

Groundwater Monitoring & Corrective Action Report

CCR Landfill - Hunter Power Plant

Castle Dale, Utah

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ACRONYMS

AMSL	Above Mean Sea Level
bgs	Below Ground Surface
CCR	Coal Combustion Residuals
COC	Chain of Custody
CFR	U.S. Code of Federal Regulations
DO	Dissolved Oxygen
EPA	U.S. Environmental Protection Agency
FGD	Flue-Gas Desulfurization
ICP	Inductively Coupled Plasma
MCL	Maximum Concentration Limit
MDL	Method Detection Limit
MS	Mass Spectrometer
ORP	Oxidation-Reduction Potential
QA	Quality Assurance
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
SAP	Sampling and Analysis Plan
SC	Specific Conductance
SM	Standard Methods
SOP	Standard Operation Procedure
SWFPR	Site-Wide False Positive Rate
UTL	Upper Tolerance Limit

1.0 INTRODUCTION

The Hunter Power Plant is located in Emery County, approximately three miles south of Castle Dale, Utah. The Hunter Power Plant is a three-unit coal-fired electrical generation plant owned by PacifiCorp. After dewatering and treatment, Flue Gas De-sulfurization (FGD) waste, fly ash and bottom ash are disposed of in the CCR Landfill. As a result, it is considered a CCR unit.

This Groundwater Monitoring and Corrective Action Report was prepared for PacifiCorp by Water and Environmental Technologies. It was prepared to comply with the requirements detailed in *Code of Federal Regulations* § 257.90(e) (*Final Rule*). Detection monitoring was initiated in September of 2015 to ensure a minimum of eight independent measurements were acquired, prior to the October 17, 2017 requirement in the *Final Rule*. This report provides the results of detection monitoring for the CCR Landfill at the Hunter Power Plant, incorporating all sample data collected since detection monitoring was initiated. As stated in Section 7.0 of this report, the CCR Landfill will proceed to assessment monitoring.

1.1 Report Purpose and Organization

The following sections provide a status update for activities initiated or completed at the Hunter Power Plant CCR Landfill, since the enactment of the *Final Rule*. They also summarize any issues or problems encountered, and their resolutions. Each required element of the annual report is displayed below and is referenced to specific sections of the report where the required information can be found:

- Document the status of the Groundwater Monitoring and Corrective Action Program (Sections 1, 5, 6, 7 and 8);
- Summarize key actions completed (Section 1);
- Describe any problems encountered (Section 1.2);
- Discuss actions taken to resolve problems (Section 1.2); and
- Define key activities for the upcoming year (Section 8).

The Annual Groundwater Monitoring and Corrective Action Report also includes the following required elements:

- A map showing the CCR unit and all CCR Monitoring Program background (or upgradient) and downgradient monitoring wells, and their identification numbers (Figure 1).
- Identifies any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken (Section 3.1.3).
- A summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required for detection or assessment monitoring (Section 5 and Table 5).

- A narrative discussion of any transition between monitoring programs (i.e. transitioning from detection monitoring to assessment monitoring) - Section 1.0 and 7.0, in addition to identifying constituents detected at a statistically significant increase over background levels (Section 6.0).

Other information required under § 257.90 through § 257.98 of the *Final Rule* can be found in the report as follows:

- § 257.91: Installed the detection monitoring network as required (Section 3);
- § 257.92: Reserved (no requirements).
- § 257.93: Developed a site-specific sampling and analysis requirements (Section 4.0);
- § 257.94: Completed detection monitoring as required (Section 5.0)
- § 257.95: Planning for assessment monitoring is underway (Section 7.0).

1.2 Problems & Resolutions

During detection monitoring, one issue was identified that required resolution - insufficient water to support sampling. Specifically, water level measurements were obtained from monitoring wells ELF-1D and ELF-3 throughout detection monitoring. However, they did not produce sufficient water to support sampling, with the exception of the August 2, 2017 sampling event for ELF-3. As a result, only one analytical data point was included in the evaluation of groundwater quality. The groundwater elevations were used to develop groundwater potentiometric maps.

2.0 HYDROGEOLOGIC SETTING

Based on past hydrogeologic studies and updates at the Hunter Power Plant, along with specific hydrologic investigations in multiple areas across the facility, an interpretation of surface/subsurface geology is presented below. This interpretation incorporates information gathered during the installation of the detection monitoring network, as well as monitoring required by the State of Utah. The detection monitoring network consists of includes 9 monitoring wells. Additionally, geologic, groundwater and statistical information has been gathered over the course of nearly 20 years of groundwater monitoring at the Hunter Power Plant, as mandated by the State of Utah.

2.1 Stratigraphy and Lithology

The Hunter Power Plant is located in the northwestern portion of the Colorado Plateau physiographic province and within the Mancos Shale Lowlands (Stokes, 1986). The Mancos Shale Lowlands are characterized by sloping, gravel-covered pediments, rugged badlands and narrow, flat-bottomed alluvial valleys. The CCR Landfill is located on the Bluegate Member of Mancos Shale (Figure 2).

The Mancos Shale was deposited in offshore and open-marine environments of the Cretaceous Interior Seaway. It is 3450 to 4150 feet thick were exposed in the southern part of the Piceance

and Uinta Basins (Fisher and others, 1960) and geophysical logs indicate it is approximately 5400 feet thick in the central part of the Uinta Basin (Hettinger and Kirschbaum, 2002). The upper portion of the Mancos grades into and interfingers with the Mesaverde Group and the shale tongues typically have sharp basal contacts and gradational upper contacts.

Lithologic logs from monitoring onsite wells, completed in the shale (Kmbg) note a light gray to dark gray or gray-black shale in various stages of weathering from very weathered to consolidated and un-weathered or competent shale.

2.2 Groundwater

Well drilling, development, monitoring procedures and slug testing, in general, indicate higher permeability in the colluvial wells, as compared to the shale wells (ELF-8 in Table 1 as compared to the other monitoring wells in the table). While some shale wells recharge very slowly and take more than 24 hours to recover from sample purging, others completed in fractured shale recover very quickly.

Groundwater beneath the CCR Landfill is present in the competent shale. The low permeability of the Mancos Shale and the arid high desert climate result in a discontinuous aquifer with multiple perched layers that may be locally de-watered seasonally and/or by sampling activities. This is shown in several wells completed in the shale that had little water present seasonally, if at all. Further downgradient of the CCR Landfill, water is present at the colluvial/shale contact. Infiltration of precipitation in the uplands moves down through the colluvium and accumulates in a water table aquifer at the colluvium/Mancos shale contact. Groundwater flows along the contact following the topography of the shale and, in some areas, infiltrates into the fractured Mancos shale.

Because of its geochemical composition and erodibility, the Mancos Shale, a dark gray to black ridge forming marine shale deposit, provides a natural source of soluble salts. It was deposited in a transgressive/regressive coastal-marine environment and is a known source of halite (NaCl) and calcium and sodium-sulfate minerals (Waddell et al.1979). These minerals are highly soluble and dissolve readily when in contact with groundwater.

2.3 Aquifer Characteristics

The water table aquifer beneath the Hunter CCR Landfill CCR site is present in the Bluegate Member of the Mancos Shale. Because the thickness of Mancos Shale is in excess of 5,000 ft (Hale and Van De Graaff, 1964) and undergoing various stages of weathering, groundwater migrates through the more permeable zones and no discernable bottom of the water bearing zones is present. Depth to water level near the CCR Landfill at this site varies from 8 ft bgs to 84 ft bgs in wells ELF-8 and ELF-1D, respectively.

Recent slug testing indicates that the hydraulic conductivity of the upper most aquifer varies two orders of magnitude from approximately 0.1 to 76 ft/day (Table 1) with a geometric mean of 1.2

ft/day. Per Morris and Johnson, 1967 (in Kresic N. 2007), site-specific aquifer porosity and effective porosity are 35% and 12%, respectively.

Table 1. Hunter Power Plant - Detection Monitoring Network Slug Test Results

Calculated Hydraulic Conductivity	ELF-2	ELF-4	ELF-8	ELF-11
	1.77E-05	4.41E-04	2.85E-02	9.26E-05
			2.32E-02	1.72E-04
			2.86E-02	1.72E-04
# of Measurements:	1	1	3	3
Mean Conductivity (cm/sec):	1.77E-05	4.41E-04	2.68E-02	1.45E-04
Mean Conductivity (ft/day):	0.1	1	76	0.4
Slug testing was conducted on a facility-wide subset of wells to characterize site-wide hydrogeologic characteristics. Not all of the slug test wells appear on every site-specific map.				

The groundwater flow direction beneath the CCR Landfill is predominantly eastward (Figures 4-11). The hydraulic gradient in the northern portion of the site varies from 1.03×10^{-2} ft/ft to 1.13×10^{-2} ft/ft and the corresponding groundwater flow velocity ranges from 0.10 ft/day to 0.11 ft/day. Along the southern portion of the site, hydraulic gradients are only a fraction of those along the northern portion of the site with flow velocities as much as 50% lower. As shown in Figure 3, only upgradient monitoring well ELF-9 shows any appreciable seasonal fluctuation, with an annual differential of approximately four feet. The seasonal maximum is noted in the spring/summer months and minimum water level is observed in the winter.

3.0 GROUNDWATER MONITORING NETWORK

The following sections describe the monitoring network developed and implemented to support detection monitoring at the Hunter CCR Landfill. A minimum of eight independent samples were collected for each of the background and downgradient wells as required in Section 257.94(b) of the *Final Rule*. Evaluation of the adequateness of the dataset and selection of the appropriate statistical method was completed by October 17, 2017.

3.1 Detection Monitoring

The CCR Landfill is an approximately 340-acre facility with lateral dimensions of 3,200 feet along the east to west axis and 4,750 feet from north to south (Figure 1). The detection monitoring network includes 9 wells. The monitoring data collected from these wells includes groundwater elevations and water chemistry data as required in Appendix III of the CCR *Final Rule*. The network employs three background and six downgradient wells.

Water level measurements were obtained from monitoring well ELF-1D and ELF-3 throughout detection monitoring. However, they did not produce sufficient water to support sampling, with the exception of the 8/2/17 sampling event for ELF-3. As a result, only one analytical data point

was included in the evaluation of groundwater quality. The groundwater elevations were used to develop groundwater potentiometric maps.

3.1.1 Background Wells

Background monitoring wells include three locations spanning the extent of the CCR Landfill south to north and include: ELF-2, ELF-9, and ELF-11. Detection monitoring results from these locations indicate they are not being influenced by groundwater passing waste in the CCR unit, providing results representative of background concentrations for the site. Detection monitoring results are provided in Section 5.0 and Table 5.

3.1.2 Downgradient Wells

Downgradient monitoring wells for the CCR Landfill include six locations placed to capture groundwater as it passes the boundary of the CCR unit. Using historical data and knowledge of the site from ongoing state mandated groundwater monitoring, downgradient wells were placed along the groundwater flow path which generally travels from west to east as it passes across the CCR Landfill (Figures 4-11). The downgradient monitoring wells include the following: ELF-4, ELF-5, ELF-6, ELF-7, ELF-8, and ELF-10. Table 2 provides a summary of well depths and well construction details for the detection monitoring network, including the two wells with insufficient water. Well logs for each are included in the site-specific sampling and analysis plan for the CCR Landfill, which is part of the facility operating record (WET 2017).

Table 2. Detection Monitoring Well Information

Well ID	Latitude	Longitude	Top of Casing Elevation (ft. asl)	Screen Interval (ft. bgs)	Total Depth (ft.)
*ELF-1D	39.1540	-111.019	5669.55	78.3-86.3	83.6
ELF-2	39.1624	-111.014	5612.02	17.4-27.4	27.7
ELF-9	39.1516	-111.017	5661.00	30-50	50
ELF-10	39.1509	-111.009	5620.57	40-50	50
*ELF-3	39.1535	-111.006	5604.78	16.7-31.7	32
ELF-4	39.1569	-111.005	5581.50	8.5-18.5	18.8
ELF-5	39.1609	-111.004	5577.79	8.3-18.3	18.6
ELF-6	39.1639	-111.004	5579.61	8.4-18.4	18.7
ELF-7	39.1577	-111.006	5579.81	7.4-17.4	17.7
ELF-8	39.1624	-111.007	5584.50	7.4-17.4	17.7
ELF-11	39.1646	-111.008	5597.32	20-30	30

* Well has insufficient water (<8 samples). GWE data used on maps, but analytical data not incorporated in statistics.

3.1.3 Well Decommissioning / Replacement

The monitoring well network described in the preceding section represents all of the wells utilized for detection monitoring at the Hunter CCR Landfill. No wells were replaced or decommissioned at the site.

3.1.4 Detection Monitoring Network Adequacy

The minimum requirement for a groundwater monitoring network under the *Final Rule* is consistent with other elements of the Resource Conservation and Recovery Act (RCRA), which mandates a minimum of one upgradient and three downgradient monitoring wells for each CCR unit. The *Final Rule* goes further, stating that justification is required if the minimum number of wells is selected as the monitoring network.

As Section 3.1 demonstrates, the groundwater monitoring network for the CCR Landfill surpasses the minimum requirements, employing three background and six downgradient wells. Their spatial distribution spans the geographic extent of the CCR Landfill along both the upgradient and downgradient boundaries of the CCR unit. The number and distribution of the wells provides a sufficient number of wells to capture groundwater immediately after it passes the waste unit boundary in all directions along the groundwater flow path (Figures 4-11). Coupled with site-specific aquifer testing, the network also provides an adequate measure of the upper aquifer characteristics.

As Section 2.3 describes, the upper-most water bearing formation beneath the CCR Landfill is present in the Bluegate Member of the Mancos Shale. Subsurface depths to water vary from approximately 8 to 84 feet bgs.

The monitoring network wells for the CCR Landfill were installed using appropriate spacing, location and depth as defined by the Code of Federal Regulations, 40 CFR, Part 257 and 261, *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule* § 257.91 (a) (1) and § 257.91 (b) and adequately monitor groundwater both hydraulically upgradient and downgradient of the site. The network is designed to sample the quality of groundwater passing the waste boundary of the CCR unit in accordance with § 257.91 (a) (2). The network exceeds the minimum monitoring requirements of one upgradient and three downgradient wells as defined in § 257.91 (c) (1), employing three upgradient and six downgradient monitoring wells. All 9 wells are completed in the uppermost aquifer as required by § 257.91 (a) and were constructed and are maintained in compliance with § 257.91 (e).

Groundwater elevations were measured in each well immediately prior to purging each time groundwater was sampled. Groundwater elevations for the CCR Landfill were measured during a short enough period (same field visit), to avoid temporal variations in groundwater flow that could preclude accurate determination of groundwater flow rate and direction. Table 5 provides a summary of water level data acquired during detection monitoring.

4.0 SAMPLING AND ANALYSIS REQUIREMENTS

A site-specific sampling and analysis plan (SAP) was developed and implemented for the CCR Landfill to support the detection monitoring phase under the *Final Rule* (WET 2017). The SAP defines the procedures necessary to acquire data of known quality from the upper aquifer.

It includes provisions for all major elements of data collection and data evaluation, including those specified in the *Final Rule*:

- Water Levels & Well Purging
- Sample Collection & Preservation
- Sample Handling and Shipment / Delivery
- Chain of Custody
- Analytical Procedures
- Quality Assurance (QA) / Quality Control (QC)

4.1 Water Levels & Well Purging

Prior to initiating well purging activities, static water levels were acquired at each well, for each sampling event, using an electronic tape. The water levels were recorded in the field logbook at the time of collection. After returning from the field, water levels were reviewed, transferred to the data summary tables for detection monitoring, and used to support an examination of groundwater flow direction and flow rates. Water levels were acquired in accordance with Environmental Protection Agency (EPA) Standard Operating Procedure (SOP) EPA-SOP-GW-001, *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells* (EPA 2010) and are summarized in Table 5 and Figures 4-11. Total depths for each well are defined in the well logs which are included in Appendix A of the site-specific SAP and shown in Table 2.

Well purging was completed in accordance with the SAP-specified standard investigation procedures (SIPs) and EPA-SOP-GW-001. During purging, field parameters were monitored to evaluate groundwater equilibration. They were measured using a YSI Environmental 556 Multiprobe System (YSI 556 MPS) with pre-calibrated dissolved oxygen (DO), pH, specific conductance (SC), and oxidation-reduction potential (ORP) probes, and a Hach 2100Q Portable Turbidimeter and. Prior to sample collection, in-stream purge water was measured, by placing the multiprobe system into a pre-cleaned flow-through cell. The following field measurements were recorded on a groundwater sampling form. Once field parameters stabilized, groundwater samples were collected. Table 3 provides the stabilization criteria used for field parameters during well purging.

- Temperature: degrees Celsius
- SC: $\mu\text{S}/\text{cm}$
- DO: mg/L
- pH: standard units
- ORP: mV

Table 3. Field Parameter Stabilization Requirements

Parameter	Condition
Turbidity	<ol style="list-style-type: none"> 1. 10% for values greater than 5 NTU 2. If three turbidity values are less than 5 NTU, the parameter is stabilized.
Dissolved Oxygen	<ol style="list-style-type: none"> 1. 10% for values greater than 0.5 mg/L 2. If three dissolved oxygen values are less than 0.5, the parameter is stabilized.
Specific Conductance ($\mu\text{S}/\text{cm}$)	3%
Temperature (degrees Celsius)	3%
pH	± 0.1 unit
Oxidation/Reduction Potential	± 10 millivolts

4.2 Sample Collection & Preservation

Groundwater samples were collected using a dedicated pump in each well. Dedicated pumps were installed and used throughout detection monitoring, to prevent cross-contamination and to provide consistent sampling. Samples were acquired in accordance with SIP No. 5, *Groundwater Sampling* (Appendix D - SAP). The basic steps for preparing and collecting groundwater samples included the following.

- Complete sample labels on each container by entering the following information:
 - Sample number
 - Sampler initials
 - Date and time of collection
 - Mark whether filtered or un-filtered
- Don new disposable sampling gloves.
- Fill provided containers for each well by placing the tubing directly into the mouth of the container.
- Preserve the samples in accordance with specifications in Table 4.
- Seal the container.
- Place the container(s) into a cooler and maintain custody.

4.3 Sample Handling and Shipment / Delivery

Following the collection of a full sample container, samples were preserved, the container was sealed, placed in a plastic bag, and secured in a cooler packed with ice. Each cooler was secured by affixing custody seals to lid and body of the cooler at the end of each day and prior to shipment or delivery. As needed, the seals were removed at the start of each day and discarded. Field personnel retained custody of the samples from the time of collection to delivery or shipment to the analytical laboratory.

Table 4. Analytical Methods, Sample Preservation, and Holding Times

Analysis Request:	Analytical Method:	Preservation:	Holding Time:
Metals	EPA 200.7 / 200.8 EPA 245.1 (Hg)	Nitric Acid Cool 4°C	180 days
Chloride	EPA 300.0	Cool 4°C	28 days
Fluoride	SM 4500-F	Cool 4°C	28 days
pH	EPA 150.1	Cool 4°C	Immediately
Sulfate	EPA 300.0	Cool 4°C	28 days
Total Dissolved Solids	SM 2540C	Cool 4°C	7 days

At the end of each sampling event, samples were either shipped using a national shipping vendor (e.g. Federal Express), or were hand delivered to the laboratory. When samples were shipped, labels were completed with the address of the contract laboratory and hand delivered to the shipping company. The original air bill was retained as part of the field records to ensure a complete custody history for the samples. To transfer custody, the date and time were recorded on the chain of custody (COC) form by the sampler, the COC was signed, the original retained, and the remaining copies affixed to the lid of the cooler. The cooler was then sealed, custody seals affixed, and the cooler was delivered for shipment or to the laboratory.

4.4 Chain of Custody

A COC record supplied by the analytical laboratory was completed for all samples, as they were collected. The records included the following information:

- Project name and number
- Name of the analytical laboratory destination
- Sampler's signature
- Sample identification number, date and time of collection, filtered/unfiltered
- Number of containers and type of sample
- Analysis requested and number of containers provided per analysis
- Any special instructions or hazard warnings

Upon relinquishing custody of the samples, both parties (sampler and lab) signed and dated the COC, noting the time of the exchange of custody. The sampler signed first, relinquishing custody, and the laboratory personnel signed next, taking custody. Intermediate signatures may or may not be present, depending on the duration of sampling and related factors. When accepting custody of the samples, laboratory personnel performed a review, comparing information on the sample bottles with the chain-of-custody entries. If an error was noted, the sampler was notified, and the issue was resolved prior to performing analyses. Samples marked preserved were checked for proper pH adjustments to ensure enough preservative was added and cooler temperatures were checked using a temperature blank, or by checking all of the samples.

All samples were recorded in the laboratory receiving logbook and given a unique sample-tracking number prior to initiating analysis.

4.5 Analytical Procedures

Industry standard analytical methods were used to quantify the Appendix III constituents in each well during each sampling event. Sample preparation and analysis included measurement of total recoverable metals on unfiltered samples in accordance with EPA Methods 3005A and 200.7 – Inductively Coupled Plasma (ICP) and/or 200.8 ICP – mass spectrometry (MS). Other industry standard analytical methods were also employed for detection monitoring as outlined below:

- Chloride & Sulfate: EPA Method 300.0 – Ion Chromatography
- Fluoride: Standard Method 4500-F – Ion Selective Electrode
- pH: Standard Method A4500-H – Ion Selective Electrode
- Total Dissolved Solids (TDS): Standard Method 2540C – Gravimetric Method

4.6 Quality Assurance / Quality Control

The following sections define the quality control (QC) requirements specified for detection monitoring in the CCR Landfill SAP during detection monitoring.

4.6.1 Field Quality Control Requirements

Field quality control samples were required at a minimum frequency of one field blank and one field duplicate for every 20 field samples. In general, field quality control samples were collected during each sampling event, exceeding the basic requirements outlined in the SAP. They were submitted for analysis with the group of samples they were collected with and underwent analysis for all Appendix III constituents (Table 4).

Field blanks were collected and analyzed to monitor the cleanliness of sample containers, preservatives, and the sampling and analytical process. Field duplicates provided a measure of precision among a group of samples, by providing a direct measurement of the variability between samples in each group. Field blanks were prepared using de-ionized water in randomly selected sample bottles. The blank was then preserved and handled in the same manner as the natural samples it accompanied. Field duplicates were collected using the same collection procedures as the original sample, by collecting a separate sample using the low-flow sampling procedure. The sample was collected immediately following collection of the original sample, and preserved and handled in accordance with the SAP provisions. A summary of field quality control performance is provided in Section 5.1.

Note: Equipment rinsates or cross-contamination blanks were not required for this sampling effort as dedicated pumps and tubing were used throughout the groundwater monitoring process.

4.6.2 Laboratory Quality Control Requirements

Laboratory quality control for detection monitoring consisted of analytical method-specific requirements. Laboratory quality control common to all the analytical methods includes:

- Chain of Custody
- Sample Preservation
- Holding Times
- Method Calibrations
- Field & Method Blanks
- Laboratory Control Samples
- Duplicates
- Matrix Spikes

Each of these elements, as well as method-specific QC requirements and corresponding field documentation underwent a full review as part of data validation. A summary of laboratory quality control performance is provided in Section 5.1.

5.0 DETECTION MONITORING RESULTS AND DISCUSSION

A minimum of eight independent samples were collected for each of the background and downgradient wells defined in Section 3.0 and required in Section 257.94(b) of the *Final Rule*. Evaluation of the adequateness of the dataset and selection of the appropriate statistical method was completed by October 17, 2017. All of the samples underwent analysis for the Appendix III constituents for each sampling event. In addition, water level data was acquired each time the wells were sampled, in accordance with the SAP and the requirements defined in the *Final Rule*.

Table 5 provides a full accounting of the water level and analytical data collected as part of detection monitoring at the CCR Landfill. Results for all monitoring event data are included. They provide a clear demarcation of background and downgradient water quality. A full examination of water quality is provided in Section 6.0 and Appendix D.

5.1 Data Quality / Usability

All Appendix III sample results underwent data validation in accordance with the EPA *National Functional Guidelines for Inorganic Data Review* (EPA 2017). The complete results are included in Appendix C. None of the analytical data used to assess groundwater quality for the CCR Landfill were rejected due to quality control issues. Only one analyte was qualified with a J+ due to a low detection in the equipment blank. The J+ qualifier indicated the reported results as estimation. Although qualified, these results meet the usability criteria for evaluating site conditions and decision making (EPA 1989).

Table 5. Hunter Power Plant - **CCR** Landfill Detection Monitoring Results

SAMPLE ID	WELL TYPE	COLLECTION DATE	TOC AMSL (ft)	DTW (ft)	GWE AMSL (ft)	Appendix III													
						B		Ca		Cl		F		pH		SO ₄		TDS	
						mg/L	Q	mg/L	Q	mg/L	Q	mg/L	Q	s.u	Q	mg/L	Q	mg/L	Q
ELF-1D	Background	9/18/2015	5669.55	84.43	5585.12	NS - Not enough water to sample													
		12/1/2015		84.41	5585.14	NS - Not enough water to sample													
		1/12/2016		84.25	5585.30	NS - Not enough water to sample													
		2/2/2016		84.14	5585.41	NS - Not enough water to sample													
		4/6/2016		83.45	5586.10	NS - Not enough water to sample													
		5/4/2016		83.60	5585.95	NS - Not enough water to sample													
		5/9/2017		82.60	5586.95	NS - Not enough water to sample													
		8/2/2017		82.35	5587.20	NS - Not enough water to sample													
ELF-2	Background	9/18/2015	5612.02	20.20	5591.82	3.31		419		469		0.5		7.30		8150		11400	
		11/10/2015		20.65	5591.37	3.27		419		444		<0.1		7.22		7870		11300	
		12/1/2015		21.02	5591.00	3.24		392		461		<0.1		7.21		8320		11500	
		1/12/2016		21.29	5590.73	3.38		420		473		0.277		7.24		8180		12300	
		2/2/2016		21.43	5590.59	3.50		410		471		0.100		7.14		7350		12000	
		3/9/2016		21.56	5590.46	3.48		395		430		<0.1		7.21		7190		11400	
		4/7/2016		21.67	5590.35	3.33		404		457		<0.1		7.16		8370		12400	
		5/4/2016		21.69	5590.33	3.15		364		439		0.103		7.76		8040		11700	
		9/8/2016		22.12	5589.90	3.25		428		446		0.299		7.30		7950		12300	
		5/9/2017		22.21	5589.81	NS - Not enough water to sample													
		8/2/2017		22.14	5589.88	3.11		383		363		<0.100		7.42		7950		11600	
ELF-9	Background	9/18/2015	5661.00	DRY	NM	NS - Not enough water to sample													
		1/12/2016		51.14	5609.86	NS - Not enough water to sample													
		2/2/2016		36.85	5624.15	<5.00		166		284		0.276		7.86		6470		9420	
		3/9/2016		23.63	5637.37	1.61		84.2		469		0.26		8.05		8030		11900	
		4/7/2016		23.49	5637.51	1.35		112		316		<0.1		7.86		7080		10400	
		5/4/2016		23.47	5637.53	1.30		64.6		282		1.29		7.75		6850		10100	
		9/8/2016		23.40	5637.60	1.36		57.2		352		1.65		8.03		6750		10600	
		5/9/2017		23.39	5637.61	NS - Not enough water to sample													
		8/2/2017		31.38	5629.62	1.32		91.9		446		1.27		7.94		6900		12000	
		8/29/2017		22.01	5638.99	1.50		53.9		391		1.16		7.94		5830		10500	
		9/15/2017		23.32	5637.68	1.39		60.3		359		1.84		8.06		5600		11900	
ELF-10	Background	9/18/2015	5620.57	50.64	5569.93	NS - Not enough water to sample													
		11/10/2015		43.09	5577.48	1.56		446		6790		<0.1		7.10		19900		37200	
		12/1/2015		44.21	5576.36	1.68		457		7530		3.98		7.21		20100		40300	
		1/12/2016		46.50	5574.07	1.62		484		7670		4.36		7.41		19800		40100	
		2/2/2016		46.09	5574.48	NS - Not enough water to sample													
		3/9/2016		47.82	5572.75	NS - Not enough water to sample													
		4/7/2016		47.35	5573.22	1.54		479		7120		3.97		7.15		20700		38400	
		5/4/2016		48.73	5571.84	1.48		470		7530		3.87		8.37		19300		37800	
		9/8/2016		48.05	5572.52	NS - Not enough water to sample													
		5/9/2017		45.41	5575.16	NS - Not enough water to sample													
		8/2/2017		46.80	5573.77	1.64		509		7150		<0.100		7.00		17300		38600	
		8/29/2017		48.10	5572.47	1.84		500		6960		<0.100		7.28		16800		38200	
		9/15/2017		51.74	5568.83	1.6		445		5710		0.244		7.23		13100		39600	

NS: Not Sampled

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DTW: Depth to Water

TOC: Top of Casing

AMSL: Above Mean Sea Level

Q: Data Validation Qualifier

J: Estimated

J+: Overestimated

UJ: Estimated Non-Detect

J-: Underestimated

Table 5. Hunter Power Plant - **CCR** Landfill Detection Monitoring Results

SAMPLE ID	WELL TYPE	COLLECTION DATE	TOC AMSL (ft)	DTW (ft)	GWE AMSL (ft)	Appendix III													
						B		Ca		Cl		F		pH		SO ₄		TDS	
						mg/L	Q	mg/L	Q	mg/L	Q	mg/L	Q	s.u	Q	mg/L	Q	mg/L	Q
ELF-3	Downgradient	9/18/2015	5604.78	34.37	5570.41	NS - Not enough water to sample													
		12/1/2015		34.40	5570.38	NS - Not enough water to sample													
		1/12/2016		34.30	5570.48	NS - Not enough water to sample													
		2/2/2016		34.25	5570.53	NS - Not enough water to sample													
		4/7/2016		34.30	5570.48	NS - Not enough water to sample													
		9/8/2016		34.02	5570.76	NS - Not enough water to sample													
		5/9/2017		33.43	5571.35	NS - Not enough water to sample													
		8/2/2017		33.32	5571.46	1.01		492		609		<0.100		7.79		33000		47700	
ELF-4	Downgradient	9/18/2015	5581.50	15.03	5566.47	4.66		526		2320		0.3		7.20		5790		10400	
		11/10/2015		14.97	5566.53	4.93		486		2040		4.46		6.94		5350		11200	
		12/1/2015		15.12	5566.38	4.88		482		2370		3.67		7.01		6240		11400	
		1/12/2016		15.22	5566.28	5.02		514		2500		3.93		7.52		5900		12400	
		2/2/2016		15.25	5566.25	5.19		495		2170		4.25		6.97		5410		11500	
		3/9/2016		15.36	5566.14	4.96		496		2240		4.06		7.03		5290		11200	
		4/6/2016		15.38	5566.12	4.77		519		2320		3.63		6.97		6110		11300	
		5/4/2016		14.41	5567.09	4.42		476		2280		<0.1		7.16		6010		11600	
		5/9/2017		16.05	5565.45	NS - Not enough water to sample													
		8/2/2017		16.25	5565.25	4.35		483		2240		<0.100		7.21		5750		11600	
ELF-5	Downgradient	9/18/2015	5577.79	16.61	5561.18	5.44		464		4250		0.4		7.20		11200		21000	
		11/10/2015		16.20	5561.59	5.89		499		4110		<0.1		6.98		11100		22600	
		12/2/2015		16.74	5561.05	5.53		480		4150		3.49		6.99		11200		21000	
		1/12/2016		16.85	5560.94	6.20		503		4210		4.85		7.26		11100		21300	
		2/2/2016		16.52	5561.27	6.10		481		3750		3.96		7.04		9890		21000	
		3/9/2016		16.47	5561.32	6.55		492		4170		4.62		7.05		10300		22300	
		4/6/2016		16.31	5561.48	5.35		476		3700		3.53		7.10		11200		19200	
		5/4/2016		15.35	5562.44	5.99		465		3900		<0.1		7.19		10700		21100	
		9/8/2016		17.30	5560.49	6.03		491		3980		<0.1		7.03		10300		20600	
		5/9/2017		17.13	5560.66	NS - Not enough water to sample													
ELF-6	Downgradient	9/18/2015	5579.61	15.97	5563.64	14.3		531		5650		0.6		7.20		9470		22100	
		11/10/2015		16.02	5563.59	16.0		518		4670		<0.10		6.78		9130		19500	
		12/1/2015		16.09	5563.52	14.4		454		4850		4.03		7.03		10300		19500	
		1/12/2016		16.20	5563.41	14.6		505		NA		NA		NA		NA		NA	
		2/2/2016		16.29	5563.32	13.6		493		4060		5.13		6.94		8800		20100	
		3/9/2016		16.26	5563.35	15.7		500		1190		5.07		6.90		930		20800	
		4/6/2016		16.30	5563.31	13.3		491		4890		4.87		7.04		9910		20200	
		5/4/2016		16.12	5563.49	12.6		491		4630		<0.1		7.40		8400		19600	
		5/9/2017		16.52	5563.09	NS - Not enough water to sample													

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J+: Overestimated

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Table 5. Hunter Power Plant - **CCR** Landfill Detection Monitoring Results

SAMPLE ID	WELL TYPE	COLLECTION DATE	TOC AMSL (ft)	DTW (ft)	GWE AMSL (ft)	Appendix III													
						B		Ca		Cl		F		pH		SO ₄		TDS	
						mg/L	Q	mg/L	Q	mg/L	Q	mg/L	Q	s.u	Q	mg/L	Q	mg/L	Q
ELF-7	Downgradient	9/18/2015	5579.81	13.24	5566.57	1.72		496		2800		0.4		7.10		8720		15300	
		11/10/2015		13.42	5566.39	1.86		480		2600		4.00		6.93		8650		19200	
		12/1/2015		13.60	5566.21	1.98		471		2790		3.12		6.99		9050		16800	
		1/12/2016		13.68	5566.13	1.79		480		2910		4.36		7.11		9140		14900	
		2/2/2016		13.67	5566.14	1.81		469		2660		4.63		6.13		8250		17100	
		3/9/2016		13.77	5566.04	1.79		443		2710		3.37		7.01		8180		16800	
		4/6/2016		13.76	5566.05	1.70		485		2850		3.19		6.94		9580		16500	
		5/4/2016		13.87	5565.94	1.58		445		2650		<0.1		7.16		8680		16900	
		9/8/2016		14.12	5565.69	1.84		458		2660		<0.1		7.07		8640		18100	
		5/9/2017		16.27	5563.54	NS - Not enough water to sample													
ELF-8	Downgradient	8/2/2017	5584.50	14.37	5565.44	1.72		476		2480		<0.100		7.13		8680		17800	
		9/18/2015		8.37	5576.13	26.6		628		2320		1.40		7.60		3120		7430	
		11/10/2015		8.15	5576.35	30.4		577		2160		<0.1		7.30		3140		7690	
		12/1/2015		8.29	5576.21	30.2		586		2370		0.874		7.52		3410		8070	
		1/12/2016		8.32	5576.18	29.7		623		2380	J+	1.04		7.62		3130		8340	
		2/2/2016		8.14	5576.36	27.2		579		2180		<0.100		7.47		2970		7860	
		3/9/2016		8.26	5576.24	26.6		590		2240		0.837		7.48		2950		7580	
		4/6/2016		8.40	5576.10	25.4		609		2300		<0.1		7.46		3390		7440	
		5/4/2016		8.45	5576.05	25.4		588		2190		0.946		7.61		3170		7900	
		9/8/2016		8.66	5575.84	27.4		595		2350		1.33		7.53		3280		8010	
ELF-11	Downgradient	5/9/2017	5597.32	8.60	5575.90	NS - Not enough water to sample													
		8/2/2017		8.79	5575.71	31.6		623		2110		1.69		7.54		3260		8420	
		9/18/2015		28.03	5569.29	14.4		432		1230		0.50		7.50		10200		14300	
		11/10/2015		28.09	5569.23	16.3		419		1180		<0.1		7.40		9890		15200	
		12/1/2015		28.45	5568.87	17.0		410		1290		<0.1		7.39		10900		17600	
		1/12/2016		28.42	5568.90	NS - Not enough water to sample													
		2/2/2016		28.38	5568.94	16.3		414		952		<0.100		7.24		7910		15600	
		3/9/2016		28.46	5568.86	18.1		413		4290		<0.100		7.32		9020		15700	
		4/6/2016		28.41	5568.91	15.2		412		1230		<0.1		7.28		11100		15800	
		5/4/2016		28.31	5569.01	14.9		399		1170		<0.1		8.01		10000		15700	
		9/8/2016		28.20	5569.12	17.3		434		1180		<0.1		7.24		10000		16200	
		5/9/2017		28.13	5569.19	NS - Not enough water to sample													
		8/2/2017		28.36	5568.96	NS - Not enough water to sample													

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5.1.1 Precision

A total of 11 field duplicates were collected in support of detection monitoring at the Hunter Power Plant, spanning a maximum of 12 sampling events. This equates to a field duplicate frequency of approximately 1 duplicate per sampling event (14%), exceeding the frequency outlined in the SAP of one field duplicate for every 20 samples (5%). With seven constituents per field duplicate, this equates to a total of 77 data points acquired. Four field duplicate results fell outside of the $\pm 20\%$ precision criteria or had an absolute difference greater than the method detection limit (EPA 2017). This equates to 4.8% of the field duplicate results that did not meet project precision goals. The remaining 95.2% met precision criteria defined for the project.

5.1.2 Accuracy

A total of 562 data points were acquired as part of detection monitoring for the CCR Landfill. Of these, only one was qualified during data validation due to low detection in the equipment blank (J+). This equates to 0.18% of results that received qualification. The remaining 99.82% met all accuracy criteria for the project without qualification.

5.1.3 Completeness

A total of 562 data points were collected from 9 monitoring wells. When precision and accuracy are given equal weight, 99.82% of the data met all project requirements. Although qualified results are assigned some uncertainty, all the results (100%) are usable to support decision-making and to assess groundwater quality at the CCR Landfill.

6.0 STATISTICAL METHOD SELECTION AND RESULTS

The upper tolerance limit (UTL) approach was selected to evaluate background and downgradient groundwater quality for the CCR Landfill as part of detection monitoring. This method was selected because it will support an examination of groundwater quality over time, regardless of the size of the data set. This means a larger dataset and a smaller dataset with similar characteristics should have similar UTLs over time. In addition, constituents exceed the background, or the groundwater protection standard will likely result from conditions originating from the CCR unit, not a change in the size of the data set. Using this approach, an upper tolerance limit for each constituent was established from the background data distribution and each constituent from the downgradient wells was compared to the UTL to determine if an increase was observed above background.

6.1 Statistical Method

Groundwater quality was assessed using UTLs by comparing background groundwater concentrations for Appendix III constituents with concentrations in individual downgradient wells. The data measured from the background wells was used to compute UTLs which serve as the background values. Data obtained from the downgradient wells were compared individually to the UTLs to determine if the site complies with the *Final Rule*. The software package Sanitas®

v.2016 was used to compute the UTLs and perform the comparisons. As part of this evaluation, groundwater data was examined for characteristics that could impact how the UTL is computed. These characteristics include:

- Number of non-detect results,
- Data distribution,
- Site-wide false-positive rate (SWFPR), and
- Spatial and seasonal variability.

Summary statistics and other statistical characteristics of the data were examined for completeness. These characteristics are described below.

Non-Detects. The majority of datasets contains non-detect values. These values complicate statistical analysis because non-detect results are reported as being less than a reporting or detection limit (e.g. < 0.010 mg/L) rather than a fixed concentration. Calculations that incorporate these values are non-trivial. The EPA Unified Guidance (USEPA 2009) recommends using one-half of the detection limit in place of the non-detect values if the data have fewer than 15% non-detects. The method detection limit (MDL) was used in this situation. If the data contained more than 15% non-detects, but fewer than 50%, the Kaplan-Meier estimator was used to compute estimated values for non-detects. If more than 50% of the data points were non-detects, a non-parametric UTL was used. The non-parametric UTL is the maximum observed value from the background wells.

Data Distribution. The shape or distribution of the data was assessed prior to computing unit-specific UTL values. To support this evaluation, histograms and normal-quantile plots were developed for each of the constituents (Appendix D). They were used to determine if the data set contained statistical outliers. Outliers, when noted, were examined and addressed on a case-by-case basis to ensure that appropriate action was taken. The Shapiro-Wilk test was also used to assess normality. If the p-value associated with the test was greater than or equal to 0.05, the data was considered normally distributed and a parametric UTL was computed using the background measurements. If the p-value was less than 0.05, then a non-parametric UTL was computed using the background measurements. The parametric UTL is computed using the formula below:

$$UTL = \bar{x} + K \times S$$

Where:

\bar{x} = the average of the background data

K = multiplier from Tables 13-1 thru 1-18 (Appendix B, EPA 1989)

S = standard deviation of the background data

If the data were not normally distributed, the ladder of powers method was used to determine if a reasonable transformation could be found that will produce normal data. The ladder of powers tests different monotonic transformations of the data, such as the natural logarithm or square, to see if the transformed data have a normal distribution. If a transformation within the ladder of

powers was found that produces normal data, a parametric UTL was computed using the transformed data. If a transformation is identified, it was applied to both background and downgradient groundwater data prior to comparison. A non-parametric UTL was computed for data not normally distributed and that could not be transformed to be normal. The non-parametric UTL is equivalent to the largest value measured in the background wells.

Statistical Hypothesis Testing. The UTL is a statistical hypothesis test, which means it has both a null and alternative hypothesis associated with it. The null hypothesis for comparison purposes is the constituent concentration in the downgradient well(s) is less than or equal to the concentration of the same constituent in the background well(s). The alternative hypothesis is the constituent concentration is greater in the downgradient well(s) than in the background well(s).

Each hypothesis test has a significance level, α , that must be determined. The significance level is the chance that a Type I decision error is made. In the case of groundwater monitoring, a Type I error occurs when the downgradient wells are found to have a higher constituent concentration when they are within the range of background. Because decisions are made using sampling, the chance of this error occurring cannot be eliminated, but it can be controlled. An α of 0.05 is most commonly used with groundwater monitoring hypothesis tests.

However, as with most groundwater monitoring studies, many hypothesis tests are completed. An α of 0.05 indicates that if 20 hypothesis tests are done on downgradient wells, and all are below background concentrations, it is expected by random chance one of the values will erroneously conclude that the downgradient wells have a higher constituent concentration than the background wells. This particular study consists of testing seven different constituents for several downgradient wells. This means approximately 33 tests were done for each site. Thus, α was adjusted to reduce the chance of a Type I error to an acceptable level. The SWFPR is the chance that a Type I error occurs at least once when all of the tests are performed. It was used to select an appropriate α for each of the individual tests. EPA recommends using a SWFPR of no greater than 0.10 (USEPA 2009). The formula for computing the SWFPR is:

$$\text{SWFPR} = 1 - (1 - \alpha)^{cw}$$

Where:

- α = the significance level for each individual hypothesis test
- c = the number of constituents with at least one detected value
- w = the number of downgradient wells at the site

The SWFPR was set at a level close to 0.10 and then an appropriate α was computed. The software package Sanitas[®] v.2016 was used to select the α value to control the SWFPR.

Seasonal and Spatial Variability. Data were examined for seasonal and spatial variability using Sanitas[®] v.2016. No significant seasonal variability was observed in the analytical data. Some spatial variability was noted, which is likely indicative of site conditions. Sanitas[®] v.2016 provided the necessary corrections when computing the UTLs to account for site-specific variability.

Data Evaluation. Once complete data sets were received, and data had undergone full validation / evaluation, the results demonstrated the planned sampling approach in the site-specific SAP, provided sufficient data of known quality to assess background and downgradient groundwater quality at the CCR Landfill.

6.2 CCR Landfill Water Quality

The *Final Rule* requires the owner or operator of a CCR unit to first determine if a statistically significant increase over background for each Appendix III constituent has occurred in any downgradient monitoring well. As noted in Section 6.0, the UTL method was selected to perform the background comparisons. Table 6 provides a summary of these comparisons for the CCR Landfill. A complete examination of water quality is provided in Appendix D. Please note that monitoring well ELF-3 is shown for comparison purposes only.

Table 6. Summary of Groundwater Quality Comparisons

Analyte	Upper Tolerance Limit (mg/L)	Downgradient Wells that Exceed Upper Tolerance Limit
Boron	2.99	ELF-11, ELF-4, ELF-5, ELF-6, ELF-8
Calcium	554.8	ELF-8
Chloride	2,630	ELF-11, ELF-5, ELF-6, ELF-7
Fluoride	0.5385	ELF-4, ELF-5, ELF-6, ELF-7, ELF-8
pH Alkaline	8.37	Within Limit
pH Acidic	7.0	ELF-4, ELF-5, ELF-6, ELF-7
Sulfate	15,000	ELF-3
TDS	26,400	ELF-3

7.0 FINDINGS AND CONCLUSIONS

Detection monitoring for the CCR Landfill was initiated in September of 2015 to ensure a minimum of eight independent measurements were acquired, prior to the October 17, 2017 start requirement in the *Final Rule*. Evaluation of the adequateness of the dataset and selection of the appropriate statistical method was completed by October 17, 2017. All of the sample data acquired during this period, was used to assess groundwater quality at the CCR Landfill, to ensure data representing site conditions over time was incorporated into the evaluation.

Prior to initiating monitoring, the monitoring network was installed. The network contains three background wells and six downgradient wells, all completed in the upper aquifer. The

background wells were installed to represent water quality up/cross gradient of the CCR Landfill, while the downgradient wells were installed to measure groundwater quality immediately after it passes the waste unit boundary. The results of the detection monitoring effort indicate Appendix III constituents exceed background concentrations in downgradient monitoring wells. The individual constituents which exceeded background include: boron, calcium, chloride, fluoride and pH (Table 6). Under *Final Rule* requirements, the CCR Landfill will proceed to assessment monitoring.

8.0 UPCOMING YEAR

During the next reporting period, PacifiCorp will complete the following activities at the CCR Landfill:

Assessment Monitoring

- Conduct the first assessment monitoring sampling event for Appendix IV constituents;
- Complete background comparisons for Appendix IV constituents;
- Conduct a second assessment monitoring event within 90-days of the first, and analyze the samples for all Appendix III constituents and those Appendix IV constituents exceeding background, if any;
- Update the site-specific statistical analysis incorporating new data;
- Establish groundwater protection standards for Appendix III and Appendix IV constituent, as necessary; and
- Develop an Assessment Monitoring Report detailing the findings of this phase.

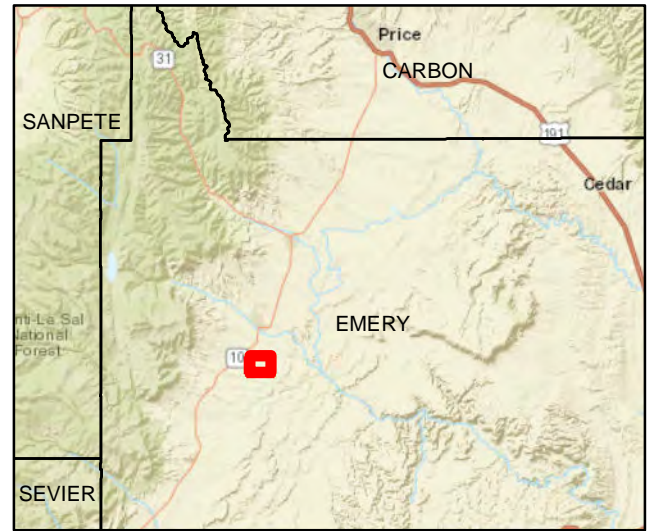
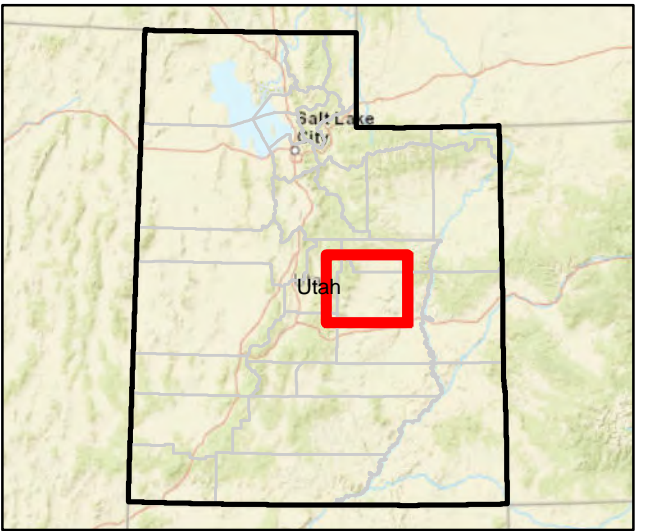
Routine Monitoring

- Collect samples to support the second assessment monitoring event, the first semi-annual event, and develop the Sampling Event Summary Report;
- Conduct a second semi-annual monitoring sampling event and develop the Sampling Event Summary Report;
- Incorporate new data into site-specific maps, tables, and write-up; and
- Develop the Annual Groundwater Monitoring and Corrective Action Report.

9.0 REFERENCES

- EPA 2017. National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-540-R-201 7-001, January 2017.
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- WET, 2017. Sampling and Analysis Plan & Well Documentation, CCR Landfill – Hunter Power Plant, Castle Dale, Utah, Revision 1, October 2017.

Figures



Legend

- CCR Wells
- CCR Units

*Note background image is 2013
1 ft. resolution Bing Aerial

Feet

0 400 800 1,600

HUNTER POWER PLANT

CCR Sampling Locations

Job#: PERCM52	FIGURE 1
Date: 2/26/2018	
Path: M:\PERC_CCR\Hunter\Figure1_CCR.mxd, Author: jeprowse	

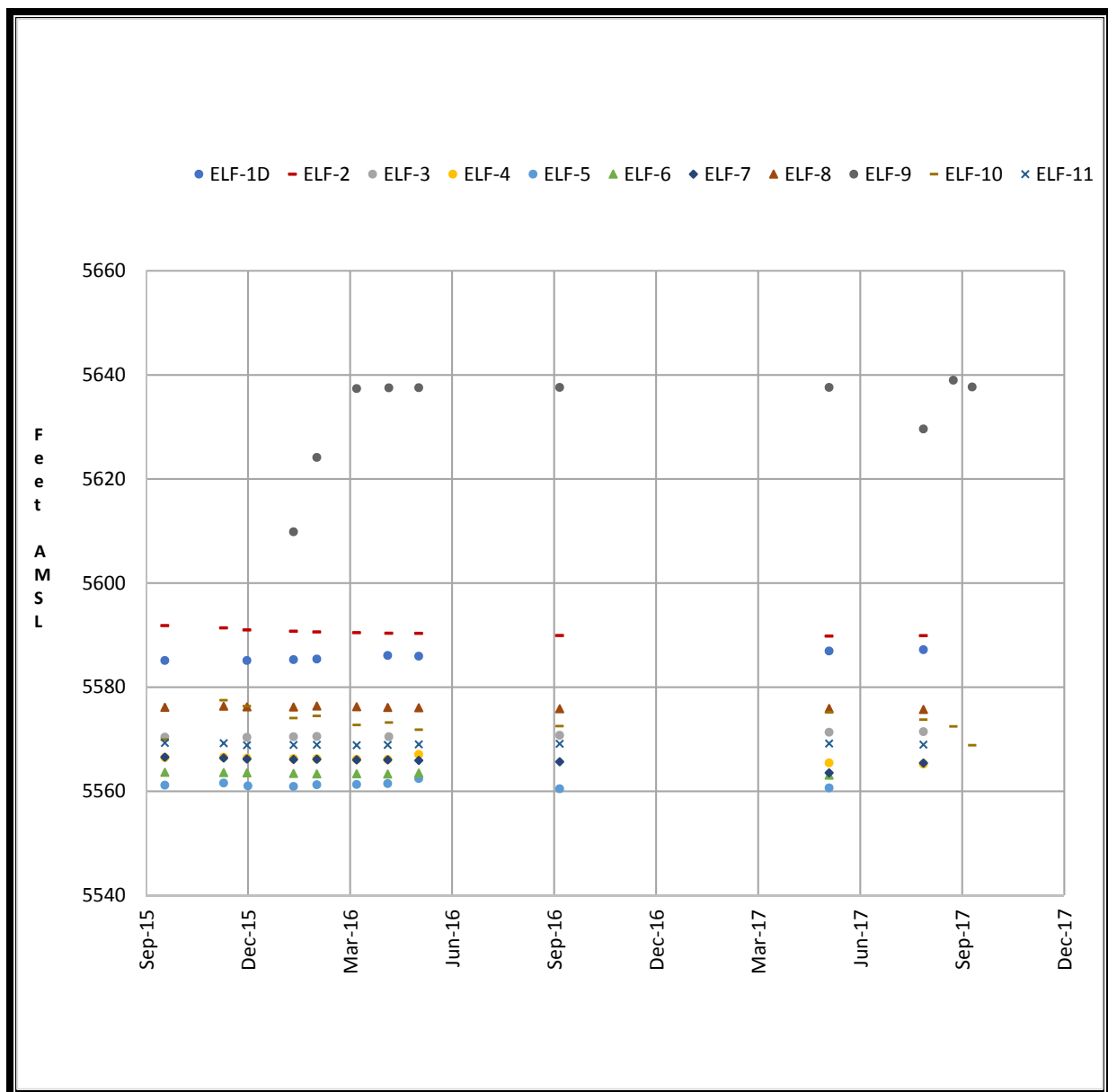
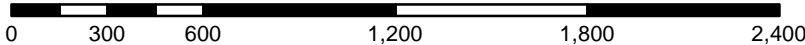


Figure 3. CCR Landfill Groundwater Elevations



Feet



HUNTER POWER PLANT

**Groundwater Elevation Map
CCR Landfill**

Job#: PERCM55

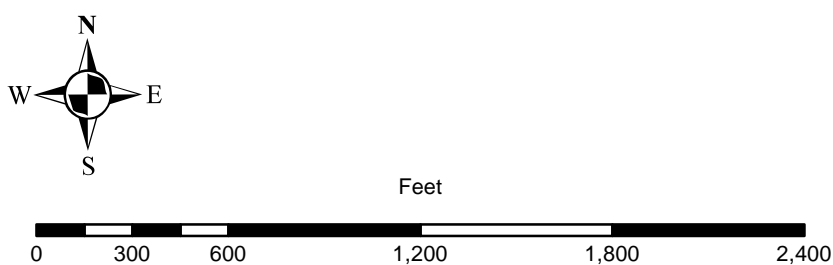
Date: 1/15/2018



Path: M:\PERC_CCR\AIL_CCR_Fig4-11_DDPs.mxd, Author: brulherford

Figure 4



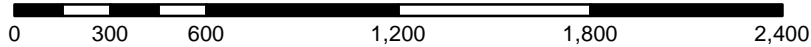
Measurement Dates: 12/01/2015 & 12/02/2015



 	HUNTER POWER PLANT	
	Groundwater Elevation Map CCR Landfill	
	Job#: PERCM55	Figure 5
	Date: 1/15/2018	
Path: M:\PERC_CCR\AIL_CCR_Fig4-11_DDPS.mxd, Author: brulherford		



Feet



HUNTER POWER PLANT

Groundwater Elevation Map
CCR Landfill

Job#: PERCM55

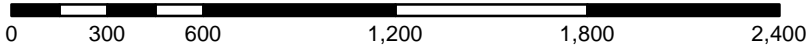
Date: 1/15/2018

Path: M:\PERC_CCR\AIL_CCR_Fig4-11_DDPS.mxd, Author: brulherford

Figure 6



Feet



HUNTER POWER PLANT

**Groundwater Elevation Map
CCR Landfill**

Job#: PERCM55

Date: 1/15/2018

Path: M:\PERC_CCR\AIL_CCR_Fig4-11_DDPS.mxd, Author: brulherford

Figure 8



Feet

0 300 600 1,200 1,800 2,400



HUNTER POWER PLANT

Groundwater Elevation Map
CCR Landfill

Job#: PERCM55

Date: 1/15/2018

Path: M:\PERC_CCR\AIL_CCR_Fig4-11_DDPS.mxd, Author: brulherford

Figure 9



Feet

0 300 600 1,200 1,800 2,400



HUNTER POWER PLANT

**Groundwater Elevation Map
CCR Landfill**

Job#: PERCM55

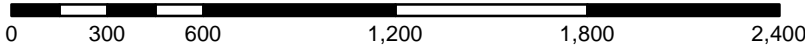
Date: 1/15/2018

Path: M:\PERC_CCR\AIL_CCR_Fig4-11_DDPS.mxd, Author: brulherford

Figure 10



Feet



HUNTER POWER PLANT

Groundwater Elevation Map
CCR Landfill

Job#: PERCM55

Date: 1/15/2018

Path: M:\PERC_CCR\AIL_CCR_Fig4-11_DDPS.mxd, Author: brulherford

Figure 11

Appendix A

Field Data

9/18/15



Consulting Scientists and Engineers

480 East Park Street
Butte, Montana 59701
Phone: 406-782-5220
FAX: 406-723-1537

SITE INFO

Project Name	Hunter	Project #	PERC MS2
Sampler(s)	M. Shirley, L. Watson	Location	Hunter
Decon Method	Dedicated Equip	Sample ID	ELF-2
Water Disposal	To ground	Date	9/10/15
Sampling Method	Low flow	Sample Time	1656
Field Conditions	Sunny, ~70°		

PURGE DATA

Multipliers for Purge Volume

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft)	20.20
Total Well Depth (ft)	27.4
Well Diameter (in)	2"
TD - DTW (ft)	X
Purge Volume (gal)	X
Total Purged (gal)	X
Final DTW (ft)	21.37

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
2	1	16.0 ± 0.9	12893	5.80	7.15	229.9	
5	1	15.6	12682	5.26	7.13	228.7	
7	1	15.5	12668	5.39	7.14	227.1	
9	1	15.2	12563	5.75	7.14	225.6	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) gal poly	HNO ₃	Radium
(2) 250 ml poly	HNO ₃	metals, mercury
(1) 250 ml poly	H ₂ SO ₄	nitrate + nitrite
(1) L poly	None	solids, H fluoride, Alk

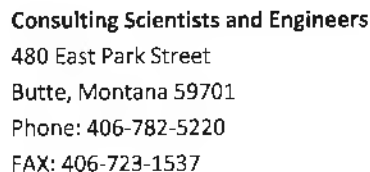
NOTES

Signature:

[Signature]

Date:

9/10/15



1/18/15

1315

SITE INFO

Project Name	Hunter	Project #	PERC M52
Sampler(s)	M. Shirley, L. Watson	Location	Hunter
Decon Method	Dedicated equip	Sample ID	ELF-4
Water Disposal	to ground	Date	9/18/15
Sampling Method	low flow	Time	1350
Field Conditions	Sunny ~70°		

PURGE DATA

Multipliers for Purge Volume

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft)
Total Well Depth (ft)
Well Diameter (in)
TD - DTW (ft)
Purge Volume (gal)
Total Purged (gal)
Final DTW (ft)

15.03
18.5
2"
~~X~~
15.10

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
4		15.1	13200	4.02	6.94	223.2	
6		14.8	13192	2.54	6.93	222.9	
8		14.8	13155	2.14	6.93	222.4	
10		14.7	13132	1.89	6.93	222.6	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) gal poly	HNO3	Radium
(2) 250 ml poly	HNO3	metals mercury
(1) 250 ml poly	H2SO4	nitrite + nitrate
(1) L poly	NONE	solids pH fluoride Alk

NOTES

Signature:

L. Watson

Date:

9/18/15

SITE INFO

Project Name	Hunter	Project #	PERC M52
Sampler(s)	M. Shirley, L. Watson	Location	HUNTER
Decon Method	Dedicated Equip	Sample ID	ELF-5
Water Disposal	To ground	Date	9/18/15
Sampling Method	Low Flow	Time	1245
Field Conditions	Sunny ~65°		

PURGE DATA

Multipliers for Purge Volume

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft)
Total Well Depth (ft)
Well Diameter (in)
TD - DTW (ft)
Purge Volume (gal)
Total Purged (gal)
Final DTW (ft)

16.61
18.3
2"
16.56

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
2		16.3	28365	5.85	7.12	209.5	Roots in well
4		15.9	28377	6.09	7.11	205.4	
6		15.8	28467	6.27	7.10	202.8	
8		15.6	28150	6.64	7.03	198.2	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) gal poly	HNO ₃	Radium
(2) 250 ml poly	HNO ₃	metals, mercury
(1) 250 ml poly	H ₂ SO ₄	nitrite + nitrate
(1) 2 poly	NONE	solids pH fluoride Alk

NOTES

Signature:

[Signature]

Date:

9/18/15



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SITE INFO

Project Name	Hunter	Project #	PERC M52
Sampler(s)	M. Shirley, L. Watson	Location	HUNTER
Decon Method	Dedicated Equip	Sample ID	ELF6
Water Disposal	To ground	Date	9/18/15
Sampling Method	Low flow	Sample Time	1135
Field Conditions	Sunny ~60° F		

PURGE DATA

Multipliers for Purge Volume

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft)
Total Well Depth (ft)
Well Diameter (in)
TD - DTW (ft)
Purge Volume (gal)
Total Purged (gal)
Final DTW (ft)

~~15.87~~ 15.97 15.97
18.4
2"
X
15.90

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
2		17.8	24092	7.77	6.95	216.5	
5		14.6	23111	3.60	6.96	212.5	
7		14.4	23204	5.47	6.98	210.5	
9		14.3	23392	4.23	7.00	208.3	
11		14.3	23520	4.25	7.01	206.6	
13		14.4	23726	3.52	7.02	203.0	
15		14.4	23849	3.63	7.02	200.9	
17		14.3	23874	3.54	7.05	199.7	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS

NOTES

Signature:

L D Watson

Date:

9/18/15



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SITE INFO

Project Name	Hunter	Project #	PEARL MSZ
Sampler(s)	M. Shirley, L. Watson	Location	Hunter
Decon Method	Dedicated Equip	Sample ID	ELF-7
Water Disposal	to ground	Date	9/10/15
Sampling Method	low flow	sample Time	1430
Field Conditions	Sunny ~70°		

PURGE DATA

Multipliers for Purge Volume

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft)	13.24
Total Well Depth (ft)	17.4
Well Diameter (in)	2"
TD - DTW (ft)	X
Purge Volume (gal)	X
Total Purged (gal)	X
Final DTW (ft)	13.26

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
2		16.3	19093	2.69	6.94	238.9	
4		15.9	18861	3.04	6.88	240.0	
6		15.9	18839	2.77	6.88	240.3	
8		15.8	18794	2.94	6.88	240.5	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) gal poly	HNO ₃	Barium
(2) 250ml poly	HNO ₃	metals, mercury
(1) 250ml poly	H ₂ SO ₄	nitrite + nitrate
(1) L poly	NONE	solids pH fluoride Alk

NOTES

Signature:

Date:

9/10/15

SITE INFO

Project Name	Hunter	Project #	PERC M52
Sampler(s)	M. Shirley, L. Watson	Location	HUNTER
Decon Method	Dedicated Equip	Sample ID	ELF-8
Water Disposal	To ground	Date	9/18/15
Sampling Method	Low flow	Time	1010
Field Conditions	Sunny ~60°F		

PURGE DATA

Multipliers for Purge Volume

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft)

Total Well Depth (ft)

Well Diameter (in)

TD - DTW (ft)

Purge Volume (gal)

Total Purged (gal)

Final DTW (ft)

~~8.38~~ 8.37
21
2"
~~X~~
8.34

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
2	~800 mL	16.1	10437	2.37	7.61	232.0	
4	1000 mL	16.0	10417	1.46	7.62	228.3	
7	2500 mL	16.0	10416	1.44	7.63	224.9	
12	3500 mL	16.0	10416	1.71	7.63	219.2	
14	4500 mL	16.0	10422	1.13	7.63	215.6	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) gal poly	HNO ₃	radium
(2) 250 mL poly	HNO ₃	metals mercury
(1) 250 gal poly	H ₂ SO ₄	nitrite + nitrate
(1) L poly	ALONE	solids, pH, fluoride, Alk

NOTES

Signature:

[Signature]

Date:

9/18/15

9/18/15

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SITE INFO

Project Name	Hunter	Project #	PERCMS2
Sampler(s)	M. Shirley, L. Watson	Location	Hunter
Decon Method	Dedicated Equip	Sample ID	ELF-10
Water Disposal	To ground	Date	9/18/15
Sampling Method	Low Flow	Time	
Field Conditions			

PURGE DATA

Multipliers for Purge Volume

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft)	50.64
Total Well Depth (ft)	52
Well Diameter (in)	2"
TD - DTW (ft)	X
Purge Volume (gal)	X
Total Purged (gal)	X
Final DTW (ft)	NA

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS

NOTES

Signature:

Date:

9/18/15



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FAX: 406-723-1537

SITE INFO

Project Name	Hunter	Project #	PERC M52
Sampler(s)	M. Shirley, L. Watson	Location	Hunter
Decon Method	dedicated pumps	Sample ID	ELF-11
Water Disposal	To ground	Date	9/18/15
Sampling Method	Low flow	Time	1825
Field Conditions	Sunny, ~50°F		

PURGE DATA

Multipliers for Purge Volume

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft)	28.03
Total Well Depth (ft)	31
Well Diameter (in)	2"
TD - DTW (ft)	X
Purge Volume (gal)	X
Total Purged (gal)	
Final DTW (ft)	

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
4		19.3	18139	6.44	7.26	224.0	
6		18.9	18037	6.56	7.24	223.2	
8		18.6	17828	6.22	7.24	222.6	
10		18.5	17778	6.40	7.24	222.5	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
1) 1 gal poly	HNO ₃	radium
(2) 250 ml poly	HNO ₃	metals, mercury
(1) 250 ml poly	H ₂ SO ₄	nitrite + nitrate
(1) quart poly	NONE	Solids, pH, fluoride, Alk

NOTES

Signature: _____

Date: _____

9/18/15

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FAX: 406-723-1537

SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	To Ground	Date	11/10/15
Sampling Method	Low Flow	Sample Time	
Field Conditions			

Depth to Water (ft) _____
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

*No SAMPLE - Not enough
water*

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: _____

SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-2
Water Disposal	To Ground	Date	11/10/15
Sampling Method	Low Flow	Sample Time	1640
Field Conditions			

Depth to Water (ft)	20.65
Total Well Depth (ft)	
Well Diameter (in)	2
Final DTW (ft)	21.81

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
4	11.7	11707	5.62	7.16	296.9	✓ Clear
6	11.8	11677	3.80	7.12	297.3	
8	11.6	11681	3.62	7.10	297.3	↓
10	11.7	11663	2.54	7.08	297.7	
12	11.7	11664	2.49	7.07	297.7	
14	11.6	11649	2.23	7.06	297.7	↓

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: 11/10/15



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-3
Water Disposal	To Ground	Date	11/10/15
Sampling Method	Low Flow	Sample Time	
Field Conditions			

Depth to Water (ft)	
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	

No SAMPLE - DRY

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L ploy	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____

SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-4
Water Disposal	To Ground	Date	11/10/15
Sampling Method	Low Flow	Sample Time	1335
Field Conditions			

Depth to Water (ft) 14.97
 Total Well Depth (ft) _____
 Well Diameter (in) 2
 Final DTW (ft) 15.22 (stable)

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
4	12.6	12589	2.45	7.21	266.0	clear
6	12.7	12752	1.10	6.94	265.1	↓
8	12.7	12745	0.87	6.93	264.7	↓
10	12.8	12734	0.73	6.92	264.3	↓
12	12.6	12731	0.69	6.92	264.2	↓

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: _____

SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-5
Water Disposal	To Ground	Date	11/10/15
Sampling Method	Low Flow	Sample Time	1235
Field Conditions			

Depth to Water (ft)	16.20
Total Well Depth (ft)	15.6
Well Diameter (in)	2"
Final DTW (ft)	16.32 (static)

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
5	13.2	24375	0.51	6.89	229.7	clear
7	13.1	24294	0.44	6.99	229.2	
9	13.2	24307	0.34	6.89	228.8	↓

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Good Producer

Signature: _____

Date: _____

11/10/15



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Butte, Montana 59701
Phone: 406-782-5220
FAX: 406-723-1537

SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-6
Water Disposal	To Ground	Date	11/10/15
Sampling Method	Low Flow	Sample Time	1150
Field Conditions			

Depth to Water (ft)	16.02
Total Well Depth (ft)	18.7
Well Diameter (in)	2
Final DTW (ft)	16.10 (stable)

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
2	13.1	21589	1.47	6.90	222.5	clear
4	13.0	21039	0.72	6.84	223.0	
6	12.9	21071	0.44	6.84	223.8	
8	12.6	21352	0.37	6.85	224.1	
10	12.8	21646	0.36	6.86	224.0	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: 11/10/15

SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-7
Water Disposal	To Ground	Date	11/10/15
Sampling Method	Low Flow	Sample Time	1415
Field Conditions			

Depth to Water (ft)	13.42
Total Well Depth (ft)	
Well Diameter (in)	2
Final DTW (ft)	13.45

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
2	13.7	18181	0.167	6.86	304.8	
4	13.9	18296	0.144	6.85	304.2	
6	14.0	18301	0.12	6.85	303.6	
7	14.0	18356	0.38	6.85	303.3	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: _____

11/10/15

SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-8
Water Disposal	To Ground	Date	11/10/15
Sampling Method	Low Flow	Sample Time	1055
Field Conditions			

Depth to Water (ft)	8.15
Total Well Depth (ft)	17.7
Well Diameter (in)	2
Final DTW (ft)	8.19

Duplicate sample collected @ 1100

ELF-8DUP

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
4	14.8	10429	0.75	7.44	226.7	cloudy
6	15.1	10502	0.26	7.45	205.4	↓
8	15.1	10507	0.19	7.46	194.7	clear
10	15.2	10509	0.17	7.46	183.4	↓

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Good Producer

Signature: _____

Date: 11/10/15



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-9
Water Disposal	To Ground	Date	11/10/15
Sampling Method	Low Flow	Sample Time	
Field Conditions			

Depth to Water (ft)	
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	

NO SAMPLE - DRY

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	To Ground	Date	11/10/15
Sampling Method	Low Flow	Sample Time	1500
Field Conditions			

Depth to Water (ft)	43.09
Total Well Depth (ft)	
Well Diameter (in)	2
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
2	11.8	37243	2.38	7.04	304.3	brown-grauy water ↓
4	11.9	37320	1.82	7.03	302.8	
6	11.8	37157	1.46	7.03	301.8	
8	11.7	36860	1.31	7.03	300.2	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: 11/10/15

SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-11
Water Disposal	To Ground	Date	11/16/15
Sampling Method	Low Flow	Sample Time	0940
Field Conditions	overcast ~35°		

Depth to Water (ft) 28.09 → close to top of pump

Total Well Depth (ft) 50

Well Diameter (in) 2

Final DTW (ft) could not measure - below pump

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
2	11.8	15584	3.16	7.20	210.6	
8	11.7	15281	1.10	7.19	210.6	
10	11.7	15240	0.92	7.18	209.8	
12	11.7	15260	0.83	7.18	209.4	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: 11/16/15

NOTES



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SITE INFO

Project Name	Hunter CCR Sampling	Project #	PERCM52
Sampler(s)	M. Shirley, T. DeBoo	Location	Castle Dale, Utah
Decon Method	Dedicated Equipment	Sample ID	ELT-2
Water Disposal	To Ground	Sample Date	12/1/2015
Sampling Method	Low Flow	Sample Time	1300
Field Conditions	Sunny 11°F		

PURGE DATA

Multipliers for Volume-based Purge

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft.)	21.02
Total Well Depth (ft)	
Well Diameter (in)	2"
TD-DTW (ft)	
Total Purged (gal)	
Final DTW (ft)	23.07

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (us)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
0		11.7	14351	1.06	7.02	135.5	
4		11.9	14402	1.09	7.00	145.0	
6		11.6	14443	1.12	7.00	146.7	
8		11.7	14385	1.03	6.99	149.7	
10		11.7	14403	1.04	6.99	150.4	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVE	ANALYSES/HOLD TIME
(1) 1-L poly 1 gal poly	HNO ₃	Radium 226 + 228
(1) 250 mL poly	HNO ₃	Total Metals, Total Mercury
(1) 250 mL poly	H ₂ SO ₄	Nitrite, Nitrate
(1) 1-L poly	N/A	TDS, pH, Anions, Fluoride, Alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter CCR Sampling	Project #	PERCM52
Sampler(s)	M. Shirley, T. DeBoo	Location	Castle Dale, Utah
Decon Method	Dedicated Equipment	Sample ID	ELF-3
Water Disposal	To Ground	Sample Date	12/1/2015
Sampling Method	Low Flow	Sample Time	1500
Field Conditions			

PURGE DATA

Multipliers for Volume-based Purge

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft.)
 Total Well Depth (ft)
 Well Diameter (in)
 TD-DTW (ft)
 Total Purged (gal)
 Final DTW (ft)

34.40

2"

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations

NO SAMPLE

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVE	ANALYSES/HOLD TIME
(1) 1 gal poly	HNO ₃	Radium 226 + 228
(1) 250 mL poly	HNO ₃	Total Metals, Total Mercury
(1) 250 mL poly	H ₂ SO ₄	Nitrite, Nitrate
(1) 1-L poly	N/A	TDS, pH, Anions, Fluoride, Alkalinity

NOTES

Water May be residual in sump

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter CCR Sampling	Project #	PERCM52
Sampler(s)	M. Shirley, T. DeBoo	Location	Castle Dale, Utah
Decon Method	Dedicated Equipment	Sample ID	ELF-4
Water Disposal	To Ground	Sample Date	12/1/2015
Sampling Method	Low Flow	Sample Time	1610
Field Conditions	Sunny, 32°F		

PURGE DATA

Multipliers for Volume-based Purge

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft.)	15.12
Total Well Depth (ft)	
Well Diameter (in)	2"
TD-DTW (ft)	
Total Purged (gal)	
Final DTW (ft)	15.28

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
0		13.0	15760	0.99	6.94	2170	
2		12.9	15761	0.66	6.92	211.5	
4		12.9	15742	0.44	6.90	222.5	
6		12.8	15719	0.41	6.90	223.9	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVE	ANALYSES/HOLD TIME
(1) 10 gal poly	HNO ₃	Radium 226 + 228
(1) 250 mL poly	HNO ₃	Total Metals, Total Mercury
(1) 250 mL poly	H ₂ SO ₄	Nitrite, Nitrate
(1) 1-L poly	N/A	TDS, pH, Anions, Fluoride, Alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter CCR Sampling	Project #	PERCM52
Sampler(s)	M. Shirley, T. DeBoo	Location	Castle Dale, Utah
Decon Method	Dedicated Equipment	Sample ID	SL-5
Water Disposal	To Ground	Sample Date	12/2/2015
Sampling Method	Low Flow	Sample Time	1000
Field Conditions			

PURGE DATA

Multipliers for Volume-based Purge

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft.)	16.74
Total Well Depth (ft)	
Well Diameter (in)	2"
TD-DTW (ft)	
Total Purged (gal)	
Final DTW (ft)	

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
0		11.3	30280	1.56	6.88	253.1	
3		11.8	30760	1.14	6.85	240.0	
9		11.6	29572	0.77	6.87	245.2	
20		11.9	27427	0.38	6.89	240.3	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVE	ANALYSES/HOLD TIME
(1) 1-gal poly	HNO ₃	Radium 226 + 228
(1) 250 mL poly	HNO ₃	Total Metals, Total Mercury
(1) 250 mL poly	H ₂ SO ₄	Nitrite, Nitrate
(1) 1-L poly	N/A	TD5, pH, Anions, Fluoride, Alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter CCR Sampling	Project #	PERCM52
Sampler(s)	M. Shirley, T. DeBoo	Location	Castle Dale, Utah
Decon Method	Dedicated Equipment	Sample ID	ELF-6
Water Disposal	To Ground	Sample Date	12/15
Sampling Method	Low Flow	Sample Time	1655
Field Conditions			

PURGE DATA

Multipliers for Volume-based Purge

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft.)	16.09
Total Well Depth (ft)	
Well Diameter (in)	2"
TD-DTW (ft)	
Total Purged (gal)	
Final DTW (ft)	

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
1631		11.1	33817	5.35	7.08	301.7	
1633		12.4	32243	0.83	6.80	300.1	
1635		12.2	32424	0.45	6.80	299.0	
1637		12.1	33250	0.40	6.83	298.4	
1639		12.1	33917	0.38	6.83	297.9	
1641		12.0	34225	0.31	6.82	297.5	
1643		12.0	34308	0.28	6.85	297.2	
1645		11.9	34386	0.31	6.85	297.0	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVE	ANALYSES/HOLD TIME
(1) 1 gal poly	HNO ₃	Radium 226 + 228
(1) 250 mL poly	HNO ₃	Total Metals, Total Mercury
(1) 250 mL poly	H ₂ SO ₄	Nitrite, Nitrate
(1) 1-L poly	N/A	TDS, pH, Anions, Fluoride, Alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter CCR Sampling	Project #	PERCM52
Sampler(s)	M. Shirley, T. DeBoo	Location	Castle Dale, Utah
Decon Method	Dedicated Equipment	Sample ID	ELF-7
Water Disposal	To Ground	Sample Date	12/11/2015
Sampling Method	Low Flow	Sample Time	1530
Field Conditions	Sunny 45°F		

PURGE DATA

Multipliers for Volume-based Purge

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft.)	13.60
Total Well Depth (ft)	
Well Diameter (in)	2"
TD-DTW (ft)	
Total Purged (gal)	
Final DTW (ft)	13.64

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
0		14.0	22608	0.53	6.82	231.1	
2		13.8	22545	0.63	6.83	231.5	
4		13.8	22535	0.58	6.83	232.0	
6		13.4	22563	0.44	6.82	232.4	
8		13.8	22488	0.36	6.82	233.4	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVE	ANALYSES/HOLD TIME
(1) 1 gal poly	HNO ₃	Radium 226 + 228
(1) 250 mL poly	HNO ₃	Total Metals, Total Mercury
(1) 250 mL poly	H ₂ SO ₄	Nitrite, Nitrate
(1) 1-L poly	N/A	TDS, pH, Anions, Fluoride, Alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter CCR Sampling	Project #	PERCM52
Sampler(s)	M. Shirley, T. DeBoo	Location	Castle Dale, Utah
Decon Method	Dedicated Equipment	Sample ID	ELF-8
Water Disposal	To Ground	Sample Date	12/1/15
Sampling Method	Low Flow	Sample Time	1540
Field Conditions			

PURGE DATA

Multipliers for Volume-based Purge

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft.)
Total Well Depth (ft.)
Well Diameter (in)
TD-DTW (ft.)
Total Purged (gal)
Final DTW (ft.)

829

2"

NS
cm

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
1525		13.9	16125	2.40	7.10	325.7	
1527		14.8	16286	0.35	7.23	324.5	
1529		14.9	16379	0.14	7.28	316.4	
1531		14.9	16389	0.10	7.30	304.6	
1533		14.9	16394	0.09	7.32	290.8	
1535		14.9	16399	0.09	7.33	286.9	
1537		14.9	16395	0.08	7.33	274.5	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVE	ANALYSES/HOLD TIME
(1) 1 gal poly	HNO ₃	Radium 226 + 228
(1) 250 mL poly	HNO ₃	Total Metals, Total Mercury
(1) 250 mL poly	H ₂ SO ₄	Nitrite, Nitrate
(1) 1-L poly	N/A	TDS, pH, Anions, Fluoride, Alkalinity

NOTES

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter CCR Sampling	Project #	PERCM52
Sampler(s)	M. Shirley, T. DeBoo	Location	Castle Dale, Utah
Decon Method	Dedicated Equipment	Sample ID	ELF-9
Water Disposal	To Ground	Sample Date	12/1/2015
Sampling Method	Low Flow	Sample Time	13:15
Field Conditions			

PURGE DATA

Multipliers for Volume-based Purge

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft.)
 Total Well Depth (ft)
 Well Diameter (in)
 TD-DTW (ft)
 Total Purged (gal)
 Final DTW (ft)

DRY

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations

NO SAMPLE

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVE	ANALYSES/HOLD TIME
(1) 1 gal poly	HNO ₃	Radium 226 + 228
(1) 250 mL poly	HNO ₃	Total Metals, Total Mercury
(1) 250 mL poly	H ₂ SO ₄	Nitrite, Nitrate
(1) 1-L poly	N/A	TDS, pH, Anions, Fluoride, Alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter CCR Sampling	Project #	PERCM52
Sampler(s)	M. Shirley, T. DeBoo	Location	Castle Dale, Utah
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	To Ground	Sample Date	12/16/15
Sampling Method	Low Flow	Sample Time	1320
Field Conditions			

PURGE DATA

Multipliers for Volume-based Purge

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft.)

Total Well Depth (ft)

Well Diameter (in)

TD-DTW (ft)

~~Total Purged (gal)~~

Final DTW (ft)

44.21

2"

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
0		11.5	45650	0.26	7.01	170.2	
2		11.4	45509	0.20	7.01	180.4	
4		11.5	45561	0.21	7.01	180.2	
6		11.6	45609	0.21	7.00	181.2	
8		11.8	45840	0.20	7.00	180.3	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVE	ANALYSES/HOLD TIME
(1) 1 gal poly	HNO ₃	Radium 226 + 228
(1) 250 mL poly	HNO ₃	Total Metals, Total Mercury
(1) 250 mL poly	H ₂ SO ₄	Nitrite, Nitrate
(1) 1-L poly	N/A	TDS, pH, Anions, Fluoride, Alkalinity

NOTES

Adjusted drive time to 15 sec.

Took Duplicate. Noticed a significant color change from first sample. Went Dry on Dup. no Dup.

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter CCR Sampling	Project #	PERCM52
Sampler(s)	M. Shirley, T. DeBoo	Location	Castle Dale, Utah
Decon Method	Dedicated Equipment	Sample ID	ELF-11
Water Disposal	To Ground	Sample Date	12/1/15
Sampling Method	Low Flow	Sample Time	1400
Field Conditions			

PURGE DATA

Multipliers for Volume-based Purge

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft.)

Total Well Depth (ft)

Well Diameter (in)

TD-DTW (ft)

Total Purged (gal)

Final DTW (ft)

28.45

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
0		9.4	1748	2.17	6.90	200.3	
2		10.5	1823	1.46	7.00	198.6	
4		10.1	1820	1.13	7.09	199.1	
6		9.9	1749	1.01	7.09	199.8	
8		8.8	1763	0.80	7.10	200.2	
10		7.4	1720	1.10	7.10	200.6	
12		7.4	1695	0.70	7.11	199.6	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVE	ANALYSES/HOLD TIME
(1) 1 gal poly	HNO ₃	Radium 226 + 228
(1) 250 mL poly	HNO ₃	Total Metals, Total Mercury
(1) 250 mL poly	H ₂ SO ₄	Nitrite, Nitrate
(1) 1-L poly	N/A	TDS, pH, Anions, Fluoride, Alkalinity

NOTES

Signature: _____

Date: _____



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 Butte, Montana 59701
 Phone: 406-782-5220
 FAX: 406-723-1537

SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-7
Water Disposal	To Ground	Date	1/12/16
Sampling Method	Low Flow	Sample Time	
Field Conditions	COLD, Partly cloudy		

Depth to Water (ft) 51.14
 Total Well Depth (ft) _____
 Well Diameter (in) _____
 Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

NO SAMPLE, NOT ENOUGH WATER

Signature: _____ Date: _____

**Consulting Scientists and Engineers**

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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-1
Water Disposal	To Ground	Date	1/12/16
Sampling Method	Low Flow	Sample Time	
Field Conditions	COLD, PARTLY CLOUDY		

Depth to Water (ft)	84.25
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
~10		1000		7.2	100	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

COULD NOT GET SAMPLE, NOT ENOUGH WATER

Signature: _____

Date: _____

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SITE INFO

Project Name	<u>Huntington - Hunter</u>	Project #	<u>PERCM382</u>
Sampler(s)	<u>J. Babcock</u>	Location	<u>Price, UT</u>
Decon Method	<u>Dedicated Equipment</u>	Sample ID	<u>ELF-3</u>
Water Disposal	<u>To Ground</u>	Date	<u>1/12/16</u>
Sampling Method	<u>Low Flow</u>	Sample Time	
Field Conditions			

PURGE DATA

Multipliers for Purge Volume

Well Diameter	Multiplier
1"	0.122
2"	0.490
3"	1.102
4"	1.958

Purge Volume = (TD-DTW) * Multiplier

Depth to Water (ft)

Total Well Depth (ft)

Well Diameter (in)

TD - DTW (ft)

Purge Volume (gal)

Total Purged (gal)

Final DTW (ft)

34.30

TIME (min)	VOLUME (gal)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS

NOTESNO SAMPLE, NOT ENOUGH WATER

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-2
Water Disposal	To Ground	Date	1/12/16
Sampling Method	Low Flow	Sample Time	0950
Field Conditions	COLD, 0°F, Partly cloudy		

Depth to Water (ft) 21.29

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

Equipment Blank ELF-2-EB
collected @ 1000

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
~16	11.1	629	2.80	7.24	130.2	
15	9.9	629	2.50	6.99	133.9	
17	10.0	629	2.55	6.95	132.1	
19	10.0	629	2.54	6.97	133.0	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	To Ground	Date	1/12/16
Sampling Method	Low Flow	Sample Time	1130
Field Conditions	can, partly cloudy		

Depth to Water (ft) 46.50

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
~10	10.3	628	1.82	7.19	148.2	
~15	10.2	628	1.31	7.07	148.2	
17	10.2	628	1.26	7.06	148.4	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L ploy	None	TDS, pH, anions, fluoride, alkalinity

NOTES

SLOW PRODUCER, SOME BOTTLES NOT COMPLETELY FULL

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-4
Water Disposal	To Ground	Date	1/12/16
Sampling Method	Low Flow	Sample Time	1320
Field Conditions	~30°F, PARTLY CLOUDY		

Depth to Water (ft) ~~15.27~~ 15.27
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
8	11.3	1432	1.28	7.35	68.0	
10	11.3		0.85	7.21	68.7	
12	11.2		0.83	7.05	76.3	
14	11.1		0.64	7.04	77.1	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES ELF-3: NO SAMPLE, NOT ENOUGH WATER 34.30
TOOK FIELD BLANK @ ELF-4, LABELED "FB" @ 1330
ELF-4-FB

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-11
Water Disposal	To Ground	Date	1/12/16
Sampling Method	Low Flow	Sample Time	1040 A/A
Field Conditions			

Depth to Water (ft) 28.42

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

*No SAMPLE ->
not enough water*

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
4	5.5	14652	1.69	7.24	386.5	
6	4.4	13789	1.65	7.14	387.4	Running out of water
8	7.2	14488	1.17	7.22	387.0	DRY

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	L.Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-8
Water Disposal	To Ground	Date	1/12/16
Sampling Method	Low Flow	Sample Time	1100
Field Conditions			

Depth to Water (ft)	8.32
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	8.35

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
5	11.0	10136	0.26	7.44	379.1	
7	11.0	10153	0.25	7.43	378.1	
9	11.1	10163	0.25	7.46	377.2	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-6
Water Disposal	To Ground	Date	1/12/16
Sampling Method	Low Flow	Sample Time	1145
Field Conditions			

Depth to Water (ft)	16.20
Total Well Depth (ft)	
Well Diameter (in)	2
Final DTW (ft)	16.25

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
4	10.6	21436	1.04	6.92	373.9	
6	10.9	81980	1.05	6.93	372.7	
8	10.8	22134	1.04	6.93	372.3	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES Roots in well

Signature:

L. Watson

Date:

1/12/16

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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	L.Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-7
Water Disposal	To Ground	Date	1/12/16
Sampling Method	Low Flow	Sample Time	1405
Field Conditions			

Depth to Water (ft) 13.60
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

Duplicate taken @
1415 DOP

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
5	12.3		0.26			meter turned off
7	12.3	21200	0.99	6.87	118.5	
9	12.3	21197	0.86	6.87	120.3	
11	12.4	21257	0.81	6.87	121.6	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	L. Watson	Location	Price, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-5
Water Disposal	To Ground	Date	1/12/16
Sampling Method	Low Flow	Sample Time	1300
Field Conditions	clear 250F		

Depth to Water (ft) 16.85 → below pump
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) NM

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Comments/Observations
5	10.9	26069	0.74	6.92	370.6	yellow tint
7	10.8	26311	0.69	6.92	370.2	↓
9	10.9	26031	0.60	6.92	369.8	↓

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Roots in well
NEEDS to be extended

Signature:

L. Watson

Date:

1/12/16



American West
Analytical Laboratories
3440 S. 700 W. Salt Lake City, UT 84119
Phone # (801) 263-8686 Toll Free # (888) 263-8686
Fax # (801) 263-8687 Email awal@awal-labs.com
www.awal-labs.com

CHAIN OF CUSTODY

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analysis lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

1601156

AWAL Lab Sample Set #

Page of

Due Date:

1/27/16

Laboratory Use Only

Samples Were:

- 1 Shipped or Hand delivered
- 2 Ambient or Chilled
- 3 Temperature 0.6 °C
- 4 Received Broken/Leaking (Improperly Sealed)
Y N
- 5 Properly Preserved
Y N Checked at bench
- 6 Received Within Holding Times
Y N

COC Tape Was:

- 1 Present on Outer Package
Y N NA
- 2 Unbroken on Outer Package
Y N NA
- 3 Present on Sample
Y N NA
- 4 Unbroken on Sample
Y N NA

Discrepancies Between Sample Labels and COC Record?
Y N

QC Level:					Turn Around Time:				
1	2	2+	3	3+	1	2	3	4	5

Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.

- ☐ Report down to the MDL
☐ Include EDD:
☐ Lab Filter for:
☐ Field Filtered For:

For Compliance With:

- ☐ NELAP
☐ RCRA
☐ CWA
☐ SDWA
☐ ELAP / A2LA
☐ NLLAP
☐ Non-Compliance
☐ Other:

Known Hazards & Sample Comments

Client: WET
Address: 480 E Park St
Dorchester MA 01920
Contact: Laura Watson
Phone #: Cell #: 406-413-2447
Email: lwatson@wet-labs.com
Project Name: PERC M52 Hunter
Project #: PERC M52
PO #:
Sampler Name: Laura Watson

Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample Matrix	TDS, Anions, pH	Fluoride	Alkalinity	Total Metals	Total Mercury	Nitrite + Nitrate	Radon, 226 228	EW
1 ELF-7	1/12/16	1405	5	W	X	X	X	X	X	X	X	X
2 DUP		1415										
3 ELF-5		1300										
4 ELF-6		1145										
5 ELF-8		1100										
6 ELF-4		1320										
7 ELF-4-FB		1330										
8 ELF-10		1130										
9 ELF-2		0950										
10 ELF-9												
11 ELF-2-EB	X	1000	X	X	X	X	X	X	X	X	X	
12												

Relinquished by: Signature: <i>Laura Watson</i>	Date: 1/13/16 Time: 0945	Received by: Signature: <i>Denise Bruen</i>	Date: 1/13/16 Time: 0945
Print Name: Laura Watson		Print Name: Denise Bruen	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:
Print Name:		Print Name:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:
Print Name:		Print Name:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:
Print Name:		Print Name:	

Special Instructions:



Consulting Scientists and Engineers

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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	DF-72
Water Disposal	To Ground	Date	2/21/2016
Sampling Method	Low Flow	Sample Time	
Field Conditions	SUNNY, CLEAR		

Depth to Water (ft) 28.38
Total Well Depth (ft)
Well Diameter (in) 24
Final DTW (ft) 28.71

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	9.8	12855	2.70	6.70	170.5	76.4	
2	10.3	13250	1.25	6.91	167.7	28.1	
7	10.1	13257	0.97	6.99	163.3	13.9	
9	9.6	13161	0.58	7.03	152.8	92.0	
13	9.5	13151	0.44	7.06	142.0	85.8	
23	9.3	13254	0.44	7.03	155.8	51.7	
27	8.5	12976	0.37	7.05	153.2	41.8	
30	7.9	12797	0.33	7.04	152.0	33.9	
33	6.0	12101	0.32	7.06	150.9	30.5	

* CONTINUED ON BACK

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Final Turbidity after all bottles filled: 3.01 NTU

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-8
Water Disposal	To Ground	Date	2/2/2011
Sampling Method	Low Flow	Sample Time	
Field Conditions	SUNNY, CLEAR		

Depth to Water (ft) 8.14
Total Well Depth (ft) _____
Well Diameter (in) 2"
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	10.3	8420	0.39	7.29	176.7	17.6	
3	10.3	8362	0.25	7.31	165.1	4.95	
6	10.1	8313	0.35	7.31	159.4	5.40	
9	9.4	8303	0.60	7.32	155.6	6.25	
12	10.0	8279	1.00	7.33	151.0	5.19	
15	10.1	8288	1.46	7.34	149.0	4.33	
17	10.1	8244	1.70	7.35	145.9	4.07	
19	9.4	8276	1.85	7.36	145.2	4.16	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES Final TURB AFTER ALL BOTTLES FILLED: **2.64**

Signature: _____ Date: _____

**Consulting Scientists and Engineers**

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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-3
Water Disposal	To Ground	Date	2/2/2015
Sampling Method	Low Flow	Sample Time	
Field Conditions			

Depth to Water (ft)	34.25
Total Well Depth (ft)	35.56 TESTED BOTTOM
Well Diameter (in)	2"
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

NO SAMPLE, NOT ENOUGH WATER. NEED TO EXTEND HOSE

1500: extended hose to bottom, pumped on well, well went dry

NO SAMPLE

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	To Ground	Date	2/2/2016
Sampling Method	Low Flow	Sample Time	
Field Conditions			

Depth to Water (ft) 46.09

Total Well Depth (ft) _____

Well Diameter (in) 2"

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	10.8	32789	0.56	6.92	178.1	102	
2	11.0	33273	0.24	6.93	173.6	190	
4	11.0	33313	0.20	6.91	169.9	143	
11	9.7	32463	0.20	6.91	165.8	83.3	
17	8.6	31077	0.24	6.91	163.4	70.9	
21	9.4	31954	0.26	6.91	161.8	63.1	
29	9.5	32307	0.27	6.92	159.0	39.5	
35	8.6	31554	0.25	6.92	159.3	26.4	
40	8.2	31179	0.26	6.94	156.3	26.0	

Continued on back

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Well went dry. Let well sit for 5 minutes... still no water

NO SAMPLE

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-2D
Water Disposal	To Ground	Date	2/2/2016
Sampling Method	Low Flow	Sample Time	1515
Field Conditions			

Depth to Water (ft) 84.14
Total Well Depth (ft) 85.5 TAPPED BOTTOM
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

No SAMPLE. Pump required repair. 0.4 ft of hose was removed for repair.

Signature: _____ Date: _____



Consulting Scientists and Engineers

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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	EEF-6
Water Disposal	To Ground	Date	3/2/16
Sampling Method	Low Flow	Sample Time	94.5
Field Conditions			

Depth to Water (ft)	16.29
Total Well Depth (ft)	18.7
Well Diameter (in)	2"
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	10.7	26202	7.09	7.40	194.0		
5	10.4	24494	0.81	6.89	194.2	55.8	
7	10.4	24941	1.07	6.85	194.7		
9	9.6	24881	1.55	6.88	195.4		
12	9.2	24897	0.94	6.88	196.3		
14	9.5	25117	0.88	6.88	196.6	12.3	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-5
Water Disposal	To Ground	Date	3/2/16
Sampling Method	Low Flow	Sample Time	1055
Field Conditions			

Depth to Water (ft) 16.52
Total Well Depth (ft) _____
Well Diameter (in) 2"
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	7.5	24859	5.78	7.05	205.1		
2	9.2	24432	0.97	6.85	205.1	50.9	
6	10.0	29729	0.46	6.83	205.9		
9	10.0	24253	0.42	6.84	206.1	25.8	
13	10.6	27994	0.39	6.87	206.0		
16	10.8	27172	0.23	6.88	205.4	6.67	
19	10.8	26795	0.22	6.88	205.3	2.11	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-4
Water Disposal	To Ground	Date	7/2/16
Sampling Method	Low Flow	Sample Time	1200
Field Conditions			

Depth to Water (ft)	15.25
Total Well Depth (ft)	19.8
Well Diameter (in)	2"
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	7.4	16031	8.42	7.42	202.1		
3	10.9	15234	1.42	6.95	201.7	75.5	
6	10.9	15251	1.07	6.91	202.1		
9	11.0	15292	0.61	6.89	203.1		
12	10.8	15239	0.40	6.88	203.7	21.7	
15	11.0	15259	0.30	6.88	204.0	21.7	
18	10.9	15234	0.20	6.88	204.0	14.9	
						2.54	After Sampling

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-7
Water Disposal	To Ground	Date	2/2/16
Sampling Method	Low Flow	Sample Time	1510
Field Conditions			

Depth to Water (ft)	13.67
Total Well Depth (ft)	12.7
Well Diameter (in)	2"
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	7.7	19478	4.89	7.16	210.1		
3	10.7	21300	1.22	6.85	210.5	145	
6	10.7	21265	1.47	6.88	210.8		
9	10.8	21288	1.77	6.89	211.6		
12	10.8	21225	2.04	6.89	212.2		
16	10.8	21220	2.16	6.91	212.6	60.2	
19	10.8	21229	2.23	6.92	212.7	36.3	
						886	After Sampling

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-9
Water Disposal	To Ground	Date	4/16
Sampling Method	Low Flow	Sample Time	1420
Field Conditions			

Depth to Water (ft) 36.85
Total Well Depth (ft) _____
Well Diameter (in) 2"
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	9.5	13519	1.12	7.85	219.7		
3	10.4	14855	0.25	7.89	205.6	*	→ out of range
6	10.5	14902	0.17	7.89	189.2		
9	10.4	14569	0.15	7.88	175.6		
12	10.4	14276	0.13	7.87	171.0		
15	10.3	13824	0.13	7.85	165.5		
18	10.3	13569	0.14	7.84	163.9	599	
						118	After Sampling

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-2
Water Disposal	To Ground	Date	4/2/16
Sampling Method	Low Flow	Sample Time	1525
Field Conditions			

Depth to Water (ft)	21.43
Total Well Depth (ft)	
Well Diameter (in)	2"
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	6.7	12876	6.84	7.34	187.0		
4	10.3	14064	1.06	7.02	198.4	58.6	
10	10.4	14031	1.32	7.01	190.2		
13	10.2	14108	1.29	6.99	190.7		
16	10.5	14126	1.78	7.00	191.0	45.9	
19	10.5	14124	2.05	6.98	191.3	29.6	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

ELF-2 DUP
→ Duplicate Sample

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J. Babcock, L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-1
Water Disposal	To Ground	Date	3/2/16
Sampling Method	Low Flow	Sample Time	NA
Field Conditions			

Depth to Water (ft) > 85' (Below pms)

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
	NONE						

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

NO SAMPLING DUE TO NOT PRODUCE WATER

Signature: _____

Date: _____

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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J. Babcock, L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	To Ground	Date	3/9/16
Sampling Method	Low Flow	Sample Time	1200
Field Conditions			

Depth to Water (ft)	47.02
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	

Top of pump @ ~ 49'

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	13.1	38220	0.53	7.04	172.8	NM	
6	13.1	38204	0.49	7.03	173.1	|	
8	13.0	38160	0.43	7.01	173.3	|	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

No Sample ran out of water

Signature: _____

Date: _____

3/9/16

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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J. Babcock, L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-3
Water Disposal	To Ground	Date	3/9/10
Sampling Method	Low Flow	Sample Time	
Field Conditions			

Depth to Water (ft)

Total Well Depth (ft)

Well Diameter (in)

Final DTW (ft)

NM - below top of pump

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES*No Sample - not enough water*

Signature:

J. Babcock

Date:

3/9/10



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J.Babcock, L.Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-7
Water Disposal	To Ground	Date	3/9/16
Sampling Method	Low Flow	Sample Time	1050
Field Conditions			

Depth to Water (ft) 13.77

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	12.0	17265	0.55	4.01	163.1	nm	
6	12.0	17242	0.47	6.94	163.6	↓	
8	11.7	17224	0.34	6.92	163.9	↓	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

DUP → collected @ 1100

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J.Babcock, L.Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-4
Water Disposal	To Ground	Date	3/9/16
Sampling Method	Low Flow	Sample Time	1030
Field Conditions	partly cloudy, wind, ~40°F		

Depth to Water (ft) 15.36 → close to top of pump
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	11.8	12275	0.49	7.17	158.4	NM	
0	11.9	12286	0.48	7.08	158.7		
Running out of water so collected sample before parameters completely stabilized							

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: LD Watson

Date: 3/9/16

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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J.Babcock, L.Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-5
Water Disposal	To Ground	Date	3/9/16
Sampling Method	Low Flow	Sample Time	0950
Field Conditions			

Depth to Water (ft) 16.47
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	11.7	23617	1.02	7.02	158.4	NM	
7	11.8	23469	0.55	6.77	158.7		
running out of water, so collected sample before parameters were completely stabilized							

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: _____

3/9/16

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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J. Babcock, L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-6
Water Disposal	To Ground	Date	3/9/16
Sampling Method	Low Flow	Sample Time	0920
Field Conditions			

Depth to Water (ft) 116.26 → close to top of pump
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
3	10.7	19344	1.26	7.08	157.0	NM	Not much water
4	11.0	19750	1.23	7.02	152.4		poor producer

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Collected sample before parameters had completely stabilized → not much water

Signature: _____

Date: _____

3/9/16



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J.Babcock, L.Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-11
Water Disposal	To Ground	Date	3/9/16
Sampling Method	Low Flow	Sample Time	0845
Field Conditions			

Depth to Water (ft) 28.46* **Below top of pump, had to remove pump to measure*

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
	Not enough water for parameters						

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Poor producer, not much water in well (below top of pump)
Purged water from tubing, then collected sample

Field Blank - FB @ 0900 Equipment blank - EB @ 0905

Signature: LD W

Date: 3/9/16

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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J.Babcock, L.Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-9
Water Disposal	To Ground	Date	3/9/16
Sampling Method	Low Flow	Sample Time	1230
Field Conditions			

Depth to Water (ft)	23.63
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
3	12.0	13652	0.51	7.83	54.2	NM	
5	12.0	13236	0.18	7.02	40.3	|	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L ploy	None	TDS, pH, anions, fluoride, alkalinity

NOTESSignature: LDabDate: 3/9/16



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J. Babcock, L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-8
Water Disposal	To Ground	Date	3/9/14
Sampling Method	Low Flow	Sample Time	+0 1305
Field Conditions			

Depth to Water (ft)	8.26
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	12.1	9368	0.20	7.43	85.7	NM	cloudy, sediment
6	12.1	9402	0.15	7.42	85.6		in water

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: _____

3/9/14

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SITE INFO

Project Name ~~Naughton~~ Hunter
Sampler(s) J. Babcock, L. Watson
Decon Method Dedicated Equipment
Water Disposal To Ground
Sampling Method Low Flow
Field Conditions _____

Project # ~~PERCM51~~ PERC M52
Location ~~Kemmerer, WY~~ Castle Dale, UT
Sample ID ELF-2
Date 3/9/16
Sample Time 1330

Depth to Water (ft) 21.56
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	13.3	11620	1.13	7.20	102.3	NM	
6	13.3	12030	1.38	7.13	103.4	|	
8	13.2	12026	2.41	7.06	106.0	|	
10	13.2	12008	1.98	7.04	106.9	|	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: _____

3/9/16



AMERICAN WEST
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CHAIN OF CUSTODY

ALL ANALYSIS WILL BE CONDUCTED USING NELAP ACCREDITED METHODS AND ALL DATA WILL BE REPORTED USING AWAL'S STANDARD ANALYTE LISTS AND REPORTING LIMITS (PQL) UNLESS SPECIFICALLY REQUESTED OTHERWISE ON THIS CHAIN OF CUSTODY AND/OR ATTACHED DOCUMENTATION.

11603217
AWAL LAB SAMPLE SET #
PAGE 3 OF 3

QC Level:		Turn Around Time:		Unless other arrangements have been made signed reports will be emailed by 5:00 pm on the day they are due.		DUE DATE:							
1	2	2+	3	3+	1	2	3	4	5	Snd	3/23/16		
# OF CONTAINERS	SAMPLE MATRIX	TDS, pH, Alkalinity	Anions	Fluoride	Total Metals	Total Mercury	Nitrogen, Nitrite + Nitrate	Radium 226 + Radium 228	<input type="checkbox"/> REPORT DOWN TO THE MDL <input checked="" type="checkbox"/> INCLUDE EDD: <input type="checkbox"/> LAB FILTER FOR: <input type="checkbox"/> FIELD FILTERED FOR: FOR COMPLIANCE WITH: <input type="checkbox"/> NELAP <input type="checkbox"/> RCRA <input type="checkbox"/> CWA <input type="checkbox"/> SDWA <input type="checkbox"/> ELAP / A2LA <input type="checkbox"/> NLLAP <input type="checkbox"/> NON-COMPLIANCE <input type="checkbox"/> OTHER:			LABORATORY USE ONLY	
									KNOWN HAZARDS & SAMPLE COMMENTS			SAMPLES WERE:	
												1 SHIPPED OR HAND DELIVERED	
												2 AMBIENT OR CHILLED	
												3 TEMPERATURE 6.8 °C	
												4 RECEIVED BROKEN/LEAKING (IMPROPERLY SEALED) Y N	
												5 PROPERLY PRESERVED Y N CHECKED AT BENCH	
												6 RECEIVED WITHIN HOLDING TIMES Y N	
												COC TAPE WAS:	
												1 PRESENT ON OUTER PACKAGE Y N NA	
												2 UNBROKEN ON OUTER PACKAGE Y N NA	
												3 PRESENT ON SAMPLE Y N NA	
			4 UNBROKEN ON SAMPLE Y N NA										
			DISCREPANCIES BETWEEN SAMPLE LABELS AND COC RECORD? Y N										

	SAMPLE ID:	DATE SAMPLED	TIME SAMPLED	# OF CONTAINERS	SAMPLE MATRIX	TDS, pH, Alkalinity	Anions	Fluoride	Total Metals	Total Mercury	Nitrogen, Nitrite + Nitrate	Radium 226 + Radium 228	KNOWN HAZARDS & SAMPLE COMMENTS
1	ELF-2	3/9/16	1330	5	W	X	X	X	X	X	X	X	
2	ELF-8		1305	5	W	X	X	X	X	X	X	X	
3	ELF-9		1230	5	W	X	X	X	X	X	X	X	
4	ELF-10			5	W	X	X	X	X	X	X	X	
5	ELF-3			5	W	X	X	X	X	X	X	X	
6	ELF-7		1050	5	W	X	X	X	X	X	X	X	
7	ELF-4		1030	5	W	X	X	X	X	X	X	X	
8	ELF ELF-5		0950	5	W	X	X	X	X	X	X	X	
9	ELF-6		0920	5	W	X	X	X	X	X	X	X	
10	ELF-11		0845	5	W	X	X	X	X	X	X	X	
11				5	W	X	X	X	X	X	X	X	
12				5	W	X	X	X	X	X	X	X	

RELINQUISHED BY: SIGNATURE	DATE:	RECEIVED BY: SIGNATURE	DATE:	SPECIAL INSTRUCTIONS:
	3/9/16			
PRINT NAME: Laura Watson	TIME:	PRINT NAME:	TIME:	
RELINQUISHED BY: SIGNATURE	DATE:	RECEIVED BY: SIGNATURE	DATE:	
	3/9/16		3/9/16	
PRINT NAME: John Barlowe	TIME: 16:53	PRINT NAME: John Barlowe	TIME: 16:53	
RELINQUISHED BY: SIGNATURE	DATE:	RECEIVED BY: SIGNATURE	DATE:	
	TIME:	PRINT NAME:	TIME:	
RELINQUISHED BY: SIGNATURE	DATE:	RECEIVED BY: SIGNATURE	DATE:	
	TIME:	PRINT NAME:	TIME:	





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THIS CHAIN OF CUSTODY AND/OR ATTACHED DOCUMENTATION.

DUE DATE: 3/23/65

QC Level:			Turn Around Time:							Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due		Due Date:	
1 2 2+ 3 3+			1 2 3 4 5 Std									3/23/16	
# OF CONTAINERS	SAMPLE MATRIX	TDS, pH, Alkalinity	Anions	Fluoride	Total Metals	Total Mercury	Nitrogen, Nitrite + Nitrate	Radium 226 + Radium 228					
											<input type="checkbox"/> REPORT DOWN TO THE MDL <input checked="" type="checkbox"/> INCLUDE EDD: <input type="checkbox"/> LAB FILTER FOR: <input type="checkbox"/> FIELD FILTERED FOR: FOR COMPLIANCE WITH: <input type="checkbox"/> NELAP <input type="checkbox"/> RCRA <input type="checkbox"/> CWA <input type="checkbox"/> SDWA <input type="checkbox"/> ELAP / A2LA <input type="checkbox"/> NLLAP <input type="checkbox"/> NON-COMPLIANCE <input type="checkbox"/> OTHER:	LABORATORY USE ONLY SAMPLES WERE: 1 SHIPPED OR HAND DELIVERED 2 AMBIENT OR CHILLED 3 TEMPERATURE 67.8 °C 4 RECEIVED BROKEN/LEAKING (IMPROPERLY SEALED) Y N 5 PROPERLY PRESERVED Y N CHECKED AT BENCH 6 RECEIVED WITHIN HOLDING TIMES Y N	
											KNOWN HAZARDS & SAMPLE COMMENTS	COC TAPE WAS: 1 PRESENT ON OUTER PACKAGE Y N NA 2 UNBROKEN ON OUTER PACKAGE Y N NA 3 PRESENT ON SAMPLE Y N NA 4 UNBROKEN ON SAMPLE Y N NA	
												DISCREPANCIES BETWEEN SAMPLE LABELS AND COC RECORD? Y N	

RELINQUISHED BY:		DATE:	RECEIVED BY:	DATE:	SPECIAL INSTRUCTIONS:
SIGNATURE: 		3/9/16	SIGNATURE: 	3/9/16	
PRINT NAME: JOHN BARBACK		TIME: 16:53	PRINT NAME: Denise Brown	TIME: 16:53	
RELINQUISHED BY:		DATE:	RECEIVED BY:	DATE:	
SIGNATURE:		TIME:	SIGNATURE:	TIME:	
PRINT NAME:			PRINT NAME:		
RELINQUISHED BY:		DATE:	RECEIVED BY:	DATE:	
SIGNATURE:		TIME:	SIGNATURE:	TIME:	
PRINT NAME:			PRINT NAME:		
RELINQUISHED BY:		DATE:	RECEIVED BY:	DATE:	
SIGNATURE:		TIME:	SIGNATURE:	TIME:	
PRINT NAME:			PRINT NAME:		



Consulting Scientists and Engineers

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Phone: 406-782-5220
FAX: 406-723-1537

SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	To Ground	Date	4/7/2016
Sampling Method	Low Flow	Sample Time	
Field Conditions	Sunny, clear, 50°F		

Depth to Water (ft) 47.35
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	11.6	38374	0.74	7.00	296.6	79449	
10	12.0	38608	0.31	7.10	274.1	79449	
15	12.0	38654	0.30	7.08	266.1	79449	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

* Pump lowered

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-11
Water Disposal	To Ground	Date	4/6/2016
Sampling Method	Low Flow	Sample Time	1530
Field Conditions	Sunny, Clear, 62°F		

Depth to Water (ft) 28.41

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
10	14.4	17467	0.73	7.28	92.0	29999	
10	14.6	17239	1.53	7.22	102.7	29999	
15	14.3	17177	1.58	7.21	108.5	344	
20	14.6	17224	0.8	7.21	106.1	133	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES *X Pumpowered*
A Duplicate Taken

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-1D
Water Disposal	To Ground	Date	4/7/2016
Sampling Method	Low Flow	Sample Time	1102
Field Conditions			

Depth to Water (ft) 85 83.45
Total Well Depth (ft) 85.6
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES Pump lowered again - 1.65 ft & water in well.

Well Dry, NO SAMPLE

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-2
Water Disposal	To Ground	Date	9/7/2016
Sampling Method	Low Flow	Sample Time	1145
Field Conditions			

Depth to Water (ft) 21.67

Total Well Depth (ft) _____

Well Diameter (in) 2"

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	15.7	15464	8.07	7.82	134.1	97.2	
10	13.8	12761	1.16	7.09	141.7	8.7	
14	13.7	12757	1.69	7.08	141.9	8.77	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-3
Water Disposal	To Ground	Date	4/7/2016
Sampling Method	Low Flow	Sample Time	0800
Field Conditions			

Depth to Water (ft)	34.3
Total Well Depth (ft)	35.6
Well Diameter (in)	2"
Final DTW (ft)	34.3

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Pump already TD
No sample, Not enough water

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-4
Water Disposal	To Ground	Date	6/5/2016 4/6/2016
Sampling Method	Low Flow	Sample Time	1930
Field Conditions			

Depth to Water (ft) 15.38
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	13.6	13827	7.4	7.12	181.1	Over Image	
10	12.1	13017	0.34	7.02	181.4	144	
12	12.2	13025	0.31	7.01	181.6	75.0	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

* Pump Lowered

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-5
Water Disposal	To Ground	Date	4/6/2016
Sampling Method	Low Flow	Sample Time	
Field Conditions			

Depth to Water (ft) 16.31
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	14.1	23220	8.77	7.57	167.6	899.9	
10	12.3	22804	1.05	7.04	163.7	228	
15	12.4	22256	1.13	7.04	164.8	650	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

* Pump Lowered

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-6
Water Disposal	To Ground	Date	4/6/2016
Sampling Method	Low Flow	Sample Time	
Field Conditions			

Depth to Water (ft) 16.30
 Total Well Depth (ft) _____
 Well Diameter (in) 2"
 Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	12.6	21424	3.27	7.46	135.9	51.3	
5	12.5	21464	0.75	7.07	139.6	8.16	
7	12.4	21170	0.71	7.04	142.8	3.85	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____

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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-7
Water Disposal	To Ground	Date	4/6/2016
Sampling Method	Low Flow	Sample Time	
Field Conditions			

Depth to Water (ft) 13.76
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	12.2	18328	1.39	7.24	144.8	3.56	
5	11.7	17447	0.40	7.00	113.7	16.5	
10	11.6	17064	0.41	6.96	113.5	9.96	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-8
Water Disposal	To Ground	Date	4/6/2016
Sampling Method	Low Flow	Sample Time	
Field Conditions			

Depth to Water (ft) 8.40
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	12.7	10071	0.35	7.53	35.6	29999	
10	12.8	10135	0.14	7.53	-11.4	511	
15	12.8	10152	0.12	7.53	-20.4	356	
17	12.9	10177	0.12	7.53	-23.8	218	
20	12.9	10169	0.11	7.52	-27.4	213	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

* Pump Lowered
* Duplicate taken

Signature: _____ Date: _____

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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	M. Shirley, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELP-4
Water Disposal	To Ground	Date	4/7/2016
Sampling Method	Low Flow	Sample Time	1030
Field Conditions			

Depth to Water (ft)	23.44
Total Well Depth (ft)	51.60
Well Diameter (in)	2"
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	12.0	13300	3.95	7.75	-24.5	261	
5	12.1	14170	0.58	7.84	-114.2	896	
10	12.1	13513	0.36	7.87	-110.4	926	
15	12.1	12926	0.27	7.40	-105.9	882	
20	12.1	12146	0.22	7.41	-104.1	538	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES Well has plenty of water, no need to lengthen. Pump sits 1.75 feet from bottom already

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	J. Babcock, L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-2
Water Disposal	Ground	Date	5/4/16
Sampling Method	Low Flow Bladder Pump	Sample Time	0940
Field Conditions	50°F, SW		

Depth to Water (ft) 21.69

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	12.9	12166	1.90	7.32	207.8	4.21	
6	12.9	12161	1.90	7.30	207.4		
9	12.9	12161	1.90	7.28	207.2	4.66	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L ploy	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	J. Babcock, W. Babcock	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	Ground	Date	5/4/16
Sampling Method	Low Flow Bladder Pump	Sample Time	10:00 NA - NO SAMPLE
Field Conditions	55°F, SUN		

Depth to Water (ft) 0360

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
	NO WATER!						

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1 L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES ELF-15 = 34.53 , NO SAMPLE , DOES NOT PRODUCE

~~NO SAMPLES TO ANALYZE~~

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	J. Babcock, T. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-7
Water Disposal	Ground	Date	5/4/16
Sampling Method	Low Flow Bladder Pump	Sample Time	1030
Field Conditions	60°F, SUN		

Depth to Water (ft) 23.47

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	12.2	13517	0.29	7.97	-119.7	306	
6	12.1	12343	0.27	7.99	-116.2		
8	12.1	12211	0.28	7.91	-112.8	90.7	
						30.8 AFTER SAMPLE	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

DUPLICATE: DUP-1 @ 1040
CONCENTRO AFTER ELF-7 SAMPLE

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	J. Babcock, L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	Ground	Date	5/4/16
Sampling Method	Low Flow Bladder Pump	Sample Time	1100
Field Conditions	60°F, SUN		

Depth to Water (ft) 48.73

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
APRIL SAMPLE 10	15.5	41318	2.17	7.43	125.3	237	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES *FINED BOTTLES FIRST DUE TO LOW WATER, PUMBED ~4 CYCLES BEFORE SAMPLE COLLECTION, RECORDING FIELD DATA AFTER SAMPLE COLLECTION*

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	J. Babcock, W. Babcock	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-3
Water Disposal	Ground	Date	5/4/16
Sampling Method	Low Flow Bladder Pump	Sample Time	NA - NO SAMPLE
Field Conditions	60°F, SUN		

Depth to Water (ft) NA - NO MEASURABLE WATER

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
		NO	PURGE,	NOT ENOUGH WATER			

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES NO PURGE, NO SAMPLE, NO MEASURABLE WATER IN WELL

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	J. Babcock, J. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-7
Water Disposal	Ground	Date	5/4/16
Sampling Method	Low Flow Bladder Pump	Sample Time	1150
Field Conditions	65°F, SUN		

Depth to Water (ft) 13.87

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	12.0	17690	2.98	7.35	116.0	36.1	
6	12.0	17669	2.30	7.17	120.1		
8	11.9	17657	2.26	7.15	121.6	49.5	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	J. Babcock, L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-4
Water Disposal	Ground	Date	5/4/16
Sampling Method	Low Flow Bladder Pump	Sample Time	1220
Field Conditions	65°F, SUN		

Depth to Water (ft) 14.41

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	11.9	12576	0.46	7.33	135.0	52.0	
6	11.8	12553	0.30	7.21	135.9		
8	11.8	12541	0.27	7.19	136.1	18.5	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	J. Babcock, Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-8
Water Disposal	Ground	Date	5/4/16
Sampling Method	Low Flow Bladder Pump	Sample Time	1240
Field Conditions	65°F, SUN		

Depth to Water (ft) 8.45

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	12.7	9260	2.00	7.52	67.4	1000 +	
6	12.8	9840	2.51	7.51	55.6	↓	
8	12.8	7932	2.47	7.50	52.2	↓	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J.Babcock, M.Machinal	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	EIF-11
Water Disposal	To Ground	Date	5/4/16
Sampling Method	Low Flow	Sample Time	10:00
Field Conditions	60°F, sunny, breeze		

Depth to Water (ft) 28.31 26.31
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	13.3	20615	1.20	7.29	74.5	32.2	
6	13.3	20304	1.60	7.23	10.5		
8	13.4	20408	1.96	7.23	-18.2	overrange	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J.Babcock, M.Machinal	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-6
Water Disposal	To Ground	Date	5/4/16
Sampling Method	Low Flow	Sample Time	11:10
Field Conditions	Sunny, 60°, Breeze		

Depth to Water (ft)	16.12
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
	17	27547	3.00	6.89	-105.8		

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L ploy	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter	Project #	PERCM52
Sampler(s)	J.Babcock, M.Machinal	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-5
Water Disposal	To Ground	Date	5/4/16
Sampling Method	Low Flow	Sample Time	11:50
Field Conditions	Sunny, 60, Breeze		

Depth to Water (ft) 15.35

Total Well Depth (ft)

Well Diameter (in)

Final DTW (ft)

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
	15.0	28062	1.50	7.11	-104.5	654	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	MS,RF	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-2
Water Disposal	Ground	Date	9/8/2016
Sampling Method	Low Flow Bladder Pump	Sample Time	1630
Field Conditions			

Depth to Water (ft) 22.12
Total Well Depth (ft) _____
Well Diameter (in) 2"
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	16.0	11596	1.61	7.04	269.6	2.67	
2	14.8	11285	0.79	7.03	266.9		
4	14.7	11298	1.05	6.99	264.7		
8	14.7	11284	0.93	6.98	263.2	173	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: _____

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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	MS,RF	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-1D
Water Disposal	Ground	Date	9/8/2016
Sampling Method	Low Flow Bladder Pump	Sample Time	1700
Field Conditions			

Depth to Water (ft) 83.24

Total Well Depth (ft) _____

Well Diameter (in) 2"

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0							

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

NO Sample, Well went dry before first parameter reading
*Tugged top of pump before pulling plug

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	MS,RF	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-9
Water Disposal	Ground	Date	9/8/2016
Sampling Method	Low Flow Bladder Pump	Sample Time	700
Field Conditions			

Depth to Water (ft) 23.40
Total Well Depth (ft) _____
Well Diameter (in) 2"
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	14.4	12674	0.61	7.85	281.0	89.7	
2	13.7	12793	0.13	7.81	269.6	31.5	
4	13.8	12051	0.10	7.82	263.2	16.5	
6	13.7	11844	0.09	7.85	257.1	19.6	
10	13.6	11678	0.08	7.86	244.8	13.6	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____

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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	MS,RF	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	Ground	Date	9/8/2016
Sampling Method	Low Flow Bladder Pump	Sample Time	1800
Field Conditions			

Depth to Water (ft) 48.05

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

No SAMPLE

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	14.9	36455	2.22	7.01	286.3	28.3	
2	14.7	36317	0.53	6.95	281.6	29.9	
4	14.9	36445	0.67	6.93	274.4	28.3	
6	14.9	36464	0.36	6.91	272.6		
8	14.8	36334	0.23	6.90	270.9	30.1	
10	14.9	36404	0.20	6.90	269.0		

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Well went dry during first bottle fill. Tagged top of pump before pulling plug

Signature: _____

Date: _____

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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	MS,RF	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF- 3
Water Disposal	Ground	Date	9/19/2016
Sampling Method	Low Flow Bladder Pump	Sample Time	1800
Field Conditions			

Depth to Water (ft)	34.02
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	

NO SAMPLE

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Tagged Top of pump upon arrival. Pump is already on bottom.

Signature: _____

Date: _____

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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	MS,RF	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-7
Water Disposal	Ground	Date	9/18/2016
Sampling Method	Low Flow Bladder Pump	Sample Time	1830
Field Conditions			

Depth to Water (ft) 14.2
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	15.4	17671	0.47	6.89	256.6	11.1	
2	15.5	17403	0.21	6.86	255.0		
4	15.4	17364	0.19	6.86	254.3	8.34	
8	15.4	17397	0.15	6.83	252.2		
10	15.3	17268	0.13	6.83	251.6	3.85	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

* Duplicate Taken @ 1800

Signature: _____

Date: _____

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	MS/RP	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	EU-11
Water Disposal	Ground	Date	9/8/16
Sampling Method	Low Flow Bladder Pump	Sample Time	16:50
Field Conditions	Hot, Sunny, V. Windy		

Depth to Water (ft)	28.2'
Total Well Depth (ft)	
Well Diameter (in)	2"
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	19.0	18092	4.46	7.07	265.9		Above Range
2	16.3	18319	0.33	7.04	198.0		
4	16.0	18084	0.26	6.99	203.6	459	
6	16.1	17961	0.49	6.94	190.3		
8	15.9	17834	0.58	6.92	192.6	54.6	
10	16.0	17852	0.59	6.91	195.2		
12	16.0	17785	0.53	6.90	195.8	21.5	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

F.B. taken @ 17:10
(field blank)

Signature: _____

Date: _____

9/8/16

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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	MS,RF	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-6 (no sample)
Water Disposal	Ground	Date	9/8/16
Sampling Method	Low Flow Bladder Pump	Sample Time	N/S
Field Conditions	Dry, hot		

Depth to Water (ft)	Dry well
Total Well Depth (ft)	1
Well Diameter (in)	2"
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

N/S → Dry well. Grass/Root filaments + silt on well tape @ bottom. (on top of pump)

Signature: 

Date: 9/8/16

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	MS (RF)	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	EIF-5
Water Disposal	Ground	Date	9/8/16
Sampling Method	Low Flow Bladder Pump	Sample Time	17:40
Field Conditions	Hot, sunny, V. windy		

Depth to Water (ft)	17.3'
Total Well Depth (ft)	
Well Diameter (in)	2"
Final DTW (ft)	

* Would have liked to allow parameters longer to stabilize prior to sampling, however, well pump sucking from beginning / low water level, attempted to obtain adequate sample. (RF)

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	17.2	27398	1.90	7.21	51.3	332	Sputtering off/on
2	15.9	26444	1.89	7.11	242.1	325	
4	16.0	25999	1.07	7.05	244.7		
6	15.5	25638	1.18	7.02	246.7	325	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES Barely any water at bottom of well. maybe 2-4" between water level & soil/silt.
Full sample successful.

Signature:

Rebecca Jam

Date:

9/8/16

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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	MS,RF	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-4 (no sample)
Water Disposal	Ground	Date	9/8/16
Sampling Method	Low Flow Bladder Pump	Sample Time	N/S
Field Conditions	Hot, sunny, windy		

Depth to Water (ft)	Dry Well	Tagged top of pump
Total Well Depth (ft)		
Well Diameter (in)	2"	
Final DTW (ft)		

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES No sample - dry well.

Signature:

Date:

9/8/16

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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	MS,RF	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-8
Water Disposal	Ground	Date	9/8/16
Sampling Method	Low Flow Bladder Pump	Sample Time	(18:50 EB)
Field Conditions	Sunny, moderately windy Sample taken in shade		

Depth to Water (ft)	8.66'
Total Well Depth (ft)	
Well Diameter (in)	2"
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
1	16.2	11173	0.80	7.63	103.1	11.7	V. clear right away
2	15.9	11019	0.24	7.58	60.8		
4	15.8	11007	0.14	7.49	13.8	2.64	
6	15.8	10955	0.12	7.46	3.8	2.64	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

* Equipment Blank taken prior to main sample (ELF-8 EB) @ 18:50 (Taken after parameters)

Signature:

Date:

9/8/16

**Consulting Scientists and Engineers**

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Butte, Montana 59701
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FAX: 406-723-1537

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-1D (ELF-1D)
Water Disposal	Ground	Date	5/9/17
Sampling Method	Low Flow Bladder Pump	Sample Time	
Field Conditions			

Depth to Water (ft)	82.60
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Not enough water to sample

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-2
Water Disposal	Ground	Date	5/9/17
Sampling Method	Low Flow Bladder Pump	Sample Time	1400
Field Conditions			

Depth to Water (ft)	22.21
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	13.4	14675	1.16	7.03	225.6	1.59	
6	13.4	14672	1.07	7.03	226.1	—	
8	13.4	14673	0.97	7.03	226.9	1.11	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____

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FAX: 406-723-1537

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-3
Water Disposal	Ground	Date	5/9/17
Sampling Method	Low Flow Bladder Pump	Sample Time	
Field Conditions			

Depth to Water (ft)	33.43
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Not enough water to sample, right at top of pump

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	EF-ELF-4
Water Disposal	Ground	Date	5/9/17
Sampling Method	Low Flow Bladder Pump	Sample Time	1145
Field Conditions			

Depth to Water (ft)	16.05
Total Well Depth (ft)	
Well Diameter (in)	
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
1	13.3	15780	6.45	7.44	266.3	4.73	
4	12.1	15659	6.99	6.99	284.5	1.52	
6	12.2	15667	0.32	6.98	285.3	—	
8	12.2	15660	0.27	6.98	285.6	3.46	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____

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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	FLF-5
Water Disposal	Ground	Date	5/9/17
Sampling Method	Low Flow Bladder Pump	Sample Time	1110
Field Conditions			

Depth to Water (ft) 17.13
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Not Much water, Sampled w/out ~~para~~ collecting parameters

Signature: _____

Date: _____



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FAX: 406-723-1537

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-6
Water Disposal	Ground	Date	5/9/17
Sampling Method	Low Flow Bladder Pump	Sample Time	10:57
Field Conditions			

Depth to Water (ft) 16.52 (at top of pump)
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

No Sample - not enough water

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-7
Water Disposal	Ground	Date	5/9/17
Sampling Method	Low Flow Bladder Pump	Sample Time	12:15
Field Conditions			

Depth to Water (ft) 16.27

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
1	12.8	22509	1.66	6.98	286.5	1.37	
4	12.6	22471	0.50	6.93	289.2	—	
6	12.9	22447	0.29	6.93	290.2	3.25	
8	12.9	22443	0.25	6.92	290.5	0.54	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-8
Water Disposal	Ground	Date	5/9/17
Sampling Method	Low Flow Bladder Pump	Sample Time	1020
Field Conditions			

Depth to Water (ft) 8.60
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
2	12.9	12066	1.48	7.50	289.9	16.2	
4	12.7	11974	0.48	7.49	279.8	1	
6	12.6	11970	0.42	7.49	277.5		
8	12.6	11971	0.33	7.50	274.1	4.39	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

DUP @ 1030

Signature: _____ Date: _____

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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-9
Water Disposal	Ground	Date	5/9/17
Sampling Method	Low Flow Bladder Pump	Sample Time	1330
Field Conditions			

Depth to Water (ft) 23.39

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
2	12.6	17512	1.39	7.79	99.9	118	
4	12.6	16394	0.31	7.79	90.9	19.3	
6	12.6	16108	0.23	7.81	89.5	—	
8	12.6	13188	0.19	7.83	88.7	15.2	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: _____

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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	Ground	Date	5/9/17
Sampling Method	Low Flow Bladder Pump	Sample Time	1255
Field Conditions			

Depth to Water (ft) 45.41
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
	13.0	47273	2.86	6.93	287.1	20.2	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Typically not much water poor producer. Collected
Sample, then parameters FB collected @ 1300

Signature: _____

Date: _____

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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	L. Watson	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-11
Water Disposal	Ground	Date	5/9/17
Sampling Method	Low Flow Bladder Pump	Sample Time	0945
Field Conditions			

Depth to Water (ft)	28.13
Total Well Depth (ft)	
Well Diameter (in)	2
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
2	13.5	618.3	2.09	7.20	315.1	300	yellow tint
4	13.5	618.3	1.53	7.18	310.0	132	
6	13.4	618.4	1.19	7.19	308.7	—	
8	13.4	618.4	1.13	7.19	308.6	—	
10	13.4	618.4	1.02	7.19	308.2	36.3	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____

Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCMS2
Sampler(s)	R. Farren, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-1
Water Disposal	Ground	Date	8/2/17
Sampling Method	Low Flow Bladder Pump	Sample Time	N/A
Field Conditions			

Depth to Water (ft)	82.35
Total Well Depth (ft)	2'
Well Diameter (in)	83.6
Final DTW (ft)	

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	15.9	38211	0.37	6.82	-2.8	24.9	
6	16.5	37886	0.25	6.81	-3.7		

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Pumped dry while grabbing parameters

Signature: _____ Date: _____



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCMS2
Sampler(s)	R. Farren, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-2
Water Disposal	Ground	Date	8/2/17
Sampling Method	Low Flow Bladder Pump	Sample Time	1925
Field Conditions			

Depth to Water (ft)	22.14
Total Well Depth (ft)	27.7
Well Diameter (in)	2"
Final DTW (ft)	—

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	13.7	15013	0.87	7.01	59.7	43.1	
6	13.7	15015	0.95	7.01	59.8		
8	13.8	15019	0.89	7.01	58.8		
10	13.7	15014	0.78	7.01	58.5	16.1	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCMS2
Sampler(s)	R. Farren, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-3
Water Disposal	Ground	Date	8/2/17
Sampling Method	Low Flow Bladder Pump	Sample Time	18:15
Field Conditions	Sunny, warm, windy		

Depth to Water (ft)	33.32
Total Well Depth (ft)	-
Well Diameter (in)	2"
Final DTW (ft)	-

*** FIELD BLANK ***
(ELF-3-FB) 8/2/17 @ 18:28

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	22.4	38544	6.50	7.55	169.9	-	
2	21.4	37857	6.53	7.50	168.9	506	
4	20.3	36654	4.78	7.36	166.9	-	
6	19.4	36073	3.55	7.31	164.9	99.1	

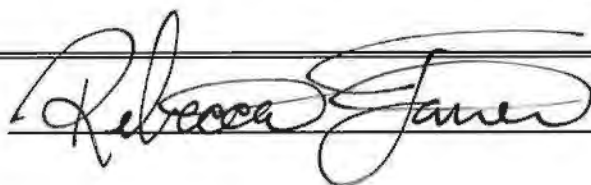
SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228 1 of 2 bottles
(1) 250 mL poly	HNO3	Total metals, Total mercury ✓
(1) 250 mL poly	H2SO4	Nitrite + Nitrate ✓
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity Partial (2/3)

NOTES

* Bubbling air while pumping... partially filling bottles first, then will fill fully if able. **ONLY got 4/5 bottles**

Signature:



Date:

8/2/17

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	R. Farren, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-4
Water Disposal	Ground	Date	8/2/17
Sampling Method	Low Flow Bladder Pump	Sample Time	17:08
Field Conditions			

Depth to Water (ft)

16.25

Total Well Depth (ft)

-

Well Diameter (in)

2"

Final DTW (ft)

-

→ (Bottom of well ~ 18')
May not have much sample.

