mg/L		07/22/22 13:53	07/26/22 15:56	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 12:36	08/02/22 12:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	7380		50.0	50.0	mg/L			07/22/22 18:01	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Client Sample ID: MNW-18

Lab Sample ID: 180-141637-2

Date Collected: 07/19/22 14:00

Matrix: Water

Date Received: 07/20/22 08:45

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	386		2.50	1.78	mg/L			07/26/22 20:37	2.5
Fluoride	0.223	J	0.250	0.0650	mg/L			07/26/22 20:37	2.5
Sulfate	1210		2.50	1.89	mg/L			07/26/22 20:37	2.5

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00282		0.00100	0.000282	mg/L		07/22/22 13:53	07/26/22 16:58	1
Barium	0.0432		0.0100	0.00314	mg/L		07/22/22 13:53	07/26/22 16:58	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		07/22/22 13:53	07/26/22 16:58	1
Boron	0.358	B	0.0800	0.0601	mg/L		07/22/22 13:53	07/27/22 11:08	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		07/22/22 13:53	07/26/22 16:58	1
Calcium	299		0.500	0.127	mg/L		07/22/22 13:53	07/26/22 16:58	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/22/22 13:53	07/26/22 16:58	1
Cobalt	0.00135		0.000500	0.000261	mg/L		07/22/22 13:53	07/26/22 16:58	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/22/22 13:53	07/26/22 16:58	1
Lead	0.000183	J	0.00100	0.000167	mg/L		07/22/22 13:53	07/26/22 16:58	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/22/22 13:53	07/26/22 16:58	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/22/22 13:53	07/26/22 16:58	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/22/22 13:53	07/26/22 16:58	1
Lithium	0.333		0.00500	0.000831	mg/L		07/22/22 13:53	07/26/22 16:58	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 12:36	08/02/22 12:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2750		40.0	40.0	mg/L			07/22/22 18:11	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Client Sample ID: SFL-6
 Date Collected: 07/19/22 14:50
 Date Received: 07/20/22 08:45

Lab Sample ID: 180-141637-3
 Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4810		10.0	7.13	mg/L			07/26/22 21:07	10
Fluoride	1.08		0.100	0.0260	mg/L			07/26/22 20:52	1
Sulfate	2830		10.0	7.56	mg/L			07/26/22 21:07	10

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0214		0.00100	0.000282	mg/L		07/22/22 13:53	07/26/22 17:01	1
Barium	0.0390		0.0100	0.00314	mg/L		07/22/22 13:53	07/26/22 17:01	1
Beryllium	0.0646		0.00100	0.000274	mg/L		07/22/22 13:53	07/26/22 17:01	1
Boron	0.320	B	0.0800	0.0601	mg/L		07/22/22 13:53	07/27/22 11:16	1
Cadmium	0.0124		0.00100	0.000217	mg/L		07/22/22 13:53	07/26/22 17:01	1
Calcium	1400		5.00	1.27	mg/L		07/22/22 13:53	07/27/22 11:19	10
Chromium	0.00895		0.00200	0.00153	mg/L		07/22/22 13:53	07/26/22 17:01	1
Cobalt	0.173		0.000500	0.000261	mg/L		07/22/22 13:53	07/26/22 17:01	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/22/22 13:53	07/26/22 17:01	1
Lead	0.0135		0.00100	0.000167	mg/L		07/22/22 13:53	07/26/22 17:01	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/22/22 13:53	07/26/22 17:01	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/22/22 13:53	07/26/22 17:01	1
Thallium	0.00495		0.00100	0.000472	mg/L		07/22/22 13:53	07/26/22 17:01	1
Lithium	0.868		0.00500	0.000831	mg/L		07/22/22 13:53	07/26/22 17:01	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 12:36	08/02/22 12:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12000		100	100	mg/L			07/22/22 18:11	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Client Sample ID: FB-1

Lab Sample ID: 180-141637-4

Date Collected: 07/19/22 14:50

Matrix: Water

Date Received: 07/20/22 08:45

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			07/26/22 21:22	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/26/22 21:22	1
Sulfate	<0.756		1.00	0.756	mg/L			07/26/22 21:22	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		07/22/22 13:53	07/26/22 17:05	1
Barium	<0.00314		0.0100	0.00314	mg/L		07/22/22 13:53	07/26/22 17:05	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		07/22/22 13:53	07/26/22 17:05	1
Boron	<0.0601		0.0800	0.0601	mg/L		07/22/22 13:53	07/27/22 11:21	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		07/22/22 13:53	07/26/22 17:05	1
Calcium	0.134	J	0.500	0.127	mg/L		07/22/22 13:53	07/26/22 17:05	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/22/22 13:53	07/26/22 17:05	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		07/22/22 13:53	07/26/22 17:05	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/22/22 13:53	07/26/22 17:05	1
Lead	<0.000167		0.00100	0.000167	mg/L		07/22/22 13:53	07/26/22 17:05	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/22/22 13:53	07/26/22 17:05	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/22/22 13:53	07/26/22 17:05	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/22/22 13:53	07/26/22 17:05	1
Lithium	0.00251	J	0.00500	0.000831	mg/L		07/22/22 13:53	07/26/22 17:05	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 12:36	08/02/22 12:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			07/22/22 18:11	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-406312/22
Matrix: Water
Analysis Batch: 406312

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			07/26/22 17:24	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/26/22 17:24	1
Sulfate	<0.756		1.00	0.756	mg/L			07/26/22 17:24	1

Lab Sample ID: LCS 180-406312/23
Matrix: Water
Analysis Batch: 406312

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.65		mg/L		101	80 - 120
Fluoride	2.50	2.694		mg/L		108	80 - 120
Sulfate	50.0	51.03		mg/L		102	80 - 120

Lab Sample ID: 180-141601-D-4 MS
Matrix: Water
Analysis Batch: 406312

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	1.35		50.0	52.39		mg/L		102	80 - 120
Fluoride	0.0264	J	2.50	2.708		mg/L		107	80 - 120
Sulfate	<0.756		50.0	51.13		mg/L		102	80 - 120

Lab Sample ID: 180-141601-D-4 MSD
Matrix: Water
Analysis Batch: 406312

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1.35		50.0	51.40		mg/L		100	80 - 120	2	15
Fluoride	0.0264	J	2.50	2.591		mg/L		103	80 - 120	4	15
Sulfate	<0.756		50.0	48.96		mg/L		98	80 - 120	4	15

Lab Sample ID: 180-141753-D-1 MS
Matrix: Water
Analysis Batch: 406312

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.7		50.0	81.74		mg/L		102	80 - 120
Fluoride	0.340		2.50	3.067		mg/L		109	80 - 120
Sulfate	10.0		50.0	61.59		mg/L		103	80 - 120

Lab Sample ID: 180-141753-D-1 MSD
Matrix: Water
Analysis Batch: 406312

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	30.7		50.0	80.74		mg/L		100	80 - 120	1	15
Fluoride	0.340		2.50	2.946		mg/L		104	80 - 120	4	15
Sulfate	10.0		50.0	58.42		mg/L		97	80 - 120	5	15

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 180-406446/34
Matrix: Water
Analysis Batch: 406446

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	<0.713		1.00	0.713	mg/L			07/27/22 19:34	1
Fluoride	0.02745	J	0.100	0.0260	mg/L			07/27/22 19:34	1
Sulfate	<0.756		1.00	0.756	mg/L			07/27/22 19:34	1

Lab Sample ID: MB 180-406446/57
Matrix: Water
Analysis Batch: 406446

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	<0.713		1.00	0.713	mg/L			07/28/22 01:16	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/28/22 01:16	1
Sulfate	<0.756		1.00	0.756	mg/L			07/28/22 01:16	1

Lab Sample ID: MB 180-406446/6
Matrix: Water
Analysis Batch: 406446

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	<0.713		1.00	0.713	mg/L			07/27/22 12:37	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/27/22 12:37	1
Sulfate	<0.756		1.00	0.756	mg/L			07/27/22 12:37	1

Lab Sample ID: LCS 180-406446/35
Matrix: Water
Analysis Batch: 406446

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	2.50	2.753		mg/L		110	80 - 120
Sulfate	50.0	50.60		mg/L		101	80 - 120

Lab Sample ID: LCS 180-406446/58
Matrix: Water
Analysis Batch: 406446

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	2.50	2.731		mg/L		109	80 - 120
Sulfate	50.0	51.74		mg/L		103	80 - 120

Lab Sample ID: LCS 180-406446/7
Matrix: Water
Analysis Batch: 406446

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	2.50	2.744		mg/L		110	80 - 120
Sulfate	50.0	51.67		mg/L		103	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 180-141525-D-4 MS
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Chloride	6.00		50.0	58.51		mg/L		105		80 - 120
Fluoride	0.0937	J B	2.50	2.575		mg/L		99		80 - 120
Sulfate	561		50.0	613.7	4	mg/L		105		80 - 120

Lab Sample ID: 180-141525-D-4 MSD
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	RPD	Limit
	Result	Qualifier		Result	Qualifier								
Chloride	6.00		50.0	52.46		mg/L		93		80 - 120	11		15
Fluoride	0.0937	J B	2.50	2.353		mg/L		90		80 - 120	9		15
Sulfate	561		50.0	581.3	4	mg/L		40		80 - 120	5		15

Lab Sample ID: 180-141759-D-1 MS
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Chloride	7.18	F1	50.0	16.52	F1	mg/L		19		80 - 120
Fluoride	0.0884	J F1 B	2.50	0.5416	F1	mg/L		18		80 - 120
Sulfate	20.9	F1	50.0	29.86	F1	mg/L		18		80 - 120

Lab Sample ID: 180-141759-D-1 MSD
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	RPD	Limit
	Result	Qualifier		Result	Qualifier								
Chloride	7.18	F1	50.0	16.76	F1	mg/L		19		80 - 120	1		15
Fluoride	0.0884	J F1 B	2.50	0.5686	F1	mg/L		19		80 - 120	5		15
Sulfate	20.9	F1	50.0	29.90	F1	mg/L		18		80 - 120	0		15

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-406016/1-A
Matrix: Water
Analysis Batch: 406366

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	<0.000282		0.00100	0.000282	mg/L		07/22/22 13:53	07/26/22 14:47	1
Barium	<0.00314		0.0100	0.00314	mg/L		07/22/22 13:53	07/26/22 14:47	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		07/22/22 13:53	07/26/22 14:47	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		07/22/22 13:53	07/26/22 14:47	1
Calcium	<0.127		0.500	0.127	mg/L		07/22/22 13:53	07/26/22 14:47	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/22/22 13:53	07/26/22 14:47	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		07/22/22 13:53	07/26/22 14:47	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/22/22 13:53	07/26/22 14:47	1
Lead	<0.000167		0.00100	0.000167	mg/L		07/22/22 13:53	07/26/22 14:47	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/22/22 13:53	07/26/22 14:47	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/22/22 13:53	07/26/22 14:47	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/22/22 13:53	07/26/22 14:47	1

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-406016/1-A
Matrix: Water
Analysis Batch: 406366

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.000831		0.00500	0.000831	mg/L		07/22/22 13:53	07/26/22 14:47	1

Lab Sample ID: MB 180-406016/1-A
Matrix: Water
Analysis Batch: 406474

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0601		0.0800	0.0601	mg/L		07/22/22 13:53	07/27/22 10:01	1

Lab Sample ID: LCS 180-406016/2-A
Matrix: Water
Analysis Batch: 406366

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	1.060		mg/L		106	80 - 120
Barium	1.00	1.038		mg/L		104	80 - 120
Beryllium	0.500	0.5356		mg/L		107	80 - 120
Cadmium	0.500	0.5207		mg/L		104	80 - 120
Calcium	25.0	29.71		mg/L		119	80 - 120
Chromium	0.500	0.5117		mg/L		102	80 - 120
Cobalt	0.500	0.5379		mg/L		108	80 - 120
Molybdenum	0.500	0.5374		mg/L		107	80 - 120
Lead	0.500	0.5265		mg/L		105	80 - 120
Antimony	0.250	0.2760		mg/L		110	80 - 120
Selenium	1.00	0.9944		mg/L		99	80 - 120
Thallium	1.00	1.053		mg/L		105	80 - 120
Lithium	0.500	0.5164		mg/L		103	80 - 120

Lab Sample ID: LCS 180-406016/2-A
Matrix: Water
Analysis Batch: 406474

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.25	1.235		mg/L		99	80 - 120

Lab Sample ID: 180-141637-1 MS
Matrix: Water
Analysis Batch: 406366

Client Sample ID: SSP/AP MW-1
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.00309		1.00	1.092		mg/L		109	75 - 125
Barium	0.0680		1.00	1.094		mg/L		103	75 - 125
Beryllium	0.000706	J	0.500	0.4099		mg/L		82	75 - 125
Cadmium	<0.000217		0.500	0.4859		mg/L		97	75 - 125
Calcium	722		25.0	771.6	4	mg/L		198	75 - 125
Chromium	<0.00153		0.500	0.4923		mg/L		98	75 - 125
Cobalt	0.000521		0.500	0.5360		mg/L		107	75 - 125
Molybdenum	0.00112	J	0.500	0.5521		mg/L		110	75 - 125
Lead	0.00378		0.500	0.5233		mg/L		104	75 - 125
Antimony	0.00157	J	0.250	0.2545		mg/L		101	75 - 125

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-141637-1 MS
Matrix: Water
Analysis Batch: 406366

Client Sample ID: SSP/AP MW-1
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	
	Result	Qualifier	Added	Result	Qualifier				Limits	
Selenium	<0.000739		1.00	0.9135		mg/L		91	75 - 125	
Thallium	<0.000472		1.00	1.046		mg/L		105	75 - 125	
Lithium	1.24	F1	0.500	1.573	F1	mg/L		66	75 - 125	

Lab Sample ID: 180-141637-1 MS
Matrix: Water
Analysis Batch: 406474

Client Sample ID: SSP/AP MW-1
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	
	Result	Qualifier	Added	Result	Qualifier				Limits	
Boron	0.686	B	1.25	1.769		mg/L		87	75 - 125	

Lab Sample ID: 180-141637-1 MSD
Matrix: Water
Analysis Batch: 406366

Client Sample ID: SSP/AP MW-1
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec		RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit	
Arsenic	0.00309		1.00	1.082		mg/L		108	75 - 125		1	20
Barium	0.0680		1.00	1.098		mg/L		103	75 - 125		0	20
Beryllium	0.000706	J	0.500	0.4137		mg/L		83	75 - 125		1	20
Cadmium	<0.000217		0.500	0.4829		mg/L		97	75 - 125		1	20
Calcium	722		25.0	766.0	4	mg/L		176	75 - 125		1	20
Chromium	<0.00153		0.500	0.4832		mg/L		97	75 - 125		2	20
Cobalt	0.000521		0.500	0.5315		mg/L		106	75 - 125		1	20
Molybdenum	0.00112	J	0.500	0.5520		mg/L		110	75 - 125		0	20
Lead	0.00378		0.500	0.5174		mg/L		103	75 - 125		1	20
Antimony	0.00157	J	0.250	0.2543		mg/L		101	75 - 125		0	20
Selenium	<0.000739		1.00	0.9116		mg/L		91	75 - 125		0	20
Thallium	<0.000472		1.00	1.027		mg/L		103	75 - 125		2	20
Lithium	1.24	F1	0.500	1.628		mg/L		78	75 - 125		3	20

Lab Sample ID: 180-141637-1 MSD
Matrix: Water
Analysis Batch: 406474

Client Sample ID: SSP/AP MW-1
Prep Type: Total Recoverable
Prep Batch: 406016

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec		RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit	
Boron	0.686	B	1.25	1.815		mg/L		90	75 - 125		3	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-407010/1-A
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 407010

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 12:36	08/02/22 11:54	1

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 180-407010/2-A
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 407010

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00250	0.002618		mg/L		105	80 - 120

Lab Sample ID: 180-141601-B-1-A MS
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 407010

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.000130		0.00100	0.001041		mg/L		104	75 - 125

Lab Sample ID: 180-141601-B-1-B MSD
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 407010

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	<0.000130		0.00100	0.001047		mg/L		105	75 - 125	1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-406042/2
Matrix: Water
Analysis Batch: 406042

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			07/22/22 18:01	1

Lab Sample ID: LCS 180-406042/1
Matrix: Water
Analysis Batch: 406042

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	186	204.0		mg/L		110	85 - 115

Lab Sample ID: 180-141601-F-1 DU
Matrix: Water
Analysis Batch: 406042

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids	249		259.0		mg/L		4	10

Lab Sample ID: MB 180-406045/2
Matrix: Water
Analysis Batch: 406045

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			07/22/22 18:11	1

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QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 180-406045/1
Matrix: Water
Analysis Batch: 406045

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	186	166.0		mg/L		89	85 - 115

Lab Sample ID: 180-141637-2 DU
Matrix: Water
Analysis Batch: 406045

Client Sample ID: MNW-18
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	2750		2712		mg/L		1	10

- 1
- 2
- 3
- 4
- 5
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- 10
- 11
- 12
- 13

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

HPLC/IC

Analysis Batch: 406312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141637-1	SSP/AP MW-1	Total/NA	Water	EPA 9056A	
180-141637-2	MNW-18	Total/NA	Water	EPA 9056A	
180-141637-3	SFL-6	Total/NA	Water	EPA 9056A	
180-141637-3	SFL-6	Total/NA	Water	EPA 9056A	
180-141637-4	FB-1	Total/NA	Water	EPA 9056A	
MB 180-406312/22	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-406312/23	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-141601-D-4 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-141601-D-4 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	
180-141753-D-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-141753-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Analysis Batch: 406446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141637-1	SSP/AP MW-1	Total/NA	Water	EPA 9056A	
MB 180-406446/34	Method Blank	Total/NA	Water	EPA 9056A	
MB 180-406446/57	Method Blank	Total/NA	Water	EPA 9056A	
MB 180-406446/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-406446/35	Lab Control Sample	Total/NA	Water	EPA 9056A	
LCS 180-406446/58	Lab Control Sample	Total/NA	Water	EPA 9056A	
LCS 180-406446/7	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-141525-D-4 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-141525-D-4 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	
180-141759-D-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-141759-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 406016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141637-1	SSP/AP MW-1	Total Recoverable	Water	3005A	
180-141637-2	MNW-18	Total Recoverable	Water	3005A	
180-141637-3	SFL-6	Total Recoverable	Water	3005A	
180-141637-4	FB-1	Total Recoverable	Water	3005A	
MB 180-406016/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-406016/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-141637-1 MS	SSP/AP MW-1	Total Recoverable	Water	3005A	
180-141637-1 MSD	SSP/AP MW-1	Total Recoverable	Water	3005A	

Analysis Batch: 406366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141637-1	SSP/AP MW-1	Total Recoverable	Water	EPA 6020B	406016
180-141637-2	MNW-18	Total Recoverable	Water	EPA 6020B	406016
180-141637-3	SFL-6	Total Recoverable	Water	EPA 6020B	406016
180-141637-4	FB-1	Total Recoverable	Water	EPA 6020B	406016
MB 180-406016/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	406016
LCS 180-406016/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	406016
180-141637-1 MS	SSP/AP MW-1	Total Recoverable	Water	EPA 6020B	406016
180-141637-1 MSD	SSP/AP MW-1	Total Recoverable	Water	EPA 6020B	406016

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QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-1

Metals

Analysis Batch: 406474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141637-1	SSP/AP MW-1	Total Recoverable	Water	EPA 6020B	406016
180-141637-2	MNW-18	Total Recoverable	Water	EPA 6020B	406016
180-141637-3	SFL-6	Total Recoverable	Water	EPA 6020B	406016
180-141637-3	SFL-6	Total Recoverable	Water	EPA 6020B	406016
180-141637-4	FB-1	Total Recoverable	Water	EPA 6020B	406016
MB 180-406016/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	406016
LCS 180-406016/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	406016
180-141637-1 MS	SSP/AP MW-1	Total Recoverable	Water	EPA 6020B	406016
180-141637-1 MSD	SSP/AP MW-1	Total Recoverable	Water	EPA 6020B	406016

Prep Batch: 407010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141637-1	SSP/AP MW-1	Total/NA	Water	7470A	
180-141637-2	MNW-18	Total/NA	Water	7470A	
180-141637-3	SFL-6	Total/NA	Water	7470A	
180-141637-4	FB-1	Total/NA	Water	7470A	
MB 180-407010/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-407010/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-141601-B-1-A MS	Matrix Spike	Total/NA	Water	7470A	
180-141601-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Analysis Batch: 407162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141637-1	SSP/AP MW-1	Total/NA	Water	EPA 7470A	407010
180-141637-2	MNW-18	Total/NA	Water	EPA 7470A	407010
180-141637-3	SFL-6	Total/NA	Water	EPA 7470A	407010
180-141637-4	FB-1	Total/NA	Water	EPA 7470A	407010
MB 180-407010/1-A	Method Blank	Total/NA	Water	EPA 7470A	407010
LCS 180-407010/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	407010
180-141601-B-1-A MS	Matrix Spike	Total/NA	Water	EPA 7470A	407010
180-141601-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	407010

General Chemistry

Analysis Batch: 406042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141637-1	SSP/AP MW-1	Total/NA	Water	SM 2540C	
MB 180-406042/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-406042/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-141601-F-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 406045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141637-2	MNW-18	Total/NA	Water	SM 2540C	
180-141637-3	SFL-6	Total/NA	Water	SM 2540C	
180-141637-4	FB-1	Total/NA	Water	SM 2540C	
MB 180-406045/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-406045/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-141637-2 DU	MNW-18	Total/NA	Water	SM 2540C	

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Chain of Custody Record

Client Information Client Contact: David Vogt (Will Nicholson) Company: HDR Inc Address: 17111 Preston Road Suite 200 City: Dallas State, Zip: TX, 75248-1232 Phone: 972-960-4461(Tel) Email: david.vogt@hdrinc.com (william.nicholson@hdrinc.com) Project Name: Gibbons Creek Steam Electric Station Site:		Lab PM: Hayes, Ken E-Mail: Ken.Haves@Eurofins.com PWSID:	
Sampler: WILL NICHOLSON Phone: 706-252-1418		Carrier Tracking No(s): 180-67956-13428.2 State of Origin:	
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: WO #: Project #: 18023511 SOW#:		Analysis Requested	
Sample Identification SSP/AP MW-1 MNW-18 SFL-6 FB-1		Field Filtered Sample (Yes or No) Perform (MS/SP) (Yes or No) 903.0 - Standard Target List 904.0 - Standard Target List 9056A_ORGM_28D - (MOD) Local Method 6020B_7470A 2549C_Caled - Local Method	
Sample Date 7/19/22 7/19/22 7/19/22 7/19/22		Sample Time 1300 1400 1450 1450	
Sample Type (C=comp, G=grab) G G G G		Matrix (W=water, S=solid, O=waste/oli) Water Water Water Water	
Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI ₂ Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - PH 4-5 Z - other (specify)		Special Instructions/Note: 180-141637 Chain of Custody	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by: <i>Will Nicholson</i> Relinquished by: <i>Will Nicholson</i> Relinquished by: Relinquished by:		Method of Shipment: Date/Time: 7/19/22 1500 Date/Time: Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141637-1

Login Number: 141637

List Number: 1

Creator: Watson, Debbie

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

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

Laboratory Job ID: 180-141736-1

Client Project/Site: Gibbons Creek Steam Electric Station

For:
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Attn: David Vogt



Authorized for release by:
8/3/2022 10:46:00 AM

Ken Hayes, Project Manager II
(615)301-5035
Ken.Hayes@et.eurofinsus.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Job ID: 180-141736-1

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-141736-1

Comments

No additional comments.

Receipt

The samples were received on 7/21/2022 9:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.2° C and 2.0° C.

GC Semi VOA

Method 9056A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 180-406446 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

Metals

Method 6020B: The following sample was diluted due to the nature of the sample matrix: AP MW-3 (180-141736-1). Elevated reporting limits (RLs) are provided.

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

General Chemistry

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



Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Laboratory: Eurofins Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704528	03-31-23

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

Analysis Method	Prep Method	Matrix	Analyte
SM 2540C		Water	Total Dissolved Solids

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-141736-1	AP MW-3	Water	07/20/22 06:50	07/21/22 09:00
180-141736-2	SSP MW-4	Water	07/20/22 07:45	07/21/22 09:00
180-141736-3	SSP MW-3	Water	07/20/22 08:50	07/21/22 09:00
180-141736-4	SSP MW-2	Water	07/20/22 09:40	07/21/22 09:00

1

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Client Sample ID: AP MW-3

Lab Sample ID: 180-141736-1

Date Collected: 07/20/22 06:50

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406444	07/27/22 18:08	SNL	TAL PIT
Instrument ID: CHIC2100A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406699	07/28/22 17:12	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		2			406870	07/29/22 13:02	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407045	08/01/22 16:02	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 12:38	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	406217	07/25/22 18:55	JCR	TAL PIT
Instrument ID: NOEQUIP										

Client Sample ID: SSP MW-4

Lab Sample ID: 180-141736-2

Date Collected: 07/20/22 07:45

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		2.5			406446	07/27/22 21:33	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406699	07/28/22 17:16	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406870	07/29/22 13:04	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407045	08/01/22 16:02	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 12:39	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	406217	07/25/22 18:55	JCR	TAL PIT
Instrument ID: NOEQUIP										

Client Sample ID: SSP MW-3

Lab Sample ID: 180-141736-3

Date Collected: 07/20/22 08:50

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406446	07/27/22 21:48	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total/NA	Analysis	EPA 9056A		5			406446	07/27/22 22:03	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406699	07/28/22 17:26	RSK	TAL PIT
Instrument ID: A										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Client Sample ID: SSP MW-3

Lab Sample ID: 180-141736-3

Date Collected: 07/20/22 08:50

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406870	07/29/22 13:07	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407045	08/01/22 16:02	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 12:43	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	20 mL	100 mL	406217	07/25/22 18:55	JCR	TAL PIT
Instrument ID: NOEQUIP										

Client Sample ID: SSP MW-2

Lab Sample ID: 180-141736-4

Date Collected: 07/20/22 09:40

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406446	07/27/22 22:18	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total/NA	Analysis	EPA 9056A		5			406446	07/27/22 22:32	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406699	07/28/22 17:30	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406870	07/29/22 13:09	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407045	08/01/22 16:02	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 12:44	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	406217	07/25/22 18:55	JCR	TAL PIT
Instrument ID: NOEQUIP										

Laboratory References:

TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

NAF = Nicholas Frankos

RJR = Ron Rosenbaum

Batch Type: Analysis

JCR = Jessica Rodgers

RJR = Ron Rosenbaum

RSK = Robert Kurtz

SNL = Sean Lordo

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Client Sample ID: AP MW-3

Lab Sample ID: 180-141736-1

Date Collected: 07/20/22 06:50

Matrix: Water

Date Received: 07/21/22 09:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	153		1.00	0.713	mg/L			07/27/22 18:08	1
Fluoride	0.0634	J	0.100	0.0260	mg/L			07/27/22 18:08	1
Sulfate	596		1.00	0.756	mg/L			07/27/22 18:08	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00169		0.00100	0.000282	mg/L		07/26/22 15:40	07/28/22 17:12	1
Barium	0.0211		0.0100	0.00314	mg/L		07/26/22 15:40	07/28/22 17:12	1
Beryllium	0.00291		0.00100	0.000274	mg/L		07/26/22 15:40	07/28/22 17:12	1
Boron	4.26		0.160	0.120	mg/L		07/26/22 15:40	07/29/22 13:02	2
Cadmium	0.00437		0.00100	0.000217	mg/L		07/26/22 15:40	07/28/22 17:12	1
Calcium	144		0.500	0.127	mg/L		07/26/22 15:40	07/28/22 17:12	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/26/22 15:40	07/28/22 17:12	1
Cobalt	0.0328		0.000500	0.000261	mg/L		07/26/22 15:40	07/28/22 17:12	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/26/22 15:40	07/28/22 17:12	1
Lead	0.000219	J B	0.00100	0.000167	mg/L		07/26/22 15:40	07/28/22 17:12	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/26/22 15:40	07/28/22 17:12	1
Selenium	0.00135	J	0.00500	0.000739	mg/L		07/26/22 15:40	07/28/22 17:12	1
Thallium	0.000529	J	0.00100	0.000472	mg/L		07/26/22 15:40	07/28/22 17:12	1
Lithium	0.0431		0.00500	0.000831	mg/L		07/26/22 15:40	07/28/22 17:12	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00158		0.000200	0.000130	mg/L		08/01/22 16:02	08/02/22 12:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1410		10.0	10.0	mg/L			07/25/22 18:55	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Client Sample ID: SSP MW-4

Lab Sample ID: 180-141736-2

Date Collected: 07/20/22 07:45

Matrix: Water

Date Received: 07/21/22 09:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1140		2.50	1.78	mg/L			07/27/22 21:33	2.5
Fluoride	0.103	J B	0.250	0.0650	mg/L			07/27/22 21:33	2.5
Sulfate	1090		2.50	1.89	mg/L			07/27/22 21:33	2.5

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.000840	J	0.00100	0.000282	mg/L		07/26/22 15:40	07/28/22 17:16	1
Barium	0.0204		0.0100	0.00314	mg/L		07/26/22 15:40	07/28/22 17:16	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		07/26/22 15:40	07/28/22 17:16	1
Boron	1.39		0.0800	0.0601	mg/L		07/26/22 15:40	07/29/22 13:04	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		07/26/22 15:40	07/28/22 17:16	1
Calcium	428		0.500	0.127	mg/L		07/26/22 15:40	07/28/22 17:16	1
Chromium	0.00284		0.00200	0.00153	mg/L		07/26/22 15:40	07/28/22 17:16	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		07/26/22 15:40	07/28/22 17:16	1
Molybdenum	0.000864	J	0.00500	0.000610	mg/L		07/26/22 15:40	07/28/22 17:16	1
Lead	0.000234	J B	0.00100	0.000167	mg/L		07/26/22 15:40	07/28/22 17:16	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/26/22 15:40	07/28/22 17:16	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/26/22 15:40	07/28/22 17:16	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/26/22 15:40	07/28/22 17:16	1
Lithium	0.767		0.00500	0.000831	mg/L		07/26/22 15:40	07/28/22 17:16	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 16:02	08/02/22 12:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3740		40.0	40.0	mg/L			07/25/22 18:55	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Client Sample ID: SSP MW-3

Lab Sample ID: 180-141736-3

Date Collected: 07/20/22 08:50

Matrix: Water

Date Received: 07/21/22 09:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1670		5.00	3.57	mg/L			07/27/22 22:03	5
Fluoride	0.441	B	0.100	0.0260	mg/L			07/27/22 21:48	1
Sulfate	2200		5.00	3.78	mg/L			07/27/22 22:03	5

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00636		0.00100	0.000282	mg/L		07/26/22 15:40	07/28/22 17:26	1
Barium	0.0221		0.0100	0.00314	mg/L		07/26/22 15:40	07/28/22 17:26	1
Beryllium	0.0904		0.00100	0.000274	mg/L		07/26/22 15:40	07/28/22 17:26	1
Boron	2.35		0.0800	0.0601	mg/L		07/26/22 15:40	07/29/22 13:07	1
Cadmium	0.0698		0.00100	0.000217	mg/L		07/26/22 15:40	07/28/22 17:26	1
Calcium	658		0.500	0.127	mg/L		07/26/22 15:40	07/28/22 17:26	1
Chromium	0.00235		0.00200	0.00153	mg/L		07/26/22 15:40	07/28/22 17:26	1
Cobalt	0.495		0.000500	0.000261	mg/L		07/26/22 15:40	07/28/22 17:26	1
Molybdenum	0.00110	J	0.00500	0.000610	mg/L		07/26/22 15:40	07/28/22 17:26	1
Lead	0.00280	B	0.00100	0.000167	mg/L		07/26/22 15:40	07/28/22 17:26	1
Antimony	0.00128	J B	0.00200	0.000506	mg/L		07/26/22 15:40	07/28/22 17:26	1
Selenium	0.000859	J	0.00500	0.000739	mg/L		07/26/22 15:40	07/28/22 17:26	1
Thallium	0.00795		0.00100	0.000472	mg/L		07/26/22 15:40	07/28/22 17:26	1
Lithium	0.511		0.00500	0.000831	mg/L		07/26/22 15:40	07/28/22 17:26	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000669		0.000200	0.000130	mg/L		08/01/22 16:02	08/02/22 12:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	6180		50.0	50.0	mg/L			07/25/22 18:55	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Client Sample ID: SSP MW-2

Lab Sample ID: 180-141736-4

Date Collected: 07/20/22 09:40

Matrix: Water

Date Received: 07/21/22 09:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2150		5.00	3.57	mg/L			07/27/22 22:32	5
Fluoride	0.563	B	0.100	0.0260	mg/L			07/27/22 22:18	1
Sulfate	2230		5.00	3.78	mg/L			07/27/22 22:32	5

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00551		0.00100	0.000282	mg/L		07/26/22 15:40	07/28/22 17:30	1
Barium	0.0170		0.0100	0.00314	mg/L		07/26/22 15:40	07/28/22 17:30	1
Beryllium	0.0548		0.00100	0.000274	mg/L		07/26/22 15:40	07/28/22 17:30	1
Boron	0.689		0.0800	0.0601	mg/L		07/26/22 15:40	07/29/22 13:09	1
Cadmium	0.00294		0.00100	0.000217	mg/L		07/26/22 15:40	07/28/22 17:30	1
Calcium	812		0.500	0.127	mg/L		07/26/22 15:40	07/28/22 17:30	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/26/22 15:40	07/28/22 17:30	1
Cobalt	0.0788		0.000500	0.000261	mg/L		07/26/22 15:40	07/28/22 17:30	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/26/22 15:40	07/28/22 17:30	1
Lead	0.00107	B	0.00100	0.000167	mg/L		07/26/22 15:40	07/28/22 17:30	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/26/22 15:40	07/28/22 17:30	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/26/22 15:40	07/28/22 17:30	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/26/22 15:40	07/28/22 17:30	1
Lithium	0.593		0.00500	0.000831	mg/L		07/26/22 15:40	07/28/22 17:30	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 16:02	08/02/22 12:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	6700		100	100	mg/L			07/25/22 18:55	1

QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-406444/6
Matrix: Water
Analysis Batch: 406444

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			07/27/22 12:30	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/27/22 12:30	1
Sulfate	<0.756		1.00	0.756	mg/L			07/27/22 12:30	1

Lab Sample ID: LCS 180-406444/7
Matrix: Water
Analysis Batch: 406444

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	52.81		mg/L		106	80 - 120
Fluoride	2.50	2.715		mg/L		109	80 - 120
Sulfate	50.0	52.11		mg/L		104	80 - 120

Lab Sample ID: 180-141724-D-1 MS
Matrix: Water
Analysis Batch: 406444

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	<0.713		50.0	49.12		mg/L		98	80 - 120
Fluoride	<0.0260		2.50	2.513		mg/L		101	80 - 120
Sulfate	<0.756		50.0	49.07		mg/L		98	80 - 120

Lab Sample ID: 180-141724-D-1 MSD
Matrix: Water
Analysis Batch: 406444

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	<0.713		50.0	51.98		mg/L		104	80 - 120	6	15
Fluoride	<0.0260		2.50	2.685		mg/L		107	80 - 120	7	15
Sulfate	<0.756		50.0	52.84		mg/L		106	80 - 120	7	15

Lab Sample ID: MB 180-406446/34
Matrix: Water
Analysis Batch: 406446

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			07/27/22 19:34	1
Fluoride	0.02745	J	0.100	0.0260	mg/L			07/27/22 19:34	1
Sulfate	<0.756		1.00	0.756	mg/L			07/27/22 19:34	1

Lab Sample ID: MB 180-406446/57
Matrix: Water
Analysis Batch: 406446

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			07/28/22 01:16	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/28/22 01:16	1
Sulfate	<0.756		1.00	0.756	mg/L			07/28/22 01:16	1

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 180-406446/35
Matrix: Water
Analysis Batch: 406446

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.03		mg/L		100	80 - 120
Fluoride	2.50	2.753		mg/L		110	80 - 120
Sulfate	50.0	50.60		mg/L		101	80 - 120

Lab Sample ID: LCS 180-406446/58
Matrix: Water
Analysis Batch: 406446

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	53.61		mg/L		107	80 - 120
Fluoride	2.50	2.731		mg/L		109	80 - 120
Sulfate	50.0	51.74		mg/L		103	80 - 120

Lab Sample ID: 180-141759-D-1 MS
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	7.18	F1	50.0	16.52	F1	mg/L		19	80 - 120
Fluoride	0.0884	J F1 B	2.50	0.5416	F1	mg/L		18	80 - 120
Sulfate	20.9	F1	50.0	29.86	F1	mg/L		18	80 - 120

Lab Sample ID: 180-141759-D-1 MSD
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	7.18	F1	50.0	16.76	F1	mg/L		19	80 - 120	1	15
Fluoride	0.0884	J F1 B	2.50	0.5686	F1	mg/L		19	80 - 120	5	15
Sulfate	20.9	F1	50.0	29.90	F1	mg/L		18	80 - 120	0	15

Lab Sample ID: 180-141787-D-1 MS
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	4.37	F1	50.0	13.88	F1	mg/L		19	80 - 120
Fluoride	0.0959	J F1	2.50	0.6064	F1	mg/L		20	80 - 120
Sulfate	53.1	F1	50.0	62.89	F1	mg/L		20	80 - 120

Lab Sample ID: 180-141787-D-1 MSD
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	4.37	F1	50.0	14.08	F1	mg/L		19	80 - 120	1	15
Fluoride	0.0959	J F1	2.50	0.6084	F1	mg/L		21	80 - 120	0	15
Sulfate	53.1	F1	50.0	63.13	F1	mg/L		20	80 - 120	0	15

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-406344/1-A
Matrix: Water
Analysis Batch: 406699

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		07/26/22 15:40	07/28/22 16:47	1
Barium	<0.00314		0.0100	0.00314	mg/L		07/26/22 15:40	07/28/22 16:47	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		07/26/22 15:40	07/28/22 16:47	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		07/26/22 15:40	07/28/22 16:47	1
Calcium	<0.127		0.500	0.127	mg/L		07/26/22 15:40	07/28/22 16:47	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/26/22 15:40	07/28/22 16:47	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		07/26/22 15:40	07/28/22 16:47	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/26/22 15:40	07/28/22 16:47	1
Lead	0.0002680	J	0.00100	0.000167	mg/L		07/26/22 15:40	07/28/22 16:47	1
Antimony	0.0008390	J	0.00200	0.000506	mg/L		07/26/22 15:40	07/28/22 16:47	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/26/22 15:40	07/28/22 16:47	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/26/22 15:40	07/28/22 16:47	1
Lithium	<0.000831		0.00500	0.000831	mg/L		07/26/22 15:40	07/28/22 16:47	1

Lab Sample ID: MB 180-406344/1-A
Matrix: Water
Analysis Batch: 406870

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0601		0.0800	0.0601	mg/L		07/26/22 15:40	07/29/22 12:57	1

Lab Sample ID: LCS 180-406344/2-A
Matrix: Water
Analysis Batch: 406699

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.9543		mg/L		95	80 - 120
Barium	1.00	0.9289		mg/L		93	80 - 120
Beryllium	0.500	0.4839		mg/L		97	80 - 120
Cadmium	0.500	0.4799		mg/L		96	80 - 120
Calcium	25.0	25.93		mg/L		104	80 - 120
Chromium	0.500	0.4945		mg/L		99	80 - 120
Cobalt	0.500	0.4859		mg/L		97	80 - 120
Molybdenum	0.500	0.4900		mg/L		98	80 - 120
Lead	0.500	0.4877		mg/L		98	80 - 120
Antimony	0.250	0.2698		mg/L		108	80 - 120
Selenium	1.00	0.9850		mg/L		98	80 - 120
Thallium	1.00	0.9419		mg/L		94	80 - 120
Lithium	0.500	0.4676		mg/L		94	80 - 120

Lab Sample ID: LCS 180-406344/2-A
Matrix: Water
Analysis Batch: 406870

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.25	1.317		mg/L		105	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-141827-B-1-C MS
Matrix: Water
Analysis Batch: 406699

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.00138		1.00	0.9943		mg/L		99	75 - 125
Barium	0.0479		1.00	1.018		mg/L		97	75 - 125
Beryllium	<0.000274		0.500	0.4893		mg/L		98	75 - 125
Cadmium	0.00116		0.500	0.4832		mg/L		96	75 - 125
Calcium	99.3	F1	25.0	126.1		mg/L		107	75 - 125
Chromium	<0.00153		0.500	0.5078		mg/L		102	75 - 125
Cobalt	0.000407	J	0.500	0.5039		mg/L		101	75 - 125
Molybdenum	0.0171		0.500	0.5317		mg/L		103	75 - 125
Lead	0.000391	J B	0.500	0.4914		mg/L		98	75 - 125
Antimony	0.00478	B	0.250	0.2747		mg/L		108	75 - 125
Selenium	<0.000739		1.00	0.9870		mg/L		99	75 - 125
Thallium	<0.000472		1.00	0.9687		mg/L		97	75 - 125
Lithium	0.595		0.500	1.054		mg/L		92	75 - 125

Lab Sample ID: 180-141827-B-1-D MSD
Matrix: Water
Analysis Batch: 406699

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	0.00138		1.00	0.9862		mg/L		98	75 - 125	1	20
Barium	0.0479		1.00	1.003		mg/L		95	75 - 125	1	20
Beryllium	<0.000274		0.500	0.4805		mg/L		96	75 - 125	2	20
Cadmium	0.00116		0.500	0.4761		mg/L		95	75 - 125	1	20
Calcium	99.3	F1	25.0	132.3	F1	mg/L		132	75 - 125	5	20
Chromium	<0.00153		0.500	0.5064		mg/L		101	75 - 125	0	20
Cobalt	0.000407	J	0.500	0.4974		mg/L		99	75 - 125	1	20
Molybdenum	0.0171		0.500	0.5240		mg/L		101	75 - 125	1	20
Lead	0.000391	J B	0.500	0.4776		mg/L		95	75 - 125	3	20
Antimony	0.00478	B	0.250	0.2876		mg/L		113	75 - 125	5	20
Selenium	<0.000739		1.00	0.9445		mg/L		94	75 - 125	4	20
Thallium	<0.000472		1.00	0.9446		mg/L		94	75 - 125	3	20
Lithium	0.595		0.500	1.037		mg/L		88	75 - 125	2	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-407045/1-A
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 407045

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 16:02	08/02/22 12:29	1

Lab Sample ID: LCS 180-407045/2-A
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 407045

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00250	0.002521		mg/L		101	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 180-141724-F-2-C MS
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 407045

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.000130		0.00100	0.0008560		mg/L		86	75 - 125

Lab Sample ID: 180-141724-F-2-D MSD
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 407045

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.000130		0.00100	0.0008560		mg/L		86	75 - 125	0	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-406217/2
Matrix: Water
Analysis Batch: 406217

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			07/25/22 18:55	1

Lab Sample ID: LCS 180-406217/1
Matrix: Water
Analysis Batch: 406217

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	186	176.0		mg/L		95	85 - 115

Lab Sample ID: 180-141736-4 DU
Matrix: Water
Analysis Batch: 406217

Client Sample ID: SSP MW-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	6700		6790		mg/L		1	10

Lab Sample ID: 180-141818-C-1 DU
Matrix: Water
Analysis Batch: 406217

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	34.0		35.00		mg/L		3	10

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

HPLC/IC

Analysis Batch: 406444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141736-1	AP MW-3	Total/NA	Water	EPA 9056A	
MB 180-406444/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-406444/7	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-141724-D-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-141724-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Analysis Batch: 406446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141736-2	SSP MW-4	Total/NA	Water	EPA 9056A	
180-141736-3	SSP MW-3	Total/NA	Water	EPA 9056A	
180-141736-3	SSP MW-3	Total/NA	Water	EPA 9056A	
180-141736-4	SSP MW-2	Total/NA	Water	EPA 9056A	
180-141736-4	SSP MW-2	Total/NA	Water	EPA 9056A	
MB 180-406446/34	Method Blank	Total/NA	Water	EPA 9056A	
MB 180-406446/57	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-406446/35	Lab Control Sample	Total/NA	Water	EPA 9056A	
LCS 180-406446/58	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-141759-D-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-141759-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	
180-141787-D-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-141787-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 406344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141736-1	AP MW-3	Total Recoverable	Water	3005A	
180-141736-2	SSP MW-4	Total Recoverable	Water	3005A	
180-141736-3	SSP MW-3	Total Recoverable	Water	3005A	
180-141736-4	SSP MW-2	Total Recoverable	Water	3005A	
MB 180-406344/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-406344/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-141827-B-1-C MS	Matrix Spike	Total Recoverable	Water	3005A	
180-141827-B-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Analysis Batch: 406699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141736-1	AP MW-3	Total Recoverable	Water	EPA 6020B	406344
180-141736-2	SSP MW-4	Total Recoverable	Water	EPA 6020B	406344
180-141736-3	SSP MW-3	Total Recoverable	Water	EPA 6020B	406344
180-141736-4	SSP MW-2	Total Recoverable	Water	EPA 6020B	406344
MB 180-406344/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	406344
LCS 180-406344/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	406344
180-141827-B-1-C MS	Matrix Spike	Total Recoverable	Water	EPA 6020B	406344
180-141827-B-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	EPA 6020B	406344

Analysis Batch: 406870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141736-1	AP MW-3	Total Recoverable	Water	EPA 6020B	406344
180-141736-2	SSP MW-4	Total Recoverable	Water	EPA 6020B	406344
180-141736-3	SSP MW-3	Total Recoverable	Water	EPA 6020B	406344

Eurofins Pittsburgh

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-1

Metals (Continued)

Analysis Batch: 406870 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141736-4	SSP MW-2	Total Recoverable	Water	EPA 6020B	406344
MB 180-406344/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	406344
LCS 180-406344/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	406344

Prep Batch: 407045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141736-1	AP MW-3	Total/NA	Water	7470A	
180-141736-2	SSP MW-4	Total/NA	Water	7470A	
180-141736-3	SSP MW-3	Total/NA	Water	7470A	
180-141736-4	SSP MW-2	Total/NA	Water	7470A	
MB 180-407045/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-407045/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-141724-F-2-C MS	Matrix Spike	Total/NA	Water	7470A	
180-141724-F-2-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Analysis Batch: 407162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141736-1	AP MW-3	Total/NA	Water	EPA 7470A	407045
180-141736-2	SSP MW-4	Total/NA	Water	EPA 7470A	407045
180-141736-3	SSP MW-3	Total/NA	Water	EPA 7470A	407045
180-141736-4	SSP MW-2	Total/NA	Water	EPA 7470A	407045
MB 180-407045/1-A	Method Blank	Total/NA	Water	EPA 7470A	407045
LCS 180-407045/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	407045
180-141724-F-2-C MS	Matrix Spike	Total/NA	Water	EPA 7470A	407045
180-141724-F-2-D MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	407045

General Chemistry

Analysis Batch: 406217

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141736-1	AP MW-3	Total/NA	Water	SM 2540C	
180-141736-2	SSP MW-4	Total/NA	Water	SM 2540C	
180-141736-3	SSP MW-3	Total/NA	Water	SM 2540C	
180-141736-4	SSP MW-2	Total/NA	Water	SM 2540C	
MB 180-406217/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-406217/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-141736-4 DU	SSP MW-2	Total/NA	Water	SM 2540C	
180-141818-C-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141736-1

Login Number: 141736

List Source: Eurofins Pittsburgh

List Number: 1

Creator: Watson, Debbie

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

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

Laboratory Job ID: 180-141738-1

Client Project/Site: Gibbons Creek Steam Electric Station

For:
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Attn: David Vogt



Authorized for release by:
8/3/2022 10:46:24 AM

Ken Hayes, Project Manager II
(615)301-5035
Ken.Hayes@et.eurofinsus.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Job ID: 180-141738-1

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-141738-1

Comments

No additional comments.