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	19.4	12581	7.87	7.57	139.3	-	
2	14.5	11195	0.68	7.11	137.3	37.6	
4	14.3	11108	0.45	6.98	135.4	33.5	
6	14.3	11098	0.42	6.95	134.5	32.0	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Full sample!
☺

Signature:

Rebecca Jane

Date:

8/2/17

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Butte, Montana 59701

Phone: 406-782-5220

FAX: 406-723-1537

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	R. Farren, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-6
Water Disposal	Ground	Date	8/2/17
Sampling Method	Low Flow Bladder Pump	Sample Time	N/A
Field Conditions	windy & warm		

Depth to Water (ft)	DRY
Total Well Depth (ft)	-
Well Diameter (in)	2"
Final DTW (ft)	-

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature:

Date:

8/2/17

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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCMS2
Sampler(s)	R. Farren, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-7
Water Disposal	Ground	Date	8/2/17
Sampling Method	Low Flow Bladder Pump	Sample Time	17:34
Field Conditions	Sunny, Breezy, Warm		

Depth to Water (ft)	14.37
Total Well Depth (ft)	-
Well Diameter (in)	2"
Final DTW (ft)	-

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	18.4	17719	3.36	7.20	145.3	-	
2	16.1	16691	0.66	6.95	144.2	159	
4	15.8	16544	0.35	6.86	142.2	-	
6	16.0	16603	0.27	6.81	138.7	186	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature:

Date:

8/2/17



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SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	R. Farren, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	LLF-8
Water Disposal	Ground	Date	9/2/17
Sampling Method	Low Flow Bladder Pump	Sample Time	1840
Field Conditions			

Depth to Water (ft)	8.79
Total Well Depth (ft)	—
Well Diameter (in)	2"
Final DTW (ft)	—

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
4	15.6	12408	0.09	7.48	38.3	401	
6	15.7	12428	0.09	7.49	38.0		
8	15.7	12418	0.08	7.48	37.8		
10	15.7	12402	0.08	7.49	37.8	350	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



Consulting Scientists and Engineers
480 East Park Street
Butte, Montana 59701
Phone: 406-782-5220
FAX: 406-723-1537

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCMS2
Sampler(s)	R. Farren, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-9
Water Disposal	Ground	Date	8/2/17
Sampling Method	Low Flow Bladder Pump	Sample Time	19:51
Field Conditions	windy, warm		

Depth to Water (ft)	23.59 31.38
Total Well Depth (ft)	-
Well Diameter (in)	2"
Final DTW (ft)	-

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	16.7	11115	4.72	7.86	143.9	-	
2	13.6	11603	1.87	7.67	143.4	35.0	
4	13.1	11628	0.32	7.65	141.2	-	
6	13.1	11376	0.27	7.66	140.0	325.0	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature:

Rebecca Jones

Date:

8/2/17

**Consulting Scientists and Engineers**

480 East Park Street
Butte, Montana 59701
Phone: 406-782-5220
FAX: 406-723-1537

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	R. Farren, T. Deboo	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	Ground	Date	8/2/17
Sampling Method	Low Flow Bladder Pump	Sample Time	19:15
Field Conditions	Sunny, warm, windy		

Depth to Water (ft)	46.80'
Total Well Depth (ft)	-
Well Diameter (in)	2"
Final DTW (ft)	-

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	22.3	38047	4.38	7.15	172.2	-	
2	16.1	35081	1.57	6.80	171.2	23.7	
4	15.6	34319	1.22	6.75	171.0	-	
6	15.1	34018	0.65	6.75	168.5	251	
8	15.1	33985	0.44	6.75	164.8	269	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature:

Date:

8/2/17



Consulting Scientists and Engineers
 480 East Park Street
 Butte, Montana 59701
 Phone: 406-782-5220
 FAX: 406-723-1537

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	M. Shirley	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-9
Water Disposal	Ground	Date	8/29/2017
Sampling Method	Low Flow Bladder Pump	Sample Time	1530
Field Conditions			

Depth to Water (ft) 22.01

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	13.4	13507	0.60	7.47	309.4	117	
2	13.6	12483	0.42	8.04	290.0		
4	13.6	12434	0.35	6.27	279.6	91.7	
6	13.6	12033	0.30	7.51	265.7		
8	15.4	12266	0.20	7.74	258.2		

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Duplicate Taken @ 1545

Signature: _____ Date: _____

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	M. Shirley	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	Ground	Date	8/29/2017
Sampling Method	Low Flow Bladder Pump	Sample Time	1630
Field Conditions			

Depth to Water (ft) 46.10

Total Well Depth (ft) _____

Well Diameter (in) _____

Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	14.9	42813	4.50	5.30	255.1		
2	13.5	37614	0.87	4.68	250.1		
4	14.0	37744	0.51	5.05	235.2		
6	14.3	37924	0.35	6.08	225.8	123	
8	14.8	38228	0.32	7.43	218.7		
10	15.5	38130	0.31	7.21	213.9		

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

10 Taken @ 1:45

Signature: _____

Date: _____



Consulting Scientists and Engineers

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Butte, Montana 59701
Phone: 406-782-5220
FAX: 406-723-1537

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	M. Shirley	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	EL-1
Water Disposal	Ground	Date	9/15/2017
Sampling Method	Low Flow Bladder Pump	Sample Time	000
Field Conditions			

Depth to Water (ft) 23.32
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
0	14.2	11534	4.37	7.55	277.1		
2	12.4	13714	0.46	7.67	273.8	135	
4	12.4	13756	0.23	7.65	260.3		
6	12.5	13601	0.21	7.64	258.6	139	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____



Consulting Scientists and Engineers

480 East Park Street
Butte, Montana 59701
Phone: 406-782-5220
FAX: 406-723-1537

SITE INFO

Project Name	Hunter Power Plant	Project #	PERCM52
Sampler(s)	M. Shirley	Location	Castle Dale, UT
Decon Method	Dedicated Equipment	Sample ID	ELF-10
Water Disposal	Ground	Date	9/15/2017
Sampling Method	Low Flow Bladder Pump	Sample Time	1145
Field Conditions			

Depth to Water (ft) 51.74
Total Well Depth (ft) _____
Well Diameter (in) _____
Final DTW (ft) _____

TIME (min)	TEMP (°C)	SC (uS)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)	Comments/Observations
10	16.7	44439	1.96	6.76	285.2		
2	16.7	43960	1.98	6.72	286.1	376	
4	14.4	42392	0.32	6.68	287.4		
6	14.3	42273	0.29	6.67	287.5	712	

SAMPLE COLLECTION

CONTAINERS	PRESERVATIVES	ANALYTES/COMMENTS
(1) 1/2 gal poly	HNO3	Radium 226, 228
(1) 250 mL poly	HNO3	Total metals, Total mercury
(1) 250 mL poly	H2SO4	Nitrite + Nitrate
(1) 1-L poly	None	TDS, pH, anions, fluoride, alkalinity

NOTES

Signature: _____ Date: _____

Appendix B

Laboratory Analytical Data



ANALYTICAL SUMMARY REPORT

October 08, 2015

Water and Environmental Technologies

480 E Park St Ste 200

Butte, MT 59701

Work Order: B15091870

Quote ID: B3487 - Pacific Corp

Project Name: PERC M 52

Energy Laboratories Inc Billings MT received the following 2 samples for Water and Environmental Technologies on 9/22/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B15091870-001	ELF-5	09/18/15 12:45	09/22/15	Aqueous	Metals by ICP/ICPMS, Tot. Rec. Alkalinity Mercury, Total Fluoride Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B15091870-002	ELF-6	09/18/15 11:35	09/22/15	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:



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College Station, TX 888.690.2218 • Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

CLIENT: Water and Environmental Technologies
Project: PERC M 52
Work Order: B15091870

Report Date: 10/08/15

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies
Project: PERC M 52
Lab ID: B15091870-001
Client Sample ID: ELF-5

Report Date: 10/08/15
Collection Date: 09/18/15 12:45
Date Received: 09/22/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.2	s.u.	H	0.1		A4500-H B	09/22/15 16:43 / pjw
Solids, Total Dissolved TDS @ 180 C	21000	mg/L	D	200		A2540 C	09/23/15 13:17 / nae
INORGANICS							
Alkalinity, Total as CaCO ₃	484	mg/L		4		A2320 B	09/23/15 22:15 / rbf
Bicarbonate as HCO ₃	591	mg/L		4		A2320 B	09/23/15 22:15 / rbf
Carbonate as CO ₃	ND	mg/L		4		A2320 B	09/23/15 22:15 / rbf
Chloride	4250	mg/L	D	10		E300.0	09/29/15 05:53 / ajr
Sulfate	11200	mg/L	D	40		E300.0	09/29/15 05:53 / ajr
Fluoride	0.4	mg/L		0.1		A4500-F C	09/25/15 17:28 / ajr
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	27.7	mg/L	D	0.06		E353.2	09/23/15 10:20 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.001		E200.8	09/29/15 01:34 / mas
Arsenic	ND	mg/L		0.001		E200.8	09/30/15 00:48 / amm
Barium	ND	mg/L		0.05		E200.7	09/24/15 17:19 / mas
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 22:45 / mas
Boron	5.44	mg/L	D	0.09		E200.7	09/24/15 17:19 / mas
Cadmium	ND	mg/L		0.001		E200.8	09/25/15 22:45 / mas
Calcium	464	mg/L		1		E200.7	09/24/15 17:19 / mas
Chromium	0.004	mg/L		0.001		E200.8	09/29/15 01:34 / mas
Cobalt	ND	mg/L		0.005		E200.8	09/25/15 22:45 / mas
Lead	ND	mg/L		0.001		E200.8	09/25/15 22:45 / mas
Lithium	3.7	mg/L		0.1		E200.7	09/24/15 17:19 / mas
Magnesium	866	mg/L	D	3		E200.7	09/24/15 17:19 / mas
Molybdenum	0.002	mg/L		0.001		E200.8	09/25/15 22:45 / mas
Selenium	0.052	mg/L	D	0.006		E200.8	09/30/15 20:28 / mas
Sodium	5780	mg/L	D	10		E200.7	09/24/15 17:19 / mas
Thallium	ND	mg/L		0.0005		E200.8	09/29/15 01:34 / mas
METALS, TOTAL							
Mercury	ND	mg/L		0.0001		E245.1	09/23/15 14:13 / ser
RADIONUCLIDES - TOTAL							
Radium 226	1.0	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 precision (±)	0.31	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 228	2.2	pCi/L				RA-05	09/30/15 11:59 / eli-ca
Radium 228 precision (±)	0.93	pCi/L				RA-05	09/30/15 11:59 / eli-ca
Radium 228 MDC	1.4	pCi/L				RA-05	09/30/15 11:59 / eli-ca
Radium 226 + Radium 228	3.2	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies
Project: PERC M 52
Lab ID: B15091870-002
Client Sample ID: ELF-6

Report Date: 10/08/15
Collection Date: 09/18/15 11:35
DateReceived: 09/22/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.2	s.u.	H	0.1		A4500-H B	09/22/15 16:46 / pjw
Solids, Total Dissolved TDS @ 180 C	22100	mg/L	D	200		A2540 C	09/23/15 13:19 / nae
INORGANICS							
Alkalinity, Total as CaCO ₃	479	mg/L		4		A2320 B	09/23/15 22:21 / rbf
Bicarbonate as HCO ₃	584	mg/L		4		A2320 B	09/23/15 22:21 / rbf
Carbonate as CO ₃	ND	mg/L		4		A2320 B	09/23/15 22:21 / rbf
Chloride	5650	mg/L	D	10		E300.0	09/29/15 06:07 / ajr
Sulfate	9470	mg/L	D	40		E300.0	09/29/15 06:07 / ajr
Fluoride	0.6	mg/L		0.1		A4500-F C	09/25/15 17:30 / ajr
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	26.3	mg/L	D	0.06		E353.2	09/23/15 10:21 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.001		E200.8	09/29/15 01:39 / mas
Arsenic	ND	mg/L	D	0.002		E200.8	09/29/15 01:39 / mas
Barium	ND	mg/L		0.05		E200.7	09/24/15 17:23 / mas
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 22:49 / mas
Boron	14.3	mg/L	D	0.09		E200.7	09/24/15 17:23 / mas
Cadmium	ND	mg/L		0.001		E200.8	09/25/15 22:49 / mas
Calcium	531	mg/L		1		E200.7	09/24/15 17:23 / mas
Chromium	0.001	mg/L		0.001		E200.8	09/29/15 01:39 / mas
Cobalt	0.027	mg/L		0.005		E200.8	09/25/15 22:49 / mas
Lead	ND	mg/L		0.001		E200.8	09/25/15 22:49 / mas
Lithium	5.8	mg/L		0.1		E200.7	09/24/15 17:23 / mas
Magnesium	779	mg/L	D	3		E200.7	09/24/15 17:23 / mas
Molybdenum	ND	mg/L		0.001		E200.8	09/25/15 22:49 / mas
Selenium	0.284	mg/L	D	0.006		E200.8	09/25/15 22:49 / mas
Sodium	6240	mg/L	D	10		E200.7	09/24/15 17:23 / mas
Thallium	ND	mg/L		0.0005		E200.8	09/29/15 01:39 / mas
METALS, TOTAL							
Mercury	ND	mg/L		0.0001		E245.1	09/23/15 14:15 / ser
RADIONUCLIDES - TOTAL							
Radium 226	0.95	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 precision (±)	0.24	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 MDC	0.21	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 228	3.8	pCi/L				RA-05	09/30/15 11:59 / eli-ca
Radium 228 precision (±)	1.3	pCi/L				RA-05	09/30/15 11:59 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	09/30/15 11:59 / eli-ca
Radium 226 + Radium 228	4.7	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 precision (±)	1.3	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R249855
Lab ID: MBLK		Method Blank					Run: MAN-TECH_150923B			09/23/15 21:04
Alkalinity, Total as CaCO ₃	2		mg/L	1.0						
Lab ID: LCS		Laboratory Control Sample					Run: MAN-TECH_150923B			09/23/15 21:11
Alkalinity, Total as CaCO ₃	104		mg/L	4.0	103	90	110			
Lab ID: B15091849-009ADUP	3	Sample Duplicate					Run: MAN-TECH_150923B			09/23/15 21:26
Alkalinity, Total as CaCO ₃		183	mg/L	4.0				1.0	10	
Bicarbonate as HCO ₃		223	mg/L	4.0				1.0	10	
Carbonate as CO ₃		ND	mg/L	4.0					10	
Lab ID: B15091849-010AMS		Sample Matrix Spike					Run: MAN-TECH_150923B			09/23/15 21:41
Alkalinity, Total as CaCO ₃		359	mg/L	4.0	103	80	120			
Lab ID: B15091871-004ADUP	3	Sample Duplicate					Run: MAN-TECH_150923B			09/23/15 22:56
Alkalinity, Total as CaCO ₃		432	mg/L	4.0				0.2	10	
Bicarbonate as HCO ₃		527	mg/L	4.0				0.2	10	
Carbonate as CO ₃		ND	mg/L	4.0					10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 93422
Lab ID: MB-93422		Method Blank					Run: BAL #SD-15_150923B			09/23/15 13:09
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-93422		Laboratory Control Sample					Run: BAL #SD-15_150923B			09/23/15 13:10
Solids, Total Dissolved TDS @ 180 C		1040	mg/L	10	105	90	110			
Lab ID: B15091540-011A DUP		Sample Duplicate					Run: BAL #SD-15_150923B			09/23/15 13:11
Solids, Total Dissolved TDS @ 180 C		19000	mg/L	500				10	5	R
Lab ID: B15091849-008A DUP		Sample Duplicate					Run: BAL #SD-15_150923B			09/23/15 13:14
Solids, Total Dissolved TDS @ 180 C		342	mg/L	17				3.1	5	
Method: A2540 C										Batch: 93423
Lab ID: MB-93423		Method Blank					Run: BAL #SD-15_150923B			09/23/15 13:18
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-93423		Laboratory Control Sample					Run: BAL #SD-15_150923B			09/23/15 13:18
Solids, Total Dissolved TDS @ 180 C		1040	mg/L	10	104	90	110			
Lab ID: B15091870-002A DUP		Sample Duplicate					Run: BAL #SD-15_150923B			09/23/15 13:19
Solids, Total Dissolved TDS @ 180 C		22000	mg/L	180				0.1	5	
Lab ID: B15091872-002A DUP		Sample Duplicate					Run: BAL #SD-15_150923B			09/23/15 13:22
Solids, Total Dissolved TDS @ 180 C		7340	mg/L	160				1.2	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.



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College Station, TX 888.690.2218 • Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	A4500-F C							Analytical Run: MAN-TECH_150925A		
Lab ID:	ICV	Initial Calibration Verification Standard							09/25/15 10:01	
Fluoride		1.03	mg/L	0.10	103	90	110			
Method:	A4500-F C							Batch: R249957		
Lab ID:	MBLK	Method Blank				Run: MAN-TECH_150925A			09/25/15 09:56	
Fluoride		ND	mg/L	0.01						
Lab ID:	LFB	Laboratory Fortified Blank				Run: MAN-TECH_150925A			09/25/15 09:58	
Fluoride		1.06	mg/L	0.10	106	90	110			
Lab ID:	B15091819-001AMS	Sample Matrix Spike				Run: MAN-TECH_150925A			09/25/15 17:12	
Fluoride		3.27	mg/L	0.10	95	80	120			
Lab ID:	B15091819-001AMSD	Sample Matrix Spike Duplicate				Run: MAN-TECH_150925A			09/25/15 17:15	
Fluoride		3.27	mg/L	0.10	95	80	120	0.0	10	
Lab ID:	B15091872-004AMS	Sample Matrix Spike				Run: MAN-TECH_150925A			09/25/15 17:54	
Fluoride		1.21	mg/L	0.10	86	80	120			
Lab ID:	B15091872-004AMSD	Sample Matrix Spike Duplicate				Run: MAN-TECH_150925A			09/25/15 17:56	
Fluoride		1.21	mg/L	0.10	86	80	120	0.0	10	

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	A4500-H B							Analytical Run: PHSC_101-B_150922A		
Lab ID:	pH 8		Initial Calibration Verification Standard						09/22/15 09:25	
pH		7.93	s.u.	0.10	99	98	102			
Method:	A4500-H B							Batch: R249689		
Lab ID:	B15091871-001ADUP		Sample Duplicate				Run: PHSC_101-B_150922A		09/22/15 16:59	
pH		7.10	s.u.	0.10				0.1	3	

Qualifiers:

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0						Analytical Run: IC METROHM 2_150928A				
Lab ID: ICV	2	Initial Calibration Verification Standard								09/28/15 14:37
Chloride		2.17	mg/L	1.0	97	90	110			
Sulfate		8.81	mg/L	1.0	98	90	110			
Method: E300.0						Batch: R250095				
Lab ID: MB	2	Method Blank								09/28/15 14:23
Chloride		0.1	mg/L	0.02						
Sulfate		ND	mg/L	0.2						
Lab ID: LFB	2	Laboratory Fortified Blank								09/28/15 14:50
Chloride		3.08	mg/L	1.0	99	90	110			
Sulfate		9.27	mg/L	1.0	103	90	110			
Lab ID: B15091853-001AMS	2	Sample Matrix Spike								09/29/15 05:00
Chloride		371	mg/L	6.0	102	90	110			
Sulfate		4760	mg/L	18		90	110			A
Lab ID: B15091853-001AMSD	2	Sample Matrix Spike Duplicate								09/29/15 05:13
Chloride		373	mg/L	6.0	102	90	110	0.4	20	
Sulfate		4780	mg/L	18		90	110	0.4	20	A
Lab ID: B15091871-008AMS	2	Sample Matrix Spike								09/29/15 08:09
Chloride		337	mg/L	6.0	98	90	110			
Sulfate		5110	mg/L	18		90	110			A
Lab ID: B15091871-008AMSD	2	Sample Matrix Spike Duplicate								09/29/15 08:22
Chloride		334	mg/L	6.0	96	90	110	1.0	20	
Sulfate		5070	mg/L	18		90	110	0.9	20	A

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-B_150923B		
Lab ID: ICV		Initial Calibration Verification Standard							09/23/15 10:06	
Nitrogen, Nitrate+Nitrite as N		0.567	mg/L	0.010	100	90	110			
Method: E353.2										Batch: R249802
Lab ID: MBLK		Method Blank				Run: FIA203-B_150923B			09/23/15 10:07	
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.005						
Lab ID: LFB		Laboratory Fortified Blank				Run: FIA203-B_150923B			09/23/15 10:08	
Nitrogen, Nitrate+Nitrite as N		0.963	mg/L	0.010	96	90	110			
Lab ID: B15091820-001AMS		Sample Matrix Spike				Run: FIA203-B_150923B			09/23/15 10:14	
Nitrogen, Nitrate+Nitrite as N		1.33	mg/L	0.010	101	90	110			
Lab ID: B15091820-001AMSD		Sample Matrix Spike Duplicate				Run: FIA203-B_150923B			09/23/15 10:15	
Nitrogen, Nitrate+Nitrite as N		1.32	mg/L	0.010	100	90	110	0.6	10	

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Analytical Run: ICP203-B_150924A
Lab ID: ICV	6	Continuing Calibration Verification Standard								09/24/15 10:30
Barium		2.45	mg/L	0.10	98	95	105			
Boron		2.47	mg/L	0.10	99	95	105			
Calcium		24.7	mg/L	1.0	99	95	105			
Lithium		1.23	mg/L	0.10	99	95	105			
Magnesium		24.7	mg/L	1.0	99	95	105			
Sodium		24.7	mg/L	1.0	99	95	105			
Method: E200.7										Batch: 93389
Lab ID: MB-93389	6	Method Blank								Run: ICP203-B_150924A 09/24/15 16:51
Barium		ND	mg/L	0.0002						
Boron		ND	mg/L	0.003						
Calcium		0.04	mg/L	0.007						
Lithium		ND	mg/L	0.001						
Magnesium		0.006	mg/L	0.003						
Sodium		ND	mg/L	0.01						
Lab ID: LCS-93389	6	Laboratory Control Sample								Run: ICP203-B_150924A 09/24/15 16:54
Barium		0.469	mg/L	0.10	94	85	115			
Boron		0.500	mg/L	0.10	100	85	115			
Calcium		25.4	mg/L	1.0	102	85	115			
Lithium		0.506	mg/L	0.10	101	85	115			
Magnesium		25.7	mg/L	1.0	103	85	115			
Sodium		25.9	mg/L	1.0	104	85	115			
Lab ID: B15091872-004BMS3	6	Sample Matrix Spike								Run: ICP203-B_150924A 09/24/15 17:47
Barium		0.471	mg/L	0.050	91	70	130			
Boron		4.64	mg/L	0.066		70	130			A
Calcium		507	mg/L	1.0		70	130			A
Lithium		2.05	mg/L	0.10	74	70	130			
Magnesium		531	mg/L	1.1		70	130			A
Sodium		2720	mg/L	4.4		70	130			A
Lab ID: B15091872-004BMDS	6	Sample Matrix Spike Duplicate								Run: ICP203-B_150924A 09/24/15 17:51
Barium		0.466	mg/L	0.050	90	70	130	1.0	20	
Boron		4.63	mg/L	0.066		70	130	0.2	20	A
Calcium		510	mg/L	1.0		70	130	0.6	20	A
Lithium		2.06	mg/L	0.10	77	70	130	0.6	20	
Magnesium		537	mg/L	1.1		70	130	1.1	20	A
Sodium		2760	mg/L	4.4		70	130	1.5	20	A

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS203-B_150925B		
Lab ID: QCS	6	Initial Calibration Verification Standard							09/25/15 13:08	
Beryllium		0.0261	mg/L	0.0010	104	90	110			
Cadmium		0.0254	mg/L	0.0010	102	90	110			
Cobalt		0.0513	mg/L	0.010	103	90	110			
Lead		0.0491	mg/L	0.010	98	90	110			
Molybdenum		0.0489	mg/L	0.0050	98	90	110			
Selenium		0.0516	mg/L	0.0050	103	90	110			
Method: E200.8								Batch: 93389		
Lab ID: MB-93389	10	Method Blank							Run: ICPMS203-B_150925B	
Antimony		4E-05	mg/L	4E-05						09/25/15 22:25
Arsenic		0.002	mg/L	6E-05						
Beryllium		ND	mg/L	6E-06						
Cadmium		ND	mg/L	2E-05						
Chromium		0.0010	mg/L	0.0002						
Cobalt		ND	mg/L	1E-05						
Lead		ND	mg/L	3E-05						
Molybdenum		ND	mg/L	3E-05						
Selenium		0.007	mg/L	0.0002						
Thallium		ND	mg/L	1E-05						
Lab ID: LCS-93389	10	Laboratory Control Sample							Run: ICPMS203-B_150925B	
Antimony		0.551	mg/L	0.0050	110	85	115			09/26/15 00:14
Arsenic		0.452	mg/L	0.0010	90	85	115			
Beryllium		0.271	mg/L	0.0010	108	85	115			
Cadmium		0.249	mg/L	0.0010	100	85	115			
Chromium		0.514	mg/L	0.0010	103	85	115			
Cobalt		0.513	mg/L	0.0010	103	85	115			
Lead		0.565	mg/L	0.0010	113	85	115			
Molybdenum		0.526	mg/L	0.0050	105	85	115			
Selenium		0.449	mg/L	0.0050	88	85	115			
Thallium		0.540	mg/L	0.0010	108	85	115			
Lab ID: B15091872-004BMS3	10	Sample Matrix Spike							Run: ICPMS203-B_150925B	
Antimony		0.490	mg/L	0.0010	98	70	130			09/26/15 00:17
Arsenic		0.443	mg/L	0.0010	89	70	130			
Beryllium		0.233	mg/L	0.0010	93	70	130			
Cadmium		0.236	mg/L	0.0010	94	70	130			
Chromium		0.460	mg/L	0.0050	92	70	130			
Cobalt		0.462	mg/L	0.0050	92	70	130			
Lead		0.481	mg/L	0.0010	96	70	130			
Molybdenum		0.524	mg/L	0.0010	105	70	130			
Selenium		0.472	mg/L	0.0024	94	70	130			
Thallium		0.478	mg/L	0.00050	96	70	130			

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 93389
Lab ID: B15091872-004BMSD 10 Sample Matrix Spike Duplicate										Run: ICPMS203-B_150925B 09/26/15 00:21
Antimony		0.491	mg/L	0.0010	98	70	130	0.2	20	
Arsenic		0.457	mg/L	0.0010	91	70	130	3.2	20	
Beryllium		0.230	mg/L	0.0010	92	70	130	1.2	20	
Cadmium		0.233	mg/L	0.0010	93	70	130	1.0	20	
Chromium		0.474	mg/L	0.0050	95	70	130	3.0	20	
Cobalt		0.464	mg/L	0.0050	93	70	130	0.5	20	
Lead		0.485	mg/L	0.0010	97	70	130	0.7	20	
Molybdenum		0.526	mg/L	0.0010	105	70	130	0.4	20	
Selenium		0.492	mg/L	0.0024	98	70	130	4.0	20	
Thallium		0.478	mg/L	0.00050	96	70	130	0.1	20	

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QA/QC Summary Report

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Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method:	E200.8	Analytical Run: ICPMS203-B_150930B									
Lab ID:	QCS	Initial Calibration Verification Standard								09/30/15 16:47	
Selenium		0.0507	mg/L	0.0050	101	90	110				
Method:	E200.8										Batch: 93389
Lab ID:	MB-93389	10	Method Blank			Run: ICPMS203-B_150930B			09/30/15 20:24		
Antimony		ND	mg/L	4E-05							
Arsenic		0.001	mg/L	6E-05							
Beryllium		2E-05	mg/L	6E-06							
Cadmium		0.002	mg/L	2E-05							
Chromium		ND	mg/L	0.0002							
Cobalt		ND	mg/L	1E-05							
Lead		0.005	mg/L	3E-05							
Molybdenum		ND	mg/L	3E-05							
Selenium		ND	mg/L	0.0002							
Thallium		ND	mg/L	1E-05							
Lab ID:	LCS-93389	10	Laboratory Control Sample			Run: ICPMS203-B_150930B			09/30/15 20:36		
Antimony		0.528	mg/L	0.0050	106	85	115				
Arsenic		0.502	mg/L	0.0010	100	85	115				
Beryllium		0.263	mg/L	0.0010	105	85	115				
Cadmium		0.271	mg/L	0.0010	108	85	115				
Chromium		0.513	mg/L	0.0010	103	85	115				
Cobalt		0.518	mg/L	0.0010	104	85	115				
Lead		0.511	mg/L	0.0010	101	85	115				
Molybdenum		0.543	mg/L	0.0050	109	85	115				
Selenium		0.477	mg/L	0.0050	95	85	115				
Thallium		0.531	mg/L	0.0010	106	85	115				
Lab ID:	B15091872-004BMS3	10	Sample Matrix Spike			Run: ICPMS203-B_150930B			09/30/15 20:40		
Antimony		0.532	mg/L	0.0010	106	70	130				
Arsenic		0.520	mg/L	0.0010	102	70	130				
Beryllium		0.262	mg/L	0.0010	105	70	130				
Cadmium		0.264	mg/L	0.0010	106	70	130				
Chromium		0.550	mg/L	0.0050	109	70	130				
Cobalt		0.562	mg/L	0.0050	111	70	130				
Lead		0.561	mg/L	0.0010	108	70	130				
Molybdenum		0.561	mg/L	0.0010	112	70	130				
Selenium		0.475	mg/L	0.0012	94	70	130				
Thallium		0.564	mg/L	0.00050	113	70	130				
Lab ID:	B15091872-004BMSD	10	Sample Matrix Spike Duplicate			Run: ICPMS203-B_150930B			09/30/15 20:55		
Antimony		0.579	mg/L	0.0010	116	70	130	8.4	20		
Arsenic		0.524	mg/L	0.0010	103	70	130	0.9	20		
Beryllium		0.282	mg/L	0.0010	113	70	130	7.5	20		
Cadmium		0.278	mg/L	0.0010	111	70	130	5.1	20		
Chromium		0.542	mg/L	0.0050	108	70	130	1.6	20		

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 93389
Lab ID: B15091872-004BMSD 10 Sample Matrix Spike Duplicate										Run: ICPMS203-B_150930B 09/30/15 20:55
Cobalt		0.589	mg/L	0.0050	116	70	130	4.7	20	
Lead		0.573	mg/L	0.0010	110	70	130	2.0	20	
Molybdenum		0.586	mg/L	0.0010	117	70	130	4.4	20	
Selenium		0.490	mg/L	0.0012	97	70	130	3.2	20	
Thallium		0.568	mg/L	0.00050	114	70	130	0.6	20	

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Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8						Analytical Run: ICPMS206-B_150928A				
Lab ID: QCS	4	Initial Calibration Verification Standard							09/28/15 19:27	
Antimony		0.0493	mg/L	0.050	99	90	110			
Arsenic		0.0515	mg/L	0.0050	103	90	110			
Chromium		0.0502	mg/L	0.010	100	90	110			
Thallium		0.0498	mg/L	0.10	100	90	110			
Method: E200.8						Batch: 93389				
Lab ID: MB-93389	10	Method Blank							Run: ICPMS206-B_150928A 09/29/15 01:10	
Antimony		0.0004	mg/L	3E-05						
Arsenic		0.0002	mg/L	7E-05						
Beryllium		1.0E-05	mg/L	9E-06						
Cadmium		5E-05	mg/L	2E-05						
Chromium		0.0001	mg/L	4E-05						
Cobalt		ND	mg/L	8E-06						
Lead		2E-05	mg/L	2E-05						
Molybdenum		7E-05	mg/L	3E-05						
Selenium		ND	mg/L	0.0004						
Thallium		0.0002	mg/L	1.0E-05						
Lab ID: LCS-93389	10	Laboratory Control Sample							Run: ICPMS206-B_150928A 09/29/15 03:09	
Antimony		0.500	mg/L	0.0050	100	85	115			
Arsenic		0.487	mg/L	0.0010	97	85	115			
Beryllium		0.249	mg/L	0.0010	100	85	115			
Cadmium		0.250	mg/L	0.0010	100	85	115			
Chromium		0.484	mg/L	0.0010	97	85	115			
Cobalt		0.509	mg/L	0.0010	102	85	115			
Lead		0.506	mg/L	0.0010	101	85	115			
Molybdenum		0.495	mg/L	0.0050	99	85	115			
Selenium		0.486	mg/L	0.0050	97	85	115			
Thallium		0.556	mg/L	0.0010	111	85	115			
Lab ID: B15091885-003AMS3	10	Sample Matrix Spike							Run: ICPMS206-B_150928A 09/29/15 03:14	
Antimony		0.504	mg/L	0.0010	101	70	130			
Arsenic		0.509	mg/L	0.0010	101	70	130			
Beryllium		0.261	mg/L	0.0010	105	70	130			
Cadmium		0.258	mg/L	0.0010	103	70	130			
Chromium		0.504	mg/L	0.0050	101	70	130			
Cobalt		0.504	mg/L	0.0050	101	70	130			
Lead		0.563	mg/L	0.0010	113	70	130			
Molybdenum		0.498	mg/L	0.0010	99	70	130			
Selenium		0.486	mg/L	0.0021	97	70	130			
Thallium		0.509	mg/L	0.00050	102	70	130			
Lab ID: B15091885-003AMSD	10	Sample Matrix Spike Duplicate							Run: ICPMS206-B_150928A 09/29/15 03:19	
Antimony		0.499	mg/L	0.0010	100	70	130	1.2	20	
Arsenic		0.506	mg/L	0.0010	101	70	130	0.6	20	

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 93389
Lab ID: B15091885-003AMSD 10 Sample Matrix Spike Duplicate										Run: ICPMS206-B_150928A 09/29/15 03:19
Beryllium		0.262	mg/L	0.0010	105	70	130	0.3	20	
Cadmium		0.255	mg/L	0.0010	102	70	130	1.3	20	
Chromium		0.504	mg/L	0.0050	101	70	130	0.0	20	
Cobalt		0.501	mg/L	0.0050	100	70	130	0.6	20	
Lead		0.506	mg/L	0.0010	101	70	130	11	20	
Molybdenum		0.494	mg/L	0.0010	98	70	130	0.8	20	
Selenium		0.504	mg/L	0.0021	101	70	130	3.5	20	
Thallium		0.504	mg/L	0.00050	101	70	130	1.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	E200.8	Analytical Run: ICPMS206-B_150929A								
Lab ID:	QCS	Initial Calibration Verification Standard							09/29/15 14:53	
Arsenic		0.0493	mg/L	0.0050	99	90	110			
Method:	E200.8								Batch: 93389	
Lab ID:	MB-93389	10 Method Blank			Run: ICPMS206-B_150929A				09/30/15 00:29	
Antimony		0.0001	mg/L	3E-05						
Arsenic		0.0002	mg/L	7E-05						
Beryllium		ND	mg/L	9E-06						
Cadmium		3E-05	mg/L	2E-05						
Chromium		9E-05	mg/L	4E-05						
Cobalt		ND	mg/L	8E-06						
Lead		ND	mg/L	2E-05						
Molybdenum		3E-05	mg/L	3E-05						
Selenium		0.001	mg/L	0.0004						
Thallium		0.0001	mg/L	1.0E-05						
Lab ID:	LCS-93389	10 Laboratory Control Sample			Run: ICPMS206-B_150929A				09/30/15 00:57	
Antimony		0.498	mg/L	0.0050	100	85	115			
Arsenic		0.490	mg/L	0.0010	98	85	115			
Beryllium		0.219	mg/L	0.0010	87	85	115			
Cadmium		0.250	mg/L	0.0010	100	85	115			
Chromium		0.480	mg/L	0.0010	96	85	115			
Cobalt		0.454	mg/L	0.0010	91	85	115			
Lead		0.491	mg/L	0.0010	98	85	115			
Molybdenum		0.500	mg/L	0.0050	100	85	115			
Selenium		0.486	mg/L	0.0050	97	85	115			
Thallium		0.494	mg/L	0.0010	99	85	115			
Lab ID:	B15091872-004BMS3	10 Sample Matrix Spike			Run: ICPMS206-B_150929A				09/30/15 01:02	
Antimony		0.502	mg/L	0.0010	100	70	130			
Arsenic		0.501	mg/L	0.0010	100	70	130			
Beryllium		0.214	mg/L	0.0010	85	70	130			
Cadmium		0.244	mg/L	0.0010	98	70	130			
Chromium		0.474	mg/L	0.0050	94	70	130			
Cobalt		0.483	mg/L	0.0050	95	70	130			
Lead		0.495	mg/L	0.0010	99	70	130			
Molybdenum		0.513	mg/L	0.0010	102	70	130			
Selenium		0.491	mg/L	0.0021	96	70	130			
Thallium		0.494	mg/L	0.00050	99	70	130			
Lab ID:	B15091872-004BMSD	10 Sample Matrix Spike Duplicate			Run: ICPMS206-B_150929A				09/30/15 01:07	
Antimony		0.522	mg/L	0.0010	104	70	130	3.8	20	
Arsenic		0.512	mg/L	0.0010	102	70	130	2.2	20	
Beryllium		0.221	mg/L	0.0010	88	70	130	3.4	20	
Cadmium		0.252	mg/L	0.0010	101	70	130	3.1	20	
Chromium		0.491	mg/L	0.0050	98	70	130	3.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 93389
Lab ID: B15091872-004BMSD 10 Sample Matrix Spike Duplicate										Run: ICPMS206-B_150929A 09/30/15 01:07
Cobalt		0.499	mg/L	0.0050	98	70	130	3.3	20	
Lead		0.519	mg/L	0.0010	104	70	130	4.7	20	
Molybdenum		0.532	mg/L	0.0010	106	70	130	3.6	20	
Selenium		0.514	mg/L	0.0021	101	70	130	4.6	20	
Thallium		0.514	mg/L	0.00050	103	70	130	3.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091870

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method:	E245.1	Analytical Run: HGCV202-B_150923A									
Lab ID:	ICV	Initial Calibration Verification Standard								09/23/15 13:47	
Mercury		0.00203	mg/L	0.00010	102	90	110				
Method:	E245.1										Batch: 93402
Lab ID:	MB-93402	Method Blank				Run: HGCV202-B_150923A				09/23/15 13:52	
Mercury		ND	mg/L	5E-06							
Lab ID:	LCS-93402	Laboratory Control Sample				Run: HGCV202-B_150923A				09/23/15 13:54	
Mercury		0.00199	mg/L	0.00010	100	85	115				
Lab ID:	B15091872-003BMS	Sample Matrix Spike				Run: HGCV202-B_150923A				09/23/15 14:26	
Mercury		0.00189	mg/L	0.00010	94	70	130				
Lab ID:	B15091872-003BMSD	Sample Matrix Spike Duplicate				Run: HGCV202-B_150923A				09/23/15 14:28	
Mercury		0.00188	mg/L	0.00010	94	70	130	0.6	30		

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Water and Environmental Technologies

Report Date: 10/08/15

Project: PERC M 52

Work Order: B15091870

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0							Batch: RA226-7838		
Lab ID: LCS-RA226-7838	Laboratory Control Sample				Run: G542M_150925B		10/05/15 11:08		
Radium 226	11	pCi/L		105	80	120			
Lab ID: MB-RA226-7838	Method Blank				Run: G542M_150925B		10/05/15 11:08		
Radium 226	0.1	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: C15090792-001DMS	Sample Matrix Spike				Run: G542M_150925B		10/05/15 11:08		
Radium 226	22	pCi/L		87	70	130			
Lab ID: C15090792-001DMSD	Sample Matrix Spike Duplicate				Run: G542M_150925B		10/05/15 11:08		
Radium 226	26	pCi/L		104	70	130	15	49	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Water and Environmental Technologies

Report Date: 10/08/15

Project: PERC M 52

Work Order: B15091870

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05							Batch: RA228-5046		
Lab ID: LCS-228-RA226-7838	Laboratory Control Sample				Run: TENNELEC-3_150925B		09/30/15 11:59		
Radium 228	8.5	pCi/L	103		80	120			
Lab ID: MB-RA226-7838	Method Blank				Run: TENNELEC-3_150925B		09/30/15 11:59		
Radium 228	0.9	pCi/L							U
Radium 228 precision (±)	0.9	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: C15090792-002DMS	Sample Matrix Spike				Run: TENNELEC-3_150925B		09/30/15 11:59		
Radium 228	23	pCi/L	94		70	130			
Lab ID: C15090792-002DMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_150925B		09/30/15 11:59		
Radium 228	24	pCi/L	103		70	130	5.5	51.2	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



Work Order Receipt Checklist

Water and Environmental Technologies

B15091870

Login completed by: Gina McCartney

Date Received: 9/22/2015

Reviewed by: BL2000\jmueller

Received by: jwc

Reviewed Date: 9/24/2015

Carrier name: Return-UPS Ground N/C

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Temperature Blank for Cooler 1 was 0.8°C, Cooler 2 was 0.6°C, Cooler 3 was 1.6°C, Cooler 4 was 1.0°C and Cooler 5 was 0.7°C.

Received an sulfuric acid preserved container with no analysis listed on the Chain of Custody. The Chain of Custody requested an analysis of Dissolved Metals. Per Wynn Pippin, Energy Laboratory Project Manager, analyze per Quote 3487. Dissolved Metals are not needed and Nitrate + Nitrite is needed.



Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: WET		Project Name, PWS, Permit, Etc. PERC M52		Sample Origin State: UT		EPA/State Compliance: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address (Required):		Contact Name: Laura Watson		Phone/Fax:		Sampler: (Please Print) LW, MS	
No Hard Copy Email: lwatson@wet-llc.com		Invoice Contact & Phone: Sandra Downey 782-5220		Purchase Order:		Quote/Bottle Order: 3487	
Invoice Address (Required):		ANALYSIS REQUESTED		Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page		Shipped by: UPS Ground Cooler ID(s):	
No Hard Copy Email: lwatson@wet-llc.com		Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> State: <input type="checkbox"/> Other:		Matrix		Receipt Temp °C On Ice: <input type="checkbox"/> N	
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		Collection Date		Collection Time		Custody Seal On Bottle <input checked="" type="checkbox"/> N On Cooler <input checked="" type="checkbox"/> N Intact <input checked="" type="checkbox"/> N Signature Match <input checked="" type="checkbox"/> N	
1 ELF-5		9/18/15		1245		LABORATORY USE ONLY 8/509/870001	
2 ELF-6		9/18/15		1135		-002	
3							
4							
5							
6							
7							
8							
9							
10							
Relinquished by (print): Laura Watson		Date/Time: 9/21/15 1000		Signature: <i>[Signature]</i>		Date/Time: 9/21/15	
Relinquished by (print):		Date/Time:		Signature:		Date/Time:	
Sample Disposal:		Return to Client:		Lab Disposal:		Signature: edi n created	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.



ANALYTICAL SUMMARY REPORT

October 08, 2015

Water and Environmental Technologies

480 E Park St Ste 200

Butte, MT 59701

Work Order: B15091872

Quote ID: B3487 - Pacific Corp

Project Name: PERC M 52

Energy Laboratories Inc Billings MT received the following 5 samples for Water and Environmental Technologies on 9/22/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B15091872-001	ELF-11	09/18/15 18:25	09/22/15	Aqueous	Metals by ICP/ICPMS, Tot. Rec. Alkalinity Mercury, Total Fluoride Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Digestion, Mercury by CVAA Preparation for TDS Radium 226 + Radium 228 Radium 226, Total Radium 228, Total Solids, Total Dissolved
B15091872-002	ELF-8	09/18/15 10:10	09/22/15	Aqueous	Same As Above
B15091872-003	ELF-2	09/18/15 16:50	09/22/15	Aqueous	Same As Above
B15091872-004	ELF-4	09/18/15 13:50	09/22/15	Aqueous	Same As Above
B15091872-005	ELF-7	09/18/15 14:30	09/22/15	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:



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CLIENT: Water and Environmental Technologies
Project: PERC M 52
Work Order: B15091872

Report Date: 10/08/15

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, PO Box 247, Casper, WY, EPA Number WY00002 and WY00937.



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies
Project: PERC M 52
Lab ID: B15091872-001
Client Sample ID: ELF-11

Report Date: 10/08/15
Collection Date: 09/18/15 18:25
DateReceived: 09/22/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.5	s.u.	H	0.1		A4500-H B	09/22/15 17:19 / pjw
Solids, Total Dissolved TDS @ 180 C	14300	mg/L	D	200		A2540 C	09/23/15 13:21 / nae
INORGANICS							
Alkalinity, Total as CaCO ₃	428	mg/L		4		A2320 B	09/23/15 23:34 / rbf
Bicarbonate as HCO ₃	522	mg/L		4		A2320 B	09/23/15 23:34 / rbf
Carbonate as CO ₃	ND	mg/L		4		A2320 B	09/23/15 23:34 / rbf
Chloride	1230	mg/L	D	10		E300.0	09/29/15 09:03 / ajr
Sulfate	10200	mg/L	D	40		E300.0	09/29/15 09:03 / ajr
Fluoride	0.5	mg/L		0.1		A4500-F C	09/25/15 17:33 / ajr
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	1.69	mg/L		0.01		E353.2	09/23/15 10:22 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.001		E200.8	09/25/15 22:53 / mas
Arsenic	ND	mg/L		0.001		E200.8	09/29/15 01:58 / mas
Barium	ND	mg/L		0.05		E200.7	09/24/15 17:26 / mas
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 22:53 / mas
Boron	14.4	mg/L		0.05		E200.7	09/24/15 17:26 / mas
Cadmium	ND	mg/L		0.001		E200.8	09/25/15 22:53 / mas
Calcium	432	mg/L		1		E200.7	09/24/15 17:26 / mas
Chromium	ND	mg/L		0.001		E200.8	09/29/15 01:58 / mas
Cobalt	0.017	mg/L		0.005		E200.8	09/25/15 22:53 / mas
Lead	ND	mg/L		0.001		E200.8	09/25/15 22:53 / mas
Lithium	3.2	mg/L		0.1		E200.7	09/24/15 17:26 / mas
Magnesium	376	mg/L		1		E200.7	09/24/15 17:26 / mas
Molybdenum	0.016	mg/L		0.001		E200.8	09/25/15 22:53 / mas
Selenium	0.007	mg/L	D	0.004		E200.8	09/29/15 01:58 / mas
Sodium	4710	mg/L	D	4		E200.7	09/24/15 17:26 / mas
Thallium	ND	mg/L		0.0005		E200.8	09/25/15 22:53 / mas
METALS, TOTAL							
Mercury	ND	mg/L		0.0001		E245.1	09/23/15 14:17 / ser
RADIONUCLIDES - TOTAL							
Radium 226	1.1	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 precision (±)	0.30	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 228	0.11	pCi/L	U			RA-05	09/30/15 13:32 / eli-ca
Radium 228 precision (±)	0.97	pCi/L				RA-05	09/30/15 13:32 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	09/30/15 13:32 / eli-ca
Radium 226 + Radium 228	1.2	pCi/L	U			A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 precision (±)	1.0	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies
Project: PERC M 52
Lab ID: B15091872-002
Client Sample ID: ELF-8

Report Date: 10/08/15
Collection Date: 09/18/15 10:10
Date Received: 09/22/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.6	s.u.	H	0.1		A4500-H B	09/22/15 17:22 / pjw
Solids, Total Dissolved TDS @ 180 C	7430	mg/L	D	200		A2540 C	09/23/15 13:22 / nae
INORGANICS							
Alkalinity, Total as CaCO ₃	95	mg/L		4		A2320 B	09/23/15 23:40 / rbf
Bicarbonate as HCO ₃	115	mg/L		4		A2320 B	09/23/15 23:40 / rbf
Carbonate as CO ₃	ND	mg/L		4		A2320 B	09/23/15 23:40 / rbf
Chloride	2320	mg/L	D	6		E300.0	09/29/15 09:16 / ajr
Sulfate	3120	mg/L	D	20		E300.0	09/29/15 09:16 / ajr
Fluoride	1.4	mg/L		0.1		A4500-F C	09/25/15 17:36 / ajr
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	09/23/15 10:24 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.001		E200.8	09/25/15 22:57 / mas
Arsenic	0.002	mg/L		0.001		E200.8	09/29/15 02:03 / mas
Barium	0.07	mg/L		0.05		E200.7	09/24/15 17:30 / mas
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 22:57 / mas
Boron	26.6	mg/L		0.05		E200.7	09/24/15 17:30 / mas
Cadmium	0.010	mg/L		0.001		E200.8	09/25/15 22:57 / mas
Calcium	628	mg/L		1		E200.7	09/24/15 17:30 / mas
Chromium	0.013	mg/L	D	0.002		E200.8	09/25/15 22:57 / mas
Cobalt	0.196	mg/L		0.005		E200.8	09/25/15 22:57 / mas
Lead	0.012	mg/L		0.001		E200.8	09/25/15 22:57 / mas
Lithium	3.5	mg/L		0.1		E200.7	09/24/15 17:30 / mas
Magnesium	138	mg/L		1		E200.7	09/24/15 17:30 / mas
Molybdenum	0.437	mg/L		0.001		E200.8	09/25/15 22:57 / mas
Selenium	ND	mg/L	D	0.004		E200.8	09/29/15 02:03 / mas
Sodium	2000	mg/L	D	4		E200.7	09/24/15 17:30 / mas
Thallium	0.0009	mg/L		0.0005		E200.8	09/25/15 22:57 / mas
METALS, TOTAL							
Mercury	ND	mg/L		0.0001		E245.1	09/23/15 14:23 / ser
RADIONUCLIDES - TOTAL							
Radium 226	1.5	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 precision (±)	0.37	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 MDC	0.17	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 228	2.1	pCi/L				RA-05	09/30/15 13:32 / eli-ca
Radium 228 precision (±)	0.95	pCi/L				RA-05	09/30/15 13:32 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	09/30/15 13:32 / eli-ca
Radium 226 + Radium 228	3.6	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 precision (±)	1.0	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 MDC	1.5	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies
Project: PERC M 52
Lab ID: B15091872-003
Client Sample ID: ELF-2

Report Date: 10/08/15
Collection Date: 09/18/15 16:50
Date Received: 09/22/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.3	s.u.	H	0.1		A4500-H B	09/22/15 17:25 / pjw
Solids, Total Dissolved TDS @ 180 C	11400	mg/L	D	200		A2540 C	09/23/15 13:22 / nae
INORGANICS							
Alkalinity, Total as CaCO ₃	423	mg/L		4		A2320 B	09/23/15 23:47 / rbf
Bicarbonate as HCO ₃	516	mg/L		4		A2320 B	09/23/15 23:47 / rbf
Carbonate as CO ₃	ND	mg/L		4		A2320 B	09/23/15 23:47 / rbf
Chloride	469	mg/L	D	10		E300.0	09/29/15 09:30 / ajr
Sulfate	8150	mg/L	D	40		E300.0	09/29/15 09:30 / ajr
Fluoride	0.5	mg/L		0.1		A4500-F C	09/25/15 17:38 / ajr
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	21.7	mg/L	D	0.06		E353.2	09/23/15 10:25 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.001		E200.8	09/25/15 23:13 / mas
Arsenic	ND	mg/L		0.001		E200.8	09/29/15 02:07 / mas
Barium	ND	mg/L		0.05		E200.7	09/24/15 17:33 / mas
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 23:13 / mas
Boron	3.31	mg/L		0.05		E200.7	09/24/15 17:33 / mas
Cadmium	ND	mg/L		0.001		E200.8	09/25/15 23:13 / mas
Calcium	419	mg/L		1		E200.7	09/24/15 17:33 / mas
Chromium	ND	mg/L		0.001		E200.8	09/29/15 02:07 / mas
Cobalt	0.006	mg/L		0.005		E200.8	09/25/15 23:13 / mas
Lead	0.001	mg/L		0.001		E200.8	09/25/15 23:13 / mas
Lithium	1.5	mg/L		0.1		E200.7	09/24/15 17:33 / mas
Magnesium	324	mg/L		1		E200.7	09/24/15 17:33 / mas
Molybdenum	0.003	mg/L		0.001		E200.8	09/25/15 23:13 / mas
Selenium	0.608	mg/L	D	0.002		E200.8	09/25/15 23:13 / mas
Sodium	3420	mg/L	D	4		E200.7	09/24/15 17:33 / mas
Thallium	ND	mg/L		0.0005		E200.8	09/25/15 23:13 / mas
METALS, TOTAL							
Mercury	ND	mg/L		0.0001		E245.1	09/23/15 14:25 / ser
RADIONUCLIDES - TOTAL							
Radium 226	0.69	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 precision (±)	0.20	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 MDC	0.19	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 228	1.6	pCi/L				RA-05	09/30/15 13:32 / eli-ca
Radium 228 precision (±)	0.95	pCi/L				RA-05	09/30/15 13:32 / eli-ca
Radium 228 MDC	1.6	pCi/L				RA-05	09/30/15 13:32 / eli-ca
Radium 226 + Radium 228	2.3	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies
Project: PERC M 52
Lab ID: B15091872-004
Client Sample ID: ELF-4

Report Date: 10/08/15
Collection Date: 09/18/15 13:50
DateReceived: 09/22/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.2	s.u.	H	0.1		A4500-H B	09/22/15 17:30 / pjw
Solids, Total Dissolved TDS @ 180 C	10400	mg/L	D	200		A2540 C	09/23/15 13:23 / nae
INORGANICS							
Alkalinity, Total as CaCO ₃	371	mg/L		4		A2320 B	09/23/15 23:55 / rbf
Bicarbonate as HCO ₃	453	mg/L		4		A2320 B	09/23/15 23:55 / rbf
Carbonate as CO ₃	ND	mg/L		4		A2320 B	09/23/15 23:55 / rbf
Chloride	2320	mg/L	D	10		E300.0	09/29/15 09:43 / ajr
Sulfate	5790	mg/L	D	40		E300.0	09/29/15 09:43 / ajr
Fluoride	0.4	mg/L		0.1		A4500-F C	09/25/15 17:51 / ajr
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	15.6	mg/L	D	0.06		E353.2	09/23/15 10:26 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.001		E200.8	09/25/15 23:17 / mas
Arsenic	ND	mg/L		0.001		E200.8	09/29/15 02:12 / mas
Barium	ND	mg/L		0.05		E200.7	09/24/15 17:37 / mas
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 23:17 / mas
Boron	4.66	mg/L		0.05		E200.7	09/24/15 17:37 / mas
Cadmium	ND	mg/L		0.001		E200.8	09/25/15 23:17 / mas
Calcium	526	mg/L		1		E200.7	09/24/15 17:37 / mas
Chromium	0.002	mg/L		0.001		E200.8	09/29/15 02:12 / mas
Cobalt	0.008	mg/L		0.005		E200.8	09/25/15 23:17 / mas
Lead	ND	mg/L		0.001		E200.8	09/25/15 23:17 / mas
Lithium	1.7	mg/L		0.1		E200.7	09/24/15 17:37 / mas
Magnesium	555	mg/L		1		E200.7	09/24/15 17:37 / mas
Molybdenum	0.001	mg/L		0.001		E200.8	09/25/15 23:17 / mas
Selenium	0.004	mg/L	D	0.004		E200.8	09/29/15 02:12 / mas
Sodium	2940	mg/L	D	4		E200.7	09/24/15 17:37 / mas
Thallium	ND	mg/L		0.0005		E200.8	09/25/15 23:17 / mas
METALS, TOTAL							
Mercury	ND	mg/L		0.0001		E245.1	09/23/15 14:30 / ser
RADIONUCLIDES - TOTAL							
Radium 226	1.0	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 precision (±)	0.29	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 MDC	0.18	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 228	1.0	pCi/L	U			RA-05	09/30/15 13:32 / eli-ca
Radium 228 precision (±)	0.86	pCi/L				RA-05	09/30/15 13:32 / eli-ca
Radium 228 MDC	1.5	pCi/L				RA-05	09/30/15 13:32 / eli-ca
Radium 226 + Radium 228	2.1	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 MDC	1.6	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.
U - Not detected at minimum detectable concentration



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies
Project: PERC M 52
Lab ID: B15091872-005
Client Sample ID: ELF-7

Report Date: 10/08/15
Collection Date: 09/18/15 14:30
DateReceived: 09/22/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
pH	7.1	s.u.	H	0.1		A4500-H B	09/22/15 17:32 / pjw
Solids, Total Dissolved TDS @ 180 C	15300	mg/L	D	200		A2540 C	09/23/15 13:23 / nae
INORGANICS							
Alkalinity, Total as CaCO ₃	549	mg/L		4		A2320 B	09/24/15 00:02 / rbf
Bicarbonate as HCO ₃	670	mg/L		4		A2320 B	09/24/15 00:02 / rbf
Carbonate as CO ₃	ND	mg/L		4		A2320 B	09/24/15 00:02 / rbf
Chloride	2800	mg/L	D	10		E300.0	09/29/15 09:57 / ajr
Sulfate	8720	mg/L	D	40		E300.0	09/29/15 09:57 / ajr
Fluoride	0.4	mg/L		0.1		A4500-F C	09/25/15 17:59 / ajr
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	134	mg/L	D	0.4		E353.2	09/23/15 11:02 / bas
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.001		E200.8	09/25/15 23:21 / mas
Arsenic	ND	mg/L		0.001		E200.8	09/29/15 02:17 / mas
Barium	ND	mg/L		0.05		E200.7	09/24/15 18:26 / mas
Beryllium	ND	mg/L		0.001		E200.8	09/25/15 23:21 / mas
Boron	1.72	mg/L		0.05		E200.7	09/24/15 18:26 / mas
Cadmium	ND	mg/L		0.001		E200.8	09/25/15 23:21 / mas
Calcium	496	mg/L		1		E200.7	09/24/15 18:26 / mas
Chromium	ND	mg/L		0.001		E200.8	09/29/15 02:17 / mas
Cobalt	ND	mg/L		0.005		E200.8	09/25/15 23:21 / mas
Lead	ND	mg/L		0.001		E200.8	09/25/15 23:21 / mas
Lithium	2.0	mg/L		0.1		E200.7	09/24/15 18:26 / mas
Magnesium	673	mg/L		1		E200.7	09/24/15 18:26 / mas
Molybdenum	ND	mg/L		0.001		E200.8	09/25/15 23:21 / mas
Selenium	0.455	mg/L	D	0.005		E200.8	09/25/15 23:21 / mas
Sodium	4530	mg/L	D	5		E200.7	09/24/15 18:26 / mas
Thallium	ND	mg/L		0.0005		E200.8	09/25/15 23:21 / mas
METALS, TOTAL							
Mercury	ND	mg/L		0.0001		E245.1	09/23/15 14:32 / ser
RADIONUCLIDES - TOTAL							
Radium 226	1.3	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 precision (±)	0.35	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 226 MDC	0.20	pCi/L				E903.0	10/05/15 11:08 / eli-ca
Radium 228	1.6	pCi/L	U			RA-05	09/30/15 13:32 / eli-ca
Radium 228 precision (±)	0.90	pCi/L				RA-05	09/30/15 13:32 / eli-ca
Radium 228 MDC	1.7	pCi/L				RA-05	09/30/15 13:32 / eli-ca
Radium 226 + Radium 228	3.0	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 precision (±)	1	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca
Radium 226 + Radium 228 MDC	1.7	pCi/L				A7500-RA	10/07/15 16:28 / eli-ca

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
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H - Analysis performed past recommended holding time.

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ND - Not detected at the reporting limit.
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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R249855
Lab ID: MBLK		Method Blank					Run: MAN-TECH_150923B			09/23/15 21:04
Alkalinity, Total as CaCO ₃	2		mg/L	1.0						
Lab ID: LCS		Laboratory Control Sample					Run: MAN-TECH_150923B			09/23/15 21:11
Alkalinity, Total as CaCO ₃	104		mg/L	4.0	103	90	110			
Lab ID: B15091849-009ADUP	3	Sample Duplicate					Run: MAN-TECH_150923B			09/23/15 21:26
Alkalinity, Total as CaCO ₃	183		mg/L	4.0				1.0	10	
Bicarbonate as HCO ₃	223		mg/L	4.0				1.0	10	
Carbonate as CO ₃	ND		mg/L	4.0					10	
Lab ID: B15091849-010AMS		Sample Matrix Spike					Run: MAN-TECH_150923B			09/23/15 21:41
Alkalinity, Total as CaCO ₃	359		mg/L	4.0	103	80	120			
Lab ID: B15091871-004ADUP	3	Sample Duplicate					Run: MAN-TECH_150923B			09/23/15 22:56
Alkalinity, Total as CaCO ₃	432		mg/L	4.0				0.2	10	
Bicarbonate as HCO ₃	527		mg/L	4.0				0.2	10	
Carbonate as CO ₃	ND		mg/L	4.0					10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 93423
Lab ID: MB-93423		Method Blank					Run: BAL #SD-15_150923B			09/23/15 13:18
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-93423										09/23/15 13:18
Solids, Total Dissolved TDS @ 180 C		1040	mg/L	10	104	90	110			
Lab ID: B15091872-002A DUP										09/23/15 13:22
Solids, Total Dissolved TDS @ 180 C		7340	mg/L	160				1.2	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	A4500-F C							Analytical Run: MAN-TECH_150925A		
Lab ID:	ICV	Initial Calibration Verification Standard							09/25/15 10:01	
Fluoride		1.03	mg/L	0.10	103	90	110			
Method:	A4500-F C							Batch: R249957		
Lab ID:	MBLK	Method Blank				Run: MAN-TECH_150925A			09/25/15 09:56	
Fluoride		ND	mg/L	0.01						
Lab ID:	LFB	Laboratory Fortified Blank				Run: MAN-TECH_150925A			09/25/15 09:58	
Fluoride		1.06	mg/L	0.10	106	90	110			
Lab ID:	B15091872-004AMS	Sample Matrix Spike				Run: MAN-TECH_150925A			09/25/15 17:54	
Fluoride		1.21	mg/L	0.10	86	80	120			
Lab ID:	B15091872-004AMSD	Sample Matrix Spike Duplicate				Run: MAN-TECH_150925A			09/25/15 17:56	
Fluoride		1.21	mg/L	0.10	86	80	120	0.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	A4500-H B							Analytical Run: PHSC_101-B_150922A		
Lab ID:	pH 8		Initial Calibration Verification Standard						09/22/15 09:25	
pH		7.93	s.u.	0.10	99	98	102			
Method:	A4500-H B							Batch: R249689		
Lab ID:	B15091871-001ADUP		Sample Duplicate		Run: PHSC_101-B_150922A				09/22/15 16:59	
pH		7.10	s.u.	0.10				0.1	3	
Lab ID:	B15091872-003ADUP		Sample Duplicate		Run: PHSC_101-B_150922A				09/22/15 17:27	
pH		7.35	s.u.	0.10				0.3	3	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0						Analytical Run: IC METROHM 2_150928A				
Lab ID: ICV	2	Initial Calibration Verification Standard								09/28/15 14:37
Chloride		2.17	mg/L	1.0	97	90	110			
Sulfate		8.81	mg/L	1.0	98	90	110			
Method: E300.0						Batch: R250095				
Lab ID: MB	2	Method Blank								09/28/15 14:23
Chloride		0.1	mg/L	0.02						
Sulfate		ND	mg/L	0.2						
Lab ID: LFB	2	Laboratory Fortified Blank								09/28/15 14:50
Chloride		3.08	mg/L	1.0	99	90	110			
Sulfate		9.27	mg/L	1.0	103	90	110			
Lab ID: B15091871-008AMS	2	Sample Matrix Spike								09/29/15 08:09
Chloride		337	mg/L	6.0	98	90	110			
Sulfate		5110	mg/L	18		90	110			A
Lab ID: B15091871-008AMSD	2	Sample Matrix Spike Duplicate								09/29/15 08:22
Chloride		334	mg/L	6.0	96	90	110	1.0	20	
Sulfate		5070	mg/L	18		90	110	0.9	20	A
Lab ID: B15091901-003AMS	2	Sample Matrix Spike								09/29/15 11:31
Chloride		177	mg/L	3.0	99	90	110			
Sulfate		2580	mg/L	9.0		90	110			A
Lab ID: B15091901-003AMSD	2	Sample Matrix Spike Duplicate								09/29/15 12:12
Chloride		180	mg/L	3.0	101	90	110	1.7	20	
Sulfate		2780	mg/L	9.0		90	110	7.5	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-B_150923B		
Lab ID: ICV		Initial Calibration Verification Standard							09/23/15 10:06	
Nitrogen, Nitrate+Nitrite as N		0.567	mg/L	0.010	100	90	110			
Method: E353.2										Batch: R249802
Lab ID: MBLK		Method Blank				Run: FIA203-B_150923B			09/23/15 10:07	
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.005						
Lab ID: LFB		Laboratory Fortified Blank				Run: FIA203-B_150923B			09/23/15 10:08	
Nitrogen, Nitrate+Nitrite as N		0.963	mg/L	0.010	96	90	110			
Lab ID: B15091820-001AMS		Sample Matrix Spike				Run: FIA203-B_150923B			09/23/15 10:14	
Nitrogen, Nitrate+Nitrite as N		1.33	mg/L	0.010	101	90	110			
Lab ID: B15091820-001AMSD		Sample Matrix Spike Duplicate				Run: FIA203-B_150923B			09/23/15 10:15	
Nitrogen, Nitrate+Nitrite as N		1.32	mg/L	0.010	100	90	110	0.6	10	
Lab ID: B15091876-001AMS		Sample Matrix Spike				Run: FIA203-B_150923B			09/23/15 10:33	
Nitrogen, Nitrate+Nitrite as N		19.5	mg/L	0.061	94	90	110			
Lab ID: B15091876-001AMSD		Sample Matrix Spike Duplicate				Run: FIA203-B_150923B			09/23/15 10:34	
Nitrogen, Nitrate+Nitrite as N		19.7	mg/L	0.061	97	90	110	0.9	10	
Lab ID: B15091903-002CMS		Sample Matrix Spike				Run: FIA203-B_150923B			09/23/15 10:50	
Nitrogen, Nitrate+Nitrite as N		2.52	mg/L	0.010	97	90	110			
Lab ID: B15091903-002CMSD		Sample Matrix Spike Duplicate				Run: FIA203-B_150923B			09/23/15 10:51	
Nitrogen, Nitrate+Nitrite as N		2.54	mg/L	0.010	98	90	110	0.6	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Analytical Run: ICP203-B_150924A
Lab ID: ICV	6	Continuing Calibration Verification Standard							09/24/15 10:30	
Barium		2.45	mg/L	0.10	98	95	105			
Boron		2.47	mg/L	0.10	99	95	105			
Calcium		24.7	mg/L	1.0	99	95	105			
Lithium		1.23	mg/L	0.10	99	95	105			
Magnesium		24.7	mg/L	1.0	99	95	105			
Sodium		24.7	mg/L	1.0	99	95	105			
Method: E200.7										Batch: 93389
Lab ID: MB-93389	6	Method Blank							Run: ICP203-B_150924A 09/24/15 16:51	
Barium		ND	mg/L	0.0002						
Boron		ND	mg/L	0.003						
Calcium		0.04	mg/L	0.007						
Lithium		ND	mg/L	0.001						
Magnesium		0.006	mg/L	0.003						
Sodium		ND	mg/L	0.01						
Lab ID: LCS-93389	6	Laboratory Control Sample							Run: ICP203-B_150924A 09/24/15 16:54	
Barium		0.469	mg/L	0.10	94	85	115			
Boron		0.500	mg/L	0.10	100	85	115			
Calcium		25.4	mg/L	1.0	102	85	115			
Lithium		0.506	mg/L	0.10	101	85	115			
Magnesium		25.7	mg/L	1.0	103	85	115			
Sodium		25.9	mg/L	1.0	104	85	115			
Lab ID: B15091872-004BMS3	6	Sample Matrix Spike							Run: ICP203-B_150924A 09/24/15 17:47	
Barium		0.471	mg/L	0.050	91	70	130			
Boron		4.64	mg/L	0.066		70	130			A
Calcium		507	mg/L	1.0		70	130			A
Lithium		2.05	mg/L	0.10	74	70	130			
Magnesium		531	mg/L	1.1		70	130			A
Sodium		2720	mg/L	4.4		70	130			A
Lab ID: B15091872-004BMSD	6	Sample Matrix Spike Duplicate							Run: ICP203-B_150924A 09/24/15 17:51	
Barium		0.466	mg/L	0.050	90	70	130	1.0	20	
Boron		4.63	mg/L	0.066		70	130	0.2	20	A
Calcium		510	mg/L	1.0		70	130	0.6	20	A
Lithium		2.06	mg/L	0.10	77	70	130	0.6	20	
Magnesium		537	mg/L	1.1		70	130	1.1	20	A
Sodium		2760	mg/L	4.4		70	130	1.5	20	A
Lab ID: B15091885-003AMS3	6	Sample Matrix Spike							Run: ICP203-B_150924A 09/24/15 18:40	
Barium		0.524	mg/L	0.050	105	70	130			
Boron		0.677	mg/L	0.050	102	70	130			
Calcium		26.6	mg/L	1.0	106	70	130			
Lithium		0.593	mg/L	0.10	105	70	130			

Qualifiers:

RL - Analyte reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: 93389
Lab ID: B15091885-003AMS3	6	Sample Matrix Spike				Run: ICP203-B_150924A				09/24/15 18:40
Magnesium		26.3	mg/L	1.0	105	70	130			
Sodium		65.6	mg/L	1.0	104	70	130			
Lab ID: B15091885-003AMSD	6	Sample Matrix Spike Duplicate				Run: ICP203-B_150924A				09/24/15 18:43
Barium		0.518	mg/L	0.050	104	70	130	1.3	20	
Boron		0.681	mg/L	0.050	103	70	130	0.5	20	
Calcium		26.6	mg/L	1.0	106	70	130	0.1	20	
Lithium		0.583	mg/L	0.10	103	70	130	1.8	20	
Magnesium		26.1	mg/L	1.0	104	70	130	0.8	20	
Sodium		64.1	mg/L	1.0	98	70	130	2.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	E200.8	Analytical Run: ICPMS203-B_150925B								
Lab ID:	QCS	9	Initial Calibration Verification Standard							09/25/15 13:08
Antimony		0.0506	mg/L	0.050	101	90	110			
Beryllium		0.0261	mg/L	0.0010	104	90	110			
Cadmium		0.0254	mg/L	0.0010	102	90	110			
Chromium		0.0498	mg/L	0.010	100	90	110			
Cobalt		0.0513	mg/L	0.010	103	90	110			
Lead		0.0491	mg/L	0.010	98	90	110			
Molybdenum		0.0489	mg/L	0.0050	98	90	110			
Selenium		0.0516	mg/L	0.0050	103	90	110			
Thallium		0.0480	mg/L	0.10	96	90	110			
Method:	E200.8									Batch: 93389
Lab ID:	MB-93389	10	Method Blank			Run: ICPMS203-B_150925B				09/25/15 22:25
Antimony		4E-05	mg/L	4E-05						
Arsenic		0.002	mg/L	6E-05						
Beryllium		ND	mg/L	6E-06						
Cadmium		ND	mg/L	2E-05						
Chromium		0.0010	mg/L	0.0002						
Cobalt		ND	mg/L	1E-05						
Lead		ND	mg/L	3E-05						
Molybdenum		ND	mg/L	3E-05						
Selenium		0.007	mg/L	0.0002						
Thallium		ND	mg/L	1E-05						
Lab ID:	LCS-93389	10	Laboratory Control Sample			Run: ICPMS203-B_150925B				09/26/15 00:14
Antimony		0.551	mg/L	0.0050	110	85	115			
Arsenic		0.452	mg/L	0.0010	90	85	115			
Beryllium		0.271	mg/L	0.0010	108	85	115			
Cadmium		0.249	mg/L	0.0010	100	85	115			
Chromium		0.514	mg/L	0.0010	103	85	115			
Cobalt		0.513	mg/L	0.0010	103	85	115			
Lead		0.565	mg/L	0.0010	113	85	115			
Molybdenum		0.526	mg/L	0.0050	105	85	115			
Selenium		0.449	mg/L	0.0050	88	85	115			
Thallium		0.540	mg/L	0.0010	108	85	115			
Lab ID:	B15091872-004BMS3	10	Sample Matrix Spike			Run: ICPMS203-B_150925B				09/26/15 00:17
Antimony		0.490	mg/L	0.0010	98	70	130			
Arsenic		0.443	mg/L	0.0010	89	70	130			
Beryllium		0.233	mg/L	0.0010	93	70	130			
Cadmium		0.236	mg/L	0.0010	94	70	130			
Chromium		0.460	mg/L	0.0050	92	70	130			
Cobalt		0.462	mg/L	0.0050	92	70	130			
Lead		0.481	mg/L	0.0010	96	70	130			
Molybdenum		0.524	mg/L	0.0010	105	70	130			
Selenium		0.472	mg/L	0.0024	94	70	130			

Qualifiers:

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 93389
Lab ID: B15091872-004BMS3	10	Sample Matrix Spike				Run: ICPMS203-B_150925B			09/26/15 00:17	
Thallium		0.478	mg/L	0.00050	96	70	130			
Lab ID: B15091872-004BMSD	10	Sample Matrix Spike Duplicate				Run: ICPMS203-B_150925B			09/26/15 00:21	
Antimony		0.491	mg/L	0.0010	98	70	130	0.2	20	
Arsenic		0.457	mg/L	0.0010	91	70	130	3.2	20	
Beryllium		0.230	mg/L	0.0010	92	70	130	1.2	20	
Cadmium		0.233	mg/L	0.0010	93	70	130	1.0	20	
Chromium		0.474	mg/L	0.0050	95	70	130	3.0	20	
Cobalt		0.464	mg/L	0.0050	93	70	130	0.5	20	
Lead		0.485	mg/L	0.0010	97	70	130	0.7	20	
Molybdenum		0.526	mg/L	0.0010	105	70	130	0.4	20	
Selenium		0.492	mg/L	0.0024	98	70	130	4.0	20	
Thallium		0.478	mg/L	0.00050	96	70	130	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8						Analytical Run: ICPMS206-B_150928A				
Lab ID: QCS	3	Initial Calibration Verification Standard								09/28/15 19:27
Arsenic		0.0515	mg/L	0.0050	103	90	110			
Chromium		0.0502	mg/L	0.010	100	90	110			
Selenium		0.0476	mg/L	0.0050	95	90	110			
Method: E200.8						Batch: 93389				
Lab ID: MB-93389	10	Method Blank								Run: ICPMS206-B_150928A 09/29/15 01:10
Antimony		0.0004	mg/L	3E-05						
Arsenic		0.0002	mg/L	7E-05						
Beryllium		1.0E-05	mg/L	9E-06						
Cadmium		5E-05	mg/L	2E-05						
Chromium		0.0001	mg/L	4E-05						
Cobalt		ND	mg/L	8E-06						
Lead		2E-05	mg/L	2E-05						
Molybdenum		7E-05	mg/L	3E-05						
Selenium		ND	mg/L	0.0004						
Thallium		0.0002	mg/L	1.0E-05						
Lab ID: LCS-93389	10	Laboratory Control Sample								Run: ICPMS206-B_150928A 09/29/15 03:09
Antimony		0.500	mg/L	0.0050	100	85	115			
Arsenic		0.487	mg/L	0.0010	97	85	115			
Beryllium		0.249	mg/L	0.0010	100	85	115			
Cadmium		0.250	mg/L	0.0010	100	85	115			
Chromium		0.484	mg/L	0.0010	97	85	115			
Cobalt		0.509	mg/L	0.0010	102	85	115			
Lead		0.506	mg/L	0.0010	101	85	115			
Molybdenum		0.495	mg/L	0.0050	99	85	115			
Selenium		0.486	mg/L	0.0050	97	85	115			
Thallium		0.556	mg/L	0.0010	111	85	115			
Lab ID: B15091885-003AMS3	10	Sample Matrix Spike								Run: ICPMS206-B_150928A 09/29/15 03:14
Antimony		0.504	mg/L	0.0010	101	70	130			
Arsenic		0.509	mg/L	0.0010	101	70	130			
Beryllium		0.261	mg/L	0.0010	105	70	130			
Cadmium		0.258	mg/L	0.0010	103	70	130			
Chromium		0.504	mg/L	0.0050	101	70	130			
Cobalt		0.504	mg/L	0.0050	101	70	130			
Lead		0.563	mg/L	0.0010	113	70	130			
Molybdenum		0.498	mg/L	0.0010	99	70	130			
Selenium		0.486	mg/L	0.0021	97	70	130			
Thallium		0.509	mg/L	0.00050	102	70	130			
Lab ID: B15091885-003AMSD	10	Sample Matrix Spike Duplicate								Run: ICPMS206-B_150928A 09/29/15 03:19
Antimony		0.499	mg/L	0.0010	100	70	130	1.2	20	
Arsenic		0.506	mg/L	0.0010	101	70	130	0.6	20	
Beryllium		0.262	mg/L	0.0010	105	70	130	0.3	20	

Qualifiers:

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 93389
Lab ID: B15091885-003AMSD 10 Sample Matrix Spike Duplicate										Run: ICPMS206-B_150928A 09/29/15 03:19
Cadmium		0.255	mg/L	0.0010	102	70	130	1.3	20	
Chromium		0.504	mg/L	0.0050	101	70	130	0.0	20	
Cobalt		0.501	mg/L	0.0050	100	70	130	0.6	20	
Lead		0.506	mg/L	0.0010	101	70	130	11	20	
Molybdenum		0.494	mg/L	0.0010	98	70	130	0.8	20	
Selenium		0.504	mg/L	0.0021	101	70	130	3.5	20	
Thallium		0.504	mg/L	0.00050	101	70	130	1.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Water and Environmental Technologies

Report Date: 10/01/15

Project: PERC M 52

Work Order: B15091872

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E245.1										Analytical Run: HGCV202-B_150923A
Lab ID: ICV		Initial Calibration Verification Standard								09/23/15 13:47
Mercury		0.00203	mg/L	0.00010	102	90	110			
Method: E245.1										Batch: 93402
Lab ID: MB-93402		Method Blank								Run: HGCV202-B_150923A 09/23/15 13:52
Mercury		ND	mg/L	5E-06						
Lab ID: LCS-93402		Laboratory Control Sample								Run: HGCV202-B_150923A 09/23/15 13:54
Mercury		0.00199	mg/L	0.00010	100	85	115			
Lab ID: B15091872-003BMS		Sample Matrix Spike								Run: HGCV202-B_150923A 09/23/15 14:26
Mercury		0.00189	mg/L	0.00010	94	70	130			
Lab ID: B15091872-003BMSD		Sample Matrix Spike Duplicate								Run: HGCV202-B_150923A 09/23/15 14:28
Mercury		0.00188	mg/L	0.00010	94	70	130	0.6	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Water and Environmental Technologies

Report Date: 10/08/15

Project: PERC M 52

Work Order: B15091872

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0							Batch: RA226-7838		
Lab ID: LCS-RA226-7838	Laboratory Control Sample				Run: G542M_150925B		10/05/15 11:08		
Radium 226	11	pCi/L		105	80	120			
Lab ID: MB-RA226-7838	Method Blank				Run: G542M_150925B		10/05/15 11:08		
Radium 226	0.1	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: C15090792-001DMS	Sample Matrix Spike				Run: G542M_150925B		10/05/15 11:08		
Radium 226	22	pCi/L		87	70	130			
Lab ID: C15090792-001DMSD	Sample Matrix Spike Duplicate				Run: G542M_150925B		10/05/15 11:08		
Radium 226	26	pCi/L		104	70	130	15	49	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Water and Environmental Technologies

Report Date: 10/08/15

Project: PERC M 52

Work Order: B15091872

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05							Batch: RA228-5046		
Lab ID: LCS-228-RA226-7838	Laboratory Control Sample				Run: TENNELEC-3_150925B		09/30/15 11:59		
Radium 228	8.5	pCi/L	103		80	120			
Lab ID: MB-RA226-7838	Method Blank				Run: TENNELEC-3_150925B		09/30/15 11:59		
Radium 228	0.9	pCi/L							U
Radium 228 precision (±)	0.9	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: C15090792-002DMS	Sample Matrix Spike				Run: TENNELEC-3_150925B		09/30/15 11:59		
Radium 228	23	pCi/L	94		70	130			
Lab ID: C15090792-002DMSD	Sample Matrix Spike Duplicate				Run: TENNELEC-3_150925B		09/30/15 11:59		
Radium 228	24	pCi/L	103		70	130	5.5	51.2	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



Work Order Receipt Checklist

Water and Environmental Technologies

B15091872

Login completed by: Gina McCartney

Date Received: 9/22/2015

Reviewed by: BL2000\jmueller

Received by: jwc

Reviewed Date: 9/23/2015

Carrier name: Return-UPS Ground N/C

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Temperature Blank for Cooler 1 was 0.8°C, Cooler 2 was 0.6°C, Cooler 3 was 1.6°C, Cooler 4 was 1.0°C and Cooler 5 was 0.7°C.

Received an sulfuric acid preserved container with no analysis listed on the Chain of Custody. The Chain of Custody requested an analysis of Dissolved Metals. Per Wynn Pippin, Energy Laboratory Project Manager, analyze per Quote 3487. Dissolved Metals are not needed and Nitrate + Nitrite is needed.

The Chain of Custody states a sample identification of EFF-7 while the container states a sample identification of ELF-7. Used sample identification from sample container.



Chain of Custody and Analytical Request Record

Page 1 of 1

Company Name: WET		Project Name, PWS, Permit, Etc.: PERC M 52, PERMIT 53		Sample Origin State: VT		EPA/State Compliance: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Report Mail Address (Required):		Contact Name: Laura Watson		Phone/Fax:		Sampler: (Please Print) LW, MS	
No Hard Copy Email: lwatson@wet-llc.com		Invoice Contact & Phone: Janet Downey		Cell: 431-2447		Quote/Bottle Order:	
Invoice Address (Required):		Number of Containers: 5		Sample Type: AW S VB O DW		Shipped by: UPS	
Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> EDD/EDT (Electronic Data) <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> Format: LEVEL IV <input type="checkbox"/> State: <input type="checkbox"/> NELAC <input type="checkbox"/> Other:		ANALYSIS REQUESTED TDs Alkalinity Fluoride Metals, total dissolved Mercury total Radium, 226, 228 SEE ATTACHED		Standard Turnaround (TAT): X		Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	
MATRIX		Collection Date		Collection Time		Receipt Temp	
1 ELF-11		9/18/15		1625		On Ice: <input checked="" type="checkbox"/> °C	
2 ELF-8		9/18/15		1010		Custody Seal On Bottle: <input checked="" type="checkbox"/> On Cooler: <input checked="" type="checkbox"/> Intact: <input checked="" type="checkbox"/> Signature Match: <input checked="" type="checkbox"/>	
3 ELF-2		9/18/15		1650		Comments: TB1 0.8°C	
4 ELF-4		9/18/15		1350		TB2 0.6°C	
5 EFF-7		9/18/15		1430		TB3 1.0°C	
6 HLF-4N		9/19/15		1145		TB4 1.0°C	
7 HLF-1N		9/19/15		1600		TB5 0.7°C	
8 HLF-3NB		9/19/15		1400		LABORATORY USE ONLY	
9						Signature: Jedi W. Crawford	
10						Signature:	
Custody Record MUST be Signed		Relinquished by (print): Laura Watson		Date/Time: 9/21/15 1030		Signature:	
Sample Disposal: Return to Client		Relinquished by (print):		Date/Time:		Signature:	
Lab Disposal:		Received by (print):		Date/Time:		Signature:	
Received by Laboratory: 9/30		Date/Time: 9/22/15		Signature: Jedi W. Crawford		Signature:	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.



Laura Watson
Water & Environmental Technologies
480 East Park Street, Suite 200
Butte, MT 59701
TEL: (406) 782-5220

RE: PERC M52

Dear Laura Watson:

Lab Set ID: 1511197

3440 South 700 West
Salt Lake City, UT 84119

American West Analytical Laboratories received sample(s) on 11/11/2015 for the analyses presented in the following report.

Phone: (801) 263-8686
Toll Free: (888) 263-8686
Fax: (801) 263-8687
e-mail: awal@awal-labs.com
web: www.awal-labs.com

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:

Radiologicals



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-001
Client Sample ID: ELF-11
Collection Date: 11/10/2015 940h
Received Date: 11/11/2015 930h

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, UT 84119

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 web: www.awal-labs.com

Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	11/12/2015 1051h	11/13/2015 2332h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	11/12/2015 1051h	11/13/2015 2332h	E200.8	0.00200	< 0.00200	
Barium	mg/L	11/12/2015 1051h	11/13/2015 2332h	E200.8	0.00200	0.0203	
Beryllium	mg/L	11/12/2015 1051h	11/13/2015 2332h	E200.8	0.00200	< 0.00200	
Boron	mg/L	11/12/2015 1051h	11/24/2015 1609h	E200.7	0.500	16.3	²
Cadmium	mg/L	11/12/2015 1051h	11/13/2015 2332h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	11/12/2015 1051h	11/24/2015 1326h	E200.7	100	419	²
Chromium	mg/L	11/12/2015 1051h	11/13/2015 2332h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	11/12/2015 1051h	11/13/2015 2332h	E200.8	0.00400	0.0151	
Lead	mg/L	11/12/2015 1051h	11/13/2015 2332h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	11/12/2015 1051h	11/25/2015 1112h	E200.7	0.100	10.2	~
Magnesium	mg/L	11/12/2015 1051h	11/24/2015 1300h	E200.7	10.0	342	²
Mercury	mg/L	11/12/2015 1310h	11/13/2015 846h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	11/12/2015 1051h	11/13/2015 2332h	E200.8	0.00200	0.0253	
Selenium	mg/L	11/12/2015 1051h	11/13/2015 2332h	E200.8	0.00200	0.00644	
Sodium	mg/L	11/12/2015 1051h	11/24/2015 1326h	E200.7	100	4,190	²
Thallium	mg/L	11/12/2015 1051h	11/13/2015 2332h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-002
Client Sample ID: ELF-8
Collection Date: 11/10/2015 1055h
Received Date: 11/11/2015 930h

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, UT 84119

Phone: (801) 263-8686
Toll Free: (888) 263-8686
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web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	11/12/2015 1051h	11/13/2015 2347h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	11/12/2015 1051h	11/13/2015 2347h	E200.8	0.00200	< 0.00200	
Barium	mg/L	11/12/2015 1051h	11/13/2015 2347h	E200.8	0.00200	0.0163	
Beryllium	mg/L	11/12/2015 1051h	11/13/2015 2347h	E200.8	0.00200	< 0.00200	
Boron	mg/L	11/12/2015 1051h	11/24/2015 1617h	E200.7	0.500	30.4	
Cadmium	mg/L	11/12/2015 1051h	11/13/2015 2347h	E200.8	0.000500	0.000729	
Calcium	mg/L	11/12/2015 1051h	11/24/2015 1334h	E200.7	100	577	
Chromium	mg/L	11/12/2015 1051h	11/13/2015 2347h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	11/12/2015 1051h	11/13/2015 2347h	E200.8	0.00400	0.147	
Lead	mg/L	11/12/2015 1051h	11/13/2015 2347h	E200.8	0.00200	0.00527	
Lithium	mg/L	11/12/2015 1051h	11/25/2015 1115h	E200.7	0.100	10.7	~
Magnesium	mg/L	11/12/2015 1051h	11/24/2015 1501h	E200.7	10.0	119	
Mercury	mg/L	11/12/2015 1310h	11/13/2015 852h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	11/12/2015 1051h	11/13/2015 2347h	E200.8	0.00200	0.522	
Selenium	mg/L	11/12/2015 1051h	11/13/2015 2347h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	11/12/2015 1051h	11/24/2015 1334h	E200.7	100	1,860	
Thallium	mg/L	11/12/2015 1051h	11/13/2015 2347h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-003
Client Sample ID: ELF-8DUP
Collection Date: 11/10/2015 1100h
Received Date: 11/11/2015 930h

Analytical Results

TOTAL METALS

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Salt Lake City, UT 84119

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 web: www.awal-labs.com

Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	11/12/2015 1051h	11/13/2015 2351h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	11/12/2015 1051h	11/13/2015 2351h	E200.8	0.00200	< 0.00200	
Barium	mg/L	11/12/2015 1051h	11/13/2015 2351h	E200.8	0.00200	0.0139	
Beryllium	mg/L	11/12/2015 1051h	11/13/2015 2351h	E200.8	0.00200	< 0.00200	
Boron	mg/L	11/12/2015 1051h	11/24/2015 1620h	E200.7	0.500	30.4	
Cadmium	mg/L	11/12/2015 1051h	11/13/2015 2351h	E200.8	0.000500	0.000694	
Calcium	mg/L	11/12/2015 1051h	11/24/2015 1336h	E200.7	100	585	
Chromium	mg/L	11/12/2015 1051h	11/13/2015 2351h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	11/12/2015 1051h	11/13/2015 2351h	E200.8	0.00400	0.152	
Lead	mg/L	11/12/2015 1051h	11/13/2015 2351h	E200.8	0.00200	0.00496	
Lithium	mg/L	11/12/2015 1051h	11/25/2015 1116h	E200.7	0.100	10.8	~
Magnesium	mg/L	11/12/2015 1051h	11/24/2015 1504h	E200.7	10.0	126	
Mercury	mg/L	11/12/2015 1310h	11/13/2015 853h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	11/12/2015 1051h	11/13/2015 2351h	E200.8	0.00200	0.520	
Selenium	mg/L	11/12/2015 1051h	11/13/2015 2351h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	11/12/2015 1051h	11/24/2015 1336h	E200.7	100	1,880	
Thallium	mg/L	11/12/2015 1051h	11/13/2015 2351h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-004
Client Sample ID: ELF-6
Collection Date: 11/10/2015 1150h
Received Date: 11/11/2015 930h

Analytical Results

TOTAL METALS

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web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	11/12/2015 1051h	11/14/2015 003h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	11/12/2015 1051h	11/14/2015 003h	E200.8	0.00200	< 0.00200	
Barium	mg/L	11/12/2015 1051h	11/14/2015 003h	E200.8	0.00200	0.0102	
Beryllium	mg/L	11/12/2015 1051h	11/14/2015 003h	E200.8	0.00200	< 0.00200	
Boron	mg/L	11/12/2015 1051h	11/24/2015 1623h	E200.7	0.500	16.0	
Cadmium	mg/L	11/12/2015 1051h	11/14/2015 003h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	11/12/2015 1051h	11/24/2015 1339h	E200.7	100	518	
Chromium	mg/L	11/12/2015 1051h	11/14/2015 003h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	11/12/2015 1051h	11/14/2015 003h	E200.8	0.00400	0.0226	
Lead	mg/L	11/12/2015 1051h	11/14/2015 003h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	11/12/2015 1051h	11/25/2015 1117h	E200.7	0.100	18.7	~
Magnesium	mg/L	11/12/2015 1051h	11/24/2015 1339h	E200.7	100	707	
Mercury	mg/L	11/12/2015 1310h	11/13/2015 859h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	11/12/2015 1051h	11/14/2015 003h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	11/12/2015 1051h	11/14/2015 003h	E200.8	0.00200	0.0797	
Sodium	mg/L	11/12/2015 1051h	11/24/2015 1339h	E200.7	100	5,610	
Thallium	mg/L	11/12/2015 1051h	11/14/2015 003h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-005
Client Sample ID: ELF-6EB
Collection Date: 11/10/2015 1745h
Received Date: 11/11/2015 930h

Analytical Results

TOTAL METALS

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Salt Lake City, UT 84119

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e-mail: awal@awal-labs.com
web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	11/12/2015 1051h	11/14/2015 006h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	11/12/2015 1051h	11/14/2015 006h	E200.8	0.00200	< 0.00200	
Barium	mg/L	11/12/2015 1051h	11/14/2015 006h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	11/12/2015 1051h	11/14/2015 006h	E200.8	0.00200	< 0.00200	
Boron	mg/L	11/12/2015 1051h	11/24/2015 1626h	E200.7	0.500	< 0.500	
Cadmium	mg/L	11/12/2015 1051h	11/14/2015 006h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	11/12/2015 1051h	11/24/2015 1626h	E200.7	1.00	< 1.00	
Chromium	mg/L	11/12/2015 1051h	11/14/2015 006h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	11/12/2015 1051h	11/14/2015 006h	E200.8	0.00400	< 0.00400	
Lead	mg/L	11/12/2015 1051h	11/14/2015 006h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	11/12/2015 1051h	11/25/2015 1118h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	11/12/2015 1051h	11/24/2015 1626h	E200.7	1.00	< 1.00	
Mercury	mg/L	11/12/2015 1310h	11/13/2015 901h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	11/12/2015 1051h	11/14/2015 006h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	11/12/2015 1051h	11/14/2015 006h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	11/12/2015 1051h	11/25/2015 1356h	E200.7	1.00	< 1.00	
Thallium	mg/L	11/12/2015 1051h	11/14/2015 006h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-006
Client Sample ID: ELF-5
Collection Date: 11/10/2015 1235h
Received Date: 11/11/2015 930h

Analytical Results

TOTAL METALS

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Salt Lake City, UT 84119

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web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	11/12/2015 1051h	11/14/2015 009h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	11/12/2015 1051h	11/14/2015 009h	E200.8	0.00200	< 0.00200	
Barium	mg/L	11/12/2015 1051h	11/14/2015 009h	E200.8	0.00200	0.0131	
Beryllium	mg/L	11/12/2015 1051h	11/14/2015 009h	E200.8	0.00200	< 0.00200	
Boron	mg/L	11/12/2015 1051h	11/24/2015 1628h	E200.7	0.500	5.89	
Cadmium	mg/L	11/12/2015 1051h	11/14/2015 009h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	11/12/2015 1051h	11/24/2015 1353h	E200.7	100	499	
Chromium	mg/L	11/12/2015 1051h	11/14/2015 009h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	11/12/2015 1051h	11/14/2015 009h	E200.8	0.00400	< 0.00400	
Lead	mg/L	11/12/2015 1051h	11/14/2015 009h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	11/12/2015 1051h	11/25/2015 1119h	E200.7	0.100	13.7	~
Magnesium	mg/L	11/12/2015 1051h	11/24/2015 1353h	E200.7	100	874	
Mercury	mg/L	11/12/2015 1310h	11/13/2015 903h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	11/12/2015 1051h	11/16/2015 1700h	E200.8	0.00200	0.00446	
Selenium	mg/L	11/12/2015 1051h	11/14/2015 009h	E200.8	0.00200	0.0453	
Sodium	mg/L	11/12/2015 1051h	11/24/2015 1353h	E200.7	100	5,730	
Thallium	mg/L	11/12/2015 1051h	11/14/2015 009h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-007
Client Sample ID: ELF-4
Collection Date: 11/10/2015 1335h
Received Date: 11/11/2015 930h

Analytical Results

TOTAL METALS

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Salt Lake City, UT 84119

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web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	11/12/2015 1051h	11/14/2015 013h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	11/12/2015 1051h	11/14/2015 013h	E200.8	0.00200	< 0.00200	
Barium	mg/L	11/12/2015 1051h	11/14/2015 013h	E200.8	0.00200	0.0116	
Beryllium	mg/L	11/12/2015 1051h	11/14/2015 013h	E200.8	0.00200	< 0.00200	
Boron	mg/L	11/12/2015 1051h	11/24/2015 1631h	E200.7	0.500	4.93	
Cadmium	mg/L	11/12/2015 1051h	11/14/2015 013h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	11/12/2015 1051h	11/24/2015 1356h	E200.7	100	486	
Chromium	mg/L	11/12/2015 1051h	11/14/2015 013h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	11/12/2015 1051h	11/14/2015 013h	E200.8	0.00400	0.00583	
Lead	mg/L	11/12/2015 1051h	11/14/2015 013h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	11/12/2015 1051h	11/25/2015 1122h	E200.7	0.100	5.41	~
Magnesium	mg/L	11/12/2015 1051h	11/24/2015 1356h	E200.7	100	490	
Mercury	mg/L	11/12/2015 1310h	11/13/2015 905h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	11/12/2015 1051h	11/14/2015 013h	E200.8	0.00200	0.00256	
Selenium	mg/L	11/12/2015 1051h	11/14/2015 013h	E200.8	0.00200	0.00496	
Sodium	mg/L	11/12/2015 1051h	11/24/2015 1356h	E200.7	100	2,530	
Thallium	mg/L	11/12/2015 1051h	11/14/2015 013h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-008
Client Sample ID: ELF-7
Collection Date: 11/10/2015 1415h
Received Date: 11/11/2015 930h

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, UT 84119

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 e-mail: awal@awal-labs.com
 web: www.awal-labs.com

Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	11/12/2015 1051h	11/14/2015 016h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	11/12/2015 1051h	11/14/2015 016h	E200.8	0.00200	< 0.00200	
Barium	mg/L	11/12/2015 1051h	11/14/2015 016h	E200.8	0.00200	0.0101	
Beryllium	mg/L	11/12/2015 1051h	11/14/2015 016h	E200.8	0.00200	< 0.00200	
Boron	mg/L	11/12/2015 1051h	11/24/2015 1641h	E200.7	0.500	1.86	
Cadmium	mg/L	11/12/2015 1051h	11/14/2015 016h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	11/12/2015 1051h	11/24/2015 1358h	E200.7	100	480	
Chromium	mg/L	11/12/2015 1051h	11/14/2015 016h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	11/12/2015 1051h	11/14/2015 016h	E200.8	0.00400	0.00529	
Lead	mg/L	11/12/2015 1051h	11/14/2015 016h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	11/12/2015 1051h	11/25/2015 1123h	E200.7	0.100	6.83	~
Magnesium	mg/L	11/12/2015 1051h	11/24/2015 1358h	E200.7	100	639	
Mercury	mg/L	11/12/2015 1310h	11/13/2015 907h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	11/12/2015 1051h	11/14/2015 016h	E200.8	0.00200	0.00236	
Selenium	mg/L	11/12/2015 1051h	11/14/2015 016h	E200.8	0.00200	0.392	
Sodium	mg/L	11/12/2015 1051h	11/24/2015 1358h	E200.7	100	4,320	
Thallium	mg/L	11/12/2015 1051h	11/14/2015 016h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-009
Client Sample ID: ELF-10
Collection Date: 11/10/2015 1500h
Received Date: 11/11/2015 930h

Analytical Results

TOTAL METALS

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	11/12/2015 1051h	11/14/2015 019h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	11/12/2015 1051h	11/14/2015 019h	E200.8	0.00200	0.00292	
Barium	mg/L	11/12/2015 1051h	11/14/2015 019h	E200.8	0.00200	0.0501	
Beryllium	mg/L	11/12/2015 1051h	11/14/2015 019h	E200.8	0.00200	< 0.00200	
Boron	mg/L	11/12/2015 1051h	11/24/2015 1644h	E200.7	0.500	1.56	
Cadmium	mg/L	11/12/2015 1051h	11/14/2015 019h	E200.8	0.000500	0.000563	
Calcium	mg/L	11/12/2015 1051h	11/24/2015 1401h	E200.7	100	446	
Chromium	mg/L	11/12/2015 1051h	11/14/2015 019h	E200.8	0.00200	0.00569	
Cobalt	mg/L	11/12/2015 1051h	11/14/2015 019h	E200.8	0.00400	0.00788	
Lead	mg/L	11/12/2015 1051h	11/14/2015 019h	E200.8	0.00200	0.00318	
Lithium	mg/L	11/12/2015 1051h	11/25/2015 1124h	E200.7	0.100	4.59	~
Magnesium	mg/L	11/12/2015 1051h	11/24/2015 1401h	E200.7	100	446	
Mercury	mg/L	11/12/2015 1310h	11/13/2015 909h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	11/12/2015 1051h	11/14/2015 019h	E200.8	0.00200	0.115	
Selenium	mg/L	11/12/2015 1051h	11/14/2015 019h	E200.8	0.00200	0.410	
Sodium	mg/L	11/12/2015 1051h	11/24/2015 1438h	E200.7	1,000	11,600	
Thallium	mg/L	11/12/2015 1051h	11/14/2015 019h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-010
Client Sample ID: ELF-2
Collection Date: 11/10/2015 1640h
Received Date: 11/11/2015 930h

Analytical Results

TOTAL METALS

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	11/12/2015 1051h	11/14/2015 022h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	11/12/2015 1051h	11/14/2015 022h	E200.8	0.00200	< 0.00200	
Barium	mg/L	11/12/2015 1051h	11/14/2015 022h	E200.8	0.00200	0.00915	
Beryllium	mg/L	11/12/2015 1051h	11/14/2015 022h	E200.8	0.00200	< 0.00200	
Boron	mg/L	11/12/2015 1051h	11/24/2015 1647h	E200.7	0.500	3.27	
Cadmium	mg/L	11/12/2015 1051h	11/14/2015 022h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	11/12/2015 1051h	11/24/2015 1530h	E200.7	10.0	419	
Chromium	mg/L	11/12/2015 1051h	11/14/2015 022h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	11/12/2015 1051h	11/14/2015 022h	E200.8	0.00400	< 0.00400	
Lead	mg/L	11/12/2015 1051h	11/14/2015 022h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	11/12/2015 1051h	11/25/2015 1125h	E200.7	0.100	4.93	~
Magnesium	mg/L	11/12/2015 1051h	11/24/2015 1530h	E200.7	10.0	307	
Mercury	mg/L	11/12/2015 1310h	11/13/2015 911h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	11/12/2015 1051h	11/14/2015 022h	E200.8	0.00200	0.00337	
Selenium	mg/L	11/12/2015 1051h	11/14/2015 022h	E200.8	0.00200	0.556	
Sodium	mg/L	11/12/2015 1051h	11/24/2015 1403h	E200.7	100	3,000	
Thallium	mg/L	11/12/2015 1051h	11/14/2015 022h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-011
Client Sample ID: ELF-2FB
Collection Date: 11/10/2015 1730h
Received Date: 11/11/2015 930h

Analytical Results

TOTAL METALS

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 web: www.awal-labs.com

Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	11/12/2015 1051h	11/14/2015 025h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	11/12/2015 1051h	11/14/2015 025h	E200.8	0.00200	< 0.00200	
Barium	mg/L	11/12/2015 1051h	11/14/2015 025h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	11/12/2015 1051h	11/14/2015 025h	E200.8	0.00200	< 0.00200	
Boron	mg/L	11/12/2015 1051h	11/24/2015 1650h	E200.7	0.500	< 0.500	
Cadmium	mg/L	11/12/2015 1051h	11/14/2015 025h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	11/12/2015 1051h	11/24/2015 1650h	E200.7	1.00	< 1.00	
Chromium	mg/L	11/12/2015 1051h	11/14/2015 025h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	11/12/2015 1051h	11/14/2015 025h	E200.8	0.00400	< 0.00400	
Lead	mg/L	11/12/2015 1051h	11/14/2015 025h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	11/12/2015 1051h	11/25/2015 1126h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	11/12/2015 1051h	11/24/2015 1650h	E200.7	1.00	< 1.00	
Mercury	mg/L	11/12/2015 1310h	11/13/2015 913h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	11/12/2015 1051h	11/14/2015 025h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	11/12/2015 1051h	11/14/2015 025h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	11/12/2015 1051h	11/25/2015 1358h	E200.7	1.00	< 1.00	
Thallium	mg/L	11/12/2015 1051h	11/14/2015 025h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-001
Client Sample ID: ELF-11
Collection Date: 11/10/2015 940h
Received Date: 11/11/2015 930h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	469	
Bicarbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	469	
Carbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Chloride	mg/L		11/13/2015 1123h	E300.0	100	1,180	
Fluoride	mg/L		11/13/2015 2242h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		11/12/2015 114h	E353.2	0.0100	0.728	
pH @ 25° C	pH Units		11/11/2015 1851h	SM4500-H+B	1.00	7.40	H
Sulfate	mg/L		11/13/2015 1123h	E300.0	750	9,890	
Total Dissolved Solids	mg/L		11/13/2015 1250h	SM2540C	500	15,200	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-002
Client Sample ID: ELF-8
Collection Date: 11/10/2015 1055h
Received Date: 11/11/2015 930h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	86.0	
Bicarbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	86.0	
Carbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Chloride	mg/L		11/13/2015 1213h	E300.0	100	2,160	
Fluoride	mg/L		11/13/2015 2259h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		11/12/2015 115h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		11/11/2015 1851h	SM4500-H+B	1.00	7.30	H
Sulfate	mg/L		11/13/2015 1213h	E300.0	750	3,140	
Total Dissolved Solids	mg/L		11/12/2015 1120h	SM2540C	20.0	7,690	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-003
Client Sample ID: ELF-8DUP
Collection Date: 11/10/2015 1100h
Received Date: 11/11/2015 930h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	81.7	
Bicarbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	81.7	
Carbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Chloride	mg/L		11/13/2015 1230h	E300.0	100	2,190	
Fluoride	mg/L		11/13/2015 2316h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		11/12/2015 116h	E353.2	0.0100	< 0.0100	¹
pH @ 25° C	pH Units		11/11/2015 1851h	SM4500-H+B	1.00	7.35	H
Sulfate	mg/L		11/13/2015 1230h	E300.0	750	3,160	
Total Dissolved Solids	mg/L		11/12/2015 1120h	SM2540C	20.0	7,680	

¹ - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-004
Client Sample ID: ELF-6
Collection Date: 11/10/2015 1150h
Received Date: 11/11/2015 930h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	482	
Bicarbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	482	
Carbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Chloride	mg/L		11/13/2015 1247h	E300.0	100	4,670	
Fluoride	mg/L		11/13/2015 2332h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		11/12/2015 158h	E353.2	0.200	22.7	
pH @ 25° C	pH Units		11/11/2015 1851h	SM4500-H+B	1.00	6.78	H
Sulfate	mg/L		11/13/2015 1247h	E300.0	750	9,130	
Total Dissolved Solids	mg/L		11/13/2015 1250h	SM2540C	500	19,500	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-005
Client Sample ID: ELF-6EB
Collection Date: 11/10/2015 1745h
Received Date: 11/11/2015 930h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Chloride	mg/L		11/13/2015 1953h	E300.0	0.100	0.440	
Fluoride	mg/L		11/13/2015 1953h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		11/12/2015 152h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		11/11/2015 1851h	SM4500-H+B	1.00	6.30	H
Sulfate	mg/L		11/13/2015 1953h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		11/12/2015 1120h	SM2540C	10.0	30.0	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-006
Client Sample ID: ELF-5
Collection Date: 11/10/2015 1235h
Received Date: 11/11/2015 930h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	516	
Bicarbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	516	
Carbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Chloride	mg/L		11/13/2015 1304h	E300.0	100	4,110	
Fluoride	mg/L		11/13/2015 2349h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		11/12/2015 159h	E353.2	0.200	26.2	
pH @ 25° C	pH Units		11/11/2015 1851h	SM4500-H+B	1.00	6.98	H
Sulfate	mg/L		11/13/2015 1304h	E300.0	750	11,100	
Total Dissolved Solids	mg/L		11/13/2015 1250h	SM2540C	500	22,600	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-007
Client Sample ID: ELF-4
Collection Date: 11/10/2015 1335h
Received Date: 11/11/2015 930h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	361	
Bicarbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	361	
Carbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Chloride	mg/L		11/13/2015 1321h	E300.0	100	2,040	
Fluoride	mg/L		11/14/2015 006h	E300.0	0.100	4.46	
Nitrate/Nitrite (as N)	mg/L		11/12/2015 201h	E353.2	0.200	14.8	
pH @ 25° C	pH Units		11/11/2015 1851h	SM4500-H+B	1.00	6.94	H
Sulfate	mg/L		11/13/2015 1321h	E300.0	750	5,350	
Total Dissolved Solids	mg/L		11/13/2015 1250h	SM2540C	500	11,200	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-008
Client Sample ID: ELF-7
Collection Date: 11/10/2015 1415h
Received Date: 11/11/2015 930h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	542	
Bicarbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	542	
Carbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Chloride	mg/L		11/13/2015 1411h	E300.0	100	2,600	
Fluoride	mg/L		11/14/2015 023h	E300.0	0.100	4.00	
Nitrate/Nitrite (as N)	mg/L		11/12/2015 210h	E353.2	1.00	115	
pH @ 25° C	pH Units		11/11/2015 1851h	SM4500-H+B	1.00	6.93	H
Sulfate	mg/L		11/13/2015 1411h	E300.0	750	8,650	
Total Dissolved Solids	mg/L		11/13/2015 1250h	SM2540C	500	19,200	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-009
Client Sample ID: ELF-10
Collection Date: 11/10/2015 1500h
Received Date: 11/11/2015 930h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	989	
Bicarbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	989	
Carbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Chloride	mg/L		11/13/2015 1428h	E300.0	100	6,790	
Fluoride	mg/L		11/14/2015 041h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		11/12/2015 212h	E353.2	1.00	67.7	
pH @ 25° C	pH Units		11/11/2015 1851h	SM4500-H+B	1.00	7.10	H
Sulfate	mg/L		11/16/2015 1622h	E300.0	7,500	19,900	
Total Dissolved Solids	mg/L		11/13/2015 1250h	SM2540C	500	37,200	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-010
Client Sample ID: ELF-2
Collection Date: 11/10/2015 1640h
Received Date: 11/11/2015 930h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	426	
Bicarbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	426	
Carbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Chloride	mg/L		11/16/2015 1713h	E300.0	10.0	444	
Fluoride	mg/L		11/14/2015 058h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		11/12/2015 204h	E353.2	0.200	18.4	
pH @ 25° C	pH Units		11/11/2015 1851h	SM4500-H+B	1.00	7.22	H
Sulfate	mg/L		11/13/2015 1445h	E300.0	750	7,870	
Total Dissolved Solids	mg/L		11/13/2015 1250h	SM2540C	500	11,300	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: PERC M52
Lab Sample ID: 1511197-011
Client Sample ID: ELF-2FB
Collection Date: 11/10/2015 1730h
Received Date: 11/11/2015 930h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		11/12/2015 645h	SM2320B	10.0	< 10.0	
Chloride	mg/L		11/13/2015 2044h	E300.0	0.100	0.126	
Fluoride	mg/L		11/13/2015 2044h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		11/12/2015 141h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		11/11/2015 1851h	SM4500-H+B	1.00	6.46	H
Sulfate	mg/L		11/13/2015 2044h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		11/12/2015 1120h	SM2540C	10.0	< 10.0	

H - Sample was received outside of the holding time.

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Kyle F. Gross
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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-40230		Date Analyzed:	11/24/2015 1257h										
Test Code: 200.7-W		Date Prepared:	11/12/2015 1051h										
Boron	1.00	mg/L	E200.7	0.00514	0.500	1.000	0	100	85 - 115				
Calcium	10.4	mg/L	E200.7	0.0401	1.00	10.00	0	104	85 - 115				
Magnesium	10.0	mg/L	E200.7	0.0294	1.00	10.00	0	100	85 - 115				
Sodium	9.95	mg/L	E200.7	0.0330	1.00	10.00	0	99.5	85 - 115				
Lab Sample ID: LCS-40231		Date Analyzed:	11/13/2015 2328h										
Test Code: 200.8-W		Date Prepared:	11/12/2015 1051h										
Antimony	0.182	mg/L	E200.8	0.0000366	0.00200	0.2000	0	91.0	85 - 115				
Arsenic	0.194	mg/L	E200.8	0.0000920	0.00200	0.2000	0	97.2	85 - 115				
Barium	0.196	mg/L	E200.8	0.000538	0.00200	0.2000	0	97.8	85 - 115				
Beryllium	0.204	mg/L	E200.8	0.0000288	0.00200	0.2000	0	102	85 - 115				
Cadmium	0.197	mg/L	E200.8	0.000193	0.000500	0.2000	0	98.7	85 - 115				
Chromium	0.201	mg/L	E200.8	0.00154	0.00200	0.2000	0	100	85 - 115				
Cobalt	0.199	mg/L	E200.8	0.0000434	0.00400	0.2000	0	99.7	85 - 115				
Lead	0.204	mg/L	E200.8	0.000264	0.00200	0.2000	0	102	85 - 115				
Molybdenum	0.201	mg/L	E200.8	0.000206	0.00200	0.2000	0	101	85 - 115				
Selenium	0.196	mg/L	E200.8	0.0000634	0.00200	0.2000	0	97.9	85 - 115				
Thallium	0.198	mg/L	E200.8	0.0000242	0.00200	0.2000	0	99.2	85 - 115				
Lab Sample ID: LCS-40238		Date Analyzed:	11/13/2015 840h										
Test Code: HG-DW-245.1		Date Prepared:	11/12/2015 1310h										
Mercury	0.00351	mg/L	E245.1	0.00000892	0.000150	0.003330	0	105	85 - 115				



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-40230	Date Analyzed:	11/24/2015 1255h											
Test Code:	200.7-W	Date Prepared:	11/12/2015 1051h										
Boron	< 0.500	mg/L	E200.7	0.00514	0.500								
Calcium	< 1.00	mg/L	E200.7	0.0401	1.00								
Magnesium	< 1.00	mg/L	E200.7	0.0294	1.00								
Sodium	< 1.00	mg/L	E200.7	0.0330	1.00								
Lab Sample ID: MB-40230	Date Analyzed:	11/25/2015 1111h											
Test Code:	200.7-W	Date Prepared:	11/12/2015 1051h										
Lithium	< 0.100	mg/L	E200.7	0	0.100								~
Lab Sample ID: MB-40231	Date Analyzed:	11/13/2015 2325h											
Test Code:	200.8-W	Date Prepared:	11/12/2015 1051h										
Antimony	< 0.00200	mg/L	E200.8	0.0000366	0.00200								
Arsenic	< 0.00200	mg/L	E200.8	0.0000920	0.00200								
Barium	< 0.00200	mg/L	E200.8	0.000538	0.00200								
Beryllium	< 0.00200	mg/L	E200.8	0.0000288	0.00200								
Cadmium	< 0.000500	mg/L	E200.8	0.000193	0.000500								
Chromium	< 0.00200	mg/L	E200.8	0.00154	0.00200								
Cobalt	< 0.00400	mg/L	E200.8	0.0000434	0.00400								
Lead	< 0.00200	mg/L	E200.8	0.000264	0.00200								
Molybdenum	< 0.00200	mg/L	E200.8	0.000206	0.00200								
Selenium	< 0.00200	mg/L	E200.8	0.0000634	0.00200								
Thallium	< 0.00200	mg/L	E200.8	0.0000242	0.00200								
Lab Sample ID: MB-40238	Date Analyzed:	11/13/2015 838h											
Test Code:	HG-DW-245.1	Date Prepared:	11/12/2015 1310h										
Mercury	< 0.000150	mg/L	E245.1	0.00000892	0.000150								

~ - The above result was not performed in accordance with NELAP requirements.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511197-001CMS	Date Analyzed:	11/24/2015 1329h											
Test Code:	200.7-W	Date Prepared:	11/12/2015 1051h										
Calcium	422	mg/L	E200.7	4.01	100	10.00	419	26.5	70 - 130				2
Sodium	4,080	mg/L	E200.7	3.30	100	10.00	4190	-1,200	70 - 130				2
Lab Sample ID: 1511199-001CMS	Date Analyzed:	11/24/2015 1411h											
Test Code:	200.7-W	Date Prepared:	11/12/2015 1051h										
Sodium	1,690	mg/L	E200.7	3.30	100	10.00	1660	319	70 - 130				2
Lab Sample ID: 1511197-001CMS	Date Analyzed:	11/24/2015 1456h											
Test Code:	200.7-W	Date Prepared:	11/12/2015 1051h										
Magnesium	355	mg/L	E200.7	0.294	10.0	10.00	342	131	70 - 130				2
Lab Sample ID: 1511197-001CMS	Date Analyzed:	11/24/2015 1612h											
Test Code:	200.7-W	Date Prepared:	11/12/2015 1051h										
Boron	17.2	mg/L	E200.7	0.00514	0.500	1.000	16.3	88.5	70 - 130				
Lab Sample ID: 1511199-001CMS	Date Analyzed:	11/24/2015 1655h											
Test Code:	200.7-W	Date Prepared:	11/12/2015 1051h										
Boron	1.75	mg/L	E200.7	0.00514	0.500	1.000	0.765	98.0	70 - 130				
Calcium	22.4	mg/L	E200.7	0.0401	1.00	10.00	11.9	105	70 - 130				
Magnesium	16.9	mg/L	E200.7	0.0294	1.00	10.00	6.95	99.8	70 - 130				
Lab Sample ID: 1511197-001CMS	Date Analyzed:	11/13/2015 2341h											
Test Code:	200.8-W	Date Prepared:	11/12/2015 1051h										
Antimony	0.201	mg/L	E200.8	0.0000366	0.00200	0.2000	0.00141	99.7	75 - 125				
Arsenic	0.213	mg/L	E200.8	0.0000920	0.00200	0.2000	0.000691	106	75 - 125				
Barium	0.213	mg/L	E200.8	0.000538	0.00200	0.2000	0.0203	96.1	75 - 125				
Beryllium	0.184	mg/L	E200.8	0.0000288	0.00200	0.2000	0.0000305	92.0	75 - 125				
Cadmium	0.186	mg/L	E200.8	0.000193	0.000500	0.2000	0	93.2	75 - 125				
Chromium	0.189	mg/L	E200.8	0.00154	0.00200	0.2000	0	94.7	75 - 125				



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511197-001CMS													
Date Analyzed:		11/13/2015 2341h											
Test Code:		200.8-W											
Date Prepared:		11/12/2015 1051h											
Cobalt	0.198	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0151	91.4	75 - 125				
Lead	0.182	mg/L	E200.8	0.000264	0.00200	0.2000	0	90.8	75 - 125				
Molybdenum	0.242	mg/L	E200.8	0.000206	0.00200	0.2000	0.0253	109	75 - 125				
Selenium	0.206	mg/L	E200.8	0.0000634	0.00200	0.2000	0.00644	99.8	75 - 125				
Thallium	0.177	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000278	88.4	75 - 125				
Lab Sample ID: 1511199-001CMS													
Date Analyzed:		11/14/2015 031h											
Test Code:		200.8-W											
Date Prepared:		11/12/2015 1051h											
Antimony	0.207	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000271	103	75 - 125				
Arsenic	0.212	mg/L	E200.8	0.0000920	0.00200	0.2000	0.000723	106	75 - 125				
Barium	0.223	mg/L	E200.8	0.000538	0.00200	0.2000	0.0265	98.2	75 - 125				
Beryllium	0.203	mg/L	E200.8	0.0000288	0.00200	0.2000	0	102	75 - 125				
Cadmium	0.199	mg/L	E200.8	0.000193	0.000500	0.2000	0	99.6	75 - 125				
Chromium	0.202	mg/L	E200.8	0.00154	0.00200	0.2000	0	101	75 - 125				
Cobalt	0.198	mg/L	E200.8	0.0000434	0.00400	0.2000	0.000182	98.7	75 - 125				
Lead	0.196	mg/L	E200.8	0.000264	0.00200	0.2000	0	97.8	75 - 125				
Molybdenum	0.223	mg/L	E200.8	0.000206	0.00200	0.2000	0.00579	109	75 - 125				
Selenium	0.199	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000109	99.7	75 - 125				
Thallium	0.190	mg/L	E200.8	0.0000242	0.00200	0.2000	0	95.1	75 - 125				
Lab Sample ID: 1511197-001CMS													
Date Analyzed:		11/13/2015 848h											
Test Code:		HG-DW-245.1											
Date Prepared:		11/12/2015 1310h											
Mercury	0.00287	mg/L	E245.1	0.00000892	0.000150	0.003330	0	86.0	80 - 120				
Lab Sample ID: 1511199-001CMS													
Date Analyzed:		11/13/2015 917h											
Test Code:		HG-DW-245.1											
Date Prepared:		11/12/2015 1310h											
Mercury	0.00345	mg/L	E245.1	0.00000892	0.000150	0.003330	0	104	80 - 120				

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511197-001CMSD	Date Analyzed:	11/24/2015 1331h											
Test Code:	200.7-W	Date Prepared:	11/12/2015 1051h										
Calcium	430	mg/L	E200.7	4.01	100	10.00	419	101	70 - 130	422	1.74	20	
Sodium	4,230	mg/L	E200.7	3.30	100	10.00	4190	401	70 - 130	4080	3.84	20	²
Lab Sample ID: 1511199-001CMSD	Date Analyzed:	11/24/2015 1413h											
Test Code:	200.7-W	Date Prepared:	11/12/2015 1051h										
Sodium	1,730	mg/L	E200.7	3.30	100	10.00	1660	674	70 - 130	1690	2.08	20	²
Lab Sample ID: 1511197-001CMSD	Date Analyzed:	11/24/2015 1458h											
Test Code:	200.7-W	Date Prepared:	11/12/2015 1051h										
Magnesium	363	mg/L	E200.7	0.294	10.0	10.00	342	217	70 - 130	355	2.39	20	²
Lab Sample ID: 1511197-001CMSD	Date Analyzed:	11/24/2015 1615h											
Test Code:	200.7-W	Date Prepared:	11/12/2015 1051h										
Boron	17.6	mg/L	E200.7	0.00514	0.500	1.000	16.3	132	70 - 130	17.2	2.51	20	²
Lab Sample ID: 1511199-001CMSD	Date Analyzed:	11/24/2015 1657h											
Test Code:	200.7-W	Date Prepared:	11/12/2015 1051h										
Boron	1.72	mg/L	E200.7	0.00514	0.500	1.000	0.765	95.0	70 - 130	1.75	1.75	20	
Calcium	21.8	mg/L	E200.7	0.0401	1.00	10.00	11.9	99.0	70 - 130	22.4	2.61	20	
Magnesium	16.7	mg/L	E200.7	0.0294	1.00	10.00	6.95	97.2	70 - 130	16.9	1.54	20	
Lab Sample ID: 1511197-001CMSD	Date Analyzed:	11/13/2015 2344h											
Test Code:	200.8-W	Date Prepared:	11/12/2015 1051h										
Antimony	0.203	mg/L	E200.8	0.0000366	0.00200	0.2000	0.00141	101	75 - 125	0.201	1.29	20	
Arsenic	0.216	mg/L	E200.8	0.0000920	0.00200	0.2000	0.000691	108	75 - 125	0.213	1.65	20	
Barium	0.214	mg/L	E200.8	0.000538	0.00200	0.2000	0.0203	97.1	75 - 125	0.213	0.871	20	
Beryllium	0.186	mg/L	E200.8	0.0000288	0.00200	0.2000	0.0000305	93.1	75 - 125	0.184	1.22	20	
Cadmium	0.190	mg/L	E200.8	0.000193	0.000500	0.2000	0	94.9	75 - 125	0.186	1.76	20	
Chromium	0.192	mg/L	E200.8	0.00154	0.00200	0.2000	0	96.2	75 - 125	0.189	1.61	20	



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511197-001CMSD													
Test Code:	200.8-W	Date Analyzed:	11/13/2015 2344h	Date Prepared:	11/12/2015 1051h								
Cobalt	0.200	mg/L	E200.8	0.0000434	0.00400	0.2000	0.0151	92.6	75 - 125	0.198	1.21	20	
Lead	0.184	mg/L	E200.8	0.000264	0.00200	0.2000	0	92.0	75 - 125	0.182	1.25	20	
Molybdenum	0.245	mg/L	E200.8	0.000206	0.00200	0.2000	0.0253	110	75 - 125	0.242	1.11	20	
Selenium	0.208	mg/L	E200.8	0.0000634	0.00200	0.2000	0.00644	101	75 - 125	0.206	0.791	20	
Thallium	0.180	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000278	89.7	75 - 125	0.177	1.55	20	
Lab Sample ID: 1511199-001CMSD													
Test Code:	200.8-W	Date Analyzed:	11/14/2015 044h	Date Prepared:	11/12/2015 1051h								
Antimony	0.203	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000271	101	75 - 125	0.207	2.24	20	
Arsenic	0.206	mg/L	E200.8	0.0000920	0.00200	0.2000	0.000723	103	75 - 125	0.212	2.66	20	
Barium	0.219	mg/L	E200.8	0.000538	0.00200	0.2000	0.0265	96.2	75 - 125	0.223	1.79	20	
Beryllium	0.197	mg/L	E200.8	0.0000288	0.00200	0.2000	0	98.4	75 - 125	0.203	3.18	20	
Cadmium	0.194	mg/L	E200.8	0.000193	0.000500	0.2000	0	97.2	75 - 125	0.199	2.42	20	
Chromium	0.197	mg/L	E200.8	0.00154	0.00200	0.2000	0	98.6	75 - 125	0.202	2.43	20	
Cobalt	0.193	mg/L	E200.8	0.0000434	0.00400	0.2000	0.000182	96.4	75 - 125	0.198	2.36	20	
Lead	0.192	mg/L	E200.8	0.000264	0.00200	0.2000	0	96.0	75 - 125	0.196	1.90	20	
Molybdenum	0.216	mg/L	E200.8	0.000206	0.00200	0.2000	0.00579	105	75 - 125	0.223	3.13	20	
Selenium	0.195	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000109	97.4	75 - 125	0.199	2.28	20	
Thallium	0.186	mg/L	E200.8	0.0000242	0.00200	0.2000	0	93.2	75 - 125	0.19	2.02	20	
Lab Sample ID: 1511197-001CMSD													
Test Code:	HG-DW-245.1	Date Analyzed:	11/13/2015 850h	Date Prepared:	11/12/2015 1310h								
Mercury	0.00287	mg/L	E245.1	0.00000892	0.000150	0.003330	0	86.2	80 - 120	0.00287	0.174	20	
Lab Sample ID: 1511199-001CMSD													
Test Code:	HG-DW-245.1	Date Analyzed:	11/13/2015 923h	Date Prepared:	11/12/2015 1310h								
Mercury	0.00344	mg/L	E245.1	0.00000892	0.000150	0.003330	0	103	80 - 120	0.00345	0.145	20	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: WC
QC Type: DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511197-010ADUP Date Analyzed: 11/11/2015 1851h													
Test Code: PH-4500H+B													
pH @ 25° C	7.23	pH Units	SM4500-H+B	1.00	1.00					7.22	0.138	5	H
Lab Sample ID: 1511199-006ADUP Date Analyzed: 11/11/2015 1851h													
Test Code: PH-4500H+B													
pH @ 25° C	6.37	pH Units	SM4500-H+B	1.00	1.00					6.42	0.782	5	H
Lab Sample ID: 1511199-002ADUP Date Analyzed: 11/12/2015 1120h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	5,600	mg/L	SM2540C	12.3	20.0					5950	6.09	5	@
Lab Sample ID: 1511197-004ADUP Date Analyzed: 11/13/2015 1250h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	19,900	mg/L	SM2540C	306	500					19500	2.03	5	

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

H - Sample was received outside of the holding time.



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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: WC
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-R85119 Date Analyzed: 11/13/2015 1106h													
Test Code: 300.0-W													
Chloride	4.73	mg/L	E300.0	0.00751	0.100	5.000	0	94.7	90 - 110				
Fluoride	4.78	mg/L	E300.0	0.00681	0.100	5.000	0	95.6	90 - 110				
Sulfate	4.94	mg/L	E300.0	0.0211	0.750	5.000	0	98.9	90 - 110				
Lab Sample ID: LCS-R85187 Date Analyzed: 11/16/2015 1605h													
Test Code: 300.0-W													
Chloride	4.82	mg/L	E300.0	0.00751	0.100	5.000	0	96.5	90 - 110				
Sulfate	5.09	mg/L	E300.0	0.0211	0.750	5.000	0	102	90 - 110				
Lab Sample ID: LCS-R85010 Date Analyzed: 11/12/2015 645h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	50,700	mg/L	SM2320B	1.86	10.0	50,000	0	101	90 - 110				
Lab Sample ID: LCS-R85006 Date Analyzed: 11/12/2015 112h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	0.983	mg/L	E353.2	0.00833	0.0100	1.000	0	98.3	90 - 110				
Lab Sample ID: LCS-R85000 Date Analyzed: 11/11/2015 1851h													
Test Code: PH-4500H+B													
pH @ 25° C	8.93	pH Units	SM4500-H+B	1.00	1.00	9.000	0	99.2	98 - 102				
Lab Sample ID: LCS-R85083 Date Analyzed: 11/12/2015 1120h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	210	mg/L	SM2540C	6.13	10.0	205.0	0	102	80 - 120				
Lab Sample ID: LCS-R85138 Date Analyzed: 11/13/2015 1250h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	190	mg/L	SM2540C	6.13	10.0	205.0	0	92.7	80 - 120				



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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: WC
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-R85119	Date Analyzed:	11/13/2015	1049h										
Test Code:	300.0-W												
Chloride	< 0.100	mg/L	E300.0	0.00751	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.00681	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0211	0.750								
Lab Sample ID: MB-R85187	Date Analyzed:	11/16/2015	1548h										
Test Code:	300.0-W												
Chloride	< 0.100	mg/L	E300.0	0.00751	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0211	0.750								
Lab Sample ID: MB-R85010	Date Analyzed:	11/12/2015	645h										
Test Code:	ALK-W-2320B												
Alkalinity (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.86	10.0								
Bicarbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.86	10.0								
Carbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.86	10.0								
Lab Sample ID: MB-R85006	Date Analyzed:	11/12/2015	111h										
Test Code:	NO2/NO3-W-353.2												
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID: MB-R85083	Date Analyzed:	11/12/2015	1120h										
Test Code:	TDS-W-2540C												
Total Dissolved Solids	< 10.0	mg/L	SM2540C	6.13	10.0								
Lab Sample ID: MB-R85138	Date Analyzed:	11/13/2015	1250h										
Test Code:	TDS-W-2540C												
Total Dissolved Solids	< 10.0	mg/L	SM2540C	6.13	10.0								



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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511197-001AMS Date Analyzed: 11/13/2015 1140h													
Test Code: 300.0-W													
Chloride	10,800	mg/L	E300.0	15.0	200	10,000	1180	96.4	90 - 110				
Fluoride	9,760	mg/L	E300.0	13.6	200	10,000	0	97.6	90 - 110				
Sulfate	19,700	mg/L	E300.0	42.2	1,500	10,000	9890	97.9	90 - 110				
Lab Sample ID: 1511197-005AMS Date Analyzed: 11/13/2015 2010h													
Test Code: 300.0-W													
Chloride	5.47	mg/L	E300.0	0.00751	0.100	5.000	0.44	101	90 - 110				
Fluoride	5.06	mg/L	E300.0	0.00681	0.100	5.000	0	101	90 - 110				
Sulfate	5.20	mg/L	E300.0	0.0211	0.750	5.000	0	104	90 - 110				
Lab Sample ID: 1511199-005AMS Date Analyzed: 11/13/2015 2118h													
Test Code: 300.0-W													
Chloride	5.05	mg/L	E300.0	0.00751	0.100	5.000	0.0961	99.2	90 - 110				
Fluoride	5.03	mg/L	E300.0	0.00681	0.100	5.000	0	101	90 - 110				
Sulfate	5.15	mg/L	E300.0	0.0211	0.750	5.000	0	103	90 - 110				
Lab Sample ID: 1511197-009AMS Date Analyzed: 11/16/2015 1639h													
Test Code: 300.0-W													
Chloride	104,000	mg/L	E300.0	150	2,000	100,000	6790	97.0	90 - 110				
Sulfate	120,000	mg/L	E300.0	422	15,000	100,000	19900	100	90 - 110				
Lab Sample ID: 1511199-002AMS Date Analyzed: 11/16/2015 1746h													
Test Code: 300.0-W													
Sulfate	1,810	mg/L	E300.0	4.22	150	1,000	852	95.9	90 - 110				
Lab Sample ID: 1511197-001AMS Date Analyzed: 11/12/2015 645h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	710	mg/L	SM2320B	1.86	10.0	250.0	469	96.3	80 - 120				



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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511197-011AMS Date Analyzed: 11/12/2015 645h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	51.6	mg/L	SM2320B	1.86	10.0	50.00	0	103	80 - 120				
Lab Sample ID: 1511197-003BMS Date Analyzed: 11/12/2015 117h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	0.648	mg/L	E353.2	0.00833	0.0100	1.000	0	64.8	90 - 110				¹
Lab Sample ID: 1511199-006BMS Date Analyzed: 11/12/2015 150h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	0.965	mg/L	E353.2	0.00833	0.0100	1.000	0	96.5	90 - 110				

¹ - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.