Receipt

The samples were received on 7/21/2022 9:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.2° C and 2.0° C.

GC Semi VOA

Method 9056A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 180-406446 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

Metals

Method 6020B: The following sample was diluted due to the nature of the sample matrix: SFL MW-2 (180-141738-2). Elevated reporting limits (RLs) are provided.

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

General Chemistry

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



Definitions/Glossary

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Laboratory: Eurofins Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704528	03-31-23

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

Analysis Method	Prep Method	Matrix	Analyte
SM 2540C		Water	Total Dissolved Solids

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-141738-1	SFL MW-5	Water	07/20/22 10:35	07/21/22 09:00
180-141738-2	SFL MW-2	Water	07/20/22 11:35	07/21/22 09:00
180-141738-3	SFL MW-4	Water	07/20/22 12:20	07/21/22 09:00
180-141738-4	EQ-1	Water	07/20/22 17:00	07/21/22 09:00

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Client Sample ID: SFL MW-5

Lab Sample ID: 180-141738-1

Date Collected: 07/20/22 10:35

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406446	07/27/22 22:47	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total/NA	Analysis	EPA 9056A		10			406446	07/27/22 23:02	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406699	07/28/22 17:37	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406870	07/29/22 13:20	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407045	08/01/22 16:02	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 12:45	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	406218	07/25/22 19:01	JCR	TAL PIT
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-2

Lab Sample ID: 180-141738-2

Date Collected: 07/20/22 11:35

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406446	07/27/22 23:17	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total/NA	Analysis	EPA 9056A		10			406446	07/27/22 23:32	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406699	07/28/22 17:44	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		2			406870	07/29/22 13:22	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407045	08/01/22 16:02	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 12:46	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	406217	07/25/22 18:55	JCR	TAL PIT
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-4

Lab Sample ID: 180-141738-3

Date Collected: 07/20/22 12:20

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406446	07/27/22 23:47	SNL	TAL PIT
Instrument ID: CHICS2100B										

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Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Client Sample ID: SFL MW-4

Lab Sample ID: 180-141738-3

Date Collected: 07/20/22 12:20

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406699	07/28/22 17:52	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406870	07/29/22 13:30	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407045	08/01/22 16:02	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 12:47	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	406217	07/25/22 18:55	JCR	TAL PIT
Instrument ID: NOEQUIP										

Client Sample ID: EQ-1

Lab Sample ID: 180-141738-4

Date Collected: 07/20/22 17:00

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			406446	07/28/22 00:31	SNL	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406699	07/28/22 17:55	RSK	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	406344	07/26/22 15:40	NAF	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			406870	07/29/22 13:33	RSK	TAL PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	407010	08/01/22 12:36	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			407162	08/02/22 12:13	RJR	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	406217	07/25/22 18:55	JCR	TAL PIT
Instrument ID: NOEQUIP										

Laboratory References:

TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

NAF = Nicholas Frankos

RJR = Ron Rosenbaum

Batch Type: Analysis

JCR = Jessica Rodgers

RJR = Ron Rosenbaum

RSK = Robert Kurtz

SNL = Sean Lordo

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Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Client Sample ID: SFL MW-5

Lab Sample ID: 180-141738-1

Date Collected: 07/20/22 10:35

Matrix: Water

Date Received: 07/21/22 09:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2890		10.0	7.13	mg/L			07/27/22 23:02	10
Fluoride	0.122	B	0.100	0.0260	mg/L			07/27/22 22:47	1
Sulfate	2250		10.0	7.56	mg/L			07/27/22 23:02	10

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00157		0.00100	0.000282	mg/L		07/26/22 15:40	07/28/22 17:37	1
Barium	0.0157		0.0100	0.00314	mg/L		07/26/22 15:40	07/28/22 17:37	1
Beryllium	0.0103		0.00100	0.000274	mg/L		07/26/22 15:40	07/28/22 17:37	1
Boron	2.80		0.0800	0.0601	mg/L		07/26/22 15:40	07/29/22 13:20	1
Cadmium	0.00426		0.00100	0.000217	mg/L		07/26/22 15:40	07/28/22 17:37	1
Calcium	829		0.500	0.127	mg/L		07/26/22 15:40	07/28/22 17:37	1
Chromium	0.00327		0.00200	0.00153	mg/L		07/26/22 15:40	07/28/22 17:37	1
Cobalt	0.0493		0.000500	0.000261	mg/L		07/26/22 15:40	07/28/22 17:37	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/26/22 15:40	07/28/22 17:37	1
Lead	0.000527	J B	0.00100	0.000167	mg/L		07/26/22 15:40	07/28/22 17:37	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/26/22 15:40	07/28/22 17:37	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/26/22 15:40	07/28/22 17:37	1
Thallium	0.00115		0.00100	0.000472	mg/L		07/26/22 15:40	07/28/22 17:37	1
Lithium	0.594		0.00500	0.000831	mg/L		07/26/22 15:40	07/28/22 17:37	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 16:02	08/02/22 12:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	7930		100	100	mg/L			07/25/22 19:01	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Client Sample ID: SFL MW-2

Lab Sample ID: 180-141738-2

Date Collected: 07/20/22 11:35

Matrix: Water

Date Received: 07/21/22 09:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3220		10.0	7.13	mg/L			07/27/22 23:32	10
Fluoride	0.268	B	0.100	0.0260	mg/L			07/27/22 23:17	1
Sulfate	2000		10.0	7.56	mg/L			07/27/22 23:32	10

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00161		0.00100	0.000282	mg/L		07/26/22 15:40	07/28/22 17:44	1
Barium	0.0222		0.0100	0.00314	mg/L		07/26/22 15:40	07/28/22 17:44	1
Beryllium	0.00961		0.00100	0.000274	mg/L		07/26/22 15:40	07/28/22 17:44	1
Boron	0.945		0.160	0.120	mg/L		07/26/22 15:40	07/29/22 13:22	2
Cadmium	0.00303		0.00100	0.000217	mg/L		07/26/22 15:40	07/28/22 17:44	1
Calcium	945		0.500	0.127	mg/L		07/26/22 15:40	07/28/22 17:44	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/26/22 15:40	07/28/22 17:44	1
Cobalt	0.0211		0.000500	0.000261	mg/L		07/26/22 15:40	07/28/22 17:44	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/26/22 15:40	07/28/22 17:44	1
Lead	0.00104	B	0.00100	0.000167	mg/L		07/26/22 15:40	07/28/22 17:44	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/26/22 15:40	07/28/22 17:44	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/26/22 15:40	07/28/22 17:44	1
Thallium	0.000760	J	0.00100	0.000472	mg/L		07/26/22 15:40	07/28/22 17:44	1
Lithium	0.421		0.00500	0.000831	mg/L		07/26/22 15:40	07/28/22 17:44	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 16:02	08/02/22 12:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	8070		100	100	mg/L			07/25/22 18:55	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Client Sample ID: SFL MW-4

Lab Sample ID: 180-141738-3

Date Collected: 07/20/22 12:20

Matrix: Water

Date Received: 07/21/22 09:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.1		1.00	0.713	mg/L			07/27/22 23:47	1
Fluoride	0.484	B	0.100	0.0260	mg/L			07/27/22 23:47	1
Sulfate	174		1.00	0.756	mg/L			07/27/22 23:47	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.000786	J	0.00100	0.000282	mg/L		07/26/22 15:40	07/28/22 17:52	1
Barium	0.0201		0.0100	0.00314	mg/L		07/26/22 15:40	07/28/22 17:52	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		07/26/22 15:40	07/28/22 17:52	1
Boron	0.677		0.0800	0.0601	mg/L		07/26/22 15:40	07/29/22 13:30	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		07/26/22 15:40	07/28/22 17:52	1
Calcium	48.9		0.500	0.127	mg/L		07/26/22 15:40	07/28/22 17:52	1
Chromium	0.00379		0.00200	0.00153	mg/L		07/26/22 15:40	07/28/22 17:52	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		07/26/22 15:40	07/28/22 17:52	1
Molybdenum	0.00196	J	0.00500	0.000610	mg/L		07/26/22 15:40	07/28/22 17:52	1
Lead	<0.000167		0.00100	0.000167	mg/L		07/26/22 15:40	07/28/22 17:52	1
Antimony	0.000534	J B	0.00200	0.000506	mg/L		07/26/22 15:40	07/28/22 17:52	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/26/22 15:40	07/28/22 17:52	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/26/22 15:40	07/28/22 17:52	1
Lithium	0.0200		0.00500	0.000831	mg/L		07/26/22 15:40	07/28/22 17:52	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 16:02	08/02/22 12:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	411		10.0	10.0	mg/L			07/25/22 18:55	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Client Sample ID: EQ-1

Lab Sample ID: 180-141738-4

Date Collected: 07/20/22 17:00

Matrix: Water

Date Received: 07/21/22 09:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			07/28/22 00:31	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/28/22 00:31	1
Sulfate	<0.756		1.00	0.756	mg/L			07/28/22 00:31	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		07/26/22 15:40	07/28/22 17:55	1
Barium	<0.00314		0.0100	0.00314	mg/L		07/26/22 15:40	07/28/22 17:55	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		07/26/22 15:40	07/28/22 17:55	1
Boron	<0.0601		0.0800	0.0601	mg/L		07/26/22 15:40	07/29/22 13:33	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		07/26/22 15:40	07/28/22 17:55	1
Calcium	<0.127		0.500	0.127	mg/L		07/26/22 15:40	07/28/22 17:55	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/26/22 15:40	07/28/22 17:55	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		07/26/22 15:40	07/28/22 17:55	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/26/22 15:40	07/28/22 17:55	1
Lead	<0.000167		0.00100	0.000167	mg/L		07/26/22 15:40	07/28/22 17:55	1
Antimony	<0.000506		0.00200	0.000506	mg/L		07/26/22 15:40	07/28/22 17:55	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/26/22 15:40	07/28/22 17:55	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/26/22 15:40	07/28/22 17:55	1
Lithium	<0.000831		0.00500	0.000831	mg/L		07/26/22 15:40	07/28/22 17:55	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 12:36	08/02/22 12:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			07/25/22 18:55	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-406446/34
Matrix: Water
Analysis Batch: 406446

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	<0.713		1.00	0.713	mg/L			07/27/22 19:34	1
Fluoride	0.02745	J	0.100	0.0260	mg/L			07/27/22 19:34	1
Sulfate	<0.756		1.00	0.756	mg/L			07/27/22 19:34	1

Lab Sample ID: MB 180-406446/57
Matrix: Water
Analysis Batch: 406446

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	<0.713		1.00	0.713	mg/L			07/28/22 01:16	1
Fluoride	<0.0260		0.100	0.0260	mg/L			07/28/22 01:16	1
Sulfate	<0.756		1.00	0.756	mg/L			07/28/22 01:16	1

Lab Sample ID: LCS 180-406446/35
Matrix: Water
Analysis Batch: 406446

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	2.50	2.753		mg/L		110	80 - 120
Sulfate	50.0	50.60		mg/L		101	80 - 120

Lab Sample ID: LCS 180-406446/58
Matrix: Water
Analysis Batch: 406446

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	2.50	2.731		mg/L		109	80 - 120
Sulfate	50.0	51.74		mg/L		103	80 - 120

Lab Sample ID: 180-141759-D-1 MS
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
Chloride	7.18	F1	50.0	16.52	F1	mg/L		19	80 - 120
Fluoride	0.0884	J F1 B	2.50	0.5416	F1	mg/L		18	80 - 120
Sulfate	20.9	F1	50.0	29.86	F1	mg/L		18	80 - 120

Lab Sample ID: 180-141759-D-1 MSD
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
	Result	Qualifier		Result	Qualifier						
Chloride	7.18	F1	50.0	16.76	F1	mg/L		19	80 - 120	1	15
Fluoride	0.0884	J F1 B	2.50	0.5686	F1	mg/L		19	80 - 120	5	15
Sulfate	20.9	F1	50.0	29.90	F1	mg/L		18	80 - 120	0	15

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 180-141787-D-1 MS
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	4.37	F1	50.0	13.88	F1	mg/L		19	80 - 120
Fluoride	0.0959	J F1	2.50	0.6064	F1	mg/L		20	80 - 120
Sulfate	53.1	F1	50.0	62.89	F1	mg/L		20	80 - 120

Lab Sample ID: 180-141787-D-1 MSD
Matrix: Water
Analysis Batch: 406446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	4.37	F1	50.0	14.08	F1	mg/L		19	80 - 120	1	15
Fluoride	0.0959	J F1	2.50	0.6084	F1	mg/L		21	80 - 120	0	15
Sulfate	53.1	F1	50.0	63.13	F1	mg/L		20	80 - 120	0	15

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-406344/1-A
Matrix: Water
Analysis Batch: 406699

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		07/26/22 15:40	07/28/22 16:47	1
Barium	<0.00314		0.0100	0.00314	mg/L		07/26/22 15:40	07/28/22 16:47	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		07/26/22 15:40	07/28/22 16:47	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		07/26/22 15:40	07/28/22 16:47	1
Calcium	<0.127		0.500	0.127	mg/L		07/26/22 15:40	07/28/22 16:47	1
Chromium	<0.00153		0.00200	0.00153	mg/L		07/26/22 15:40	07/28/22 16:47	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		07/26/22 15:40	07/28/22 16:47	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		07/26/22 15:40	07/28/22 16:47	1
Lead	0.0002680	J	0.00100	0.000167	mg/L		07/26/22 15:40	07/28/22 16:47	1
Antimony	0.0008390	J	0.00200	0.000506	mg/L		07/26/22 15:40	07/28/22 16:47	1
Selenium	<0.000739		0.00500	0.000739	mg/L		07/26/22 15:40	07/28/22 16:47	1
Thallium	<0.000472		0.00100	0.000472	mg/L		07/26/22 15:40	07/28/22 16:47	1
Lithium	<0.000831		0.00500	0.000831	mg/L		07/26/22 15:40	07/28/22 16:47	1

Lab Sample ID: MB 180-406344/1-A
Matrix: Water
Analysis Batch: 406870

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.0601		0.0800	0.0601	mg/L		07/26/22 15:40	07/29/22 12:57	1

Lab Sample ID: LCS 180-406344/2-A
Matrix: Water
Analysis Batch: 406699

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.9543		mg/L		95	80 - 120
Barium	1.00	0.9289		mg/L		93	80 - 120
Beryllium	0.500	0.4839		mg/L		97	80 - 120
Cadmium	0.500	0.4799		mg/L		96	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-406344/2-A
Matrix: Water
Analysis Batch: 406699

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25.0	25.93		mg/L		104	80 - 120
Chromium	0.500	0.4945		mg/L		99	80 - 120
Cobalt	0.500	0.4859		mg/L		97	80 - 120
Molybdenum	0.500	0.4900		mg/L		98	80 - 120
Lead	0.500	0.4877		mg/L		98	80 - 120
Antimony	0.250	0.2698		mg/L		108	80 - 120
Selenium	1.00	0.9850		mg/L		98	80 - 120
Thallium	1.00	0.9419		mg/L		94	80 - 120
Lithium	0.500	0.4676		mg/L		94	80 - 120

Lab Sample ID: LCS 180-406344/2-A
Matrix: Water
Analysis Batch: 406870

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1.25	1.317		mg/L		105	80 - 120

Lab Sample ID: 180-141827-B-1-C MS
Matrix: Water
Analysis Batch: 406699

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.00138		1.00	0.9943		mg/L		99	75 - 125
Barium	0.0479		1.00	1.018		mg/L		97	75 - 125
Beryllium	<0.000274		0.500	0.4893		mg/L		98	75 - 125
Cadmium	0.00116		0.500	0.4832		mg/L		96	75 - 125
Calcium	99.3	F1	25.0	126.1		mg/L		107	75 - 125
Chromium	<0.00153		0.500	0.5078		mg/L		102	75 - 125
Cobalt	0.000407	J	0.500	0.5039		mg/L		101	75 - 125
Molybdenum	0.0171		0.500	0.5317		mg/L		103	75 - 125
Lead	0.000391	J B	0.500	0.4914		mg/L		98	75 - 125
Antimony	0.00478	B	0.250	0.2747		mg/L		108	75 - 125
Selenium	<0.000739		1.00	0.9870		mg/L		99	75 - 125
Thallium	<0.000472		1.00	0.9687		mg/L		97	75 - 125
Lithium	0.595		0.500	1.054		mg/L		92	75 - 125

Lab Sample ID: 180-141827-B-1-D MSD
Matrix: Water
Analysis Batch: 406699

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	0.00138		1.00	0.9862		mg/L		98	75 - 125	1	20
Barium	0.0479		1.00	1.003		mg/L		95	75 - 125	1	20
Beryllium	<0.000274		0.500	0.4805		mg/L		96	75 - 125	2	20
Cadmium	0.00116		0.500	0.4761		mg/L		95	75 - 125	1	20
Calcium	99.3	F1	25.0	132.3	F1	mg/L		132	75 - 125	5	20
Chromium	<0.00153		0.500	0.5064		mg/L		101	75 - 125	0	20
Cobalt	0.000407	J	0.500	0.4974		mg/L		99	75 - 125	1	20
Molybdenum	0.0171		0.500	0.5240		mg/L		101	75 - 125	1	20

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-141827-B-1-D MSD
Matrix: Water
Analysis Batch: 406699

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 406344

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lead	0.000391	J B	0.500	0.4776		mg/L		95	75 - 125	3	20
Antimony	0.00478	B	0.250	0.2876		mg/L		113	75 - 125	5	20
Selenium	<0.000739		1.00	0.9445		mg/L		94	75 - 125	4	20
Thallium	<0.000472		1.00	0.9446		mg/L		94	75 - 125	3	20
Lithium	0.595		0.500	1.037		mg/L		88	75 - 125	2	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-407010/1-A
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 407010

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 12:36	08/02/22 11:54	1

Lab Sample ID: LCS 180-407010/2-A
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 407010

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00250	0.002618		mg/L		105	80 - 120

Lab Sample ID: 180-141601-B-1-A MS
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 407010

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.000130		0.00100	0.001041		mg/L		104	75 - 125

Lab Sample ID: 180-141601-B-1-B MSD
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 407010

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.000130		0.00100	0.001047		mg/L		105	75 - 125	1	20

Lab Sample ID: MB 180-407045/1-A
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 407045

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		08/01/22 16:02	08/02/22 12:29	1

Lab Sample ID: LCS 180-407045/2-A
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 407045

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00250	0.002521		mg/L		101	80 - 120

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QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 180-141724-F-2-C MS
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 407045

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.000130		0.00100	0.0008560		mg/L		86	75 - 125

Lab Sample ID: 180-141724-F-2-D MSD
Matrix: Water
Analysis Batch: 407162

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 407045

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.000130		0.00100	0.0008560		mg/L		86	75 - 125	0	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-406217/2
Matrix: Water
Analysis Batch: 406217

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			07/25/22 18:55	1

Lab Sample ID: LCS 180-406217/1
Matrix: Water
Analysis Batch: 406217

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	186	176.0		mg/L		95	85 - 115

Lab Sample ID: 180-141736-C-4 DU
Matrix: Water
Analysis Batch: 406217

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	6700		6790		mg/L		1	10

Lab Sample ID: 180-141818-C-1 DU
Matrix: Water
Analysis Batch: 406217

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	34.0		35.00		mg/L		3	10

Lab Sample ID: MB 180-406218/2
Matrix: Water
Analysis Batch: 406218

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			07/25/22 19:01	1

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QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 180-406218/1
Matrix: Water
Analysis Batch: 406218

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	186	200.0		mg/L	-	108	85 - 115

Lab Sample ID: 180-141787-K-1 DU
Matrix: Water
Analysis Batch: 406218

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	414		408.0		mg/L	-	1	10



QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

HPLC/IC

Analysis Batch: 406446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141738-1	SFL MW-5	Total/NA	Water	EPA 9056A	
180-141738-1	SFL MW-5	Total/NA	Water	EPA 9056A	
180-141738-2	SFL MW-2	Total/NA	Water	EPA 9056A	
180-141738-2	SFL MW-2	Total/NA	Water	EPA 9056A	
180-141738-3	SFL MW-4	Total/NA	Water	EPA 9056A	
180-141738-4	EQ-1	Total/NA	Water	EPA 9056A	
MB 180-406446/34	Method Blank	Total/NA	Water	EPA 9056A	
MB 180-406446/57	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-406446/35	Lab Control Sample	Total/NA	Water	EPA 9056A	
LCS 180-406446/58	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-141759-D-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-141759-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	
180-141787-D-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-141787-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 406344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141738-1	SFL MW-5	Total Recoverable	Water	3005A	
180-141738-2	SFL MW-2	Total Recoverable	Water	3005A	
180-141738-3	SFL MW-4	Total Recoverable	Water	3005A	
180-141738-4	EQ-1	Total Recoverable	Water	3005A	
MB 180-406344/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-406344/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-141827-B-1-C MS	Matrix Spike	Total Recoverable	Water	3005A	
180-141827-B-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Analysis Batch: 406699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141738-1	SFL MW-5	Total Recoverable	Water	EPA 6020B	406344
180-141738-2	SFL MW-2	Total Recoverable	Water	EPA 6020B	406344
180-141738-3	SFL MW-4	Total Recoverable	Water	EPA 6020B	406344
180-141738-4	EQ-1	Total Recoverable	Water	EPA 6020B	406344
MB 180-406344/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	406344
LCS 180-406344/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	406344
180-141827-B-1-C MS	Matrix Spike	Total Recoverable	Water	EPA 6020B	406344
180-141827-B-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	EPA 6020B	406344

Analysis Batch: 406870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141738-1	SFL MW-5	Total Recoverable	Water	EPA 6020B	406344
180-141738-2	SFL MW-2	Total Recoverable	Water	EPA 6020B	406344
180-141738-3	SFL MW-4	Total Recoverable	Water	EPA 6020B	406344
180-141738-4	EQ-1	Total Recoverable	Water	EPA 6020B	406344
MB 180-406344/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	406344
LCS 180-406344/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	406344

Prep Batch: 407010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141738-4	EQ-1	Total/NA	Water	7470A	

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QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-1

Metals (Continued)

Prep Batch: 407010 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-407010/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-407010/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-141601-B-1-A MS	Matrix Spike	Total/NA	Water	7470A	
180-141601-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Prep Batch: 407045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141738-1	SFL MW-5	Total/NA	Water	7470A	
180-141738-2	SFL MW-2	Total/NA	Water	7470A	
180-141738-3	SFL MW-4	Total/NA	Water	7470A	
MB 180-407045/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-407045/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-141724-F-2-C MS	Matrix Spike	Total/NA	Water	7470A	
180-141724-F-2-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Analysis Batch: 407162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141738-1	SFL MW-5	Total/NA	Water	EPA 7470A	407045
180-141738-2	SFL MW-2	Total/NA	Water	EPA 7470A	407045
180-141738-3	SFL MW-4	Total/NA	Water	EPA 7470A	407045
180-141738-4	EQ-1	Total/NA	Water	EPA 7470A	407010
MB 180-407010/1-A	Method Blank	Total/NA	Water	EPA 7470A	407010
MB 180-407045/1-A	Method Blank	Total/NA	Water	EPA 7470A	407045
LCS 180-407010/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	407010
LCS 180-407045/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	407045
180-141601-B-1-A MS	Matrix Spike	Total/NA	Water	EPA 7470A	407010
180-141601-B-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	407010
180-141724-F-2-C MS	Matrix Spike	Total/NA	Water	EPA 7470A	407045
180-141724-F-2-D MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	407045

General Chemistry

Analysis Batch: 406217

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141738-2	SFL MW-2	Total/NA	Water	SM 2540C	
180-141738-3	SFL MW-4	Total/NA	Water	SM 2540C	
180-141738-4	EQ-1	Total/NA	Water	SM 2540C	
MB 180-406217/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-406217/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-141736-C-4 DU	Duplicate	Total/NA	Water	SM 2540C	
180-141818-C-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 406218

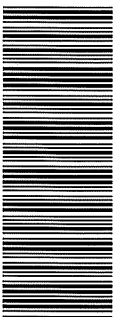
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141738-1	SFL MW-5	Total/NA	Water	SM 2540C	
MB 180-406218/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-406218/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-141787-K-1 DU	Duplicate	Total/NA	Water	SM 2540C	

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Chain of Custody Record

Client Information		Sampler: <u>WILL NICHOLSON</u>		Lab PM: <u>Hayes, Ken</u>		Carrier Tracking No(s): <u>180-67956-13428.2</u>	
Client Contact: <u>David Vogt (Will Nicholson)</u>		Phone: <u>706-252-1418</u>		E-Mail: <u>Ken.Haves@Eurofinset.com</u>		State of Origin: _____	
Company: <u>HDR Inc</u>		PWSID: _____		Analysis Requested: _____		COC No: _____	
Address: <u>17111 Preston Road Suite 200</u>		Due Date Requested: _____		Perform MS/MSD (Yes or No): <u>X</u>		Page: _____ of _____	
City: <u>Dallas</u>		TAT Requested (days): _____		Field Filtered Sample (Yes or No): <u>X</u>		Job #: _____	
State, Zip: <u>TX, 75248-1232</u>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		903.0 - Standard Target List: <u>X</u>		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Y - EDA Z - other (specify) _____ Other: _____	
Phone: <u>972-960-4461(Tel)</u>		PO #: _____		94.0 - Standard Target List: <u>X</u>		Total Number of Containers: _____	
Email: <u>david.vogt@hdrinc.com (william.nicholson@hdrinc.com)</u>		WO #: _____		956A_ORGM_28D - (MOD) Local Method: <u>X</u>		Special Instructions/Note: _____	
Project Name: <u>Gibbons Creek Steam Electric Station</u>		Project #: <u>18023511</u>		254QC_Calcd - Local Method: <u>X</u>			
Site: _____		SSON#: _____		6020B_7470A: <u>X</u>			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=oil, T=tissue, A=air)	Preservation Code:	Field Filtered Sample (Yes or No)	903.0 - Standard Target List	94.0 - Standard Target List	956A_ORGM_28D - (MOD) Local Method	6020B_7470A	254QC_Calcd - Local Method	Total Number of Containers	Special Instructions/Note
SFL MW-5	7/20/22	1035	G	Water		X	X	X	X	X	X		
SFL MW-2	7/20/22	1135	G	Water		X	X	X	X	X	X		
SFL MW-4	7/20/22	1220	G	Water		X	X	X	X	X	X		
EQ-1	7/20/22	1700	G	Water		X	X	X	X	X	X		
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									



180-141738 Chain of Custody

Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	
Deliverable Requested: I, II, III, IV, Other (specify) _____	
Empty Kit Relinquished by: _____	Date: _____
Relinquished by: <u>Will Nicholson</u>	Date/Time: <u>7/20/22 1700</u>
Relinquished by: _____	Date/Time: _____
Relinquished by: _____	Date/Time: _____
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements: _____

Method of Shipment: _____

Received by: [Signature] Date/Time: 7/20/22 1700 Company: [Signature]

Received by: _____ Date/Time: _____ Company: _____

Received by: _____ Date/Time: _____ Company: _____

Cooler Temperature(s) °C and Other Remarks: COOLE 4

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141738-1

Login Number: 141738

List Source: Eurofins Pittsburgh

List Number: 1

Creator: Watson, Debbie

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

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

Laboratory Job ID: 180-144417-1

Client Project/Site: Gibbons Creek Steam Electric Station

For:
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Attn: David Vogt



Authorized for release by:
10/10/2022 2:28:10 PM

Ken Hayes, Project Manager II
(615)301-5035
Ken.Hayes@et.eurofinsus.com

LINKS

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results through



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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Job ID: 180-144417-1

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-144417-1

Comments

No additional comments.

Receipt

The samples were received on 9/13/2022 10:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.4° C.

GC Semi VOA

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

Metals

Method 6020B: The following samples were diluted to bring the concentration of target analytes within the calibration range: MNW 1S (180-144417-3) and DUP1 (180-144417-4). Elevated reporting limits (RLs) are provided.

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

General Chemistry

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



Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Laboratory: Eurofins Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704528	03-31-23

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

Analysis Method	Prep Method	Matrix	Analyte
SM 2540C		Water	Total Dissolved Solids

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-144417-1	SFL MW3	Water	09/12/22 15:30	09/13/22 10:30
180-144417-2	SFL MW7	Water	09/12/22 14:20	09/13/22 10:30
180-144417-3	MNW 1S	Water	09/12/22 12:32	09/13/22 10:30
180-144417-4	DUP1	Water	09/12/22 13:40	09/13/22 10:30

1

2

3

4

5

6

7

8

9

10

11

12

13

Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	EET PIT
EPA 6020B	Metals (ICP/MS)	SW846	EET PIT
EPA 7470A	Mercury (CVAA)	SW846	EET PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET PIT
7470A	Preparation, Mercury	SW846	EET PIT

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Client Sample ID: SFL MW3

Lab Sample ID: 180-144417-1

Date Collected: 09/12/22 15:30

Matrix: Water

Date Received: 09/13/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1 mL	412033	09/14/22 21:26	M1D	EET PIT
Instrument ID: INTEGRION										
Total/NA	Analysis	EPA 9056A		10	1 mL	1 mL	412033	09/14/22 21:44	M1D	EET PIT
Instrument ID: INTEGRION										
Total Recoverable	Prep	3005A			25 mL	25 mL	413478	09/28/22 14:45	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			413810	09/30/22 14:52	RSK	EET PIT
Instrument ID: NEMO										
Total Recoverable	Prep	3005A			25 mL	25 mL	413478	09/28/22 14:45	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		2			413969	10/01/22 14:01	RSK	EET PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	412726	09/21/22 09:05	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			412898	09/22/22 10:07	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	412306	09/16/22 10:11	DOM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW7

Lab Sample ID: 180-144417-2

Date Collected: 09/12/22 14:20

Matrix: Water

Date Received: 09/13/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1 mL	412033	09/14/22 22:03	M1D	EET PIT
Instrument ID: INTEGRION										
Total/NA	Analysis	EPA 9056A		10	1 mL	1 mL	412033	09/14/22 22:21	M1D	EET PIT
Instrument ID: INTEGRION										
Total Recoverable	Prep	3005A			25 mL	25 mL	413478	09/28/22 14:45	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			413810	09/30/22 15:00	RSK	EET PIT
Instrument ID: NEMO										
Total Recoverable	Prep	3005A			25 mL	25 mL	413478	09/28/22 14:45	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		2			413969	10/01/22 14:03	RSK	EET PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	412726	09/21/22 09:05	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			412898	09/22/22 10:08	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	412306	09/16/22 10:11	DOM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: MNW 1S

Lab Sample ID: 180-144417-3

Date Collected: 09/12/22 12:32

Matrix: Water

Date Received: 09/13/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1 mL	412033	09/15/22 00:12	M1D	EET PIT
Instrument ID: INTEGRION										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Client Sample ID: MNW 1S

Lab Sample ID: 180-144417-3

Date Collected: 09/12/22 12:32

Matrix: Water

Date Received: 09/13/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		10	1 mL	1 mL	412033	09/15/22 00:31	M1D	EET PIT
Total Recoverable	Prep	3005A			25 mL	25 mL	413478	09/28/22 14:45	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			413810	09/30/22 15:36	RSK	EET PIT
Instrument ID: NEMO										
Total Recoverable	Prep	3005A			25 mL	25 mL	413478	09/28/22 14:45	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			413969	10/01/22 14:17	RSK	EET PIT
Instrument ID: NEMO										
Total Recoverable	Prep	3005A			25 mL	25 mL	413478	09/28/22 14:45	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		10			413969	10/01/22 14:45	RSK	EET PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	412726	09/21/22 09:05	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			412898	09/22/22 10:13	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	412306	09/16/22 10:11	DOM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: DUP1

Lab Sample ID: 180-144417-4

Date Collected: 09/12/22 13:40

Matrix: Water

Date Received: 09/13/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1 mL	412033	09/15/22 00:49	M1D	EET PIT
Instrument ID: INTEGRION										
Total/NA	Analysis	EPA 9056A		10	1 mL	1 mL	412033	09/15/22 01:08	M1D	EET PIT
Instrument ID: INTEGRION										
Total Recoverable	Prep	3005A			25 mL	25 mL	413478	09/28/22 14:45	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			413810	09/30/22 15:47	RSK	EET PIT
Instrument ID: NEMO										
Total Recoverable	Prep	3005A			25 mL	25 mL	413478	09/28/22 14:45	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			413969	10/01/22 14:33	RSK	EET PIT
Instrument ID: NEMO										
Total Recoverable	Prep	3005A			25 mL	25 mL	413478	09/28/22 14:45	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		10			413969	10/01/22 14:47	RSK	EET PIT
Instrument ID: NEMO										
Total/NA	Prep	7470A			25 mL	25 mL	412726	09/21/22 09:05	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			412898	09/22/22 10:14	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	412306	09/16/22 10:11	DOM	EET PIT
Instrument ID: NOEQUIP										

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Analyst References:

Lab: EET PIT

Batch Type: Prep

HCY = Harrison Yaeger

RJR = Ron Rosenbaum

Batch Type: Analysis

DOM = DeOnia Moses

M1D = Maureen Donlin

RJR = Ron Rosenbaum

RSK = Robert Kurtz



Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Client Sample ID: SFL MW3

Lab Sample ID: 180-144417-1

Date Collected: 09/12/22 15:30

Matrix: Water

Date Received: 09/13/22 10:30

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	829		1.00	0.713	mg/L			09/14/22 21:26	1
Fluoride	0.640		0.100	0.0260	mg/L			09/14/22 21:26	1
Sulfate	2430		10.0	7.56	mg/L			09/14/22 21:44	10

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00610		0.00100	0.000282	mg/L		09/28/22 14:45	09/30/22 14:52	1
Barium	0.0140		0.0100	0.00314	mg/L		09/28/22 14:45	09/30/22 14:52	1
Beryllium	0.0319		0.00100	0.000274	mg/L		09/28/22 14:45	09/30/22 14:52	1
Boron	5.00		0.160	0.120	mg/L		09/28/22 14:45	10/01/22 14:01	2
Cadmium	0.00569		0.00100	0.000217	mg/L		09/28/22 14:45	09/30/22 14:52	1
Calcium	615		1.00	0.254	mg/L		09/28/22 14:45	10/01/22 14:01	2
Chromium	<0.00153		0.00200	0.00153	mg/L		09/28/22 14:45	09/30/22 14:52	1
Cobalt	0.0530		0.000500	0.000261	mg/L		09/28/22 14:45	09/30/22 14:52	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		09/28/22 14:45	09/30/22 14:52	1
Lead	0.0177		0.00100	0.000167	mg/L		09/28/22 14:45	09/30/22 14:52	1
Antimony	<0.000506		0.00200	0.000506	mg/L		09/28/22 14:45	09/30/22 14:52	1
Selenium	0.0410		0.00500	0.000739	mg/L		09/28/22 14:45	09/30/22 14:52	1
Thallium	0.00581		0.00100	0.000472	mg/L		09/28/22 14:45	09/30/22 14:52	1
Lithium	0.283		0.00500	0.000831	mg/L		09/28/22 14:45	09/30/22 14:52	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00129		0.000200	0.000130	mg/L		09/21/22 09:05	09/22/22 10:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	4920		40.0	40.0	mg/L			09/16/22 10:11	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Client Sample ID: SFL MW7

Lab Sample ID: 180-144417-2

Date Collected: 09/12/22 14:20

Matrix: Water

Date Received: 09/13/22 10:30

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2020		10.0	7.13	mg/L			09/14/22 22:21	10
Fluoride	0.0599	J	0.100	0.0260	mg/L			09/14/22 22:03	1
Sulfate	528		1.00	0.756	mg/L			09/14/22 22:03	1

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.000479	J	0.00100	0.000282	mg/L		09/28/22 14:45	09/30/22 15:00	1
Barium	0.102		0.0100	0.00314	mg/L		09/28/22 14:45	09/30/22 15:00	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		09/28/22 14:45	09/30/22 15:00	1
Boron	0.832		0.0800	0.0601	mg/L		09/28/22 14:45	09/30/22 15:00	1
Cadmium	0.000250	J	0.00100	0.000217	mg/L		09/28/22 14:45	09/30/22 15:00	1
Calcium	475		1.00	0.254	mg/L		09/28/22 14:45	10/01/22 14:03	2
Chromium	<0.00153		0.00200	0.00153	mg/L		09/28/22 14:45	09/30/22 15:00	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		09/28/22 14:45	09/30/22 15:00	1
Molybdenum	0.00173	J	0.00500	0.000610	mg/L		09/28/22 14:45	09/30/22 15:00	1
Lead	0.000208	J	0.00100	0.000167	mg/L		09/28/22 14:45	09/30/22 15:00	1
Antimony	0.000978	J	0.00200	0.000506	mg/L		09/28/22 14:45	09/30/22 15:00	1
Selenium	<0.000739		0.00500	0.000739	mg/L		09/28/22 14:45	09/30/22 15:00	1
Thallium	<0.000472		0.00100	0.000472	mg/L		09/28/22 14:45	09/30/22 15:00	1
Lithium	0.401		0.00500	0.000831	mg/L		09/28/22 14:45	09/30/22 15:00	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		09/21/22 09:05	09/22/22 10:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	4120		40.0	40.0	mg/L			09/16/22 10:11	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Client Sample ID: MNW 1S