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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511197-001AMSD Date Analyzed: 11/13/2015 1157h													
Test Code: 300.0-W													
Chloride	10,700	mg/L	E300.0	15.0	200	10,000	1180	95.3	90 - 110	10800	1.03	20	
Fluoride	9,620	mg/L	E300.0	13.6	200	10,000	0	96.2	90 - 110	9760	1.38	20	
Sulfate	19,700	mg/L	E300.0	42.2	1,500	10,000	9890	97.8	90 - 110	19700	0.0186	20	
Lab Sample ID: 1511197-005AMSD Date Analyzed: 11/13/2015 2027h													
Test Code: 300.0-W													
Chloride	5.45	mg/L	E300.0	0.00751	0.100	5.000	0.44	100	90 - 110	5.47	0.320	20	
Fluoride	5.10	mg/L	E300.0	0.00681	0.100	5.000	0	102	90 - 110	5.06	0.733	20	
Sulfate	5.23	mg/L	E300.0	0.0211	0.750	5.000	0	105	90 - 110	5.2	0.470	20	
Lab Sample ID: 1511199-005AMSD Date Analyzed: 11/13/2015 2134h													
Test Code: 300.0-W													
Chloride	5.13	mg/L	E300.0	0.00751	0.100	5.000	0.0961	101	90 - 110	5.05	1.43	20	
Fluoride	5.10	mg/L	E300.0	0.00681	0.100	5.000	0	102	90 - 110	5.03	1.36	20	
Sulfate	5.24	mg/L	E300.0	0.0211	0.750	5.000	0	105	90 - 110	5.15	1.67	20	
Lab Sample ID: 1511197-009AMSD Date Analyzed: 11/16/2015 1656h													
Test Code: 300.0-W													
Chloride	104,000	mg/L	E300.0	150	2,000	100,000	6790	97.1	90 - 110	104000	0.0732	20	
Sulfate	120,000	mg/L	E300.0	422	15,000	100,000	19900	100	90 - 110	120000	0.0971	20	
Lab Sample ID: 1511199-002AMSD Date Analyzed: 11/16/2015 1803h													
Test Code: 300.0-W													
Sulfate	1,790	mg/L	E300.0	4.22	150	1,000	852	94.1	90 - 110	1810	0.972	20	
Lab Sample ID: 1511197-001AMSD Date Analyzed: 11/12/2015 645h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	710	mg/L	SM2320B	1.86	10.0	250.0	469	96.3	80 - 120	710	0	10	



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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1511197
Project: PERC M52

Contact: Laura Watson
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1511197-011AMSD Date Analyzed: 11/12/2015 645h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	52.5	mg/L	SM2320B	1.86	10.0	50.00	0	105	80 - 120	51.6	1.73	10	
Lab Sample ID: 1511197-003BMSD Date Analyzed: 11/12/2015 123h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	0.678	mg/L	E353.2	0.00833	0.0100	1.000	0	67.8	90 - 110	0.648	4.57	10	¹
Lab Sample ID: 1511199-006BMSD Date Analyzed: 11/12/2015 151h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	0.988	mg/L	E353.2	0.00833	0.0100	1.000	0	98.8	90 - 110	0.965	2.42	10	

¹ - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

WORK ORDER Summary

Work Order: **1511197**

Page 1 of 5

Client: Water & Environmental Technologies

Due Date: 11/25/2015

Client ID: WALKIN

Contact: Laura Watson

Project: PERC M52

QC Level: II+

WO Type: Standard

Comments: Bill to PacifiCorp - Jeff Tucker / Send copy of report to Jeff, original to Laura @ Water & Environmental Technologies. QC2+ / EDD. RADS sent to AZC.
Footnote report, pH received outside of hold.;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1511197-001A	ELF-11	11/10/2015 0940h	11/11/2015 0930h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous		DF-WC
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC			DF-WC
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1511197-001B				NO2/NO3-W-353.2			DF-NO2/NO3
1511197-001C				200.7-W 5 SEL Analytes: B CA LI MG NA			DF-Metals
				200.7-W-PR			DF-Metals
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			DF-Metals
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1511197-001D				OUTSIDE LAB			azc
1511197-002A	ELF-8	11/10/2015 1055h	11/11/2015 0930h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous		DF-WC
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC			DF-WC
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1511197-002B				NO2/NO3-W-353.2			DF-NO2/NO3
1511197-002C				200.7-W 5 SEL Analytes: B CA LI MG NA			DF-Metals
				200.7-W-PR			DF-Metals
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			DF-Metals
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1511197-002D				OUTSIDE LAB			azc

WORK ORDER Summary

Work Order: **1511197**

Page 2 of 5

Client: Water & Environmental Technologies

Due Date: 11/25/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1511197-003A	ELF-8DUP	11/10/2015 1100h	11/11/2015 0930h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous	DF-WC	1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC		DF-WC	
				PH-4500H+B		DF-WC	
				TDS-W-2540C		DF-WC	
1511197-003B				NO2/NO3-W-353.2		DF-NO2/NO3	
1511197-003C				200.7-W 5 SEL Analytes: B CA LI MG NA		DF-Metals	
				200.7-W-PR		DF-Metals	
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL		DF-Metals	
				200.8-W-PR		DF-Metals	
				HG-DW-245.1		DF-Metals	
				HG-DW-PR		DF-Metals	
1511197-003D				OUTSIDE LAB		azc	
1511197-004A	ELF-6	11/10/2015 1150h	11/11/2015 0930h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous	DF-WC	1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC		DF-WC	
				PH-4500H+B		DF-WC	
				TDS-W-2540C		DF-WC	
1511197-004B				NO2/NO3-W-353.2		DF-NO2/NO3	
1511197-004C				200.7-W 5 SEL Analytes: B CA LI MG NA		DF-Metals	
				200.7-W-PR		DF-Metals	
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL		DF-Metals	
				200.8-W-PR		DF-Metals	
				HG-DW-245.1		DF-Metals	
				HG-DW-PR		DF-Metals	
1511197-004D				OUTSIDE LAB		azc	
1511197-005A	ELF-6EB	11/10/2015 1745h	11/11/2015 0930h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous	DF-WC	1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC		DF-WC	
				PH-4500H+B		DF-WC	
				TDS-W-2540C		DF-WC	

WORK ORDER Summary

Work Order: **1511197**

Page 3 of 5

Client: Water & Environmental Technologies

Due Date: 11/25/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1511197-005B	ELF-6EB	11/10/2015 1745h	11/11/2015 0930h	NO2/NO3-W-353.2	Aqueous		DF-NO2/NO3
1511197-005C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1511197-005D				OUTSIDE LAB			azc
1511197-006A	ELF-5	11/10/2015 1235h	11/11/2015 0930h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1511197-006B				NO2/NO3-W-353.2			DF-NO2/NO3
1511197-006C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1511197-006D				OUTSIDE LAB			azc
1511197-007A	ELF-4	11/10/2015 1335h	11/11/2015 0930h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1511197-007B				NO2/NO3-W-353.2			DF-NO2/NO3
1511197-007C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			

WORK ORDER Summary

Work Order: **1511197** Page 4 of 5

Client: Water & Environmental Technologies

Due Date: 11/25/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1511197-007C	ELF-4	11/10/2015 1335h	11/11/2015 0930h	200.8-W-PR	Aqueous	DF-Metals	1
				HG-DW-245.1		DF-Metals	
				HG-DW-PR		DF-Metals	
1511197-007D				OUTSIDE LAB		azc	
1511197-008A	ELF-7	11/10/2015 1415h	11/11/2015 0930h	300.0-W	Aqueous	DF-WC	1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B		DF-WC	
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B		DF-WC	
				TDS-W-2540C		DF-WC	
1511197-008B				NO2/NO3-W-353.2		DF-NO2/NO3	
1511197-008C				200.7-W		DF-Metals	
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR		DF-Metals	
				200.8-W		DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR		DF-Metals	
				HG-DW-245.1		DF-Metals	
				HG-DW-PR		DF-Metals	
1511197-008D				OUTSIDE LAB		azc	
1511197-009A	ELF-10	11/10/2015 1500h	11/11/2015 0930h	300.0-W	Aqueous	DF-WC	1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B		DF-WC	
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B		DF-WC	
				TDS-W-2540C		DF-WC	
1511197-009B				NO2/NO3-W-353.2		DF-NO2/NO3	
1511197-009C				200.7-W		DF-Metals	
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR		DF-Metals	
				200.8-W		DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR		DF-Metals	
				HG-DW-245.1		DF-Metals	
				HG-DW-PR		DF-Metals	
1511197-009D				OUTSIDE LAB		azc	
1511197-010A	ELF-2	11/10/2015 1640h	11/11/2015 0930h	300.0-W	Aqueous	DF-WC	1
				3 SEL Analytes: CL F SO4			

WORK ORDER Summary

Work Order: **1511197**

Page 5 of 5

Client: Water & Environmental Technologies

Due Date: 11/25/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage		
1511197-010A	ELF-2	11/10/2015 1640h	11/11/2015 0930h	ALK-W-2320B	Aqueous		DF-WC	1	
				3 SEL Analytes: ALK ALKB ALKC					
				PH-4500H+B			DF-WC		
				TDS-W-2540C			DF-WC		
1511197-010B				NO2/NO3-W-353.2			DF-NO2/NO3		
1511197-010C				200.7-W			DF-Metals		
				5 SEL Analytes: B CA LI MG NA					
				200.7-W-PR			DF-Metals		
				200.8-W			DF-Metals		
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL					
	200.8-W-PR		DF-Metals						
	HG-DW-245.1		DF-Metals						
	HG-DW-PR		DF-Metals						
1511197-010D				OUTSIDE LAB			azc		
1511197-011A	ELF-2FB	11/10/2015 1730h	11/11/2015 0930h	300.0-W	Aqueous		DF-WC	1	
				3 SEL Analytes: CL F SO4					
				ALK-W-2320B			DF-WC		
				3 SEL Analytes: ALK ALKB ALKC					
				PH-4500H+B			DF-WC		
				TDS-W-2540C			DF-WC		
1511197-011B				NO2/NO3-W-353.2			DF-NO2/NO3		
1511197-011C				200.7-W			DF-Metals		
				5 SEL Analytes: B CA LI MG NA					
				200.7-W-PR			DF-Metals		
	200.8-W		DF-Metals						
	11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL								
	200.8-W-PR		DF-Metals						
	HG-DW-245.1		DF-Metals						
	HG-DW-PR		DF-Metals						
1511197-011D				OUTSIDE LAB			azc		



Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

151197

Page 1 of 2

Company Name: WET	Project Name, PWS, Permit, Etc. PERCM52	Sample Origin State: W UT	EPA/State Compliance: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Report Mail Address (Required): Need Xcell	Contact Name: Laura Watson	Phone/Fax: 406-431-2447	Sampler: (Please Print) LW
<input checked="" type="checkbox"/> No Hard Copy Email: lwatson@wet-llc.com	Invoice Contact & Phone: J.	Purchase Order:	Quote/Bottle Order:

Invoice Address (Required): Jeff Tucker - PacifiCorp			Number of Containers Sample Type: AWSVBODW Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water	ANALYSIS REQUESTED										Standard Turnaround (TAT) RUSH	Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	Shipped by:			
<input checked="" type="checkbox"/> No Hard Copy Email:				Solids Total dissolved Anions pH Fluoride Alkalinity Total metals Total mercury Nitrite + Nitrate Radium 226 + 228 SEE ATTACHED	Comments:	Receipt Temp 3.1 °C	On Ice: Y N	Custody Seal On Bottle Y N On Cooler Y N	Intact Y N Signature Match Y N										
Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> State: _____ <input type="checkbox"/> Other: _____																			
<input checked="" type="checkbox"/> EDD/EDT (Electronic Data) Format: _____ <input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC																			
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		Collection Date	Collection Time	MATRIX															
1 ELF-11		11/10/15	0940	(4)W	X	X	X	X	X	X	X	X	X	X	X				
2 ELF-8		↓	1055	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓				
3 ELF-8DUP			1100	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓				
4 ELF-6			1150	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓				
5 ELF-6 EB		↓	1745	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓				
6																			
7																			
8																			
9																			
10																			

Custody Record MUST be Signed	Relinquished by (print): Laura Watson	Date/Time: 11/11/15	Signature: [Signature]	Received by (print):	Date/Time:	Signature:
	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
	Sample Disposal: Return to Client: _____	Lab Disposal: _____	Received by Laboratory: [Signature]	Date/Time: 11-11-15	Signature: AWAL	

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.



Chain of Custody and Analytical Request Record

Page 2 of 2

PLEASE PRINT (Provide as much information as possible.)

151197

Company Name: WET			Project Name, PWS, Permit, Etc. PERC MS2			Sample Origin State: UT			EPA/State Compliance: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																																																																																																																																													
Report Mail Address (Required): X-cell			Contact Name: Laura Watson			Phone/Fax: 406 431 2447			Cell: 406 431 2447			Sampler: (Please Print) LN																																																																																																																																										
Invoice Address (Required): 8:11 to Jeff Tucker Pacifi Corp			Invoice Contact & Phone:			Purchase Order:			Quote/Bottle Order:			No Hard Copy Email: lwatson@wet-llc.com																																																																																																																																										
Special Report/Formats: <input type="checkbox"/> DW <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> State: <input type="checkbox"/> Other:			<input checked="" type="checkbox"/> EDD/EDT (Electronic Data) Format: _____ <input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC			Number of Containers Sample Type: AWSVBODW Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water			ANALYSIS REQUESTED <table border="1"><tr><td>Total dissolved Solids</td><td>Anions</td><td>pH</td><td>Fluoride</td><td>Alkalinity</td><td>Total metals</td><td>Total mercury</td><td>Nitrite + Nitrate</td><td>Radium 226, 228</td><td>SEE ATTACHED</td><td>Standard Turnaround (TAT)</td><td rowspan="10">R U S H</td><td colspan="2">Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page</td><td colspan="2">Shipped by:</td></tr><tr><td colspan="11"></td><td colspan="2">Cooler ID(s):</td></tr><tr><td colspan="11"></td><td colspan="2">Receipt Temp 3.1 °C</td></tr><tr><td colspan="11"></td><td colspan="2">On Ice: Y N</td></tr><tr><td colspan="11"></td><td colspan="2">Custody Seal On Bottle Y N On Cooler Y N</td></tr><tr><td colspan="11"></td><td colspan="2">Intact Y N</td></tr><tr><td colspan="11"></td><td colspan="2">Signature Match Y N</td></tr><tr><td colspan="11"></td><td colspan="2"></td></tr><tr><td colspan="11"></td><td colspan="2"></td></tr><tr><td colspan="11"></td><td colspan="2"></td></tr></table>			Total dissolved Solids	Anions	pH	Fluoride	Alkalinity	Total metals	Total mercury	Nitrite + Nitrate	Radium 226, 228	SEE ATTACHED	Standard Turnaround (TAT)	R U S H	Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page		Shipped by:													Cooler ID(s):													Receipt Temp 3.1 °C													On Ice: Y N													Custody Seal On Bottle Y N On Cooler Y N													Intact Y N													Signature Match Y N																																									Comments:			LABORATORY USE ONLY		
Total dissolved Solids	Anions	pH	Fluoride	Alkalinity	Total metals	Total mercury	Nitrite + Nitrate	Radium 226, 228	SEE ATTACHED	Standard Turnaround (TAT)	R U S H	Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page		Shipped by:																																																																																																																																								
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SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)			Collection Date			Collection Time			MATRIX																																																																																																																																													
1 ELF-5			11/10/15			1235			(4)W			X X X X X X X X X X																																																																																																																																										
2 ELF-4			↓			1335			↓			↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓																																																																																																																																										
3 ELF-7			↓			1415			↓			↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓																																																																																																																																										
4 ELF-10			↓			1500			↓			↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓																																																																																																																																										
5 ELF-2			↓			1640			↓			↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓																																																																																																																																										
6 ELF-2FB			↓			1730			↓			↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓																																																																																																																																										
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			Relinquished by (print):			Date/Time:			Signature:			Received by (print):			Date/Time:			Signature:																																																																																																																																				
			Sample Disposal: Return to Client: _____			Lab Disposal: _____			Received by Laboratory: [Signature]			Date/Time: 11-11-15			Signature: AWAL																																																																																																																																							

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Billings, MT 800.735.4489 • Casper, WY 888.235.0515
College Station, TX 888.690.2218 • Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

BOTTLE ORDER 96620



SHIPPED TO: Water and Environmental Technologies

Contact: Dave Erickson
480 E Park St Ste 200
Butte MT 59701
Phone: 4067825220
Project: PERCM49

Order Created by: Shari Endy
Shipped From: Billings, MT
Ship Date: 11/4/2015
VIA: Ground
Quote Used: 3487

Bottle Size/Type	Bottles Per Samp	Method	Tests	Critical Hold Time	Preservative	Notes	Num of Samp
------------------	------------------	--------	-------	--------------------	--------------	-------	-------------

Appendix III/IV (38 Sets)

1 Liter Plastic	1	A2540 C	Solids, Total Dissolved			SO ₄ , Cl	1
		E300.0	Anions by Ion Chromatography				
		A4500-H B	pH	0.24 hrs			
		A4500-F C	Fluoride				
		A2320 B	Alkalinity				
250 mL Plastic	1	E200.7_8	Metals by ICP/ICPMS, Tot. Rec.		<input checked="" type="checkbox"/> HNO ₃		1
		E245.1	Mercury, Total				
250 mL Plastic	1	E353.2	Nitrogen, Nitrate + Nitrite		<input type="checkbox"/> H ₂ SO ₄		1
2 Liter Plastic	1	E903.0	Radium 226, Total		<input checked="" type="checkbox"/> HNO ₃		1
		RA-05	Radium 228, Total				
		A7500-RA	Radium 226 + Radium 228				

☒ HNO₃ - Nitric Acid ☐ H₂SO₄ - Sulfuric Acid ☒ NaOH - Sodium Hydroxide
☒ ZnAc - Zinc Acetate ☒ HCl - Hydrochloric Acid ☐ H₃PO₄ - Phosphoric Acid

We strongly suggest that the samples are shipped the same day as they are collected.

Material Safety Data Sheets(MSDS) Available @ EnergyLab.com ->Services -> MSDS Sheets

Corrosive Chemicals: Nitric, Sulfuric, Phosphoric, Hydrochloric Acids and Sodium Hydroxide. Zinc Acetate is a skin irritant.

Subcontracting of sample analyses to an outside laboratory may be required. If so, Energy Laboratories will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

Analyte	Method	Reporting Limit	Price/sample ¹
✓ pH	SM4500-H+ B	1.0 s.u.	\$11.70
✓ Solids, Total Dissolved	SM2540 C	10 mg/L	\$13.50
✓ Alkalinity Total as CaCO ₃	SM2320 B	10 mg/L	\$17.10
✓ Bicarbonate as HCO ₃	SM2320 B	10 mg/L	\$0.00
✓ Carbonate as CO ₃	SM2320 B	10 mg/L	\$0.00
✓ Chloride	E300.0	0.1 mg/L	\$11.70
✓ Sulfate	E300.0	0.75 mg/L	\$11.70
✓ Fluoride	A4500-F C/E300.0	0.1 mg/L	\$12.60
✓ Nitrogen, Nitrate+Nitrite	E353.2	0.01 mg/L	\$11.70
✓ Antimony	E200.8	0.002 mg/L	\$9.00
✓ Arsenic	E200.8	0.002 mg/L	\$9.00
✓ Barium	E200.8	0.002 mg/L	\$9.00
✓ Beryllium	E200.8	0.002 mg/L	\$9.00
✓ Boron	E200.7	0.5 mg/L	\$9.00
✓ Cadmium	E200.8	0.0005 mg/L	\$9.00
✓ Calcium	E200.7	1.0 mg/L	\$9.00
✓ Chromium	E200.8	0.002 mg/L	\$9.00
✓ Cobalt	E200.8	0.004 mg/L	\$9.00
✓ Lead	E200.8	0.002 mg/L	\$9.00
✓ Lithium	E200.7	0.1 mg/L	\$9.00
✓ Magnesium	E200.7	1.0 mg/L	\$9.00
✓ Molybdenum	E200.8	0.002 mg/L	\$9.00
✓ Selenium	E200.8	0.002 mg/L	\$9.00
✓ Sodium	E200.7	1.0 mg/L	\$9.00
✓ Thallium	E200.8	0.002 mg/L	\$9.00
✓ Mercury, Total	E245.1	0.00015 mg/L	\$25.20
Radium 226 + Radium 228 ²	M903.1 + M904.0		\$182.16
Radium 226, Total ²	M903.1	0.4 pCi/L	\$0.00
Radium 228, Total ²	M904.0	1.5 pCi/L	\$0.00
Metals digestion/sample			\$18.00
Total/sample - Not including shipping			\$459.36
Monthly Price for 17 samples - Not including shipping			\$7,809.12
Total Project Cost (20 months) - Not including shipping			\$156,182.40

¹ - Includes 10% discount for 10 or more samples/delivery.

² - UPS shipping costs to Colorado will be applied to these analyses.

Radium analyses will be subcontracted to ACZ Labs in CO.

11/11/15
23 sets every month - have ready 1st week of month
will pick up.

Lab Set ID: 1511197

Samples Were:		COC Tape Was:		Container Type:		No. Rec.	
<input type="checkbox"/> Shipped By:		Present on Outer Package		<input type="checkbox"/> AWAL Supplied Plastic			
<input checked="" type="checkbox"/> Hand Delivered		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> AWAL Supplied Clear Glass			
<input type="checkbox"/> Ambient		Unbroken on Outer package		<input type="checkbox"/> AWAL Supplied Amber Glass			
<input checked="" type="checkbox"/> Chilled <i>in ice</i>		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		<input type="checkbox"/> AWAL Supplied VOA/TOC/TOX Vials			
Temperature <i>3.1 °C</i>		Present on Sample		<input type="checkbox"/> Amber <input type="checkbox"/> Clear <input type="checkbox"/> Headspace <input type="checkbox"/> No Headspace			
Rec. Broken/Leaking <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		<input checked="" type="checkbox"/> Non AWAL Supplied Container		<i>44</i>	
Notes:		Unbroken on Sample		Notes:			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A					
Properly Preserved <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		Notes:					
Notes:							
Rec. Within Hold <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				Discrepancies Between Labels and COC <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Notes:				Notes:			
<i>pH rec. outside of hold</i>							

Bottle Type	Preservative	All pHs OK	1	2	3	4	5	6	7	8	9	10	11			
Ammonia	pH <2 H ₂ SO ₄															
COD	pH <2 H ₂ SO ₄															
Cyanide	pH >12 NaOH															
Metals	pH <2 HNO ₃		<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>			
NO ₂ & NO ₃	pH <2 H ₂ SO ₄		<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>	<i>yes</i>			
Nutrients	pH <2 H ₂ SO ₄															
O & G	pH <2 HCL															
Phenols	pH <2 H ₂ SO ₄															
Sulfide	pH > 9NaOH, ZnAC															
TKN	pH <2 H ₂ SO ₄															
TOC	pH <2 H ₃ PO ₄															
T PO ₄	pH <2 H ₂ SO ₄															
TPH	pH <2 HCL															

- Procedure:
- 1) Pour a small amount of sample in the sample lid
 - 2) Pour sample from Lid gently over wide range pH paper
 - 3) Do Not dip the pH paper in the sample bottle or lid
 - 4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
 - 5) Flag COC and notify client for further instructions
 - 6) Place client conversation on COC
 - 7) Samples may be adjusted at client request

\$ YcYK bYrk11,1&013

AY. ! r00 %
' Dnř K (ř E) ř r*
~ K YrÖř nkA YBQ~ nř BÖř Bř bB
3440KS.1700KA .
Sř Bř kYKÖE,UT#84119
cc%\$ YnÖYBr, , n

BÖC %
FEnnKT, mYr
~ K YrÖř nkA YBQ~ nř BÖř Bř bB
3440KS.1700KA .
Sř Bř kYKÖE,UT#84119

rl "Yc0\$ %1311197
~ CZk rl "Yc0\$ %F&7774

' Dnř K (ř E) ř r* %

' ncDBY*ř rYK-Yř nř BÖř Bř bB, Bk! rkB K. D/BÖB, bK ÖY* KÖ CZř b! řř CrÖB,nc.ř~ CZÖ nk1 ! 2YK bYrk13,k &013.řř+Ök rl "Yc0+ř BbYynř BÖnY* KÖ CZř k rl "Yc0n, K bYr,F&7774.ř Dř BřY-YrYncYKÖn, K bYrkÖř B - , ÇYKÖ6, ÖÖB.

~ Bř nř BÖYB) YrYk Yr-! rKY*ř cc! r* Ö4KÖ CZř B, ř BÖ~ BB, řř ncYk Dn.řř+YrYncDBY*řYB, BkYDÖK nBÖk GYB K. DBrYcYÖY*ř n*YrF&7774.ř ř c+BYcÖnř -KÖY. ! Ö+ř BbYynřY2Ö) Y*ř n*ř. . rl 2Y*řBÖYk ř. . rl. rÖCř b! řř CrBS, . Yr2Ö r,ř rř 16, ř BÖ*řB, bBÖÖ.

' 8cY. Ö Bn! Ö*,KGYKÖYB, Bk! rKGYK YG! * Bř n*ř řř rKYCrBÖÖ*ř nk CZř B, rrYnÖ! F~ CkYrÖÖř Ök DÖrk9~ CZÖK YVÖř B, ÖK YnÖ -kl' F~C.

T+ÖY. ! ÖB+ř BÖYk BY*ř rlc! . Ö*ř nBÖKÖYnÖ E K CZř Bn! ÖYB ! nBÖÖk! rK Ylc! nBY6, YncYBř rÖÖ4k -r! K KGYk BYR -ř k ř rÖÖY. ! rC

~ Bř K. DBr n*řB, b: Bř K. DBr BB cÖÖ*ř Ö KÖK rl "Yc0 ÖB YK Ö ! BY*ř -ř -Örk ř n, ř rB10,1&01<#KGYk Bř K. DBr rYK YÖrk ÖY* KÖYk+ř ř r*! , B,ř** ÖÖnř Bc+ř r4YBř. . Bk! rK Ö ! Bř ÖE Öř B>11 Bř K. DÖK#B, k) ! , DÖÖYGYB K. DÖKÖYk+YDÖn4YrkÖř nk CZř BÖÖ*ř ! BÖK rKÖYkYCrnY*,k Dř Břlc! nÖcÖB, rk rl "Yc0 Ö nř 4Yrk rlc, BÖ K YrSYr2ÖYAY. rYBnÖÖYk! rk, rGYrk YÖ Bř n*ř BB cÖÖ*ř! BÖ.ř CZřYÖ ÖBř nř BÖř B ř) ř rÖY. ! rÖk! rKÖnEYř rB.

#B, k+ř 2Yř nB6, YBÖnBř rK GYrnY*řB, Dř Břlc! nÖcÖB, rk rl "Yc0@ nř 4Yr.

Max Janicek

Max Janicek has reviewed and approved this report.



ProjAct BCD 1511197

Öař p₁A B C D EFF-11

FocatorD

-KY Ōar pīABCD L27774-01

CatA Ćar pAdD 11/10/15 9:40

CatA AcAi! AdD 11/13/15

Öař pŕA MatrixD *Ground Water*

adi" ò \$\$\$

PrAp MAt(odD

M9%&' 1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi" r ##	1#1%15 %D#		%)	%15	##5	pKi*F	*	r +,

adi" ò ##-

PrAp MAt(odD

M9% ' %

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi" r ##-	1#-% *15 1113)		%79	%5	% 7	pKi*F		tjr

American West Analytical Labs

ProjAct ID 1511197

Öař pIA ID EFF-8

FocatorD

~KV Öař pIA ID **L27774-02**

CatA Öař pIA D 11/10/15 10:55

CatA! AcAi" A D 11/13/15

Öař pIA MatrixD Ground Water

! a i#ř \$\$\$

PrAp MAT) o D

M9& (1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$\$\$	1\$*1&*15 &D-		&(7	&(18	&(18	pKi°F	*	ř +,

! a i#ř \$\$8

PrAp MAT) o D

M9&- (&

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$\$8	1\$*&8*15 11D-		1(5	&(5	&(- \$	pKi°F		tjr

American West Analytical Labs

ProjAct ID 151119
 Œař pŒA ID EFF-8 CUP
 FocatorD

ŒKŸ Œař pŒA ID L27774-03
 CatA Œař pŒA D 11/10/15 11:00
 CatA " AcAi#A D 11/13/15
 Œař pŒA MatrixD Ground Water

" a! i\$ř %&&

PrAp MAT* o! D

M9' ()1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř %&&	1%#1' #15 ' D5		')99	')%#	')(%	pKi-F	*	ř , -

" a! i\$ř %&&

PrAp MAT* o! D

M9' .)'

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř %&&	1%# 8#15 11#.		1)5	')55	'). 8	pKi-F		tjr

American West Analytical Labs

ProjAct ID 1511197

Öař pIA ID EFF-6

FocatorD

~KV Öař pIA ID **L27774-04**

CatA Öař pIA D 11/10/15 11:50

CatA! AcAi" A D 11/13/15

Öař pIA MatrixD Ground Water

! a i#ř \$6

PrAp MAT(o D

M9%&'1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$6	1\$+1%+15 %197		%15	%16	%\$*	pKi+F	*	ř , -

! a i#ř \$6*

PrAp MAT(o D

M9%&'1%

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$6*	1\$+1%+15 1115)		%99	%65	%6&	pKi+F		tjr

American West Analytical Labs

ProjAct ID 151119
 Čař pŕA ID EFF-6 EB
 FocatorD

ŦKŸ Čař pŕA ID **L27774-05**
 CatA Čař pŕA D 11/10/15 17:45
 CatA " AcAi#A D 11/13/15
 Čař pŕA MatrixD Ground Water

" a! i\$ř %86

PrAp MAT) o! D

M9& (1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř %86	1%81&+15 818*		8(1*	8(1%	8(1%	pKi+F	*	ř , -

" a! i\$ř %86

PrAp MAT) o! D

M9& (&

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř %86	1%8* +15 1115.		8(1	8(51	8(. 9	pKi+F		tjr

American West Analytical Labs

ProjAct ID 1511197

Öař pŕA ID EFF-4

FocatorD

ŦKv Öař pŕA ID **L27774-07**

CatA Öař pŕA D 11/10/15 13:35

CatA! AcAi" A D 11/13/15

Öař pŕA MatrixD Ground Water

! a i#ř \$\$\$\$

PrAp MAT) o D

M9& (1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$\$\$\$	1\$+1&+15 &11		&(%	&(17	&(4*	pKi+F	*	ř , -

! a i#ř \$\$\$*

PrAp MAT) o D

M9&4(&

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$\$\$*	1\$+&* +15 11134		1	&(5	&(4%	pKi+F		tjr

American West Analytical Labs

ProjAct ID 1511197

Order ID EFF-7

FocutorD

Order ID L27774-08

CatA Order ID 11/10/15 14:15

CatA AcAi! AdD 11/13/15

Order ID MatrixD Ground Water

adi"r ##\$

PrAp MAT(odD

M9%&'1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"r ##\$	1#*1%15 %Q#		%7)	%#	%15	pKi*F	*	r +,

adi"r ##-

PrAp MAT(odD

M9%&'%

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"r ##-	1#*% *15 1&B#9		%71	%) \$	%))	pKi*F		tjr

American West Analytical Labs

Project ID 1511197

Order # EFF-10

Detector

Order # **L27774-09**

Order Date 11/10/15 15:00

Order Date 11/13/15

Order Matrix Ground Water

Order #

Project Matrix

M90&1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order #	11/10/15 00:00		0.58	0.05	0.05	pCi/F	*	tr

Order #

Project Matrix

M90-'0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order #	11/10/15 18:00		0.15	0.05	0.05	pCi/F	*	tjr

American West Analytical Labs

ProjAct ID 1511197

Öař pŕA ID EFF-2

FocatorD

ŦKv Öař pŕA ID **L27774-10**

CatA Öař pŕA D 11/10/15 16:40

CatA! AcAi" A D 11/13/15

Öař pŕA MatrixD Ground Water

! a i#ř 22\$

PrAp MAT(o D

M9%&'1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř 22\$	12)1%15 %15		%25	%1&	%27	pKi)F	*	ř * +

! a i#ř 22,

PrAp MAT(o D

M9% '%

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř 22,	12)%)15 1&29		%52	%- \$	%- 5	pKi)F		tjr

American West Analytical Labs

ProjAct ID 151119
 Œař pŒA ID EFF-2 FB
 FocatorD

ŒKŸ Œař pŒA ID **L27774-11**
 CatA Œař pŒA ID 11/10/15 17:30
 CatA " AcAi#A ID 11/13/15
 Œař pŒA MatrixD Ground Water

" a! iŒř 22%

PrAp MAT) o! D

M9& (1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! iŒř 22%	12-11-15 &D		&(&%	&(1'	&(' *	pKi-F	*	ř , -

" a! iŒř 22*

PrAp MAT) o! D

M9& (&

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! iŒř 22*	12-11-15 1' 129		&(12	&(5	&(5'	pKi-F		tjr

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

American West Analytical Labs

TKY Örk ABCDE L27774

Radium 226

F 903.1

Units: pKi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG395704																
WG394968ÖBW	ÖBW	12/10/1						.1	0.0!	0.1!			0.34			
WG394968LK" W	LK" W	12/10/1	ÖK#49 38	20				1	0.44	0.19	!	43	148			
L2!!! 4\$11D%Ö	D%Ö& &	12/10/1			0.06	0.13	0.38	.39	0.28	0.43				1.0!	2	
L2!!! \$01D%Ö	D%Ö& &	12/10/1			0.19	0.18	0.	.4	0.34	0.33				0.68	2	
L2!!! \$06F "	F "	12/10/1	ÖK#49 38	80	0.1	0.13	0.36	60	1.9	0.23	!	43	148			

Radium 228

F 904.0

Units: pKi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG395554																
WG39 040ÖBW	ÖBW	12/08/1						.34	0.32	0.32			0.64			
WG39 040LK" W	LK" W	12/08/1	ÖK#48440	18.3				12	1	0. 3	6	4!	123			
L2!!! \$0 F "	F "	12/08/1	ÖK#48440	91.1 6	0.0!	0.49	0. 2	63	.4	2.6	69	4!	123			
L2!!! \$04D%Ö	D%Ö& &	12/08/1			\$0.09	0.46	0.	\$22	1.2	1.4				0.1	2	
L2!!! 4\$0 D%Ö	D%Ö& &	12/08/1			0.1 1	0. 1	0.49	\$ 1	2.8	3				0.43	2	

American West Analytical Labs

TKV ÖrkABDE L27774

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L27774-01	%& 9' (0)	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
L27774-02	%& 9' (0)	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
L27774-03	%& 9' (0)	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
L27774-04	%& 9' (0)	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
L27774-05	%& 9' (0)	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
L27774-06	%& 9' (0)	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
L27774-07	%& 9' (0)	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
L27774-08	%& 9' (0)	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
L27774-09	%& 9' (0)	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
	%& 9' '')	" adium ##-	M90).0	D*	Samplk rkquirkd diluB n duk B +i, + skdimknB
L27774-10	%& 9' (0)	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
L27774-11	%& 9' (0)	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.

For a brief analysis of the qualifications associated with this analysis

American West Analytical Labs
K-17

ÖCZ k ABCDEFID: L2777
DaFD RDEDivDd: 1/3/20 K 0:0K
RDEDivDd By: ddp
DaFD k AI FDd: 1/3/20 K

Receipt Verification

	\$ % &	" #	" Ö
1) I) a *BAD!) Bi, pDrmiFi! E. dDd *Br app,iEa/ ,D) a- p,D) 0			
2) I) F1DC1ai! B* C.) FBdy Br BF1Dr diADEFVd) 1ippi! + papDA pADQD! F0			
3) DBD) Fi) pADEFAD. iAD)pDEa, 1a! d,i! + pAEDd. AD) . E1 a) CLk pAEBEB,0			
) ÖADa! y) a- p,D) " RC ,iED!) a/ ,D- aFDria,0			
K) I*) a- p,D) aADAEDivDd pa) F1B,d ff- D3pAEDDd 4 iF1 A2. D) FDd) 1BAF1B,d ff- Da! a,y) D) 0			
5) I) F1DC1ai! B* C.) FBdy EB- p,DfDa! d aEE raFD0			
The sample matrix was entered per the requested quotation.			
7) 6 DADa! y E1a! +D) - adDfB F1DC1ai! B* C.) FBdy pABr FB ÖC! AEDivi! + F1D) a- p,D) 0			

Samples/Containers

	\$ % &	" #	" Ö
7) ÖADa,, EB! Fai! Drs i! faEFa! d 4 iF1 ! B ,Da8) 0			
v) ÖADa,, ,a/ D,) B! EB! Fai! Drs a! d aADF1Dy i! faEFa! d ,D+i/ ,D0			
0) DB F1D) a- p,D,a/ D,) a! d C1ai! B* C.) FBdy - aFE1 *Br &a- p,DID3DaFD3a! d 9i- D0			
) : Br pADDrvDd / BFFD FypD) 34 a) F1Dp; E1DE8Dd a! d 4 iF1i! ,j- iFj 0			
2) I) F1DAD) . *iED! F) a- p,DvB, - DfB pDrfBrm a,, A2. D) FDd 4 Brk0			
3) I) F1DE) FBdy) Da, i! faEFB! a,, EB! Fai! Drs0			
) ÖAD) a- p,D) F1aFA2. iAD<DAB1Dad) paED aEEDpfa/ ,D0			
K) ÖADa,,) a- p,D EB! Fai! Drs appAþriaFD *Br a! a,yfEa, A2. iAD D! Fj 0			
5) I) F1DADa! ; +=53 Frip / ,a! 8 pADQD! F0			
7) I) F1DADa ># Ö FAp / ,a! 8 pADQD! F0			
7) 6 DADa,,) a- p,D) AEDivDd 4 iF1i! 1B,d ff- D0			

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/Hr)	Custody Seal Intact?
NA22953	10.5	13	N/A

6 a) iEDpADQD! Fi! F1D) 1ip- D! FEB! Fai! Dr(s0

No - Wet or gel ice was not present in the shipment container(s).

C,iD! F- .) FEB! faEFa! ÖC! k ABCDEF? a! a+DAi* a! a,y)i) 1B. ,d ! BFpAEDDd *BA) a- p,D) AEDivDd
B. Fj idB* F1DIAP1DA a, pAD) DAvafB! aEEDpfa! ED EAFDAa@

American West Analytical Labs

K-7

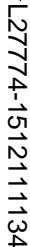
Order # ABCDEFID: L2777

Date Received: 3/20/2020

Received By: ddp

Date of Analysis: 3/20/20

91D pAD) DAvaFB! B* FID *B,,B4 i! + / BFFD FypD) i) ! BFE1DE8Dd aF) a- p,D ADEDipF # Aa! +DABi, a! d
+ADa) D(3k . Ap,D ABFa, Eya! idD(3k ! 8 Adi)) B,vDd Eya! idD(3B/AB4 ! AaA D! iE) pDEaFB! (3&fDA,D ADEa,
EB,j*BA (3%D9Ö A . , *fD(3; C, pAD) DA vDd via, ABa! iE) (3" a2&2# 3 pAD) DA vDd via, ABa! iE) (3a! d
; B=53 ABFa/di)) B,vDd - DAE Ay / y - DFIBd 53 (@



Chain of Custody

Lab Sample Set #

Page 1 of 1

Client: **American West**
Address: **3440 S. 700 W.**
Salt Lake City, UT 84119

Contact: **Elona Hayward**
Phone: **801-263-8686**
Fax : **801-263-8687**
Email: elona@awal-labs.com
denise@awal-labs.com

QC Level: **2+**
Turn Around Time
Standard

Sample ID:	Date Sampled	Time	# of Containers	Sample Matrix	Radium 226 & 228	Radium 226, total	Radium 228, Total																	Comments
ELF-11	11/10/2015	9:40	1	Aq	x	x	x																	
ELF-8	11/10/2015	10:55	1	Aq	x	x	x																	
ELF-8 DUP	11/10/2015	11:00	1	Aq	x	x	x																	
ELF-6	11/10/2015	11:50	1	Aq	x	x	x																	
ELF-6 EB	11/10/2015	17:45	1	Aq	x	x	x																	
ELF-5	11/10/2015	12:35	1	Aq	x	x	x																	
ELF-4	11/10/2015	13:35	1	Aq	x	x	x																	
ELF-7	11/10/2015	14:15	1	Aq	x	x	x																	
ELF-10	11/10/2015	15:00	1	Aq	x	x	x																	
ELF-2	11/10/2015	16:40	1	Aq	x	x	x																	
ELF-2 FB	11/10/2015	17:30	1	Aq	x	x	x	Samples sent to ACZ																
								Appropriate Utah state certifications required.																

Laboratory Use Only

Samples Were:

1 Shipped or hand delivered

2 Ambient or Chilled

3 Temperature _____

4 Received Broken/Leaking (Improperly Sealed)

Y N

5 Properly Preserved

Y N

6 Received Within Holding Times

Y N

COC Tape Was:

1 Present on Outer Package

Y N NA

2 Unbroken on Outer Package

Y N NA

3 Present on Sample

Y N NA

4 Unbroken on Sample

Y N NA

Discrepancies Between Sample Labels and COC Record?

Y N

Special Instructions: **Include project name and PO# on final report and invoice. Email results to both Elona and Denise.**

Relinquished by: Signature <i>Elma Hay</i>	Date: <i>11/11/15</i>	Received by: Signature <i>[Signature]</i>	Date: <i>11.13.15</i>
Print Name <i>Elma Hay</i>	Time: <i>1400</i>	Print Name <i>RPL</i>	Time: <i>1000</i>
Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name	Time:	Print Name	Time:



Laura Watson
Water & Environmental Technologies
480 East Park Street, Suite 200
Butte, MT 59701
TEL: (406) 782-5220

RE: Hunter CCR Sampling / PERC M52

Dear Laura Watson:

Lab Set ID: 1512066

3440 South 700 West
Salt Lake City, UT 84119

American West Analytical Laboratories received sample(s) on 12/2/2015 for the analyses presented in the following report.

Phone: (801) 263-8686
Toll Free: (888) 263-8686
Fax: (801) 263-8687
e-mail: awal@awal-labs.com
web: www.awal-labs.com

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:

Radiologicals



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-001
Client Sample ID: ELF-5EB
Collection Date: 12/2/2015 850h
Received Date: 12/2/2015 1800h

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, UT 84119

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	12/3/2015 1023h	12/4/2015 845h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	12/3/2015 1023h	12/4/2015 845h	E200.8	0.00200	< 0.00200	
Barium	mg/L	12/3/2015 1023h	12/4/2015 845h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	12/3/2015 1023h	12/4/2015 845h	E200.8	0.00200	< 0.00200	
Boron	mg/L	12/3/2015 1023h	12/4/2015 1203h	E200.7	0.500	< 0.500	
Cadmium	mg/L	12/3/2015 1023h	12/4/2015 845h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	12/3/2015 1023h	12/4/2015 1203h	E200.7	1.00	< 1.00	
Chromium	mg/L	12/3/2015 1023h	12/4/2015 845h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	12/3/2015 1023h	12/4/2015 845h	E200.8	0.00400	< 0.00400	
Lead	mg/L	12/3/2015 1023h	12/4/2015 845h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	12/3/2015 1023h	12/7/2015 912h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	12/3/2015 1023h	12/4/2015 1203h	E200.7	1.00	< 1.00	
Mercury	mg/L	12/8/2015 1530h	12/9/2015 918h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	12/3/2015 1023h	12/4/2015 845h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	12/3/2015 1023h	12/4/2015 845h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	12/3/2015 1023h	12/4/2015 1203h	E200.7	1.00	< 1.00	
Thallium	mg/L	12/3/2015 1023h	12/4/2015 845h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-002
Client Sample ID: ELF-5FB
Collection Date: 12/2/2015 850h
Received Date: 12/2/2015 1800h

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, UT 84119

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	12/3/2015 1023h	12/4/2015 900h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	12/3/2015 1023h	12/4/2015 900h	E200.8	0.00200	< 0.00200	
Barium	mg/L	12/3/2015 1023h	12/4/2015 900h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	12/3/2015 1023h	12/4/2015 900h	E200.8	0.00200	< 0.00200	
Boron	mg/L	12/3/2015 1023h	12/4/2015 1213h	E200.7	0.500	< 0.500	
Cadmium	mg/L	12/3/2015 1023h	12/4/2015 900h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	12/3/2015 1023h	12/4/2015 1213h	E200.7	1.00	< 1.00	
Chromium	mg/L	12/3/2015 1023h	12/4/2015 900h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	12/3/2015 1023h	12/4/2015 900h	E200.8	0.00400	< 0.00400	
Lead	mg/L	12/3/2015 1023h	12/4/2015 900h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	12/3/2015 1023h	12/7/2015 912h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	12/3/2015 1023h	12/4/2015 1213h	E200.7	1.00	< 1.00	
Mercury	mg/L	12/8/2015 1530h	12/9/2015 924h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	12/3/2015 1023h	12/4/2015 900h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	12/3/2015 1023h	12/4/2015 900h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	12/3/2015 1023h	12/4/2015 1213h	E200.7	1.00	< 1.00	
Thallium	mg/L	12/3/2015 1023h	12/4/2015 900h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-003
Client Sample ID: ELF-5
Collection Date: 12/2/2015 1000h
Received Date: 12/2/2015 1800h

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, UT 84119

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	12/3/2015 1023h	12/5/2015 826h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	12/3/2015 1023h	12/5/2015 826h	E200.8	0.00200	< 0.00200	
Barium	mg/L	12/3/2015 1023h	12/5/2015 826h	E200.8	0.00200	0.00971	
Beryllium	mg/L	12/3/2015 1023h	12/5/2015 826h	E200.8	0.00200	< 0.00200	
Boron	mg/L	12/3/2015 1023h	12/4/2015 1229h	E200.7	0.500	5.53	
Cadmium	mg/L	12/3/2015 1023h	12/5/2015 826h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	12/3/2015 1023h	12/4/2015 1057h	E200.7	100	480	
Chromium	mg/L	12/3/2015 1023h	12/5/2015 826h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	12/3/2015 1023h	12/5/2015 826h	E200.8	0.00400	< 0.00400	
Lead	mg/L	12/3/2015 1023h	12/5/2015 826h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	12/3/2015 1023h	12/7/2015 913h	E200.7	0.100	9.96	~
Magnesium	mg/L	12/3/2015 1023h	12/4/2015 1057h	E200.7	100	808	
Mercury	mg/L	12/8/2015 1530h	12/9/2015 926h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	12/3/2015 1023h	12/5/2015 826h	E200.8	0.00200	0.00440	
Selenium	mg/L	12/3/2015 1023h	12/5/2015 826h	E200.8	0.00200	0.0376	
Sodium	mg/L	12/3/2015 1023h	12/4/2015 1057h	E200.7	100	5,740	
Thallium	mg/L	12/3/2015 1023h	12/5/2015 826h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-004
Client Sample ID: ELF-4
Collection Date: 12/1/2015 1643h
Received Date: 12/2/2015 1800h

Analytical Results

TOTAL METALS

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	12/3/2015 1023h	12/5/2015 829h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	12/3/2015 1023h	12/5/2015 829h	E200.8	0.00200	< 0.00200	
Barium	mg/L	12/3/2015 1023h	12/5/2015 829h	E200.8	0.00200	0.0118	
Beryllium	mg/L	12/3/2015 1023h	12/5/2015 829h	E200.8	0.00200	< 0.00200	
Boron	mg/L	12/3/2015 1023h	12/4/2015 1231h	E200.7	0.500	4.88	
Cadmium	mg/L	12/3/2015 1023h	12/5/2015 829h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	12/3/2015 1023h	12/4/2015 1105h	E200.7	100	482	
Chromium	mg/L	12/3/2015 1023h	12/5/2015 829h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	12/3/2015 1023h	12/5/2015 829h	E200.8	0.00400	0.00591	
Lead	mg/L	12/3/2015 1023h	12/5/2015 829h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	12/3/2015 1023h	12/7/2015 914h	E200.7	0.100	4.31	~
Magnesium	mg/L	12/3/2015 1023h	12/4/2015 1105h	E200.7	100	513	
Mercury	mg/L	12/8/2015 1530h	12/9/2015 932h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	12/3/2015 1023h	12/5/2015 829h	E200.8	0.00200	0.00256	
Selenium	mg/L	12/3/2015 1023h	12/5/2015 829h	E200.8	0.00200	0.00486	
Sodium	mg/L	12/3/2015 1023h	12/4/2015 1105h	E200.7	100	2,780	
Thallium	mg/L	12/3/2015 1023h	12/5/2015 829h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-005
Client Sample ID: ELF-6
Collection Date: 12/1/2015
Received Date: 12/2/2015 1800h

Analytical Results

TOTAL METALS

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	12/3/2015 1023h	12/5/2015 832h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	12/3/2015 1023h	12/5/2015 832h	E200.8	0.00200	< 0.00200	
Barium	mg/L	12/3/2015 1023h	12/5/2015 832h	E200.8	0.00200	0.00936	
Beryllium	mg/L	12/3/2015 1023h	12/5/2015 832h	E200.8	0.00200	< 0.00200	
Boron	mg/L	12/3/2015 1023h	12/4/2015 1233h	E200.7	0.500	14.4	
Cadmium	mg/L	12/3/2015 1023h	12/5/2015 832h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	12/3/2015 1023h	12/4/2015 1107h	E200.7	100	454	
Chromium	mg/L	12/3/2015 1023h	12/5/2015 832h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	12/3/2015 1023h	12/5/2015 832h	E200.8	0.00400	0.0208	
Lead	mg/L	12/3/2015 1023h	12/5/2015 832h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	12/3/2015 1023h	12/7/2015 915h	E200.7	0.100	14.6	~
Magnesium	mg/L	12/3/2015 1023h	12/4/2015 1107h	E200.7	100	655	
Mercury	mg/L	12/8/2015 1530h	12/9/2015 934h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	12/3/2015 1023h	12/5/2015 832h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	12/3/2015 1023h	12/5/2015 832h	E200.8	0.00200	0.0887	
Sodium	mg/L	12/3/2015 1023h	12/4/2015 1107h	E200.7	100	5,780	
Thallium	mg/L	12/3/2015 1023h	12/5/2015 832h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-006
Client Sample ID: ELF-8
Collection Date: 12/1/2015 1540h
Received Date: 12/2/2015 1800h

Analytical Results

TOTAL METALS

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	12/3/2015 1023h	12/5/2015 835h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	12/3/2015 1023h	12/5/2015 835h	E200.8	0.00200	< 0.00200	
Barium	mg/L	12/3/2015 1023h	12/5/2015 835h	E200.8	0.00200	0.0275	
Beryllium	mg/L	12/3/2015 1023h	12/5/2015 835h	E200.8	0.00200	< 0.00200	
Boron	mg/L	12/3/2015 1023h	12/4/2015 1235h	E200.7	0.500	30.2	
Cadmium	mg/L	12/3/2015 1023h	12/5/2015 835h	E200.8	0.000500	0.000896	
Calcium	mg/L	12/3/2015 1023h	12/4/2015 1109h	E200.7	100	586	
Chromium	mg/L	12/3/2015 1023h	12/5/2015 835h	E200.8	0.00200	0.00350	
Cobalt	mg/L	12/3/2015 1023h	12/5/2015 835h	E200.8	0.00400	0.150	
Lead	mg/L	12/3/2015 1023h	12/5/2015 835h	E200.8	0.00200	0.00536	
Lithium	mg/L	12/3/2015 1023h	12/7/2015 916h	E200.7	0.100	8.59	~
Magnesium	mg/L	12/3/2015 1023h	12/4/2015 1109h	E200.7	100	118	
Mercury	mg/L	12/8/2015 1530h	12/9/2015 936h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	12/3/2015 1023h	12/5/2015 835h	E200.8	0.00200	0.488	
Selenium	mg/L	12/3/2015 1023h	12/5/2015 835h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	12/3/2015 1023h	12/4/2015 1109h	E200.7	100	2,000	
Thallium	mg/L	12/3/2015 1023h	12/5/2015 835h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-007
Client Sample ID: ELF-11
Collection Date: 12/1/2015 1400h
Received Date: 12/2/2015 1800h

Analytical Results

TOTAL METALS

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	12/3/2015 1023h	12/5/2015 838h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	12/3/2015 1023h	12/5/2015 838h	E200.8	0.00200	< 0.00200	
Barium	mg/L	12/3/2015 1023h	12/5/2015 838h	E200.8	0.00200	0.0189	
Beryllium	mg/L	12/3/2015 1023h	12/5/2015 838h	E200.8	0.00200	< 0.00200	
Boron	mg/L	12/3/2015 1023h	12/4/2015 1237h	E200.7	0.500	17.0	
Cadmium	mg/L	12/3/2015 1023h	12/5/2015 838h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	12/3/2015 1023h	12/4/2015 1110h	E200.7	100	410	
Chromium	mg/L	12/3/2015 1023h	12/5/2015 838h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	12/3/2015 1023h	12/5/2015 838h	E200.8	0.00400	0.0153	
Lead	mg/L	12/3/2015 1023h	12/5/2015 838h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	12/3/2015 1023h	12/7/2015 917h	E200.7	0.100	8.58	~
Magnesium	mg/L	12/3/2015 1023h	12/4/2015 1110h	E200.7	100	355	
Mercury	mg/L	12/8/2015 1530h	12/9/2015 938h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	12/3/2015 1023h	12/5/2015 838h	E200.8	0.00200	0.0210	
Selenium	mg/L	12/3/2015 1023h	12/5/2015 838h	E200.8	0.00200	0.00753	
Sodium	mg/L	12/3/2015 1023h	12/4/2015 1110h	E200.7	100	4,610	
Thallium	mg/L	12/3/2015 1023h	12/5/2015 838h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-008
Client Sample ID: ELF-7 Dup
Collection Date: 12/1/2015 1545h
Received Date: 12/2/2015 1800h

Analytical Results

TOTAL METALS

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	12/3/2015 1023h	12/5/2015 841h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	12/3/2015 1023h	12/5/2015 841h	E200.8	0.00200	< 0.00200	
Barium	mg/L	12/3/2015 1023h	12/5/2015 841h	E200.8	0.00200	0.0109	
Beryllium	mg/L	12/3/2015 1023h	12/5/2015 841h	E200.8	0.00200	< 0.00200	
Boron	mg/L	12/3/2015 1023h	12/4/2015 1239h	E200.7	0.500	2.00	
Cadmium	mg/L	12/3/2015 1023h	12/5/2015 841h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	12/3/2015 1023h	12/4/2015 1112h	E200.7	100	466	
Chromium	mg/L	12/3/2015 1023h	12/5/2015 841h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	12/3/2015 1023h	12/5/2015 841h	E200.8	0.00400	0.00496	
Lead	mg/L	12/3/2015 1023h	12/5/2015 841h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	12/3/2015 1023h	12/7/2015 918h	E200.7	0.100	5.35	~
Magnesium	mg/L	12/3/2015 1023h	12/4/2015 1112h	E200.7	100	637	
Mercury	mg/L	12/8/2015 1530h	12/9/2015 940h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	12/3/2015 1023h	12/5/2015 841h	E200.8	0.00200	0.00264	
Selenium	mg/L	12/3/2015 1023h	12/5/2015 841h	E200.8	0.00200	0.397	
Sodium	mg/L	12/3/2015 1023h	12/4/2015 1112h	E200.7	100	4,460	
Thallium	mg/L	12/3/2015 1023h	12/5/2015 841h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-009
Client Sample ID: ELF-7
Collection Date: 12/1/2015 1645h
Received Date: 12/2/2015 1800h

Analytical Results

TOTAL METALS

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Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	12/3/2015 1023h	12/5/2015 844h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	12/3/2015 1023h	12/5/2015 844h	E200.8	0.00200	< 0.00200	
Barium	mg/L	12/3/2015 1023h	12/5/2015 844h	E200.8	0.00200	0.0112	
Beryllium	mg/L	12/3/2015 1023h	12/5/2015 844h	E200.8	0.00200	< 0.00200	
Boron	mg/L	12/3/2015 1023h	12/4/2015 1241h	E200.7	0.500	1.98	
Cadmium	mg/L	12/3/2015 1023h	12/5/2015 844h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	12/3/2015 1023h	12/4/2015 1114h	E200.7	100	471	
Chromium	mg/L	12/3/2015 1023h	12/5/2015 844h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	12/3/2015 1023h	12/5/2015 844h	E200.8	0.00400	0.00508	
Lead	mg/L	12/3/2015 1023h	12/5/2015 844h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	12/3/2015 1023h	12/7/2015 919h	E200.7	0.100	5.41	~
Magnesium	mg/L	12/3/2015 1023h	12/4/2015 1114h	E200.7	100	645	
Mercury	mg/L	12/8/2015 1530h	12/9/2015 941h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	12/3/2015 1023h	12/5/2015 844h	E200.8	0.00200	0.00275	
Selenium	mg/L	12/3/2015 1023h	12/5/2015 844h	E200.8	0.00200	0.408	
Sodium	mg/L	12/3/2015 1023h	12/4/2015 1114h	E200.7	100	4,500	
Thallium	mg/L	12/3/2015 1023h	12/5/2015 844h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-010
Client Sample ID: ELF-10
Collection Date: 12/1/2015 1345h
Received Date: 12/2/2015 1800h

Analytical Results

TOTAL METALS

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	12/3/2015 1023h	12/5/2015 847h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	12/3/2015 1023h	12/5/2015 847h	E200.8	0.00200	< 0.00200	
Barium	mg/L	12/3/2015 1023h	12/5/2015 847h	E200.8	0.00200	0.0329	
Beryllium	mg/L	12/3/2015 1023h	12/5/2015 847h	E200.8	0.00200	< 0.00200	
Boron	mg/L	12/3/2015 1023h	12/4/2015 1243h	E200.7	0.500	1.68	
Cadmium	mg/L	12/3/2015 1023h	12/5/2015 847h	E200.8	0.000500	0.000511	
Calcium	mg/L	12/3/2015 1023h	12/4/2015 1153h	E200.7	100	457	
Chromium	mg/L	12/3/2015 1023h	12/5/2015 847h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	12/3/2015 1023h	12/5/2015 847h	E200.8	0.00400	0.00550	
Lead	mg/L	12/3/2015 1023h	12/5/2015 847h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	12/3/2015 1023h	12/7/2015 922h	E200.7	0.100	3.49	~
Magnesium	mg/L	12/3/2015 1023h	12/4/2015 1153h	E200.7	100	440	
Mercury	mg/L	12/8/2015 1530h	12/9/2015 943h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	12/3/2015 1023h	12/5/2015 847h	E200.8	0.00200	0.124	
Selenium	mg/L	12/3/2015 1023h	12/5/2015 847h	E200.8	0.00200	0.290	
Sodium	mg/L	12/3/2015 1023h	12/4/2015 1116h	E200.7	1,000	11,600	
Thallium	mg/L	12/3/2015 1023h	12/5/2015 847h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-011
Client Sample ID: ELF-2
Collection Date: 12/1/2015 1230h
Received Date: 12/2/2015 1800h

Analytical Results

TOTAL METALS

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	12/3/2015 1023h	12/5/2015 851h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	12/3/2015 1023h	12/5/2015 851h	E200.8	0.00200	< 0.00200	
Barium	mg/L	12/3/2015 1023h	12/5/2015 851h	E200.8	0.00200	0.0128	
Beryllium	mg/L	12/3/2015 1023h	12/5/2015 851h	E200.8	0.00200	< 0.00200	
Boron	mg/L	12/3/2015 1023h	12/4/2015 1245h	E200.7	0.500	3.24	
Cadmium	mg/L	12/3/2015 1023h	12/5/2015 851h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	12/3/2015 1023h	12/4/2015 1118h	E200.7	100	392	
Chromium	mg/L	12/3/2015 1023h	12/5/2015 851h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	12/3/2015 1023h	12/5/2015 851h	E200.8	0.00400	0.00559	
Lead	mg/L	12/3/2015 1023h	12/5/2015 851h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	12/3/2015 1023h	12/7/2015 923h	E200.7	0.100	3.97	~
Magnesium	mg/L	12/3/2015 1023h	12/4/2015 1118h	E200.7	100	301	
Mercury	mg/L	12/8/2015 1530h	12/9/2015 945h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	12/3/2015 1023h	12/5/2015 851h	E200.8	0.00200	0.00381	
Selenium	mg/L	12/3/2015 1023h	12/5/2015 851h	E200.8	0.00200	0.530	
Sodium	mg/L	12/3/2015 1023h	12/4/2015 1118h	E200.7	100	3,250	
Thallium	mg/L	12/3/2015 1023h	12/5/2015 851h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-001
Client Sample ID: ELF-5EB
Collection Date: 12/2/2015 850h
Received Date: 12/2/2015 1800h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Chloride	mg/L		12/10/2015 212h	E300.0	0.100	0.393	
Fluoride	mg/L		12/10/2015 212h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		12/11/2015 2039h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		12/2/2015 2007h	SM4500-H+B	1.00	5.26	
Sulfate	mg/L		12/10/2015 212h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		12/3/2015 1145h	SM2540C	10.0	< 10.0	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-002
Client Sample ID: ELF-5FB
Collection Date: 12/2/2015 850h
Received Date: 12/2/2015 1800h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Chloride	mg/L		12/10/2015 229h	E300.0	0.100	0.121	
Fluoride	mg/L		12/10/2015 229h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		12/11/2015 2040h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		12/3/2015 1832h	SM4500-H+B	1.00	5.53	H
Sulfate	mg/L		12/10/2015 229h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		12/3/2015 1145h	SM2540C	10.0	< 10.0	

H - The original analysis was performed within the holding time yielding an anomalous result; thus, the sample was reanalyzed outside the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-003
Client Sample ID: ELF-5
Collection Date: 12/2/2015 1000h
Received Date: 12/2/2015 1800h

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	458	
Bicarbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	458	
Carbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Chloride	mg/L		12/9/2015 1532h	E300.0	100	4,150	
Fluoride	mg/L		12/10/2015 518h	E300.0	0.100	3.49	
Nitrate/Nitrite (as N)	mg/L		12/11/2015 2055h	E353.2	0.200	26.1	
pH @ 25° C	pH Units		12/2/2015 2007h	SM4500-H+B	1.00	6.99	
Sulfate	mg/L		12/9/2015 1532h	E300.0	750	11,200	
Total Dissolved Solids	mg/L		12/3/2015 1145h	SM2540C	500	21,000	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-004
Client Sample ID: ELF-4
Collection Date: 12/1/2015 1643h
Received Date: 12/2/2015 1800h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	372	
Bicarbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	372	
Carbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Chloride	mg/L		12/9/2015 1453h	E300.0	100	2,370	
Fluoride	mg/L		12/10/2015 535h	E300.0	0.100	3.67	
Nitrate/Nitrite (as N)	mg/L		12/11/2015 2056h	E353.2	0.200	11.6	
pH @ 25° C	pH Units		12/2/2015 2007h	SM4500-H+B	1.00	7.01	H
Sulfate	mg/L		12/9/2015 1453h	E300.0	750	6,240	
Total Dissolved Solids	mg/L		12/3/2015 1145h	SM2540C	500	11,400	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-005
Client Sample ID: ELF-6
Collection Date: 12/1/2015
Received Date: 12/2/2015 1800h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	488	
Bicarbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	488	
Carbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Chloride	mg/L		12/9/2015 1510h	E300.0	100	4,850	
Fluoride	mg/L		12/10/2015 553h	E300.0	0.100	4.03	
Nitrate/Nitrite (as N)	mg/L		12/11/2015 2057h	E353.2	0.200	26.0	
pH @ 25° C	pH Units		12/2/2015 2007h	SM4500-H+B	1.00	7.03	H
Sulfate	mg/L		12/9/2015 1510h	E300.0	750	10,300	
Total Dissolved Solids	mg/L		12/3/2015 1145h	SM2540C	500	19,500	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-006
Client Sample ID: ELF-8
Collection Date: 12/1/2015 1540h
Received Date: 12/2/2015 1800h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	81.7	
Bicarbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	81.7	
Carbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Chloride	mg/L		12/9/2015 1622h	E300.0	100	2,370	
Fluoride	mg/L		12/10/2015 610h	E300.0	0.100	0.874	
Nitrate/Nitrite (as N)	mg/L		12/11/2015 2059h	E353.2	0.0100	0.154	
pH @ 25° C	pH Units		12/2/2015 2007h	SM4500-H+B	1.00	7.52	H
Sulfate	mg/L		12/9/2015 1622h	E300.0	750	3,410	
Total Dissolved Solids	mg/L		12/3/2015 1145h	SM2540C	20.0	8,070	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-007
Client Sample ID: ELF-11
Collection Date: 12/1/2015 1400h
Received Date: 12/2/2015 1800h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	447	
Bicarbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	447	
Carbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Chloride	mg/L		12/9/2015 1639h	E300.0	100	1,290	
Fluoride	mg/L		12/10/2015 626h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		12/11/2015 2102h	E353.2	0.0100	1.84	
pH @ 25° C	pH Units		12/2/2015 2007h	SM4500-H+B	1.00	7.39	H
Sulfate	mg/L		12/9/2015 1639h	E300.0	750	10,900	
Total Dissolved Solids	mg/L		12/3/2015 1145h	SM2540C	500	17,600	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-008
Client Sample ID: ELF-7 Dup
Collection Date: 12/1/2015 1545h
Received Date: 12/2/2015 1800h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	540	
Bicarbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	540	
Carbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Chloride	mg/L		12/9/2015 1656h	E300.0	100	2,790	
Fluoride	mg/L		12/10/2015 644h	E300.0	0.100	3.13	
Nitrate/Nitrite (as N)	mg/L		12/11/2015 2117h	E353.2	1.00	113	
pH @ 25° C	pH Units		12/2/2015 2007h	SM4500-H+B	1.00	7.01	H
Sulfate	mg/L		12/9/2015 1656h	E300.0	750	9,230	
Total Dissolved Solids	mg/L		12/3/2015 1145h	SM2540C	500	16,700	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-009
Client Sample ID: ELF-7
Collection Date: 12/1/2015 1645h
Received Date: 12/2/2015 1800h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	506	
Bicarbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	506	
Carbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Chloride	mg/L		12/9/2015 1747h	E300.0	100	2,790	
Fluoride	mg/L		12/10/2015 701h	E300.0	0.100	3.12	
Nitrate/Nitrite (as N)	mg/L		12/11/2015 2104h	E353.2	1.00	132	
pH @ 25° C	pH Units		12/2/2015 2007h	SM4500-H+B	1.00	6.99	H
Sulfate	mg/L		12/9/2015 1747h	E300.0	750	9,050	
Total Dissolved Solids	mg/L		12/3/2015 1145h	SM2540C	500	16,800	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-010
Client Sample ID: ELF-10
Collection Date: 12/1/2015 1345h
Received Date: 12/2/2015 1800h

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	972	
Bicarbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	972	
Carbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Chloride	mg/L		12/9/2015 1803h	E300.0	200	7,530	
Fluoride	mg/L		12/10/2015 718h	E300.0	0.100	3.98	
Nitrate/Nitrite (as N)	mg/L		12/11/2015 2120h	E353.2	1.00	65.1	
pH @ 25° C	pH Units		12/2/2015 2007h	SM4500-H+B	1.00	7.21	H
Sulfate	mg/L		12/9/2015 1803h	E300.0	1,500	20,100	
Total Dissolved Solids	mg/L		12/3/2015 1145h	SM2540C	500	40,300	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter CCR Sampling / PERC M52
Lab Sample ID: 1512066-011
Client Sample ID: ELF-2
Collection Date: 12/1/2015 1230h
Received Date: 12/2/2015 1800h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	413	
Bicarbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	413	
Carbonate (as CaCO ₃)	mg/L		12/3/2015 811h	SM2320B	10.0	< 10.0	
Chloride	mg/L		12/9/2015 1945h	E300.0	10.0	461	
Fluoride	mg/L		12/10/2015 736h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		12/11/2015 2121h	E353.2	0.200	18.0	
pH @ 25° C	pH Units		12/2/2015 2007h	SM4500-H+B	1.00	7.21	H
Sulfate	mg/L		12/9/2015 1820h	E300.0	750	8,320	
Total Dissolved Solids	mg/L		12/3/2015 1145h	SM2540C	500	11,500	

H - Sample was received outside of the holding time.