Lab Sample ID: 180-144417-3

Date Collected: 09/12/22 12:32

Matrix: Water

Date Received: 09/13/22 10:30

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	652		1.00	0.713	mg/L			09/15/22 00:12	1
Fluoride	0.738		0.100	0.0260	mg/L			09/15/22 00:12	1
Sulfate	1450		10.0	7.56	mg/L			09/15/22 00:31	10

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0153		0.00100	0.000282	mg/L		09/28/22 14:45	09/30/22 15:36	1
Barium	0.0171		0.0100	0.00314	mg/L		09/28/22 14:45	09/30/22 15:36	1
Beryllium	0.0884		0.00100	0.000274	mg/L		09/28/22 14:45	09/30/22 15:36	1
Boron	12.8		0.800	0.601	mg/L		09/28/22 14:45	10/01/22 14:45	10
Cadmium	0.0409		0.00100	0.000217	mg/L		09/28/22 14:45	09/30/22 15:36	1
Calcium	337		0.500	0.127	mg/L		09/28/22 14:45	10/01/22 14:17	1
Chromium	<0.00153		0.00200	0.00153	mg/L		09/28/22 14:45	09/30/22 15:36	1
Cobalt	0.336		0.000500	0.000261	mg/L		09/28/22 14:45	09/30/22 15:36	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		09/28/22 14:45	09/30/22 15:36	1
Lead	0.000577	J	0.00100	0.000167	mg/L		09/28/22 14:45	09/30/22 15:36	1
Antimony	<0.000506		0.00200	0.000506	mg/L		09/28/22 14:45	09/30/22 15:36	1
Selenium	0.109		0.00500	0.000739	mg/L		09/28/22 14:45	09/30/22 15:36	1
Thallium	0.00101		0.00100	0.000472	mg/L		09/28/22 14:45	09/30/22 15:36	1
Lithium	0.104		0.00500	0.000831	mg/L		09/28/22 14:45	09/30/22 15:36	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		09/21/22 09:05	09/22/22 10:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	3540		40.0	40.0	mg/L			09/16/22 10:11	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Client Sample ID: DUP1

Lab Sample ID: 180-144417-4

Date Collected: 09/12/22 13:40

Matrix: Water

Date Received: 09/13/22 10:30

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	651		1.00	0.713	mg/L			09/15/22 00:49	1
Fluoride	0.738		0.100	0.0260	mg/L			09/15/22 00:49	1
Sulfate	1440		10.0	7.56	mg/L			09/15/22 01:08	10

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0143		0.00100	0.000282	mg/L		09/28/22 14:45	09/30/22 15:47	1
Barium	0.0174		0.0100	0.00314	mg/L		09/28/22 14:45	09/30/22 15:47	1
Beryllium	0.0841		0.00100	0.000274	mg/L		09/28/22 14:45	09/30/22 15:47	1
Boron	12.8		0.800	0.601	mg/L		09/28/22 14:45	10/01/22 14:47	10
Cadmium	0.0394		0.00100	0.000217	mg/L		09/28/22 14:45	09/30/22 15:47	1
Calcium	335		0.500	0.127	mg/L		09/28/22 14:45	10/01/22 14:33	1
Chromium	<0.00153		0.00200	0.00153	mg/L		09/28/22 14:45	09/30/22 15:47	1
Cobalt	0.327		0.000500	0.000261	mg/L		09/28/22 14:45	09/30/22 15:47	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		09/28/22 14:45	09/30/22 15:47	1
Lead	0.000529	J	0.00100	0.000167	mg/L		09/28/22 14:45	09/30/22 15:47	1
Antimony	<0.000506		0.00200	0.000506	mg/L		09/28/22 14:45	09/30/22 15:47	1
Selenium	0.101		0.00500	0.000739	mg/L		09/28/22 14:45	09/30/22 15:47	1
Thallium	0.000909	J	0.00100	0.000472	mg/L		09/28/22 14:45	09/30/22 15:47	1
Lithium	0.102		0.00500	0.000831	mg/L		09/28/22 14:45	09/30/22 15:47	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		09/21/22 09:05	09/22/22 10:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	3220		40.0	40.0	mg/L			09/16/22 10:11	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-412033/6
Matrix: Water
Analysis Batch: 412033

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			09/14/22 13:19	1
Fluoride	<0.0260		0.100	0.0260	mg/L			09/14/22 13:19	1
Sulfate	<0.756		1.00	0.756	mg/L			09/14/22 13:19	1

Lab Sample ID: LCS 180-412033/7
Matrix: Water
Analysis Batch: 412033

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	51.62		mg/L		103	80 - 120
Fluoride	2.50	2.569		mg/L		103	80 - 120
Sulfate	50.0	50.23		mg/L		100	80 - 120

Lab Sample ID: 180-144446-A-8 MS
Matrix: Water
Analysis Batch: 412033

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	8.21		50.0	60.09		mg/L		104	80 - 120
Fluoride	0.479		2.50	3.048		mg/L		103	80 - 120
Sulfate	13.2		50.0	64.06		mg/L		102	80 - 120

Lab Sample ID: 180-144446-A-8 MSD
Matrix: Water
Analysis Batch: 412033

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	8.21		50.0	60.02		mg/L		104	80 - 120	0	15
Fluoride	0.479		2.50	3.095		mg/L		105	80 - 120	2	15
Sulfate	13.2		50.0	63.06		mg/L		100	80 - 120	2	15

Lab Sample ID: 180-144446-D-1 MS
Matrix: Water
Analysis Batch: 412033

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	112		50.0	157.9		mg/L		92	80 - 120
Fluoride	0.682		2.50	3.231		mg/L		102	80 - 120
Sulfate	83.1		50.0	130.4		mg/L		94	80 - 120

Lab Sample ID: 180-144446-D-1 MSD
Matrix: Water
Analysis Batch: 412033

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	112		50.0	157.4		mg/L		91	80 - 120	0	15
Fluoride	0.682		2.50	3.217		mg/L		101	80 - 120	0	15
Sulfate	83.1		50.0	129.3		mg/L		92	80 - 120	1	15

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-413478/1-A
Matrix: Water
Analysis Batch: 413810

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 413478

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		09/28/22 14:45	09/30/22 14:47	1
Barium	<0.00314		0.0100	0.00314	mg/L		09/28/22 14:45	09/30/22 14:47	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		09/28/22 14:45	09/30/22 14:47	1
Boron	<0.0601		0.0800	0.0601	mg/L		09/28/22 14:45	09/30/22 14:47	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		09/28/22 14:45	09/30/22 14:47	1
Chromium	<0.00153		0.00200	0.00153	mg/L		09/28/22 14:45	09/30/22 14:47	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		09/28/22 14:45	09/30/22 14:47	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		09/28/22 14:45	09/30/22 14:47	1
Lead	<0.000167		0.00100	0.000167	mg/L		09/28/22 14:45	09/30/22 14:47	1
Antimony	<0.000506		0.00200	0.000506	mg/L		09/28/22 14:45	09/30/22 14:47	1
Selenium	<0.000739		0.00500	0.000739	mg/L		09/28/22 14:45	09/30/22 14:47	1
Thallium	<0.000472		0.00100	0.000472	mg/L		09/28/22 14:45	09/30/22 14:47	1
Lithium	<0.000831		0.00500	0.000831	mg/L		09/28/22 14:45	09/30/22 14:47	1

Lab Sample ID: MB 180-413478/1-A
Matrix: Water
Analysis Batch: 413969

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 413478

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.127		0.500	0.127	mg/L		09/28/22 14:45	10/01/22 13:55	1

Lab Sample ID: LCS 180-413478/2-A
Matrix: Water
Analysis Batch: 413810

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 413478

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	1.006		mg/L		101	80 - 120
Barium	1.00	1.098		mg/L		110	80 - 120
Beryllium	0.500	0.5475		mg/L		109	80 - 120
Boron	1.25	1.409		mg/L		113	80 - 120
Cadmium	0.500	0.5535		mg/L		111	80 - 120
Chromium	0.500	0.5270		mg/L		105	80 - 120
Cobalt	0.500	0.5262		mg/L		105	80 - 120
Molybdenum	0.500	0.5563		mg/L		111	80 - 120
Lead	0.500	0.5433		mg/L		109	80 - 120
Antimony	0.250	0.2891		mg/L		116	80 - 120
Selenium	1.00	0.9654		mg/L		97	80 - 120
Thallium	1.00	1.077		mg/L		108	80 - 120
Lithium	0.500	0.5242		mg/L		105	80 - 120

Lab Sample ID: LCS 180-413478/2-A
Matrix: Water
Analysis Batch: 413969

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 413478

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25.0	27.78		mg/L		111	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-144417-2 MS
Matrix: Water
Analysis Batch: 413810

Client Sample ID: SFL MW7
Prep Type: Total Recoverable
Prep Batch: 413478

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	
	Result	Qualifier	Added	Result	Qualifier				Limits	
Arsenic	0.000479	J	1.00	1.072		mg/L		107	75 - 125	
Barium	0.102		1.00	1.196		mg/L		109	75 - 125	
Beryllium	<0.000274		0.500	0.5238		mg/L		105	75 - 125	
Boron	0.832		1.25	2.039		mg/L		97	75 - 125	
Cadmium	0.000250	J	0.500	0.5148		mg/L		103	75 - 125	
Chromium	<0.00153		0.500	0.5065		mg/L		101	75 - 125	
Cobalt	<0.000261		0.500	0.4841		mg/L		97	75 - 125	
Molybdenum	0.00173	J	0.500	0.5872		mg/L		117	75 - 125	
Lead	0.000208	J	0.500	0.5386		mg/L		108	75 - 125	
Antimony	0.000978	J	0.250	0.2927		mg/L		117	75 - 125	
Selenium	<0.000739		1.00	1.022		mg/L		102	75 - 125	
Thallium	<0.000472		1.00	1.067		mg/L		107	75 - 125	
Lithium	0.401		0.500	0.8898		mg/L		98	75 - 125	

Lab Sample ID: 180-144417-2 MS
Matrix: Water
Analysis Batch: 413969

Client Sample ID: SFL MW7
Prep Type: Total Recoverable
Prep Batch: 413478

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	
	Result	Qualifier	Added	Result	Qualifier				Limits	
Calcium	475		25.0	458.3	4	mg/L		-69	75 - 125	

Lab Sample ID: 180-144417-2 MSD
Matrix: Water
Analysis Batch: 413810

Client Sample ID: SFL MW7
Prep Type: Total Recoverable
Prep Batch: 413478

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec		RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit	
Arsenic	0.000479	J	1.00	1.093		mg/L		109	75 - 125	2	20	
Barium	0.102		1.00	1.213		mg/L		111	75 - 125	1	20	
Beryllium	<0.000274		0.500	0.5345		mg/L		107	75 - 125	2	20	
Boron	0.832		1.25	2.128		mg/L		104	75 - 125	4	20	
Cadmium	0.000250	J	0.500	0.5152		mg/L		103	75 - 125	0	20	
Chromium	<0.00153		0.500	0.5032		mg/L		101	75 - 125	1	20	
Cobalt	<0.000261		0.500	0.4829		mg/L		97	75 - 125	0	20	
Molybdenum	0.00173	J	0.500	0.5954		mg/L		119	75 - 125	1	20	
Lead	0.000208	J	0.500	0.5538		mg/L		111	75 - 125	3	20	
Antimony	0.000978	J	0.250	0.2906		mg/L		116	75 - 125	1	20	
Selenium	<0.000739		1.00	1.027		mg/L		103	75 - 125	1	20	
Thallium	<0.000472		1.00	1.102		mg/L		110	75 - 125	3	20	
Lithium	0.401		0.500	0.9554		mg/L		111	75 - 125	7	20	

Lab Sample ID: 180-144417-2 MSD
Matrix: Water
Analysis Batch: 413969

Client Sample ID: SFL MW7
Prep Type: Total Recoverable
Prep Batch: 413478

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec		RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit	
Calcium	475		25.0	492.4	4	mg/L		68	75 - 125	7	20	

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-412726/1-A
Matrix: Water
Analysis Batch: 412898

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 412726

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		09/21/22 09:05	09/22/22 09:41	1

Lab Sample ID: LCS 180-412726/2-A
Matrix: Water
Analysis Batch: 412898

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 412726

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00250	0.002674		mg/L		107	80 - 120

Lab Sample ID: 180-144489-D-2-B MS
Matrix: Water
Analysis Batch: 412898

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 412726

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.000159	J	0.00100	0.001185		mg/L		103	75 - 125

Lab Sample ID: 180-144489-D-2-C MSD
Matrix: Water
Analysis Batch: 412898

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 412726

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.000159	J	0.00100	0.001209		mg/L		105	75 - 125	2	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-412306/2
Matrix: Water
Analysis Batch: 412306

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			09/16/22 10:11	1

Lab Sample ID: LCS 180-412306/1
Matrix: Water
Analysis Batch: 412306

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	186	196.0		mg/L		105	85 - 115

Lab Sample ID: 180-144341-B-2 DU
Matrix: Water
Analysis Batch: 412306

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	568		588.0		mg/L		3	10

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QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

HPLC/IC

Analysis Batch: 412033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-144417-1	SFL MW3	Total/NA	Water	EPA 9056A	
180-144417-1	SFL MW3	Total/NA	Water	EPA 9056A	
180-144417-2	SFL MW7	Total/NA	Water	EPA 9056A	
180-144417-2	SFL MW7	Total/NA	Water	EPA 9056A	
180-144417-3	MNW 1S	Total/NA	Water	EPA 9056A	
180-144417-3	MNW 1S	Total/NA	Water	EPA 9056A	
180-144417-4	DUP1	Total/NA	Water	EPA 9056A	
180-144417-4	DUP1	Total/NA	Water	EPA 9056A	
MB 180-412033/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-412033/7	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-144446-A-8 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-144446-A-8 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	
180-144446-D-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-144446-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 412726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-144417-1	SFL MW3	Total/NA	Water	7470A	
180-144417-2	SFL MW7	Total/NA	Water	7470A	
180-144417-3	MNW 1S	Total/NA	Water	7470A	
180-144417-4	DUP1	Total/NA	Water	7470A	
MB 180-412726/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-412726/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-144489-D-2-B MS	Matrix Spike	Dissolved	Water	7470A	
180-144489-D-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	

Analysis Batch: 412898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-144417-1	SFL MW3	Total/NA	Water	EPA 7470A	412726
180-144417-2	SFL MW7	Total/NA	Water	EPA 7470A	412726
180-144417-3	MNW 1S	Total/NA	Water	EPA 7470A	412726
180-144417-4	DUP1	Total/NA	Water	EPA 7470A	412726
MB 180-412726/1-A	Method Blank	Total/NA	Water	EPA 7470A	412726
LCS 180-412726/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	412726
180-144489-D-2-B MS	Matrix Spike	Dissolved	Water	EPA 7470A	412726
180-144489-D-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	EPA 7470A	412726

Prep Batch: 413478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-144417-1	SFL MW3	Total Recoverable	Water	3005A	
180-144417-2	SFL MW7	Total Recoverable	Water	3005A	
180-144417-3	MNW 1S	Total Recoverable	Water	3005A	
180-144417-4	DUP1	Total Recoverable	Water	3005A	
MB 180-413478/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-413478/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-144417-2 MS	SFL MW7	Total Recoverable	Water	3005A	
180-144417-2 MSD	SFL MW7	Total Recoverable	Water	3005A	

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QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-1

Metals

Analysis Batch: 413810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-144417-1	SFL MW3	Total Recoverable	Water	EPA 6020B	413478
180-144417-2	SFL MW7	Total Recoverable	Water	EPA 6020B	413478
180-144417-3	MNW 1S	Total Recoverable	Water	EPA 6020B	413478
180-144417-4	DUP1	Total Recoverable	Water	EPA 6020B	413478
MB 180-413478/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	413478
LCS 180-413478/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	413478
180-144417-2 MS	SFL MW7	Total Recoverable	Water	EPA 6020B	413478
180-144417-2 MSD	SFL MW7	Total Recoverable	Water	EPA 6020B	413478

Analysis Batch: 413969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-144417-1	SFL MW3	Total Recoverable	Water	EPA 6020B	413478
180-144417-2	SFL MW7	Total Recoverable	Water	EPA 6020B	413478
180-144417-3	MNW 1S	Total Recoverable	Water	EPA 6020B	413478
180-144417-3	MNW 1S	Total Recoverable	Water	EPA 6020B	413478
180-144417-4	DUP1	Total Recoverable	Water	EPA 6020B	413478
180-144417-4	DUP1	Total Recoverable	Water	EPA 6020B	413478
MB 180-413478/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	413478
LCS 180-413478/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	413478
180-144417-2 MS	SFL MW7	Total Recoverable	Water	EPA 6020B	413478
180-144417-2 MSD	SFL MW7	Total Recoverable	Water	EPA 6020B	413478

General Chemistry

Analysis Batch: 412306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-144417-1	SFL MW3	Total/NA	Water	SM 2540C	
180-144417-2	SFL MW7	Total/NA	Water	SM 2540C	
180-144417-3	MNW 1S	Total/NA	Water	SM 2540C	
180-144417-4	DUP1	Total/NA	Water	SM 2540C	
MB 180-412306/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-412306/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-144341-B-2 DU	Duplicate	Total/NA	Water	SM 2540C	

Chain of Custody Record

Client Information
 Client Contact: David Vogt (Will Nicholson)
 Company: HDR Inc
 Address: 17111 Preston Road Suite 200
 City: Dallas
 State, Zip: TX, 75248-1232
 Phone: 972-960-4461 (Tel)
 Email: david.vogt@hdrinc.com (william.nicholson@hdrinc.com)
 Project Name: Gibbons Creek Steam Electric Station
 Site:

Sampler: Jonathan Thompson
 Phone: 706-252-1476 JT
 Lab P/M: Hayes, Ken
 E-Mail: Ken.Hayes@Eurofins.com
 Carrier Tracking No(s): 180-67956-13428-2
 State of Origin: TEXAS
 Page 1 of 1
 Job #

Due Date Requested:
 TAT Requested (days):
 Compliance Project: Yes No
 PO #
 WO #
 Project #: 18023511
 SOW#

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oli, BT=tissue, A=air)	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		903.0 - Standard Target List		904.0 - Standard Target List		9056A_ORGM_28D - (MOD) Local Method		6020B_7470A		2540C_Calcd - Local Method		Total Number of Containers	Special Instructions/Note:
					D	N	D	N	D	N	D	N	D	N	D	N	D	N		
SFL MW3	9-12-22	1530	G	Water	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
SFL MW7	9-12-22	1420	G	Water	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
MW15	9-12-22	1252	G	Water	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
DUPI	9-12-22	1340	G	Water	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
				Water																
				Water																
				Water																
				Water																
				Water																
				Water																
				Water																



Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements:

Empty Kit Relinquished by: [Signature]
 Relinquished by: [Signature]
 Relinquished by: [Signature]
 Date/Time: 9-12-22 1800
 Date/Time: [Blank]
 Date/Time: [Blank]

Received by: [Signature] Company: HPR
 Received by: [Signature] Company: [Blank]
 Received by: [Signature] Company: [Blank]

Date: [Blank]
 Method of Shipment: [Blank]

Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-144417-1

Login Number: 144417

List Source: Eurofins Pittsburgh

List Number: 1

Creator: Watson, Debbie

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

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

Laboratory Job ID: 180-141590-2

Client Project/Site: Gibbons Creek Steam Electric Station

For:
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Attn: David Vogt



Authorized for release by:

8/26/2022 2:01:42 PM

Dominic Nestasie, Project Manager
(412)963-7058

Dominic.Nestasie@et.eurofinsus.com

Designee for

Ken Hayes, Project Manager II
(615)301-5035

Ken.Hayes@et.eurofinsus.com

LINKS

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results through



Have a Question?



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Job ID: 180-141590-2

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-141590-2

Receipt

The samples were received on 7/20/2022 8:45 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.1°C

Gas Flow Proportional Counter

Method 903.0: Radium-228 Prep Batch 160-576422 The following samples were prepared at a reduced aliquot due to Matrix: AP MW-1D (180-141590-1) and AP MW-5 (180-141590-2). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 903.0: Radium-228 Prep Batch 160-576422 Insufficient sample volume was available to perform a sample duplicate for the following samples: AP MW-1D (180-141590-1), AP MW-5 (180-141590-2), AP MW-4 (180-141590-3) and FB-2 (180-141590-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method 903.0: Radium-226 batch 160-576422 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. AP MW-1D (180-141590-1), AP MW-5 (180-141590-2), AP MW-4 (180-141590-3), FB-2 (180-141590-4), (LCS 160-576422/2-A), (LCSD 160-576422/3-A) and (MB 160-576422/1-A)

Method 904.0: Radium-226 Prep Batch 160-576422 Insufficient sample volume was available to perform a sample duplicate for the following samples: AP MW-1D (180-141590-1), AP MW-5 (180-141590-2), AP MW-4 (180-141590-3) and FB-2 (180-141590-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method 904.0: Radium 228 Batch 160-576440: The method blank (MB) has Ra-228 activity above the MDC and RL. The following associated samples are non-detect for the analyte, therefore, re-analysis is not required. The data have been reported. AP MW-4 (180-141590-3) and FB-2 (180-141590-4)

Method 904.0: Radium 228 Batch 160-576440: Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. AP MW-4 (180-141590-3), FB-2 (180-141590-4), (LCS 160-576440/2-A), (LCSD 160-576440/3-A) and (MB 160-576440/1-A)

Method 904.0: Radium-228 Prep Batch 160-578405 The following samples were prepared at a reduced aliquot due to Matrix: AP MW-1D (180-141590-1) and AP MW-5 (180-141590-2). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 904.0: Radium-228 Prep Batch 160-578405 Insufficient sample volume was available to perform a sample duplicate for the following samples: AP MW-1D (180-141590-1) and AP MW-5 (180-141590-2). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method 904.0: Radium-228 batch 160-578405 The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: AP MW-5 (180-141590-2). Analytical results are reported with the detection limit achieved.

Method 904.0: Radium-228 batch 160-578405 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. AP MW-1D (180-141590-1), AP MW-5 (180-141590-2), (LCS 160-578405/2-A), (LCSD 160-578405/3-A) and (MB 160-578405/1-A)

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

Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Job ID: 180-141590-2 (Continued)

Laboratory: Eurofins Pittsburgh (Continued)

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

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Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-22 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22 *
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22 *
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22 *
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

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

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-141590-1	AP MW-1D	Water	07/19/22 15:55	07/20/22 08:45
180-141590-2	AP MW-5	Water	07/19/22 16:40	07/20/22 08:45
180-141590-3	AP MW-4	Water	07/19/22 17:30	07/20/22 08:45
180-141590-4	FB-2	Water	07/19/22 17:30	07/20/22 08:45

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

- EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Client Sample ID: AP MW-1D

Lab Sample ID: 180-141590-1

Date Collected: 07/19/22 15:55

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			744.35 mL	1.0 g	576422	08/03/22 12:29	MS	EET SL
Total/NA	Analysis	903.0		1			579454	08/25/22 07:24	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			751.66 mL	1.0 g	578405	08/17/22 14:02	BMP	EET SL
Total/NA	Analysis	904.0		1			579003	08/22/22 12:22	FLC	EET SL
Instrument ID: GFPCORANGE										
Total/NA	Analysis	Ra226_Ra228		1			579494	08/25/22 16:55	CLP	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: AP MW-5

Lab Sample ID: 180-141590-2

Date Collected: 07/19/22 16:40

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			773.91 mL	1.0 g	576422	08/03/22 12:29	MS	EET SL
Total/NA	Analysis	903.0		1			579454	08/25/22 07:24	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			275.18 mL	1.0 g	578405	08/17/22 14:02	BMP	EET SL
Total/NA	Analysis	904.0		1			579000	08/22/22 12:23	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			579494	08/25/22 16:55	CLP	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: AP MW-4

Lab Sample ID: 180-141590-3

Date Collected: 07/19/22 17:30

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1006.27 mL	1.0 g	576422	08/03/22 12:29	MS	EET SL
Total/NA	Analysis	903.0		1			579454	08/25/22 07:24	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			1006.27 mL	1.0 g	576440	08/03/22 13:35	MS	EET SL
Total/NA	Analysis	904.0		1			578202	08/16/22 11:14	CLP	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			579494	08/25/22 16:55	CLP	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: FB-2

Lab Sample ID: 180-141590-4

Date Collected: 07/19/22 17:30

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			996.71 mL	1.0 g	576422	08/03/22 12:29	MS	EET SL
Total/NA	Analysis	903.0		1			579454	08/25/22 07:24	FLC	EET SL
Instrument ID: GFPCRED										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Client Sample ID: FB-2

Lab Sample ID: 180-141590-4

Date Collected: 07/19/22 17:30

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			996.71 mL	1.0 g	576440	08/03/22 13:35	MS	EET SL
Total/NA	Analysis	904.0		1			578202	08/16/22 11:14	CLP	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			579494	08/25/22 16:55	CLP	EET SL
Instrument ID: NOEQUIP										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: EET SL

Batch Type: Prep

BMP = Bailey Pinette

MS = Matthew Swaringam

Batch Type: Analysis

CLP = Cassandra Park

FLC = Fernando Cruz



Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Client Sample ID: AP MW-1D

Lab Sample ID: 180-141590-1

Date Collected: 07/19/22 15:55

Matrix: Water

Date Received: 07/20/22 08:45

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.213		0.123	0.124	1.00	0.154	pCi/L	08/03/22 12:29	08/25/22 07:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.6		40 - 110					08/03/22 12:29	08/25/22 07:24	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.954		0.459	0.468	1.00	0.625	pCi/L	08/17/22 14:02	08/22/22 12:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.5		40 - 110					08/17/22 14:02	08/22/22 12:22	1
Y Carrier	89.0		40 - 110					08/17/22 14:02	08/22/22 12:22	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.17		0.475	0.484	5.00	0.625	pCi/L		08/25/22 16:55	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Client Sample ID: AP MW-5

Lab Sample ID: 180-141590-2

Date Collected: 07/19/22 16:40

Matrix: Water

Date Received: 07/20/22 08:45

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.430		0.147	0.152	1.00	0.136	pCi/L	08/03/22 12:29	08/25/22 07:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.5		40 - 110					08/03/22 12:29	08/25/22 07:24	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.95	G	1.50	1.54	1.00	1.89	pCi/L	08/17/22 14:02	08/22/22 12:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.0		40 - 110					08/17/22 14:02	08/22/22 12:23	1
Y Carrier	85.6		40 - 110					08/17/22 14:02	08/22/22 12:23	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.38		1.51	1.55	5.00	1.89	pCi/L		08/25/22 16:55	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Client Sample ID: AP MW-4

Lab Sample ID: 180-141590-3

Date Collected: 07/19/22 17:30

Matrix: Water

Date Received: 07/20/22 08:45

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.217		0.122	0.124	1.00	0.154	pCi/L	08/03/22 12:29	08/25/22 07:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	57.1		40 - 110					08/03/22 12:29	08/25/22 07:24	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.574	U	0.456	0.459	1.00	0.699	pCi/L	08/03/22 13:35	08/16/22 11:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	57.1		40 - 110					08/03/22 13:35	08/16/22 11:14	1
Y Carrier	87.1		40 - 110					08/03/22 13:35	08/16/22 11:14	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.791		0.472	0.475	5.00	0.699	pCi/L		08/25/22 16:55	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Client Sample ID: FB-2

Lab Sample ID: 180-141590-4

Date Collected: 07/19/22 17:30

Matrix: Water

Date Received: 07/20/22 08:45

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0118	U	0.0611	0.0612	1.00	0.120	pCi/L	08/03/22 12:29	08/25/22 07:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.3		40 - 110					08/03/22 12:29	08/25/22 07:24	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.728		0.380	0.386	1.00	0.522	pCi/L	08/03/22 13:35	08/16/22 11:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.3		40 - 110					08/03/22 13:35	08/16/22 11:14	1
Y Carrier	86.7		40 - 110					08/03/22 13:35	08/16/22 11:14	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.740		0.385	0.391	5.00	0.522	pCi/L		08/25/22 16:55	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-576422/1-A
Matrix: Water
Analysis Batch: 579454

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 576422

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.003736	U	0.0519	0.0519	1.00	0.106	pCi/L	08/03/22 12:29	08/25/22 07:22	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	90.8		40 - 110		08/03/22 12:29	08/25/22 07:22	1			

Lab Sample ID: LCS 160-576422/2-A
Matrix: Water
Analysis Batch: 579454

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 576422

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.40		1.09	1.00	0.0946	pCi/L	92	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	87.8		40 - 110						

Lab Sample ID: LCSD 160-576422/3-A
Matrix: Water
Analysis Batch: 579454

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 576422

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	10.96		1.17	1.00	0.117	pCi/L	97	75 - 125	0.25	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	74.6		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-576440/1-A
Matrix: Water
Analysis Batch: 578202

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 576440

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	1.236		0.409	0.424	1.00	0.476	pCi/L	08/03/22 13:35	08/16/22 11:12	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	90.8		40 - 110		08/03/22 13:35	08/16/22 11:12	1			
Y Carrier	84.5		40 - 110		08/03/22 13:35	08/16/22 11:12	1			

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-576440/2-A
Matrix: Water
Analysis Batch: 578202

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 576440

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75	125
Radium-228	8.36	9.206		1.26	1.00	0.533	pCi/L	110	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	87.8		40 - 110							
Y Carrier	84.9		40 - 110							

Lab Sample ID: LCSD 160-576440/3-A
Matrix: Water
Analysis Batch: 578202

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 576440

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER Limit	
									75	125	RER	1
Radium-228	8.36	9.644		1.37	1.00	0.624	pCi/L	115	75 - 125	0.17	1	
LCSD LCSD												
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	74.6		40 - 110									
Y Carrier	84.5		40 - 110									

Lab Sample ID: MB 160-578405/1-A
Matrix: Water
Analysis Batch: 579003

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 578405

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
MB MB										
Carrier	%Yield	Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	93.8		40 - 110		08/17/22 14:02	08/22/22 12:21	1			
Y Carrier	87.5		40 - 110		08/17/22 14:02	08/22/22 12:21	1			

Lab Sample ID: LCS 160-578405/2-A
Matrix: Water
Analysis Batch: 579003

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 578405

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75	125
Radium-228	8.34	7.925		1.11	1.00	0.455	pCi/L	95	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	92.8		40 - 110							
Y Carrier	88.2		40 - 110							

QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCSD 160-578405/3-A
Matrix: Water
Analysis Batch: 579003

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 578405

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	8.34	8.697		1.20	1.00	0.470	pCi/L	104	75 - 125	0.33	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	91.0		40 - 110
Y Carrier	86.4		40 - 110

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QC Association Summary

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141590-2

Rad

Prep Batch: 576422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-1	AP MW-1D	Total/NA	Water	PrecSep-21	
180-141590-2	AP MW-5	Total/NA	Water	PrecSep-21	
180-141590-3	AP MW-4	Total/NA	Water	PrecSep-21	
180-141590-4	FB-2	Total/NA	Water	PrecSep-21	
MB 160-576422/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-576422/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-576422/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 576440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-3	AP MW-4	Total/NA	Water	PrecSep_0	
180-141590-4	FB-2	Total/NA	Water	PrecSep_0	
MB 160-576440/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-576440/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-576440/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 578405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141590-1	AP MW-1D	Total/NA	Water	PrecSep_0	
180-141590-2	AP MW-5	Total/NA	Water	PrecSep_0	
MB 160-578405/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-578405/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-578405/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Chain of Custody Record



Client Information Client Contact: David Vogt (Will Nicholson) Company: HDR Inc Address: 17111 Preston Road Suite 200 City: Dallas State, Zip: TX, 75248-1232 Phone: 972-960-4461 (Tel) Email: david.vogt@hdrinc.com (william.nicholson@hdrinc.com) Project Name: Gibbons Creek Steam Electric Station Site:		Lab PM: Hayes, Ken E-Mail: Ken.Hayes@Eurofinset.com Carrier Tracking No(s): 180-67956-13428-2 State of Origin:	
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: WO #: Project #: 18023511 SSOW#		Analysis Requested 903.0 - Standard Target List 904.0 - Standard Target List 9056A_ORGFM_28D - (MOD) Local Method 6020B, 7470A 2540C_Calcd - Local Method	
Sample Identification AP MW-10 AP MW-5 AP MW-4 FB-2		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Sample Date 7/19/22 7/19/22 7/19/22 7/19/22		Sample Time 1555 1640 1736 1770	
Sample Type (C=Comp, G=grab) G G G G		Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air) Water Water Water Water	
Field Filtered Sample (Yes or No) N N N N		Perform MS/MSD (Yes or No) N N N N	
Total Number of Containers X X X X		Special Instructions/Note: 180-141590 Chain of Custody	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Date:	
Relinquished by: <i>Will Nicholson</i>		Date/Time: 7/19/22 1800 company	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Custody Seal No.: 022 <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Hayes, Ken	Carrier Tracking No(s): 180-466158.1																																																																																																																								
Client Contact Shipping/Receiving		E-Mail Ken.Hayes@et.eurofinsus.com	Page: Page 1 of 1																																																																																																																								
Company TestAmerica Laboratories, Inc.		State of Origin Texas	Job #: 180-141590-2																																																																																																																								
Address: 13715 Rider Trail North,		Accreditations Required (See note): NELAP - Texas	Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:																																																																																																																								
City: Earth City	Due Date Requested: 8/22/2022	<table border="1"> <thead> <tr> <th>Sample ID (Lab ID)</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=Comp, G=grab)</th> <th>Matrix (W=water, S=solid, O=water/oil, BT=Trasus, AA=AP)</th> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>903.0/PreSep_21 Standard Target List</th> <th>904.0/PreSep_0 Standard Target List</th> <th>Ra226Ra228_GFPc</th> <th>Total Number of Containers</th> <th>Special Instructions/Note:</th> </tr> </thead> <tbody> <tr> <td>AP MW-10 (180-141590-1)</td> <td>7/19/22</td> <td>15:55 Central</td> <td>Water</td> <td>Water</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td>2</td> <td></td> </tr> <tr> <td>AP MW-5 (180-141590-2)</td> <td>7/19/22</td> <td>16:40 Central</td> <td>Water</td> <td>Water</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td>2</td> <td></td> </tr> <tr> <td>AP MW-4 (180-141590-3)</td> <td>7/19/22</td> <td>17:30 Central</td> <td>Water</td> <td>Water</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td>2</td> <td></td> </tr> <tr> <td>EB-2 (180-141590-4)</td> <td>7/19/22</td> <td>17:30 Central</td> <td>Water</td> <td>Water</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td>2</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Sample ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/oil, BT=Trasus, AA=AP)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/PreSep_21 Standard Target List	904.0/PreSep_0 Standard Target List	Ra226Ra228_GFPc	Total Number of Containers	Special Instructions/Note:	AP MW-10 (180-141590-1)	7/19/22	15:55 Central	Water	Water	X	X	X	X		2		AP MW-5 (180-141590-2)	7/19/22	16:40 Central	Water	Water	X	X	X	X		2		AP MW-4 (180-141590-3)	7/19/22	17:30 Central	Water	Water	X	X	X	X		2		EB-2 (180-141590-4)	7/19/22	17:30 Central	Water	Water	X	X	X	X		2																																																													
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EB-2 (180-141590-4)	7/19/22			17:30 Central	Water	Water	X	X	X	X		2																																																																																																															
State, Zip: MO, 63045	TAT Requested (days):																																																																																																																										
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:																																																																																																																										
Email:	WO #:																																																																																																																										
Project Name: Gibbons Creek Steam Electric Station	Project #: 18023511																																																																																																																										
Site:	SSOW#:																																																																																																																										
<p>Note: Since laboratory accreditations are subject to change, Eurofins Pittsburgh places the ownership of method, analyte, & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/sets/matrix being analyzed, the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Pittsburgh.</p>																																																																																																																											
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Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141590-2

Login Number: 141590

List Number: 1

Creator: Abernathy, Eric L

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141590-2

Login Number: 141590

List Number: 2

Creator: Booker, Autumn R

List Source: Eurofins St. Louis

List Creation: 07/28/22 05:53 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141590-2

Login Number: 141590

List Number: 3

Creator: Booker, Autumn R

List Source: Eurofins St. Louis

List Creation: 07/29/22 08:09 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

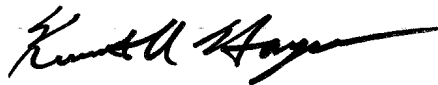
Eurofins Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-141637-2

Client Project/Site: Gibbons Creek Steam Electric Station

For:
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Attn: David Vogt



Authorized for release by:
8/24/2022 11:23:06 AM

Ken Hayes, Project Manager II
(615)301-5035
Ken.Hayes@et.eurofinsus.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Job ID: 180-141637-2

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-141637-2

Comments

No additional comments.

Receipt

The samples were received on 7/20/2022 8:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.0° C.