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Laboratory Director

Jose Rocha
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1512066
Project: Hunter CCR Sampling / PERC M52

Contact: Laura Watson
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-40537		Date Analyzed:	12/04/2015 1041h										
Test Code: 200.7-W		Date Prepared:	12/03/2015 1023h										
Boron	0.982	mg/L	E200.7	0.00514	0.500	1.000	0	98.2	85 - 115				
Calcium	9.35	mg/L	E200.7	0.0401	1.00	10.00	0	93.5	85 - 115				
Magnesium	9.46	mg/L	E200.7	0.0294	1.00	10.00	0	94.6	85 - 115				
Sodium	9.61	mg/L	E200.7	0.0330	1.00	10.00	0	96.1	85 - 115				
Lab Sample ID: LCS-40538		Date Analyzed:	12/04/2015 838h										
Test Code: 200.8-W		Date Prepared:	12/03/2015 1023h										
Antimony	0.170	mg/L	E200.8	0.0000366	0.00200	0.2000	0	85.0	85 - 115				
Arsenic	0.213	mg/L	E200.8	0.0000920	0.00200	0.2000	0	106	85 - 115				
Barium	0.201	mg/L	E200.8	0.000538	0.00200	0.2000	0	101	85 - 115				
Beryllium	0.199	mg/L	E200.8	0.0000288	0.00200	0.2000	0	99.7	85 - 115				
Cadmium	0.196	mg/L	E200.8	0.000193	0.000500	0.2000	0	98.0	85 - 115				
Chromium	0.192	mg/L	E200.8	0.00154	0.00200	0.2000	0	96.1	85 - 115				
Cobalt	0.187	mg/L	E200.8	0.0000434	0.00400	0.2000	0	93.4	85 - 115				
Lead	0.185	mg/L	E200.8	0.000264	0.00200	0.2000	0	92.7	85 - 115				
Molybdenum	0.195	mg/L	E200.8	0.000206	0.00200	0.2000	0	97.6	85 - 115				
Selenium	0.212	mg/L	E200.8	0.0000634	0.00200	0.2000	0	106	85 - 115				
Thallium	0.184	mg/L	E200.8	0.0000242	0.00200	0.2000	0	92.0	85 - 115				
Lab Sample ID: LCS-40620		Date Analyzed:	12/09/2015 912h										
Test Code: HG-DW-245.1		Date Prepared:	12/08/2015 1530h										
Mercury	0.00337	mg/L	E245.1	0.00000559	0.000150	0.003330	0	101	85 - 115				



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1512066
Project: Hunter CCR Sampling / PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-40537	Date Analyzed:	12/04/2015 1039h											
Test Code:	200.7-W	Date Prepared:	12/03/2015 1023h										
Boron	< 0.500	mg/L	E200.7	0.00514	0.500								
Calcium	< 1.00	mg/L	E200.7	0.0401	1.00								
Magnesium	< 1.00	mg/L	E200.7	0.0294	1.00								
Sodium	< 1.00	mg/L	E200.7	0.0330	1.00								
Lab Sample ID: MB-40537	Date Analyzed:	12/07/2015 911h											
Test Code:	200.7-W	Date Prepared:	12/03/2015 1023h										
Lithium	< 0.100	mg/L	E200.7	0	0.100								
Lab Sample ID: MB-40538	Date Analyzed:	12/04/2015 835h											
Test Code:	200.8-W	Date Prepared:	12/03/2015 1023h										
Antimony	< 0.00200	mg/L	E200.8	0.0000366	0.00200								
Arsenic	< 0.00200	mg/L	E200.8	0.0000920	0.00200								
Barium	< 0.00200	mg/L	E200.8	0.000538	0.00200								
Beryllium	< 0.00200	mg/L	E200.8	0.0000288	0.00200								
Cadmium	< 0.000500	mg/L	E200.8	0.000193	0.000500								
Chromium	< 0.00200	mg/L	E200.8	0.00154	0.00200								
Cobalt	< 0.00400	mg/L	E200.8	0.0000434	0.00400								
Lead	< 0.00200	mg/L	E200.8	0.000264	0.00200								
Molybdenum	< 0.00200	mg/L	E200.8	0.000206	0.00200								
Selenium	< 0.00200	mg/L	E200.8	0.0000634	0.00200								
Thallium	< 0.00200	mg/L	E200.8	0.0000242	0.00200								
Lab Sample ID: MB-40620	Date Analyzed:	12/09/2015 910h											
Test Code:	HG-DW-245.1	Date Prepared:	12/08/2015 1530h										
Mercury	< 0.000150	mg/L	E245.1	0.00000559	0.000150								



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1512066
Project: Hunter CCR Sampling / PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1512067-001CMS													
Date Analyzed:		12/04/2015 1121h											
Test Code:		200.7-W											
Date Prepared:		12/03/2015 1023h											
Sodium	1,280	mg/L	E200.7	3.30	100	10.00	1270	67.4	70 - 130				2
Lab Sample ID: 1512066-001CMS													
Date Analyzed:		12/04/2015 1209h											
Test Code:		200.7-W											
Date Prepared:		12/03/2015 1023h											
Boron	1.01	mg/L	E200.7	0.00514	0.500	1.000	0.0308	97.7	70 - 130				
Calcium	9.30	mg/L	E200.7	0.0401	1.00	10.00	0	93.0	70 - 130				
Magnesium	9.18	mg/L	E200.7	0.0294	1.00	10.00	0	91.8	70 - 130				
Sodium	9.79	mg/L	E200.7	0.0330	1.00	10.00	0.462	93.3	70 - 130				
Lab Sample ID: 1512067-001CMS													
Date Analyzed:		12/04/2015 1255h											
Test Code:		200.7-W											
Date Prepared:		12/03/2015 1023h											
Boron	1.59	mg/L	E200.7	0.00514	0.500	1.000	0.649	94.4	70 - 130				
Calcium	17.9	mg/L	E200.7	0.0401	1.00	10.00	8.96	89.3	70 - 130				
Magnesium	13.7	mg/L	E200.7	0.0294	1.00	10.00	5.07	86.5	70 - 130				
Lab Sample ID: 1512066-001CMS													
Date Analyzed:		12/04/2015 854h											
Test Code:		200.8-W											
Date Prepared:		12/03/2015 1023h											
Antimony	0.172	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000125	85.9	75 - 125				
Arsenic	0.208	mg/L	E200.8	0.0000920	0.00200	0.2000	0	104	75 - 125				
Barium	0.198	mg/L	E200.8	0.000538	0.00200	0.2000	0	99.2	75 - 125				
Beryllium	0.195	mg/L	E200.8	0.0000288	0.00200	0.2000	0	97.3	75 - 125				
Cadmium	0.191	mg/L	E200.8	0.000193	0.000500	0.2000	0	95.4	75 - 125				
Chromium	0.189	mg/L	E200.8	0.00154	0.00200	0.2000	0	94.4	75 - 125				
Cobalt	0.184	mg/L	E200.8	0.0000434	0.00400	0.2000	0	91.8	75 - 125				
Lead	0.182	mg/L	E200.8	0.000264	0.00200	0.2000	0	91.2	75 - 125				
Molybdenum	0.195	mg/L	E200.8	0.000206	0.00200	0.2000	0	97.6	75 - 125				
Selenium	0.204	mg/L	E200.8	0.0000634	0.00200	0.2000	0	102	75 - 125				
Thallium	0.181	mg/L	E200.8	0.0000242	0.00200	0.2000	0	90.4	75 - 125				



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1512066
Project: Hunter CCR Sampling / PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1512067-001CMS		Date Analyzed:	12/05/2015 906h										
Test Code: 200.8-W		Date Prepared:	12/03/2015 1023h										
Antimony	0.199	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000119	99.7	75 - 125				
Arsenic	0.213	mg/L	E200.8	0.0000920	0.00200	0.2000	0.000367	106	75 - 125				
Barium	0.218	mg/L	E200.8	0.000538	0.00200	0.2000	0.022	98.3	75 - 125				
Beryllium	0.181	mg/L	E200.8	0.0000288	0.00200	0.2000	0	90.5	75 - 125				
Cadmium	0.196	mg/L	E200.8	0.000193	0.000500	0.2000	0	98.0	75 - 125				
Chromium	0.194	mg/L	E200.8	0.00154	0.00200	0.2000	0	96.8	75 - 125				
Cobalt	0.188	mg/L	E200.8	0.0000434	0.00400	0.2000	0.000299	94.1	75 - 125				
Lead	0.181	mg/L	E200.8	0.000264	0.00200	0.2000	0	90.6	75 - 125				
Molybdenum	0.207	mg/L	E200.8	0.000206	0.00200	0.2000	0.00163	103	75 - 125				
Selenium	0.197	mg/L	E200.8	0.0000634	0.00200	0.2000	0	98.4	75 - 125				
Thallium	0.182	mg/L	E200.8	0.0000242	0.00200	0.2000	0	90.9	75 - 125				
Lab Sample ID: 1512066-001CMS		Date Analyzed:	12/09/2015 920h										
Test Code: HG-DW-245.1		Date Prepared:	12/08/2015 1530h										
Mercury	0.00351	mg/L	E245.1	0.00000559	0.000150	0.003330	0	105	80 - 120				
Lab Sample ID: 1512067-001CMS		Date Analyzed:	12/09/2015 953h										
Test Code: HG-DW-245.1		Date Prepared:	12/08/2015 1530h										
Mercury	0.00328	mg/L	E245.1	0.00000559	0.000150	0.003330	0	98.6	80 - 120				

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1512066
Project: Hunter CCR Sampling / PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1512067-001CMSD	Date Analyzed:	12/04/2015 1130h											
Test Code:	200.7-W	Date Prepared:	12/03/2015 1023h										
Sodium	1,260	mg/L	E200.7	3.30	100	10.00	1270	-65.1	70 - 130	1280	1.04	20	²
Lab Sample ID: 1512066-001CMSD	Date Analyzed:	12/04/2015 1211h											
Test Code:	200.7-W	Date Prepared:	12/03/2015 1023h										
Boron	1.02	mg/L	E200.7	0.00514	0.500	1.000	0.0308	99.1	70 - 130	1.01	1.33	20	
Calcium	9.29	mg/L	E200.7	0.0401	1.00	10.00	0	92.9	70 - 130	9.3	0.162	20	
Magnesium	9.48	mg/L	E200.7	0.0294	1.00	10.00	0	94.8	70 - 130	9.18	3.17	20	
Sodium	9.97	mg/L	E200.7	0.0330	1.00	10.00	0.462	95.1	70 - 130	9.79	1.88	20	
Lab Sample ID: 1512067-001CMSD	Date Analyzed:	12/04/2015 1257h											
Test Code:	200.7-W	Date Prepared:	12/03/2015 1023h										
Boron	1.61	mg/L	E200.7	0.00514	0.500	1.000	0.649	96.5	70 - 130	1.59	1.27	20	
Calcium	18.0	mg/L	E200.7	0.0401	1.00	10.00	8.96	90.8	70 - 130	17.9	0.870	20	
Magnesium	13.8	mg/L	E200.7	0.0294	1.00	10.00	5.07	87.6	70 - 130	13.7	0.859	20	
Lab Sample ID: 1512066-001CMSD	Date Analyzed:	12/04/2015 857h											
Test Code:	200.8-W	Date Prepared:	12/03/2015 1023h										
Antimony	0.174	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000125	87.1	75 - 125	0.172	1.39	20	
Arsenic	0.205	mg/L	E200.8	0.0000920	0.00200	0.2000	0	103	75 - 125	0.208	1.54	20	
Barium	0.199	mg/L	E200.8	0.000538	0.00200	0.2000	0	99.3	75 - 125	0.198	0.120	20	
Beryllium	0.194	mg/L	E200.8	0.0000288	0.00200	0.2000	0	97.0	75 - 125	0.195	0.256	20	
Cadmium	0.191	mg/L	E200.8	0.000193	0.000500	0.2000	0	95.4	75 - 125	0.191	0.00968	20	
Chromium	0.192	mg/L	E200.8	0.00154	0.00200	0.2000	0	95.8	75 - 125	0.189	1.50	20	
Cobalt	0.186	mg/L	E200.8	0.0000434	0.00400	0.2000	0	93.2	75 - 125	0.184	1.52	20	
Lead	0.184	mg/L	E200.8	0.000264	0.00200	0.2000	0	92.0	75 - 125	0.182	0.833	20	
Molybdenum	0.196	mg/L	E200.8	0.000206	0.00200	0.2000	0	98.1	75 - 125	0.195	0.450	20	
Selenium	0.199	mg/L	E200.8	0.0000634	0.00200	0.2000	0	99.5	75 - 125	0.204	2.63	20	
Thallium	0.182	mg/L	E200.8	0.0000242	0.00200	0.2000	0	91.0	75 - 125	0.181	0.554	20	



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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1512066
Project: Hunter CCR Sampling / PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1512067-001CMSD		Date Analyzed:	12/05/2015 909h										
Test Code: 200.8-W		Date Prepared:	12/03/2015 1023h										
Antimony	0.201	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000119	101	75 - 125	0.199	0.905	20	
Arsenic	0.213	mg/L	E200.8	0.0000920	0.00200	0.2000	0.000367	106	75 - 125	0.213	0.113	20	
Barium	0.219	mg/L	E200.8	0.000538	0.00200	0.2000	0.022	98.7	75 - 125	0.218	0.383	20	
Beryllium	0.183	mg/L	E200.8	0.0000288	0.00200	0.2000	0	91.3	75 - 125	0.181	0.892	20	
Cadmium	0.197	mg/L	E200.8	0.000193	0.000500	0.2000	0	98.7	75 - 125	0.196	0.730	20	
Chromium	0.192	mg/L	E200.8	0.00154	0.00200	0.2000	0	96.1	75 - 125	0.194	0.700	20	
Cobalt	0.188	mg/L	E200.8	0.0000434	0.00400	0.2000	0.000299	93.6	75 - 125	0.188	0.506	20	
Lead	0.183	mg/L	E200.8	0.000264	0.00200	0.2000	0	91.3	75 - 125	0.181	0.783	20	
Molybdenum	0.209	mg/L	E200.8	0.000206	0.00200	0.2000	0.00163	104	75 - 125	0.207	0.856	20	
Selenium	0.201	mg/L	E200.8	0.0000634	0.00200	0.2000	0	101	75 - 125	0.197	2.20	20	
Thallium	0.183	mg/L	E200.8	0.0000242	0.00200	0.2000	0	91.5	75 - 125	0.182	0.623	20	
Lab Sample ID: 1512066-001CMSD		Date Analyzed:	12/09/2015 922h										
Test Code: HG-DW-245.1		Date Prepared:	12/08/2015 1530h										
Mercury	0.00350	mg/L	E245.1	0.00000559	0.000150	0.003330	0	105	80 - 120	0.00351	0.476	20	
Lab Sample ID: 1512067-001CMSD		Date Analyzed:	12/09/2015 958h										
Test Code: HG-DW-245.1		Date Prepared:	12/08/2015 1530h										
Mercury	0.00340	mg/L	E245.1	0.00000559	0.000150	0.003330	0	102	80 - 120	0.00328	3.49	20	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1512066
Project: Hunter CCR Sampling / PERC M52

Contact: Laura Watson
Dept: WC
QC Type: DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1512066-009ADUP Date Analyzed: 12/02/2015 2007h													
Test Code: PH-4500H+B													
pH @ 25° C	7.01	pH Units	SM4500-H+B	1.00	1.00					6.99	0.286	5	H
Lab Sample ID: 1512067-004ADUP Date Analyzed: 12/02/2015 2007h													
Test Code: PH-4500H+B													
pH @ 25° C	6.04	pH Units	SM4500-H+B	1.00	1.00					6.03	0.166	5	
Lab Sample ID: 1512073-001ADUP Date Analyzed: 12/03/2015 1832h													
Test Code: PH-4500H+B													
pH @ 25° C	8.23	pH Units	SM4500-H+B	1.00	1.00					8.21	0.243	5	
Lab Sample ID: 1512066-001ADUP Date Analyzed: 12/03/2015 1145h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	8.77	10.0					0	0	5	
Lab Sample ID: 1512067-001ADUP Date Analyzed: 12/03/2015 1145h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	3,440	mg/L	SM2540C	17.5	20.0					3380	1.76	5	

H - Sample was received outside of the holding time.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1512066
Project: Hunter CCR Sampling / PERC M52

Contact: Laura Watson
Dept: WC
QC Type: LCS

Analyte		Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID:	LCS-R85862	Date Analyzed:	12/09/2015 1346h											
Test Code:	300.0-W													
Chloride		5.07	mg/L	E300.0	0.00751	0.100	5.000	0	101	90 - 110				
Fluoride		5.01	mg/L	E300.0	0.00681	0.100	5.000	0	100	90 - 110				
Sulfate		5.21	mg/L	E300.0	0.0211	0.750	5.000	0	104	90 - 110				
Lab Sample ID:	LCS-R85660	Date Analyzed:	12/03/2015 811h											
Test Code:	ALK-W-2320B													
Alkalinity (as CaCO3)		50,700	mg/L	SM2320B	1.86	10.0	50,000	0	101	90 - 110				
Lab Sample ID:	LCS-R85934	Date Analyzed:	12/11/2015 2038h											
Test Code:	NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)		1.01	mg/L	E353.2	0.00833	0.0100	1.000	0	101	90 - 110				
Lab Sample ID:	LCS-R85645	Date Analyzed:	12/02/2015 2007h											
Test Code:	PH-4500H+B													
pH @ 25° C		8.91	pH Units	SM4500-H+B	1.00	1.00	9.000	0	99.0	98 - 102				
Lab Sample ID:	LCS-R85682	Date Analyzed:	12/03/2015 1832h											
Test Code:	PH-4500H+B													
pH @ 25° C		8.90	pH Units	SM4500-H+B	1.00	1.00	9.000	0	98.9	98 - 102				
Lab Sample ID:	LCS-R85707	Date Analyzed:	12/03/2015 1145h											
Test Code:	TDS-W-2540C													
Total Dissolved Solids		204	mg/L	SM2540C	8.77	10.0	205.0	0	99.5	80 - 120				



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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1512066
Project: Hunter CCR Sampling / PERC M52

Contact: Laura Watson
Dept: WC
QC Type: MBLK

Analyte		Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID:	MB-R85862	Date Analyzed:	12/09/2015 1329h											
Test Code:	300.0-W													
Chloride		< 0.100	mg/L	E300.0	0.00751	0.100								
Fluoride		< 0.100	mg/L	E300.0	0.00681	0.100								
Sulfate		< 0.750	mg/L	E300.0	0.0211	0.750								
Lab Sample ID:	MB-R85660	Date Analyzed:	12/03/2015 811h											
Test Code:	ALK-W-2320B													
Alkalinity (as CaCO3)		< 10.0	mg/L	SM2320B	1.86	10.0								
Bicarbonate (as CaCO3)		< 10.0	mg/L	SM2320B	1.86	10.0								
Carbonate (as CaCO3)		< 10.0	mg/L	SM2320B	1.86	10.0								
Lab Sample ID:	MB-R85934	Date Analyzed:	12/11/2015 2037h											
Test Code:	NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)		< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID:	MB-R85707	Date Analyzed:	12/03/2015 1145h											
Test Code:	TDS-W-2540C													
Total Dissolved Solids		< 10.0	mg/L	SM2540C	8.77	10.0								



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Jose Rocha
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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1512066
Project: Hunter CCR Sampling / PERC M52

Contact: Laura Watson
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1512066-003AMS Date Analyzed: 12/09/2015 1549h													
Test Code: 300.0-W													
Chloride	14,400	mg/L	E300.0	15.0	200	10,000	4150	102	90 - 110				
Fluoride	10,200	mg/L	E300.0	13.6	200	10,000	0	102	90 - 110				
Sulfate	21,500	mg/L	E300.0	42.2	1,500	10,000	11200	103	90 - 110				
Lab Sample ID: 1512067-001AMS Date Analyzed: 12/09/2015 2126h													
Test Code: 300.0-W													
Chloride	10,500	mg/L	E300.0	15.0	200	10,000	367	101	90 - 110				
Fluoride	10,100	mg/L	E300.0	13.6	200	10,000	0	101	90 - 110				
Sulfate	12,100	mg/L	E300.0	42.2	1,500	10,000	1890	102	90 - 110				
Lab Sample ID: 1512066-001AMS Date Analyzed: 12/03/2015 811h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	51.6	mg/L	SM2320B	1.86	10.0	50.00	0	103	80 - 120				
Lab Sample ID: 1512066-011AMS Date Analyzed: 12/03/2015 811h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	666	mg/L	SM2320B	1.86	10.0	250.0	413	101	80 - 120				
Lab Sample ID: 1512066-006BMS Date Analyzed: 12/11/2015 2100h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.17	mg/L	E353.2	0.00833	0.0100	1.000	0.155	102	90 - 110				
Lab Sample ID: 1512066-009BMS Date Analyzed: 12/11/2015 2118h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1,150	mg/L	E353.2	8.33	10.0	1,000	132	102	90 - 110				
Lab Sample ID: 1512067-001BMS Date Analyzed: 12/11/2015 2124h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	0.978	mg/L	E353.2	0.00833	0.0100	1.000	0.0599	91.9	90 - 110				



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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1512066
Project: Hunter CCR Sampling / PERC M52

Contact: Laura Watson
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1512066-003AMSD Date Analyzed: 12/09/2015 1605h													
Test Code:	300.0-W												
Chloride	14,300	mg/L	E300.0	15.0	200	10,000	4150	101	90 - 110	14400	0.931	20	
Fluoride	10,100	mg/L	E300.0	13.6	200	10,000	0	101	90 - 110	10200	1.30	20	
Sulfate	21,400	mg/L	E300.0	42.2	1,500	10,000	11200	102	90 - 110	21500	0.370	20	
Lab Sample ID: 1512067-001AMSD Date Analyzed: 12/09/2015 2142h													
Test Code:	300.0-W												
Chloride	10,500	mg/L	E300.0	15.0	200	10,000	367	102	90 - 110	10500	0.616	20	
Fluoride	10,100	mg/L	E300.0	13.6	200	10,000	0	101	90 - 110	10100	0.0638	20	
Sulfate	12,200	mg/L	E300.0	42.2	1,500	10,000	1890	103	90 - 110	12100	1.07	20	
Lab Sample ID: 1512066-001AMSD Date Analyzed: 12/03/2015 811h													
Test Code:	ALK-W-2320B												
Alkalinity (as CaCO ₃)	50.7	mg/L	SM2320B	1.86	10.0	50.00	0	101	80 - 120	51.6	1.76	10	
Lab Sample ID: 1512066-011AMSD Date Analyzed: 12/03/2015 811h													
Test Code:	ALK-W-2320B												
Alkalinity (as CaCO ₃)	671	mg/L	SM2320B	1.86	10.0	250.0	413	103	80 - 120	667	0.643	10	
Lab Sample ID: 1512066-006BMSD Date Analyzed: 12/11/2015 2101h													
Test Code:	NO2/NO3-W-353.2												
Nitrate/Nitrite (as N)	1.19	mg/L	E353.2	0.00833	0.0100	1.000	0.155	103	90 - 110	1.17	1.36	10	
Lab Sample ID: 1512066-009BMSD Date Analyzed: 12/11/2015 2119h													
Test Code:	NO2/NO3-W-353.2												
Nitrate/Nitrite (as N)	1,140	mg/L	E353.2	8.33	10.0	1,000	132	100	90 - 110	1150	1.48	10	
Lab Sample ID: 1512067-001BMSD Date Analyzed: 12/11/2015 2125h													
Test Code:	NO2/NO3-W-353.2												
Nitrate/Nitrite (as N)	0.971	mg/L	E353.2	0.00833	0.0100	1.000	0.0599	91.1	90 - 110	0.979	0.790	10	

WORK ORDER Summary

Work Order: **1512066** Page 1 of 5

Client: Water & Environmental Technologies

Due Date: 12/16/2015

Client ID: WAT100

Contact: Laura Watson

Project: Hunter CCR Sampling / PERC M52

QC Level: II+

WO Type: Standard

Comments: Bill to PacifiCorp - Jeff Tucker / Send copy of report to Jeff, original to Laura @ Water & Environmental Technologies. QC2+ / EDD. RADS sent to AZC.
Footnote report, pH received outside of hold for some samples. .;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1512066-001A	ELF-5EB	12/2/2015 0850h	12/2/2015 1800h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			1
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1512066-001B				NO2/NO3-W-353.2			DF-NO2/NO3
1512066-001C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1512066-001D				OUTSIDE LAB			azc
1512066-002A	ELF-5FB	12/2/2015 0850h	12/2/2015 1800h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			1
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1512066-002B				NO2/NO3-W-353.2			DF-NO2/NO3
1512066-002C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1512066-002D				OUTSIDE LAB			azc

WORK ORDER Summary

Work Order: **1512066**

Page 2 of 5

Client: Water & Environmental Technologies

Due Date: 12/16/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1512066-003A	ELF-5	12/2/2015 1000h	12/2/2015 1800h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1512066-003B				NO2/NO3-W-353.2			DF-NO2/NO3
1512066-003C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
	ELF-4	12/1/2015 1643h	12/2/2015 1800h	200.8-W	Aqueous		DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1512066-003D				OUTSIDE LAB		azc	
1512066-004A				300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1512066-004B				NO2/NO3-W-353.2			DF-NO2/NO3
1512066-004C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
	ELF-6	12/1/2015	12/2/2015 1800h	200.8-W	Aqueous		DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1512066-004D				OUTSIDE LAB		azc	
1512066-005A				300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC

WORK ORDER Summary

Work Order: **1512066**

Page 3 of 5

Client: Water & Environmental Technologies

Due Date: 12/16/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1512066-005B	ELF-6	12/1/2015	12/2/2015 1800h	NO2/NO3-W-353.2	Aqueous		DF-NO2/NO3
1512066-005C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1512066-005D				OUTSIDE LAB			azc
1512066-006A	ELF-8	12/1/2015 1540h	12/2/2015 1800h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1512066-006B				NO2/NO3-W-353.2			DF-NO2/NO3
1512066-006C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1512066-006D				OUTSIDE LAB			azc
1512066-007A	ELF-11	12/1/2015 1400h	12/2/2015 1800h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1512066-007B				NO2/NO3-W-353.2			DF-NO2/NO3
1512066-007C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			

WORK ORDER Summary

Work Order: **1512066**

Page 4 of 5

Client: Water & Environmental Technologies

Due Date: 12/16/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1512066-007C	ELF-11	12/1/2015 1400h	12/2/2015 1800h	200.8-W-PR	Aqueous		DF-Metals 1
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1512066-007D				OUTSIDE LAB		azc	
1512066-008A	ELF-7 Dup	12/1/2015 1545h	12/2/2015 1800h	300.0-W	Aqueous		DF-WC 1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1512066-008B				NO2/NO3-W-353.2			DF-NO2/NO3
1512066-008C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1512066-008D				OUTSIDE LAB		azc	
1512066-009A	ELF-7	12/1/2015 1645h	12/2/2015 1800h	300.0-W	Aqueous		DF-WC 1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1512066-009B				NO2/NO3-W-353.2			DF-NO2/NO3
1512066-009C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1512066-009D				OUTSIDE LAB		azc	
1512066-010A	ELF-10	12/1/2015 1345h	12/2/2015 1800h	300.0-W	Aqueous		DF-WC 1
				3 SEL Analytes: CL F SO4			

WORK ORDER Summary

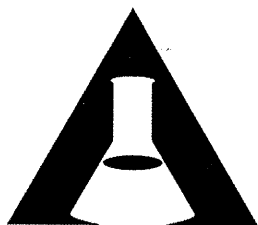
Work Order: **1512066**

Page 5 of 5

Client: Water & Environmental Technologies

Due Date: 12/16/2015

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage		
1512066-010A	ELF-10	12/1/2015 1345h	12/2/2015 1800h	ALK-W-2320B	Aqueous		DF-WC	1	
				3 SEL Analytes: ALK ALKB ALKC					
				PH-4500H+B			DF-WC		
				TDS-W-2540C			DF-WC		
1512066-010B				NO2/NO3-W-353.2			DF-NO2/NO3		
1512066-010C				200.7-W			DF-Metals		
				5 SEL Analytes: B CA LI MG NA					
				200.7-W-PR			DF-Metals		
				200.8-W			DF-Metals		
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL					
	200.8-W-PR		DF-Metals						
	HG-DW-245.1		DF-Metals						
	HG-DW-PR		DF-Metals						
1512066-010D				OUTSIDE LAB			azc		
1512066-011A	ELF-2	12/1/2015 1230h	12/2/2015 1800h	300.0-W	Aqueous		DF-WC	1	
				3 SEL Analytes: CL F SO4					
				ALK-W-2320B			DF-WC		
				3 SEL Analytes: ALK ALKB ALKC					
				PH-4500H+B			DF-WC		
				TDS-W-2540C			DF-WC		
1512066-011B				NO2/NO3-W-353.2			DF-NO2/NO3		
1512066-011C				200.7-W			DF-Metals		
				5 SEL Analytes: B CA LI MG NA					
				200.7-W-PR			DF-Metals		
				200.8-W			DF-Metals		
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL					
				200.8-W-PR			DF-Metals		
				HG-DW-245.1			DF-Metals		
				HG-DW-PR			DF-Metals		
1512066-011D								OUTSIDE LAB	



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CHAIN OF CUSTODY

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

1512066

AWAL Lab Sample Set #

Page of

Due Date: 12/16/15

Laboratory Use Only

Samples Were:

- 1 Shipped or hand delivered
- 2 Ambient or Chilled
- 3 Temperature 1.4 °C
- 4 Received Broken/Leaking (Improperly Sealed) Y N
- 5 Properly Preserved Y N Checked at bench
- 6 Received Within Holding Times Y N

COC Tape Was:

- 1 Present on Outer Package Y N NA
- 2 Unbroken on Outer Package Y N NA
- 3 Present on Sample Y N NA
- 4 Unbroken on Sample Y N NA

Discrepancies Between Sample Labels and COC Record? Y N

Client: WATER & ENVIRONMENTAL TECHNOLOGIES

Address: 480 E. PARK ST
DURIE MT 59701

Contact: LAURA WATSON

Phone #: 406 782-5220 Cell #: 406 431 2447

Email: LWATSON@WET-LLC.COM

Project Name: PERLM52

Project #: Hunter CCR SAMPLING

PO #:

Sampler Name: MIKE SHERLEY

Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample Matrix	SOLIDS TOTAL DISSOLVED	ANIONS	PH	FLUORIDE	ALKALINITY	TOTAL METALS	TOTAL MERCURY	RADIUM 226+238	Known Hazards & Sample Comments
1 ELF-5EB	12/2/2015	0850	4	W	X	X	X	X	X	X	X	X	
2 ELF-5FB	12/2/2015	0850											
3 ELF-5	12/2/2015	1000											
4 ELF-4	12/1/2015	1643											
5 ELF-6	12/1/2015	N/A											
6 ELF-8	12/1/2015	1540											
7 ELF-11	12/1/2015	1400											
8 ELF-7 DUP	12/1/2015	1545											
9 ELF-7	12/1/2015	1645											
10 ELF-10	12/1/2015	1845											
11 ELF-2	12/1/2015	1230											
12													

Relinquished by: Signature	Date: 12/2/2015	Received by: Signature	Date: 12/2/15	Special Instructions:
Print Name: Mike Shirley	Time: 1800	Print Name: Denise Brown	Time: 18:00	
Relinquished by: Signature	Date:	Received by: Signature	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature	Date:	Received by: Signature	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature	Date:	Received by: Signature	Date:	Special Instructions:
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature	Date:	Received by: Signature	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature	Date:	Received by: Signature	Date:	
Print Name:	Time:	Print Name:	Time:	

Analyte	Method	Reporting Limit	Price/sample ¹
pH	SM4500-H+ B	1.0 s.u.	\$11.70
Solids, Total Dissolved	SM2540 C	10 mg/L	\$13.50
Alkalinity Total as CaCO ₃	SM2320 B	10 mg/L	\$17.10
Bicarbonate as HCO ₃	SM2320 B	10 mg/L	\$0.00
Carbonate as CO ₃	SM2320 B	10 mg/L	\$0.00
Chloride	E300.0	0.1 mg/L	\$11.70
Sulfate	E300.0	0.75 mg/L	\$11.70
Fluoride	A4500-F C/E300.0	0.1 mg/L	\$12.60
Nitrogen, Nitrate+Nitrite	E353.2	0.01 mg/L	\$11.70
Antimony	E200.8	0.002 mg/L	\$9.00
Arsenic	E200.8	0.002 mg/L	\$9.00
Barium	E200.8	0.002 mg/L	\$9.00
Beryllium	E200.8	0.002 mg/L	\$9.00
Boron	E200.7	0.5 mg/L	\$9.00
Cadmium	E200.8	0.0005 mg/L	\$9.00
Calcium	E200.7	1.0 mg/L	\$9.00
Chromium	E200.8	0.002 mg/L	\$9.00
Cobalt	E200.8	0.004 mg/L	\$9.00
Lead	E200.8	0.002 mg/L	\$9.00
Lithium	E200.7	0.1 mg/L	\$9.00
Magnesium	E200.7	1.0 mg/L	\$9.00
Molybdenum	E200.8	0.002 mg/L	\$9.00
Selenium	E200.8	0.002 mg/L	\$9.00
Sodium	E200.7	1.0 mg/L	\$9.00
Thallium	E200.8	0.002 mg/L	\$9.00
Mercury, Total	E245.1	0.00015 mg/L	\$25.20
Radium 226 + Radium 228 ²	M903.1 + M904.0		\$182.16
Radium 226, Total ²	M903.1	0.4 pCi/L	\$0.00
Radium 228, Total ²	M904.0	1.5 pCi/L	\$0.00
Metals digestion/sample			\$18.00
Total/sample - Not including shipping			\$459.36
Monthly Price for 17 samples - Not including shipping			\$7,809.12
Total Project Cost (20 months) - Not including shipping			\$156,182.40

¹ - Includes 10% discount for 10 or more samples/delivery.

² - UPS shipping costs to Colorado will be applied to these analyses.

Radium analyses will be subcontracted to ACZ Labs in CO.

11/11/15
 23 sets every month - have ready 1st week of month
 will pick up.

Lab Set ID: 1502006

Preservation Check Sheet

Sample Set Extension and pH

Analysis	Preservative	-001	-002	-003	-004	-005	-006	-007	-008	-009	-010	-011						
Ammonia	pH <2 H ₂ SO ₄																	
COD	pH <2 H ₂ SO ₄																	
Cyanide	pH >12 NaOH																	
Metals	pH <2 HNO ₃	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes						
NO ₂ & NO ₃	pH <2 H ₂ SO ₄	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes						
O & G	pH <2 HCL																	
Phenols	pH <2 H ₂ SO ₄																	
Sulfide	pH > 9NaOH, Zn Acetate																	
TKN	pH <2 H ₂ SO ₄																	
T PO ₄	pH <2 H ₂ SO ₄																	

- Procedure:
- 1) Pour a small amount of sample in the sample lid
 - 2) Pour sample from Lid gently over wide range pH paper
 - 3) **Do Not** dip the pH paper in the sample bottle or lid
 - 4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
 - 5) Flag COC, notify client if requested
 - 6) Place client conversation on COC
 - 7) Samples may be adjusted

Frequency: All samples requiring preservation

- * The sample required additional preservative upon receipt.
- + The sample was received unpreserved.
- ▲ The sample was received unpreserved and therefore preserved upon receipt.
- # The sample pH was unadjustable to a pH < 2 due to the sample matrix.
- The sample pH was unadjustable to a pH > ____ due to the sample matrix interference.

December 30, 2015

Report to:

Elona Hayward
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

Bill to:

Lynn Turner
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

cc: Denise Bruun

Project ID: 1512066

ACZ Project ID: L28052

Elona Hayward:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 07, 2015. This project has been assigned to ACZ's project number, L28052. Please reference this number in all future inquiries.

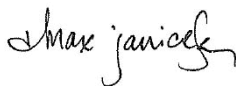
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L28052. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 29, 2016. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.



Max Janicek has reviewed and
approved this report.



American West Analytical Labs

Project ID: 1512066

Sample ID: ELF-5EB

Locator:

ACZ Sample ID: **L28052-01**

Date Sampled: 12/02/15 8:50

Date Received: 12/07/15

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	12/29/15 0:04		0.17	0.11	0.26	pCi/L		djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	12/28/15 14:48		3	0.58	0.41	pCi/L	*	djc

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1512066

Sample ID: ELF-5FB

Locator:

ACZ Sample ID: **L28052-02**

Date Sampled: 12/02/15 8:50

Date Received: 12/07/15

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	12/29/15 0:05		0.11	0.14	0.18	pCi/L		djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	12/28/15 14:48		3.4	0.62	0.45	pCi/L	*	djc

American West Analytical Labs

Project ID: 1512066

Sample ID: ELF-5

Locator:

ACZ Sample ID: **L28052-03**

Date Sampled: 12/02/15 10:00

Date Received: 12/07/15

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	12/29/15 0:07		0.56	0.22	0.39	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	12/28/15 14:48		9.8	2.2	1.7	pCi/L	*	djc

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1512066

Sample ID: ELF-4

Locator:

ACZ Sample ID: **L28052-04**

Date Sampled: 12/02/15 16:43

Date Received: 12/07/15

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	12/29/15 0:08		0.59	0.44	0.27	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	12/28/15 14:48		11	2.1	1.5	pCi/L	*	djc

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1512066

Sample ID: ELF-6

Locator:

ACZ Sample ID: **L28052-05**

Date Sampled: 12/01/15 0:00

Date Received: 12/07/15

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	12/29/15 0:10		0.62	0.28	0.25	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	12/28/15 14:48		33	3.3	1.8	pCi/L	*	djc

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1512066

Sample ID: ELF-8

Locator:

ACZ Sample ID: **L28052-06**

Date Sampled: 12/01/15 15:40

Date Received: 12/07/15

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	12/29/15 0:11		1.9	0.54	0.32	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	12/28/15 14:48		17	2.6	1.7	pCi/L	*	djc

Arizona license number: **AZ0102**

American West Analytical Labs

Project ID: 1512066

Sample ID: ELF-11

Locator:

ACZ Sample ID: **L28052-07**

Date Sampled: 12/01/15 14:00

Date Received: 12/07/15

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	12/29/15 0:12		31	1.5	0.47	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	12/28/15 16:20		5.2	1.9	1.7	pCi/L	*	djc

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1512066

Sample ID: ELF-7 DUP

Locator:

ACZ Sample ID: **L28052-08**

Date Sampled: 12/01/15 15:45

Date Received: 12/07/15

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	12/29/15 0:14		0.98	0.42	1.1	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	12/28/15 16:20		11	2.6	2	pCi/L	*	djc

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1512066

Sample ID: ELF-7

Locator:

ACZ Sample ID: **L28052-09**

Date Sampled: 12/01/15 16:45

Date Received: 12/07/15

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	12/29/15 0:15		1.5	0.71	0.88	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	12/28/15 16:20		8.3	2	1.6	pCi/L	*	djc

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1512066

Sample ID: ELF-10

Locator:

ACZ Sample ID: **L28052-10**

Date Sampled: 12/01/15 13:45

Date Received: 12/07/15

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	12/29/15 0:17		2.2	0.6	0.44	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	12/28/15 16:20		12	3.1	2.5	pCi/L	*	djc

Arizona license number: **AZ0102**

American West Analytical Labs

Project ID: 1512066

Sample ID: ELF-2

Locator:

ACZ Sample ID: **L28052-11**

Date Sampled: 12/01/15 12:30

Date Received: 12/07/15

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	12/29/15 0:18		0.7	0.79	0.76	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	12/28/15 16:20		7.4	2.2	1.9	pCi/L	*	djc

Arizona license number: AZ0102

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
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Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

American West Analytical Labs

ACZ Project ID: **L28052**

Radium 226		M903.1										Units: pCi/L				
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG396443																
WG395802PBW	PBW	12/29/15						.1	0.07	0.13			0.26			
WG395802LCSW	LCSW	12/29/15	PCN49538	20				21	0.64	0.07	105	43	148			
L28052-01DUP	DUP-RER	12/29/15			0.17	0.11	0.26	.06	0.15	0.17				0.59	2	
L28052-02DUP	DUP-RER	12/29/15			0.11	0.14	0.18	.1	0.15	0.08				0.05	2	
L28052-04MS	MS	12/29/15	PCN49538	20	0.59	0.44	0.27	19	0.57	0.27	92	43	148			
Radium 228		M904.0										Units: pCi/L				
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG396481																
WG395835PBW	PBW	12/28/15						-.37	0.48	0.55			1.1			
WG395835LCSW	LCSW	12/28/15	PCN48441	18.23				20	1.3	0.57	110	47	123			
L28052-01DUP	DUP-RER	12/28/15			3	0.58	0.41	.9	0.53	0.5				2.67	2	RM
L28052-11MS	MS	12/28/15	PCN48441	60.77	7.4	2.2	1.9	48	3.7	1.6	67	47	123			
L28052-02DUP	DUP-RER	12/28/15			3.4	0.62	0.45	5.1	0.8	0.54				1.68	2	

American West Analytical Labs

ACZ Project ID: **L28052**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L28052-01	WG396481	Radium 228	M904.0	RM	For a water matrix, the duplicate precision assessment (RPD or RER) exceeded the control limit. High sediment, turbidity, or presence of an immiscible liquid attributed to non-homogeneity of the sample.
L28052-02	WG396481	Radium 228	M904.0	RM	For a water matrix, the duplicate precision assessment (RPD or RER) exceeded the control limit. High sediment, turbidity, or presence of an immiscible liquid attributed to non-homogeneity of the sample.
L28052-03	WG396443	Radium 226	M903.1	DD	Sample required dilution due to matrix color or odor.
	WG396481	Radium 228	M904.0	D1	Sample required dilution due to matrix.
L28052-04	WG396443	Radium 226	M903.1	DD	Sample required dilution due to matrix color or odor.
	WG396481	Radium 228	M904.0	D1	Sample required dilution due to matrix.
L28052-05	WG396443	Radium 226	M903.1	DD	Sample required dilution due to matrix color or odor.
	WG396481	Radium 228	M904.0	D1	Sample required dilution due to matrix.
L28052-06	WG396443	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
	WG396481	Radium 228	M904.0	D1	Sample required dilution due to matrix.
L28052-07	WG396443	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
	WG396481	Radium 228	M904.0	D1	Sample required dilution due to matrix.
L28052-08	WG396443	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
	WG396481	Radium 228	M904.0	D1	Sample required dilution due to matrix.
L28052-09	WG396443	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
	WG396481	Radium 228	M904.0	D1	Sample required dilution due to matrix.
L28052-10	WG396443	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
	WG396481	Radium 228	M904.0	D1	Sample required dilution due to matrix.
L28052-11	WG396443	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
	WG396481	Radium 228	M904.0	D1	Sample required dilution due to matrix.

American West Analytical Labs

ACZ Project ID: **L28052**

No certification qualifiers associated with this analysis

American West Analytical Labs
1512066

ACZ Project ID: L28052
Date Received: 12/07/2015 10:43
Received By: ddp
Date Printed: 12/7/2015

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2) Is the Chain of Custody form or other directive shipping papers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Does this project require special handling procedures such as CLP protocol?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4) Are any samples NRC licensable material?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) If samples are received past hold time, proceed with requested short hold time analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Is the Chain of Custody form complete and accurate? The sample matrix was entered per the requested quotation.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Are all labels on containers and are they intact and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) For preserved bottle types, was the pH checked and within limits? ¹	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Is there sufficient sample volume to perform all requested work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Is the custody seal intact on all containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14) Are samples that require zero headspace acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Are all sample containers appropriate for analytical requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Is there an Hg-1631 trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Is there a VOA trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18) Were all samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA23058	1.7	NA	13	N/A
NA23059	2.3	NA	13	N/A
NA23060	0.1	NA	16	N/A
NA23061	0.1	NA	14	N/A

Was ice present in the shipment container(s)?

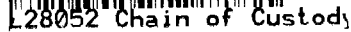
No - Wet or gel ice was not present in the shipment container(s).

American West Analytical Labs
1512066

ACZ Project ID: L28052
Date Received: 12/07/2015 10:43
Received By: ddp
Date Printed: 12/7/2015

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



Chain of Custody

Lab Sample Set #

C28052

Page 1 of 1

Contact: **Elona Hayward**

Phone: **801-263-8686**

Fax : **801-263-8687**

Email: elona@awal-labs.com

denise@awal-labs.com

QC Level: **2+**

Turn Around Time

Standard

Sample ID:	Date Sampled	Time	# of Containers	Sample Matrix	Radium 226 & 228	Radium 226, total	Radium 228, Total														Comments
ELF-5EB	12/2/2015	8:50	1	Aq	x	x	x														
ELF-5FB	12/2/2015	8:50	1	Aq	x	x	x														
ELF-5	12/2/2015	10:00	1	Aq	x	x	x														
ELF-4	12/2/2015	16:43	1	Aq	x	x	x														
ELF-6	12/1/2015		1	Aq	x	x	x														
ELF-8	12/1/2015	15:40	1	Aq	x	x	x														
ELF-11	12/1/2015	14:00	1	Aq	x	x	x														
ELF-7 DUP	12/1/2015	15:45	1	Aq	x	x	x														
ELF-7	12/1/2015	16:45	1	Aq	x	x	x														
ELF-10	12/1/2015	13:45	1	Aq	x	x	x														
ELF-2	12/1/2015	12:30	1	Aq	x	x	x	Samples sent to ACZ													
								Appropriate Utah state certifications required.													

Laboratory Use Only

Samples Were:

- Shipped or hand delivered
- Ambient or Chilled
- Temperature _____
- Received Broken/Leaking
(Improperly Sealed)
Y N
- Properly Preserved
Y N
- Received Within
Holding Times
Y N

COC Tape Was:

- Present on Outer Package
Y N NA
- Unbroken on Outer Package
Y N NA
- Present on Sample
Y N NA
- Unbroken on Sample
Y N NA

Discrepancies Between Sample Labels and COC Record?
Y N

Special Instructions: Include project name and PO# on final report and invoice. Email results to both Elona and Denise.

Relinquished by: <i>Signature</i> <i>Denise Braun</i>	Date: <i>12/3/15</i>	Received by: <i>Signature</i> <i>BCA / ACZ</i>	Date: <i>12-7-15 10:4</i>
Print Name <i>Denise Braun</i>	Time: <i>13:30</i>	Print Name	Time:
Relinquished by: <i>Signature</i>	Date:	Received by: <i>Signature</i>	Date:
Print Name	Time:	Print Name	Time:

BYbr-ř rEk19,ř013

AV/! r00 %
(Dnř k) ř E* ř r+
K YrÖř nkA YBÖ nř BÖř Bř bB
3440KS.ř700řA .
Sř Bř kYřCÖ,UTř84119
cc%\$ YnÖYřCr-- n

CÖC %
FEnnřT- mYr
K YrÖř nkA YBÖ nř BÖř Bř bB
3440KS.ř700řA .
Sř Bř kYřCÖ,UTř84119

ř! "Yc0\$ %13011' 3
CZk ř! "Yc0\$ %ř8' 8&

(Dnř k) ř E* ř r+%

(ncDBY+ř rYřC Yř nř BÖř Bř bB- Bř! rK / DBřB- bK ÖY+řC k CZřř b! řř CrÖB,řnc.ř CZř nř2ř n- ř rEk1' ,k
&013.řT, Öř ř! "Yc0, ř BbYřnř BÖřnY+řC k CZřř ř! "Yc0n- K bYř,ř8' 8&ř Bř BřYř.YřYncYřC Öřn- K bYřCÖř B
.- GrYřÖ6- ÖÖB.

Öř nř BÖř Bř YřYř Yř.ř rK Y+ř cc! r+Ö4řC k CZřř - ř BÖř Bř- řř ncYř Dn.řT, YřncDBY+řYB- BřYDBř nBřCk
ÇYřB K / DBřYçYÖY+ř n+Yřř8' 8&ř (ř c, řYcÖÖnř .řC ÖřY// ! Ö, ř BbYřnřY8Ö* Y+ř n+ř // ! 8Y+řBÇYř
ř // ! / rÖCřř b! řř CrBS- / Yř8Ö, ř, řř ř6- ř BÖř+řB- bBÖC Ö.

(9cY/ Ö Břn! Ö+,řC YřC BÖYB- Bř! rC YřK Yç! +Bř n+ř ř ř K YCrBÖC+ř nř CZřř- rrYnc (F CřC YřCÖř Ök
DBřCřÖ CZřř YřYç BřY6- ÖYK YncÖ .k (F C.

T, ÖřY// ! ÖB, ř BbYř Bř+ř řc! / Ö+ř nBÖřCÖYncÖ ÖK CZřřn! ÖYB ! nBÖÖk! rC YřC! nBÖ6- YncYBř rÖÖ4k
.ř! KřC Yř Bř.ř ř řÖBřY// ! rC

Öř K / DBř n+řB- bBř K / DBř Bř cÖC+ř ÖC Öř ř! "Yc0 ÖbYř+Ö ! Bř+ř.ř .Öř= řřc, ř0, ř013.řřC Yř
Bř K / DBř rYř+YCrK ÖY+řC bYř ř > ř r+! - B, ř ++ÖÖnř B, ř r4YBř // Bř! rK Ö ! Bř BÖř Öř Bř?11Ö K / D1.řřB - k
* ! - BÖYřC YřB K / DBřC bYř YBÖn4YřC ř nř CZřřBÖC Ö+ř ! BÖř rC bYřYGrnY+, ř Bř BřC! nCÖÖB - rK ř! "Yc0
= ř nř 4Yřř rC- BÖ K YřSYř8ÖYřA Y/ rYB YncÖ Yř! rK- rC YřK+Yç ÖBř n+ř Bř cÖC+ř! BÖř CZřřC ÖBř nř BÖř B
řř * řř CřY// ! rCk! rC nřYřřB.

#B - k ř 8Yř nB6- YBÖÖnř rK ÇYřnY+B, ř Bř BřC! nCÖÖB - rK ř! "Yc0= ř nř 4Yř.

Max Janicek

Max Janicek has reviewed and approved this report.



American West Analytical Labs

ProjAct ID 1601156

Öař pIA ID EFF-7

FocatorD

~KV Öař pIA ID **L28582-01**

CatA Öař pIA D 01/12/16 14:05

CatA! AcAi" A D 01/15/16

Öař pIA MatrixD Ground Water

! a i#ř \$6

PrAp MAT(o D

M%Q&1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$6	0\$)15)16 007		0'61	0'17	0'\$6	pKi)F	*	*k+

! a i#ř \$\$,

PrAp MAT(o D

M%Q-'0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$\$,	0\$)1,)16 1&D\$		0'66	0'%7	1	pKi)F	*	tjr

American West Analytical Labs

Frog Act ID 1601156

Order ID CEF

Locator ID

Order ID L28582-02

Order ID 01/12/16 14:15

Order ID 01/15/16

Order ID Ground Water

Order ID

Order ID

Order ID

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order ID	01/15/16 00*		0.00	0.00	0.00	pK/L		(0)

Order ID

Order ID

Order ID

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order ID	01/15/16 1#00		1.00	0.00	0.00	pK/L	*	tjr

American West Analytical Labs

ProjAct ID 1601156

Öař pŕA ID EFF-5

FocatorD

ŦKv Öař pŕA ID **L28582-03**

CatA Öař pŕAdD 01/12/16 13:00

CatA AcAi! AdD 01/15/16

Öař pŕA MatrixD Ground Water

adi"ř ##6

PrAp MAT' odD

M\$0%ŕ

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"ř ##6	0#*15*16 0Ŧ0		0&)	0&)	0&\$	pKi*F		+ŕ

adi"ř ##-

PrAp MAT' odD

M\$0) &

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"ř ##-	0#*1- *16 15Ŧ#1		0& #	1&	1&	pKi*F	*	tjr

American West Analytical Labs

ProjAct ID 1601156

Öař pŕA ID EFF-6

FocatorD

ŕKŷ Öař pŕA ID **L28582-04**

CatA Öař pŕA AdD 01/12/16 11:45

CatA AcAi! AdD 01/15/16

Öař pŕA MatrixD Ground Water

adi"ř ##6

PrAp MAT' odD

MS0%8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"ř ##6	0#)15)16 0D1		0&(	0&5	0&\$	pKi)F	*	*ŕt

adi"ř ##(

PrAp MAT' odD

MS0, 8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"ř ##(	0#)1()16 15D#1		1&	0&(	0&%	pKi)F	*	tjr

American West Analytical Labs

ProjAct ID 1601156

Öař pIA ID EFF-8

FocatorD

~KV Öař pIA ID **L28582-05**

CatA Öař pIA D 01/12/16 11:00

CatA! AcAi" A D 01/15/16

Öař pIA MatrixD Ground Water

! a i#ř \$6

PrAp MAT(o D

M%0&'1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$6	0\$*15*16 0D\$		0'6	0'1)	0'1%	pKi*F		+k

! a i#ř \$8

PrAp MAT(o D

M%0)'0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$8	0\$*18*16 15D\$1		1'\$	0'56	0'5	pKi*F		tjr

American West Analytical Labs

ProjAct ID 1601156

Öař pIA ID EFF-4

FocactorD

~KV Öař pIA ID **L28582-06**

CatA Öař pIA D 01/12/16 13:20

CatA! AcAi" A D 01/15/16

Öař pIA MatrixD Ground Water

! a i#ř \$6

PrAp MAT(o D

M%0&1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$6	0\$*15*16 0D4		0'1%	0'11	0'\$)	pKi*F		+k

! a i#ř \$-

PrAp MAT(o D

M%04'0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$-	0\$*1- *16 15D1		1'\$	0'5%	0'55	pKi*F	*	tjr

-KY Ōar pIA BCD **L28582-07**
 CatA Ōar pIA D 01/12/16 13:30
 CatA" ACi#A D 01/15/16
 Ōar pIA MatrixD *Ground Water*

PrAp MAt) o! D

M&O' (1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$? %&6	0%# -16 0□		0/06	0(1*	0('	pKi-#		, k

PrAp MAt) o! D

M&04(0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$% %%	0%# . #6 1 9%		0%	0(	0(*	pKi-#		tjr

American West Analytical Labs

ProjAct ID 1601156

Öař pIA ID EFF-10

FocatorD

~KV Öař pIA ID **L28582-08**

CatA Öař pIA AdD 01/12/16 11:30

CatA AcAi! AdD 01/15/16

Öař pIA MatrixD Ground Water

adi"ř ##6

PrAp MAT' odD

MS0%8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"ř ##6	0#)15)16 0D,		0&%	0&#%	0&#	pKi)F		*k+

adi"ř ##(

PrAp MAT' odD

MS0- 8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"ř ##(	0#)1()16 15D#1		0&#	0&#	0&#(	pKi)F	*	tjr

American West Analytical Labs

ProjAct ID 1601156

Öař pIA ID EFF-2

FocactorD

~KV Öař pIA ID **L28582-09**

CatA Öař pIA D 01/12/16 9:50

CatA! AcAi" A D 01/15/16

Öař pIA MatrixD Ground Water

! a i#ř 226

PrAp MAT' o D

M\$0%8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř 226	02)15)16 01,		08\$	086	085	pKi)F		*ř

! a i#ř 22,

PrAp MAT' o D

M\$0(8)

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř 22,	02)1,)16 1521		18	08,	08%	pKi)F	*	tjr

American West Analytical Labs

ProjAct ID 16011 6
 Čař pŕA ID EFF-2-EB
 FocatorD

ŦKŸ Čař pŕA ID **L28582-10**
 CatA Čař pŕA D 01/12/16 10:00
 CatA " AcAi#A D 01/15/16
 Čař pŕA MatrixD Ground Water

" a! i\$ř 226
 M%Q&'1

PrAp MAT(o! D

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 226	02)1)16 020		-0'01	0'1	0'26	pKi)F	*	*ŕt

" a! i\$ř 22,
 M%Q- '0

PrAp MAT(o! D

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 22,	02)1,)16 1 21		0'&,	0'	0' 1	pKi)F	*	tjr

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

American West Analytical Labs

TKY Örk ABCDE L28582

Radium 226

F 903.1

Units: pKi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG398627																
WG398189ÖBW	ÖBW	02/15/16						.12	0.08	0.19			0.38			
WG398189LK W	LK W	02/15/16	ÖK! " 9535	20				20	0.61	0.29	100	" 3	1" 8			
L286#3301D%Ö	D%Ö& &	02/15/16			0.06	0.09	0.23	.18	0.0#	0.06				1.05	2	
L2869901D%Ö	D%Ö& &	02/15/16			0.12	0.11	0.1	.19	0.13	0.09				0." 1	2	
L286#3301F	F	02/15/16	ÖK! " 9535	20	0.06	0.09	0.23	21	0.59	0.08	105	" 3	1" 8			

Radium 228

F 90" .0

Units: pKi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG398888																
WG398" 33ÖBW	ÖBW	02/18/16						\$23	0.2"	0.28			0.56			
WG398" 33LK W	LK W	02/18/16	ÖK! " 8" " 2	1#.92				13	1.1	0.51	#3	" #	123			
L286#602D%Ö	D%Ö& &	02/19/16			" 9	3.3	1.3	" 6	3.6	1.5				0.61	2	
L286#601F	F	02/19/16	ÖK! " 8" " 2	" " .#9	" 3	3.6	1.6	66	" .1	1.6	51	" #	123			
L2858202D%Ö	D%Ö& &	02/19/16			1.3	0.96	0.9"	2.#	1.3	1.2				0.8#	2	

American West Analytical Labs

TKY Öř jkABDE **L28582**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L28582-01	% & 9' \$#(	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
	% & 9' '''	" adium ##'	M90*.0	DD	Samplk rkquirkd diluB n duk B maBi) Ař lř r ř r dř r.
L28582-02	% & 9' '''	" adium ##'	M90*.0	DD	Samplk rkquirkd diluB n duk B maBi) Ař lř r ř r dř r.
L28582-03	% & 9' '''	" adium ##'	M90*.0	DD	Samplk rkquirkd diluB n duk B maBi) Ař lř r ř r dř r.
L28582-04	% & 9' \$#(	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
	% & 9' '''	" adium ##'	M90*.0	DD	Samplk rkquirkd diluB n duk B maBi) Ař lř r ř r dř r.
L28582-06	% & 9' '''	" adium ##'	M90*.0	D+	Samplk rkquirkd diluB n duk B , i- , skdimknB
L28582-08	% & 9' '''	" adium ##'	M90*.0	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
L28582-09	% & 9' '''	" adium ##'	M90*.0	D+	Samplk rkquirkd diluB n duk B , i- , skdimknB
L28582-10	% & 9' \$#(	" adium ##\$	M90 .!	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.
	% & 9' '''	" adium ##'	M90*.0	DF	Samplk diluB n rkquirkd duk B insuffiAknBsamplk.

American West Analytical Labs
K⁻5K

ÖCZ k ABCDEFID: L28582
DaFD RDEDivDd: 7/5/2019 9:54
RDEDivDd By: ddp
DaFD k A FDd: 7/5/2019

Receipt Verification

1) I(a)BAD (Bi+pDrmiFi E+ dDd)Br app+Ea. D(a, p-D /
2) I(RDC0ai B) C-(Rdy)Brm Br RDr diAED (Oippi * papDrs pAQD F
1) DBD(Ri(pADEFAD- iAD(pDEa+0a d+ * pAEDd- AQ (-EO a(CLk pAEBB#
3) ÖAda y(a, p-D ! RC +ED (a. D, aFDria#
5) I(a, p-D aADAEDivDd pa(F0Bd fi, D4pAEDDd 5iR A2- D(FD(0BAR0Bd fi, Da a-y(D /
K) I(RDC0ai B) C-(Rdy)Brm EB, p-Da d aEE- raFD/
6) 7 DADA y E0a * D(, adFB RDC0ai B) C-(Rdy)Brm priBr FB ÖC⁻ AEDivi * R0D(a, p-D /
A change was made in the PO# and # of containers section prior to ACZ custody.

\$ % ! " ! Ö

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&		

Samples/Containers

8) ÖAda+EB fai Drs i faEfa d 5iR B-0a8(/
9) ÖAda+ a. D(B EB fai Drs a d aADRDy i faEfa d -i. D/
7) DB R0D(a, p-D a. D(a d C0ai B) C-(Rdy)Brm , aFE0)Br %a, p-D ID4DaFD4a d 9i, D/
7) : Br pAQDrvDd. BFFD FypD(45a(R0Dp; E0DE8Dd a d 5iRi +, iR /
L28582-04 Container B1675436 (RED RAD): Added 8 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.
2) I(R0DAD(-))iED F(a, p-D vB+, D FB pDrfBrm a+A2- D(FDd 5Brk/
1) I(RDE- (Rdy (Da+i faEFB a+EB fai Drs/
3) ÖAD(a, p-D R0aFA2- iAD<DAB0Dad(paED aEEDpfa. D/
5) ÖAda+(a, p-D EB fai Drs appA0riaD) Br a a-yfiEa+A2- iAD D R /
K) I(R0DADA ; * =K1 Fip. a 8 pAQD F
6) I(R0DADA > " Ö Fap. a 8 pAQD F
8) 7 DADA+(a, p-D AEDivDd 5iRi 0Bd fi, D/

\$ % ! " ! Ö

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&		
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		&
&		

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
3047	5.7	NA	14	Yes
4336	5.7	NA	13	Yes

7 a(iEDpAQD Fi R0D(0ip, D FEB fai Dr(s/

No - Wet or gel ice was not present in the shipment container(s).

American West Analytical Labs

—KV—5K

ÖCř k ABCDEFID: L28582

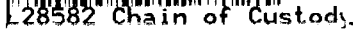
DaFD RDEDivDd: V—/—5/2V—K V9:5V

RDEDivDd By: ddp

DaFD k A FDd: —/—5/2V—K

C+D F, -(FEB řaEFa ÖCř k ABCDEF@a a*DAi)a aŸ(i((0B-ř BFpABEDD)BA(a, p-Đ ADEDivDd
B- ř idDB) řDİARĐA a+pAD DAvařB aEEDpřa ED EAřDAaA

— 90D pAD DAvařB B) řD)B+B5i * . BřřD řypD(i(BFEĐDE8Dd aF(a, p-Đ ADEDipF" Aa *D ?Bi+a d
*ADa(D 4k -Ap-Đ ?Břa+Eya idD 4k i 8 řdi((B+Dd Eya idD 4BAB5 řaA D iE (pDEařB '4%řDA-Đ ?DEa+
EBř)BA '4\$D9Ö ř - řiřD 4; C+pAD DAVDd via+řBA a iE('4! a2%2" 1 pAD DAVDd via+řBA a iE('4a d
; B=K1— ?Břa+di((B+Dd , DAE- Ay . y , DřĐBd K1—A



Chain of Custody

Lab Sample Set #

Page 1 of 1

Client: **American West Analytical Laboratories**

Contact: **Elona Hayward**

Address: **3440 S. 700 W.**

Phone: **801-263-8686**

Salt Lake City, UT 84119

Fax : **801-263-8687**

Project Name: **Huntington / PERC53**

Email: elona@awal-labs.com

PO#: ~~1601157~~ 1601156

denise@awal-labs.com

QC Level: **2+**

Turn Around Time

Standard

Special Instructions: Include project name and PO# on final report and invoice. Email results to both Elona and Denise.

Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name	Time:	Print Name	Time:
Denise Brown	1/13/16 15:00	L. Graham	1/15/16 9:50
Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name	Time:	Print Name	Time:



Laura Watson
Water & Environmental Technologies
480 East Park Street, Suite 200
Butte, MT 59701
TEL: (406) 782-5220

RE: Hunter / PERC M52

Dear Laura Watson:

Lab Set ID: 1601156

3440 South 700 West
Salt Lake City, UT 84119

Phone: (801) 263-8686
Toll Free: (888) 263-8686
Fax: (801) 263-8687
e-mail: awal@awal-labs.com
web: www.awal-labs.com

American West Analytical Laboratories received sample(s) on 1/13/2016 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Thank You,

Approved by: _____
Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:

Radiologicals



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-001
Client Sample ID: ELF-7
Collection Date: 1/12/2016 1405h
Received Date: 1/13/2016 945h

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, UT 84119

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web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	1/14/2016 859h	1/15/2016 1528h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	1/14/2016 859h	1/15/2016 1528h	E200.8	0.00200	< 0.00200	
Barium	mg/L	1/14/2016 859h	1/15/2016 1528h	E200.8	0.00200	0.0126	
Beryllium	mg/L	1/14/2016 859h	1/15/2016 1528h	E200.8	0.00200	< 0.00200	
Boron	mg/L	1/14/2016 902h	1/22/2016 1120h	E200.7	0.500	1.79	
Cadmium	mg/L	1/14/2016 859h	1/15/2016 1528h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	1/14/2016 902h	1/22/2016 951h	E200.7	100	480	²
Chromium	mg/L	1/14/2016 859h	1/15/2016 1528h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	1/14/2016 859h	1/15/2016 1528h	E200.8	0.00400	0.00604	
Lead	mg/L	1/14/2016 859h	1/15/2016 1528h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	1/14/2016 902h	1/21/2016 932h	E200.7	0.100	5.67	~
Magnesium	mg/L	1/14/2016 902h	1/22/2016 951h	E200.7	100	669	²
Mercury	mg/L	1/18/2016 1500h	1/19/2016 1026h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	1/14/2016 859h	1/15/2016 1528h	E200.8	0.00200	0.00256	
Selenium	mg/L	1/14/2016 859h	1/15/2016 1528h	E200.8	0.00200	0.400	
Sodium	mg/L	1/14/2016 902h	1/22/2016 915h	E200.7	1,000	4,880	²
Thallium	mg/L	1/14/2016 859h	1/15/2016 1528h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-002
Client Sample ID: DUP
Collection Date: 1/12/2016 1415h
Received Date: 1/13/2016 945h

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, UT 84119

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e-mail: awal@awal-labs.com
web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	1/14/2016 859h	1/15/2016 1543h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	1/14/2016 859h	1/15/2016 1543h	E200.8	0.00200	< 0.00200	
Barium	mg/L	1/14/2016 859h	1/15/2016 1543h	E200.8	0.00200	0.0122	
Beryllium	mg/L	1/14/2016 859h	1/15/2016 1543h	E200.8	0.00200	< 0.00200	
Boron	mg/L	1/14/2016 902h	1/22/2016 1129h	E200.7	0.500	1.87	
Cadmium	mg/L	1/14/2016 859h	1/15/2016 1543h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	1/14/2016 902h	1/22/2016 1003h	E200.7	100	499	
Chromium	mg/L	1/14/2016 859h	1/15/2016 1543h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	1/14/2016 859h	1/15/2016 1543h	E200.8	0.00400	0.00606	
Lead	mg/L	1/14/2016 859h	1/15/2016 1543h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	1/14/2016 902h	1/21/2016 933h	E200.7	0.100	5.74	~
Magnesium	mg/L	1/14/2016 902h	1/22/2016 1003h	E200.7	100	694	
Mercury	mg/L	1/18/2016 1500h	1/19/2016 1034h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	1/14/2016 859h	1/15/2016 1543h	E200.8	0.00200	0.00269	
Selenium	mg/L	1/14/2016 859h	1/15/2016 1543h	E200.8	0.00200	0.420	
Sodium	mg/L	1/14/2016 902h	1/22/2016 922h	E200.7	1,000	5,110	
Thallium	mg/L	1/14/2016 859h	1/15/2016 1543h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-003
Client Sample ID: ELF-5
Collection Date: 1/12/2016 1300h
Received Date: 1/13/2016 945h

Analytical Results

TOTAL METALS

3440 South 700 West
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 e-mail: awal@awal-labs.com
 web: www.awal-labs.com

Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	1/14/2016 859h	1/15/2016 1546h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	1/14/2016 859h	1/15/2016 1546h	E200.8	0.00200	< 0.00200	
Barium	mg/L	1/14/2016 859h	1/15/2016 1546h	E200.8	0.00200	0.0112	
Beryllium	mg/L	1/14/2016 859h	1/15/2016 1546h	E200.8	0.00200	< 0.00200	
Boron	mg/L	1/14/2016 902h	1/22/2016 1132h	E200.7	0.500	6.20	
Cadmium	mg/L	1/14/2016 859h	1/15/2016 1546h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	1/14/2016 902h	1/22/2016 1013h	E200.7	100	503	
Chromium	mg/L	1/14/2016 859h	1/15/2016 1546h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	1/14/2016 859h	1/15/2016 1546h	E200.8	0.00400	0.00402	
Lead	mg/L	1/14/2016 859h	1/15/2016 1546h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	1/14/2016 902h	1/21/2016 934h	E200.7	0.100	11.7	~
Magnesium	mg/L	1/14/2016 902h	1/22/2016 1013h	E200.7	100	937	
Mercury	mg/L	1/18/2016 1500h	1/19/2016 1036h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	1/14/2016 859h	1/15/2016 1546h	E200.8	0.00200	0.00451	
Selenium	mg/L	1/14/2016 859h	1/15/2016 1546h	E200.8	0.00200	0.0364	
Sodium	mg/L	1/14/2016 902h	1/22/2016 924h	E200.7	1,000	6,570	
Thallium	mg/L	1/14/2016 859h	1/15/2016 1546h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-004
Client Sample ID: ELF-6
Collection Date: 1/12/2016 1145h
Received Date: 1/13/2016 945h

Analytical Results

TOTAL METALS

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 web: www.awal-labs.com

Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	1/14/2016 859h	1/15/2016 1549h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	1/14/2016 859h	1/15/2016 1549h	E200.8	0.00200	< 0.00200	
Barium	mg/L	1/14/2016 859h	1/15/2016 1549h	E200.8	0.00200	0.0105	
Beryllium	mg/L	1/14/2016 859h	1/15/2016 1549h	E200.8	0.00200	< 0.00200	
Boron	mg/L	1/14/2016 902h	1/22/2016 1135h	E200.7	0.500	14.6	
Cadmium	mg/L	1/14/2016 859h	1/15/2016 1549h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	1/14/2016 902h	1/22/2016 1015h	E200.7	100	505	
Chromium	mg/L	1/14/2016 859h	1/15/2016 1549h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	1/14/2016 859h	1/15/2016 1549h	E200.8	0.00400	0.0208	
Lead	mg/L	1/14/2016 859h	1/15/2016 1549h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	1/14/2016 902h	1/21/2016 935h	E200.7	0.100	15.1	~
Magnesium	mg/L	1/14/2016 902h	1/22/2016 1015h	E200.7	100	730	
Mercury	mg/L	1/18/2016 1500h	1/19/2016 1042h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	1/14/2016 859h	1/15/2016 1549h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	1/14/2016 859h	1/15/2016 1549h	E200.8	0.00200	0.0892	
Sodium	mg/L	1/14/2016 902h	1/22/2016 926h	E200.7	1,000	6,330	
Thallium	mg/L	1/14/2016 859h	1/15/2016 1549h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-005
Client Sample ID: ELF-8
Collection Date: 1/12/2016 1100h
Received Date: 1/13/2016 945h

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, UT 84119

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 e-mail: awal@awal-labs.com
 web: www.awal-labs.com

Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	1/14/2016 859h	1/15/2016 1602h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	1/14/2016 859h	1/15/2016 1602h	E200.8	0.00200	< 0.00200	
Barium	mg/L	1/14/2016 859h	1/15/2016 1602h	E200.8	0.00200	0.0218	
Beryllium	mg/L	1/14/2016 859h	1/15/2016 1602h	E200.8	0.00200	< 0.00200	
Boron	mg/L	1/14/2016 902h	1/22/2016 1138h	E200.7	0.500	29.7	
Cadmium	mg/L	1/14/2016 859h	1/15/2016 1602h	E200.8	0.000500	0.000992	
Calcium	mg/L	1/14/2016 902h	1/22/2016 1018h	E200.7	100	623	
Chromium	mg/L	1/14/2016 859h	1/15/2016 1602h	E200.8	0.00200	0.00216	
Cobalt	mg/L	1/14/2016 859h	1/15/2016 1602h	E200.8	0.00400	0.200	
Lead	mg/L	1/14/2016 859h	1/15/2016 1602h	E200.8	0.00200	0.00473	
Lithium	mg/L	1/14/2016 902h	1/21/2016 936h	E200.7	0.100	9.43	~
Magnesium	mg/L	1/14/2016 902h	1/22/2016 1018h	E200.7	100	144	
Mercury	mg/L	1/18/2016 1500h	1/19/2016 1044h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	1/14/2016 859h	1/15/2016 1602h	E200.8	0.00200	0.459	
Selenium	mg/L	1/14/2016 859h	1/15/2016 1602h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	1/14/2016 902h	1/22/2016 929h	E200.7	1,000	2,210	
Thallium	mg/L	1/14/2016 859h	1/15/2016 1602h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-006
Client Sample ID: ELF-4
Collection Date: 1/12/2016 1320h
Received Date: 1/13/2016 945h

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, UT 84119

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 e-mail: awal@awal-labs.com
 web: www.awal-labs.com

Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	1/14/2016 859h	1/15/2016 1605h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	1/14/2016 859h	1/15/2016 1605h	E200.8	0.00200	< 0.00200	
Barium	mg/L	1/14/2016 859h	1/15/2016 1605h	E200.8	0.00200	0.0155	
Beryllium	mg/L	1/14/2016 859h	1/15/2016 1605h	E200.8	0.00200	< 0.00200	
Boron	mg/L	1/14/2016 902h	1/22/2016 1140h	E200.7	0.500	5.02	
Cadmium	mg/L	1/14/2016 859h	1/15/2016 1605h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	1/14/2016 902h	1/22/2016 1020h	E200.7	100	514	
Chromium	mg/L	1/14/2016 859h	1/15/2016 1605h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	1/14/2016 859h	1/15/2016 1605h	E200.8	0.00400	< 0.00400	
Lead	mg/L	1/14/2016 859h	1/15/2016 1605h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	1/14/2016 902h	1/21/2016 937h	E200.7	0.100	4.43	~
Magnesium	mg/L	1/14/2016 902h	1/22/2016 1020h	E200.7	100	537	
Mercury	mg/L	1/18/2016 1500h	1/19/2016 1046h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	1/14/2016 859h	1/15/2016 1605h	E200.8	0.00200	0.00297	
Selenium	mg/L	1/14/2016 859h	1/15/2016 1605h	E200.8	0.00200	0.00471	
Sodium	mg/L	1/14/2016 902h	1/22/2016 931h	E200.7	1,000	3,060	
Thallium	mg/L	1/14/2016 859h	1/15/2016 1605h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-007
Client Sample ID: ELF-4-FB
Collection Date: 1/12/2016 1330h
Received Date: 1/13/2016 945h

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, UT 84119

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e-mail: awal@awal-labs.com
web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	1/14/2016 859h	1/15/2016 1608h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	1/14/2016 859h	1/15/2016 1608h	E200.8	0.00200	< 0.00200	
Barium	mg/L	1/14/2016 859h	1/15/2016 1608h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	1/14/2016 859h	1/15/2016 1608h	E200.8	0.00200	< 0.00200	
Boron	mg/L	1/14/2016 902h	1/22/2016 1101h	E200.7	0.500	< 0.500	
Cadmium	mg/L	1/14/2016 859h	1/15/2016 1608h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	1/14/2016 902h	1/22/2016 1101h	E200.7	1.00	< 1.00	
Chromium	mg/L	1/14/2016 859h	1/15/2016 1608h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	1/14/2016 859h	1/15/2016 1608h	E200.8	0.00400	< 0.00400	
Lead	mg/L	1/14/2016 859h	1/15/2016 1608h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	1/14/2016 902h	1/21/2016 938h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	1/14/2016 902h	1/22/2016 1101h	E200.7	1.00	< 1.00	
Mercury	mg/L	1/18/2016 1500h	1/19/2016 1048h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	1/14/2016 859h	1/15/2016 1608h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	1/14/2016 859h	1/15/2016 1608h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	1/14/2016 902h	1/22/2016 1101h	E200.7	1.00	< 1.00	
Thallium	mg/L	1/14/2016 859h	1/15/2016 1608h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-008
Client Sample ID: ELF-10
Collection Date: 1/12/2016 1130h
Received Date: 1/13/2016 945h

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, UT 84119

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 e-mail: awal@awal-labs.com
 web: www.awal-labs.com

Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	1/14/2016 859h	1/15/2016 1611h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	1/14/2016 859h	1/15/2016 1611h	E200.8	0.00200	0.00217	
Barium	mg/L	1/14/2016 859h	1/15/2016 1611h	E200.8	0.00200	0.0353	
Beryllium	mg/L	1/14/2016 859h	1/15/2016 1611h	E200.8	0.00200	< 0.00200	
Boron	mg/L	1/14/2016 902h	1/22/2016 1143h	E200.7	0.500	1.62	
Cadmium	mg/L	1/14/2016 859h	1/15/2016 1611h	E200.8	0.000500	0.000576	
Calcium	mg/L	1/14/2016 902h	1/22/2016 1025h	E200.7	100	484	
Chromium	mg/L	1/14/2016 859h	1/15/2016 1611h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	1/14/2016 859h	1/15/2016 1611h	E200.8	0.00400	0.00493	
Lead	mg/L	1/14/2016 859h	1/15/2016 1611h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	1/14/2016 902h	1/21/2016 941h	E200.7	0.100	3.60	~
Magnesium	mg/L	1/14/2016 902h	1/22/2016 1025h	E200.7	100	473	
Mercury	mg/L	1/18/2016 1500h	1/19/2016 1050h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	1/14/2016 859h	1/15/2016 1611h	E200.8	0.00200	0.124	
Selenium	mg/L	1/14/2016 859h	1/15/2016 1611h	E200.8	0.00200	0.157	
Sodium	mg/L	1/14/2016 902h	1/22/2016 943h	E200.7	1,000	13,900	
Thallium	mg/L	1/14/2016 859h	1/15/2016 1611h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-009
Client Sample ID: ELF-2
Collection Date: 1/12/2016 950h
Received Date: 1/13/2016 945h

Analytical Results

TOTAL METALS

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	1/14/2016 859h	1/15/2016 1615h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	1/14/2016 859h	1/15/2016 1615h	E200.8	0.00200	< 0.00200	
Barium	mg/L	1/14/2016 859h	1/15/2016 1615h	E200.8	0.00200	0.0207	
Beryllium	mg/L	1/14/2016 859h	1/15/2016 1615h	E200.8	0.00200	< 0.00200	
Boron	mg/L	1/14/2016 902h	1/22/2016 1146h	E200.7	0.500	3.38	
Cadmium	mg/L	1/14/2016 859h	1/15/2016 1615h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	1/14/2016 902h	1/22/2016 1027h	E200.7	100	420	
Chromium	mg/L	1/14/2016 859h	1/15/2016 1615h	E200.8	0.00200	0.00233	
Cobalt	mg/L	1/14/2016 859h	1/15/2016 1615h	E200.8	0.00400	0.0114	
Lead	mg/L	1/14/2016 859h	1/15/2016 1615h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	1/14/2016 902h	1/21/2016 942h	E200.7	0.100	4.08	~
Magnesium	mg/L	1/14/2016 902h	1/22/2016 1027h	E200.7	100	329	
Mercury	mg/L	1/18/2016 1500h	1/19/2016 1052h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	1/14/2016 859h	1/15/2016 1615h	E200.8	0.00200	0.00431	
Selenium	mg/L	1/14/2016 859h	1/15/2016 1615h	E200.8	0.00200	0.499	
Sodium	mg/L	1/14/2016 902h	1/22/2016 946h	E200.7	1,000	3,630	
Thallium	mg/L	1/14/2016 859h	1/15/2016 1615h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-010
Client Sample ID: ELF-2-EB
Collection Date: 1/12/2016 1000h
Received Date: 1/13/2016 945h

Analytical Results

TOTAL METALS

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Kyle F. Gross
 Laboratory Director

Jose Rocha
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	1/14/2016 859h	1/15/2016 1618h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	1/14/2016 859h	1/15/2016 1618h	E200.8	0.00200	< 0.00200	
Barium	mg/L	1/14/2016 859h	1/15/2016 1618h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	1/14/2016 859h	1/15/2016 1618h	E200.8	0.00200	< 0.00200	
Boron	mg/L	1/14/2016 902h	1/22/2016 1104h	E200.7	0.500	< 0.500	
Cadmium	mg/L	1/14/2016 859h	1/15/2016 1618h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	1/14/2016 902h	1/22/2016 1104h	E200.7	1.00	< 1.00	
Chromium	mg/L	1/14/2016 859h	1/15/2016 1618h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	1/14/2016 859h	1/15/2016 1618h	E200.8	0.00400	< 0.00400	
Lead	mg/L	1/14/2016 859h	1/15/2016 1618h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	1/14/2016 902h	1/21/2016 943h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	1/14/2016 902h	1/22/2016 1104h	E200.7	1.00	< 1.00	
Mercury	mg/L	1/18/2016 1500h	1/19/2016 1054h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	1/14/2016 859h	1/15/2016 1618h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	1/14/2016 859h	1/15/2016 1618h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	1/14/2016 902h	1/22/2016 1104h	E200.7	1.00	< 1.00	
Thallium	mg/L	1/14/2016 859h	1/15/2016 1618h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-001
Client Sample ID: ELF-7
Collection Date: 1/12/2016 1405h
Received Date: 1/13/2016 945h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	538	
Bicarbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	538	
Carbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Chloride	mg/L		1/15/2016 1110h	E300.0	100	2,910	
Fluoride	mg/L		1/15/2016 2151h	E300.0	0.100	4.36	
Nitrate/Nitrite (as N)	mg/L		1/15/2016 1543h	E353.2	1.00	122	
pH @ 25° C	pH Units		1/13/2016 1700h	SM4500-H+B	1.00	7.11	H
Sulfate	mg/L		1/15/2016 1110h	E300.0	750	9,140	
Total Dissolved Solids	mg/L		1/15/2016 1200h	SM2540C	500	14,900	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-002
Client Sample ID: DUP
Collection Date: 1/12/2016 1415h
Received Date: 1/13/2016 945h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	538	
Bicarbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	538	
Carbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Chloride	mg/L		1/15/2016 1201h	E300.0	100	2,890	
Fluoride	mg/L		1/15/2016 2208h	E300.0	0.100	3.50	
Nitrate/Nitrite (as N)	mg/L		1/15/2016 1544h	E353.2	1.00	121	
pH @ 25° C	pH Units		1/14/2016 1801h	SM4500-H+B	1.00	7.12	H
Sulfate	mg/L		1/15/2016 1201h	E300.0	750	9,070	
Total Dissolved Solids	mg/L		1/15/2016 1200h	SM2540C	500	16,900	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-003
Client Sample ID: ELF-5
Collection Date: 1/12/2016 1300h
Received Date: 1/13/2016 945h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	490	
Bicarbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	490	
Carbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Chloride	mg/L		1/15/2016 1218h	E300.0	100	4,210	
Fluoride	mg/L		1/15/2016 2224h	E300.0	0.100	4.85	
Nitrate/Nitrite (as N)	mg/L		1/15/2016 1554h	E353.2	0.200	26.0	
pH @ 25° C	pH Units		1/13/2016 1700h	SM4500-H+B	1.00	7.26	H
Sulfate	mg/L		1/15/2016 1218h	E300.0	750	11,100	
Total Dissolved Solids	mg/L		1/15/2016 1200h	SM2540C	500	21,300	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-004
Client Sample ID: ELF-6
Collection Date: 1/12/2016 1145h
Received Date: 1/13/2016 945h

Analytical Results

3440 South 700 West
Salt Lake City, UT 84119

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Nitrate/Nitrite (as N)	mg/L		1/15/2016 1555h	E353.2	0.200	25.1	

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Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-005
Client Sample ID: ELF-8
Collection Date: 1/12/2016 1100h
Received Date: 1/13/2016 945h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	83.4	
Bicarbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	83.4	
Carbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Chloride	mg/L		1/15/2016 1252h	E300.0	100	2,380	
Fluoride	mg/L		1/15/2016 2241h	E300.0	0.100	1.04	
Nitrate/Nitrite (as N)	mg/L		1/15/2016 1557h	E353.2	0.0100	0.0135	
pH @ 25° C	pH Units		1/13/2016 1700h	SM4500-H+B	1.00	7.62	H
Sulfate	mg/L		1/15/2016 1252h	E300.0	750	3,130	
Total Dissolved Solids	mg/L		1/15/2016 1200h	SM2540C	20.0	8,340	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-006
Client Sample ID: ELF-4
Collection Date: 1/12/2016 1320h
Received Date: 1/13/2016 945h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	361	
Bicarbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	361	
Carbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Chloride	mg/L		1/15/2016 1343h	E300.0	100	2,500	
Fluoride	mg/L		1/15/2016 2258h	E300.0	0.100	3.93	
Nitrate/Nitrite (as N)	mg/L		1/15/2016 1600h	E353.2	0.200	15.9	
pH @ 25° C	pH Units		1/13/2016 1700h	SM4500-H+B	1.00	7.52	H
Sulfate	mg/L		1/15/2016 1343h	E300.0	750	5,900	
Total Dissolved Solids	mg/L		1/15/2016 1200h	SM2540C	500	12,400	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-007
Client Sample ID: ELF-4-FB
Collection Date: 1/12/2016 1330h
Received Date: 1/13/2016 945h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Chloride	mg/L		1/15/2016 1936h	E300.0	0.100	< 0.100	
Fluoride	mg/L		1/15/2016 1936h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		1/15/2016 1614h	E353.2	0.0100	0.0519	
pH @ 25° C	pH Units		1/13/2016 1700h	SM4500-H+B	1.00	6.32	H
Sulfate	mg/L		1/15/2016 1936h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		1/15/2016 1200h	SM2540C	10.0	< 10.0	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-008
Client Sample ID: ELF-10
Collection Date: 1/12/2016 1130h
Received Date: 1/13/2016 945h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	1,020	
Bicarbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	1,020	
Carbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Chloride	mg/L		1/15/2016 1359h	E300.0	100	7,670	
Fluoride	mg/L		1/15/2016 2315h	E300.0	0.100	4.36	
Nitrate/Nitrite (as N)	mg/L		1/15/2016 1603h	E353.2	1.00	45.8	
pH @ 25° C	pH Units		1/13/2016 1700h	SM4500-H+B	1.00	7.41	H
Sulfate	mg/L		1/15/2016 1036h	E300.0	7,500	19,800	
Total Dissolved Solids	mg/L		1/15/2016 1200h	SM2540C	500	40,100	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-009
Client Sample ID: ELF-2
Collection Date: 1/12/2016 950h
Received Date: 1/13/2016 945h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	408	
Bicarbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	408	
Carbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Chloride	mg/L		1/15/2016 1648h	E300.0	10.0	473	
Fluoride	mg/L		1/15/2016 2333h	E300.0	0.100	0.277	
Nitrate/Nitrite (as N)	mg/L		1/15/2016 1604h	E353.2	0.200	15.9	
pH @ 25° C	pH Units		1/13/2016 1700h	SM4500-H+B	1.00	7.24	H
Sulfate	mg/L		1/15/2016 1416h	E300.0	750	8,180	
Total Dissolved Solids	mg/L		1/15/2016 1200h	SM2540C	500	12,300	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Laura Watson
Project: Hunter / PERC M52
Lab Sample ID: 1601156-010
Client Sample ID: ELF-2-EB
Collection Date: 1/12/2016 1000h
Received Date: 1/13/2016 945h

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		1/15/2016 709h	SM2320B	10.0	< 10.0	
Chloride	mg/L		1/15/2016 2027h	E300.0	0.100	0.126	
Fluoride	mg/L		1/15/2016 2027h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		1/15/2016 1605h	E353.2	0.0100	0.0115	
pH @ 25° C	pH Units		1/13/2016 1700h	SM4500-H+B	1.00	6.11	H
Sulfate	mg/L		1/15/2016 2027h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		1/15/2016 1200h	SM2540C	10.0	< 10.0	

H - Sample was received outside of the holding time.

Kyle F. Gross
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Jose Rocha
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1601156
Project: Hunter / PERC M52

Contact: Laura Watson
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-41088		Date Analyzed:	01/22/2016 912h										
Test Code: 200.7-W		Date Prepared:	01/14/2016 902h										
Boron	0.999	mg/L	E200.7	0.00514	0.500	1.000	0	99.9	85 - 115				
Calcium	9.90	mg/L	E200.7	0.0401	1.00	10.00	0	99.0	85 - 115				
Magnesium	10.0	mg/L	E200.7	0.0294	1.00	10.00	0	100	85 - 115				
Sodium	10.3	mg/L	E200.7	0.0330	1.00	10.00	0	103	85 - 115				
Lab Sample ID: LCS-41087		Date Analyzed:	01/15/2016 1524h										
Test Code: 200.8-W		Date Prepared:	01/14/2016 859h										
Antimony	0.174	mg/L	E200.8	0.0000366	0.00200	0.2000	0	86.8	85 - 115				
Arsenic	0.198	mg/L	E200.8	0.0000920	0.00200	0.2000	0	98.8	85 - 115				
Barium	0.198	mg/L	E200.8	0.000538	0.00200	0.2000	0	99.2	85 - 115				
Beryllium	0.195	mg/L	E200.8	0.0000288	0.00200	0.2000	0	97.5	85 - 115				
Cadmium	0.194	mg/L	E200.8	0.000193	0.000500	0.2000	0	97.1	85 - 115				
Chromium	0.197	mg/L	E200.8	0.00154	0.00200	0.2000	0	98.5	85 - 115				
Cobalt	0.194	mg/L	E200.8	0.0000434	0.00400	0.2000	0	96.9	85 - 115				
Lead	0.193	mg/L	E200.8	0.000264	0.00200	0.2000	0	96.5	85 - 115				
Molybdenum	0.199	mg/L	E200.8	0.000206	0.00200	0.2000	0	99.5	85 - 115				
Selenium	0.208	mg/L	E200.8	0.0000634	0.00200	0.2000	0	104	85 - 115				
Thallium	0.190	mg/L	E200.8	0.0000242	0.00200	0.2000	0	94.9	85 - 115				
Lab Sample ID: LCS-41132		Date Analyzed:	01/19/2016 1020h										
Test Code: HG-DW-245.1		Date Prepared:	01/18/2016 1500h										
Mercury	0.00366	mg/L	E245.1	0.00000559	0.000150	0.003330	0	110	85 - 115				



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1601156
Project: Hunter / PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-41088	Date Analyzed:	01/21/2016 931h											
Test Code:	200.7-W	Date Prepared:	01/14/2016 902h										
Lithium	< 0.100	mg/L	E200.7	0	0.100								
Lab Sample ID: MB-41088	Date Analyzed:	01/22/2016 910h											
Test Code:	200.7-W	Date Prepared:	01/14/2016 902h										
Boron	< 0.500	mg/L	E200.7	0.00514	0.500								
Calcium	< 1.00	mg/L	E200.7	0.0401	1.00								
Magnesium	< 1.00	mg/L	E200.7	0.0294	1.00								
Sodium	< 1.00	mg/L	E200.7	0.0330	1.00								
Lab Sample ID: MB-41087	Date Analyzed:	01/15/2016 1521h											
Test Code:	200.8-W	Date Prepared:	01/14/2016 859h										
Antimony	< 0.00200	mg/L	E200.8	0.0000366	0.00200								
Arsenic	< 0.00200	mg/L	E200.8	0.0000920	0.00200								
Barium	< 0.00200	mg/L	E200.8	0.000538	0.00200								
Beryllium	< 0.00200	mg/L	E200.8	0.0000288	0.00200								
Cadmium	< 0.000500	mg/L	E200.8	0.000193	0.000500								
Chromium	< 0.00200	mg/L	E200.8	0.00154	0.00200								
Cobalt	< 0.00400	mg/L	E200.8	0.0000434	0.00400								
Lead	< 0.00200	mg/L	E200.8	0.000264	0.00200								
Molybdenum	< 0.00200	mg/L	E200.8	0.000206	0.00200								
Selenium	< 0.00200	mg/L	E200.8	0.0000634	0.00200								
Thallium	< 0.00200	mg/L	E200.8	0.0000242	0.00200								
Lab Sample ID: MB-41132	Date Analyzed:	01/19/2016 1018h											
Test Code:	HG-DW-245.1	Date Prepared:	01/18/2016 1500h										
Mercury	< 0.000150	mg/L	E245.1	0.00000559	0.000150								



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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1601156
Project: Hunter / PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1601157-001CMS	Date Analyzed:	01/22/2016 1035h											
Test Code:	200.7-W	Date Prepared:	01/14/2016 902h										
Sodium	1,800	mg/L	E200.7	3.30	100	10.00	1850	-556	70 - 130				2
Lab Sample ID: 1601156-001CMS	Date Analyzed:	01/22/2016 1123h											
Test Code:	200.7-W	Date Prepared:	01/14/2016 902h										
Boron	2.91	mg/L	E200.7	0.00514	0.500	1.000	1.79	112	70 - 130				
Lab Sample ID: 1601157-001CMS	Date Analyzed:	01/22/2016 1200h											
Test Code:	200.7-W	Date Prepared:	01/14/2016 902h										
Boron	1.75	mg/L	E200.7	0.00514	0.500	1.000	0.775	97.5	70 - 130				
Calcium	30.1	mg/L	E200.7	0.0401	1.00	10.00	19.4	107	70 - 130				
Magnesium	20.1	mg/L	E200.7	0.0294	1.00	10.00	9.81	103	70 - 130				
Lab Sample ID: 1601156-001CMS	Date Analyzed:	01/22/2016 917h											
Test Code:	200.7-W	Date Prepared:	01/14/2016 902h										
Sodium	4,920	mg/L	E200.7	33.0	1,000	10.00	4880	477	70 - 130				2
Lab Sample ID: 1601156-001CMS	Date Analyzed:	01/22/2016 958h											
Test Code:	200.7-W	Date Prepared:	01/14/2016 902h										
Calcium	494	mg/L	E200.7	4.01	100	10.00	480	142	70 - 130				2
Magnesium	691	mg/L	E200.7	2.94	100	10.00	669	218	70 - 130				2
Lab Sample ID: 1601156-001CMS	Date Analyzed:	01/15/2016 1537h											
Test Code:	200.8-W	Date Prepared:	01/14/2016 859h										
Antimony	0.198	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000915	98.4	75 - 125				
Arsenic	0.221	mg/L	E200.8	0.0000920	0.00200	0.2000	0.000828	110	75 - 125				
Barium	0.210	mg/L	E200.8	0.000538	0.00200	0.2000	0.0126	98.7	75 - 125				
Beryllium	0.174	mg/L	E200.8	0.0000288	0.00200	0.2000	0.0000596	87.1	75 - 125				
Cadmium	0.185	mg/L	E200.8	0.000193	0.000500	0.2000	0.000278	92.5	75 - 125				
Chromium	0.191	mg/L	E200.8	0.00154	0.00200	0.2000	0	95.6	75 - 125				



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QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1601156
Project: Hunter / PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1601156-001CMS		Date Analyzed:	01/15/2016 1537h										
Test Code: 200.8-W		Date Prepared:	01/14/2016 859h										
Cobalt	0.187	mg/L	E200.8	0.0000434	0.00400	0.2000	0.00604	90.4	75 - 125				
Lead	0.174	mg/L	E200.8	0.000264	0.00200	0.2000	0.000511	86.8	75 - 125				
Molybdenum	0.219	mg/L	E200.8	0.000206	0.00200	0.2000	0.00256	108	75 - 125				
Selenium	0.609	mg/L	E200.8	0.0000634	0.00200	0.2000	0.4	105	75 - 125				
Thallium	0.171	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000599	85.3	75 - 125				
Lab Sample ID: 1601157-001CMS		Date Analyzed:	01/15/2016 1624h										
Test Code: 200.8-W		Date Prepared:	01/14/2016 859h										
Antimony	0.198	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000247	98.9	75 - 125				
Arsenic	0.217	mg/L	E200.8	0.0000920	0.00200	0.2000	0.00144	108	75 - 125				
Barium	0.334	mg/L	E200.8	0.000538	0.00200	0.2000	0.121	107	75 - 125				
Beryllium	0.189	mg/L	E200.8	0.0000288	0.00200	0.2000	0.000211	94.6	75 - 125				
Cadmium	0.200	mg/L	E200.8	0.000193	0.000500	0.2000	0	100	75 - 125				
Chromium	0.204	mg/L	E200.8	0.00154	0.00200	0.2000	0.00691	98.6	75 - 125				
Cobalt	0.195	mg/L	E200.8	0.0000434	0.00400	0.2000	0.00116	96.8	75 - 125				
Lead	0.191	mg/L	E200.8	0.000264	0.00200	0.2000	0.00209	94.5	75 - 125				
Molybdenum	0.222	mg/L	E200.8	0.000206	0.00200	0.2000	0.00523	108	75 - 125				
Selenium	0.208	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000195	104	75 - 125				
Thallium	0.183	mg/L	E200.8	0.0000242	0.00200	0.2000	0.0000259	91.4	75 - 125				
Lab Sample ID: 1601156-001CMS		Date Analyzed:	01/19/2016 1030h										
Test Code: HG-DW-245.1		Date Prepared:	01/18/2016 1500h										
Mercury	0.00295	mg/L	E245.1	0.00000559	0.000150	0.003330	0	88.5	80 - 120				
Lab Sample ID: 1601157-001CMS		Date Analyzed:	01/19/2016 1058h										
Test Code: HG-DW-245.1		Date Prepared:	01/18/2016 1500h										
Mercury	0.00298	mg/L	E245.1	0.00000559	0.000150	0.003330	0.0000167	89.1	80 - 120				

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1601156
Project: Hunter / PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1601156-001CMSD	Date Analyzed:	01/22/2016 1000h											
Test Code:	200.7-W	Date Prepared:	01/14/2016 902h										
Calcium	481	mg/L	E200.7	4.01	100	10.00	480	12.6	70 - 130	494	2.64	20	²
Magnesium	664	mg/L	E200.7	2.94	100	10.00	669	-49.6	70 - 130	691	3.95	20	²
Lab Sample ID: 1601157-001CMSD	Date Analyzed:	01/22/2016 1044h											
Test Code:	200.7-W	Date Prepared:	01/14/2016 902h										
Sodium	1,890	mg/L	E200.7	3.30	100	10.00	1850	361	70 - 130	1800	4.98	20	²
Lab Sample ID: 1601156-001CMSD	Date Analyzed:	01/22/2016 1126h											
Test Code:	200.7-W	Date Prepared:	01/14/2016 902h										
Boron	2.97	mg/L	E200.7	0.00514	0.500	1.000	1.79	118	70 - 130	2.91	2.20	20	
Lab Sample ID: 1601157-001CMSD	Date Analyzed:	01/22/2016 1202h											
Test Code:	200.7-W	Date Prepared:	01/14/2016 902h										
Boron	1.77	mg/L	E200.7	0.00514	0.500	1.000	0.775	99.3	70 - 130	1.75	1.00	20	
Calcium	30.3	mg/L	E200.7	0.0401	1.00	10.00	19.4	109	70 - 130	30.1	0.679	20	
Magnesium	20.3	mg/L	E200.7	0.0294	1.00	10.00	9.81	105	70 - 130	20.1	1.08	20	
Lab Sample ID: 1601156-001CMSD	Date Analyzed:	01/22/2016 919h											
Test Code:	200.7-W	Date Prepared:	01/14/2016 902h										
Sodium	4,870	mg/L	E200.7	33.0	1,000	10.00	4880	-87.6	70 - 130	4920	1.15	20	²
Lab Sample ID: 1601156-001CMSD	Date Analyzed:	01/15/2016 1540h											
Test Code:	200.8-W	Date Prepared:	01/14/2016 859h										
Antimony	0.202	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000915	100	75 - 125	0.198	2.04	20	
Arsenic	0.224	mg/L	E200.8	0.0000920	0.00200	0.2000	0.000828	112	75 - 125	0.221	1.45	20	
Barium	0.214	mg/L	E200.8	0.000538	0.00200	0.2000	0.0126	101	75 - 125	0.21	2.05	20	
Beryllium	0.178	mg/L	E200.8	0.0000288	0.00200	0.2000	0.0000596	89.2	75 - 125	0.174	2.32	20	
Cadmium	0.190	mg/L	E200.8	0.000193	0.000500	0.2000	0.000278	94.9	75 - 125	0.185	2.55	20	
Chromium	0.194	mg/L	E200.8	0.00154	0.00200	0.2000	0	97.2	75 - 125	0.191	1.68	20	



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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1601156
Project: Hunter / PERC M52

Contact: Laura Watson
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1601156-001CMSD		Date Analyzed:	01/15/2016 1540h										
Test Code: 200.8-W		Date Prepared:	01/14/2016 859h										
Cobalt	0.190	mg/L	E200.8	0.0000434	0.00400	0.2000	0.00604	92.0	75 - 125	0.187	1.70	20	
Lead	0.177	mg/L	E200.8	0.000264	0.00200	0.2000	0.000511	88.5	75 - 125	0.174	1.95	20	
Molybdenum	0.224	mg/L	E200.8	0.000206	0.00200	0.2000	0.00256	111	75 - 125	0.219	2.28	20	
Selenium	0.611	mg/L	E200.8	0.0000634	0.00200	0.2000	0.4	106	75 - 125	0.609	0.350	20	
Thallium	0.175	mg/L	E200.8	0.0000242	0.00200	0.2000	0.000599	87.4	75 - 125	0.171	2.41	20	
Lab Sample ID: 1601157-001CMSD		Date Analyzed:	01/15/2016 1627h										
Test Code: 200.8-W		Date Prepared:	01/14/2016 859h										
Antimony	0.196	mg/L	E200.8	0.0000366	0.00200	0.2000	0.000247	98.1	75 - 125	0.198	0.753	20	
Arsenic	0.217	mg/L	E200.8	0.0000920	0.00200	0.2000	0.00144	108	75 - 125	0.217	0.000213	20	
Barium	0.337	mg/L	E200.8	0.000538	0.00200	0.2000	0.121	108	75 - 125	0.334	0.908	20	
Beryllium	0.189	mg/L	E200.8	0.0000288	0.00200	0.2000	0.000211	94.5	75 - 125	0.189	0.0150	20	
Cadmium	0.198	mg/L	E200.8	0.000193	0.000500	0.2000	0	99.1	75 - 125	0.2	0.911	20	
Chromium	0.207	mg/L	E200.8	0.00154	0.00200	0.2000	0.00691	100	75 - 125	0.204	1.49	20	
Cobalt	0.194	mg/L	E200.8	0.0000434	0.00400	0.2000	0.00116	96.4	75 - 125	0.195	0.363	20	
Lead	0.190	mg/L	E200.8	0.000264	0.00200	0.2000	0.00209	94.0	75 - 125	0.191	0.576	20	
Molybdenum	0.221	mg/L	E200.8	0.000206	0.00200	0.2000	0.00523	108	75 - 125	0.222	0.446	20	
Selenium	0.205	mg/L	E200.8	0.0000634	0.00200	0.2000	0.000195	102	75 - 125	0.208	1.27	20	
Thallium	0.181	mg/L	E200.8	0.0000242	0.00200	0.2000	0.0000259	90.4	75 - 125	0.183	1.05	20	
Lab Sample ID: 1601156-001CMSD		Date Analyzed:	01/19/2016 1032h										
Test Code: HG-DW-245.1		Date Prepared:	01/18/2016 1500h										
Mercury	0.00277	mg/L	E245.1	0.00000559	0.000150	0.003330	0	83.2	80 - 120	0.00295	6.18	20	
Lab Sample ID: 1601157-001CMSD		Date Analyzed:	01/19/2016 1100h										
Test Code: HG-DW-245.1		Date Prepared:	01/18/2016 1500h										
Mercury	0.00298	mg/L	E245.1	0.00000559	0.000150	0.003330	0.0000167	88.8	80 - 120	0.00299	0.336	20	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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QC SUMMARY REPORT

Client: Water & Environmental Technologies

Lab Set ID: 1601156

Project: Hunter / PERC M52

Contact: Laura Watson

Dept: WC

QC Type: DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1601156-010ADUP Test Code: PH-4500H+B	Date Analyzed:	01/13/2016	1700h										
pH @ 25° C	6.15	pH Units	SM4500-H+B	1.00	1.00					6.11	0.653	5	H
Lab Sample ID: 1601157-001ADUP Test Code: PH-4500H+B	Date Analyzed:	01/13/2016	1700h										
pH @ 25° C	8.15	pH Units	SM4500-H+B	1.00	1.00					8.12	0.369	5	H
Lab Sample ID: 1601156-002ADUP Test Code: PH-4500H+B	Date Analyzed:	01/14/2016	1801h										
pH @ 25° C	7.13	pH Units	SM4500-H+B	1.00	1.00					7.12	0.140	5	H
Lab Sample ID: 1601156-003ADUP Test Code: TDS-W-2540C	Date Analyzed:	01/15/2016	1200h										
Total Dissolved Solids	21,700	mg/L	SM2540C	438	500					21300	1.86	5	

H - Sample was received outside of the holding time.



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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1601156
Project: Hunter / PERC M52

Contact: Laura Watson
Dept: WC
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-R86741 Date Analyzed: 01/15/2016 1020h													
Test Code: 300.0-W													
Chloride	5.10	mg/L	E300.0	0.00751	0.100	5.000	0	102	90 - 110				
Fluoride	5.09	mg/L	E300.0	0.00681	0.100	5.000	0	102	90 - 110				
Sulfate	4.90	mg/L	E300.0	0.0211	0.750	5.000	0	98.0	90 - 110				
Lab Sample ID: LCS-R86712 Date Analyzed: 01/15/2016 709h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	49,900	mg/L	SM2320B	1.86	10.0	50,000	0	99.8	90 - 110				
Lab Sample ID: LCS-R86728 Date Analyzed: 01/15/2016 1537h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.03	mg/L	E353.2	0.00833	0.0100	1.000	0	103	90 - 110				
Lab Sample ID: LCS-R86672 Date Analyzed: 01/13/2016 1700h													
Test Code: PH-4500H+B													
pH @ 25° C	9.02	pH Units	SM4500-H+B	1.00	1.00	9.000	0	100	98 - 102				
Lab Sample ID: LCS-R86702 Date Analyzed: 01/14/2016 1801h													
Test Code: PH-4500H+B													
pH @ 25° C	8.96	pH Units	SM4500-H+B	1.00	1.00	9.000	0	99.6	98 - 102				
Lab Sample ID: LCS-R86753 Date Analyzed: 01/15/2016 1200h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	218	mg/L	SM2540C	8.77	10.0	205.0	0	106	80 - 120				



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1601156
Project: Hunter / PERC M52

Contact: Laura Watson
Dept: WC
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-R86741 Date Analyzed: 01/15/2016 1003h													
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.00751	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.00681	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0211	0.750								
Lab Sample ID: MB-R86712 Date Analyzed: 01/15/2016 709h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.86	10.0								
Bicarbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.86	10.0								
Carbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.86	10.0								
Lab Sample ID: MB-R86728 Date Analyzed: 01/15/2016 1534h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID: MB-R86753 Date Analyzed: 01/15/2016 1200h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	8.77	10.0								



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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1601156
Project: Hunter / PERC M52

Contact: Laura Watson
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1601156-001AMS Date Analyzed: 01/15/2016 1127h													
Test Code: 300.0-W													
Chloride	13,200	mg/L	E300.0	15.0	200	10,000	2910	103	90 - 110				
Fluoride	10,200	mg/L	E300.0	13.6	200	10,000	0	102	90 - 110				
Sulfate	19,400	mg/L	E300.0	42.2	1,500	10,000	9140	102	90 - 110				
Lab Sample ID: 1601157-001AMS Date Analyzed: 01/15/2016 1450h													
Test Code: 300.0-W													
Chloride	7,040	mg/L	E300.0	7.51	100	5,000	1830	104	90 - 110				
Fluoride	5,040	mg/L	E300.0	6.81	100	5,000	0	101	90 - 110				
Sulfate	5,910	mg/L	E300.0	21.1	750	5,000	1010	97.9	90 - 110				
Lab Sample ID: 1601156-007AMS Date Analyzed: 01/15/2016 1953h													
Test Code: 300.0-W													
Chloride	5.36	mg/L	E300.0	0.00751	0.100	5.000	0.0932	105	90 - 110				
Fluoride	5.20	mg/L	E300.0	0.00681	0.100	5.000	0	104	90 - 110				
Sulfate	4.97	mg/L	E300.0	0.0211	0.750	5.000	0	99.5	90 - 110				
Lab Sample ID: 1601156-009AMS Date Analyzed: 01/15/2016 2350h													
Test Code: 300.0-W													
Fluoride	4.90	mg/L	E300.0	0.00681	0.100	5.000	0.277	92.5	90 - 110				
Lab Sample ID: 1601156-001AMS Date Analyzed: 01/15/2016 709h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	778	mg/L	SM2320B	1.86	10.0	250.0	538	96.3	80 - 120				
Lab Sample ID: 1601156-005BMS Date Analyzed: 01/15/2016 1558h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.02	mg/L	E353.2	0.00833	0.0100	1.000	0.0135	100	90 - 110				



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QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies

Lab Set ID: 1601156

Project: Hunter / PERC M52

Contact: Laura Watson

Dept: WC

QC Type: MS

Analyte		Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID:	1601157-001BMS	Date Analyzed:	01/15/2016 1617h											
Test Code:	NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)		0.998	mg/L	E353.2	0.00833	0.0100	1.000	0	99.8	90 - 110				



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Jose Rocha
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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1601156
Project: Hunter / PERC M52

Contact: Laura Watson
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1601156-001AMSD Date Analyzed: 01/15/2016 1144h Test Code: 300.0-W													
Chloride	13,200	mg/L	E300.0	15.0	200	10,000	2910	103	90 - 110	13200	0.269	20	
Fluoride	10,100	mg/L	E300.0	13.6	200	10,000	0	101	90 - 110	10200	0.458	20	
Sulfate	19,200	mg/L	E300.0	42.2	1,500	10,000	9140	100	90 - 110	19400	1.20	20	
Lab Sample ID: 1601157-001AMSD Date Analyzed: 01/15/2016 1507h Test Code: 300.0-W													
Chloride	7,260	mg/L	E300.0	7.51	100	5,000	1830	109	90 - 110	7040	3.16	20	
Fluoride	5,070	mg/L	E300.0	6.81	100	5,000	0	101	90 - 110	5040	0.608	20	
Sulfate	5,960	mg/L	E300.0	21.1	750	5,000	1010	98.9	90 - 110	5910	0.777	20	
Lab Sample ID: 1601156-007AMSD Date Analyzed: 01/15/2016 2010h Test Code: 300.0-W													
Chloride	5.27	mg/L	E300.0	0.00751	0.100	5.000	0.0932	103	90 - 110	5.36	1.73	20	
Fluoride	5.01	mg/L	E300.0	0.00681	0.100	5.000	0	100	90 - 110	5.2	3.75	20	
Sulfate	4.96	mg/L	E300.0	0.0211	0.750	5.000	0	99.2	90 - 110	4.97	0.265	20	
Lab Sample ID: 1601156-009AMSD Date Analyzed: 01/16/2016 007h Test Code: 300.0-W													
Fluoride	4.90	mg/L	E300.0	0.00681	0.100	5.000	0.277	92.6	90 - 110	4.9	0.103	20	
Lab Sample ID: 1601156-001AMSD Date Analyzed: 01/15/2016 709h Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	787	mg/L	SM2320B	1.86	10.0	250.0	538	99.8	80 - 120	778	1.10	10	
Lab Sample ID: 1601156-005BMSD Date Analyzed: 01/15/2016 1559h Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.04	mg/L	E353.2	0.00833	0.0100	1.000	0.0135	103	90 - 110	1.02	2.14	10	



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Laboratory Director

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QC SUMMARY REPORT

Client: Water & Environmental Technologies

Lab Set ID: 1601156

Project: Hunter / PERC M52

Contact: Laura Watson

Dept: WC

QC Type: MSD

Analyte		Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID:	1601157-001BMSD	Date Analyzed:	01/15/2016 1618h											
Test Code:	NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)		1.01	mg/L	E353.2	0.00833	0.0100	1.000	0	101	90 - 110	0.998	0.669	10	

American West Analytical Laboratories

REVISED: 1-14-16

OL:

D

Cl, F, SO4, Alk, pH and TDS added to Sample #2. The same analytical was cancelled from Sample #4 - DB

GenericEDD QC

WORK ORDER Summary

Work Order: **1601156** Page 1 of 5

Client: Water & Environmental Technologies

Due Date: 1/27/2016

Client ID: WAT100

Contact: Laura Watson

Project: Hunter / PERC M52

QC Level: II+

WO Type: Project

Comments: QC2+. Include EDD. Footnote report, pH received outside of hold. No WC bottle received for Sample #2. RADS sent to AZC. Bill to PacifiCorp - Jeff Tucker. Send copy of report to Jeff. 1-14-16 - Cl, F, SO4, Alk, pH, and TDS added to sample #2. (Sample #1 and #2 share WC bottle because Sample #2 is a duplicate of #1). The same analytical was cancelled on Sample #4 because no unpreserved bottle was provided.;

DB

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1601156-001A	ELF-7	1/12/2016 1405h	1/13/2016 0945h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1601156-001B				NO2/NO3-W-353.2			DF-NO2/NO3
1601156-001C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1601156-001D				OUTSIDE LAB			ACZ
1601156-002A	DUP	1/12/2016 1415h	1/13/2016 0945h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1601156-002B				NO2/NO3-W-353.2			DF-NO2/NO3
1601156-002C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals

WORK ORDER Summary

Work Order: **1601156** Page 2 of 5

Client: Water & Environmental Technologies

Due Date: 1/27/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1601156-002C	DUP	1/12/2016 1415h	1/13/2016 0945h	200.8-W	Aqueous		DF-Metals 1
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1601156-002D				OUTSIDE LAB			ACZ 2
1601156-003A	ELF-5	1/12/2016 1300h	1/13/2016 0945h	300.0-W	Aqueous		DF-WC 2
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1601156-003B				NO2/NO3-W-353.2			DF-NO2/NO3 1
1601156-003C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1601156-003D				OUTSIDE LAB			ACZ 2
1601156-004A	ELF-6	1/12/2016 1145h	1/13/2016 0945h		Aqueous		Cancelled 1
1601156-004B				NO2/NO3-W-353.2			DF-NO2/NO3
1601156-004C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1601156-004D				OUTSIDE LAB			ACZ 2
1601156-005A	ELF-8	1/12/2016 1100h	1/13/2016 0945h	300.0-W	Aqueous		DF-WC 1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC

WORK ORDER Summary

Work Order: **1601156** Page 3 of 5

Client: Water & Environmental Technologies

Due Date: 1/27/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1601156-005A	ELF-8	1/12/2016 1100h	1/13/2016 0945h	TDS-W-2540C	Aqueous		DF-WC	1
1601156-005B						NO2/NO3-W-353.2	DF-NO2/NO3	
1601156-005C						200.7-W	DF-Metals	
						5 SEL Analytes: B CA LI MG NA		
						200.7-W-PR	DF-Metals	
						200.8-W	DF-Metals	
						11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL		
						200.8-W-PR	DF-Metals	
						HG-DW-245.1	DF-Metals	
						HG-DW-PR	DF-Metals	
1601156-005D				OUTSIDE LAB			ACZ	2
1601156-006A	ELF-4	1/12/2016 1320h	1/13/2016 0945h	300.0-W	Aqueous		DF-WC	1
						3 SEL Analytes: CL F SO4		
						ALK-W-2320B	DF-WC	
						3 SEL Analytes: ALK ALKB ALKC		
						PH-4500H+B	DF-WC	
						TDS-W-2540C	DF-WC	
1601156-006B						NO2/NO3-W-353.2	DF-NO2/NO3	
1601156-006C						200.7-W	DF-Metals	
						5 SEL Analytes: B CA LI MG NA		
						200.7-W-PR	DF-Metals	
						200.8-W	DF-Metals	
						11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL		
						200.8-W-PR	DF-Metals	
						HG-DW-245.1	DF-Metals	
						HG-DW-PR	DF-Metals	
1601156-006D				OUTSIDE LAB			ACZ	2
1601156-007A	ELF-4-FB	1/12/2016 1330h	1/13/2016 0945h	300.0-W	Aqueous		DF-WC	1
						3 SEL Analytes: CL F SO4		
						ALK-W-2320B	DF-WC	
						3 SEL Analytes: ALK ALKB ALKC		
						PH-4500H+B	DF-WC	
						TDS-W-2540C	DF-WC	
1601156-007B						NO2/NO3-W-353.2	DF-NO2/NO3	
1601156-007C						200.7-W	DF-Metals	
						5 SEL Analytes: B CA LI MG NA		
						200.7-W-PR	DF-Metals	

WORK ORDER Summary

Work Order: **1601156** Page 4 of 5

Client: Water & Environmental Technologies

Due Date: 1/27/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1601156-007C	ELF-4-FB	1/12/2016 1330h	1/13/2016 0945h	200.8-W	Aqueous		DF-Metals 1
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1601156-007D				OUTSIDE LAB			ACZ 2
1601156-008A	ELF-10	1/12/2016 1130h	1/13/2016 0945h	300.0-W	Aqueous		DF-WC 1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1601156-008B				NO2/NO3-W-353.2			DF-NO2/NO3
1601156-008C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1601156-008D				OUTSIDE LAB			ACZ 2
1601156-009A	ELF-2	1/12/2016 0950h	1/13/2016 0945h	300.0-W	Aqueous		DF-WC 1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1601156-009B				NO2/NO3-W-353.2			DF-NO2/NO3
1601156-009C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1601156-009D				OUTSIDE LAB			ACZ 2

WORK ORDER Summary

Work Order: **1601156** Page 5 of 5

Client: Water & Environmental Technologies

Due Date: 1/27/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1601156-010A	ELF-2-EB	1/12/2016 1000h	1/13/2016 0945h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
	1601156-010B			PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
				NO2/NO3-W-353.2			DF-NO2/NO3
				200.7-W			DF-Metals
1601156-010C				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
	1601156-010D			HG-DW-PR			DF-Metals
				OUTSIDE LAB			ACZ

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CHAIN OF CUSTODY

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

1601156
AWAL Lab Sample Set #

Page of

Page 5

Due Date:

Date: 1/27/16

Laboratory Use Only

Samples Were:

- 1 Shipped or hand delivered
2 Ambient or Chilled
3 Temperature 0.6 °C
4 Received Broken/Leaking
(Improperly Sealed)
Y N
5 Properly Preserved
Y N Checked at bench

- 6 Received Within Holding Times
Y

out of hold

COC Tape Was:

- | | | | | |
|---|---------------------------|---|---|----|
| 1 | Present on Outer Package | Y | N | NA |
| 2 | Unbroken on Outer Package | Y | N | NA |
| 3 | Present on Sample | Y | N | NA |
| 4 | Unbroken on Sample | Y | N | NA |

Discrepancies Between Sample Labels and COC Record?

Sample #1 & #3

Unless other arrangements have been made, signed reports will be emailed by **5:00 pm** on the day they are due.

☐ Report down to the MDL
☒ Include EDD:
☐ Lab Filter for:

☐ Field Filtered For:

For Compliance With:

- ☐ NELAP
☐ RCRA
☐ CWA
☐ SDWA
☐ ELAP / A2LA
☐ NLLAP
☐ Non-Compliance
☐ Other:

Known Hazards
&
Sample Comments

WC bottle not x
received
2 wc bottle received
1/14/16 cancell wc
for this sample, re
Laura. sh

Special Instructions:

* tds, anions, pH, FI, Alk cancelled on
Sample #2 due to no unpreserved
sample received
1/14/16 per Laura
** use wc bottle from this
sample to run as dup for #2
(1 & 2) use same wc bottle

cancel all we for sample
#4, it appears to be preserved. el

Client:

WET

Address:

480 E Park St

DuHe MT 59701

Contact:

Laura Watson

Phone #:

Cell #: 406-431-2447

Email:

lwatson@wet-llc.com

Project Name:

~~PERC 152~~ Hunter

Project #:

PERCM5Z

PO #:

Sampler Name:

Laura Watson

Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample	TDS	Flu	Al	To	Pa	Na	Ca	Other	Known Hazards & Sample Comments
**ELF-7	1/12/16	1405	5	W	X	X	X	X	X	X	X	X	WC bottle not received
DUP		1415											2 WC bottle received
ELF-5		1300											1/14/16 cancelled WC for this sample, per Laura. sh
ELF-6		1145											
ELF-8		1100											
ELF-4		1320											
ELF-4-FB		1330											
ELF-10		1130											
ELF-2		0950											
ELF-9													
ELF-2-EB	X	1000	X	X	X	X	X	X	X	X	X	X	

Relinquished by: [Signature]
Signature

Print Name: Laura Watson

Relinquished by: [Signature]
Signature

Print Name: [Signature]

Relinquished by: [Signature]
Signature

Print Name: [Signature]

Relinquished by: [Signature]
Signature

Print Name: [Signature]

Date: 1/13/16
Time: 0945

Date: [Blank]
Time: [Blank]

Date: [Blank]
Time: [Blank]

Date: [Blank]
Time: [Blank]

Date: [Blank]
Time: [Blank]

Date: [Blank]
Time: [Blank]

Date: [Blank]
Time: [Blank]

Received by: [Signature]
Signature

Print Name: Denise Bruen

Received by: [Signature]
Signature

Print Name: [Signature]

Received by: [Signature]
Signature

Print Name: [Signature]

Received by: [Signature]
Signature

Print Name: [Signature]

Date: 1/13/16
Time: 0945

Date: [Blank]
Time: [Blank]

Date: [Blank]
Time: [Blank]

Date: [Blank]
Time: [Blank]

Date: [Blank]
Time: [Blank]

Date: [Blank]
Time: [Blank]

Date: [Blank]
Time: [Blank]

Special Instructions:

* tds, anion, pH, FI, Al, cancelled on sample #2 due to no unpreserved sample received

1/14/16 per Laura

** use WC bottle from this sample to run as dup for #2 (1&2) when saw WC bottle

Received from: [Blank]
Holding Time: [Blank]

Y (N)

pH out of hold

COC Tape Was:

1 Present on Outer Packaging Y N (NA)

2 Unbroken on Outer Packaging Y N (NA)

3 Present on Sample Y N (NA)

4 Unbroken on Sample Y N (NA)

Discrepancies Between Sample Labels and COC Record? Y (N) DB

Sample # 2 # [Blank]

Water & Environmental Technologies

Analyte Method Reporting Limit	Method	Reporting Limit	Price/sample ¹
pH	SM4500-H+ B	1.0 s.u.	\$11.70
Solids, Total Dissolved	SM2540 C	10 mg/L	\$13.50
Alkalinity Total as CaCO ₃	SM2320 B	10 mg/L	\$17.10
Bicarbonate as HCO ₃	SM2320 B	10 mg/L	\$0.00
Carbonate as CO ₃	SM2320 B	10 mg/L	\$0.00
Chloride	E300.0	0.1 mg/L	\$11.70
Sulfate	E300.0	0.75 mg/L	\$11.70
Fluoride	A4500-F C/E300.0	0.1 mg/L	\$12.60
Nitrogen, Nitrate+Nitrite	E353.2	0.01 mg/L	\$11.70
Antimony	E200.8	0.002 mg/L	\$9.00
Arsenic	E200.8	0.002 mg/L	\$9.00
Barium	E200.8	0.002 mg/L	\$9.00
Beryllium	E200.8	0.002 mg/L	\$9.00
Boron	E200.7	0.5 mg/L	\$9.00
Cadmium	E200.8	0.0005 mg/L	\$9.00
Calcium	E200.7	1.0 mg/L	\$9.00
Chromium	E200.8	0.002 mg/L	\$9.00
Cobalt	E200.8	0.004 mg/L	\$9.00
Lead	E200.8	0.002 mg/L	\$9.00
Lithium	E200.7	0.1 mg/L	\$9.00
Magnesium	E200.7	1.0 mg/L	\$9.00
Molybdenum	E200.8	0.002 mg/L	\$9.00
Selenium	E200.8	0.002 mg/L	\$9.00
Sodium	E200.7	1.0 mg/L	\$9.00
Thallium	E200.8	0.002 mg/L	\$9.00
Mercury, Total	E245.1	0.00015 mg/L	\$25.20
Radium 226 + Radium 228 ²	M903.1 + M904.0		\$182.16
Radium 226, Total ²	M903.1	0.4 pCi/L	\$0.00
Radium 228, Total ²	M904.0	1.5 pCi/L	\$0.00
Metals digestion/sample			\$18.00
Total/sample - Not including shipping			\$459.36
Monthly Price for 17 samples - Not including shipping			\$7,809.12
Total Project Cost (20 months) - Not including shipping			\$156,182.40

¹ - Includes 10% discount for 10 or more samples/delivery.

² - UPS shipping costs to Colorado will be applied to these analyses.

Radium analyses will be subcontracted to ACZ Labs in CO.

Lab Set ID: 1601156

Preservation Check Sheet

Sample Set Extension and pH

[illegible]

Procedure:

- 1) Pour a small amount of sample in the sample lid
- 2) Pour sample from Lid gently over wide range pH paper
- 3) **Do Not** dip the pH paper in the sample bottle or lid
- 4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
- 5) Flag COC, notify client if requested
- 6) Place client conversation on COC
- 7) Samples may be adjusted

Frequency:

All samples requiring preservation

- * The sample required additional preservative upon receipt.
- + The sample was received unpreserved.
- ▲ The sample was received unpreserved and therefore preserved upon receipt.
- # The sample pH was unadjustable to a pH < 2 due to the sample matrix.
- The sample pH was unadjustable to a pH > due to the sample matrix interference.