RAD

Method 903.0: Radium-226 batch 575923

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. SSP/AP MW-1 (180-141637-1), MNW-18 (180-141637-2), SFL-6 (180-141637-3), FB-1 (180-141637-4), (LCS 160-575923/2-A), (LCSD 160-575923/3-A) and (MB 160-575923/1-A)

Method 904.0: Radium 228 Batch 160-575925:

The Ra-228 laboratory control sample duplicate (LCSD) associated with the following sample recovered at 127%: (LCSD 160-575925/3-A). The limits in our LIMS system at 75-125% reflect the requirements of a regulatory agency that represents a large amount of our work. However, the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of 62-148% per method requirements. The LCSD is within criteria and no further action is required. (LCSD 160-575925/3-A)

Method 904.0: Radium 228 Batch 160-575925:

The following sample did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference. During preparation the analyst visually noted matrix effects. The data have been reported with this narrative. SFL-6 (180-141637-3)

Method 904.0: Radium 228 Batch 160-575925:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. SSP/AP MW-1 (180-141637-1), MNW-18 (180-141637-2), SFL-6 (180-141637-3), FB-1 (180-141637-4), (LCS 160-575925/2-A), (LCSD 160-575925/3-A) and (MB 160-575925/1-A)

Method PrecSep_0: Radium-228 Prep Batch 160-575925

The following samples were prepared at a reduced aliquot due to Matrix: SSP/AP MW-1 (180-141637-1) and SFL-6 (180-141637-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep_0: Radium-228 Prep Batch 160-575925

Insufficient sample volume was available to perform a sample duplicate for the following samples: SSP/AP MW-1 (180-141637-1), MNW-18 (180-141637-2), SFL-6 (180-141637-3) and FB-1 (180-141637-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-575923

The following samples were prepared at a reduced aliquot due to Matrix: SSP/AP MW-1 (180-141637-1) and SFL-6 (180-141637-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-575923

Insufficient sample volume was available to perform a sample duplicate for the following samples: SSP/AP MW-1 (180-141637-1), MNW-18 (180-141637-2), SFL-6 (180-141637-3) and FB-1 (180-141637-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

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

Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-22 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22 *
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22 *
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22 *
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

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

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-141637-1	SSP/AP MW-1	Water	07/19/22 13:00	07/20/22 08:45
180-141637-2	MNW-18	Water	07/19/22 14:00	07/20/22 08:45
180-141637-3	SFL-6	Water	07/19/22 14:50	07/20/22 08:45
180-141637-4	FB-1	Water	07/19/22 14:50	07/20/22 08:45

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Client Sample ID: SSP/AP MW-1

Lab Sample ID: 180-141637-1

Date Collected: 07/19/22 13:00

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			494.75 mL	1.0 g	575923	08/01/22 08:42	MS	EET SL
Total/NA	Analysis	903.0		1			578736	08/19/22 13:51	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			494.75 mL	1.0 g	575925	08/01/22 08:48	MS	EET SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	577142	08/09/22 11:25	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			579199	08/23/22 20:18	CLP	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: MNW-18

Lab Sample ID: 180-141637-2

Date Collected: 07/19/22 14:00

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			990.47 mL	1.0 g	575923	08/01/22 08:42	MS	EET SL
Total/NA	Analysis	903.0		1			578736	08/19/22 20:52	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			990.47 mL	1.0 g	575925	08/01/22 08:48	MS	EET SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	577142	08/09/22 11:25	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			579199	08/23/22 20:18	CLP	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SFL-6

Lab Sample ID: 180-141637-3

Date Collected: 07/19/22 14:50

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			245.06 mL	1.0 g	575923	08/01/22 08:42	MS	EET SL
Total/NA	Analysis	903.0		1			578736	08/19/22 20:53	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			245.06 mL	1.0 g	575925	08/01/22 08:48	MS	EET SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	577142	08/09/22 11:25	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			579199	08/23/22 20:18	CLP	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: FB-1

Lab Sample ID: 180-141637-4

Date Collected: 07/19/22 14:50

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1001.78 mL	1.0 g	575923	08/01/22 08:42	MS	EET SL
Total/NA	Analysis	903.0		1			578736	08/19/22 20:53	FLC	EET SL
Instrument ID: GFPCBLUE										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Client Sample ID: FB-1

Lab Sample ID: 180-141637-4

Date Collected: 07/19/22 14:50

Matrix: Water

Date Received: 07/20/22 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			1001.78 mL	1.0 g	575925	08/01/22 08:48	MS	EET SL
Total/NA	Analysis	904.0		1			577142	08/09/22 11:25	FLC	EET SL
		Instrument ID: GFPCRED								
Total/NA	Analysis	Ra226_Ra228		1			579199	08/23/22 20:18	CLP	EET SL
		Instrument ID: NOEQUIP								

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: EET SL

Batch Type: Prep

MS = Matthew Swaringam

Batch Type: Analysis

CLP = Cassandra Park

FLC = Fernando Cruz

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Client Sample ID: SSP/AP MW-1

Lab Sample ID: 180-141637-1

Date Collected: 07/19/22 13:00

Matrix: Water

Date Received: 07/20/22 08:45

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.293		0.178	0.180	1.00	0.241	pCi/L	08/01/22 08:42	08/19/22 13:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.3		40 - 110					08/01/22 08:42	08/19/22 13:51	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.61		0.808	0.843	1.00	0.901	pCi/L	08/01/22 08:48	08/09/22 11:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.3		40 - 110					08/01/22 08:48	08/09/22 11:25	1
Y Carrier	80.4		40 - 110					08/01/22 08:48	08/09/22 11:25	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.90		0.827	0.862	5.00	0.901	pCi/L		08/23/22 20:18	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Client Sample ID: MNW-18

Lab Sample ID: 180-141637-2

Date Collected: 07/19/22 14:00

Matrix: Water

Date Received: 07/20/22 08:45

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.36		0.210	0.243	1.00	0.120	pCi/L	08/01/22 08:42	08/19/22 20:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					08/01/22 08:42	08/19/22 20:52	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.08		0.553	0.621	1.00	0.478	pCi/L	08/01/22 08:48	08/09/22 11:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					08/01/22 08:48	08/09/22 11:25	1
Y Carrier	85.2		40 - 110					08/01/22 08:48	08/09/22 11:25	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.44		0.592	0.667	5.00	0.478	pCi/L		08/23/22 20:18	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Client Sample ID: SFL-6
 Date Collected: 07/19/22 14:50
 Date Received: 07/20/22 08:45

Lab Sample ID: 180-141637-3
 Matrix: Water

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.79		0.651	0.698	1.00	0.452	pCi/L	08/01/22 08:42	08/19/22 20:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.6		40 - 110					08/01/22 08:42	08/19/22 20:53	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	13.2	G	2.60	2.87	1.00	2.16	pCi/L	08/01/22 08:48	08/09/22 11:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.6		40 - 110					08/01/22 08:48	08/09/22 11:25	1
Y Carrier	83.7		40 - 110					08/01/22 08:48	08/09/22 11:25	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	16.0		2.68	2.95	5.00	2.16	pCi/L		08/23/22 20:18	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Client Sample ID: FB-1

Lab Sample ID: 180-141637-4

Date Collected: 07/19/22 14:50

Matrix: Water

Date Received: 07/20/22 08:45

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0175	U	0.0613	0.0613	1.00	0.115	pCi/L	08/01/22 08:42	08/19/22 20:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.3		40 - 110					08/01/22 08:42	08/19/22 20:53	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.182	U	0.256	0.257	1.00	0.431	pCi/L	08/01/22 08:48	08/09/22 11:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.3		40 - 110					08/01/22 08:48	08/09/22 11:25	1
Y Carrier	85.2		40 - 110					08/01/22 08:48	08/09/22 11:25	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.200	U	0.263	0.264	5.00	0.431	pCi/L		08/23/22 20:18	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-575923/1-A
Matrix: Water
Analysis Batch: 578736

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 575923

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.007942	U	0.0441	0.0441	1.00	0.0963	pCi/L	08/01/22 08:42	08/19/22 13:50	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Ba Carrier	104		40 - 110				08/01/22 08:42		08/19/22 13:50	1

Lab Sample ID: LCS 160-575923/2-A
Matrix: Water
Analysis Batch: 578736

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 575923

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	9.700		1.02	1.00	0.125	pCi/L	86	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	104		40 - 110						

Lab Sample ID: LCSD 160-575923/3-A
Matrix: Water
Analysis Batch: 578736

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 575923

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER
				Uncert. (2σ+/-)							Limit
Radium-226	11.3	10.21		1.06	1.00	0.0981	pCi/L	90	75 - 125	0.25	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	99.0		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-575925/1-A
Matrix: Water
Analysis Batch: 577142

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 575925

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.2580	U	0.264	0.265	1.00	0.426	pCi/L	08/01/22 08:48	08/09/22 11:24	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Ba Carrier	104		40 - 110				08/01/22 08:48		08/09/22 11:24	1
Y Carrier	83.4		40 - 110				08/01/22 08:48		08/09/22 11:24	1

Eurofins Pittsburgh

QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-575925/2-A
Matrix: Water
Analysis Batch: 577142

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 575925

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.38	9.598		1.25	1.00	0.462	pCi/L	115	75 - 125
LCS LCS									
Carrier	%Yield	Qualifier	Limits						
Ba Carrier	104		40 - 110						
Y Carrier	83.7		40 - 110						

Lab Sample ID: LCSD 160-575925/3-A
Matrix: Water
Analysis Batch: 577142

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 575925

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	8.38	10.67		1.37	1.00	0.488	pCi/L	127	75 - 125	0.41	1
LCSD LCSD											
Carrier	%Yield	Qualifier	Limits								
Ba Carrier	99.0		40 - 110								
Y Carrier	82.2		40 - 110								

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141637-2

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Prep Batch: 575923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141637-1	SSP/AP MW-1	Total/NA	Water	PrecSep-21	
180-141637-2	MNW-18	Total/NA	Water	PrecSep-21	
180-141637-3	SFL-6	Total/NA	Water	PrecSep-21	
180-141637-4	FB-1	Total/NA	Water	PrecSep-21	
MB 160-575923/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-575923/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-575923/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 575925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141637-1	SSP/AP MW-1	Total/NA	Water	PrecSep_0	
180-141637-2	MNW-18	Total/NA	Water	PrecSep_0	
180-141637-3	SFL-6	Total/NA	Water	PrecSep_0	
180-141637-4	FB-1	Total/NA	Water	PrecSep_0	
MB 160-575925/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-575925/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-575925/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Chain of Custody Record

Client Information
 Client Contact: David Vogt (Will Nicholson)
 Company: HDR Inc
 Address: 17111 Preston Road Suite 200
 City: Dallas
 State, Zip: TX, 75248-1232
 Phone: 972-960-4461(Tel)
 Email: david.vogt@hdrinc.com (william.nicholson@hdrinc.com)
 Project Name: Gibbons Creek Steam Electric Station
 Site:
 Project #: 18023511
 SOW#:
 Due Date Requested:
 TAT Requested (days):
 Compliance Project: Yes No
 PO #:
 WO #:
 Sampler: **WILL NICHOLSON**
 Lab PM: Hayes, Ken
 Phone: 706-252-1418
 E-Mail: Ken.Haves@Eurofins.com
 Carrier Tracking No(s): 160-67956-13428.2
 State of Origin:
 Page:
 Job #:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=tissue, A=air)	Field Filtered Sample (Yes or No)		Perform (MS/SP) (Yes or No)		903.0 - Standard Target List		904.0 - Standard Target List		9056A_ORGM_28D - (MOD) Local Method		6020B_7470A		2549C_Caled - Local Method		Total Number of containers	Special Instructions/Note:
					Field Filtered	Perform	D	D	D	D	D	D	D	D	D	D				
SSP/AP MW-1	7/19/22	1300	G	Water	N	N	X	X	X	X	X	X	X	X	X	X	X	X		
MNW-18	7/19/22	1400	G	Water	N	N	X	X	X	X	X	X	X	X	X	X	X	X		
SFL-U	7/19/22	1450	G	Water	N	N	X	X	X	X	X	X	X	X	X	X	X	X		
FB-1	7/19/22	1450	G	Water	N	N	X	X	X	X	X	X	X	X	X	X	X	X		
				Water																
				Water																
				Water																
				Water																
				Water																
				Water																
				Water																



Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological

Deliverable Requested: I, II, III, IV, Other (specify) _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: *Will Nicholson* Date: 7/19/22
 Relinquished by: *Will Nicholson* Date/Time: 7/19/22 1500 Company: *EAH*
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: Yes No
 Cooler Temperature(s) °C and Other Remarks: _____



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141637-2

Login Number: 141637

List Source: Eurofins Pittsburgh

List Number: 1

Creator: Watson, Debbie

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141637-2

Login Number: 141637

List Source: Eurofins St. Louis

List Number: 2

List Creation: 07/22/22 11:14 AM

Creator: Booker, Autumn R

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

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

Laboratory Job ID: 180-141736-2

Client Project/Site: Gibbons Creek Steam Electric Station

For:
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Attn: David Vogt



Authorized for release by:

8/26/2022 2:05:10 PM

Dominic Nestasie, Project Manager
(412)963-7058

Dominic.Nestasie@et.eurofinsus.com

Designee for

Ken Hayes, Project Manager II
(615)301-5035

Ken.Hayes@et.eurofinsus.com

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results through



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Job ID: 180-141736-2

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-141736-2

Receipt

The samples were received on 7/21/2022 9:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.2°C and 2.0°C

Gas Flow Proportional Counter

Method 903.0: Radium-228 Prep Batch 160-576422 The following samples were prepared at a reduced aliquot due to Matrix: SSP MW-4 (180-141736-2), SSP MW-3 (180-141736-3) and SSP MW-2 (180-141736-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 903.0: Radium-228 Prep Batch 160-576422 Insufficient sample volume was available to perform a sample duplicate for the following samples: AP MW-3 (180-141736-1), SSP MW-4 (180-141736-2), SSP MW-3 (180-141736-3) and SSP MW-2 (180-141736-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method 903.0: Radium-226 batch 160-576422 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. AP MW-3 (180-141736-1), SSP MW-4 (180-141736-2), SSP MW-3 (180-141736-3), SSP MW-2 (180-141736-4), (LCS 160-576422/2-A), (LCSD 160-576422/3-A) and (MB 160-576422/1-A)

Method 904.0: Radium-226 Prep Batch 160-576422 The following samples were prepared at a reduced aliquot due to Matrix: SSP MW-4 (180-141736-2), SSP MW-3 (180-141736-3) and SSP MW-2 (180-141736-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 904.0: Radium-226 Prep Batch 160-576422 Insufficient sample volume was available to perform a sample duplicate for the following samples: AP MW-3 (180-141736-1), SSP MW-4 (180-141736-2), SSP MW-3 (180-141736-3) and SSP MW-2 (180-141736-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method 904.0: Radium 228 Batch 160-576440: The method blank (MB) has Ra-228 activity above the MDC and RL. The following associated samples are exhibit concentrations greater than five (5) times the concentrations observed in the MB, therefore, re-analysis is not required. The data have been reported. SSP MW-3 (180-141736-3)

Method 904.0: Radium 228 Batch 160-576440: Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. SSP MW-3 (180-141736-3), (LCS 160-576440/2-A), (LCSD 160-576440/3-A) and (MB 160-576440/1-A)

Method 904.0: Radium-228 Prep Batch 160-578405 The following samples were prepared at a reduced aliquot due to Matrix: SSP MW-4 (180-141736-2) and SSP MW-2 (180-141736-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 904.0: Radium-228 Prep Batch 160-578405 Insufficient sample volume was available to perform a sample duplicate for the following samples: AP MW-3 (180-141736-1), SSP MW-4 (180-141736-2) and SSP MW-2 (180-141736-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method 904.0: Radium-228 batch 160-578405 The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: AP MW-3 (180-141736-1). Analytical results are reported with the detection limit achieved.

Method 904.0: Radium-228 batch 160-578405 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. AP MW-3 (180-141736-1), SSP MW-4 (180-141736-2), SSP MW-2

Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Job ID: 180-141736-2 (Continued)

Laboratory: Eurofins Pittsburgh (Continued)

(180-141736-4), (LCS 160-578405/2-A), (LCSD 160-578405/3-A) and (MB 160-578405/1-A)

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

Rad

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

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Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc

Job ID: 180-141736-2

Project/Site: Gibbons Creek Steam Electric Station

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-22 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22 *
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22 *
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22 *
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

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

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-141736-1	AP MW-3	Water	07/20/22 06:50	07/21/22 09:00
180-141736-2	SSP MW-4	Water	07/20/22 07:45	07/21/22 09:00
180-141736-3	SSP MW-3	Water	07/20/22 08:50	07/21/22 09:00
180-141736-4	SSP MW-2	Water	07/20/22 09:40	07/21/22 09:00

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

- EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Client Sample ID: AP MW-3

Lab Sample ID: 180-141736-1

Date Collected: 07/20/22 06:50

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			991.73 mL	1.0 g	576422	08/03/22 12:29	MS	EET SL
Total/NA	Analysis	903.0		1			579454	08/25/22 07:26	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			84.44 mL	1.0 g	578405	08/17/22 14:02	BMP	EET SL
Total/NA	Analysis	904.0		1			579000	08/22/22 12:23	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			579494	08/25/22 16:55	CLP	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SSP MW-4

Lab Sample ID: 180-141736-2

Date Collected: 07/20/22 07:45

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			751.74 mL	1.0 g	576422	08/03/22 12:29	MS	EET SL
Total/NA	Analysis	903.0		1			579454	08/25/22 07:26	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			754.68 mL	1.0 g	578405	08/17/22 14:02	BMP	EET SL
Total/NA	Analysis	904.0		1			579000	08/22/22 12:24	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			579494	08/25/22 16:55	CLP	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SSP MW-3

Lab Sample ID: 180-141736-3

Date Collected: 07/20/22 08:50

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			740.77 mL	1.0 g	576422	08/03/22 12:29	MS	EET SL
Total/NA	Analysis	903.0		1			579454	08/25/22 07:26	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			740.77 mL	1.0 g	576440	08/03/22 13:35	MS	EET SL
Total/NA	Analysis	904.0		1			578203	08/16/22 11:18	CLP	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			579494	08/25/22 16:55	CLP	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SSP MW-2

Lab Sample ID: 180-141736-4

Date Collected: 07/20/22 09:40

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			742.91 mL	1.0 g	576422	08/03/22 12:29	MS	EET SL
Total/NA	Analysis	903.0		1			579454	08/25/22 07:26	FLC	EET SL
Instrument ID: GFPCRED										

Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Client Sample ID: SSP MW-2

Lab Sample ID: 180-141736-4

Date Collected: 07/20/22 09:40

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			748.70 mL	1.0 g	578405	08/17/22 14:02	BMP	EET SL
Total/NA	Analysis	904.0		1			579000	08/22/22 12:24	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			579494	08/25/22 16:55	CLP	EET SL
Instrument ID: NOEQUIP										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: EET SL

Batch Type: Prep

BMP = Bailey Pinette

MS = Matthew Swaringam

Batch Type: Analysis

CLP = Cassandra Park

FLC = Fernando Cruz



Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Client Sample ID: AP MW-3

Lab Sample ID: 180-141736-1

Date Collected: 07/20/22 06:50

Matrix: Water

Date Received: 07/21/22 09:00

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.280		0.146	0.148	1.00	0.182	pCi/L	08/03/22 12:29	08/25/22 07:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	52.1		40 - 110					08/03/22 12:29	08/25/22 07:26	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.85	U G	3.62	3.65	1.00	5.46	pCi/L	08/17/22 14:02	08/22/22 12:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.0		40 - 110					08/17/22 14:02	08/22/22 12:23	1
Y Carrier	86.7		40 - 110					08/17/22 14:02	08/22/22 12:23	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.13	U G	3.62	3.65	5.00	5.46	pCi/L		08/25/22 16:55	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Client Sample ID: SSP MW-4

Lab Sample ID: 180-141736-2

Date Collected: 07/20/22 07:45

Matrix: Water

Date Received: 07/21/22 09:00

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.521		0.170	0.177	1.00	0.141	pCi/L	08/03/22 12:29	08/25/22 07:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.8		40 - 110					08/03/22 12:29	08/25/22 07:26	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.16		0.598	0.630	1.00	0.648	pCi/L	08/17/22 14:02	08/22/22 12:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.5		40 - 110					08/17/22 14:02	08/22/22 12:24	1
Y Carrier	85.6		40 - 110					08/17/22 14:02	08/22/22 12:24	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.68		0.622	0.654	5.00	0.648	pCi/L		08/25/22 16:55	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Client Sample ID: SSP MW-3

Lab Sample ID: 180-141736-3

Date Collected: 07/20/22 08:50

Matrix: Water

Date Received: 07/21/22 09:00

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	4.00		0.442	0.570	1.00	0.146	pCi/L	08/03/22 12:29	08/25/22 07:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	73.6		40 - 110					08/03/22 12:29	08/25/22 07:26	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	23.3		1.81	2.81	1.00	0.795	pCi/L	08/03/22 13:35	08/16/22 11:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	73.6		40 - 110					08/03/22 13:35	08/16/22 11:18	1
Y Carrier	87.9		40 - 110					08/03/22 13:35	08/16/22 11:18	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	27.3		1.86	2.87	5.00	0.795	pCi/L		08/25/22 16:55	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Client Sample ID: SSP MW-2

Lab Sample ID: 180-141736-4

Date Collected: 07/20/22 09:40

Matrix: Water

Date Received: 07/21/22 09:00

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.453		0.159	0.164	1.00	0.143	pCi/L	08/03/22 12:29	08/25/22 07:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.6		40 - 110					08/03/22 12:29	08/25/22 07:26	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.76		0.694	0.739	1.00	0.726	pCi/L	08/17/22 14:02	08/22/22 12:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		40 - 110					08/17/22 14:02	08/22/22 12:24	1
Y Carrier	83.4		40 - 110					08/17/22 14:02	08/22/22 12:24	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.21		0.712	0.757	5.00	0.726	pCi/L		08/25/22 16:55	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-576422/1-A
Matrix: Water
Analysis Batch: 579454

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 576422

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.003736	U	0.0519	0.0519	1.00	0.106	pCi/L	08/03/22 12:29	08/25/22 07:22	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	90.8		40 - 110		08/03/22 12:29	08/25/22 07:22	1			

Lab Sample ID: LCS 160-576422/2-A
Matrix: Water
Analysis Batch: 579454

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 576422

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.40		1.09	1.00	0.0946	pCi/L	92	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	87.8		40 - 110						

Lab Sample ID: LCSD 160-576422/3-A
Matrix: Water
Analysis Batch: 579454

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 576422

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	10.96		1.17	1.00	0.117	pCi/L	97	75 - 125	0.25	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	74.6		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-576440/1-A
Matrix: Water
Analysis Batch: 578202

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 576440

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	1.236		0.409	0.424	1.00	0.476	pCi/L	08/03/22 13:35	08/16/22 11:12	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	90.8		40 - 110		08/03/22 13:35	08/16/22 11:12	1			
Y Carrier	84.5		40 - 110		08/03/22 13:35	08/16/22 11:12	1			

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-576440/2-A
Matrix: Water
Analysis Batch: 578202

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 576440

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75	125
Radium-228	8.36	9.206		1.26	1.00	0.533	pCi/L	110	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	87.8		40 - 110							
Y Carrier	84.9		40 - 110							

Lab Sample ID: LCSD 160-576440/3-A
Matrix: Water
Analysis Batch: 578202

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 576440

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER Limit	
									75	125	RER	1
Radium-228	8.36	9.644		1.37	1.00	0.624	pCi/L	115	75 - 125	0.17	1	
LCSD LCSD												
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	74.6		40 - 110									
Y Carrier	84.5		40 - 110									

Lab Sample ID: MB 160-578405/1-A
Matrix: Water
Analysis Batch: 579003

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 578405

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
MB MB										
Carrier	%Yield	Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	93.8		40 - 110		08/17/22 14:02	08/22/22 12:21	1			
Y Carrier	87.5		40 - 110		08/17/22 14:02	08/22/22 12:21	1			

Lab Sample ID: LCS 160-578405/2-A
Matrix: Water
Analysis Batch: 579003

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 578405

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75	125
Radium-228	8.34	7.925		1.11	1.00	0.455	pCi/L	95	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	92.8		40 - 110							
Y Carrier	88.2		40 - 110							

QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCSD 160-578405/3-A
Matrix: Water
Analysis Batch: 579003

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 578405

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	8.34	8.697		1.20	1.00	0.470	pCi/L	104	75 - 125	0.33	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	91.0		40 - 110
Y Carrier	86.4		40 - 110

- 1
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- 13

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141736-2

Rad

Prep Batch: 576422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141736-1	AP MW-3	Total/NA	Water	PrecSep-21	
180-141736-2	SSP MW-4	Total/NA	Water	PrecSep-21	
180-141736-3	SSP MW-3	Total/NA	Water	PrecSep-21	
180-141736-4	SSP MW-2	Total/NA	Water	PrecSep-21	
MB 160-576422/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-576422/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-576422/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 576440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141736-3	SSP MW-3	Total/NA	Water	PrecSep_0	
MB 160-576440/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-576440/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-576440/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 578405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141736-1	AP MW-3	Total/NA	Water	PrecSep_0	
180-141736-2	SSP MW-4	Total/NA	Water	PrecSep_0	
180-141736-4	SSP MW-2	Total/NA	Water	PrecSep_0	
MB 160-578405/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-578405/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-578405/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Chain of Custody Record

Client Information Client Contact: David Vogt (Will Nicholson) Company: HDR Inc Address: 17111 Preston Road Suite 200 City: Dallas State, Zip: TX, 75248-1232 Phone: 972-960-4461 (Tel) Email: david.vogt@hdrinc.com (william.nicholson@hdrinc.com) Project Name: Gibbons Creek Steam Electric Station Site:		Lab PM: Hayes, Ken E-Mail: Ken.Hayes@Eurofins.com Carrier Tracking No(s): State of Origin:		COC No: 180-67956-13428.2 Page: _____ of _____ Job #: _____	
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: WO #: Project #: SSON#:		Analysis Requested			
Matrix (W=water, S=solid, O=waste/oil, I=fluid, T=tissue, A=air) Preservation Code:		Preservation Codes: M - Hexane N - None O - As/NaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Z - other (specify)			
Sample Identification		Total Number of Containers:		Special Instructions/Note:	
Sample Date Sample Time Sample Type (C=Comp, G=grab) Matrix	AP MW-3 SSP MW-4 SSP MW-3 SSP MW-2	7/20/22 0650 0745 0850 0940	G G G G	Water Water Water Water	180-141736 Chain of Custody
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Method of Shipment:			
Relinquished by:		Date/Time:		Date/Time:	
Relinquished by:		Date/Time:		Date/Time:	
Relinquished by:		Date/Time:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	

Case 3

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141736-2

Login Number: 141736

List Source: Eurofins Pittsburgh

List Number: 1

Creator: Watson, Debbie

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141736-2

Login Number: 141736

List Number: 2

Creator: Booker, Autumn R

List Source: Eurofins St. Louis

List Creation: 07/28/22 05:53 PM

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141736-2

Login Number: 141736

List Number: 3

Creator: Booker, Autumn R

List Source: Eurofins St. Louis

List Creation: 07/29/22 08:51 AM

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

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

Laboratory Job ID: 180-141738-2

Client Project/Site: Gibbons Creek Steam Electric Station

For:
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Attn: David Vogt



Authorized for release by:

8/26/2022 2:07:00 PM

Dominic Nestasie, Project Manager
(412)963-7058

Dominic.Nestasie@et.eurofinsus.com

Designee for

Ken Hayes, Project Manager II
(615)301-5035

Ken.Hayes@et.eurofinsus.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Job ID: 180-141738-2

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-141738-2

Receipt

The samples were received on 7/21/2022 9:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.2°C and 2.0°C

Gas Flow Proportional Counter

Method 903.0: Radium-228 Prep Batch 160-576422 The following samples were prepared at a reduced aliquot due to Matrix: SFL MW-2 (180-141738-2) and SFL MW-4 (180-141738-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 903.0: Radium-228 Prep Batch 160-576422 Insufficient sample volume was available to perform a sample duplicate for the following samples: SFL MW-5 (180-141738-1), SFL MW-2 (180-141738-2), SFL MW-4 (180-141738-3) and EQ-1 (180-141738-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method 903.0: Radium-226 batch 160-576422 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. SFL MW-5 (180-141738-1), SFL MW-2 (180-141738-2), SFL MW-4 (180-141738-3), EQ-1 (180-141738-4), (LCS 160-576422/2-A), (LCSD 160-576422/3-A) and (MB 160-576422/1-A)

Method 904.0: Radium-226 Prep Batch 160-576422 The following samples were prepared at a reduced aliquot due to Matrix: SFL MW-2 (180-141738-2) and SFL MW-4 (180-141738-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 904.0: Radium-226 Prep Batch 160-576422 Insufficient sample volume was available to perform a sample duplicate for the following samples: SFL MW-5 (180-141738-1), SFL MW-2 (180-141738-2), SFL MW-4 (180-141738-3) and EQ-1 (180-141738-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method 904.0: Radium 228 Batch 160-576440: The following sample(s) did not meet the requested limit (RL) due to the reduced sample volume attributed to the presence of matrix interference. During preparation the analyst visually noted matrix effects. The data have been reported with this narrative. SFL MW-2 (180-141738-2)

Method 904.0: Radium 228 Batch 160-576440: The method blank (MB) has Ra-228 activity above the MDC and RL. The following associated samples are non-detect for the analyte, therefore, re-analysis is not required. The data have been reported. EQ-1 (180-141738-4)

Method 904.0: Radium 228 Batch 160-576440: The method blank (MB) has Ra-228 activity above the MDC and RL. The following associated samples are exhibit concentrations greater than five (5) times the concentrations observed in the MB, therefore, re-analysis is not required. The data have been reported. SFL MW-5 (180-141738-1) and SFL MW-2 (180-141738-2)

Method 904.0: Radium 228 Batch 160-576440: Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. SFL MW-5 (180-141738-1), SFL MW-2 (180-141738-2), EQ-1 (180-141738-4), (LCS 160-576440/2-A), (LCSD 160-576440/3-A) and (MB 160-576440/1-A)

Method 904.0: Radium-228 Prep Batch 160-578405 The following sample was prepared at a reduced aliquot due to Matrix: SFL MW-4 (180-141738-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 904.0: Radium-228 Prep Batch 160-578405 Insufficient sample volume was available to perform a sample duplicate for the following samples: SFL MW-4 (180-141738-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Job ID: 180-141738-2 (Continued)

Laboratory: Eurofins Pittsburgh (Continued)

Method 904.0: Radium-228 batch 160-578405 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date SFL MW-4 (180-141738-3), (LCS 160-578405/2-A), (LCSD 160-578405/3-A) and (MB 160-578405/1-A)

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

Rad

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

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Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc

Job ID: 180-141738-2

Project/Site: Gibbons Creek Steam Electric Station

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-22 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-22
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana	NELAP	04080	06-30-22 *
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22 *
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22 *
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

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

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-141738-1	SFL MW-5	Water	07/20/22 10:35	07/21/22 09:00
180-141738-2	SFL MW-2	Water	07/20/22 11:35	07/21/22 09:00
180-141738-3	SFL MW-4	Water	07/20/22 12:20	07/21/22 09:00
180-141738-4	EQ-1	Water	07/20/22 17:00	07/21/22 09:00

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

- EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Client Sample ID: SFL MW-5

Lab Sample ID: 180-141738-1

Date Collected: 07/20/22 10:35

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			996.72 mL	1.0 g	576422	08/03/22 12:29	MS	EET SL
Total/NA	Analysis	903.0		1			579454	08/25/22 07:26	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			996.72 mL	1.0 g	576440	08/03/22 13:35	MS	EET SL
Total/NA	Analysis	904.0		1			578203	08/16/22 11:18	CLP	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			579494	08/25/22 16:55	CLP	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-2

Lab Sample ID: 180-141738-2

Date Collected: 07/20/22 11:35

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			499.15 mL	1.0 g	576422	08/03/22 12:29	MS	EET SL
Total/NA	Analysis	903.0		1			579454	08/25/22 07:26	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			499.15 mL	1.0 g	576440	08/03/22 13:35	MS	EET SL
Total/NA	Analysis	904.0		1			578203	08/16/22 11:18	CLP	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			579494	08/25/22 16:55	CLP	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-4

Lab Sample ID: 180-141738-3

Date Collected: 07/20/22 12:20

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.92 mL	1.0 g	576422	08/03/22 12:29	MS	EET SL
Total/NA	Analysis	903.0		1			579454	08/25/22 07:24	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			758.00 mL	1.0 g	578405	08/17/22 14:02	BMP	EET SL
Total/NA	Analysis	904.0		1			579000	08/22/22 12:24	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			579494	08/25/22 16:55	CLP	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: EQ-1

Lab Sample ID: 180-141738-4

Date Collected: 07/20/22 17:00

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			997.29 mL	1.0 g	576422	08/03/22 12:29	MS	EET SL
Total/NA	Analysis	903.0		1			579454	08/25/22 07:26	FLC	EET SL
Instrument ID: GFPCRED										

Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Client Sample ID: EQ-1

Lab Sample ID: 180-141738-4

Date Collected: 07/20/22 17:00

Matrix: Water

Date Received: 07/21/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			997.29 mL	1.0 g	576440	08/03/22 13:35	MS	EET SL
Total/NA	Analysis	904.0		1			578203	08/16/22 11:17	CLP	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			579494	08/25/22 16:55	CLP	EET SL
Instrument ID: NOEQUIP										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: EET SL

Batch Type: Prep

BMP = Bailey Pinette

MS = Matthew Swaringam

Batch Type: Analysis

CLP = Cassandra Park

FLC = Fernando Cruz



Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Client Sample ID: SFL MW-5

Lab Sample ID: 180-141738-1

Date Collected: 07/20/22 10:35

Matrix: Water

Date Received: 07/21/22 09:00

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.18		0.266	0.331	1.00	0.125	pCi/L	08/03/22 12:29	08/25/22 07:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.0		40 - 110					08/03/22 12:29	08/25/22 07:26	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	10.1		0.949	1.33	1.00	0.490	pCi/L	08/03/22 13:35	08/16/22 11:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.0		40 - 110					08/03/22 13:35	08/16/22 11:18	1
Y Carrier	86.7		40 - 110					08/03/22 13:35	08/16/22 11:18	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	12.3		0.986	1.37	5.00	0.490	pCi/L		08/25/22 16:55	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Client Sample ID: SFL MW-2

Lab Sample ID: 180-141738-2

Date Collected: 07/20/22 11:35

Matrix: Water

Date Received: 07/21/22 09:00

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.90		0.361	0.399	1.00	0.224	pCi/L	08/03/22 12:29	08/25/22 07:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.3		40 - 110					08/03/22 12:29	08/25/22 07:26	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	9.12	G	1.39	1.62	1.00	1.04	pCi/L	08/03/22 13:35	08/16/22 11:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.3		40 - 110					08/03/22 13:35	08/16/22 11:18	1
Y Carrier	82.2		40 - 110					08/03/22 13:35	08/16/22 11:18	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	11.0		1.44	1.67	5.00	1.04	pCi/L		08/25/22 16:55	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Client Sample ID: SFL MW-4

Lab Sample ID: 180-141738-3

Date Collected: 07/20/22 12:20

Matrix: Water

Date Received: 07/21/22 09:00

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0749	U	0.101	0.102	1.00	0.170	pCi/L	08/03/22 12:29	08/25/22 07:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.8		40 - 110					08/03/22 12:29	08/25/22 07:24	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.372	U	0.343	0.345	1.00	0.539	pCi/L	08/17/22 14:02	08/22/22 12:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.0		40 - 110					08/17/22 14:02	08/22/22 12:24	1
Y Carrier	88.2		40 - 110					08/17/22 14:02	08/22/22 12:24	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.447	U	0.358	0.360	5.00	0.539	pCi/L		08/25/22 16:55	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Client Sample ID: EQ-1

Lab Sample ID: 180-141738-4

Date Collected: 07/20/22 17:00

Matrix: Water

Date Received: 07/21/22 09:00

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0350	U	0.0508	0.0509	1.00	0.0868	pCi/L	08/03/22 12:29	08/25/22 07:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.5		40 - 110					08/03/22 12:29	08/25/22 07:26	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.494	U	0.344	0.347	1.00	0.519	pCi/L	08/03/22 13:35	08/16/22 11:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.5		40 - 110					08/03/22 13:35	08/16/22 11:17	1
Y Carrier	83.0		40 - 110					08/03/22 13:35	08/16/22 11:17	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.529		0.348	0.351	5.00	0.519	pCi/L		08/25/22 16:55	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-576422/1-A
Matrix: Water
Analysis Batch: 579454

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 576422

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.003736	U	0.0519	0.0519	1.00	0.106	pCi/L	08/03/22 12:29	08/25/22 07:22	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Ba Carrier	90.8		40 - 110				08/03/22 12:29		08/25/22 07:22	1

Lab Sample ID: LCS 160-576422/2-A
Matrix: Water
Analysis Batch: 579454

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 576422

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.40		1.09	1.00	0.0946	pCi/L	92	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	87.8		40 - 110						

Lab Sample ID: LCSD 160-576422/3-A
Matrix: Water
Analysis Batch: 579454

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 576422

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER
				Uncert. (2σ+/-)							Limit
Radium-226	11.3	10.96		1.17	1.00	0.117	pCi/L	97	75 - 125	0.25	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	74.6		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-576440/1-A
Matrix: Water
Analysis Batch: 578202

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 576440

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	1.236		0.409	0.424	1.00	0.476	pCi/L	08/03/22 13:35	08/16/22 11:12	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Ba Carrier	90.8		40 - 110				08/03/22 13:35		08/16/22 11:12	1
Y Carrier	84.5		40 - 110				08/03/22 13:35		08/16/22 11:12	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-576440/2-A
Matrix: Water
Analysis Batch: 578202

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 576440

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75	125
Radium-228	8.36	9.206		1.26	1.00	0.533	pCi/L	110	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	87.8		40 - 110							
Y Carrier	84.9		40 - 110							

Lab Sample ID: LCSD 160-576440/3-A
Matrix: Water
Analysis Batch: 578202

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 576440

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER Limit	
									75	125	RER	Limit
Radium-228	8.36	9.644		1.37	1.00	0.624	pCi/L	115	75 - 125	0.17	1	
LCSD LCSD												
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	74.6		40 - 110									
Y Carrier	84.5		40 - 110									

Lab Sample ID: MB 160-578405/1-A
Matrix: Water
Analysis Batch: 579003

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 578405

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
MB MB										
Carrier	%Yield	Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	93.8		40 - 110		08/17/22 14:02	08/22/22 12:21	1			
Y Carrier	87.5		40 - 110		08/17/22 14:02	08/22/22 12:21	1			

Lab Sample ID: LCS 160-578405/2-A
Matrix: Water
Analysis Batch: 579003

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 578405

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75	125
Radium-228	8.34	7.925		1.11	1.00	0.455	pCi/L	95	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	92.8		40 - 110							
Y Carrier	88.2		40 - 110							

QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCSD 160-578405/3-A
 Matrix: Water
 Analysis Batch: 579003

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 578405

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	8.34	8.697		1.20	1.00	0.470	pCi/L	104	75 - 125	0.33	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	91.0		40 - 110
Y Carrier	86.4		40 - 110

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QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-141738-2

Rad

Prep Batch: 576422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141738-1	SFL MW-5	Total/NA	Water	PrecSep-21	
180-141738-2	SFL MW-2	Total/NA	Water	PrecSep-21	
180-141738-3	SFL MW-4	Total/NA	Water	PrecSep-21	
180-141738-4	EQ-1	Total/NA	Water	PrecSep-21	
MB 160-576422/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-576422/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-576422/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 576440


Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141738-1	SFL MW-5	Total/NA	Water	PrecSep_0	
180-141738-2	SFL MW-2	Total/NA	Water	PrecSep_0	
180-141738-4	EQ-1	Total/NA	Water	PrecSep_0	
MB 160-576440/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-576440/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-576440/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 578405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-141738-3	SFL MW-4	Total/NA	Water	PrecSep_0	
MB 160-578405/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-578405/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-578405/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Chain of Custody Record

Client Information Client Contact: David Vogt (Will Nicholson) Company: HDR Inc Address: 17111 Preston Road Suite 200 City: Dallas State, Zip: TX, 75248-1232 Phone: 972-960-4461(Tel) Email: david.vogt@hdrinc.com (william.nicholson@hdrinc.com) Project Name: Gibbons Creek Steam Electric Station Site:			Lab PM: Hayes, Ken E-Mail: Ken.Haves@Eurofinset.com PWSID:			Carrier Tracking No(s): 180-67956-13428.2 State of Origin:	
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: WO #: Project #: 18023511 SSON#:			Analysis Requested		Total Number of Containers:		
Sample Identification			Perform MS/MSD (Yes or No)		Special Instructions/Note:		
Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=oil)	93.0 - Standard Target List	94.0 - Standard Target List	956A_ORGM_28D - (MOD) Local Method	
7/20/22	1035	G	Water	X	X	X	
7/20/22	1135	G	Water	X	X	X	
7/20/22	1220	G	Water	X	X	X	
7/20/22	1700	G	Water	X	X	X	
			Water				
			Water				
			Water				
			Water				
			Water				
			Water				
			Water				



 180-141738 Chain of Custody

Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			
Deliverable Requested: I, II, III, IV, Other (specify)			
Empty Kit Relinquished by:	Date:	Time:	
Relinquished by: Will Nicholson	7/20/22	1700	Company
Relinquished by:			Company
Relinquished by:			Company
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:		

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:

Method of Shipment:

Received by: 
 Date/Time: 7/22/22 09:00
 Company: Eurofins

Received by:
 Date/Time:
 Company:

Received by:
 Date/Time:
 Company:

Cooler Temperature(s) °C and Other Remarks:

COOLER 4

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141738-2

Login Number: 141738

List Number: 1

Creator: Watson, Debbie

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-141738-2

Login Number: 141738

List Number: 2

Creator: Booker, Autumn R

List Source: Eurofins St. Louis

List Creation: 07/28/22 05:53 PM

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

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

Laboratory Job ID: 180-144417-2

Client Project/Site: Gibbons Creek Steam Electric Station

For:
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Attn: David Vogt



Authorized for release by:
10/17/2022 8:39:29 AM
Dominic Nestasie, Project Manager
(412)963-7058
Dominic.Nestasie@et.eurofinsus.com

Designee for
Ken Hayes, Project Manager II
(615)301-5035
Ken.Hayes@et.eurofinsus.com

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results through



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Job ID: 180-144417-2

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative
180-144417-2

Receipt

The samples were received on 9/13/2022 10:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.4°C

Gas Flow Proportional Counter

Method 903.0: Radium-226 batch 582475 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. SFL MW3 (180-144417-1), SFL MW7 (180-144417-2), MNW 1S (180-144417-3), DUP1 (180-144417-4), (LCS 160-582475/2-A), (LCSD 160-582475/3-A) and (MB 160-582475/1-A)

Method 904.0: Radium-228 batch 582479 Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. SFL MW3 (180-144417-1), SFL MW7 (180-144417-2), MNW 1S (180-144417-3), DUP1 (180-144417-4), (LCS 160-582479/2-A), (LCSD 160-582479/3-A) and (MB 160-582479/1-A)

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

Rad

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



Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc

Job ID: 180-144417-2

Project/Site: Gibbons Creek Steam Electric Station

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-22
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-22 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-22
Kentucky (DW)	State	KY90125	12-31-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-22
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-22
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
NRC	NRC	24-24817-01	12-31-22
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-22 *
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-22

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

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-144417-1	SFL MW3	Water	09/12/22 15:30	09/13/22 10:30
180-144417-2	SFL MW7	Water	09/12/22 14:20	09/13/22 10:30
180-144417-3	MNW 1S	Water	09/12/22 12:32	09/13/22 10:30
180-144417-4	DUP1	Water	09/12/22 13:40	09/13/22 10:30

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

- EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Client Sample ID: SFL MW3

Lab Sample ID: 180-144417-1

Date Collected: 09/12/22 15:30

Matrix: Water

Date Received: 09/13/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.61 mL	1.0 g	582475	09/16/22 11:47	TJ	EET SL
Total/NA	Analysis	903.0		1			585550	10/12/22 06:53	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			1000.61 mL	1.0 g	582479	09/16/22 12:28	TJ	EET SL
Total/NA	Analysis	904.0		1			585373	10/10/22 15:12	SCB	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			585785	10/13/22 12:25	CAH	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW7

Lab Sample ID: 180-144417-2

Date Collected: 09/12/22 14:20

Matrix: Water

Date Received: 09/13/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			752.34 mL	1.0 g	582475	09/16/22 11:47	TJ	EET SL
Total/NA	Analysis	903.0		1			585550	10/12/22 06:54	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			752.34 mL	1.0 g	582479	09/16/22 12:28	TJ	EET SL
Total/NA	Analysis	904.0		1			585375	10/10/22 15:13	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			585785	10/13/22 12:25	CAH	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: MNW 1S

Lab Sample ID: 180-144417-3

Date Collected: 09/12/22 12:32

Matrix: Water

Date Received: 09/13/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1003.56 mL	1.0 g	582475	09/16/22 11:47	TJ	EET SL
Total/NA	Analysis	903.0		1			585550	10/12/22 06:54	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			1003.56 mL	1.0 g	582479	09/16/22 12:28	TJ	EET SL
Total/NA	Analysis	904.0		1			585375	10/10/22 15:13	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			585785	10/13/22 12:25	CAH	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: DUP1

Lab Sample ID: 180-144417-4

Date Collected: 09/12/22 13:40

Matrix: Water

Date Received: 09/13/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.23 mL	1.0 g	582475	09/16/22 11:47	TJ	EET SL
Total/NA	Analysis	903.0		1			585550	10/12/22 06:54	FLC	EET SL
Instrument ID: GFPCRED										

Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Client Sample ID: DUP1

Lab Sample ID: 180-144417-4

Date Collected: 09/12/22 13:40

Matrix: Water

Date Received: 09/13/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			1000.23 mL	1.0 g	582479	09/16/22 12:28	TJ	EET SL
Total/NA	Analysis	904.0		1			585375	10/10/22 15:14	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			585785	10/13/22 12:25	CAH	EET SL
Instrument ID: NOEQUIP										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: EET SL

Batch Type: Prep

TJ = Toni Jackson

Batch Type: Analysis

CAH = Chris Hough

FLC = Fernando Cruz

SCB = Sarah Bernsen



Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Client Sample ID: SFL MW3

Lab Sample ID: 180-144417-1

Date Collected: 09/12/22 15:30

Matrix: Water

Date Received: 09/13/22 10:30

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.52		0.310	0.338	1.00	0.231	pCi/L	09/16/22 11:47	10/12/22 06:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.6		40 - 110					09/16/22 11:47	10/12/22 06:53	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	4.22		0.626	0.737	1.00	0.477	pCi/L	09/16/22 12:28	10/10/22 15:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.6		40 - 110					09/16/22 12:28	10/10/22 15:12	1
Y Carrier	89.0		40 - 110					09/16/22 12:28	10/10/22 15:12	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.74		0.699	0.811	5.00	0.477	pCi/L		10/13/22 12:25	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Client Sample ID: SFL MW7

Lab Sample ID: 180-144417-2

Date Collected: 09/12/22 14:20

Matrix: Water

Date Received: 09/13/22 10:30

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.565		0.250	0.255	1.00	0.248	pCi/L	09/16/22 11:47	10/12/22 06:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.9		40 - 110					09/16/22 11:47	10/12/22 06:54	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.42		0.502	0.519	1.00	0.617	pCi/L	09/16/22 12:28	10/10/22 15:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.9		40 - 110					09/16/22 12:28	10/10/22 15:13	1
Y Carrier	89.3		40 - 110					09/16/22 12:28	10/10/22 15:13	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.98		0.561	0.578	5.00	0.617	pCi/L		10/13/22 12:25	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Client Sample ID: MNW 1S

Lab Sample ID: 180-144417-3

Date Collected: 09/12/22 12:32

Matrix: Water

Date Received: 09/13/22 10:30

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.159	U	0.120	0.121	1.00	0.165	pCi/L	09/16/22 11:47	10/12/22 06:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.6		40 - 110					09/16/22 11:47	10/12/22 06:54	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.28		0.399	0.416	1.00	0.455	pCi/L	09/16/22 12:28	10/10/22 15:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.6		40 - 110					09/16/22 12:28	10/10/22 15:13	1
Y Carrier	88.6		40 - 110					09/16/22 12:28	10/10/22 15:13	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.44		0.417	0.433	5.00	0.455	pCi/L		10/13/22 12:25	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Client Sample ID: DUP1

Lab Sample ID: 180-144417-4

Date Collected: 09/12/22 13:40

Matrix: Water

Date Received: 09/13/22 10:30

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.251		0.140	0.142	1.00	0.169	pCi/L	09/16/22 11:47	10/12/22 06:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.4		40 - 110					09/16/22 11:47	10/12/22 06:54	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.870		0.365	0.374	1.00	0.479	pCi/L	09/16/22 12:28	10/10/22 15:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.4		40 - 110					09/16/22 12:28	10/10/22 15:14	1
Y Carrier	87.1		40 - 110					09/16/22 12:28	10/10/22 15:14	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.12		0.391	0.400	5.00	0.479	pCi/L		10/13/22 12:25	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-582475/1-A
Matrix: Water
Analysis Batch: 585550

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 582475

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.02629	U	0.0862	0.0863	1.00	0.169	pCi/L	09/16/22 11:47	10/12/22 06:53	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	93.9		40 - 110		09/16/22 11:47	10/12/22 06:53	1			

Lab Sample ID: LCS 160-582475/2-A
Matrix: Water
Analysis Batch: 585550

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 582475

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.14		1.18	1.00	0.166	pCi/L	89	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	97.5		40 - 110						

Lab Sample ID: LCSD 160-582475/3-A
Matrix: Water
Analysis Batch: 585550

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 582475

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	9.449		1.13	1.00	0.258	pCi/L	83	75 - 125	0.30	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	93.4		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-582479/1-A
Matrix: Water
Analysis Batch: 585373

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 582479

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.5451		0.320	0.324	1.00	0.460	pCi/L	09/16/22 12:28	10/10/22 15:12	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	93.9		40 - 110		09/16/22 12:28	10/10/22 15:12	1			
Y Carrier	88.2		40 - 110		09/16/22 12:28	10/10/22 15:12	1			

QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-582479/2-A
Matrix: Water
Analysis Batch: 585373

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 582479

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
										Radium-228
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	97.5		40 - 110							
Y Carrier	87.5		40 - 110							

Lab Sample ID: LCSD 160-582479/3-A
Matrix: Water
Analysis Batch: 585373

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 582479

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	Limit
LCSD LCSD											
Carrier	%Yield	Qualifier	Limits								
Ba Carrier	93.4		40 - 110								
Y Carrier	90.1		40 - 110								

QC Association Summary

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-144417-2

Rad

Prep Batch: 582475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-144417-1	SFL MW3	Total/NA	Water	PrecSep-21	
180-144417-2	SFL MW7	Total/NA	Water	PrecSep-21	
180-144417-3	MNW 1S	Total/NA	Water	PrecSep-21	
180-144417-4	DUP1	Total/NA	Water	PrecSep-21	
MB 160-582475/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-582475/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-582475/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 582479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-144417-1	SFL MW3	Total/NA	Water	PrecSep_0	
180-144417-2	SFL MW7	Total/NA	Water	PrecSep_0	
180-144417-3	MNW 1S	Total/NA	Water	PrecSep_0	
180-144417-4	DUP1	Total/NA	Water	PrecSep_0	
MB 160-582479/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-582479/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-582479/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	



Chain of Custody Record

Client Information
 Client Contact: David Vogt (Will Nicholson)
 Company: HDR Inc
 Address: 17111 Preston Road Suite 200
 City: Dallas
 State, Zip: TX, 75248-1232
 Phone: 972-960-4461 (Tel)
 Email: david.vogt@hdrinc.com (william.nicholson@hdrinc.com)
 Project Name: Gibbons Creek Steam Electric Station
 Site:

Sampler: Jonathan Thompson
 Phone: 706-252-1476 JT
 Lab PII: Hayes, Ken
 E-Mail: Ken.Hayes@Eurofins.com
 Carrier Tracking No(s): 180-67956-13428-2
 State of Origin: TEXAS
 Page 1 of 1
 Job #:
 Due Date Requested:
 TAT Requested (days):
 Compliance Project: Yes No
 PO #:
 WO #:
 Project #: 18023511
 SSOW#:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oli, BT=tissue, A=air)	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		903.0 - Standard Target List		904.0 - Standard Target List		9056A_ORGM_28D - (MOD) Local Method		6020B_7470A		2540C_Calcd - Local Method		Total Number of Containers	Special Instructions/Note:
					D	N	D	N	D	N	D	N	D	N	D	N	D	N		
SFL MW3	9-12-22	1530	G	Water	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
SFL MW7	9-12-22	1420	G	Water	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
MW15	9-12-22	1252	G	Water	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
DUPI	9-12-22	1340	G	Water	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
				Water																
				Water																
				Water																
				Water																
				Water																
				Water																
				Water																



Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements:

Empty Kit Relinquished by: [Signature]
 Relinquished by: [Signature]
 Relinquished by: [Signature]
 Relinquished by: [Signature]

Method of Shipment:
 Date/Time: 9-12-22 1800
 Company: HPR
 Date/Time: 9-13-22
 Company: [Signature]
 Date/Time: 10:30
 Company: [Signature]

Cooler Temperature(s) °C and Other Remarks:

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Hayes, Ken	Carrier Tracking No(s): 180-469726.1
Client Contact Shipping/Receiving		E-Mail: Ken.Hayes@et.eurofins.com	Page: Page 1 of 1
Company TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Texas	Job #: 180-144417-2
Address 13715 Rider Trail North,		Analysis Requested	
City: Earth City		Total Number of Containers	
State, Zip: MO, 63045		903.0/PrecSep_21 Standard Target List	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		904.0/PrecSep_0 Standard Target List	
Email:		Perform MS/MSD (Yes or No)	
Project Name: Gibbons Creek Steam Electric Station		Field Filtered Sample (Yes or No)	
Site: 18023511		Preservation Codes:	
SSON#:		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AshNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:	
Sample Identification - Client ID (Lab ID)		Special Instructions/Note:	
Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)
99 L MW3 (180-144417-1)	9/12/22	15:30 Central	Water
99 L MW7 (180-144417-2)	9/12/22	14:20 Central	Water
99 L MW 1S (180-144417-3)	9/12/22	12:32 Central	Water
DUP1 (180-144417-4)	9/12/22	13:40 Central	Water
<p>Note: Since laboratory accreditations are subject to change, Eurofins Pittsburgh places the ownership of method, analyte & accreditation compliance upon subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Pittsburgh.</p>			
Possible Hazard Identification			
Unconfirmed			
Deliverable Requested: I, II, III, IV, Other (specify)			
Primary Deliverable Rank: 2			
Special Instructions/QC Requirements			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months			
Empty Kit Relinquished by:			
Date/Time: 9-15-22 17:00			
Company: <i>CEA</i>			
Relinquished by: <i>FED EX</i>			
Date/Time: 9-16-2022 08:40			
Company: <i>ETA STC</i>			
Relinquished by: <i>Autumn R. Johnson</i>			
Date/Time:			
Company:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			
Custody Seal No.:			
Cooler Temperature(s) °C and Other Remarks:			



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-144417-2

Login Number: 144417

List Number: 1

Creator: Watson, Debbie

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-144417-2

Login Number: 144417

List Number: 2

Creator: Booker, Autumn R

List Source: Eurofins St. Louis

List Creation: 09/16/22 10:26 AM

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: David Vogt
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Generated 1/19/2023 8:06:40 PM

JOB DESCRIPTION

Gibbons Creek Steam Electric Station

JOB NUMBER

180-149333-1

Eurofins Pittsburgh

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing Northeast, LLC Pittsburgh and its client. All questions regarding this report should be directed to the Eurofins Environment Testing Northeast, LLC Pittsburgh Project Manager or designee who has signed this report.

PA Lab ID: 02-00416

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Pittsburgh Project Manager.

Authorization



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Authorized for release by
Ken Hayes, Project Manager II
Ken.Hayes@et.eurofinsus.com
(615)301-5035



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Job ID: 180-149333-1

Laboratory: Eurofins Pittsburgh

Narrative

**Job Narrative
180-149333-1**

Comments

No additional comments.

Receipt

The samples were received on 12/14/2022 9:35 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.2° C, 1.1° C and 1.2° C.

RAD

Methods 903.0, RA-06-RC: Radium-226 batch 594431

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. SFL MW-4 (180-149333-1), SFL MW-3 (180-149333-2), SFL MW-7 (180-149333-3), MNW-15 (180-149333-4), FB-1 (180-149333-5), (LCS 160-594431/2-A), (MB 160-594431/1-A), (500-226905-D-1-A) and (500-226905-E-1-A DU)

Methods 904.0, RA-06-RC: Radium-228 batch 594438

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. SFL MW-4 (180-149333-1), SFL MW-3 (180-149333-2), SFL MW-7 (180-149333-3), MNW-15 (180-149333-4), FB-1 (180-149333-5), (LCS 160-594438/2-A), (MB 160-594438/1-A), (500-226905-D-1-B) and (500-226905-E-1-B DU)

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



Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-22 *
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-149333-1	SFL MW-4	Water	12/12/22 15:40	12/14/22 09:35
180-149333-2	SFL MW-3	Water	12/12/22 16:21	12/14/22 09:35
180-149333-3	SFL MW-7	Water	12/12/22 17:02	12/14/22 09:35
180-149333-4	MNW-15	Water	12/12/22 17:40	12/14/22 09:35
180-149333-5	FB-1	Water	12/12/22 15:00	12/14/22 09:35

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Client Sample ID: SFL MW-4

Lab Sample ID: 180-149333-1

Date Collected: 12/12/22 15:40

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			744.50 mL	1.0 g	594431	12/21/22 10:33	DJP	EET SL
Total/NA	Analysis	903.0		1			597153	01/17/23 21:56	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			744.50 mL	1.0 g	594438	12/21/22 11:02	DJP	EET SL
Total/NA	Analysis	904.0		1			596764	01/12/23 12:16	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			597491	01/19/23 12:15	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-3

Lab Sample ID: 180-149333-2

Date Collected: 12/12/22 16:21

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.77 mL	1.0 g	594431	12/21/22 10:33	DJP	EET SL
Total/NA	Analysis	903.0		1			597153	01/17/23 21:56	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			750.77 mL	1.0 g	594438	12/21/22 11:02	DJP	EET SL
Total/NA	Analysis	904.0		1			596764	01/12/23 12:16	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			597491	01/19/23 12:15	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-7

Lab Sample ID: 180-149333-3

Date Collected: 12/12/22 17:02

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			995.72 mL	1.0 g	594431	12/21/22 10:33	DJP	EET SL
Total/NA	Analysis	903.0		1			597446	01/18/23 08:06	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			995.72 mL	1.0 g	594438	12/21/22 11:02	DJP	EET SL
Total/NA	Analysis	904.0		1			596764	01/12/23 12:16	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			597491	01/19/23 12:15	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: MNW-15

Lab Sample ID: 180-149333-4

Date Collected: 12/12/22 17:40

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			741.75 mL	1.0 g	594431	12/21/22 10:33	DJP	EET SL
Total/NA	Analysis	903.0		1			597446	01/18/23 08:06	FLC	EET SL
Instrument ID: GFPCBLUE										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Client Sample ID: MNW-15
Date Collected: 12/12/22 17:40
Date Received: 12/14/22 09:35

Lab Sample ID: 180-149333-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			741.75 mL	1.0 g	594438	12/21/22 11:02	DJP	EET SL
Total/NA	Analysis	904.0		1			596764	01/12/23 12:17	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			597491	01/19/23 12:15	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: FB-1
Date Collected: 12/12/22 15:00
Date Received: 12/14/22 09:35

Lab Sample ID: 180-149333-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			995.65 mL	1.0 g	594431	12/21/22 10:33	DJP	EET SL
Total/NA	Analysis	903.0		1			597446	01/18/23 08:07	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			995.65 mL	1.0 g	594438	12/21/22 11:02	DJP	EET SL
Total/NA	Analysis	904.0		1			596764	01/12/23 12:17	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			597491	01/19/23 12:15	SCB	EET SL
Instrument ID: NOEQUIP										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: EET SL

Batch Type: Prep

DJP = Dalton Pieper

Batch Type: Analysis

FLC = Fernando Cruz

SCB = Sarah Bernsen

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Client Sample ID: SFL MW-4

Lab Sample ID: 180-149333-1

Date Collected: 12/12/22 15:40

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.232		0.133	0.134	1.00	0.170	pCi/L	12/21/22 10:33	01/17/23 21:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.2		40 - 110					12/21/22 10:33	01/17/23 21:56	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.520	U	0.447	0.449	1.00	0.701	pCi/L	12/21/22 11:02	01/12/23 12:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.2		40 - 110					12/21/22 11:02	01/12/23 12:16	1
Y Carrier	90.1		40 - 110					12/21/22 11:02	01/12/23 12:16	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.752		0.466	0.469	5.00	0.701	pCi/L		01/19/23 12:15	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Client Sample ID: SFL MW-3

Lab Sample ID: 180-149333-2

Date Collected: 12/12/22 16:21

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.796		0.205	0.217	1.00	0.175	pCi/L	12/21/22 10:33	01/17/23 21:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.5		40 - 110					12/21/22 10:33	01/17/23 21:56	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.24		0.578	0.613	1.00	0.582	pCi/L	12/21/22 11:02	01/12/23 12:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.5		40 - 110					12/21/22 11:02	01/12/23 12:16	1
Y Carrier	87.1		40 - 110					12/21/22 11:02	01/12/23 12:16	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.04		0.613	0.650	5.00	0.582	pCi/L		01/19/23 12:15	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Client Sample ID: SFL MW-7

Lab Sample ID: 180-149333-3

Date Collected: 12/12/22 17:02

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.891		0.185	0.202	1.00	0.144	pCi/L	12/21/22 10:33	01/18/23 08:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.9		40 - 110					12/21/22 10:33	01/18/23 08:06	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.25		0.550	0.587	1.00	0.561	pCi/L	12/21/22 11:02	01/12/23 12:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.9		40 - 110					12/21/22 11:02	01/12/23 12:16	1
Y Carrier	77.0		40 - 110					12/21/22 11:02	01/12/23 12:16	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.14		0.580	0.621	5.00	0.561	pCi/L		01/19/23 12:15	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Client Sample ID: MNW-15

Lab Sample ID: 180-149333-4

Date Collected: 12/12/22 17:40

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0470	U	0.108	0.108	1.00	0.232	pCi/L	12/21/22 10:33	01/18/23 08:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.5		40 - 110					12/21/22 10:33	01/18/23 08:06	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.02		0.597	0.604	1.00	0.870	pCi/L	12/21/22 11:02	01/12/23 12:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.5		40 - 110					12/21/22 11:02	01/12/23 12:17	1
Y Carrier	83.0		40 - 110					12/21/22 11:02	01/12/23 12:17	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.977		0.607	0.614	5.00	0.870	pCi/L		01/19/23 12:15	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Client Sample ID: FB-1

Lab Sample ID: 180-149333-5

Date Collected: 12/12/22 15:00

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0130	U	0.0486	0.0486	1.00	0.111	pCi/L	12/21/22 10:33	01/18/23 08:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.2		40 - 110					12/21/22 10:33	01/18/23 08:07	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.261	U	0.246	0.247	1.00	0.553	pCi/L	12/21/22 11:02	01/12/23 12:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.2		40 - 110					12/21/22 11:02	01/12/23 12:17	1
Y Carrier	75.9		40 - 110					12/21/22 11:02	01/12/23 12:17	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.274	U	0.251	0.252	5.00	0.553	pCi/L		01/19/23 12:15	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-594431/1-A
Matrix: Water
Analysis Batch: 597152

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 594431

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.05159	U	0.0741	0.0742	1.00	0.126	pCi/L	12/21/22 10:33	01/17/23 21:53	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	93.9		40 - 110			12/21/22 10:33	01/17/23 21:53	1		

Lab Sample ID: LCS 160-594431/2-A
Matrix: Water
Analysis Batch: 597152

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 594431

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.70		1.15	1.00	0.142	pCi/L	94	75 - 125
Carrier	LCS LCS	Limits			Prepared	Analyzed	Dil Fac		
	%Yield		Qualifier						
Ba Carrier	86.6	40 - 110							

Lab Sample ID: 500-226905-E-1-A DU
Matrix: Water
Analysis Batch: 597152

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 594431

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					
Radium-226	1.82		1.966		0.339	1.00	0.157	pCi/L	0.22	1
Carrier	DU DU	Limits			Prepared	Analyzed	Dil Fac			
	%Yield		Qualifier							
Ba Carrier	87.4	40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-594438/1-A
Matrix: Water
Analysis Batch: 596764

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 594438

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.3859	U	0.330	0.332	1.00	0.518	pCi/L	12/21/22 11:02	01/12/23 12:14	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	93.9		40 - 110			12/21/22 11:02	01/12/23 12:14	1		
Y Carrier	86.0		40 - 110			12/21/22 11:02	01/12/23 12:14	1		

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QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-594438/2-A
Matrix: Water
Analysis Batch: 596764

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 594438

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75	125
Radium-228	8.28	8.083		1.17	1.00	0.498	pCi/L	98	75	125
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	86.6		40 - 110							
Y Carrier	86.0		40 - 110							

Lab Sample ID: 500-226905-E-1-B DU
Matrix: Water
Analysis Batch: 596764

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 594438

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
										1
Radium-228	1.26		1.554		0.515	1.00	0.590	pCi/L	0.29	1
DU DU										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	87.4		40 - 110							
Y Carrier	84.1		40 - 110							

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-1

Rad

Prep Batch: 594431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149333-1	SFL MW-4	Total/NA	Water	PrecSep-21	
180-149333-2	SFL MW-3	Total/NA	Water	PrecSep-21	
180-149333-3	SFL MW-7	Total/NA	Water	PrecSep-21	
180-149333-4	MNW-15	Total/NA	Water	PrecSep-21	
180-149333-5	FB-1	Total/NA	Water	PrecSep-21	
MB 160-594431/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-594431/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
500-226905-E-1-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 594438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149333-1	SFL MW-4	Total/NA	Water	PrecSep_0	
180-149333-2	SFL MW-3	Total/NA	Water	PrecSep_0	
180-149333-3	SFL MW-7	Total/NA	Water	PrecSep_0	
180-149333-4	MNW-15	Total/NA	Water	PrecSep_0	
180-149333-5	FB-1	Total/NA	Water	PrecSep_0	
MB 160-594438/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-594438/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
500-226905-E-1-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Chain of Custody Record



Environment Testing



Client Information (Sub Contract Lab)		Lab PM Hayes, Ken	Carrier Tracking No(s) 180-476549-1
Client Contact Shipping/Receiving		E-Mail Ken.Hayes@et.eurofins.com	Page Page 1 of 1
Company TestAmerica Laboratories, Inc.		State of Origin Texas	Job # 180-149333-1
Address 13715 Rider Trail North,		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2SO3 Q - Na2SO4 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
City Earth City		Analysis Requested	
State, Zip MO, 63045		Total Number of containers	
Phone 314-298-8566(Tel) 314-298-8757(Fax)		903.0/PrecSep_21 Standard Target List	
Email		904.0/PrecSep_0 Standard Target List	
Project # 18023511		Perform MS/MSD (Yes or No)	
Site Gibbons Creek Steam Electric Station		Field Filtered Sample (Yes or No)	
Due Date Requested: 1/19/2023		Raz26Ra228_GFPc	
TAT Requested (days):		Special Instructions/Note:	
Sample Date		Total Number of containers	
Sample Time		903.0/PrecSep_21 Standard Target List	
Sample Type (C=Comp, G=grab)		904.0/PrecSep_0 Standard Target List	
Matrix (W=Water, S=Solid, O=Water/Oil, AT=Tissue, A=Air)		Perform MS/MSD (Yes or No)	
Preservation Code:		Field Filtered Sample (Yes or No)	
SFL MW-4 (180-149333-1)		903.0/PrecSep_21 Standard Target List	
SFL MW-3 (180-149333-2)		904.0/PrecSep_0 Standard Target List	
SFL MW-7 (180-149333-3)		Perform MS/MSD (Yes or No)	
MNW-15 (180-149333-4)		Field Filtered Sample (Yes or No)	
FB-1 (180-149333-5)		Raz26Ra228_GFPc	
<p>Note: Since laboratory accreditations are subject to change, Eurofins Pittsburgh places the ownership of method, analyte & accreditation compliance upon our subcontractor laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Pittsburgh.</p>			
Possible Hazard Identification			
Unconfirmed <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2			
Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment			
Relinquished by: <i>[Signature]</i>		Received by: FEDEX Date/Time: _____ Company: _____	
Relinquished by: _____		Received by: <i>[Signature]</i> Date/Time: DEC 19 2022 08:25 Company: Eurofins	
Relinquished by: FEDEX		Received by: _____ Date/Time: _____ Company: _____	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-149333-1

Login Number: 149333

List Number: 1

Creator: Abernathy, Eric L

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-149333-1

Login Number: 149333

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 12/19/22 04:02 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: David Vogt
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Generated 1/19/2023 8:10:39 PM

JOB DESCRIPTION

Gibbons Creek Steam Electric Station

JOB NUMBER

180-149334-1

Eurofins Pittsburgh

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing Northeast, LLC Pittsburgh and its client. All questions regarding this report should be directed to the Eurofins Environment Testing Northeast, LLC Pittsburgh Project Manager or designee who has signed this report.

PA Lab ID: 02-00416

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Pittsburgh Project Manager.

Authorization



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Authorized for release by
Ken Hayes, Project Manager II
Ken.Hayes@et.eurofinsus.com
(615)301-5035



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Job ID: 180-149334-1

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-149334-1

Comments

No additional comments.

Receipt

The samples were received on 12/14/2022 9:35 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.2° C, 1.1° C and 1.2° C.

RAD

Methods 903.0, RA-06-RC: Radium-226 batch 594431

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. EQ-1 (180-149334-1), AP MW-3 (180-149334-2), AP MW-1D (180-149334-3), AP MW-5 (180-149334-4), AP MW-4 (180-149334-5), (LCS 160-594431/2-A), (MB 160-594431/1-A), (500-226905-D-1-A) and (500-226905-E-1-A DU)

Methods 904.0, RA-06-RC: Radium-228 batch 594438

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. EQ-1 (180-149334-1), AP MW-3 (180-149334-2), AP MW-1D (180-149334-3), AP MW-5 (180-149334-4), AP MW-4 (180-149334-5), (LCS 160-594438/2-A), (MB 160-594438/1-A), (500-226905-D-1-B) and (500-226905-E-1-B DU)

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

Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-22 *
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-149334-1	EQ-1	Water	12/13/22 13:00	12/14/22 09:35
180-149334-2	AP MW-3	Water	12/13/22 11:15	12/14/22 09:35
180-149334-3	AP MW-1D	Water	12/13/22 11:55	12/14/22 09:35
180-149334-4	AP MW-5	Water	12/13/22 12:40	12/14/22 09:35
180-149334-5	AP MW-4	Water	12/13/22 13:20	12/14/22 09:35

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Client Sample ID: EQ-1

Lab Sample ID: 180-149334-1

Date Collected: 12/13/22 13:00

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			972.90 mL	1.0 g	594431	12/21/22 10:33	DJP	EET SL
Total/NA	Analysis	903.0		1			597446	01/18/23 08:07	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			972.90 mL	1.0 g	594438	12/21/22 11:02	DJP	EET SL
Total/NA	Analysis	904.0		1			596764	01/12/23 12:17	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			597491	01/19/23 12:15	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: AP MW-3

Lab Sample ID: 180-149334-2

Date Collected: 12/13/22 11:15

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			992.02 mL	1.0 g	594431	12/21/22 10:33	DJP	EET SL
Total/NA	Analysis	903.0		1			597446	01/18/23 08:07	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			992.02 mL	1.0 g	594438	12/21/22 11:02	DJP	EET SL
Total/NA	Analysis	904.0		1			596764	01/12/23 12:17	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			597491	01/19/23 12:15	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: AP MW-1D

Lab Sample ID: 180-149334-3

Date Collected: 12/13/22 11:55

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			744.20 mL	1.0 g	594431	12/21/22 10:33	DJP	EET SL
Total/NA	Analysis	903.0		1			597446	01/18/23 08:08	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			744.20 mL	1.0 g	594438	12/21/22 11:02	DJP	EET SL
Total/NA	Analysis	904.0		1			596764	01/12/23 12:17	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Analysis	Ra226_Ra228		1			597491	01/19/23 12:15	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: AP MW-5

Lab Sample ID: 180-149334-4

Date Collected: 12/13/22 12:40

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.59 mL	1.0 g	594431	12/21/22 10:33	DJP	EET SL
Total/NA	Analysis	903.0		1			597446	01/18/23 08:08	FLC	EET SL
Instrument ID: GFPCBLUE										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Client Sample ID: AP MW-5

Lab Sample ID: 180-149334-4

Date Collected: 12/13/22 12:40

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			1000.59 mL	1.0 g	594438	12/21/22 11:02	DJP	EET SL
Total/NA	Analysis	904.0		1			596765	01/12/23 12:20	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Analysis	Ra226_Ra228		1			597491	01/19/23 12:15	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: AP MW-4

Lab Sample ID: 180-149334-5

Date Collected: 12/13/22 13:20

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1005.46 mL	1.0 g	594431	12/21/22 10:33	DJP	EET SL
Total/NA	Analysis	903.0		1			597446	01/18/23 08:08	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			1005.46 mL	1.0 g	594438	12/21/22 11:02	DJP	EET SL
Total/NA	Analysis	904.0		1			596765	01/12/23 12:20	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Analysis	Ra226_Ra228		1			597491	01/19/23 12:15	SCB	EET SL
Instrument ID: NOEQUIP										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: EET SL

Batch Type: Prep

DJP = Dalton Pieper

Batch Type: Analysis

FLC = Fernando Cruz

SCB = Sarah Bernsen

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Client Sample ID: EQ-1

Lab Sample ID: 180-149334-1

Date Collected: 12/13/22 13:00

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0376	U	0.0670	0.0671	1.00	0.119	pCi/L	12/21/22 10:33	01/18/23 08:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.8		40 - 110					12/21/22 10:33	01/18/23 08:07	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.273	U	0.379	0.379	1.00	0.634	pCi/L	12/21/22 11:02	01/12/23 12:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.8		40 - 110					12/21/22 11:02	01/12/23 12:17	1
Y Carrier	81.9		40 - 110					12/21/22 11:02	01/12/23 12:17	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.311	U	0.385	0.385	5.00	0.634	pCi/L		01/19/23 12:15	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Client Sample ID: AP MW-3

Lab Sample ID: 180-149334-2

Date Collected: 12/13/22 11:15

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.241		0.106	0.108	1.00	0.119	pCi/L	12/21/22 10:33	01/18/23 08:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					12/21/22 10:33	01/18/23 08:07	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.33		0.526	0.568	1.00	0.508	pCi/L	12/21/22 11:02	01/12/23 12:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					12/21/22 11:02	01/12/23 12:17	1
Y Carrier	84.1		40 - 110					12/21/22 11:02	01/12/23 12:17	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.58		0.537	0.578	5.00	0.508	pCi/L		01/19/23 12:15	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Client Sample ID: AP MW-1D

Lab Sample ID: 180-149334-3

Date Collected: 12/13/22 11:55

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.111	U	0.104	0.105	1.00	0.159	pCi/L	12/21/22 10:33	01/18/23 08:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.2		40 - 110					12/21/22 10:33	01/18/23 08:08	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.806	U	0.574	0.578	1.00	0.886	pCi/L	12/21/22 11:02	01/12/23 12:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.2		40 - 110					12/21/22 11:02	01/12/23 12:17	1
Y Carrier	87.5		40 - 110					12/21/22 11:02	01/12/23 12:17	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.918		0.583	0.587	5.00	0.886	pCi/L		01/19/23 12:15	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Client Sample ID: AP MW-5

Lab Sample ID: 180-149334-4

Date Collected: 12/13/22 12:40

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.626		0.168	0.178	1.00	0.162	pCi/L	12/21/22 10:33	01/18/23 08:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.9		40 - 110					12/21/22 10:33	01/18/23 08:08	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.908		0.390	0.398	1.00	0.522	pCi/L	12/21/22 11:02	01/12/23 12:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.9		40 - 110					12/21/22 11:02	01/12/23 12:20	1
Y Carrier	85.6		40 - 110					12/21/22 11:02	01/12/23 12:20	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.53		0.425	0.436	5.00	0.522	pCi/L		01/19/23 12:15	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Client Sample ID: AP MW-4

Lab Sample ID: 180-149334-5

Date Collected: 12/13/22 13:20

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.177		0.0960	0.0973	1.00	0.123	pCi/L	12/21/22 10:33	01/18/23 08:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.8		40 - 110					12/21/22 10:33	01/18/23 08:08	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.565		0.344	0.348	1.00	0.506	pCi/L	12/21/22 11:02	01/12/23 12:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.8		40 - 110					12/21/22 11:02	01/12/23 12:20	1
Y Carrier	88.6		40 - 110					12/21/22 11:02	01/12/23 12:20	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.743		0.357	0.361	5.00	0.506	pCi/L		01/19/23 12:15	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-594431/1-A
Matrix: Water
Analysis Batch: 597152

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 594431

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.05159	U	0.0741	0.0742	1.00	0.126	pCi/L	12/21/22 10:33	01/17/23 21:53	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
Ba Carrier	%Yield	Qualifier		40 - 110						
	93.9					12/21/22 10:33	01/17/23 21:53	1		

Lab Sample ID: LCS 160-594431/2-A
Matrix: Water
Analysis Batch: 597152

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 594431

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.70		1.15	1.00	0.142	pCi/L	94	75 - 125
Carrier	LCS LCS	Limits			Prepared	Analyzed	Dil Fac		
Ba Carrier	%Yield Qualifier		40 - 110						
	86.6								

Lab Sample ID: 500-226905-E-1-A DU
Matrix: Water
Analysis Batch: 597152

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 594431

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					
Radium-226	1.82		1.966		0.339	1.00	0.157	pCi/L	0.22	1
Carrier	DU DU	Limits			Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield Qualifier		40 - 110							
	87.4									

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-594438/1-A
Matrix: Water
Analysis Batch: 596764

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 594438

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.3859	U	0.330	0.332	1.00	0.518	pCi/L	12/21/22 11:02	01/12/23 12:14	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
Ba Carrier	%Yield	Qualifier		40 - 110						
	93.9					12/21/22 11:02	01/12/23 12:14	1		
Y Carrier	%Yield	Qualifier	Limits			Prepared	Analyzed	Dil Fac		
	86.0		40 - 110			12/21/22 11:02	01/12/23 12:14	1		

QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-594438/2-A
Matrix: Water
Analysis Batch: 596764

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 594438

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	8.28	8.083		1.17	1.00	0.498	pCi/L	98	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	86.6		40 - 110							
Y Carrier	86.0		40 - 110							

Lab Sample ID: 500-226905-E-1-B DU
Matrix: Water
Analysis Batch: 596764

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 594438

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
										1
Radium-228	1.26		1.554		0.515	1.00	0.590	pCi/L	0.29	1
DU DU										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	87.4		40 - 110							
Y Carrier	84.1		40 - 110							

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-1

Rad

Prep Batch: 594431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149334-1	EQ-1	Total/NA	Water	PrecSep-21	
180-149334-2	AP MW-3	Total/NA	Water	PrecSep-21	
180-149334-3	AP MW-1D	Total/NA	Water	PrecSep-21	
180-149334-4	AP MW-5	Total/NA	Water	PrecSep-21	
180-149334-5	AP MW-4	Total/NA	Water	PrecSep-21	
MB 160-594431/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-594431/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
500-226905-E-1-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 594438


Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149334-1	EQ-1	Total/NA	Water	PrecSep_0	
180-149334-2	AP MW-3	Total/NA	Water	PrecSep_0	
180-149334-3	AP MW-1D	Total/NA	Water	PrecSep_0	
180-149334-4	AP MW-5	Total/NA	Water	PrecSep_0	
180-149334-5	AP MW-4	Total/NA	Water	PrecSep_0	
MB 160-594438/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-594438/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
500-226905-E-1-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Eurofins TestAmerica, Pittsburgh
 301 Alpha Drive RIDC Park
 Pittsburgh, PA 15238
 Phone (412) 963-7058 Fax (412) 963-2468



Chain of Custody Record

Environment Testing
 America

Client Information		Sampler		Lab PM		Carrier Tracking No(s)		COC No	
David Vogt (Will Nicholson)		Will Nicholson		Hayes, Ken		180-67956-13428.2		180-67956-13428.2	
HDR, Inc		PWSID		E-Mail		State of Origin		Page of	
17111 Preston Road Suite 200		7060-252-1418		Ken Hayes@Eurofinset.com				Job #:	
Dallas, TX 75248-1232		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		903.0 - Standard Target List		904.0 - Standard Target List		906A_ORGFM_28D - (MOD) Local Method	
972-960-4461(Tel)		WO #		Field Filled Sample (Yes or No)		Perform MS/MSD (Yes or No)		2540C_Calcd - Local Method	
david.vogt@hdrinc.com (william.nicholson@hdrinc.com)		Project #		D		N		D	
Gibbins Creek Steam Electric Station		18023511		X		X		X	
Site		SSOW#:		X		X		X	
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	matrix (Water, Solid, Other)	Preservation Code:	Analysis Requested	Total Number of Containers	Special Instructions/Note:
EQ-1		12/13/22	1300	G	Water			5	
AP MW-3		12/18/22	1115	G	Water			5	
AP MW-10		12/13/22	1155	G	Water			5	
AP MW-5		12/13/22	1240	G	Water			5	
AP MW-4		12/13/22	1320	G	Water			5	
 <p>180-149334 Chain of Custody</p>									
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)									
Sample Disposal (A fee may be assessed if samples are retained longer than ...) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months									
Special Instructions/QC Requirements:									
Empty Kit Relinquished by:					Time:				
Relinquished by: <i>Will Nicholson</i>					Date: 12/13/22 1500				
Relinquished by: <i>Ken Hayes</i>					Company: HDR				
Relinquished by:					Date/Time: 12/14/22 9:35				
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					Company: <i>PEANE</i>				



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-149334-1

Login Number: 149334

List Source: Eurofins Pittsburgh

List Number: 1

Creator: Abernathy, Eric L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-149334-1

Login Number: 149334

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 12/19/22 04:04 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: David Vogt
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Generated 1/19/2023 8:14:06 PM

JOB DESCRIPTION

Gibbons Creek Steam Electric Station

JOB NUMBER

180-149335-1

Eurofins Pittsburgh

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing Northeast, LLC Pittsburgh and its client. All questions regarding this report should be directed to the Eurofins Environment Testing Northeast, LLC Pittsburgh Project Manager or designee who has signed this report.

PA Lab ID: 02-00416

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Pittsburgh Project Manager.

Authorization



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1/19/2023 8:14:06 PM

Authorized for release by
Ken Hayes, Project Manager II
Ken.Hayes@et.eurofinsus.com
(615)301-5035



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Job ID: 180-149335-1

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-149335-1

Comments

No additional comments.

Receipt

The samples were received on 12/14/2022 9:35 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.2° C, 1.1° C and 1.2° C.

RAD

Methods 903.0, 9315: Radium-226 batch 594426

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. SSP/AP MW-1 (180-149335-1), SSP MW-4 (180-149335-2), SSP MW-3 (180-149335-3), SSP MW-2 (180-149335-4), FB-2 (180-149335-5), (LCS 160-594426/2-A), (MB 160-594426/1-A), (240-178196-C-10-A) and (240-178196-D-10-B DU)

Methods 904.0, 9320: Radium-228 batch 594429

The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: SSP MW-3 (180-149335-3). Analytical results are reported with the detection limit achieved.

Methods 904.0, 9320: Radium-228 batch 594429

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. SSP/AP MW-1 (180-149335-1), SSP MW-4 (180-149335-2), SSP MW-3 (180-149335-3), SSP MW-2 (180-149335-4), FB-2 (180-149335-5), (LCS 160-594429/2-A), (MB 160-594429/1-A), (240-178196-C-10-B) and (240-178196-D-10-C DU)

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



Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-22 *
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-149335-1	SSP/AP MW-1	Water	12/13/22 07:50	12/14/22 09:35
180-149335-2	SSP MW-4	Water	12/13/22 08:35	12/14/22 09:35
180-149335-3	SSP MW-3	Water	12/13/22 09:25	12/14/22 09:35
180-149335-4	SSP MW-2	Water	12/13/22 10:15	12/14/22 09:35
180-149335-5	FB-2	Water	12/13/22 09:30	12/14/22 09:35

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Client Sample ID: SSP/AP MW-1

Lab Sample ID: 180-149335-1

Date Collected: 12/13/22 07:50

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			743.01 mL	1.0 g	594426	12/21/22 09:56	DJP	EET SL
Total/NA	Analysis	903.0		1			597153	01/17/23 08:38	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			743.01 mL	1.0 g	594429	12/21/22 10:21	DJP	EET SL
Total/NA	Analysis	904.0		1			596522	01/11/23 12:07	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			597427	01/18/23 12:51	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SSP MW-4

Lab Sample ID: 180-149335-2

Date Collected: 12/13/22 08:35

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			991.31 mL	1.0 g	594426	12/21/22 09:56	DJP	EET SL
Total/NA	Analysis	903.0		1			597153	01/17/23 08:38	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			991.31 mL	1.0 g	594429	12/21/22 10:21	DJP	EET SL
Total/NA	Analysis	904.0		1			596522	01/11/23 12:07	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			597427	01/18/23 12:51	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SSP MW-3

Lab Sample ID: 180-149335-3

Date Collected: 12/13/22 09:25

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			508.16 mL	1.0 g	594426	12/21/22 09:56	DJP	EET SL
Total/NA	Analysis	903.0		1			597153	01/17/23 08:39	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			508.16 mL	1.0 g	594429	12/21/22 10:21	DJP	EET SL
Total/NA	Analysis	904.0		1			596522	01/11/23 12:07	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			597427	01/18/23 12:51	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SSP MW-2

Lab Sample ID: 180-149335-4

Date Collected: 12/13/22 10:15

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			992.05 mL	1.0 g	594426	12/21/22 09:56	DJP	EET SL
Total/NA	Analysis	903.0		1			597153	01/17/23 08:39	FLC	EET SL
Instrument ID: GFPCPURPLE										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Client Sample ID: SSP MW-2

Lab Sample ID: 180-149335-4

Date Collected: 12/13/22 10:15

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			992.05 mL	1.0 g	594429	12/21/22 10:21	DJP	EET SL
Total/NA	Analysis	904.0		1			596522	01/11/23 12:07	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			597427	01/18/23 12:51	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: FB-2

Lab Sample ID: 180-149335-5

Date Collected: 12/13/22 09:30

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			992.77 mL	1.0 g	594426	12/21/22 09:56	DJP	EET SL
Total/NA	Analysis	903.0		1			597153	01/17/23 08:39	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			992.77 mL	1.0 g	594429	12/21/22 10:21	DJP	EET SL
Total/NA	Analysis	904.0		1			596522	01/11/23 12:07	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Analysis	Ra226_Ra228		1			597427	01/18/23 12:51	SCB	EET SL
Instrument ID: NOEQUIP										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: EET SL

Batch Type: Prep

DJP = Dalton Pieper

Batch Type: Analysis

FLC = Fernando Cruz

SCB = Sarah Bernsen

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Client Sample ID: SSP/AP MW-1

Lab Sample ID: 180-149335-1

Date Collected: 12/13/22 07:50

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.300		0.149	0.151	1.00	0.185	pCi/L	12/21/22 09:56	01/17/23 08:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.3		40 - 110					12/21/22 09:56	01/17/23 08:38	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.28		0.630	0.641	1.00	0.905	pCi/L	12/21/22 10:21	01/11/23 12:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.3		40 - 110					12/21/22 10:21	01/11/23 12:07	1
Y Carrier	88.2		40 - 110					12/21/22 10:21	01/11/23 12:07	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.58		0.647	0.659	5.00	0.905	pCi/L		01/18/23 12:51	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Client Sample ID: SSP MW-4

Lab Sample ID: 180-149335-2

Date Collected: 12/13/22 08:35

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.792		0.176	0.190	1.00	0.137	pCi/L	12/21/22 09:56	01/17/23 08:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.8		40 - 110					12/21/22 09:56	01/17/23 08:38	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.28		0.572	0.610	1.00	0.610	pCi/L	12/21/22 10:21	01/11/23 12:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.8		40 - 110					12/21/22 10:21	01/11/23 12:07	1
Y Carrier	84.9		40 - 110					12/21/22 10:21	01/11/23 12:07	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.08		0.598	0.639	5.00	0.610	pCi/L		01/18/23 12:51	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Client Sample ID: SSP MW-3

Lab Sample ID: 180-149335-3

Date Collected: 12/13/22 09:25

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	4.84		0.637	0.772	1.00	0.332	pCi/L	12/21/22 09:56	01/17/23 08:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	72.9		40 - 110					12/21/22 09:56	01/17/23 08:39	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	31.7	G	2.68	3.96	1.00	1.23	pCi/L	12/21/22 10:21	01/11/23 12:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	72.9		40 - 110					12/21/22 10:21	01/11/23 12:07	1
Y Carrier	86.7		40 - 110					12/21/22 10:21	01/11/23 12:07	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	36.6		2.75	4.03	5.00	1.23	pCi/L		01/18/23 12:51	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Client Sample ID: SSP MW-2

Lab Sample ID: 180-149335-4

Date Collected: 12/13/22 10:15

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.503		0.142	0.149	1.00	0.120	pCi/L	12/21/22 09:56	01/17/23 08:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.5		40 - 110					12/21/22 09:56	01/17/23 08:39	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.32		0.528	0.570	1.00	0.536	pCi/L	12/21/22 10:21	01/11/23 12:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.5		40 - 110					12/21/22 10:21	01/11/23 12:07	1
Y Carrier	92.0		40 - 110					12/21/22 10:21	01/11/23 12:07	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.83		0.547	0.589	5.00	0.536	pCi/L		01/18/23 12:51	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Client Sample ID: FB-2

Lab Sample ID: 180-149335-5

Date Collected: 12/13/22 09:30

Matrix: Water

Date Received: 12/14/22 09:35

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0337	U	0.0841	0.0842	1.00	0.152	pCi/L	12/21/22 09:56	01/17/23 08:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.3		40 - 110					12/21/22 09:56	01/17/23 08:39	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.234	U	0.312	0.312	1.00	0.521	pCi/L	12/21/22 10:21	01/11/23 12:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.3		40 - 110					12/21/22 10:21	01/11/23 12:07	1
Y Carrier	87.9		40 - 110					12/21/22 10:21	01/11/23 12:07	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.267	U	0.323	0.323	5.00	0.521	pCi/L		01/18/23 12:51	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-594426/1-A
Matrix: Water
Analysis Batch: 597153

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 594426

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.01235	U	0.0688	0.0688	1.00	0.133	pCi/L	12/21/22 09:56	01/17/23 08:38	1
Carrier	MB	MB	Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	90.8		40 - 110			12/21/22 09:56	01/17/23 08:38	1		

Lab Sample ID: LCS 160-594426/2-A
Matrix: Water
Analysis Batch: 597153

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 594426

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.40		1.10	1.00	0.116	pCi/L	92	75 - 125
Carrier	LCS	LCS	Limits			Prepared	Analyzed	Dil Fac	
	%Yield	Qualifier							
Ba Carrier	95.5		40 - 110						

Lab Sample ID: 240-178196-D-10-B DU
Matrix: Water
Analysis Batch: 597152

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 594426

Analyte	Sample	Sample	DU	DU	Total	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					
Radium-226	0.0234	U	0.1628		0.0930	1.00	0.115	pCi/L	0.78	1
Carrier	DU	DU	Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	89.7		40 - 110							

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-594429/1-A
Matrix: Water
Analysis Batch: 596522

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 594429

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.2607	U	0.299	0.300	1.00	0.491	pCi/L	12/21/22 10:21	01/11/23 12:06	1
Carrier	MB	MB	Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	90.8		40 - 110			12/21/22 10:21	01/11/23 12:06	1		
Y Carrier	87.5		40 - 110			12/21/22 10:21	01/11/23 12:06	1		

Eurofins Pittsburgh

QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-594429/2-A
Matrix: Water
Analysis Batch: 596522

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 594429

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.29	9.081		1.23	1.00	0.534	pCi/L	110	75 - 125
LCS LCS									
Carrier	%Yield	Qualifier	Limits						
Ba Carrier	95.5		40 - 110						
Y Carrier	88.2		40 - 110						

Lab Sample ID: 240-178196-D-10-C DU
Matrix: Water
Analysis Batch: 596525

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 594429

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.295	U	-0.02498	U	0.273	1.00	0.518	pCi/L	0.51	1
DU DU										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	89.7		40 - 110							
Y Carrier	89.7		40 - 110							

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-1

Rad

Prep Batch: 594426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149335-1	SSP/AP MW-1	Total/NA	Water	PrecSep-21	
180-149335-2	SSP MW-4	Total/NA	Water	PrecSep-21	
180-149335-3	SSP MW-3	Total/NA	Water	PrecSep-21	
180-149335-4	SSP MW-2	Total/NA	Water	PrecSep-21	
180-149335-5	FB-2	Total/NA	Water	PrecSep-21	
MB 160-594426/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-594426/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
240-178196-D-10-B DU	Duplicate	Total/NA	Water	PrecSep-21	

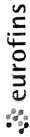
Prep Batch: 594429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149335-1	SSP/AP MW-1	Total/NA	Water	PrecSep_0	
180-149335-2	SSP MW-4	Total/NA	Water	PrecSep_0	
180-149335-3	SSP MW-3	Total/NA	Water	PrecSep_0	
180-149335-4	SSP MW-2	Total/NA	Water	PrecSep_0	
180-149335-5	FB-2	Total/NA	Water	PrecSep_0	
MB 160-594429/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-594429/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
240-178196-D-10-C DU	Duplicate	Total/NA	Water	PrecSep_0	

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468

Chain of Custody Record



Environment Testing
America

Client Information		Lab P/N: Hayes, Ken		Carrier Tracking No(s)		COC No: 180-67956-13428.2	
Company: HDR Inc		E-Mail: Ken.Hayes@Eurofins.com		State of Origin		Page of	
Address: 17111 Preston Road Suite 200		PWSID:		Job #:			
City: Dallas		TAT Requested (days):		Analysis Requested		Preservation Codes:	
State, Zip: TX, 75248-1232		Compliance Project: Δ Yes Δ No		903.0 - Standard Target List		A - HCL	
Phone: 972-960-4461 (Tel)		PO #:		904.0 - Standard Target List		B - NaOH	
Email: david.vogt@hdrinc.com (william.nicholson@hdrinc.com)		WO #:		906A_ORGFM_28D - (MOD) Local Method		C - Zn Acetate	
Project Name: Gibbons Creek Steam Electric Station		Project #: 18023511		6020B_7470A		D - Nitric Acid	
Site:		SSOW#:		2540C_Calcd - Local Method		E - NaHSO4	
				Field Filtered Sample (Yes or No)		F - MeOH	
				Perform MS/MSD (Yes or No)		G - Amchlor	
				903.0 - Standard Target List		H - Ascorbic Acid	
				904.0 - Standard Target List		I - Ice	
				906A_ORGFM_28D - (MOD) Local Method		J - DI Water	
				6020B_7470A		K - EDTA	
				2540C_Calcd - Local Method		L - EDA	
				Field Filtered Sample (Yes or No)		Other:	
				Perform MS/MSD (Yes or No)			
				903.0 - Standard Target List			
				904.0 - Standard Target List			
				906A_ORGFM_28D - (MOD) Local Method			
				6020B_7470A			
				2540C_Calcd - Local Method			
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				2540C_Calcd - Local Method			
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				904.0 - Standard Target List			
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				906A_ORGFM_28D - (MOD) Local Method			
				6020B_7470A			
				2540C_Calcd - Local Method			
				Field Filtered Sample (Yes or No)			

Chain of Custody Record



Environment Testing



Client Information (Sub Contract Lab)		Lab PM: Hayes, Ken	Carrier Tracking No(s): 180-476549-1						
Client Contact: Shipping/Receiving		E-Mail: Ken.Hayes@et.eurofins.com	Page: Page 1 of 1						
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Texas	Job #: 180-149335-1						
Address: 13715 Rider Trail North,		Analysis Requested							
City: Earth City	State: MO, 63045	Due Date Requested: 1/19/2023	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:						
PO #: 314-298-8566(Tel) 314-298-8757(Fax)	WO #:	TAT Requested (days):							
Project #: 18023511	Project Name: Gibbons Creek Steam Electric Station	Field Filtered Sample (Yes or No):	Total Number of Containers						
Site:	SSOW#:	Perform MS/MSD (Yes or No):							
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, B=biological, A=air)	90.00/PreSep_21 Standard Target List	90.00/PreSep_0 Standard Target List	90.00/PreSep_21 Standard Target List	Special Instructions/Note:	
SSP/AP MW-1 (180-149335-1)	12/13/22	07:50 Central		Water	X	X	X		
SSP MW-4 (180-149335-2)	12/13/22	08:35 Central		Water	X	X	X		
SSP MW-3 (180-149335-3)	12/13/22	09:25 Central		Water	X	X	X		
SSP MW-2 (180-149335-4)	12/13/22	10:15 Central		Water	X	X	X		
FB-2 (180-149335-5)	12/13/22	09:30 Central		Water	X	X	X		
<p>Note: Since laboratory accreditations are subject to change, Eurofins Pittsburgh places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix, being analyzed, the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Pittsburgh.</p>									
Possible Hazard Identification									
Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:									
Empty Kit Relinquished by:		Date/Time: 12-16-22 1800		Company: active		Received by: [Signature]		Date/Time: DEC 16 2022	
Relinquished by:		Date/Time:		Company:		Received by: [Signature]		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact.		Custody Seal No:		Cooler Temperature(s) °C and Other Remarks:		Company: [Signature]		Date/Time:	
Δ Yes Δ No						Company: [Signature]		Date/Time:	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-149335-1

Login Number: 149335

List Source: Eurofins Pittsburgh

List Number: 1

Creator: Abernathy, Eric L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-149335-1

Login Number: 149335

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 12/19/22 04:04 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: David Vogt
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Generated 1/19/2023 8:16:53 PM

JOB DESCRIPTION

Gibbons Creek Steam Electric Station

JOB NUMBER

180-149455-1

Eurofins Pittsburgh

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing Northeast, LLC Pittsburgh and its client. All questions regarding this report should be directed to the Eurofins Environment Testing Northeast, LLC Pittsburgh Project Manager or designee who has signed this report.

PA Lab ID: 02-00416

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Pittsburgh Project Manager.

Authorization



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1/19/2023 8:16:53 PM

Authorized for release by
Ken Hayes, Project Manager II
Ken.Hayes@et.eurofinsus.com
(615)301-5035



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Job ID: 180-149455-1

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-149455-1

Comments

No additional comments.

Receipt

The samples were received on 12/15/2022 9:25 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.1° C.

RAD

Methods 903.0, 9315: Radium-226 batch 594274

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MNW-18 (180-149455-1), SFL MW-6 (180-149455-2), SFL MW-2 (180-149455-3), SFL MW-5 (180-149455-4), DUP-1 (180-149455-5), (LCS 160-594274/2-A), (LCSD 160-594274/5-A) and (MB 160-594274/1-A)

Methods 904.0, 9320: Radium-228 prep batch 160-594370:

The Ra-228 laboratory control sample duplicate (LCSD) associated with the following samples recovered at 140%: (LCSD 160-594370/5-A). The limits in our LIMS system at 75-125% reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCSD are not from this agency and are therefore held to our in-house statistical limits of 62-148% per method requirements. The LCSD is within criteria and no further action is required.

Methods 904.0, 9320: Radium-228 prep batch 160-594370:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. MNW-18 (180-149455-1), SFL MW-6 (180-149455-2), SFL MW-2 (180-149455-3), SFL MW-5 (180-149455-4), DUP-1 (180-149455-5), (LCS 160-594370/2-A), (LCSD 160-594370/5-A) and (MB 160-594370/1-A)

Method PrecSep_0: Radium-228 Prep Batch 160-594370

Insufficient sample volume was available to perform a sample duplicate for the following samples: MNW-18 (180-149455-1), SFL MW-6 (180-149455-2), SFL MW-2 (180-149455-3), SFL MW-5 (180-149455-4) and DUP-1 (180-149455-5). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-594274

Insufficient sample volume was available to perform a sample duplicate for the following samples: MNW-18 (180-149455-1), SFL MW-6 (180-149455-2), SFL MW-2 (180-149455-3), SFL MW-5 (180-149455-4) and DUP-1 (180-149455-5). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

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

Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-22 *
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

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

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-149455-1	MNW-18	Water	12/12/22 11:55	12/15/22 09:25
180-149455-2	SFL MW-6	Water	12/12/22 12:50	12/15/22 09:25
180-149455-3	SFL MW-2	Water	12/12/22 13:40	12/15/22 09:25
180-149455-4	SFL MW-5	Water	12/12/22 14:15	12/15/22 09:25
180-149455-5	DUP-1	Water	12/12/22 17:30	12/15/22 09:25

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566



Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Client Sample ID: MNW-18

Lab Sample ID: 180-149455-1

Date Collected: 12/12/22 11:55

Matrix: Water

Date Received: 12/15/22 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			992.82 mL	1.0 g	594274	12/20/22 10:27	DJP	EET SL
Total/NA	Analysis	903.0		1			597272	01/18/23 11:43	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			992.82 mL	1.0 g	594370	12/20/22 10:49	DJP	EET SL
Total/NA	Analysis	904.0		1			596407	01/10/23 12:19	SCB	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Analysis	Ra226_Ra228		1			597445	01/18/23 15:35	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-6

Lab Sample ID: 180-149455-2

Date Collected: 12/12/22 12:50

Matrix: Water

Date Received: 12/15/22 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1004.62 mL	1.0 g	594274	12/20/22 10:27	DJP	EET SL
Total/NA	Analysis	903.0		1			597152	01/17/23 20:29	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			1004.62 mL	1.0 g	594370	12/20/22 10:49	DJP	EET SL
Total/NA	Analysis	904.0		1			596407	01/10/23 12:19	SCB	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Analysis	Ra226_Ra228		1			597445	01/18/23 15:35	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-2

Lab Sample ID: 180-149455-3

Date Collected: 12/12/22 13:40

Matrix: Water

Date Received: 12/15/22 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			997.83 mL	1.0 g	594274	12/20/22 10:27	DJP	EET SL
Total/NA	Analysis	903.0		1			597152	01/17/23 20:29	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			997.83 mL	1.0 g	594370	12/20/22 10:49	DJP	EET SL
Total/NA	Analysis	904.0		1			596407	01/10/23 12:19	SCB	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Analysis	Ra226_Ra228		1			597445	01/18/23 15:35	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-5

Lab Sample ID: 180-149455-4

Date Collected: 12/12/22 14:15

Matrix: Water

Date Received: 12/15/22 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			994.16 mL	1.0 g	594274	12/20/22 10:27	DJP	EET SL
Total/NA	Analysis	903.0		1			597152	01/17/23 20:29	FLC	EET SL
Instrument ID: GFPCBLUE										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Client Sample ID: SFL MW-5

Lab Sample ID: 180-149455-4

Date Collected: 12/12/22 14:15

Matrix: Water

Date Received: 12/15/22 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			994.16 mL	1.0 g	594370	12/20/22 10:49	DJP	EET SL
Total/NA	Analysis	904.0		1			596407	01/10/23 12:19	SCB	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Analysis	Ra226_Ra228		1			597445	01/18/23 15:35	SCB	EET SL
Instrument ID: NOEQUIP										

Client Sample ID: DUP-1

Lab Sample ID: 180-149455-5

Date Collected: 12/12/22 17:30

Matrix: Water

Date Received: 12/15/22 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			997.46 mL	1.0 g	594274	12/20/22 10:27	DJP	EET SL
Total/NA	Analysis	903.0		1			597152	01/17/23 21:47	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			997.46 mL	1.0 g	594370	12/20/22 10:49	DJP	EET SL
Total/NA	Analysis	904.0		1			596407	01/10/23 12:19	SCB	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Analysis	Ra226_Ra228		1			597445	01/18/23 15:35	SCB	EET SL
Instrument ID: NOEQUIP										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: EET SL

Batch Type: Prep

DJP = Dalton Pieper

Batch Type: Analysis

FLC = Fernando Cruz

SCB = Sarah Bernsen

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Client Sample ID: MNW-18

Lab Sample ID: 180-149455-1

Date Collected: 12/12/22 11:55

Matrix: Water

Date Received: 12/15/22 09:25

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0169	U	0.0566	0.0566	1.00	0.128	pCi/L	12/20/22 10:27	01/18/23 11:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.9		40 - 110					12/20/22 10:27	01/18/23 11:43	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.02		0.490	0.499	1.00	0.666	pCi/L	12/20/22 10:49	01/10/23 12:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.9		40 - 110					12/20/22 10:49	01/10/23 12:19	1
Y Carrier	80.4		40 - 110					12/20/22 10:49	01/10/23 12:19	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.999		0.493	0.502	5.00	0.666	pCi/L		01/18/23 15:35	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Client Sample ID: SFL MW-6

Lab Sample ID: 180-149455-2

Date Collected: 12/12/22 12:50

Matrix: Water

Date Received: 12/15/22 09:25

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.86		0.364	0.445	1.00	0.193	pCi/L	12/20/22 10:27	01/17/23 20:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	64.5		40 - 110					12/20/22 10:27	01/17/23 20:29	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	11.6		1.28	1.67	1.00	0.816	pCi/L	12/20/22 10:49	01/10/23 12:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	64.5		40 - 110					12/20/22 10:49	01/10/23 12:19	1
Y Carrier	86.0		40 - 110					12/20/22 10:49	01/10/23 12:19	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	14.5		1.33	1.73	5.00	0.816	pCi/L		01/18/23 15:35	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Client Sample ID: SFL MW-2

Lab Sample ID: 180-149455-3

Date Collected: 12/12/22 13:40

Matrix: Water

Date Received: 12/15/22 09:25

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.46		0.257	0.289	1.00	0.177	pCi/L	12/20/22 10:27	01/17/23 20:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.4		40 - 110					12/20/22 10:27	01/17/23 20:29	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	5.30		0.873	1.00	1.00	0.732	pCi/L	12/20/22 10:49	01/10/23 12:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.4		40 - 110					12/20/22 10:49	01/10/23 12:19	1
Y Carrier	84.5		40 - 110					12/20/22 10:49	01/10/23 12:19	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	6.76		0.910	1.04	5.00	0.732	pCi/L		01/18/23 15:35	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Client Sample ID: SFL MW-5

Lab Sample ID: 180-149455-4

Date Collected: 12/12/22 14:15

Matrix: Water

Date Received: 12/15/22 09:25

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.96		0.260	0.314	1.00	0.116	pCi/L	12/20/22 10:27	01/17/23 20:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.9		40 - 110					12/20/22 10:27	01/17/23 20:29	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	7.49		0.885	1.12	1.00	0.451	pCi/L	12/20/22 10:49	01/10/23 12:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.9		40 - 110					12/20/22 10:49	01/10/23 12:19	1
Y Carrier	81.1		40 - 110					12/20/22 10:49	01/10/23 12:19	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	9.46		0.922	1.16	5.00	0.451	pCi/L		01/18/23 15:35	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Client Sample ID: DUP-1
 Date Collected: 12/12/22 17:30
 Date Received: 12/15/22 09:25

Lab Sample ID: 180-149455-5
 Matrix: Water

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.34		0.313	0.377	1.00	0.171	pCi/L	12/20/22 10:27	01/17/23 21:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.9		40 - 110					12/20/22 10:27	01/17/23 21:47	1

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	10.7		1.16	1.52	1.00	0.715	pCi/L	12/20/22 10:49	01/10/23 12:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.9		40 - 110					12/20/22 10:49	01/10/23 12:19	1
Y Carrier	85.6		40 - 110					12/20/22 10:49	01/10/23 12:19	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	13.0		1.20	1.57	5.00	0.715	pCi/L		01/18/23 15:35	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-594274/1-A
Matrix: Water
Analysis Batch: 596812

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 594274

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.002115	U	0.102	0.102	1.00	0.198	pCi/L	12/20/22 10:27	01/13/23 16:12	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Ba Carrier	94.4		40 - 110				12/20/22 10:27		01/13/23 16:12	1

Lab Sample ID: LCS 160-594274/2-A
Matrix: Water
Analysis Batch: 596812

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 594274

Analyte	LCS		Spike	LCS	Total	RL	MDC	Unit	%Rec	%Rec Limits
	%Yield	LCS Qualifier	Added	Result	Uncert. (2σ+/-)					
Radium-226			11.3	10.10	1.14	1.00	0.200	pCi/L	89	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	88.3		40 - 110							

Lab Sample ID: LCSD 160-594274/5-A
Matrix: Water
Analysis Batch: 596812

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 594274

Analyte	LCSD		Spike	LCSD	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	Limit
	%Yield	LCSD Qualifier	Added	Result	Uncert. (2σ+/-)							
Radium-226			11.3	11.16	1.26	1.00	0.240	pCi/L	98	75 - 125	0.44	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Ba Carrier	82.1		40 - 110									

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-594370/1-A
Matrix: Water
Analysis Batch: 596333

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 594370

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.1693	U	0.481	0.481	1.00	0.588	pCi/L	12/20/22 10:49	01/10/23 18:32	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	Dil Fac
Ba Carrier	94.4		40 - 110				12/20/22 10:49		01/10/23 18:32	1
Y Carrier	88.6		40 - 110				12/20/22 10:49		01/10/23 18:32	1

Eurofins Pittsburgh

QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-594370/2-A
Matrix: Water
Analysis Batch: 596333

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 594370

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	8.29	8.728		1.58	1.00	0.593	pCi/L	105	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	88.3		40 - 110							
Y Carrier	87.5		40 - 110							

Lab Sample ID: LCSD 160-594370/5-A
Matrix: Water
Analysis Batch: 596406

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 594370

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	RER Limit
Radium-228	8.29	11.64		1.53	1.00	0.546	pCi/L	140	75 - 125	0.94	1	
LCSD LCSD												
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	82.1		40 - 110									
Y Carrier	88.6		40 - 110									

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-1

Rad

Prep Batch: 594274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149455-1	MNW-18	Total/NA	Water	PrecSep-21	
180-149455-2	SFL MW-6	Total/NA	Water	PrecSep-21	
180-149455-3	SFL MW-2	Total/NA	Water	PrecSep-21	
180-149455-4	SFL MW-5	Total/NA	Water	PrecSep-21	
180-149455-5	DUP-1	Total/NA	Water	PrecSep-21	
MB 160-594274/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-594274/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-594274/5-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 594370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149455-1	MNW-18	Total/NA	Water	PrecSep_0	
180-149455-2	SFL MW-6	Total/NA	Water	PrecSep_0	
180-149455-3	SFL MW-2	Total/NA	Water	PrecSep_0	
180-149455-4	SFL MW-5	Total/NA	Water	PrecSep_0	
180-149455-5	DUP-1	Total/NA	Water	PrecSep_0	
MB 160-594370/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-594370/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-594370/5-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Chain of Custody Record



Environment Testing



Client Information (Sub Contract Lab)		Lab PM Hayes, Ken	Carrier Tracking No(s): 180-476549-1
Client Contact Shipping/Receiving		E-Mail: Ken.Hayes@et.eurofins.com	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Texas	Job #: 180-149455-1
Address: 13715 Rider Trail North, City: Earth City State, Zip: MO. 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
PO #		Analysis Requested	
WO #		Total Number of containers	
Project # 18023511		903.0/PrecSep_21 Standard Target List	
SSOW#		904.0/PrecSep_0 Standard Target List	
Project Name Gibbons Creek Steam Electric Station		Perform MS/MSD (Yes or No)	
Site		Field Filtered Sample (Yes or No)	
Sample Identification - Client ID (Lab ID)		Ra226Ra228_GFPc	
Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)
MNW-18 (180-149455-1)	12/12/22	11:55 Central	Water
SFL MW-6 (180-149455-2)	12/12/22	12:50 Central	Water
SFL MW-2 (180-149455-3)	12/12/22	13:40 Central	Water
SFL MW-5 (180-149455-4)	12/12/22	14:15 Central	Water
DUP-1 (180-149455-5)	12/12/22	17:30 Central	Water
Special Instructions/Note:			

Note: Since laboratory accreditations are subject to change, Eurofins Pittsburgh places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Pittsburgh.

Possible Hazard Identification
Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:

Relinquished by:	Date/Time:	Received by:	Date/Time:	Method of Shipment:
<i>[Signature]</i>	12-16-22 1800	<i>[Signature]</i>	DEC 19 2022 08:25	FED EX
Relinquished by:	Date/Time:	Received by:	Date/Time:	Company:
		<i>[Signature]</i>		Company
Relinquished by:	Date/Time:	Received by:	Date/Time:	Company:
				Company

Cooler Temperature(s) °C and Other Remarks:



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-149455-1

Login Number: 149455

List Source: Eurofins Pittsburgh

List Number: 1

Creator: Abernathy, Eric L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-149455-1

Login Number: 149455

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 12/19/22 04:02 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: David Vogt
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Generated 1/16/2023 12:40:52 PM

JOB DESCRIPTION

Gibbons Creek Steam Electric Station

JOB NUMBER

180-149333-2

Eurofins Pittsburgh

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing Northeast, LLC Pittsburgh and its client. All questions regarding this report should be directed to the Eurofins Environment Testing Northeast, LLC Pittsburgh Project Manager or designee who has signed this report.

PA Lab ID: 02-00416

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Pittsburgh Project Manager.

Authorization



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Authorized for release by
Ken Hayes, Project Manager II
Ken.Hayes@et.eurofinsus.com
(615)301-5035



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Job ID: 180-149333-2

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-149333-2

Comments

No additional comments.

Receipt

The samples were received on 12/14/2022 9:35 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.2° C, 1.1° C and 1.2° C.

GC Semi VOA

Method 9056A: The following samples were diluted due to the nature of the sample matrix: SFL MW-3 (180-149333-2), SFL MW-7 (180-149333-3) and MNW-15 (180-149333-4). Elevated reporting limits (RLs) are provided.

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

Metals

Method 6020B: The post digestion spike % recovery for barium associated with batch 180-421766 was outside of control limits. The associated sample is: FB-1 (180-149333-5).

Method 6020B: The following samples were diluted to bring the concentration of target analytes within the calibration range: SFL MW-3 (180-149333-2) and MNW-15 (180-149333-4). Elevated reporting limits (RLs) are provided.

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

General Chemistry

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



Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Laboratory: Eurofins Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704528	03-31-23

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

Analysis Method	Prep Method	Matrix	Analyte
SM 2540C		Water	Total Dissolved Solids

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-149333-1	SFL MW-4	Water	12/12/22 15:40	12/14/22 09:35
180-149333-2	SFL MW-3	Water	12/12/22 16:21	12/14/22 09:35
180-149333-3	SFL MW-7	Water	12/12/22 17:02	12/14/22 09:35
180-149333-4	MNW-15	Water	12/12/22 17:40	12/14/22 09:35
180-149333-5	FB-1	Water	12/12/22 15:00	12/14/22 09:35

1

2

3

4

5

6

7

8

9

10

11

12

13

Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	EET PIT
EPA 6020B	Metals (ICP/MS)	SW846	EET PIT
EPA 7470A	Mercury (CVAA)	SW846	EET PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET PIT
7470A	Preparation, Mercury	SW846	EET PIT

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Client Sample ID: SFL MW-4

Lab Sample ID: 180-149333-1

Date Collected: 12/12/22 15:40

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421297	12/20/22 17:13	SNL	EET PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421879	12/28/22 12:04	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 21:17	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:27	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	420951	12/15/22 19:40	LWM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-3

Lab Sample ID: 180-149333-2

Date Collected: 12/12/22 16:21

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421297	12/20/22 18:12	SNL	EET PIT
Instrument ID: CHICS2100B										
Total/NA	Analysis	EPA 9056A		5			421297	12/20/22 18:27	SNL	EET PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		2			421879	12/28/22 12:08	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 21:21	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:30	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	420951	12/15/22 19:40	LWM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-7

Lab Sample ID: 180-149333-3

Date Collected: 12/12/22 17:02

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421297	12/20/22 18:41	SNL	EET PIT
Instrument ID: CHICS2100B										
Total/NA	Analysis	EPA 9056A		5			421297	12/20/22 18:56	SNL	EET PIT
Instrument ID: CHICS2100B										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Client Sample ID: SFL MW-7

Lab Sample ID: 180-149333-3

Date Collected: 12/12/22 17:02

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421879	12/28/22 12:11	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 21:34	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:31	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	420951	12/15/22 19:40	LWM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: MNW-15

Lab Sample ID: 180-149333-4

Date Collected: 12/12/22 17:40

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421297	12/20/22 19:11	SNL	EET PIT
Instrument ID: CHICS2100B										
Total/NA	Analysis	EPA 9056A		5			421297	12/20/22 19:26	SNL	EET PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		10			421879	12/28/22 12:15	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 21:44	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:32	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	420951	12/15/22 19:40	LWM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: FB-1

Lab Sample ID: 180-149333-5

Date Collected: 12/12/22 15:00

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421297	12/20/22 17:28	SNL	EET PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421879	12/28/22 12:18	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 21:47	RSK	EET PIT
Instrument ID: DORY										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Client Sample ID: FB-1

Lab Sample ID: 180-149333-5

Date Collected: 12/12/22 15:00

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:33	RJR	EET PIT
		Instrument ID: HGY								
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	420951	12/15/22 19:40	LWM	EET PIT
		Instrument ID: NOEQUIP								

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: EET PIT

Batch Type: Prep

HCY = Harrison Yaeger

RJR = Ron Rosenbaum

Batch Type: Analysis

LWM = Leslie McIntire

RJR = Ron Rosenbaum

RSK = Robert Kurtz

SNL = Sean Lordo



Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Client Sample ID: SFL MW-4

Lab Sample ID: 180-149333-1

Date Collected: 12/12/22 15:40

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	556		1.00	0.713	mg/L			12/20/22 17:13	1
Fluoride	0.315		0.100	0.0260	mg/L			12/20/22 17:13	1
Sulfate	791		1.00	0.756	mg/L			12/20/22 17:13	1

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00106		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 21:17	1
Barium	0.0275		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 21:17	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 21:17	1
Boron	0.748		0.0800	0.0601	mg/L		12/22/22 13:30	12/28/22 12:04	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 21:17	1
Calcium	220		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 21:17	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 21:17	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 21:17	1
Molybdenum	0.00234	J	0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 21:17	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 21:17	1
Antimony	0.000971	J	0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 21:17	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 21:17	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 21:17	1
Lithium	0.124		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 21:17	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1110		10.0	10.0	mg/L			12/15/22 19:40	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Client Sample ID: SFL MW-3

Lab Sample ID: 180-149333-2

Date Collected: 12/12/22 16:21

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	794		1.00	0.713	mg/L			12/20/22 18:12	1
Fluoride	0.576		0.100	0.0260	mg/L			12/20/22 18:12	1
Sulfate	2260		5.00	3.78	mg/L			12/20/22 18:27	5

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00367		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 21:21	1
Barium	0.0147		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 21:21	1
Beryllium	0.0336		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 21:21	1
Boron	4.88		0.160	0.120	mg/L		12/22/22 13:30	12/28/22 12:08	2
Cadmium	0.00552		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 21:21	1
Calcium	617		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 21:21	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 21:21	1
Cobalt	0.0537		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 21:21	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 21:21	1
Lead	0.0186		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 21:21	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 21:21	1
Selenium	0.00117	J	0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 21:21	1
Thallium	0.00568		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 21:21	1
Lithium	0.310		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 21:21	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00192		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	4760		40.0	40.0	mg/L			12/15/22 19:40	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Client Sample ID: SFL MW-7

Lab Sample ID: 180-149333-3

Date Collected: 12/12/22 17:02

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1900		5.00	3.57	mg/L			12/20/22 18:56	5
Fluoride	0.0881	J	0.100	0.0260	mg/L			12/20/22 18:41	1
Sulfate	662		1.00	0.756	mg/L			12/20/22 18:41	1

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 21:34	1
Barium	0.0530		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 21:34	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 21:34	1
Boron	0.916		0.0800	0.0601	mg/L		12/22/22 13:30	12/28/22 12:11	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 21:34	1
Calcium	451		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 21:34	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 21:34	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 21:34	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 21:34	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 21:34	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 21:34	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 21:34	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 21:34	1
Lithium	0.437		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 21:34	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	4160		40.0	40.0	mg/L			12/15/22 19:40	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Client Sample ID: MNW-15

Lab Sample ID: 180-149333-4

Date Collected: 12/12/22 17:40

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	632		1.00	0.713	mg/L			12/20/22 19:11	1
Fluoride	0.608		0.100	0.0260	mg/L			12/20/22 19:11	1
Sulfate	1350		5.00	3.78	mg/L			12/20/22 19:26	5

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00977		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 21:44	1
Barium	0.0179		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 21:44	1
Beryllium	0.0924		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 21:44	1
Boron	9.76		0.800	0.601	mg/L		12/22/22 13:30	12/28/22 12:15	10
Cadmium	0.0414		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 21:44	1
Calcium	328		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 21:44	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 21:44	1
Cobalt	0.313		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 21:44	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 21:44	1
Lead	0.000561	J	0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 21:44	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 21:44	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 21:44	1
Thallium	0.000976	J	0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 21:44	1
Lithium	0.113		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 21:44	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	3120		40.0	40.0	mg/L			12/15/22 19:40	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Client Sample ID: FB-1

Lab Sample ID: 180-149333-5

Date Collected: 12/12/22 15:00

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			12/20/22 17:28	1
Fluoride	<0.0260		0.100	0.0260	mg/L			12/20/22 17:28	1
Sulfate	<0.756		1.00	0.756	mg/L			12/20/22 17:28	1

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 21:47	1
Barium	<0.00314		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 21:47	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 21:47	1
Boron	0.0928		0.0800	0.0601	mg/L		12/22/22 13:30	12/28/22 12:18	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 21:47	1
Calcium	<0.127		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 21:47	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 21:47	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 21:47	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 21:47	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 21:47	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 21:47	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 21:47	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 21:47	1
Lithium	<0.000831		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 21:47	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<10.0		10.0	10.0	mg/L			12/15/22 19:40	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-421297/6
Matrix: Water
Analysis Batch: 421297

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			12/20/22 15:13	1
Fluoride	<0.0260		0.100	0.0260	mg/L			12/20/22 15:13	1
Sulfate	<0.756		1.00	0.756	mg/L			12/20/22 15:13	1

Lab Sample ID: LCS 180-421297/7
Matrix: Water
Analysis Batch: 421297

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.96		mg/L		102	80 - 120
Fluoride	2.50	2.725		mg/L		109	80 - 120
Sulfate	50.0	51.02		mg/L		102	80 - 120

Lab Sample ID: 180-149446-A-1 MS
Matrix: Water
Analysis Batch: 421297

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.58		50.0	53.08		mg/L		101	80 - 120
Fluoride	0.0271	J	2.50	2.630		mg/L		104	80 - 120
Sulfate	2.72		50.0	52.71		mg/L		100	80 - 120

Lab Sample ID: 180-149446-A-1 MSD
Matrix: Water
Analysis Batch: 421297

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	2.58		50.0	53.91		mg/L		103	80 - 120	2	15
Fluoride	0.0271	J	2.50	2.585		mg/L		102	80 - 120	2	15
Sulfate	2.72		50.0	51.63		mg/L		98	80 - 120	2	15

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-421572/1-A
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 21:04	1
Barium	<0.00314		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 21:04	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 21:04	1
Boron	<0.0601		0.0800	0.0601	mg/L		12/22/22 13:30	12/27/22 21:04	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 21:04	1
Calcium	<0.127		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 21:04	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 21:04	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 21:04	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 21:04	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 21:04	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 21:04	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 21:04	1

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-421572/1-A
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 21:04	1
Lithium	<0.000831		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 21:04	1

Lab Sample ID: LCS 180-421572/2-A
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.9036		mg/L		90	80 - 120
Barium	1.00	0.9140		mg/L		91	80 - 120
Beryllium	0.500	0.5071		mg/L		101	80 - 120
Boron	1.25	1.278		mg/L		102	80 - 120
Cadmium	0.500	0.5073		mg/L		101	80 - 120
Calcium	25.0	27.91		mg/L		112	80 - 120
Chromium	0.500	0.5122		mg/L		102	80 - 120
Cobalt	0.500	0.4534		mg/L		91	80 - 120
Molybdenum	0.500	0.5027		mg/L		101	80 - 120
Lead	0.500	0.5071		mg/L		101	80 - 120
Antimony	0.250	0.2738		mg/L		110	80 - 120
Selenium	1.00	0.9003		mg/L		90	80 - 120
Thallium	1.00	1.020		mg/L		102	80 - 120
Lithium	0.500	0.4948		mg/L		99	80 - 120

Lab Sample ID: 180-149333-5 MS
Matrix: Water
Analysis Batch: 421766

Client Sample ID: FB-1
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	<0.000282		1.00	0.8839		mg/L		88	75 - 125
Barium	<0.00314		1.00	0.9120		mg/L		91	75 - 125
Beryllium	<0.000274		0.500	0.5094		mg/L		102	75 - 125
Cadmium	<0.000217		0.500	0.5041		mg/L		101	75 - 125
Calcium	<0.127		25.0	26.66		mg/L		107	75 - 125
Chromium	<0.00153		0.500	0.5090		mg/L		102	75 - 125
Cobalt	<0.000261		0.500	0.4442		mg/L		89	75 - 125
Molybdenum	<0.000610		0.500	0.4998		mg/L		100	75 - 125
Lead	<0.000167		0.500	0.5037		mg/L		101	75 - 125
Antimony	<0.000506		0.250	0.2586		mg/L		103	75 - 125
Selenium	<0.000739		1.00	0.8822		mg/L		88	75 - 125
Thallium	<0.000472		1.00	1.016		mg/L		102	75 - 125
Lithium	<0.000831		0.500	0.4972		mg/L		99	75 - 125

Lab Sample ID: 180-149333-5 MS
Matrix: Water
Analysis Batch: 421879

Client Sample ID: FB-1
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.0928		1.25	1.106		mg/L		81	75 - 125

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-149333-5 MSD
Matrix: Water
Analysis Batch: 421766

Client Sample ID: FB-1
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Arsenic	<0.000282		1.00	0.8560		mg/L		86	75 - 125	3	20
Barium	<0.00314		1.00	0.8715		mg/L		87	75 - 125	5	20
Beryllium	<0.000274		0.500	0.4919		mg/L		98	75 - 125	3	20
Cadmium	<0.000217		0.500	0.4825		mg/L		97	75 - 125	4	20
Calcium	<0.127		25.0	25.77		mg/L		103	75 - 125	3	20
Chromium	<0.00153		0.500	0.4809		mg/L		96	75 - 125	6	20
Cobalt	<0.000261		0.500	0.4301		mg/L		86	75 - 125	3	20
Molybdenum	<0.000610		0.500	0.4770		mg/L		95	75 - 125	5	20
Lead	<0.000167		0.500	0.4836		mg/L		97	75 - 125	4	20
Antimony	<0.000506		0.250	0.2584		mg/L		103	75 - 125	0	20
Selenium	<0.000739		1.00	0.8555		mg/L		86	75 - 125	3	20
Thallium	<0.000472		1.00	0.9755		mg/L		98	75 - 125	4	20
Lithium	<0.000831		0.500	0.4773		mg/L		95	75 - 125	4	20

Lab Sample ID: 180-149333-5 MSD
Matrix: Water
Analysis Batch: 421879

Client Sample ID: FB-1
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Boron	0.0928		1.25	1.139		mg/L		84	75 - 125	3	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-421231/1-A
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421231

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:25	1

Lab Sample ID: LCS 180-421231/2-A
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421231

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Mercury	0.00250	0.002618		mg/L		105	80 - 120

Lab Sample ID: 180-149333-1 MS
Matrix: Water
Analysis Batch: 421610

Client Sample ID: SFL MW-4
Prep Type: Total/NA
Prep Batch: 421231

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				Limits
Mercury	<0.000130		0.00100	0.0009650		mg/L		97	75 - 125

Lab Sample ID: 180-149333-1 MSD
Matrix: Water
Analysis Batch: 421610

Client Sample ID: SFL MW-4
Prep Type: Total/NA
Prep Batch: 421231

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Mercury	<0.000130		0.00100	0.0008930		mg/L		89	75 - 125	8	20

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QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-420951/1
Matrix: Water
Analysis Batch: 420951

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			12/15/22 19:40	1

Lab Sample ID: LCS 180-420951/2
Matrix: Water
Analysis Batch: 420951

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	388	346.0		mg/L		89	85 - 115

Lab Sample ID: 180-149308-I-3 DU
Matrix: Water
Analysis Batch: 420951

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	986		989.0		mg/L		0.3	10

Lab Sample ID: 180-149333-1 DU
Matrix: Water
Analysis Batch: 420951

Client Sample ID: SFL MW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1110		1135		mg/L		NC	10

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

HPLC/IC

Analysis Batch: 421297

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149333-1	SFL MW-4	Total/NA	Water	EPA 9056A	
180-149333-2	SFL MW-3	Total/NA	Water	EPA 9056A	
180-149333-2	SFL MW-3	Total/NA	Water	EPA 9056A	
180-149333-3	SFL MW-7	Total/NA	Water	EPA 9056A	
180-149333-3	SFL MW-7	Total/NA	Water	EPA 9056A	
180-149333-4	MNW-15	Total/NA	Water	EPA 9056A	
180-149333-4	MNW-15	Total/NA	Water	EPA 9056A	
180-149333-5	FB-1	Total/NA	Water	EPA 9056A	
MB 180-421297/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-421297/7	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-149446-A-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-149446-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 421231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149333-1	SFL MW-4	Total/NA	Water	7470A	
180-149333-2	SFL MW-3	Total/NA	Water	7470A	
180-149333-3	SFL MW-7	Total/NA	Water	7470A	
180-149333-4	MNW-15	Total/NA	Water	7470A	
180-149333-5	FB-1	Total/NA	Water	7470A	
MB 180-421231/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-421231/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-149333-1 MS	SFL MW-4	Total/NA	Water	7470A	
180-149333-1 MSD	SFL MW-4	Total/NA	Water	7470A	

Prep Batch: 421572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149333-1	SFL MW-4	Total Recoverable	Water	3005A	
180-149333-2	SFL MW-3	Total Recoverable	Water	3005A	
180-149333-3	SFL MW-7	Total Recoverable	Water	3005A	
180-149333-4	MNW-15	Total Recoverable	Water	3005A	
180-149333-5	FB-1	Total Recoverable	Water	3005A	
MB 180-421572/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-421572/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-149333-5 MS	FB-1	Total Recoverable	Water	3005A	
180-149333-5 MSD	FB-1	Total Recoverable	Water	3005A	

Analysis Batch: 421610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149333-1	SFL MW-4	Total/NA	Water	EPA 7470A	421231
180-149333-2	SFL MW-3	Total/NA	Water	EPA 7470A	421231
180-149333-3	SFL MW-7	Total/NA	Water	EPA 7470A	421231
180-149333-4	MNW-15	Total/NA	Water	EPA 7470A	421231
180-149333-5	FB-1	Total/NA	Water	EPA 7470A	421231
MB 180-421231/1-A	Method Blank	Total/NA	Water	EPA 7470A	421231
LCS 180-421231/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	421231
180-149333-1 MS	SFL MW-4	Total/NA	Water	EPA 7470A	421231
180-149333-1 MSD	SFL MW-4	Total/NA	Water	EPA 7470A	421231

Eurofins Pittsburgh

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149333-2

Metals

Analysis Batch: 421766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149333-1	SFL MW-4	Total Recoverable	Water	EPA 6020B	421572
180-149333-2	SFL MW-3	Total Recoverable	Water	EPA 6020B	421572
180-149333-3	SFL MW-7	Total Recoverable	Water	EPA 6020B	421572
180-149333-4	MNW-15	Total Recoverable	Water	EPA 6020B	421572
180-149333-5	FB-1	Total Recoverable	Water	EPA 6020B	421572
MB 180-421572/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	421572
LCS 180-421572/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	421572
180-149333-5 MS	FB-1	Total Recoverable	Water	EPA 6020B	421572
180-149333-5 MSD	FB-1	Total Recoverable	Water	EPA 6020B	421572

Analysis Batch: 421879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149333-1	SFL MW-4	Total Recoverable	Water	EPA 6020B	421572
180-149333-2	SFL MW-3	Total Recoverable	Water	EPA 6020B	421572
180-149333-3	SFL MW-7	Total Recoverable	Water	EPA 6020B	421572
180-149333-4	MNW-15	Total Recoverable	Water	EPA 6020B	421572
180-149333-5	FB-1	Total Recoverable	Water	EPA 6020B	421572
180-149333-5 MS	FB-1	Total Recoverable	Water	EPA 6020B	421572
180-149333-5 MSD	FB-1	Total Recoverable	Water	EPA 6020B	421572

General Chemistry

Analysis Batch: 420951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149333-1	SFL MW-4	Total/NA	Water	SM 2540C	
180-149333-2	SFL MW-3	Total/NA	Water	SM 2540C	
180-149333-3	SFL MW-7	Total/NA	Water	SM 2540C	
180-149333-4	MNW-15	Total/NA	Water	SM 2540C	
180-149333-5	FB-1	Total/NA	Water	SM 2540C	
MB 180-420951/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-420951/2	Lab Control Sample	Total/NA	Water	SM 2540C	
180-149308-I-3 DU	Duplicate	Total/NA	Water	SM 2540C	
180-149333-1 DU	SFL MW-4	Total/NA	Water	SM 2540C	

Chain of Custody Record

Client Information		Sampler: <i>Will Nicholson</i>		Lab PM: Hayes, Ken		Carrier Tracking No(s): 180-67956-13428.2																																																																																																																																																																																					
Client Contact: David Vogt (Will Nicholson)		Phone: 706-252-1418		E-Mail: Ken.Hayes@Eurofins.com		Page ___ of ___																																																																																																																																																																																					
Company: HDR Inc		PWSID: _____		State of Origin: _____		Job #:																																																																																																																																																																																					
Address: 17111 Preston Road Suite 200		Due Date Requested: _____		Analysis Requested																																																																																																																																																																																							
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Site: _____		Project #: 18023511		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Sample Date</th> <th style="width: 15%;">Sample Time</th> <th style="width: 15%;">Sample Type (C=comp, G=grab)</th> <th style="width: 15%;">Preservation Code:</th> <th style="width: 10%;">Field Filtered Sample (Yes or No)</th> <th style="width: 10%;">Perform MS/MSD (Yes or No)</th> <th style="width: 10%;">903.0 - Standard Target List</th> <th style="width: 10%;">904.0 - Standard Target List</th> <th style="width: 10%;">906A. ORGM. 28D - (MOD) Local Method</th> <th style="width: 10%;">6020B, 7470A</th> <th style="width: 10%;">2640C. Calcd - Local Method</th> </tr> </thead> <tbody> <tr> <td>12/12/22</td><td>1540</td><td>G</td><td>Water</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td> </tr> <tr> <td>12/12/22</td><td>1621</td><td>G</td><td>Water</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td> </tr> <tr> <td>12/12/22</td><td>1702</td><td>G</td><td>Water</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td> </tr> <tr> <td>12/12/22</td><td>1740</td><td>G</td><td>Water</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td> </tr> <tr> <td>12/12/22</td><td>1500</td><td>G</td><td>Water</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td> </tr> <tr> <td></td><td></td><td></td><td>Water</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td>Water</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td>Water</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td>Water</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td>Water</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>				Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0 - Standard Target List	904.0 - Standard Target List	906A. ORGM. 28D - (MOD) Local Method	6020B, 7470A	2640C. Calcd - Local Method	12/12/22	1540	G	Water	X	X	X	X	X	X	X	12/12/22	1621	G	Water	X	X	X	X	X	X	X	12/12/22	1702	G	Water	X	X	X	X	X	X	X	12/12/22	1740	G	Water	X	X	X	X	X	X	X	12/12/22	1500	G	Water	X	X	X	X	X	X	X				Water											Water											Water											Water											Water																																																																		
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<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Special Instructions/QC Requirements: _____			
Empty Kit Relinquished by: _____ Date: _____		Method of Shipment: _____	
Relinquished by: <i>Will Nicholson</i> Date/Time: 12/13/22 1500		Received by: <i>MAO</i> Date/Time: 12-14-22 9:35	
Relinquished by: _____ Date/Time: _____		Received by: _____ Date/Time: _____	
Relinquished by: _____ Date/Time: _____		Received by: _____ Date/Time: _____	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: _____	

COOLSE 215

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-149333-2

Login Number: 149333

List Source: Eurofins Pittsburgh

List Number: 1

Creator: Abernathy, Eric L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: David Vogt
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Generated 1/16/2023 12:41:26 PM

JOB DESCRIPTION

Gibbons Creek Steam Electric Station

JOB NUMBER

180-149334-2

Eurofins Pittsburgh

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing Northeast, LLC Pittsburgh and its client. All questions regarding this report should be directed to the Eurofins Environment Testing Northeast, LLC Pittsburgh Project Manager or designee who has signed this report.

PA Lab ID: 02-00416

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Pittsburgh Project Manager.

Authorization



Generated
1/16/2023 12:41:26 PM

Authorized for release by
Ken Hayes, Project Manager II
Ken.Hayes@et.eurofinsus.com
(615)301-5035



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Job ID: 180-149334-2

Laboratory: Eurofins Pittsburgh

Narrative

**Job Narrative
180-149334-2**

Comments

No additional comments.

Receipt

The samples were received on 12/14/2022 9:35 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.2° C, 1.1° C and 1.2° C.

GC Semi VOA

Method 9056A: The following samples were diluted due to the nature of the sample matrix: AP MW-5 (180-149334-4) and AP MW-4 (180-149334-5). Elevated reporting limits (RLs) are provided.

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

Metals

Method 6020B: The following samples were diluted to bring the concentration of target analytes within the calibration range: AP MW-3 (180-149334-2), AP MW-1D (180-149334-3) and AP MW-5 (180-149334-4). Elevated reporting limits (RLs) are provided.

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

General Chemistry

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



Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Laboratory: Eurofins Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704528	03-31-23

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

Analysis Method	Prep Method	Matrix	Analyte
SM 2540C		Water	Total Dissolved Solids

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-149334-1	EQ-1	Water	12/13/22 13:00	12/14/22 09:35
180-149334-2	AP MW-3	Water	12/13/22 11:15	12/14/22 09:35
180-149334-3	AP MW-1D	Water	12/13/22 11:55	12/14/22 09:35
180-149334-4	AP MW-5	Water	12/13/22 12:40	12/14/22 09:35
180-149334-5	AP MW-4	Water	12/13/22 13:20	12/14/22 09:35

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Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	EET PIT
EPA 6020B	Metals (ICP/MS)	SW846	EET PIT
EPA 7470A	Mercury (CVAA)	SW846	EET PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET PIT
7470A	Preparation, Mercury	SW846	EET PIT

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Client Sample ID: EQ-1

Lab Sample ID: 180-149334-1

Date Collected: 12/13/22 13:00

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421296	12/20/22 16:25	SNL	EET PIT
Instrument ID: CHIC2100A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421879	12/28/22 12:44	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 22:11	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:34	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	420951	12/15/22 19:40	LWM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: AP MW-3

Lab Sample ID: 180-149334-2

Date Collected: 12/13/22 11:15

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421296	12/20/22 17:07	SNL	EET PIT
Instrument ID: CHIC2100A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		2			421879	12/28/22 12:48	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 22:14	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:38	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	420951	12/15/22 19:40	LWM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: AP MW-1D

Lab Sample ID: 180-149334-3

Date Collected: 12/13/22 11:55

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421296	12/20/22 17:21	SNL	EET PIT
Instrument ID: CHIC2100A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		5			421879	12/28/22 12:51	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 22:28	RSK	EET PIT
Instrument ID: DORY										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Client Sample ID: AP MW-1D

Lab Sample ID: 180-149334-3

Date Collected: 12/13/22 11:55

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:39	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	420950	12/15/22 18:53	LWM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: AP MW-5

Lab Sample ID: 180-149334-4

Date Collected: 12/13/22 12:40

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421296	12/20/22 17:35	SNL	EET PIT
Instrument ID: CHIC2100A										
Total/NA	Analysis	EPA 9056A		5			421296	12/20/22 17:48	SNL	EET PIT
Instrument ID: CHIC2100A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		2			421879	12/28/22 12:55	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 22:41	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:40	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	420950	12/15/22 18:53	LWM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: AP MW-4

Lab Sample ID: 180-149334-5

Date Collected: 12/13/22 13:20

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		2.5			421296	12/20/22 18:02	SNL	EET PIT
Instrument ID: CHIC2100A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421879	12/28/22 12:58	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 22:44	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:41	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	420950	12/15/22 18:53	LWM	EET PIT
Instrument ID: NOEQUIP										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: EET PIT

Batch Type: Prep

HCY = Harrison Yaeger

RJR = Ron Rosenbaum

Batch Type: Analysis

LWM = Leslie McIntire

RJR = Ron Rosenbaum

RSK = Robert Kurtz

SNL = Sean Lordo

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Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Client Sample ID: EQ-1

Lab Sample ID: 180-149334-1

Date Collected: 12/13/22 13:00

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			12/20/22 16:25	1
Fluoride	0.0288	J	0.100	0.0260	mg/L			12/20/22 16:25	1
Sulfate	<0.756		1.00	0.756	mg/L			12/20/22 16:25	1

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 22:11	1
Barium	<0.00314		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 22:11	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 22:11	1
Boron	0.105		0.0800	0.0601	mg/L		12/22/22 13:30	12/28/22 12:44	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 22:11	1
Calcium	<0.127		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 22:11	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 22:11	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 22:11	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 22:11	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 22:11	1
Antimony	0.000578	J	0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 22:11	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 22:11	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 22:11	1
Lithium	<0.000831		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 22:11	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<10.0		10.0	10.0	mg/L			12/15/22 19:40	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Client Sample ID: AP MW-3

Lab Sample ID: 180-149334-2

Date Collected: 12/13/22 11:15

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	145		1.00	0.713	mg/L			12/20/22 17:07	1
Fluoride	0.0540	J	0.100	0.0260	mg/L			12/20/22 17:07	1
Sulfate	583		1.00	0.756	mg/L			12/20/22 17:07	1

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00140		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 22:14	1
Barium	0.0231		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 22:14	1
Beryllium	0.00301		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 22:14	1
Boron	4.83		0.160	0.120	mg/L		12/22/22 13:30	12/28/22 12:48	2
Cadmium	0.00438		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 22:14	1
Calcium	153		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 22:14	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 22:14	1
Cobalt	0.0331		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 22:14	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 22:14	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 22:14	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 22:14	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 22:14	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 22:14	1
Lithium	0.0488		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 22:14	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00141		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1340		10.0	10.0	mg/L			12/15/22 19:40	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Client Sample ID: AP MW-1D

Lab Sample ID: 180-149334-3

Date Collected: 12/13/22 11:55

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	120		1.00	0.713	mg/L			12/20/22 17:21	1
Fluoride	0.869		0.100	0.0260	mg/L			12/20/22 17:21	1
Sulfate	422		1.00	0.756	mg/L			12/20/22 17:21	1

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00949		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 22:28	1
Barium	0.0129		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 22:28	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 22:28	1
Boron	5.63		0.400	0.301	mg/L		12/22/22 13:30	12/28/22 12:51	5
Cadmium	0.000340	J	0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 22:28	1
Calcium	83.7		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 22:28	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 22:28	1
Cobalt	0.00996		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 22:28	1
Molybdenum	0.0302		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 22:28	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 22:28	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 22:28	1
Selenium	0.00158	J	0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 22:28	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 22:28	1
Lithium	0.0233		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 22:28	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1110		10.0	10.0	mg/L			12/15/22 18:53	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Client Sample ID: AP MW-5

Lab Sample ID: 180-149334-4

Date Collected: 12/13/22 12:40

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	494		1.00	0.713	mg/L			12/20/22 17:35	1
Fluoride	2.39		0.100	0.0260	mg/L			12/20/22 17:35	1
Sulfate	2730		5.00	3.78	mg/L			12/20/22 17:48	5

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0206		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 22:41	1
Barium	0.0126		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 22:41	1
Beryllium	0.119		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 22:41	1
Boron	3.79		0.160	0.120	mg/L		12/22/22 13:30	12/28/22 12:55	2
Cadmium	0.0102		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 22:41	1
Calcium	578		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 22:41	1
Chromium	0.00157	J	0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 22:41	1
Cobalt	0.184		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 22:41	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 22:41	1
Lead	0.00239		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 22:41	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 22:41	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 22:41	1
Thallium	0.00248		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 22:41	1
Lithium	0.585		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 22:41	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000762		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	4960		40.0	40.0	mg/L			12/15/22 18:53	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Client Sample ID: AP MW-4

Lab Sample ID: 180-149334-5

Date Collected: 12/13/22 13:20

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	191		2.50	1.78	mg/L			12/20/22 18:02	2.5
Fluoride	0.0719	J	0.250	0.0650	mg/L			12/20/22 18:02	2.5
Sulfate	876		2.50	1.89	mg/L			12/20/22 18:02	2.5

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00156		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 22:44	1
Barium	0.0197		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 22:44	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 22:44	1
Boron	0.677		0.0800	0.0601	mg/L		12/22/22 13:30	12/28/22 12:58	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 22:44	1
Calcium	204		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 22:44	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 22:44	1
Cobalt	0.00286		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 22:44	1
Molybdenum	0.000944	J	0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 22:44	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 22:44	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 22:44	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 22:44	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 22:44	1
Lithium	0.277		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 22:44	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1790		20.0	20.0	mg/L			12/15/22 18:53	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-421296/6
Matrix: Water
Analysis Batch: 421296

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			12/20/22 15:05	1
Fluoride	<0.0260		0.100	0.0260	mg/L			12/20/22 15:05	1
Sulfate	<0.756		1.00	0.756	mg/L			12/20/22 15:05	1

Lab Sample ID: LCS 180-421296/7
Matrix: Water
Analysis Batch: 421296

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	52.18		mg/L		104	80 - 120
Fluoride	2.50	2.722		mg/L		109	80 - 120
Sulfate	50.0	52.59		mg/L		105	80 - 120

Lab Sample ID: 180-149334-1 MS
Matrix: Water
Analysis Batch: 421296

Client Sample ID: EQ-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	<0.713		50.0	50.38		mg/L		101	80 - 120
Fluoride	0.0288	J	2.50	2.654		mg/L		105	80 - 120
Sulfate	<0.756		50.0	50.98		mg/L		102	80 - 120

Lab Sample ID: 180-149334-1 MSD
Matrix: Water
Analysis Batch: 421296

Client Sample ID: EQ-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	<0.713		50.0	50.54		mg/L		101	80 - 120	0	15
Fluoride	0.0288	J	2.50	2.664		mg/L		105	80 - 120	0	15
Sulfate	<0.756		50.0	51.32		mg/L		103	80 - 120	1	15

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-421572/1-A
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 21:04	1
Barium	<0.00314		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 21:04	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 21:04	1
Boron	<0.0601		0.0800	0.0601	mg/L		12/22/22 13:30	12/27/22 21:04	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 21:04	1
Calcium	<0.127		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 21:04	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 21:04	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 21:04	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 21:04	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 21:04	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 21:04	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 21:04	1

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-421572/1-A
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 21:04	1
Lithium	<0.000831		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 21:04	1

Lab Sample ID: LCS 180-421572/2-A
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.9036		mg/L		90	80 - 120
Barium	1.00	0.9140		mg/L		91	80 - 120
Beryllium	0.500	0.5071		mg/L		101	80 - 120
Boron	1.25	1.278		mg/L		102	80 - 120
Cadmium	0.500	0.5073		mg/L		101	80 - 120
Calcium	25.0	27.91		mg/L		112	80 - 120
Chromium	0.500	0.5122		mg/L		102	80 - 120
Cobalt	0.500	0.4534		mg/L		91	80 - 120
Molybdenum	0.500	0.5027		mg/L		101	80 - 120
Lead	0.500	0.5071		mg/L		101	80 - 120
Antimony	0.250	0.2738		mg/L		110	80 - 120
Selenium	1.00	0.9003		mg/L		90	80 - 120
Thallium	1.00	1.020		mg/L		102	80 - 120
Lithium	0.500	0.4948		mg/L		99	80 - 120

Lab Sample ID: 180-149333-E-5-C MS
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	<0.000282		1.00	0.8839		mg/L		88	75 - 125
Barium	<0.00314		1.00	0.9120		mg/L		91	75 - 125
Beryllium	<0.000274		0.500	0.5094		mg/L		102	75 - 125
Cadmium	<0.000217		0.500	0.5041		mg/L		101	75 - 125
Calcium	<0.127		25.0	26.66		mg/L		107	75 - 125
Chromium	<0.00153		0.500	0.5090		mg/L		102	75 - 125
Cobalt	<0.000261		0.500	0.4442		mg/L		89	75 - 125
Molybdenum	<0.000610		0.500	0.4998		mg/L		100	75 - 125
Lead	<0.000167		0.500	0.5037		mg/L		101	75 - 125
Antimony	<0.000506		0.250	0.2586		mg/L		103	75 - 125
Selenium	<0.000739		1.00	0.8822		mg/L		88	75 - 125
Thallium	<0.000472		1.00	1.016		mg/L		102	75 - 125
Lithium	<0.000831		0.500	0.4972		mg/L		99	75 - 125

Lab Sample ID: 180-149333-E-5-C MS
Matrix: Water
Analysis Batch: 421879

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.0928		1.25	1.106		mg/L		81	75 - 125

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-149333-E-5-D MSD
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Arsenic	<0.000282		1.00	0.8560		mg/L		86	75 - 125	3	20
Barium	<0.00314		1.00	0.8715		mg/L		87	75 - 125	5	20
Beryllium	<0.000274		0.500	0.4919		mg/L		98	75 - 125	3	20
Cadmium	<0.000217		0.500	0.4825		mg/L		97	75 - 125	4	20
Calcium	<0.127		25.0	25.77		mg/L		103	75 - 125	3	20
Chromium	<0.00153		0.500	0.4809		mg/L		96	75 - 125	6	20
Cobalt	<0.000261		0.500	0.4301		mg/L		86	75 - 125	3	20
Molybdenum	<0.000610		0.500	0.4770		mg/L		95	75 - 125	5	20
Lead	<0.000167		0.500	0.4836		mg/L		97	75 - 125	4	20
Antimony	<0.000506		0.250	0.2584		mg/L		103	75 - 125	0	20
Selenium	<0.000739		1.00	0.8555		mg/L		86	75 - 125	3	20
Thallium	<0.000472		1.00	0.9755		mg/L		98	75 - 125	4	20
Lithium	<0.000831		0.500	0.4773		mg/L		95	75 - 125	4	20

Lab Sample ID: 180-149333-E-5-D MSD
Matrix: Water
Analysis Batch: 421879

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Boron	0.0928		1.25	1.139		mg/L		84	75 - 125	3	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-421231/1-A
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421231

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:25	1

Lab Sample ID: LCS 180-421231/2-A
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421231

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Mercury	0.00250	0.002618		mg/L		105	80 - 120

Lab Sample ID: 180-149333-E-1-B MS
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 421231

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				Limits
Mercury	<0.000130		0.00100	0.0009650		mg/L		97	75 - 125

Lab Sample ID: 180-149333-E-1-C MSD
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 421231

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Mercury	<0.000130		0.00100	0.0008930		mg/L		89	75 - 125	8	20

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QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-420950/1
Matrix: Water
Analysis Batch: 420950

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			12/15/22 18:53	1

Lab Sample ID: LCS 180-420950/2
Matrix: Water
Analysis Batch: 420950

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	388	340.0		mg/L		88	85 - 115

Lab Sample ID: 180-149335-C-2 DU
Matrix: Water
Analysis Batch: 420950

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	3660		3728		mg/L		2	10

Lab Sample ID: MB 180-420951/1
Matrix: Water
Analysis Batch: 420951

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			12/15/22 19:40	1

Lab Sample ID: LCS 180-420951/2
Matrix: Water
Analysis Batch: 420951

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	388	346.0		mg/L		89	85 - 115

Lab Sample ID: 180-149308-I-3 DU
Matrix: Water
Analysis Batch: 420951

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	986		989.0		mg/L		0.3	10

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

HPLC/IC

Analysis Batch: 421296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149334-1	EQ-1	Total/NA	Water	EPA 9056A	
180-149334-2	AP MW-3	Total/NA	Water	EPA 9056A	
180-149334-3	AP MW-1D	Total/NA	Water	EPA 9056A	
180-149334-4	AP MW-5	Total/NA	Water	EPA 9056A	
180-149334-4	AP MW-5	Total/NA	Water	EPA 9056A	
180-149334-5	AP MW-4	Total/NA	Water	EPA 9056A	
MB 180-421296/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-421296/7	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-149334-1 MS	EQ-1	Total/NA	Water	EPA 9056A	
180-149334-1 MSD	EQ-1	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 421231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149334-1	EQ-1	Total/NA	Water	7470A	
180-149334-2	AP MW-3	Total/NA	Water	7470A	
180-149334-3	AP MW-1D	Total/NA	Water	7470A	
180-149334-4	AP MW-5	Total/NA	Water	7470A	
180-149334-5	AP MW-4	Total/NA	Water	7470A	
MB 180-421231/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-421231/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-149333-E-1-B MS	Matrix Spike	Total/NA	Water	7470A	
180-149333-E-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Prep Batch: 421572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149334-1	EQ-1	Total Recoverable	Water	3005A	
180-149334-2	AP MW-3	Total Recoverable	Water	3005A	
180-149334-3	AP MW-1D	Total Recoverable	Water	3005A	
180-149334-4	AP MW-5	Total Recoverable	Water	3005A	
180-149334-5	AP MW-4	Total Recoverable	Water	3005A	
MB 180-421572/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-421572/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-149333-E-5-C MS	Matrix Spike	Total Recoverable	Water	3005A	
180-149333-E-5-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Analysis Batch: 421610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149334-1	EQ-1	Total/NA	Water	EPA 7470A	421231
180-149334-2	AP MW-3	Total/NA	Water	EPA 7470A	421231
180-149334-3	AP MW-1D	Total/NA	Water	EPA 7470A	421231
180-149334-4	AP MW-5	Total/NA	Water	EPA 7470A	421231
180-149334-5	AP MW-4	Total/NA	Water	EPA 7470A	421231
MB 180-421231/1-A	Method Blank	Total/NA	Water	EPA 7470A	421231
LCS 180-421231/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	421231
180-149333-E-1-B MS	Matrix Spike	Total/NA	Water	EPA 7470A	421231
180-149333-E-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	421231

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149334-2

Metals

Analysis Batch: 421766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149334-1	EQ-1	Total Recoverable	Water	EPA 6020B	421572
180-149334-2	AP MW-3	Total Recoverable	Water	EPA 6020B	421572
180-149334-3	AP MW-1D	Total Recoverable	Water	EPA 6020B	421572
180-149334-4	AP MW-5	Total Recoverable	Water	EPA 6020B	421572
180-149334-5	AP MW-4	Total Recoverable	Water	EPA 6020B	421572
MB 180-421572/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	421572
LCS 180-421572/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	421572
180-149333-E-5-C MS	Matrix Spike	Total Recoverable	Water	EPA 6020B	421572
180-149333-E-5-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	EPA 6020B	421572

Analysis Batch: 421879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149334-1	EQ-1	Total Recoverable	Water	EPA 6020B	421572
180-149334-2	AP MW-3	Total Recoverable	Water	EPA 6020B	421572
180-149334-3	AP MW-1D	Total Recoverable	Water	EPA 6020B	421572
180-149334-4	AP MW-5	Total Recoverable	Water	EPA 6020B	421572
180-149334-5	AP MW-4	Total Recoverable	Water	EPA 6020B	421572
180-149333-E-5-C MS	Matrix Spike	Total Recoverable	Water	EPA 6020B	421572
180-149333-E-5-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	EPA 6020B	421572

General Chemistry

Analysis Batch: 420950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149334-3	AP MW-1D	Total/NA	Water	SM 2540C	
180-149334-4	AP MW-5	Total/NA	Water	SM 2540C	
180-149334-5	AP MW-4	Total/NA	Water	SM 2540C	
MB 180-420950/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-420950/2	Lab Control Sample	Total/NA	Water	SM 2540C	
180-149335-C-2 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 420951


Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149334-1	EQ-1	Total/NA	Water	SM 2540C	
180-149334-2	AP MW-3	Total/NA	Water	SM 2540C	
MB 180-420951/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-420951/2	Lab Control Sample	Total/NA	Water	SM 2540C	
180-149308-I-3 DU	Duplicate	Total/NA	Water	SM 2540C	

Eurofins TestAmerica, Pittsburgh
 301 Alpha Drive RIDC Park
 Pittsburgh, PA 15238
 Phone (412) 963-7058 Fax (412) 963-2468

Chain of Custody Record



Environment Testing
America

Client Information	Client Contact: David Vogt (Will Nicholson) Company: HDR, Inc Address: 17111 Preston Road Suite 200 City: Dallas State/Zip: TX, 75248-1232 Phone: 972-960-4461(Tel) Email: david.vogt@hdrinc.com (william.nicholson@hdrinc.com) Project Name: Gibbins Creek Steam Electric Station Site:	Sampler: Will Nicholson Phone: 706-252-1418 Lab PM: Hayes, Ken E-Mail: Ken.Hayes@Eurofinset.com PWSID:	COC No: 180-67956-13428.2 Page: _____ of _____ Job #: _____
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: WO #: Project #: SSOW#:		Analysis Requested Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 903.0 - Standard Target List <input checked="" type="checkbox"/> D <input checked="" type="checkbox"/> N <input type="checkbox"/> X 904.0 - Standard Target List <input checked="" type="checkbox"/> D <input checked="" type="checkbox"/> N <input type="checkbox"/> X 906A_ORFPM_28D - (MOD) Local Method <input checked="" type="checkbox"/> D <input checked="" type="checkbox"/> N <input type="checkbox"/> X 6020B, 7470A <input checked="" type="checkbox"/> D <input checked="" type="checkbox"/> N <input type="checkbox"/> X 2540C_Calcd - Local Method <input checked="" type="checkbox"/> D <input checked="" type="checkbox"/> N <input type="checkbox"/> X Total Number of containers: 5	
Sample Identification EG-1 AP MW-3 AP MW-10 AP MW-5 AP MW-4		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Z - other (specify) M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - Other (specify)	
Sample Date 12/13/22 12/13/22 12/13/22 12/13/22 12/13/22		Sample Time 1300 1115 1155 1240 1320	
Sample Type (C=comp, G=grab) G G G G G		Preservation Code: Water Water Water Water Water Water Water Water Water Water	
Special Instructions/Note:  180-149334 Chain of Custody		Special Instructions/Note: _____ _____	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			
Deliverable Requested: I, II, III, IV, Other (specify)			
Empty Kit Relinquished by: Relinquished by: <i>Will Nicholson</i> Relinquished by: <i>Will Nicholson</i> Relinquished by:		Time: Date/Time: 12/13/22 1500 Date/Time: Date/Time:	
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Method of Shipment: Date/Time: 12-14-22 9:35 Date/Time: Date/Time:	
Relinquished by: <i>Will Nicholson</i> Company: HDR Relinquished by: <i>Will Nicholson</i> Company: HDR Relinquished by: <i>Will Nicholson</i> Company: HDR		Received by: <i>Will Nicholson</i> Company: HDR Received by: <i>Will Nicholson</i> Company: HDR Received by: <i>Will Nicholson</i> Company: HDR	
Custody Seal No.: _____		Cooler Temperature(s) °C and Other Remarks: _____	



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-149334-2

Login Number: 149334

List Source: Eurofins Pittsburgh

List Number: 1

Creator: Abernathy, Eric L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: David Vogt
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Generated 1/16/2023 12:41:56 PM

JOB DESCRIPTION

Gibbons Creek Steam Electric Station

JOB NUMBER

180-149335-2

Eurofins Pittsburgh

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing Northeast, LLC Pittsburgh and its client. All questions regarding this report should be directed to the Eurofins Environment Testing Northeast, LLC Pittsburgh Project Manager or designee who has signed this report.

PA Lab ID: 02-00416

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Pittsburgh Project Manager.

Authorization



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Authorized for release by
Ken Hayes, Project Manager II
Ken.Hayes@et.eurofinsus.com
(615)301-5035



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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Job ID: 180-149335-2

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-149335-2

Comments

No additional comments.

Receipt

The samples were received on 12/14/2022 9:35 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.2° C, 1.1° C and 1.2° C.

GC Semi VOA

Method 9056A: The following samples were diluted due to the nature of the sample matrix: SSP/AP MW-1 (180-149335-1), SSP MW-4 (180-149335-2), SSP MW-3 (180-149335-3) and SSP MW-2 (180-149335-4). Elevated reporting limits (RLs) are provided.

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

Metals

Method 6020B: The following samples were diluted to bring the concentration of target analytes within the calibration range: SSP/AP MW-1 (180-149335-1), SSP MW-3 (180-149335-3) and SSP MW-2 (180-149335-4). Elevated reporting limits (RLs) are provided.

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

General Chemistry

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



Definitions/Glossary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Laboratory: Eurofins Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704528	03-31-23

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

Analysis Method	Prep Method	Matrix	Analyte
SM 2540C		Water	Total Dissolved Solids

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-149335-1	SSP/AP MW-1	Water	12/13/22 07:50	12/14/22 09:35
180-149335-2	SSP MW-4	Water	12/13/22 08:35	12/14/22 09:35
180-149335-3	SSP MW-3	Water	12/13/22 09:25	12/14/22 09:35
180-149335-4	SSP MW-2	Water	12/13/22 10:15	12/14/22 09:35
180-149335-5	FB-2	Water	12/13/22 09:30	12/14/22 09:35

1

2

3

4

5

6

7

8

9

10

11

12

13

Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	EET PIT
EPA 6020B	Metals (ICP/MS)	SW846	EET PIT
EPA 7470A	Mercury (CVAA)	SW846	EET PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET PIT
7470A	Preparation, Mercury	SW846	EET PIT

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Client Sample ID: SSP/AP MW-1

Lab Sample ID: 180-149335-1

Date Collected: 12/13/22 07:50

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421296	12/20/22 18:45	SNL	EET PIT
Instrument ID: CHIC2100A										
Total/NA	Analysis	EPA 9056A		10			421296	12/20/22 19:00	SNL	EET PIT
Instrument ID: CHIC2100A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		2			421879	12/28/22 13:13	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 22:48	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:42	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	15 mL	100 mL	420950	12/15/22 18:53	LWM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: SSP MW-4

Lab Sample ID: 180-149335-2

Date Collected: 12/13/22 08:35

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421296	12/20/22 19:14	SNL	EET PIT
Instrument ID: CHIC2100A										
Total/NA	Analysis	EPA 9056A		5			421296	12/20/22 19:29	SNL	EET PIT
Instrument ID: CHIC2100A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421879	12/28/22 13:17	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 22:58	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:43	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	420950	12/15/22 18:53	LWM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: SSP MW-3

Lab Sample ID: 180-149335-3

Date Collected: 12/13/22 09:25

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421296	12/20/22 19:44	SNL	EET PIT
Instrument ID: CHIC2100A										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Client Sample ID: SSP MW-3

Lab Sample ID: 180-149335-3

Date Collected: 12/13/22 09:25

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		5			421296	12/20/22 19:59	SNL	EET PIT
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		2			421879	12/28/22 13:20	RSK	EET PIT
		Instrument ID: A								
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 23:01	RSK	EET PIT
		Instrument ID: DORY								
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:44	RJR	EET PIT
		Instrument ID: HGY								
Total/NA	Analysis	SM 2540C		1	20 mL	100 mL	420950	12/15/22 18:53	LWM	EET PIT
		Instrument ID: NOEQUIP								

Client Sample ID: SSP MW-2

Lab Sample ID: 180-149335-4

Date Collected: 12/13/22 10:15

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421296	12/20/22 20:14	SNL	EET PIT
		Instrument ID: CHIC2100A								
Total/NA	Analysis	EPA 9056A		10			421296	12/20/22 20:28	SNL	EET PIT
		Instrument ID: CHIC2100A								
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		2			421879	12/28/22 13:24	RSK	EET PIT
		Instrument ID: A								
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 23:04	RSK	EET PIT
		Instrument ID: DORY								
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:45	RJR	EET PIT
		Instrument ID: HGY								
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	420950	12/15/22 18:53	LWM	EET PIT
		Instrument ID: NOEQUIP								

Client Sample ID: FB-2

Lab Sample ID: 180-149335-5

Date Collected: 12/13/22 09:30

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421296	12/20/22 20:43	SNL	EET PIT
		Instrument ID: CHIC2100A								
Total/NA	Analysis	EPA 9056A		1			421438	12/21/22 20:45	SNL	EET PIT
		Instrument ID: CHIC2100A								

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Client Sample ID: FB-2

Lab Sample ID: 180-149335-5

Date Collected: 12/13/22 09:30

Matrix: Water

Date Received: 12/14/22 09:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421879	12/28/22 13:28	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	421572	12/22/22 13:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			421766	12/27/22 23:14	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:46	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	420950	12/15/22 18:53	LWM	EET PIT
Instrument ID: NOEQUIP										

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: EET PIT

Batch Type: Prep

HCY = Harrison Yaeger

RJR = Ron Rosenbaum

Batch Type: Analysis

LWM = Leslie McIntire

RJR = Ron Rosenbaum

RSK = Robert Kurtz

SNL = Sean Lordo



Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Client Sample ID: SSP/AP MW-1

Lab Sample ID: 180-149335-1

Date Collected: 12/13/22 07:50

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1560		10.0	7.13	mg/L			12/20/22 19:00	10
Fluoride	0.0712	J	0.100	0.0260	mg/L			12/20/22 18:45	1
Sulfate	3080		10.0	7.56	mg/L			12/20/22 19:00	10

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00220		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 22:48	1
Barium	0.0265		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 22:48	1
Beryllium	0.000584	J	0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 22:48	1
Boron	0.793		0.160	0.120	mg/L		12/22/22 13:30	12/28/22 13:13	2
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 22:48	1
Calcium	638		1.00	0.254	mg/L		12/22/22 13:30	12/28/22 13:13	2
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 22:48	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 22:48	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 22:48	1
Lead	0.000702	J	0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 22:48	1
Antimony	0.000582	J	0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 22:48	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 22:48	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 22:48	1
Lithium	1.51		0.0100	0.00166	mg/L		12/22/22 13:30	12/28/22 13:13	2

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	7170		66.7	66.7	mg/L			12/15/22 18:53	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Client Sample ID: SSP MW-4

Lab Sample ID: 180-149335-2

Date Collected: 12/13/22 08:35

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1110		5.00	3.57	mg/L			12/20/22 19:29	5
Fluoride	0.0585	J	0.100	0.0260	mg/L			12/20/22 19:14	1
Sulfate	1080		5.00	3.78	mg/L			12/20/22 19:29	5

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.000497	J	0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 22:58	1
Barium	0.0212		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 22:58	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 22:58	1
Boron	1.16		0.0800	0.0601	mg/L		12/22/22 13:30	12/28/22 13:17	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 22:58	1
Calcium	428		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 22:58	1
Chromium	0.00493		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 22:58	1
Cobalt	0.000289	J	0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 22:58	1
Molybdenum	0.00594		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 22:58	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 22:58	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 22:58	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 22:58	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 22:58	1
Lithium	0.875		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 22:58	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	3660		40.0	40.0	mg/L			12/15/22 18:53	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Client Sample ID: SSP MW-3

Lab Sample ID: 180-149335-3

Date Collected: 12/13/22 09:25

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1480		5.00	3.57	mg/L			12/20/22 19:59	5
Fluoride	0.435		0.100	0.0260	mg/L			12/20/22 19:44	1
Sulfate	2210		5.00	3.78	mg/L			12/20/22 19:59	5

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00829		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 23:01	1
Barium	0.0265		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 23:01	1
Beryllium	0.116		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 23:01	1
Boron	3.14		0.160	0.120	mg/L		12/22/22 13:30	12/28/22 13:20	2
Cadmium	0.0655		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 23:01	1
Calcium	673		1.00	0.254	mg/L		12/22/22 13:30	12/28/22 13:20	2
Chromium	0.00319		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 23:01	1
Cobalt	0.511		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 23:01	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 23:01	1
Lead	0.00582		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 23:01	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 23:01	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 23:01	1
Thallium	0.00940		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 23:01	1
Lithium	0.622		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 23:01	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000461		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	6020		50.0	50.0	mg/L			12/15/22 18:53	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Client Sample ID: SSP MW-2

Lab Sample ID: 180-149335-4

Date Collected: 12/13/22 10:15

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2300		10.0	7.13	mg/L			12/20/22 20:28	10
Fluoride	0.295		0.100	0.0260	mg/L			12/20/22 20:14	1
Sulfate	2120		10.0	7.56	mg/L			12/20/22 20:28	10

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00539		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 23:04	1
Barium	0.0201		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 23:04	1
Beryllium	0.0525		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 23:04	1
Boron	0.720		0.160	0.120	mg/L		12/22/22 13:30	12/28/22 13:24	2
Cadmium	0.00179		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 23:04	1
Calcium	846		1.00	0.254	mg/L		12/22/22 13:30	12/28/22 13:24	2
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 23:04	1
Cobalt	0.0569		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 23:04	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 23:04	1
Lead	0.000841	J	0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 23:04	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 23:04	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 23:04	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 23:04	1
Lithium	0.805		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 23:04	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	6700		100	100	mg/L			12/15/22 18:53	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Client Sample ID: FB-2

Lab Sample ID: 180-149335-5

Date Collected: 12/13/22 09:30

Matrix: Water

Date Received: 12/14/22 09:35

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			12/21/22 20:45	1
Fluoride	<0.0260		0.100	0.0260	mg/L			12/20/22 20:43	1
Sulfate	<0.756		1.00	0.756	mg/L			12/21/22 20:45	1

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 23:14	1
Barium	<0.00314		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 23:14	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 23:14	1
Boron	0.0853		0.0800	0.0601	mg/L		12/22/22 13:30	12/28/22 13:28	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 23:14	1
Calcium	<0.127		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 23:14	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 23:14	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 23:14	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 23:14	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 23:14	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 23:14	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 23:14	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 23:14	1
Lithium	<0.000831		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 23:14	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	<10.0		10.0	10.0	mg/L			12/15/22 18:53	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-421296/6
Matrix: Water
Analysis Batch: 421296

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			12/20/22 15:05	1
Fluoride	<0.0260		0.100	0.0260	mg/L			12/20/22 15:05	1
Sulfate	<0.756		1.00	0.756	mg/L			12/20/22 15:05	1

Lab Sample ID: LCS 180-421296/7
Matrix: Water
Analysis Batch: 421296

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	52.18		mg/L		104	80 - 120
Fluoride	2.50	2.722		mg/L		109	80 - 120
Sulfate	50.0	52.59		mg/L		105	80 - 120

Lab Sample ID: 180-149334-D-1 MS
Matrix: Water
Analysis Batch: 421296

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	<0.713		50.0	50.38		mg/L		101	80 - 120
Fluoride	0.0288	J	2.50	2.654		mg/L		105	80 - 120
Sulfate	<0.756		50.0	50.98		mg/L		102	80 - 120

Lab Sample ID: 180-149334-D-1 MSD
Matrix: Water
Analysis Batch: 421296

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	<0.713		50.0	50.54		mg/L		101	80 - 120	0	15
Fluoride	0.0288	J	2.50	2.664		mg/L		105	80 - 120	0	15
Sulfate	<0.756		50.0	51.32		mg/L		103	80 - 120	1	15

Lab Sample ID: MB 180-421438/6
Matrix: Water
Analysis Batch: 421438

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			12/21/22 17:44	1
Fluoride	<0.0260		0.100	0.0260	mg/L			12/21/22 17:44	1
Sulfate	<0.756		1.00	0.756	mg/L			12/21/22 17:44	1

Lab Sample ID: LCS 180-421438/7
Matrix: Water
Analysis Batch: 421438

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.69		mg/L		101	80 - 120
Fluoride	2.50	2.634		mg/L		105	80 - 120
Sulfate	50.0	50.69		mg/L		101	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 180-149494-C-1 MS
Matrix: Water
Analysis Batch: 421438

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2.71		50.0	56.37		mg/L		107	80 - 120
Fluoride	0.0411	J	2.50	2.818		mg/L		111	80 - 120
Sulfate	10.9		50.0	65.93		mg/L		110	80 - 120

Lab Sample ID: 180-149494-C-1 MSD
Matrix: Water
Analysis Batch: 421438

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	2.71		50.0	53.66		mg/L		102	80 - 120	5	15
Fluoride	0.0411	J	2.50	2.683		mg/L		106	80 - 120	5	15
Sulfate	10.9		50.0	61.53		mg/L		101	80 - 120	7	15

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-421572/1-A
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		12/22/22 13:30	12/27/22 21:04	1
Barium	<0.00314		0.0100	0.00314	mg/L		12/22/22 13:30	12/27/22 21:04	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/22/22 13:30	12/27/22 21:04	1
Boron	<0.0601		0.0800	0.0601	mg/L		12/22/22 13:30	12/27/22 21:04	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/22/22 13:30	12/27/22 21:04	1
Calcium	<0.127		0.500	0.127	mg/L		12/22/22 13:30	12/27/22 21:04	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/22/22 13:30	12/27/22 21:04	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		12/22/22 13:30	12/27/22 21:04	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/22/22 13:30	12/27/22 21:04	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/22/22 13:30	12/27/22 21:04	1
Antimony	<0.000506		0.00200	0.000506	mg/L		12/22/22 13:30	12/27/22 21:04	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/22/22 13:30	12/27/22 21:04	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/22/22 13:30	12/27/22 21:04	1
Lithium	<0.000831		0.00500	0.000831	mg/L		12/22/22 13:30	12/27/22 21:04	1

Lab Sample ID: LCS 180-421572/2-A
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.9036		mg/L		90	80 - 120
Barium	1.00	0.9140		mg/L		91	80 - 120
Beryllium	0.500	0.5071		mg/L		101	80 - 120
Boron	1.25	1.278		mg/L		102	80 - 120
Cadmium	0.500	0.5073		mg/L		101	80 - 120
Calcium	25.0	27.91		mg/L		112	80 - 120
Chromium	0.500	0.5122		mg/L		102	80 - 120
Cobalt	0.500	0.4534		mg/L		91	80 - 120
Molybdenum	0.500	0.5027		mg/L		101	80 - 120

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-421572/2-A
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lead	0.500	0.5071		mg/L		101	80 - 120
Antimony	0.250	0.2738		mg/L		110	80 - 120
Selenium	1.00	0.9003		mg/L		90	80 - 120
Thallium	1.00	1.020		mg/L		102	80 - 120
Lithium	0.500	0.4948		mg/L		99	80 - 120

Lab Sample ID: 180-149333-E-5-C MS
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	<0.000282		1.00	0.8839		mg/L		88	75 - 125
Barium	<0.00314		1.00	0.9120		mg/L		91	75 - 125
Beryllium	<0.000274		0.500	0.5094		mg/L		102	75 - 125
Cadmium	<0.000217		0.500	0.5041		mg/L		101	75 - 125
Calcium	<0.127		25.0	26.66		mg/L		107	75 - 125
Chromium	<0.00153		0.500	0.5090		mg/L		102	75 - 125
Cobalt	<0.000261		0.500	0.4442		mg/L		89	75 - 125
Molybdenum	<0.000610		0.500	0.4998		mg/L		100	75 - 125
Lead	<0.000167		0.500	0.5037		mg/L		101	75 - 125
Antimony	<0.000506		0.250	0.2586		mg/L		103	75 - 125
Selenium	<0.000739		1.00	0.8822		mg/L		88	75 - 125
Thallium	<0.000472		1.00	1.016		mg/L		102	75 - 125
Lithium	<0.000831		0.500	0.4972		mg/L		99	75 - 125

Lab Sample ID: 180-149333-E-5-C MS
Matrix: Water
Analysis Batch: 421879

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.0928		1.25	1.106		mg/L		81	75 - 125

Lab Sample ID: 180-149333-E-5-D MSD
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	<0.000282		1.00	0.8560		mg/L		86	75 - 125	3	20
Barium	<0.00314		1.00	0.8715		mg/L		87	75 - 125	5	20
Beryllium	<0.000274		0.500	0.4919		mg/L		98	75 - 125	3	20
Cadmium	<0.000217		0.500	0.4825		mg/L		97	75 - 125	4	20
Calcium	<0.127		25.0	25.77		mg/L		103	75 - 125	3	20
Chromium	<0.00153		0.500	0.4809		mg/L		96	75 - 125	6	20
Cobalt	<0.000261		0.500	0.4301		mg/L		86	75 - 125	3	20
Molybdenum	<0.000610		0.500	0.4770		mg/L		95	75 - 125	5	20
Lead	<0.000167		0.500	0.4836		mg/L		97	75 - 125	4	20
Antimony	<0.000506		0.250	0.2584		mg/L		103	75 - 125	0	20
Selenium	<0.000739		1.00	0.8555		mg/L		86	75 - 125	3	20
Thallium	<0.000472		1.00	0.9755		mg/L		98	75 - 125	4	20

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-149333-E-5-D MSD
Matrix: Water
Analysis Batch: 421766

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lithium	<0.000831		0.500	0.4773		mg/L		95	75 - 125	4	20

Lab Sample ID: 180-149333-E-5-D MSD
Matrix: Water
Analysis Batch: 421879

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 421572

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.0928		1.25	1.139		mg/L		84	75 - 125	3	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-421231/1-A
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421231

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:25	1

Lab Sample ID: LCS 180-421231/2-A
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421231

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00250	0.002618		mg/L		105	80 - 120

Lab Sample ID: 180-149333-E-1-B MS
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 421231

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.000130		0.00100	0.0009650		mg/L		97	75 - 125

Lab Sample ID: 180-149333-E-1-C MSD
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 421231

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.000130		0.00100	0.0008930		mg/L		89	75 - 125	8	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-420950/1
Matrix: Water
Analysis Batch: 420950

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			12/15/22 18:53	1

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QC Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 180-420950/2
Matrix: Water
Analysis Batch: 420950

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	388	340.0		mg/L	-	88	85 - 115

Lab Sample ID: 180-149335-2 DU
Matrix: Water
Analysis Batch: 420950

Client Sample ID: SSP MW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	3660		3728		mg/L	-	2	10



QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

HPLC/IC

Analysis Batch: 421296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149335-1	SSP/AP MW-1	Total/NA	Water	EPA 9056A	
180-149335-1	SSP/AP MW-1	Total/NA	Water	EPA 9056A	
180-149335-2	SSP MW-4	Total/NA	Water	EPA 9056A	
180-149335-2	SSP MW-4	Total/NA	Water	EPA 9056A	
180-149335-3	SSP MW-3	Total/NA	Water	EPA 9056A	
180-149335-3	SSP MW-3	Total/NA	Water	EPA 9056A	
180-149335-4	SSP MW-2	Total/NA	Water	EPA 9056A	
180-149335-4	SSP MW-2	Total/NA	Water	EPA 9056A	
180-149335-5	FB-2	Total/NA	Water	EPA 9056A	
MB 180-421296/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-421296/7	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-149334-D-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-149334-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Analysis Batch: 421438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149335-5	FB-2	Total/NA	Water	EPA 9056A	
MB 180-421438/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-421438/7	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-149494-C-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-149494-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 421231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149335-1	SSP/AP MW-1	Total/NA	Water	7470A	
180-149335-2	SSP MW-4	Total/NA	Water	7470A	
180-149335-3	SSP MW-3	Total/NA	Water	7470A	
180-149335-4	SSP MW-2	Total/NA	Water	7470A	
180-149335-5	FB-2	Total/NA	Water	7470A	
MB 180-421231/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-421231/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-149333-E-1-B MS	Matrix Spike	Total/NA	Water	7470A	
180-149333-E-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Prep Batch: 421572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149335-1	SSP/AP MW-1	Total Recoverable	Water	3005A	
180-149335-2	SSP MW-4	Total Recoverable	Water	3005A	
180-149335-3	SSP MW-3	Total Recoverable	Water	3005A	
180-149335-4	SSP MW-2	Total Recoverable	Water	3005A	
180-149335-5	FB-2	Total Recoverable	Water	3005A	
MB 180-421572/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-421572/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-149333-E-5-C MS	Matrix Spike	Total Recoverable	Water	3005A	
180-149333-E-5-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Analysis Batch: 421610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149335-1	SSP/AP MW-1	Total/NA	Water	EPA 7470A	421231

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QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149335-2

Metals (Continued)

Analysis Batch: 421610 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149335-2	SSP MW-4	Total/NA	Water	EPA 7470A	421231
180-149335-3	SSP MW-3	Total/NA	Water	EPA 7470A	421231
180-149335-4	SSP MW-2	Total/NA	Water	EPA 7470A	421231
180-149335-5	FB-2	Total/NA	Water	EPA 7470A	421231
MB 180-421231/1-A	Method Blank	Total/NA	Water	EPA 7470A	421231
LCS 180-421231/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	421231
180-149333-E-1-B MS	Matrix Spike	Total/NA	Water	EPA 7470A	421231
180-149333-E-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	421231

Analysis Batch: 421766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149335-1	SSP/AP MW-1	Total Recoverable	Water	EPA 6020B	421572
180-149335-2	SSP MW-4	Total Recoverable	Water	EPA 6020B	421572
180-149335-3	SSP MW-3	Total Recoverable	Water	EPA 6020B	421572
180-149335-4	SSP MW-2	Total Recoverable	Water	EPA 6020B	421572
180-149335-5	FB-2	Total Recoverable	Water	EPA 6020B	421572
MB 180-421572/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	421572
LCS 180-421572/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	421572
180-149333-E-5-C MS	Matrix Spike	Total Recoverable	Water	EPA 6020B	421572
180-149333-E-5-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	EPA 6020B	421572

Analysis Batch: 421879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149335-1	SSP/AP MW-1	Total Recoverable	Water	EPA 6020B	421572
180-149335-2	SSP MW-4	Total Recoverable	Water	EPA 6020B	421572
180-149335-3	SSP MW-3	Total Recoverable	Water	EPA 6020B	421572
180-149335-4	SSP MW-2	Total Recoverable	Water	EPA 6020B	421572
180-149335-5	FB-2	Total Recoverable	Water	EPA 6020B	421572
180-149333-E-5-C MS	Matrix Spike	Total Recoverable	Water	EPA 6020B	421572
180-149333-E-5-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	EPA 6020B	421572

General Chemistry

Analysis Batch: 420950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149335-1	SSP/AP MW-1	Total/NA	Water	SM 2540C	
180-149335-2	SSP MW-4	Total/NA	Water	SM 2540C	
180-149335-3	SSP MW-3	Total/NA	Water	SM 2540C	
180-149335-4	SSP MW-2	Total/NA	Water	SM 2540C	
180-149335-5	FB-2	Total/NA	Water	SM 2540C	
MB 180-420950/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-420950/2	Lab Control Sample	Total/NA	Water	SM 2540C	
180-149335-2 DU	SSP MW-4	Total/NA	Water	SM 2540C	

Eurofins TestAmerica, Pittsburgh

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Chain of Custody Record

Environment Testing
America

Client Information Client Contact: David Vogt (Will Nicholson) Company: HDR Inc Address: 17111 Preston Road Suite 200 City: Dallas State, Zip: TX, 75248-1232 Phone: 972-960-4461 (Tel) Email: david.vogt@hdrinc.com (william.nicholson@hdrinc.com) Project Name: Gibbons Creek Steam Electric Station Site:		Lab PIV: Hayes, Ken E-Mail: Ken.Hayes@Eurofins.com PWSID:		Sampler: Will Nicholson Phone: 706-752-1418 PWSID:		Carrier Tracking No(s): 180-67956-13428.2 State of Origin:		COC No: 180-67956-13428.2 Page of Job #:			
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: WO #: Project #: SOW #:		Analysis Requested Perform MS/MSD (Yes or No) Field Filtered Sample (Yes or No) 903.0 - Standard Target List 904.0 - Standard Target List 9066A_ORGFM_28D - (MOD) Local Method 6020B_7470A 2540C_Calcd - Local Method		Preservation Codes: A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDA Z - other (specify)		Total Number of Containers Special Instructions/Note:		Sample Disposal (A fee may be assessed) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months 180-149335 Chain of Custody	
Sample Identification SSA/AP MW-1 SSR MW-4 SSR MW-3 SSR MW-2 FB-2		Sample Date 12/13/22 12/13/22 12/13/22 12/13/22 12/13/22		Sample Time 0750 0835 0915 1015 0930		Sample Type (C=Comp, G=grab) G G G G G		Preservation Code: Water Water Water Water Water Water Water Water Water Water		Matrix (Water, Solid, Organic/Li, B, Tissue, A=U) Water Water Water Water Water Water Water Water Water	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological											
Deliverable Requested: I, II, III, IV, Other (specify)											
Empty Kit Relinquished by:											
Relinquished by: [Signature]		Date: 12/13/22		Quantity: 1500		Company: HDR		Method of Shipment:			
Relinquished by: [Signature]		Date/Time: 12/13/22 9:35		Company: eone		Received by:		Date/Time:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		Ver: 01/16/2019					



Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-149335-2

Login Number: 149335

List Source: Eurofins Pittsburgh

List Number: 1

Creator: Abernathy, Eric L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: David Vogt
HDR Inc
17111 Preston Road
Suite 200
Dallas, Texas 75248-1232

Generated 1/18/2023 10:02:10 AM

JOB DESCRIPTION

Gibbons Creek Steam Electric Station

JOB NUMBER

180-149455-2

Eurofins Pittsburgh

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing Northeast, LLC Pittsburgh and its client. All questions regarding this report should be directed to the Eurofins Environment Testing Northeast, LLC Pittsburgh Project Manager or designee who has signed this report.

PA Lab ID: 02-00416

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Pittsburgh Project Manager.

Authorization



Generated
1/18/2023 10:02:10 AM

Authorized for release by
Ken Hayes, Project Manager II
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Case Narrative

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Job ID: 180-149455-2

Laboratory: Eurofins Pittsburgh

Narrative

Job Narrative 180-149455-2

Comments

No additional comments.

Receipt

The samples were received on 12/15/2022 9:25 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.1° C.

GC Semi VOA

Method 9056A: The following samples were diluted due to the nature of the sample matrix: MNW-18 (180-149455-1), SFL MW-6 (180-149455-2), SFL MW-2 (180-149455-3), SFL MW-5 (180-149455-4), DUP-1 (180-149455-5), (180-149455-D-1 MS) and (180-149455-D-1 MSD). Elevated reporting limits (RLs) are provided.

Method 9056A: The continuing calibration blank (CCB) for analytical batch 180-421296 contained Chloride above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

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

Metals

Method 6020B: The following samples were diluted to bring the concentration of target analytes within the calibration range: SFL MW-6 (180-149455-2), SFL MW-2 (180-149455-3), SFL MW-5 (180-149455-4) and DUP-1 (180-149455-5). Elevated reporting limits (RLs) are provided.

Method 6020B: The following sample was diluted to bring the concentration of target analytes within the calibration range: SFL MW-6 (180-149455-2). Elevated reporting limits (RLs) are provided.

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

General Chemistry

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



Definitions/Glossary

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
^2	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Laboratory: Eurofins Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704528	03-31-23

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

Analysis Method	Prep Method	Matrix	Analyte
SM 2540C		Water	Total Dissolved Solids

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Sample Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-149455-1	MNW-18	Water	12/12/22 11:55	12/15/22 09:25
180-149455-2	SFL MW-6	Water	12/12/22 12:50	12/15/22 09:25
180-149455-3	SFL MW-2	Water	12/12/22 13:40	12/15/22 09:25
180-149455-4	SFL MW-5	Water	12/12/22 14:15	12/15/22 09:25
180-149455-5	DUP-1	Water	12/12/22 17:30	12/15/22 09:25

1

2

3

4

5

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12

13

Method Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	EET PIT
EPA 6020B	Metals (ICP/MS)	SW846	EET PIT
EPA 7470A	Mercury (CVAA)	SW846	EET PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET PIT
7470A	Preparation, Mercury	SW846	EET PIT

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Client Sample ID: MNW-18
Date Collected: 12/12/22 11:55
Date Received: 12/15/22 09:25

Lab Sample ID: 180-149455-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		2.5			421296	12/20/22 20:58	SNL	EET PIT
Instrument ID: CHIC2100A										
Total Recoverable	Prep	3005A			25 mL	25 mL	422023	12/30/22 12:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			422553	01/06/23 13:10	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	422023	12/30/22 12:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			422435	01/05/23 14:41	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:47	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	421245	12/19/22 18:35	LWM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-6
Date Collected: 12/12/22 12:50
Date Received: 12/15/22 09:25

Lab Sample ID: 180-149455-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		2.5			421296	12/20/22 22:12	SNL	EET PIT
Instrument ID: CHIC2100A										
Total/NA	Analysis	EPA 9056A		25			421296	12/20/22 22:27	SNL	EET PIT
Instrument ID: CHIC2100A										
Total Recoverable	Prep	3005A			25 mL	25 mL	422023	12/30/22 12:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		2			422553	01/06/23 13:14	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	422023	12/30/22 12:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			422435	01/05/23 14:44	RSK	EET PIT
Instrument ID: DORY										
Total Recoverable	Prep	3005A			25 mL	25 mL	422023	12/30/22 12:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		10			423295	01/14/23 15:34	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:50	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	8 mL	100 mL	421237	12/19/22 16:46	LWM	EET PIT
Instrument ID: NOEQUIP										

Client Sample ID: SFL MW-2
Date Collected: 12/12/22 13:40
Date Received: 12/15/22 09:25

Lab Sample ID: 180-149455-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421296	12/20/22 22:41	SNL	EET PIT
Instrument ID: CHIC2100A										

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Client Sample ID: SFL MW-2

Lab Sample ID: 180-149455-3

Date Collected: 12/12/22 13:40

Matrix: Water

Date Received: 12/15/22 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		10			421296	12/20/22 22:56	SNL	EET PIT
Total Recoverable	Prep	3005A			25 mL	25 mL	422023	12/30/22 12:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		2			422553	01/06/23 13:17	RSK	EET PIT
		Instrument ID: A								
Total Recoverable	Prep	3005A			25 mL	25 mL	422023	12/30/22 12:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			422435	01/05/23 14:48	RSK	EET PIT
		Instrument ID: DORY								
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:51	RJR	EET PIT
		Instrument ID: HGY								
Total/NA	Analysis	SM 2540C		1	20 mL	100 mL	421245	12/19/22 18:35	LWM	EET PIT
		Instrument ID: NOEQUIP								

Client Sample ID: SFL MW-5

Lab Sample ID: 180-149455-4

Date Collected: 12/12/22 14:15

Matrix: Water

Date Received: 12/15/22 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421296	12/20/22 23:11	SNL	EET PIT
		Instrument ID: CHIC2100A								
Total/NA	Analysis	EPA 9056A		10			421296	12/20/22 23:26	SNL	EET PIT
		Instrument ID: CHIC2100A								
Total Recoverable	Prep	3005A			25 mL	25 mL	422023	12/30/22 12:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		2			422553	01/06/23 13:20	RSK	EET PIT
		Instrument ID: A								
Total Recoverable	Prep	3005A			25 mL	25 mL	422023	12/30/22 12:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			422435	01/05/23 14:51	RSK	EET PIT
		Instrument ID: DORY								
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:52	RJR	EET PIT
		Instrument ID: HGY								
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	421237	12/19/22 16:46	LWM	EET PIT
		Instrument ID: NOEQUIP								

Client Sample ID: DUP-1

Lab Sample ID: 180-149455-5

Date Collected: 12/12/22 17:30

Matrix: Water

Date Received: 12/15/22 09:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			421296	12/20/22 23:41	SNL	EET PIT
		Instrument ID: CHIC2100A								
Total/NA	Analysis	EPA 9056A		10			421296	12/20/22 23:55	SNL	EET PIT
		Instrument ID: CHIC2100A								

Eurofins Pittsburgh

Lab Chronicle

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Client Sample ID: DUP-1
Date Collected: 12/12/22 17:30
Date Received: 12/15/22 09:25

Lab Sample ID: 180-149455-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			25 mL	25 mL	422023	12/30/22 12:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		2			422553	01/06/23 13:24	RSK	EET PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			25 mL	25 mL	422023	12/30/22 12:30	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020B		1			422435	01/05/23 14:55	RSK	EET PIT
Instrument ID: DORY										
Total/NA	Prep	7470A			25 mL	25 mL	421231	12/19/22 14:03	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			421610	12/22/22 13:53	RJR	EET PIT
Instrument ID: HGY										
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	421237	12/19/22 16:46	LWM	EET PIT
Instrument ID: NOEQUIP										

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: EET PIT

Batch Type: Prep

HCY = Harrison Yaeger

RJR = Ron Rosenbaum

Batch Type: Analysis

LWM = Leslie McIntire

RJR = Ron Rosenbaum

RSK = Robert Kurtz

SNL = Sean Lordo



Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Client Sample ID: MNW-18

Lab Sample ID: 180-149455-1

Date Collected: 12/12/22 11:55

Matrix: Water

Date Received: 12/15/22 09:25

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	188		2.50	1.78	mg/L			12/20/22 20:58	2.5
Fluoride	0.105	J	0.250	0.0650	mg/L			12/20/22 20:58	2.5
Sulfate	648		2.50	1.89	mg/L			12/20/22 20:58	2.5

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00129		0.00100	0.000282	mg/L		12/30/22 12:30	01/05/23 14:41	1
Barium	0.00404	J	0.0100	0.00314	mg/L		12/30/22 12:30	01/05/23 14:41	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/30/22 12:30	01/05/23 14:41	1
Boron	0.331		0.0800	0.0601	mg/L		12/30/22 12:30	01/06/23 13:10	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/30/22 12:30	01/05/23 14:41	1
Calcium	139		0.500	0.127	mg/L		12/30/22 12:30	01/05/23 14:41	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/30/22 12:30	01/05/23 14:41	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		12/30/22 12:30	01/05/23 14:41	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/30/22 12:30	01/05/23 14:41	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/30/22 12:30	01/05/23 14:41	1
Antimony	0.00184	J B	0.00200	0.000506	mg/L		12/30/22 12:30	01/05/23 14:41	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/30/22 12:30	01/05/23 14:41	1
Thallium	<0.000472		0.00100	0.000472	mg/L		12/30/22 12:30	01/05/23 14:41	1
Lithium	0.213		0.00500	0.000831	mg/L		12/30/22 12:30	01/05/23 14:41	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1560		20.0	20.0	mg/L			12/19/22 18:35	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Client Sample ID: SFL MW-6

Lab Sample ID: 180-149455-2

Date Collected: 12/12/22 12:50

Matrix: Water

Date Received: 12/15/22 09:25

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6800	^2	25.0	17.8	mg/L			12/20/22 22:27	25
Fluoride	1.04		0.250	0.0650	mg/L			12/20/22 22:12	2.5
Sulfate	2200		2.50	1.89	mg/L			12/20/22 22:12	2.5

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0351		0.00100	0.000282	mg/L		12/30/22 12:30	01/05/23 14:44	1
Barium	0.0487		0.0100	0.00314	mg/L		12/30/22 12:30	01/05/23 14:44	1
Beryllium	0.0933		0.00100	0.000274	mg/L		12/30/22 12:30	01/05/23 14:44	1
Boron	0.554		0.160	0.120	mg/L		12/30/22 12:30	01/06/23 13:14	2
Cadmium	0.00497		0.00100	0.000217	mg/L		12/30/22 12:30	01/05/23 14:44	1
Calcium	1510		5.00	1.27	mg/L		12/30/22 12:30	01/14/23 15:34	10
Chromium	0.00593		0.00200	0.00153	mg/L		12/30/22 12:30	01/05/23 14:44	1
Cobalt	0.242		0.000500	0.000261	mg/L		12/30/22 12:30	01/05/23 14:44	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/30/22 12:30	01/05/23 14:44	1
Lead	0.0109		0.00100	0.000167	mg/L		12/30/22 12:30	01/05/23 14:44	1
Antimony	0.00108	J B	0.00200	0.000506	mg/L		12/30/22 12:30	01/05/23 14:44	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/30/22 12:30	01/05/23 14:44	1
Thallium	0.00489		0.00100	0.000472	mg/L		12/30/22 12:30	01/05/23 14:44	1
Lithium	1.34		0.0100	0.00166	mg/L		12/30/22 12:30	01/06/23 13:14	2

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	14300		125	125	mg/L			12/19/22 16:46	1

Client Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Client Sample ID: SFL MW-2

Lab Sample ID: 180-149455-3

Date Collected: 12/12/22 13:40

Matrix: Water

Date Received: 12/15/22 09:25

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2330	^2	10.0	7.13	mg/L			12/20/22 22:56	10
Fluoride	0.207		0.100	0.0260	mg/L			12/20/22 22:41	1
Sulfate	1400		10.0	7.56	mg/L			12/20/22 22:56	10

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00170		0.00100	0.000282	mg/L		12/30/22 12:30	01/05/23 14:48	1
Barium	0.0208		0.0100	0.00314	mg/L		12/30/22 12:30	01/05/23 14:48	1
Beryllium	0.00105		0.00100	0.000274	mg/L		12/30/22 12:30	01/05/23 14:48	1
Boron	0.677		0.160	0.120	mg/L		12/30/22 12:30	01/06/23 13:17	2
Cadmium	0.000649	J	0.00100	0.000217	mg/L		12/30/22 12:30	01/05/23 14:48	1
Calcium	711		1.00	0.254	mg/L		12/30/22 12:30	01/06/23 13:17	2
Chromium	<0.00153		0.00200	0.00153	mg/L		12/30/22 12:30	01/05/23 14:48	1
Cobalt	0.0104		0.000500	0.000261	mg/L		12/30/22 12:30	01/05/23 14:48	1
Molybdenum	0.00155	J	0.00500	0.000610	mg/L		12/30/22 12:30	01/05/23 14:48	1
Lead	0.000199	J	0.00100	0.000167	mg/L		12/30/22 12:30	01/05/23 14:48	1
Antimony	0.000968	J B	0.00200	0.000506	mg/L		12/30/22 12:30	01/05/23 14:48	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/30/22 12:30	01/05/23 14:48	1
Thallium	0.000634	J	0.00100	0.000472	mg/L		12/30/22 12:30	01/05/23 14:48	1
Lithium	0.487		0.00500	0.000831	mg/L		12/30/22 12:30	01/05/23 14:48	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	5820		50.0	50.0	mg/L			12/19/22 18:35	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Client Sample ID: SFL MW-5

Lab Sample ID: 180-149455-4

Date Collected: 12/12/22 14:15

Matrix: Water

Date Received: 12/15/22 09:25

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2680	^2	10.0	7.13	mg/L			12/20/22 23:26	10
Fluoride	0.126		0.100	0.0260	mg/L			12/20/22 23:11	1
Sulfate	2010		10.0	7.56	mg/L			12/20/22 23:26	10

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00210		0.00100	0.000282	mg/L		12/30/22 12:30	01/05/23 14:51	1
Barium	0.0199		0.0100	0.00314	mg/L		12/30/22 12:30	01/05/23 14:51	1
Beryllium	0.00942		0.00100	0.000274	mg/L		12/30/22 12:30	01/05/23 14:51	1
Boron	4.42		0.160	0.120	mg/L		12/30/22 12:30	01/06/23 13:20	2
Cadmium	0.00388		0.00100	0.000217	mg/L		12/30/22 12:30	01/05/23 14:51	1
Calcium	812		1.00	0.254	mg/L		12/30/22 12:30	01/06/23 13:20	2
Chromium	0.00181	J	0.00200	0.00153	mg/L		12/30/22 12:30	01/05/23 14:51	1
Cobalt	0.0458		0.000500	0.000261	mg/L		12/30/22 12:30	01/05/23 14:51	1
Molybdenum	0.00103	J	0.00500	0.000610	mg/L		12/30/22 12:30	01/05/23 14:51	1
Lead	0.000606	J	0.00100	0.000167	mg/L		12/30/22 12:30	01/05/23 14:51	1
Antimony	0.00118	J B	0.00200	0.000506	mg/L		12/30/22 12:30	01/05/23 14:51	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/30/22 12:30	01/05/23 14:51	1
Thallium	0.00125		0.00100	0.000472	mg/L		12/30/22 12:30	01/05/23 14:51	1
Lithium	0.696		0.00500	0.000831	mg/L		12/30/22 12:30	01/05/23 14:51	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	7540		100	100	mg/L			12/19/22 16:46	1

Client Sample Results

Client: HDR Inc
 Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Client Sample ID: DUP-1
 Date Collected: 12/12/22 17:30
 Date Received: 12/15/22 09:25

Lab Sample ID: 180-149455-5
 Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2700	^2	10.0	7.13	mg/L			12/20/22 23:55	10
Fluoride	0.137		0.100	0.0260	mg/L			12/20/22 23:41	1
Sulfate	2070		10.0	7.56	mg/L			12/20/22 23:55	10

Method: SW846 EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00190		0.00100	0.000282	mg/L		12/30/22 12:30	01/05/23 14:55	1
Barium	0.0193		0.0100	0.00314	mg/L		12/30/22 12:30	01/05/23 14:55	1
Beryllium	0.00665		0.00100	0.000274	mg/L		12/30/22 12:30	01/05/23 14:55	1
Boron	4.49		0.160	0.120	mg/L		12/30/22 12:30	01/06/23 13:24	2
Cadmium	0.00385		0.00100	0.000217	mg/L		12/30/22 12:30	01/05/23 14:55	1
Calcium	841		1.00	0.254	mg/L		12/30/22 12:30	01/06/23 13:24	2
Chromium	0.00197	J	0.00200	0.00153	mg/L		12/30/22 12:30	01/05/23 14:55	1
Cobalt	0.0454		0.000500	0.000261	mg/L		12/30/22 12:30	01/05/23 14:55	1
Molybdenum	0.00103	J	0.00500	0.000610	mg/L		12/30/22 12:30	01/05/23 14:55	1
Lead	0.000586	J	0.00100	0.000167	mg/L		12/30/22 12:30	01/05/23 14:55	1
Antimony	0.00100	J B	0.00200	0.000506	mg/L		12/30/22 12:30	01/05/23 14:55	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/30/22 12:30	01/05/23 14:55	1
Thallium	0.00125		0.00100	0.000472	mg/L		12/30/22 12:30	01/05/23 14:55	1
Lithium	0.486		0.00500	0.000831	mg/L		12/30/22 12:30	01/05/23 14:55	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	7360		100	100	mg/L			12/19/22 16:46	1

QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-421296/6
Matrix: Water
Analysis Batch: 421296

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.713		1.00	0.713	mg/L			12/20/22 15:05	1
Fluoride	<0.0260		0.100	0.0260	mg/L			12/20/22 15:05	1
Sulfate	<0.756		1.00	0.756	mg/L			12/20/22 15:05	1

Lab Sample ID: LCS 180-421296/7
Matrix: Water
Analysis Batch: 421296

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	52.18		mg/L		104	80 - 120
Fluoride	2.50	2.722		mg/L		109	80 - 120
Sulfate	50.0	52.59		mg/L		105	80 - 120

Lab Sample ID: 180-149455-1 MS
Matrix: Water
Analysis Batch: 421296

Client Sample ID: MNW-18
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	188		125	313.4		mg/L		101	80 - 120
Fluoride	0.105	J	6.25	6.344		mg/L		100	80 - 120
Sulfate	648		125	782.1	4	mg/L		107	80 - 120

Lab Sample ID: 180-149455-1 MSD
Matrix: Water
Analysis Batch: 421296

Client Sample ID: MNW-18
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	188		125	314.8		mg/L		102	80 - 120	0	15
Fluoride	0.105	J	6.25	6.398		mg/L		101	80 - 120	1	15
Sulfate	648		125	785.5	4	mg/L		110	80 - 120	0	15

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-422023/1-A
Matrix: Water
Analysis Batch: 422435

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 422023

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.000282		0.00100	0.000282	mg/L		12/30/22 12:30	01/05/23 13:37	1
Barium	<0.00314		0.0100	0.00314	mg/L		12/30/22 12:30	01/05/23 13:37	1
Beryllium	<0.000274		0.00100	0.000274	mg/L		12/30/22 12:30	01/05/23 13:37	1
Boron	<0.0601		0.0800	0.0601	mg/L		12/30/22 12:30	01/05/23 13:37	1
Cadmium	<0.000217		0.00100	0.000217	mg/L		12/30/22 12:30	01/05/23 13:37	1
Calcium	<0.127		0.500	0.127	mg/L		12/30/22 12:30	01/05/23 13:37	1
Chromium	<0.00153		0.00200	0.00153	mg/L		12/30/22 12:30	01/05/23 13:37	1
Cobalt	<0.000261		0.000500	0.000261	mg/L		12/30/22 12:30	01/05/23 13:37	1
Molybdenum	<0.000610		0.00500	0.000610	mg/L		12/30/22 12:30	01/05/23 13:37	1
Lead	<0.000167		0.00100	0.000167	mg/L		12/30/22 12:30	01/05/23 13:37	1
Antimony	0.001080	J	0.00200	0.000506	mg/L		12/30/22 12:30	01/05/23 13:37	1
Selenium	<0.000739		0.00500	0.000739	mg/L		12/30/22 12:30	01/05/23 13:37	1

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-422023/1-A
Matrix: Water
Analysis Batch: 422435

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 422023

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.000472		0.00100	0.000472	mg/L		12/30/22 12:30	01/05/23 13:37	1
Lithium	<0.000831		0.00500	0.000831	mg/L		12/30/22 12:30	01/05/23 13:37	1

Lab Sample ID: LCS 180-422023/2-A
Matrix: Water
Analysis Batch: 422435

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 422023

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.9260		mg/L		93	80 - 120
Barium	1.00	0.8318		mg/L		83	80 - 120
Beryllium	0.500	0.4828		mg/L		97	80 - 120
Boron	1.25	1.079		mg/L		86	80 - 120
Cadmium	0.500	0.4670		mg/L		93	80 - 120
Calcium	25.0	25.76		mg/L		103	80 - 120
Chromium	0.500	0.4727		mg/L		95	80 - 120
Cobalt	0.500	0.4741		mg/L		95	80 - 120
Molybdenum	0.500	0.4751		mg/L		95	80 - 120
Lead	0.500	0.4702		mg/L		94	80 - 120
Antimony	0.250	0.2587		mg/L		103	80 - 120
Selenium	1.00	0.9152		mg/L		92	80 - 120
Thallium	1.00	0.9460		mg/L		95	80 - 120
Lithium	0.500	0.4551		mg/L		91	80 - 120

Lab Sample ID: 180-149414-H-1-B MS
Matrix: Water
Analysis Batch: 422435

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 422023

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	<0.000282		1.00	0.9812		mg/L		98	75 - 125
Barium	0.0184		1.00	0.8875		mg/L		87	75 - 125
Beryllium	<0.000274		0.500	0.5164		mg/L		103	75 - 125
Cadmium	<0.000217		0.500	0.4854		mg/L		97	75 - 125
Calcium	183		25.0	207.2	4	mg/L		98	75 - 125
Chromium	<0.00153		0.500	0.4970		mg/L		99	75 - 125
Cobalt	<0.000261		0.500	0.4950		mg/L		99	75 - 125
Molybdenum	<0.000610		0.500	0.5019		mg/L		100	75 - 125
Lead	0.000440	J	0.500	0.5001		mg/L		100	75 - 125
Antimony	0.000932	J B	0.250	0.2698		mg/L		108	75 - 125
Selenium	<0.000739		1.00	0.9496		mg/L		95	75 - 125
Thallium	<0.000472		1.00	1.015		mg/L		102	75 - 125
Lithium	0.0223		0.500	0.4947		mg/L		94	75 - 125

Lab Sample ID: 180-149414-H-1-C MSD
Matrix: Water
Analysis Batch: 422435

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 422023

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	<0.000282		1.00	0.9804		mg/L		98	75 - 125	0	20
Barium	0.0184		1.00	0.9032		mg/L		88	75 - 125	2	20

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-149414-H-1-C MSD
Matrix: Water
Analysis Batch: 422435

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 422023

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Beryllium	<0.000274		0.500	0.5188		mg/L		104	75 - 125	0	20
Cadmium	<0.000217		0.500	0.4932		mg/L		99	75 - 125	2	20
Calcium	183		25.0	204.0	4	mg/L		85	75 - 125	2	20
Chromium	<0.00153		0.500	0.5053		mg/L		101	75 - 125	2	20
Cobalt	<0.000261		0.500	0.4994		mg/L		100	75 - 125	1	20
Molybdenum	<0.000610		0.500	0.5066		mg/L		101	75 - 125	1	20
Lead	0.000440	J	0.500	0.5063		mg/L		101	75 - 125	1	20
Antimony	0.000932	J B	0.250	0.2746		mg/L		109	75 - 125	2	20
Selenium	<0.000739		1.00	0.9648		mg/L		96	75 - 125	2	20
Thallium	<0.000472		1.00	1.024		mg/L		102	75 - 125	1	20
Lithium	0.0223		0.500	0.4997		mg/L		95	75 - 125	1	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-421231/1-A
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421231

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000130		0.000200	0.000130	mg/L		12/19/22 14:03	12/22/22 13:25	1

Lab Sample ID: LCS 180-421231/2-A
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421231

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00250	0.002618		mg/L		105	80 - 120

Lab Sample ID: 180-149333-E-1-B MS
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 421231

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.000130		0.00100	0.0009650		mg/L		97	75 - 125

Lab Sample ID: 180-149333-E-1-C MSD
Matrix: Water
Analysis Batch: 421610

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 421231

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.000130		0.00100	0.0008930		mg/L		89	75 - 125	8	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-421237/1
Matrix: Water
Analysis Batch: 421237

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			12/19/22 16:46	1

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QC Sample Results

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 180-421237/2
Matrix: Water
Analysis Batch: 421237

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	388	386.0		mg/L		99	85 - 115

Lab Sample ID: 180-149317-C-1 DU
Matrix: Water
Analysis Batch: 421237

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	212		216.0		mg/L		2	10

Lab Sample ID: MB 180-421245/1
Matrix: Water
Analysis Batch: 421245

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10.0		10.0	10.0	mg/L			12/19/22 18:35	1

Lab Sample ID: LCS 180-421245/2
Matrix: Water
Analysis Batch: 421245

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	388	380.0		mg/L		98	85 - 115

Lab Sample ID: 180-149411-B-1 DU
Matrix: Water
Analysis Batch: 421245

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	163		167.0		mg/L		2	10

QC Association Summary

Client: HDR Inc
Project/Site: Gibbons Creek Steam Electric Station

Job ID: 180-149455-2

HPLC/IC

Analysis Batch: 421296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149455-1	MNW-18	Total/NA	Water	EPA 9056A	
180-149455-2	SFL MW-6	Total/NA	Water	EPA 9056A	
180-149455-2	SFL MW-6	Total/NA	Water	EPA 9056A	
180-149455-3	SFL MW-2	Total/NA	Water	EPA 9056A	
180-149455-3	SFL MW-2	Total/NA	Water	EPA 9056A	
180-149455-4	SFL MW-5	Total/NA	Water	EPA 9056A	
180-149455-4	SFL MW-5	Total/NA	Water	EPA 9056A	
180-149455-5	DUP-1	Total/NA	Water	EPA 9056A	
180-149455-5	DUP-1	Total/NA	Water	EPA 9056A	
MB 180-421296/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-421296/7	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-149455-1 MS	MNW-18	Total/NA	Water	EPA 9056A	
180-149455-1 MSD	MNW-18	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 421231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149455-1	MNW-18	Total/NA	Water	7470A	
180-149455-2	SFL MW-6	Total/NA	Water	7470A	
180-149455-3	SFL MW-2	Total/NA	Water	7470A	
180-149455-4	SFL MW-5	Total/NA	Water	7470A	
180-149455-5	DUP-1	Total/NA	Water	7470A	
MB 180-421231/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-421231/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-149333-E-1-B MS	Matrix Spike	Total/NA	Water	7470A	
180-149333-E-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Analysis Batch: 421610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149455-1	MNW-18	Total/NA	Water	EPA 7470A	421231
180-149455-2	SFL MW-6	Total/NA	Water	EPA 7470A	421231
180-149455-3	SFL MW-2	Total/NA	Water	EPA 7470A	421231
180-149455-4	SFL MW-5	Total/NA	Water	EPA 7470A	421231
180-149455-5	DUP-1	Total/NA	Water	EPA 7470A	421231
MB 180-421231/1-A	Method Blank	Total/NA	Water	EPA 7470A	421231
LCS 180-421231/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	421231
180-149333-E-1-B MS	Matrix Spike	Total/NA	Water	EPA 7470A	421231
180-149333-E-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	421231

Prep Batch: 422023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149455-1	MNW-18	Total Recoverable	Water	3005A	
180-149455-2	SFL MW-6	Total Recoverable	Water	3005A	
180-149455-3	SFL MW-2	Total Recoverable	Water	3005A	
180-149455-4	SFL MW-5	Total Recoverable	Water	3005A	
180-149455-5	DUP-1	Total Recoverable	Water	3005A	
MB 180-422023/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-422023/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-149414-H-1-B MS	Matrix Spike	Total Recoverable	Water	3005A	
180-149414-H-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

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QC Association Summary

Client: HDR Inc
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Job ID: 180-149455-2

Metals

Analysis Batch: 422435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149455-1	MNW-18	Total Recoverable	Water	EPA 6020B	422023
180-149455-2	SFL MW-6	Total Recoverable	Water	EPA 6020B	422023
180-149455-3	SFL MW-2	Total Recoverable	Water	EPA 6020B	422023
180-149455-4	SFL MW-5	Total Recoverable	Water	EPA 6020B	422023
180-149455-5	DUP-1	Total Recoverable	Water	EPA 6020B	422023
MB 180-422023/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	422023
LCS 180-422023/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	422023
180-149414-H-1-B MS	Matrix Spike	Total Recoverable	Water	EPA 6020B	422023
180-149414-H-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	EPA 6020B	422023

Analysis Batch: 422553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149455-1	MNW-18	Total Recoverable	Water	EPA 6020B	422023
180-149455-2	SFL MW-6	Total Recoverable	Water	EPA 6020B	422023
180-149455-3	SFL MW-2	Total Recoverable	Water	EPA 6020B	422023
180-149455-4	SFL MW-5	Total Recoverable	Water	EPA 6020B	422023
180-149455-5	DUP-1	Total Recoverable	Water	EPA 6020B	422023

Analysis Batch: 423295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149455-2	SFL MW-6	Total Recoverable	Water	EPA 6020B	422023

General Chemistry

Analysis Batch: 421237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149455-2	SFL MW-6	Total/NA	Water	SM 2540C	
180-149455-4	SFL MW-5	Total/NA	Water	SM 2540C	
180-149455-5	DUP-1	Total/NA	Water	SM 2540C	
MB 180-421237/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-421237/2	Lab Control Sample	Total/NA	Water	SM 2540C	
180-149317-C-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 421245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-149455-1	MNW-18	Total/NA	Water	SM 2540C	
180-149455-3	SFL MW-2	Total/NA	Water	SM 2540C	
MB 180-421245/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-421245/2	Lab Control Sample	Total/NA	Water	SM 2540C	
180-149411-B-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 180-149455-2

Login Number: 149455

List Number: 1

Creator: Abernathy, Eric L

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



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