**AMERICAN
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LABORATORIES**

Jeff Tucker
Water & Environmental Technologies
480 E Park Street, Suite 200
Butte, MT 59701
TEL: (801) 220-2989

RE: Hunter CCR Sampling / PERCM52

Dear Jeff Tucker:

Lab Set ID: 1602071

3440 South 700 West
Salt Lake City, Utah
84119

American West Analytical Laboratories received sample(s) on 2/3/2016 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Jose G. Rocha
Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:

Radiologicals



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-001

Client Sample ID: ELF-6

Collection Date: 2/2/2016 945h

Received Date: 2/3/2016 1548h

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	2/8/2016 1303h	2/15/2016 1217h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	2/8/2016 1303h	2/15/2016 1217h	E200.8	0.00200	< 0.00200	
Barium	mg/L	2/8/2016 1303h	2/15/2016 1217h	E200.8	0.00200	0.00932	
Beryllium	mg/L	2/8/2016 1303h	2/15/2016 1217h	E200.8	0.00200	< 0.00200	
Boron	mg/L	2/8/2016 1303h	2/15/2016 1458h	E200.7	5.00	13.6	²
Cadmium	mg/L	2/8/2016 1303h	2/15/2016 1217h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.7	100	493	²
Chromium	mg/L	2/8/2016 1303h	2/15/2016 1217h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	2/8/2016 1303h	2/15/2016 1217h	E200.8	0.00400	0.0191	
Lead	mg/L	2/8/2016 1303h	2/15/2016 1217h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	2/8/2016 1303h	2/16/2016 1254h	E200.7	0.100	14.2	~
Magnesium	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.7	100	695	²
Mercury	mg/L	2/4/2016 1600h	2/5/2016 854h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	2/8/2016 1303h	2/15/2016 1217h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	2/8/2016 1303h	2/15/2016 1217h	E200.8	0.00200	0.0828	
Sodium	mg/L	2/8/2016 1303h	2/15/2016 1404h	E200.7	1,000	5,980	²
Thallium	mg/L	2/8/2016 1303h	2/15/2016 1217h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-002

Client Sample ID: ELF-5

Collection Date: 2/2/2016 1055h

Received Date: 2/3/2016 1548h

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	2/8/2016 1303h	2/15/2016 1232h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	2/8/2016 1303h	2/15/2016 1232h	E200.8	0.00200	< 0.00200	
Barium	mg/L	2/8/2016 1303h	2/15/2016 1232h	E200.8	0.00200	0.00970	
Beryllium	mg/L	2/8/2016 1303h	2/15/2016 1232h	E200.8	0.00200	< 0.00200	
Boron	mg/L	2/8/2016 1303h	2/15/2016 1507h	E200.7	0.500	6.10	
Cadmium	mg/L	2/8/2016 1303h	2/15/2016 1232h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.7	100	481	
Chromium	mg/L	2/8/2016 1303h	2/15/2016 1232h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	2/8/2016 1303h	2/15/2016 1232h	E200.8	0.00400	< 0.00400	
Lead	mg/L	2/8/2016 1303h	2/15/2016 1232h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	2/8/2016 1303h	2/16/2016 1255h	E200.7	0.100	10.6	
Magnesium	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.7	100	862	
Mercury	mg/L	2/4/2016 1600h	2/5/2016 900h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	2/8/2016 1303h	2/15/2016 1232h	E200.8	0.00200	0.00458	
Selenium	mg/L	2/8/2016 1303h	2/15/2016 1232h	E200.8	0.00200	0.0325	
Sodium	mg/L	2/8/2016 1303h	2/15/2016 1411h	E200.7	1,000	5,910	
Thallium	mg/L	2/8/2016 1303h	2/15/2016 1232h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

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LABORATORIES

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-003

Client Sample ID: ELF-4

Collection Date: 2/2/2016 1200h

Received Date: 2/3/2016 1548h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	2/8/2016 1303h	2/15/2016 1236h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	2/8/2016 1303h	2/15/2016 1236h	E200.8	0.00200	< 0.00200	
Barium	mg/L	2/8/2016 1303h	2/15/2016 1236h	E200.8	0.00200	0.0119	
Beryllium	mg/L	2/8/2016 1303h	2/15/2016 1236h	E200.8	0.00200	< 0.00200	
Boron	mg/L	2/8/2016 1303h	2/15/2016 1510h	E200.7	0.500	5.19	
Cadmium	mg/L	2/8/2016 1303h	2/15/2016 1236h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.7	100	495	
Chromium	mg/L	2/8/2016 1303h	2/15/2016 1236h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	2/8/2016 1303h	2/15/2016 1236h	E200.8	0.00400	0.00582	
Lead	mg/L	2/8/2016 1303h	2/15/2016 1236h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	2/8/2016 1303h	2/16/2016 1256h	E200.7	0.100	4.39	
Magnesium	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.7	100	517	
Mercury	mg/L	2/4/2016 1600h	2/5/2016 902h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	2/8/2016 1303h	2/15/2016 1236h	E200.8	0.00200	0.00252	
Selenium	mg/L	2/8/2016 1303h	2/15/2016 1236h	E200.8	0.00200	0.00352	
Sodium	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.7	100	2,770	
Thallium	mg/L	2/8/2016 1303h	2/15/2016 1236h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-004

Client Sample ID: ELF-7

Collection Date: 2/2/2016 1310h

Received Date: 2/3/2016 1548h

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Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.8	0.00200	< 0.00200	
Barium	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.8	0.00200	0.0100	
Beryllium	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.8	0.00200	< 0.00200	
Boron	mg/L	2/8/2016 1303h	2/15/2016 1513h	E200.7	0.500	1.81	
Cadmium	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	2/8/2016 1303h	2/15/2016 1256h	E200.7	100	469	
Chromium	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.8	0.00400	0.00428	
Lead	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	2/8/2016 1303h	2/16/2016 1257h	E200.7	0.100	5.35	
Magnesium	mg/L	2/8/2016 1303h	2/15/2016 1256h	E200.7	100	641	
Mercury	mg/L	2/4/2016 1600h	2/5/2016 908h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.8	0.00200	0.00212	
Selenium	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.8	0.00200	0.373	
Sodium	mg/L	2/8/2016 1303h	2/15/2016 1413h	E200.7	1,000	4,480	
Thallium	mg/L	2/8/2016 1303h	2/15/2016 1239h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-005

Client Sample ID: ELF-9

Collection Date: 2/2/2016 1420h

Received Date: 2/3/2016 1548h

**AMERICAN
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Analytical Results

TOTAL METALS

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Salt Lake City, Utah
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.8	0.00200	0.00499	
Barium	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.8	0.00200	0.0794	
Beryllium	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.8	0.00200	< 0.00200	
Boron	mg/L	2/8/2016 1303h	2/15/2016 1516h	E200.7	5.00	< 5.00	
Cadmium	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	2/8/2016 1303h	2/15/2016 1307h	E200.7	100	166	
Chromium	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.8	0.00200	0.0157	
Cobalt	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.8	0.00400	< 0.00400	
Lead	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.8	0.00200	0.00435	
Lithium	mg/L	2/8/2016 1303h	2/16/2016 1258h	E200.7	0.100	2.48	~
Magnesium	mg/L	2/8/2016 1303h	2/15/2016 1516h	E200.7	10.0	106	
Mercury	mg/L	2/4/2016 1600h	2/5/2016 910h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.8	0.00200	0.0983	
Selenium	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.8	0.00200	0.00424	
Sodium	mg/L	2/8/2016 1303h	2/15/2016 1415h	E200.7	1,000	3,250	
Thallium	mg/L	2/8/2016 1303h	2/15/2016 1251h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

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Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-006

Client Sample ID: ELF-2

Collection Date: 2/2/2016 1525h

Received Date: 2/3/2016 1548h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.8	0.00200	< 0.00200	
Barium	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.8	0.00200	0.0119	
Beryllium	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.8	0.00200	< 0.00200	
Boron	mg/L	2/8/2016 1303h	2/15/2016 1518h	E200.7	0.500	3.50	
Cadmium	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	2/8/2016 1303h	2/15/2016 1309h	E200.7	100	410	
Chromium	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.8	0.00400	0.00501	
Lead	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	2/8/2016 1303h	2/16/2016 1259h	E200.7	0.100	3.93	
Magnesium	mg/L	2/8/2016 1303h	2/15/2016 1309h	E200.7	100	320	
Mercury	mg/L	2/4/2016 1600h	2/5/2016 912h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.8	0.00200	0.00310	
Selenium	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.8	0.00200	0.450	
Sodium	mg/L	2/8/2016 1303h	2/15/2016 1418h	E200.7	1,000	3,390	
Thallium	mg/L	2/8/2016 1303h	2/15/2016 1254h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-007

Client Sample ID: ELF-2 DUP

Collection Date: 2/2/2016 1525h

Received Date: 2/3/2016 1548h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	2/8/2016 1303h	2/15/2016 1257h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	2/8/2016 1303h	2/15/2016 1257h	E200.8	0.00200	< 0.00200	
Barium	mg/L	2/8/2016 1303h	2/15/2016 1257h	E200.8	0.00200	0.00990	
Beryllium	mg/L	2/8/2016 1303h	2/15/2016 1257h	E200.8	0.00200	< 0.00200	
Boron	mg/L	2/8/2016 1303h	2/15/2016 1521h	E200.7	0.500	3.56	
Cadmium	mg/L	2/8/2016 1303h	2/15/2016 1257h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	2/8/2016 1303h	2/15/2016 1312h	E200.7	100	405	
Chromium	mg/L	2/8/2016 1303h	2/15/2016 1257h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	2/8/2016 1303h	2/15/2016 1257h	E200.8	0.00400	0.00432	
Lead	mg/L	2/8/2016 1303h	2/15/2016 1257h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	2/8/2016 1303h	2/16/2016 1300h	E200.7	0.100	3.92	
Magnesium	mg/L	2/8/2016 1303h	2/15/2016 1312h	E200.7	100	311	
Mercury	mg/L	2/4/2016 1600h	2/5/2016 914h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	2/8/2016 1303h	2/15/2016 1257h	E200.8	0.00200	0.00304	
Selenium	mg/L	2/8/2016 1303h	2/15/2016 1257h	E200.8	0.00200	0.439	
Sodium	mg/L	2/8/2016 1303h	2/15/2016 1420h	E200.7	1,000	3,340	
Thallium	mg/L	2/8/2016 1303h	2/15/2016 1257h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-008

Client Sample ID: ELF-11

Collection Date: 2/2/2016 1000h

Received Date: 2/3/2016 1548h

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	2/8/2016 1303h	2/15/2016 1301h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	2/8/2016 1303h	2/15/2016 1301h	E200.8	0.00200	< 0.00200	
Barium	mg/L	2/8/2016 1303h	2/15/2016 1301h	E200.8	0.00200	0.0139	
Beryllium	mg/L	2/8/2016 1303h	2/15/2016 1301h	E200.8	0.00200	< 0.00200	
Boron	mg/L	2/8/2016 1303h	2/15/2016 1524h	E200.7	5.00	16.3	
Cadmium	mg/L	2/8/2016 1303h	2/15/2016 1301h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	2/8/2016 1303h	2/15/2016 1314h	E200.7	100	414	
Chromium	mg/L	2/8/2016 1303h	2/15/2016 1301h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	2/8/2016 1303h	2/15/2016 1301h	E200.8	0.00400	0.0143	
Lead	mg/L	2/8/2016 1303h	2/15/2016 1301h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	2/8/2016 1303h	2/16/2016 1301h	E200.7	0.100	8.49	
Magnesium	mg/L	2/8/2016 1303h	2/15/2016 1314h	E200.7	100	364	
Mercury	mg/L	2/4/2016 1600h	2/5/2016 916h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	2/8/2016 1303h	2/15/2016 1301h	E200.8	0.00200	0.0174	
Selenium	mg/L	2/8/2016 1303h	2/15/2016 1301h	E200.8	0.00200	0.00739	
Sodium	mg/L	2/8/2016 1303h	2/15/2016 1423h	E200.7	1,000	4,740	
Thallium	mg/L	2/8/2016 1303h	2/15/2016 1301h	E200.8	0.00200	< 0.00200	

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Laboratory Director

Jose Rocha
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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-009

Client Sample ID: ELF-8

Collection Date: 2/2/2016 1200h

Received Date: 2/3/2016 1548h

AMERICAN
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Analytical Results

TOTAL METALS

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Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	2/8/2016 1303h	2/15/2016 1304h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	2/8/2016 1303h	2/15/2016 1304h	E200.8	0.00200	< 0.00200	
Barium	mg/L	2/8/2016 1303h	2/15/2016 1304h	E200.8	0.00200	0.0140	
Beryllium	mg/L	2/8/2016 1303h	2/15/2016 1304h	E200.8	0.00200	< 0.00200	
Boron	mg/L	2/8/2016 1303h	2/15/2016 1534h	E200.7	5.00	27.2	
Cadmium	mg/L	2/8/2016 1303h	2/15/2016 1304h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	2/8/2016 1303h	2/15/2016 1317h	E200.7	100	579	
Chromium	mg/L	2/8/2016 1303h	2/15/2016 1304h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	2/8/2016 1303h	2/15/2016 1304h	E200.8	0.00400	0.0143	
Lead	mg/L	2/8/2016 1303h	2/15/2016 1304h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	2/8/2016 1303h	2/16/2016 1302h	E200.7	0.100	8.79	
Magnesium	mg/L	2/8/2016 1303h	2/15/2016 1317h	E200.7	100	129	
Mercury	mg/L	2/4/2016 1600h	2/5/2016 918h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	2/8/2016 1303h	2/15/2016 1304h	E200.8	0.00200	0.0173	
Selenium	mg/L	2/8/2016 1303h	2/15/2016 1304h	E200.8	0.00200	0.00716	
Sodium	mg/L	2/8/2016 1303h	2/15/2016 1317h	E200.7	100	1,930	
Thallium	mg/L	2/8/2016 1303h	2/15/2016 1304h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-010

Client Sample ID: ELF-6 EB

Collection Date: 2/2/2016 945h

Received Date: 2/3/2016 1548h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	2/8/2016 1303h	2/15/2016 1307h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	2/8/2016 1303h	2/15/2016 1307h	E200.8	0.00200	< 0.00200	
Barium	mg/L	2/8/2016 1303h	2/15/2016 1307h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	2/8/2016 1303h	2/15/2016 1307h	E200.8	0.00200	< 0.00200	
Boron	mg/L	2/8/2016 1303h	2/15/2016 1425h	E200.7	0.500	< 0.500	
Cadmium	mg/L	2/8/2016 1303h	2/15/2016 1307h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	2/8/2016 1303h	2/15/2016 1425h	E200.7	1.00	< 1.00	
Chromium	mg/L	2/8/2016 1303h	2/15/2016 1307h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	2/8/2016 1303h	2/15/2016 1307h	E200.8	0.00400	< 0.00400	
Lead	mg/L	2/8/2016 1303h	2/15/2016 1307h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	2/8/2016 1303h	2/16/2016 1305h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	2/8/2016 1303h	2/15/2016 1425h	E200.7	1.00	< 1.00	
Mercury	mg/L	2/4/2016 1600h	2/5/2016 920h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	2/8/2016 1303h	2/15/2016 1307h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	2/8/2016 1303h	2/15/2016 1307h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	2/8/2016 1303h	2/15/2016 1425h	E200.7	1.00	< 1.00	
Thallium	mg/L	2/8/2016 1303h	2/15/2016 1307h	E200.8	0.00200	< 0.00200	

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-011

Client Sample ID: ELF-7 FB

Collection Date: 2/2/2016 1510h

Received Date: 2/3/2016 1548h

Analytical Results

TOTAL METALS

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Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	2/8/2016 1303h	2/15/2016 1310h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	2/8/2016 1303h	2/15/2016 1310h	E200.8	0.00200	< 0.00200	
Barium	mg/L	2/8/2016 1303h	2/15/2016 1310h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	2/8/2016 1303h	2/15/2016 1310h	E200.8	0.00200	< 0.00200	
Boron	mg/L	2/8/2016 1303h	2/15/2016 1434h	E200.7	0.500	< 0.500	
Cadmium	mg/L	2/8/2016 1303h	2/15/2016 1310h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	2/8/2016 1303h	2/15/2016 1434h	E200.7	1.00	< 1.00	
Chromium	mg/L	2/8/2016 1303h	2/15/2016 1310h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	2/8/2016 1303h	2/15/2016 1310h	E200.8	0.00400	< 0.00400	
Lead	mg/L	2/8/2016 1303h	2/15/2016 1310h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	2/8/2016 1303h	2/16/2016 1306h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	2/8/2016 1303h	2/15/2016 1434h	E200.7	1.00	< 1.00	
Mercury	mg/L	2/4/2016 1600h	2/5/2016 922h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	2/8/2016 1303h	2/15/2016 1310h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	2/8/2016 1303h	2/15/2016 1310h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	2/8/2016 1303h	2/15/2016 1434h	E200.7	1.00	< 1.00	
Thallium	mg/L	2/8/2016 1303h	2/15/2016 1310h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-001

Client Sample ID: ELF-6

Collection Date: 2/2/2016 945h

Received Date: 2/3/2016 1548h

**AMERICAN
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LABORATORIES**

Analytical Results

3440 South 700 West
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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	491	
Bicarbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	491	
Carbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Chloride	mg/L		2/9/2016 1541h	E300.0	100	4,060	
Fluoride	mg/L		2/10/2016 421h	E300.0	0.100	5.13	
Nitrate/Nitrite (as N)	mg/L		2/9/2016 1803h	E353.2	0.200	26.2	
pH @ 25° C	pH Units		2/3/2016 1756h	SM4500-H+B	1.00	6.94	H
Sulfate	mg/L		2/9/2016 1541h	E300.0	750	8,800	
Total Dissolved Solids	mg/L		2/5/2016 1245h	SM2540C	100	20,100	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-002

Client Sample ID: ELF-5

Collection Date: 2/2/2016 1055h

Received Date: 2/3/2016 1548h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	478	
Bicarbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	478	
Carbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Chloride	mg/L		2/9/2016 1632h	E300.0	100	3,750	
Fluoride	mg/L		2/10/2016 438h	E300.0	0.100	3.96	
Nitrate/Nitrite (as N)	mg/L		2/9/2016 1750h	E353.2	1.00	22.6	
pH @ 25° C	pH Units		2/3/2016 1756h	SM4500-H+B	1.00	7.04	H
Sulfate	mg/L		2/9/2016 1632h	E300.0	750	9,890	
Total Dissolved Solids	mg/L		2/5/2016 1245h	SM2540C	100	21,000	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-003

Client Sample ID: ELF-4

Collection Date: 2/2/2016 1200h

Received Date: 2/3/2016 1548h

Analytical Results

3440 South 700 West
Salt Lake City, Utah
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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	355	
Bicarbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	355	
Carbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Chloride	mg/L		2/9/2016 1648h	E300.0	100	2,170	
Fluoride	mg/L		2/10/2016 455h	E300.0	0.100	4.25	
Nitrate/Nitrite (as N)	mg/L		2/9/2016 1751h	E353.2	0.100	13.9	
pH @ 25° C	pH Units		2/3/2016 1756h	SM4500-H+B	1.00	6.97	H
Sulfate	mg/L		2/9/2016 1648h	E300.0	750	5,410	
Total Dissolved Solids	mg/L		2/5/2016 1245h	SM2540C	100	11,500	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-004

Client Sample ID: ELF-7

Collection Date: 2/2/2016 1310h

Received Date: 2/3/2016 1548h

Analytical Results

3440 South 700 West
Salt Lake City, Utah
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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	259	
Bicarbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	259	
Carbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Chloride	mg/L		2/9/2016 1705h	E300.0	100	2,660	
Fluoride	mg/L		2/10/2016 513h	E300.0	0.100	4.63	
Nitrate/Nitrite (as N)	mg/L		2/9/2016 1829h	E353.2	2.00	202	
pH @ 25° C	pH Units		2/3/2016 1756h	SM4500-H+B	1.00	6.13	H
Sulfate	mg/L		2/9/2016 1705h	E300.0	750	8,250	
Total Dissolved Solids	mg/L		2/5/2016 1245h	SM2540C	100	17,100	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-005

Client Sample ID: ELF-9

Collection Date: 2/2/2016 1420h

Received Date: 2/3/2016 1548h

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Analytical Results

3440 South 700 West
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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	460	
Bicarbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	460	
Carbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Chloride	mg/L		2/9/2016 2135h	E300.0	10.0	284	
Fluoride	mg/L		2/10/2016 131h	E300.0	0.100	0.276	
Nitrate/Nitrite (as N)	mg/L		2/9/2016 1859h	E353.2	0.0100	0.158	
pH @ 25° C	pH Units		2/3/2016 1756h	SM4500-H+B	1.00	7.86	H
Sulfate	mg/L		2/9/2016 1813h	E300.0	750	6,470	
Total Dissolved Solids	mg/L		2/5/2016 1245h	SM2540C	100	9,420	

H - Sample was received outside of the holding time.

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INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
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LABORATORIES

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-006

Client Sample ID: ELF-2

Collection Date: 2/2/2016 1525h

Received Date: 2/3/2016 1548h

Analytical Results

3440 South 700 West
Salt Lake City, Utah
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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	410	
Bicarbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	410	
Carbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Chloride	mg/L		2/9/2016 2152h	E300.0	10.0	471	
Fluoride	mg/L		2/10/2016 147h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		2/9/2016 1808h	E353.2	0.100	13.6	
pH @ 25° C	pH Units		2/3/2016 1756h	SM4500-H+B	1.00	7.14	H
Sulfate	mg/L		2/9/2016 1829h	E300.0	750	7,350	
Total Dissolved Solids	mg/L		2/5/2016 1245h	SM2540C	100	12,000	

H - Sample was received outside of the holding time.

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INORGANIC ANALYTICAL REPORT

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-007

Client Sample ID: ELF-2 DUP

Collection Date: 2/2/2016 1525h

Received Date: 2/3/2016 1548h

Analytical Results

3440 South 700 West
Salt Lake City, Utah
84119

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	405	
Bicarbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	405	
Carbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Chloride	mg/L		2/9/2016 2209h	E300.0	10.0	462	
Fluoride	mg/L		2/10/2016 204h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		2/9/2016 1811h	E353.2	0.100	16.2	
pH @ 25° C	pH Units		2/3/2016 1756h	SM4500-H+B	1.00	7.13	H
Sulfate	mg/L		2/9/2016 1846h	E300.0	750	7,340	
Total Dissolved Solids	mg/L		2/5/2016 1245h	SM2540C	100	11,600	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-008

Client Sample ID: ELF-11

Collection Date: 2/2/2016 1000h

Received Date: 2/3/2016 1548h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	446	
Bicarbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	446	
Carbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Chloride	mg/L		2/9/2016 1903h	E300.0	100	952	
Fluoride	mg/L		2/10/2016 221h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		2/9/2016 1813h	E353.2	0.100	1.89	
pH @ 25° C	pH Units		2/3/2016 1756h	SM4500-H+B	1.00	7.24	H
Sulfate	mg/L		2/9/2016 1903h	E300.0	750	7,910	
Total Dissolved Solids	mg/L		2/5/2016 1245h	SM2540C	100	15,600	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-009

Client Sample ID: ELF-8

Collection Date: 2/2/2016 1200h

Received Date: 2/3/2016 1548h

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Analytical Results

3440 South 700 West
Salt Lake City, Utah
84119

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	81.0	
Bicarbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	81.0	
Carbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Chloride	mg/L		2/9/2016 1722h	E300.0	100	2,180	
Fluoride	mg/L		2/10/2016 530h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		2/9/2016 1814h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		2/3/2016 1756h	SM4500-H+B	1.00	7.47	H
Sulfate	mg/L		2/9/2016 1722h	E300.0	750	2,970	
Total Dissolved Solids	mg/L		2/5/2016 1245h	SM2540C	100	7,860	

H - Sample was received outside of the holding time.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1602071-010

Client Sample ID: ELF-6 EB

Collection Date: 2/2/2016 945h

Received Date: 2/3/2016 1548h

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Analytical Results

3440 South 700 West
Salt Lake City, Utah
84119

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Chloride	mg/L		2/10/2016 023h	E300.0	0.100	0.239	
Fluoride	mg/L		2/10/2016 023h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		2/9/2016 1823h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		2/3/2016 1756h	SM4500-H+B	1.00	7.56	H
Sulfate	mg/L		2/10/2016 728h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		2/5/2016 1245h	SM2540C	10.0	< 10.0	

H - Sample was received outside of the holding time.

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Kyle F. Gross
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QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: Water & Environmental Technologies **Contact:** Jeff Tucker
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1602071-011
Client Sample ID: ELF-7 FB
Collection Date: 2/2/2016 1510h
Received Date: 2/3/2016 1548h

Analytical Results

Compound	Units	Date		Method Used	Reporting Limit	Analytical Result	Qual
		Prepared	Analyzed				
3440 South 700 West Salt Lake City, Utah 84119							
Alkalinity (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		2/4/2016 839h	SM2320B	10.0	< 10.0	
Chloride	mg/L		2/10/2016 040h	E300.0	0.100	0.233	
Fluoride	mg/L		2/10/2016 040h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		2/9/2016 1824h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		2/3/2016 1756h	SM4500-H+B	1.00	6.41	H
Sulfate	mg/L		2/10/2016 745h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		2/5/2016 1245h	SM2540C	10.0	< 10.0	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1602071
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-41409													
Date Analyzed:		02/15/2016 1236h											
Test Code:		200.7-W											
Date Prepared:		02/08/2016 1303h											
Boron	1.03	mg/L	E200.7	0.0260	0.500	1.000	0	103	85 - 115				
Calcium	10.2	mg/L	E200.7	0.00643	1.00	10.00	0	102	85 - 115				
Magnesium	10.2	mg/L	E200.7	0.0457	1.00	10.00	0	102	85 - 115				
Sodium	10.4	mg/L	E200.7	0.0142	1.00	10.00	0	104	85 - 115				
Lab Sample ID: LCS-41410													
Date Analyzed:		02/15/2016 1214h											
Test Code:		200.8-W											
Date Prepared:		02/08/2016 1303h											
Antimony	0.175	mg/L	E200.8	0.000854	0.00200	0.2000	0	87.5	85 - 115				
Arsenic	0.195	mg/L	E200.8	0.000706	0.00200	0.2000	0	97.4	85 - 115				
Barium	0.196	mg/L	E200.8	0.000788	0.00200	0.2000	0	98.2	85 - 115				
Beryllium	0.205	mg/L	E200.8	0.000960	0.00200	0.2000	0	103	85 - 115				
Cadmium	0.194	mg/L	E200.8	0.0000364	0.000500	0.2000	0	97.2	85 - 115				
Chromium	0.197	mg/L	E200.8	0.000650	0.00200	0.2000	0	98.6	85 - 115				
Cobalt	0.193	mg/L	E200.8	0.0000998	0.00400	0.2000	0	96.3	85 - 115				
Lead	0.194	mg/L	E200.8	0.000818	0.00200	0.2000	0	97.2	85 - 115				
Molybdenum	0.195	mg/L	E200.8	0.000248	0.00200	0.2000	0	97.4	85 - 115				
Selenium	0.194	mg/L	E200.8	0.000612	0.00200	0.2000	0	96.9	85 - 115				
Thallium	0.191	mg/L	E200.8	0.00110	0.00200	0.2000	0	95.6	85 - 115				
Lab Sample ID: LCS-41379													
Date Analyzed:		02/05/2016 846h											
Test Code:		HG-DW-245.1											
Date Prepared:		02/04/2016 1600h											
Mercury	0.00322	mg/L	E245.1	0.00000559	0.000150	0.003330	0	96.7	85 - 115				



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1602071
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MBLK

Analyte		Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual	
Lab Sample ID:	MB-41409	Date Analyzed:	02/15/2016 1234h												
Test Code:	200.7-W	Date Prepared:	02/08/2016 1303h												
Boron		< 0.500	mg/L	E200.7	0.0260	0.500									
Calcium		< 1.00	mg/L	E200.7	0.00643	1.00									
Magnesium		< 1.00	mg/L	E200.7	0.0457	1.00									
Sodium		< 1.00	mg/L	E200.7	0.0142	1.00									
Lab Sample ID:		MB-41409	Date Analyzed:	02/16/2016 1253h											
Test Code:	200.7-W	Date Prepared:	02/08/2016 1303h												
Lithium		< 0.100	mg/L	E200.7	0	0.100									
Lab Sample ID:	MB-41410	Date Analyzed:	02/15/2016 1211h												
Test Code:	200.8-W	Date Prepared:	02/08/2016 1303h												
Antimony		< 0.00200	mg/L	E200.8	0.000854	0.00200									
Arsenic		< 0.00200	mg/L	E200.8	0.000706	0.00200									
Barium		< 0.00200	mg/L	E200.8	0.000788	0.00200									
Beryllium		< 0.00200	mg/L	E200.8	0.000960	0.00200									
Cadmium		< 0.000500	mg/L	E200.8	0.0000364	0.000500									
Chromium		< 0.00200	mg/L	E200.8	0.000650	0.00200									
Cobalt		< 0.00400	mg/L	E200.8	0.0000998	0.00400									
Lead		< 0.00200	mg/L	E200.8	0.000818	0.00200									
Molybdenum		< 0.00200	mg/L	E200.8	0.000248	0.00200									
Selenium		< 0.00200	mg/L	E200.8	0.000612	0.00200									
Thallium		< 0.00200	mg/L	E200.8	0.00110	0.00200									
Lab Sample ID:	MB-41379	Date Analyzed:	02/05/2016 844h												
Test Code:	HG-DW-245.1	Date Prepared:	02/04/2016 1600h												
Mercury		< 0.000150	mg/L	E245.1	0.00000559	0.000150									

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1602071
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1602071-001CMS Date Analyzed: 02/15/2016 1246h													
Test Code: 200.7-W Date Prepared: 02/08/2016 1303h													
Calcium	493	mg/L	E200.7	0.643	100	10.00	493	0.891	70 - 130				2
Magnesium	685	mg/L	E200.7	4.57	100	10.00	695	-106	70 - 130				2
Lab Sample ID: 1602071-001CMS Date Analyzed: 02/15/2016 1406h													
Test Code: 200.7-W Date Prepared: 02/08/2016 1303h													
Sodium	5,990	mg/L	E200.7	14.2	1,000	10.00	5980	154	70 - 130				2
Lab Sample ID: 1602072-002CMS Date Analyzed: 02/15/2016 1439h													
Test Code: 200.7-W Date Prepared: 02/08/2016 1303h													
Boron	1.04	mg/L	E200.7	0.0260	0.500	1.000	0	104	70 - 130				
Calcium	10.1	mg/L	E200.7	0.00643	1.00	10.00	0	101	70 - 130				
Magnesium	10.1	mg/L	E200.7	0.0457	1.00	10.00	0	101	70 - 130				
Sodium	10.6	mg/L	E200.7	0.0142	1.00	10.00	0.443	102	70 - 130				
Lab Sample ID: 1602071-001CMS Date Analyzed: 02/15/2016 1501h													
Test Code: 200.7-W Date Prepared: 02/08/2016 1303h													
Boron	23.5	mg/L	E200.7	0.260	5.00	1.000	13.6	984	70 - 130				2
Lab Sample ID: 1602071-001CMS Date Analyzed: 02/15/2016 1226h													
Test Code: 200.8-W Date Prepared: 02/08/2016 1303h													
Antimony	0.204	mg/L	E200.8	0.000854	0.00200	0.2000	0.0015	101	75 - 125				
Arsenic	0.226	mg/L	E200.8	0.000706	0.00200	0.2000	0	113	75 - 125				
Barium	0.209	mg/L	E200.8	0.000788	0.00200	0.2000	0.00932	99.7	75 - 125				
Beryllium	0.195	mg/L	E200.8	0.000960	0.00200	0.2000	0	97.5	75 - 125				
Cadmium	0.188	mg/L	E200.8	0.0000364	0.000500	0.2000	0.0000576	93.9	75 - 125				
Chromium	0.186	mg/L	E200.8	0.000650	0.00200	0.2000	0	93.2	75 - 125				
Cobalt	0.197	mg/L	E200.8	0.0000998	0.00400	0.2000	0.0191	88.7	75 - 125				
Lead	0.176	mg/L	E200.8	0.000818	0.00200	0.2000	0	87.9	75 - 125				
Molybdenum	0.221	mg/L	E200.8	0.000248	0.00200	0.2000	0.00189	110	75 - 125				

Report Date: 2/17/2016 Page 26 of 34



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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1602071
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1602071-001CMS		Date Analyzed:	02/15/2016 1226h										
Test Code: 200.8-W		Date Prepared:	02/08/2016 1303h										
Selenium	0.298	mg/L	E200.8	0.000612	0.00200	0.2000	0.0828	107	75 - 125				
Thallium	0.173	mg/L	E200.8	0.00110	0.00200	0.2000	0	86.5	75 - 125				
Lab Sample ID: 1602072-002CMS		Date Analyzed:	02/15/2016 1319h										
Test Code: 200.8-W		Date Prepared:	02/08/2016 1303h										
Antimony	0.176	mg/L	E200.8	0.000854	0.00200	0.2000	0	88.0	75 - 125				
Arsenic	0.204	mg/L	E200.8	0.000706	0.00200	0.2000	0	102	75 - 125				
Barium	0.201	mg/L	E200.8	0.000788	0.00200	0.2000	0	100	75 - 125				
Beryllium	0.208	mg/L	E200.8	0.000960	0.00200	0.2000	0	104	75 - 125				
Cadmium	0.195	mg/L	E200.8	0.0000364	0.000500	0.2000	0	97.6	75 - 125				
Chromium	0.193	mg/L	E200.8	0.000650	0.00200	0.2000	0	96.7	75 - 125				
Cobalt	0.189	mg/L	E200.8	0.0000998	0.00400	0.2000	0	94.5	75 - 125				
Lead	0.191	mg/L	E200.8	0.000818	0.00200	0.2000	0	95.4	75 - 125				
Molybdenum	0.197	mg/L	E200.8	0.000248	0.00200	0.2000	0	98.6	75 - 125				
Selenium	0.202	mg/L	E200.8	0.000612	0.00200	0.2000	0	101	75 - 125				
Thallium	0.189	mg/L	E200.8	0.00110	0.00200	0.2000	0	94.4	75 - 125				
Lab Sample ID: 1602071-001CMS		Date Analyzed:	02/05/2016 856h										
Test Code: HG-DW-245.1		Date Prepared:	02/04/2016 1600h										
Mercury	0.00272	mg/L	E245.1	0.00000559	0.000150	0.003330	0	81.5	80 - 120				

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1602071
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1602071-001CMSD													
Date Analyzed:		02/15/2016 1249h											
Test Code:		200.7-W											
Date Prepared:		02/08/2016 1303h											
Calcium	507	mg/L	E200.7	0.643	100	10.00	493	136	70 - 130	493	2.71	20	2
Magnesium	708	mg/L	E200.7	4.57	100	10.00	695	125	70 - 130	685	3.32	20	
Lab Sample ID: 1602071-001CMSD													
Date Analyzed:		02/15/2016 1408h											
Test Code:		200.7-W											
Date Prepared:		02/08/2016 1303h											
Sodium	6,150	mg/L	E200.7	14.2	1,000	10.00	5980	1,730	70 - 130	5990	2.60	20	2
Lab Sample ID: 1602072-002CMSD													
Date Analyzed:		02/15/2016 1442h											
Test Code:		200.7-W											
Date Prepared:		02/08/2016 1303h											
Boron	1.06	mg/L	E200.7	0.0260	0.500	1.000	0	106	70 - 130	1.04	2.29	20	
Calcium	10.3	mg/L	E200.7	0.00643	1.00	10.00	0	103	70 - 130	10.1	2.69	20	
Magnesium	10.2	mg/L	E200.7	0.0457	1.00	10.00	0	102	70 - 130	10.1	1.56	20	
Sodium	10.9	mg/L	E200.7	0.0142	1.00	10.00	0.443	105	70 - 130	10.6	2.79	20	
Lab Sample ID: 1602071-001CMSD													
Date Analyzed:		02/15/2016 1504h											
Test Code:		200.7-W											
Date Prepared:		02/08/2016 1303h											
Boron	15.2	mg/L	E200.7	0.260	5.00	1.000	13.6	157	70 - 130	23.5	42.8	20	2
Lab Sample ID: 1602071-001CMSD													
Date Analyzed:		02/15/2016 1229h											
Test Code:		200.8-W											
Date Prepared:		02/08/2016 1303h											
Antimony	0.204	mg/L	E200.8	0.000854	0.00200	0.2000	0.0015	101	75 - 125	0.204	0.197	20	
Arsenic	0.230	mg/L	E200.8	0.000706	0.00200	0.2000	0	115	75 - 125	0.226	1.83	20	
Barium	0.209	mg/L	E200.8	0.000788	0.00200	0.2000	0.00932	100	75 - 125	0.209	0.353	20	
Beryllium	0.197	mg/L	E200.8	0.000960	0.00200	0.2000	0	98.3	75 - 125	0.195	0.721	20	
Cadmium	0.189	mg/L	E200.8	0.0000364	0.000500	0.2000	0.0000576	94.6	75 - 125	0.188	0.739	20	
Chromium	0.186	mg/L	E200.8	0.000650	0.00200	0.2000	0	93.1	75 - 125	0.186	0.120	20	
Cobalt	0.196	mg/L	E200.8	0.0000998	0.00400	0.2000	0.0191	88.6	75 - 125	0.197	0.175	20	
Lead	0.177	mg/L	E200.8	0.000818	0.00200	0.2000	0	88.6	75 - 125	0.176	0.777	20	
Molybdenum	0.223	mg/L	E200.8	0.000248	0.00200	0.2000	0.00189	111	75 - 125	0.221	1.00	20	

Report Date: 2/17/2016 Page 28 of 34



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Laboratory Director

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QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1602071
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1602071-001CMSD													
Date Analyzed:		02/15/2016 1229h											
Test Code:		200.8-W											
Date Prepared:		02/08/2016 1303h											
Selenium	0.301	mg/L	E200.8	0.000612	0.00200	0.2000	0.0828	109	75 - 125	0.298	1.17	20	
Thallium	0.175	mg/L	E200.8	0.00110	0.00200	0.2000	0	87.4	75 - 125	0.173	1.05	20	
Lab Sample ID: 1602072-002CMSD													
Date Analyzed:		02/15/2016 1332h											
Test Code:		200.8-W											
Date Prepared:		02/08/2016 1303h											
Antimony	0.179	mg/L	E200.8	0.000854	0.00200	0.2000	0	89.6	75 - 125	0.176	1.81	20	
Arsenic	0.204	mg/L	E200.8	0.000706	0.00200	0.2000	0	102	75 - 125	0.204	0.0122	20	
Barium	0.203	mg/L	E200.8	0.000788	0.00200	0.2000	0	102	75 - 125	0.201	1.12	20	
Cadmium	0.197	mg/L	E200.8	0.0000364	0.000500	0.2000	0	98.4	75 - 125	0.195	0.828	20	
Chromium	0.194	mg/L	E200.8	0.000650	0.00200	0.2000	0	97.2	75 - 125	0.193	0.528	20	
Cobalt	0.189	mg/L	E200.8	0.0000998	0.00400	0.2000	0	94.5	75 - 125	0.189	0.0531	20	
Lead	0.195	mg/L	E200.8	0.000818	0.00200	0.2000	0	97.6	75 - 125	0.191	2.27	20	
Molybdenum	0.199	mg/L	E200.8	0.000248	0.00200	0.2000	0	99.6	75 - 125	0.197	1.02	20	
Selenium	0.205	mg/L	E200.8	0.000612	0.00200	0.2000	0	103	75 - 125	0.202	1.41	20	
Thallium	0.193	mg/L	E200.8	0.00110	0.00200	0.2000	0	96.3	75 - 125	0.189	2.09	20	
Lab Sample ID: 1602072-002CMSD													
Date Analyzed:		02/09/2016 1756h											
Test Code:		200.8-W											
Date Prepared:		02/08/2016 1303h											
Beryllium	0.221	mg/L	E200.8	0.000960	0.00200	0.2000	0	111	75 - 125	0.208	6.40	20	
Lab Sample ID: 1602071-001CMSD													
Date Analyzed:		02/05/2016 858h											
Test Code:		HG-DW-245.1											
Date Prepared:		02/04/2016 1600h											
Mercury	0.00280	mg/L	E245.1	0.00000559	0.000150	0.003330	0	84.0	80 - 120	0.00272	2.96	20	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1602071
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1602071-010ADUP Date Analyzed: 02/03/2016 1756h													
Test Code: PH-4500H+B													
pH @ 25° C	7.53	pH Units	SM4500-H+B	1.00	1.00					7.56	0.398	5	H
Lab Sample ID: 1602072-006ADUP Date Analyzed: 02/03/2016 1756h													
Test Code: PH-4500H+B													
pH @ 25° C	7.66	pH Units	SM4500-H+B	1.00	1.00					7.65	0.131	5	
Lab Sample ID: 1602071-001ADUP Date Analyzed: 02/05/2016 1245h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	20,000	mg/L	SM2540C	87.7	100					20100	0.598	5	
Lab Sample ID: 1602072-001ADUP Date Analyzed: 02/05/2016 1245h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	4,400	mg/L	SM2540C	87.7	100					4300	2.30	5	

H - Sample was received outside of the holding time.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1602071
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS Date Analyzed: 02/09/2016 1524h													
Test Code: 300.0-W													
Chloride	5.15	mg/L	E300.0	0.00516	0.100	5.000	0	103	90 - 110				
Fluoride	4.99	mg/L	E300.0	0.0139	0.100	5.000	0	99.8	90 - 110				
Sulfate	5.22	mg/L	E300.0	0.0201	0.750	5.000	0	104	90 - 110				
Lab Sample ID: LCS-R87185 Date Analyzed: 02/04/2016 839h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	50,000	mg/L	SM2320B	1.86	10.0	50,000	0	100	90 - 110				
Lab Sample ID: LCS-R87297 Date Analyzed: 02/09/2016 1744h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	0.975	mg/L	E353.2	0.00833	0.0100	1.000	0	97.5	90 - 110				
Lab Sample ID: LCS-R87172 Date Analyzed: 02/03/2016 1756h													
Test Code: PH-4500H+B													
pH @ 25° C	8.89	pH Units	SM4500-H+B	1.00	1.00	9.000	0	98.8	98 - 102				
Lab Sample ID: LCS-R87250 Date Analyzed: 02/05/2016 1245h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	192	mg/L	SM2540C	8.77	10.0	205.0	0	93.7	80 - 120				



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Jose Rocha
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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1602071
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB Date Analyzed: 02/09/2016 1507h													
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.00516	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.0139	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0201	0.750								
Lab Sample ID: MB-R87185 Date Analyzed: 02/04/2016 839h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.86	10.0								
Bicarbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.86	10.0								
Carbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.86	10.0								
Lab Sample ID: MB-R87297 Date Analyzed: 02/09/2016 1743h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID: MB-R87250 Date Analyzed: 02/05/2016 1245h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	8.77	10.0								

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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1602071
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1602071-001AMS Date Analyzed: 02/09/2016 1558h													
Test Code: 300.0-W													
Chloride	9,090	mg/L	E300.0	5.16	100	5,000	4060	101	90 - 110				
Fluoride	5,040	mg/L	E300.0	13.9	100	5,000	0	101	90 - 110				
Sulfate	13,600	mg/L	E300.0	20.1	750	5,000	8800	95.7	90 - 110				
Lab Sample ID: 1602072-001AMS Date Analyzed: 02/09/2016 1937h													
Test Code: 300.0-W													
Chloride	6,830	mg/L	E300.0	5.16	100	5,000	1780	101	90 - 110				
Fluoride	5,040	mg/L	E300.0	13.9	100	5,000	0	101	90 - 110				
Sulfate	5,760	mg/L	E300.0	20.1	750	5,000	796	99.3	90 - 110				
Lab Sample ID: 1602071-001AMS Date Analyzed: 02/04/2016 839h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	737	mg/L	SM2320B	1.86	10.0	250.0	491	98.3	80 - 120				
Lab Sample ID: 1602071-011AMS Date Analyzed: 02/04/2016 839h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	51.0	mg/L	SM2320B	1.86	10.0	50.00	0	102	80 - 120				
Lab Sample ID: 1602072-001BMS Date Analyzed: 02/09/2016 1827h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.12	mg/L	E353.2	0.00833	0.0100	1.000	0.151	96.5	90 - 110				
Lab Sample ID: 1602071-001BMS Date Analyzed: 02/09/2016 1856h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	79.8	mg/L	E353.2	0.417	0.500	50.00	26.2	107	90 - 110				
Lab Sample ID: 1602071-006BMS Date Analyzed: 02/09/2016 1900h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	34.4	mg/L	E353.2	0.167	0.200	20.00	13.6	104	90 - 110				

Report Date: 2/17/2016 Page 33 of 34



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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1602071
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1602071-001AMSD Date Analyzed: 02/09/2016 1615h													
Test Code: 300.0-W													
Chloride	9,210	mg/L	E300.0	5.16	100	5,000	4060	103	90 - 110	9090	1.33	20	
Fluoride	5,220	mg/L	E300.0	13.9	100	5,000	0	104	90 - 110	5040	3.59	20	
Sulfate	13,600	mg/L	E300.0	20.1	750	5,000	8800	96.7	90 - 110	13600	0.373	20	
Lab Sample ID: 1602072-001AMSD Date Analyzed: 02/09/2016 1954h													
Test Code: 300.0-W													
Chloride	6,840	mg/L	E300.0	5.16	100	5,000	1780	101	90 - 110	6830	0.180	20	
Fluoride	5,070	mg/L	E300.0	13.9	100	5,000	0	101	90 - 110	5040	0.542	20	
Sulfate	5,850	mg/L	E300.0	20.1	750	5,000	796	101	90 - 110	5760	1.48	20	
Lab Sample ID: 1602071-001AMSD Date Analyzed: 02/04/2016 839h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	742	mg/L	SM2320B	1.86	10.0	250.0	491	100	80 - 120	737	0.622	10	
Lab Sample ID: 1602071-011AMSD Date Analyzed: 02/04/2016 839h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	50.1	mg/L	SM2320B	1.86	10.0	50.00	0	100	80 - 120	51	1.78	10	
Lab Sample ID: 1602072-001BMSD Date Analyzed: 02/09/2016 1828h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.10	mg/L	E353.2	0.00833	0.0100	1.000	0.151	95.2	90 - 110	1.12	1.17	10	
Lab Sample ID: 1602071-001BMSD Date Analyzed: 02/09/2016 1858h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	78.0	mg/L	E353.2	0.417	0.500	50.00	26.2	104	90 - 110	79.8	2.18	10	
Lab Sample ID: 1602071-006BMSD Date Analyzed: 02/09/2016 1901h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	34.7	mg/L	E353.2	0.167	0.200	20.00	13.6	106	90 - 110	34.4	0.810	10	

Report Date: 2/17/2016 Page 34 of 34

WORK ORDER Summary

Work Order: **1602071**

Page 1 of 5

Client: PacifiCorp

Due Date: 2/17/2016

Client ID: PAC900

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

QC Level: II+

WO Type: Project

Comments: QC2+. Include EDD. Footnote report, pH received outside of hold. RADS sent to AZC. Cc: Report to Laura @ Water and Environmental Technologies.;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1602071-001A	ELF-6	2/2/2016 0945h	2/3/2016 1548h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1602071-001B				NO2/NO3-W-353.2			DF-NO2/NO3	
1602071-001C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1602071-001D				OUTSIDE LAB			ACZ	2
1602071-002A	ELF-5	2/2/2016 1055h	2/3/2016 1548h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1602071-002B				NO2/NO3-W-353.2			DF-NO2/NO3	
1602071-002C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1602071-002D				OUTSIDE LAB			ACZ	2

WORK ORDER Summary

Work Order: **1602071**

Page 2 of 5

Client: PacifiCorp

Due Date: 2/17/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1602071-003A	ELF-4	2/2/2016 1200h	2/3/2016 1548h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1602071-003B				NO2/NO3-W-353.2			DF-NO2/NO3	
1602071-003C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1602071-003D				OUTSIDE LAB			ACZ	2
1602071-004A	ELF-7	2/2/2016 1310h	2/3/2016 1548h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1602071-004B				NO2/NO3-W-353.2			DF-NO2/NO3	
1602071-004C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1602071-004D				OUTSIDE LAB			ACZ	2
1602071-005A	ELF-9	2/2/2016 1420h	2/3/2016 1548h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	

WORK ORDER Summary

Work Order: **1602071** Page 3 of 5

Client: PacifiCorp

Due Date: 2/17/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1602071-005B	ELF-9	2/2/2016 1420h	2/3/2016 1548h	NO2/NO3-W-353.2	Aqueous		DF-NO2/NO3	1
1602071-005C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1602071-005D				OUTSIDE LAB			ACZ	2
1602071-006A	ELF-2	2/2/2016 1525h	2/3/2016 1548h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1602071-006B				NO2/NO3-W-353.2			DF-NO2/NO3	
1602071-006C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1602071-006D				OUTSIDE LAB			ACZ	2
1602071-007A	ELF-2 DUP	2/2/2016 1525h	2/3/2016 1548h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1602071-007B				NO2/NO3-W-353.2			DF-NO2/NO3	
1602071-007C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				

WORK ORDER Summary

Work Order: **1602071**

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Client: PacifiCorp

Due Date: 2/17/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1602071-007C	ELF-2 DUP	2/2/2016 1525h	2/3/2016 1548h	200.8-W-PR	Aqueous		DF-Metals	1
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1602071-007D				OUTSIDE LAB			ACZ	2
1602071-008A	ELF-11	2/2/2016 1000h	2/3/2016 1548h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1602071-008B				NO2/NO3-W-353.2			DF-NO2/NO3	
1602071-008C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1602071-008D				OUTSIDE LAB			ACZ	2
1602071-009A	ELF-8	2/2/2016 1200h	2/3/2016 1548h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1602071-009B				NO2/NO3-W-353.2			DF-NO2/NO3	
1602071-009C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1602071-009D				OUTSIDE LAB			ACZ	2
1602071-010A	ELF-6 EB	2/2/2016 0945h	2/3/2016 1548h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				

WORK ORDER Summary

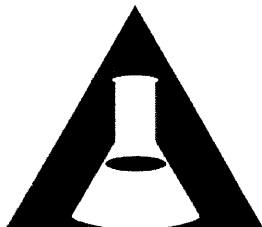
Work Order: **1602071**

Page 5 of 5

Client: PacifiCorp

Due Date: 2/17/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1602071-010A	ELF-6 EB	2/2/2016 0945h	2/3/2016 1548h	ALK-W-2320B	Aqueous		DF-WC	1
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1602071-010B				NO2/NO3-W-353.2			DF-NO2/NO3	
1602071-010C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1602071-010D				OUTSIDE LAB			ACZ	2
1602071-011A	ELF-7 FB	2/2/2016 1510h	2/3/2016 1548h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1602071-011B				NO2/NO3-W-353.2			DF-NO2/NO3	
1602071-011C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1602071-011D				OUTSIDE LAB			ACZ	2



American West Analytical Laboratories

3440 S. 700 W. Salt Lake City, UT 84119
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Fax # (801) 263-8687 Email awal@awal-labs.com

www.awal-labs.com

CHAIN OF CUSTODY

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

1602071

AWAL Lab Sample Set #

Page 1 of 3

Due Date:

2/17/16

QC Level:

1 2 2+ 3 3+

Turn Around Time:

1 2 3 4 5 Std

Unless other arrangements have been made,
signed reports will be emailed by 5:00
pm on the day they are due.

Laboratory Use Only

Samples Were:

- 1 Shipped or hand delivered
- 2 Ambient or Chilled
- 3 Temperature 2.8 °C
- 4 Received Broken/Leaking (Improperly Sealed) Y N
- 5 Properly Preserved Y N Checked at bench

6 Received Within Holding Times

DB 2/1/16
p/t out of hold

COC Tape Was:

- 1 Present on Outer Package Y N NA
- 2 Unbroken on Outer Package Y N NA
- 3 Present on Sample Y N NA
- 4 Unbroken on Sample Y N NA

Discrepancies Between Sample Labels and COC Record?

Y N

- ☐ Report down to the MDL
☒ Include EDD: per Laura Watson (DB 2/4/16)
☐ Lab Filter for:
☐ Field Filtered For:

For Compliance With:

- ☐ NELAP
☐ RCRA
☐ CWA
☐ SDWA
☐ ELAP / A2LA
☐ NLLAP
☐ Non-Compliance
☐ Other:

Known Hazards
&
Sample Comments

Sample ID:

Date Sampled

Time Sampled

of Containers

Sample Matrix

TDS, pH, Alkalinity

Anions

Fluoride

Total Metals

Total Mercury

Nitrogen, Nitrite + Nitrate

Radium 226 + Radium 228

1	ELF-6	2/2/16	945	5	W	X	X	X	X	X	X	X					
2	ELF-5	2/2/16	1055	5	W	X	X	X	X	X	X	X					
3	ELF-4	2/2/16	1200	5	W	X	X	X	X	X	X	X					
4	ELF-7	2/2/16	1310	5	W	X	X	X	X	X	X	X					
5	ELF-9	2/2/16	1420	5	W	X	X	X	X	X	X	X					
6	ELF-2	2/2/16	1525	5	W	X	X	X	X	X	X	X					
7	ELF-2 DUP	2/2/16	1925	5	W	X	X	X	X	X	X	X					
8				5	W	X	X	X	X	X	X	X					
9				5	W	X	X	X	X	X	X	X					
10				5	W	X	X	X	X	X	X	X					
11				5	W	X	X	X	X	X	X	X					
12				5	W	X	X	X	X	X	X	X					

Relinquished by: *Mike Shirley*

Signature: *Mike Shirley*

Print Name: *Mike Shirley*

Relinquished by: *Denise Bruun*

Signature: *Denise Bruun*

Print Name: *Denise Bruun*

Relinquished by: *Denise Bruun*

Signature: *Denise Bruun*

Print Name: *Denise Bruun*

Date: 2/3/2016

Time: 1548

Date:

Time:

Date:

Time:

Date:

Time:

Received by: *Denise Bruun*

Signature: *Denise Bruun*

Print Name: *Denise Bruun*

Received by: *Denise Bruun*

Signature: *Denise Bruun*

Print Name: *Denise Bruun*

Received by: *Denise Bruun*

Signature: *Denise Bruun*

Print Name: *Denise Bruun*

Date: 2/3/16

Time: 1548

Date:

Time:

Date:

Time:

Date:

Time:

Special Instructions:

cc: Laura Watson @
Water & Environmental
Technologies

**American West
Analytical Laboratories**

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CHAIN OF CUSTODY

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1607071

AWAL Lab Sample Set #
Page 2 of 2

Due Date: 2/17/16

Client: **PacifiCorp**

Address:

Contact: **Jeff Tucker**

Phone #: _____ Cell #: _____

Email:

Project Name: **Hunter CCR Sampling**Project #: **PERCM52**

PO #

Sampler Name:

[illegible]

QC Level:		Turn Around Time:								Due Date:	
1 2 2+ 3 3+		1 2 3 4 5 Std								2/17/16	
# of Containers	Sample Matrix	TDS, pH, Alkalinity	Anions	Fluoride	Total Metals	Total Mercury	Nitrogen, Nitrite + Nitrate	Radium 226 + Radium 228			
5	W	X	X	X	X	X	X	X			
5	W	X	X	X	X	X	X	X			
5	W	X	X	X	X	X	X	X			
5	W	X	X	X	X	X	X	X			
5	W	X	X	X	X	X	X	X			
5	W	X	X	X	X	X	X	X			
5	W	X	X	X	X	X	X	X			
5	W	X	X	X	X	X	X	X			
5	W	X	X	X	X	X	X	X			
5	W	X	X	X	X	X	X	X			
5	W	X	X	X	X	X	X	X			
5	W	X	X	X	X	X	X	X			
5	W	X	X	X	X	X	X	X			

Laboratory Use Only

Samples Were:

- Shipped or Hand delivered
- Ambient or Chilled
- Temperature 2.8 °C
- Received Broken/Leaking (Improperly Sealed)
Y N
- Properly Preserved
Y N Checked at bench
- Received Within Holding Times
DB 2/3/16 N

COC Tape Was:

- Present on Outer Package
Y N NA
- Unbroken on Outer Package
Y N NA
- Present on Sample
Y N NA
- Unbroken on Sample
Y N NA

Discrepancies Between Sample Labels and COC Record?
Y N

Relinquished by:		Date:	Received by:	Date:	Special Instructions:
Signature			Signature		
Mike Shirley		1548	Denise Brown	1548	
Print Name:		Time:	Print Name:	Time:	
Relinquished by:		Date:	Received by:	Date:	
Signature			Signature		
Print Name:		Time:	Print Name:	Time:	
Relinquished by:		Date:	Received by:	Date:	
Signature			Signature		
Print Name:		Time:	Print Name:	Time:	
Relinquished by:		Date:	Received by:	Date:	
Signature			Signature		
Print Name:		Time:	Print Name:	Time:	

**American West
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CHAIN OF CUSTODY

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160207

AWAL Lab Sample Set #
Page 3 of 3

Due Date:

2/17/16

Laboratory Use Only

Samples Were:

- 1 Shipped by hand delivered
- 2 Ambient of Chilled
- 3 Temperature 2.8 °C
- 4 Received Broken/Leaking
(Improperly Sealed) Y
- 5 Properly Preserved Y N Checked at bench
- 6 Received Within
Holding Times Y N
- DB 2/3/10

COC Tape Was:

- | | | | | |
|---|---------------------------|---|---|----|
| 1 | Present on Outer Package | Y | N | NA |
| 2 | Unbroken on Outer Package | Y | N | NA |
| 3 | Present on Sample | Y | N | NA |
| 4 | Unbroken on Sample | Y | N | NA |

Discrepancies Between Sample Labels and COC Record?

A diagram of a cell. A dashed line is labeled 'Y' and a solid line is labeled 'N'.

Unless other arrangements have been made,
signed reports will be emailed by **5:00**
pm on the day they are due.

- ☐ Report down to the MDL
☒ Include EDD:
☐ Lab Filter for:

☐ Field Filtered For:

For Compliance With:

- ☐ NELAP
☐ RCRA
☐ CWA
☐ SDWA
☐ ELAP / A2LA
☐ NLLAP
☐ Non-Compliance
☐ Other:

Known Hazards
&
Sample Comments

[illegible]

Water & Environmental Technologies

Analyte Method Reporting Limit	Method	Reporting Limit	Price/sample ¹
pH	SM4500-H+ B	1.0 s.u.	\$11.70
Solids, Total Dissolved	SM2540 C	10 mg/L	\$13.50
Alkalinity, Total as CaCO ₃	SM2320 B	10 mg/L	\$17.10
Bicarbonate as HCO ₃	SM2320 B	10 mg/L	\$0.00
Carbonate as CO ₃	SM2320 B	10 mg/L	\$0.00
Chloride	E300.0	0.1 mg/L	\$11.70
Sulfate	E300.0	0.75 mg/L	\$11.70
Fluoride	A4500-F C/E300.0	0.1 mg/L	\$12.60
Nitrogen, Nitrate+Nitrite	E353.2	0.01 mg/L	\$11.70
Antimony	E200.8	0.002 mg/L	\$9.00
Arsenic	E200.8	0.002 mg/L	\$9.00
Barium	E200.8	0.002 mg/L	\$9.00
Beryllium	E200.8	0.002 mg/L	\$9.00
Boron	E200.7	0.5 mg/L	\$9.00
Cadmium	E200.8	0.0005 mg/L	\$9.00
Calcium	E200.7	1.0 mg/L	\$9.00
Chromium	E200.8	0.002 mg/L	\$9.00
Cobalt	E200.8	0.004 mg/L	\$9.00
Lead	E200.8	0.002 mg/L	\$9.00
Lithium	E200.7	0.1 mg/L	\$9.00
Magnesium	E200.7	1.0 mg/L	\$9.00
Molybdenum	E200.8	0.002 mg/L	\$9.00
Selenium	E200.8	0.002 mg/L	\$9.00
Sodium	E200.7	1.0 mg/L	\$9.00
Thallium	E200.8	0.002 mg/L	\$9.00
Mercury, Total	E245.1	0.00015 mg/L	\$25.20
Radium 226 + Radium 228 ²	M903.1 + M904.0		\$182.16
Radium 226, Total ²	M903.1	0.4 pCi/L	\$0.00
Radium 228, Total ²	M904.0	1.5 pCi/L	\$0.00
Metals digestion/sample			\$18.00
Total/sample - Not including shipping			\$459.36
Monthly Price for 17 samples - Not including shipping			\$7,809.12
Total Project Cost (20 months) - Not including shipping			\$156,182.40

¹ - Includes 10% discount for 10 or more samples/delivery.

² - UPS shipping costs to Colorado will be applied to these analyses.

Radium analyses will be subcontracted to ACZ Labs in CO.

Lab Set ID: 1602071

Preservation Check Sheet

Sample Set Extension and pH

[illegible]

Procedure:

- 1) Pour a small amount of sample in the sample lid
- 2) Pour sample from Lid gently over wide range pH paper
- 3) **Do Not** dip the pH paper in the sample bottle or lid
- 4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
- 5) Flag COC, notify client if requested
- 6) Place client conversation on COC
- 7) Samples may be adjusted

Frequency:

All samples requiring preservation

- * The sample required additional preservative upon receipt.
- + The sample was received unpreserved.
- ▲ The sample was received unpreserved and therefore preserved upon receipt.
- # The sample pH was unadjustable to a pH < 2 due to the sample matrix.
- The sample pH was unadjustable to a pH > ____ due to the sample matrix interference.

Lab Sample Set

Page 1 of 1

QC Level: **2+**

Turn Around Time

Standard

denise@awal-labs.com

Special Instructions: Include project name and PO# on final report and invoice. Email results to both Elona and Denise.

Relinquished by: <i>Signature</i>	Date:	Received by: <i>Signature</i>	Date:
<i>Print Name</i>	Time:	<i>Print Name</i>	Time:
Denise Bruun	2/4/16 12:30		

Relinquished by: <i>Signature</i>	Date:	Received by: <i>Signature</i>	Date:
<i>Print Name</i>	Time:	<i>Print Name</i>	Time:

2Ybr-řrB& ,1&01'

@//!r00%

(Dnřř) řE* řr+

~K YrÖř nkA YBÖ nř BÖř Bř bB

3440KS.1700KA .

Sř Bř kYKÖE,UT#84119

cc%\$ YnÖYAr-- n

AÖ00%

FEnnKT- mYr

~K YrÖř nkA YBÖ nř BÖř Bř bB

3440KS.1700KA .

Sř Bř kYKÖE,UT#84119

rl "Yc0\$ %1' 0&071

~CZk rl "Yc0\$ %F&88' 1

(Dnřř) řE* řr+%

(ncDBY+ř rYK Yř nř BÖř Bř bB- Bk! rK/ DB1B- bK ÖY+KÖ CZFř b! řř CrÖB,nc.10 CZ1 nř2Ybr-řrB08,k &01' .KT, Öř! "Yc0, ř BbYYnř BÖnY+KÖ CZ4B/rl "Yc0n- KbYr,F&88' 1.k Dř BřYr.YrYncYK Ön- KbYrKÖř B -GrYKÖ5- ÖÖB.

~Bř nř BÖYBř YrYr Yr! rKY+ř cc! r+Ö3KÖ CZ4B6- ř BÖB- řř ncYk Dn.kT, YrYncDBY+řYB- BkYDÖK nBÖK ÇYK K/ DBrYcYÖY+ř n+YrF&88' 1.k ř c, BřYcÖnK .KÖYrY/! rÖ, ř BbYYnřY7Ö* Y+ř n+ř//rl 7Y+rbÖYK ř//rl/ rÖÖFř b! ř CrBS-/ Yr7Ö r,k řř 15- ř BÖ+rb- bBÖÖ.

(8cY/ Ö Bn! Ö+,KÖYKÖBÖYB- Bk! rK YK YC! +Bř n+ř řř K YCrBÖÖ+K nk CZ4Bc- rrYnÖ9 (F~CtcYrÖÖř Ök DÖrKÖ ~CZ1K YVÖ Bř BřY5- ÖYK YnÖK .19 (F~C.

T, ÖYrY/! rÖB, ř BbYk- Bř+ř rK! / Ö+K nBÖKÖYnÖÖ E K CZKÖn! ÖYB! nBÖÖk! rK YK! nBÖY5- YncYBř rÖÖ3k .rl K KÖYk- BřK .Kř ř rÖÖY/! rC

~Bř K/ DBř n+rb- b;Bř K/ DBř B! cÖÖ+K ÖKÖ Öř! "Yc0 ÖbYk+Ö! Bř+K .K .Örk< řrc, 1&7,1&01' .K#K Yk Bř K/ DBř rYk+YCrK ÖY+KÖYk řř r+! - Bř ++ÖÖnř Bc, ř r3YBř// Bk! rK+Ö! Bř BÖE Öř Bř>11 Bř K/ D1K#B - k *! - BÖÖYK YBř K/ DBKÖYk YBÖn3YrKř nk CZ4BÖÖ+K! BÖB rKÖYrYGrnY+,K Dř BřK! nCÖÖB - rK rl "Yc0 < ř nř 3YrK rK- BÖK YrSYr7ÖYK@/ rYBnÖÖÖYk! rK- rC YrY+YÖ Bř n+ř B! cÖÖ+K! BÖB CZrYÖÖB nř BÖř B řř* kř CtrY/! rÖk! rKÖnEYřrB.

#B - k ř 7Yr nB5- YBÖnB rK ÇYrYnY+B,K Dř BřK! nCÖÖB - rK rl "Yc0< ř nř 3Yr.

Sue Webber

Sue Webber has reviewed and approved this report.



American West Analytical Labs

ProjAct ID 1602071

Öař pIA ID EFF-6

FocatorD

~KV Öař pIA ID **L28861-01**

CatA Öař pIA D 02/02/16 9:45

CatA! AcAi" A D 02/08/16

Öař pIA MatrixD Ground Water

! a i#ř 226

PrAp MAT' o D

M\$0%8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř 226	02)2()16 002		0&6	0&2	0&1	pKi)F		*ř+

! a i#ř 22,

PrAp MAT' o D

M\$0(8)

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř 22,	02)2-)16 1%26		1&	0&,	0&	pKi)F		jc

American West Analytical Labs

ProjAct ID 16020 1

Öař přA ID EFF-5

FocatorD

~KV Öař přA ID **L28861-02**

CatA Öař přA D 02/02/16 10:55

CatA " AcAi#A D 02/08/16

Öař přA MatrixD Ground Water

" a! i\$ř 226

PrAp MAT(o! D

M%0&'1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 226	02)2,)16 00,		0'51	0'1&	0'0%	pKi)F		*ř+

" a! i\$ř 22-

PrAp MAT(o! D

M%0, '0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 22-	02)25)16 1&26		1'1	0'6	0'56	pKi)F		! jc

American West Analytical Labs

ProjAct ID 16020 1

Öař pŕA ID EFF-4

FocatorD

ŕKv Öař pŕA ID **L28861-03**

CatA Öař pŕA D 02/02/16 12:00

CatA " AcAi#A D 02/08/16

Öař pŕA MatrixD Ground Water

" a! i\$ř 226

PrAp MAT(o! D

M%0&'1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 226	02)24)16 00,		1'1	0'8%	0'6%	pKi)F		*ř+

" a! i\$ř 22-

PrAp MAT(o! D

M%04'0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 22-	02)2,)16 14D-		2',	0' 6	0'64	pKi)F		! jc

American West Analytical Labs

Project ID 1602071

Order # EFF-7

Detector

Order # **L28861-04**

Order Date 02/02/16 13:10

Order # AcAi" A D 02/08/16

Order # Matrix Ground Water

Order # 226

Project # 0

MSD

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order # 226	02-02-16 00:07		0.8	0.8	0.8	pCi/L		, k

Order # 22

Project # 0

MSD

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order # 22	02-02-16 1(D)		0.8	0.8	0.8	pCi/L		jc

American West Analytical Labs

ProjAct ID 16020 1

Öař pŕA ID EFF-9

FocatorD

ŕKv Öař pŕA ID **L28861-05**

CatA Öař pŕA D 02/02/16 14:20

CatA " AcAi#A D 02/08/16

Öař pŕA MatrixD Ground Water

" a! i\$ř 226

PrAp MAT' o! D

M90%~~8~~

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 226	02)2,)16 00-		0&	0&9	0&1	pKi)F		*ŕ+

" a! i\$ř 22-

PrAp MAT' o! D

M90, &

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 22-	02)2()16 1, 0-		0&	0&2	0&2	pKi)F		! jc

American West Analytical Labs

ProjAct ID 1602071

Öař pŕA ID EFF-2

FocatorD

ŕKv Öař pŕA ID **L28861-06**

CatA Öař pŕA D 02/02/16 15:25

CatA! AcAi" A D 02/08/16

Öař pŕA MatrixD Ground Water

! a i#ř 226

PrAp MAT' o D

M\$0%8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř 226	02)2,)16 0D0		0&2	0&6	0&%	pKi)F		*ř+

! a i#ř 22-

PrAp MAT' o D

M\$0, 8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř 22-	02)2()16 1, D-		0&%	0&\$	0&7	pKi)F		jc

American West Analytical Labs

ProjAct ID 16020 1
 Čař přA ID EFF-2 CUP
 FocatorD

~KV Čař přA ID L28861-07
 CatA Čař přA D 02/02/16 15:25
 CatA " AcAi#A D 02/08/16
 Čař přA MatrixD Ground Water

" a! i\$ř 226
 M%0&'1

PrAp MAT(o! D

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 226	02*2) *16 001		0') 2	0'12	0'2)	pKi*F		+k

" a! i\$ř 22-
 M%0)'0

PrAp MAT(o! D

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 22-	02*2. *16 1) D-		1'.	0' 1	0'6.	pKi*F		! jc

American West Analytical Labs

ProjAct ID 1602071

Order ID EFF-11

FocutorD

Order ID L28861-08

CatA Order ID 02/02/16 10:00

CatA! AcAi" A D 02/08/16

Order ID MatrixD Ground Water

Order ID 226

PrAp MAT' o D

M\$0%

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order ID 226	02/02/16 00:02		0.2	0.2	0.2	pKi)F		*Rt

Order ID 22,

PrAp MAT' o D

M\$0(8)

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order ID 22,	02/02/16 1(0,		1.2	0.2,	0.2	pKi)F		jc

American West Analytical Labs

ProjAct ID 16020 1

Öař pŕA ID EFF-8

FocatorD

ŕKŷ Öař pŕA ID **L28861-09**

CatA Öař pŕA D 02/02/16 12:00

CatA " AcAi#A D 02/08/16

Öař pŕA MatrixD Ground Water

" a! i\$ř 226

PrAp MAT(o! D

M%0&'1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 226	02*2) *16 0D)		0'%8	0'18	0'2)	pKi*F		+ř

" a! i\$ř 228

PrAp MAT(o! D

M%0)'0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 228	02*2- *16 1) D8		1	0'61	0'-	pKi*F		! jc

American West Analytical Labs

ProjAct ID 16020 1
 Čař pŕA ID EFF-6 EB
 FocatorD

ŦKŸ Čař pŕA ID **L28861-10**
 CatA Čař pŕA D 02/02/16 9:45
 CatA " AcAi#A D 02/08/16
 Čař pŕA MatrixD Ground Water

" a! i\$ř 226
 M%0&'1

PrAp MAT(o! D

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 226	02*2- *16 0D.		0'0)	0'12	0'1)	pKi*F		+ř

" a! i\$ř 22)
 M%0- '0

PrAp MAT(o! D

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 22)	02*2. *16 1- D)		0') &	0'6-	0'62	pKi*F		! jc

American West Analytical Labs

ProjAct ID 160 071
 Œař pŒA ID EFF-7 FB
 FocatorD

ŒKŸ Œař pŒA ID **L28861-11**
 CatA Œař pŒA ID 02/02/16 15:10
 CatA " AcAi#A! D 02/08/16
 Œař pŒA MatrixD Ground Water

" a! i\$ř 6 PrAp MAT(o! D
 M%Œ&'1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř 6	0 * - *16 0Œ7		0'0	0'0)	0'	pKi*F		+ř

" a! i\$ř) PrAp MAT(o! D
 M%Œ- '0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
" a! i\$ř)	0 * . *16 16Œ6		0' . -	0' . .	0' . 6	pKi*F		! jc

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

American West Analytical Labs

TKY Örk ABCDE L28861

Radium 226

F 903.1

Units: pKi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG399208																
WG398840ÖBW	ÖBW	02/24/16						.08	0.09	0.2!			0. 4			
WG398840LK" W	LK" W	02/24/16	ÖK#49 3	20				24	0.!	0.0!	120	43	148			
L28861\$03D%Ö	D%Ö& &	02/24/16			1.1	0.39	0.69	. 1	0.2	0.48				1.3	2	
L28862\$02D%Ö	D%Ö& &	02/24/16			0.3	0.2	0.26	.48	0.34	1				0.43	2	
L28862\$03F "	F "	02/24/16	ÖK#49 3	40	0.1	0.18	0.1!	0	1.	0.4!	12	43	148			

Radium 228

F 904.0

Units: pKi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG399255																
WG398933ÖBW	ÖBW	02/2 /16						.3!	0.3!	0.3!			0.! 4			
WG398933LK" W	LK" W	02/2 /16	ÖK#48442	1! .88				10	1.1	0. 8	6	4!	123			
L28903\$02F "	F "	02/2 /16	ÖK#48442	1! .88	0.18	0.28	0.29	1	1.2	0.48	83	4!	123			
L28903\$01D%Ö	D%Ö& &	02/2 /16			0.36	0.2!	0.26	.93	0. 3	0.				0.96	2	
L28860\$01D%Ö	D%Ö& &	02/2 /16			0.4	0.33	0.32	.68	0.48	0.46				0.39	2	

American West Analytical Labs

TKV ÖrkABDE L28861

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
--------	---------	-----------	--------	------	-------------

For extended qualifications associated with this analysis

American West Analytical Labs
K2YÖ

At ZABOEFID: ! 288K
Date RECEIVED: 2/2/2017 4:5
RECEIVED By: ddp
Date AB TEd: 2/2/2017

Receipt Verification

	&' (	\$ %	\$ A
*K+ak,CE- "K.C.kpEB itk" F.0dEdk,OBapp.iFa1.Ek+a/ p.E+2k)
2*K+K3E 3ai" K, 0+tOdyk,OB KBC3EBdiEFtEvk+3ippi" - kpapEB+kpE+E" t2)		
*KCE+K3i+kpCEFTK40iEB+kpEfa.K3a" d.i" - kpCFEd0E+k+0F3Ea+K ! AkpBCFC2)
4*KABEa" yk+a/ p.E+K R k iFE" +a1.Ek atEBa.2)
5*K,k+a/ p.E+kaBEFEvEdkpa+tk3C.dtk/ EkpCFEEdk6it3K40E+tEdk+3CBK3C.dtk/ Eka" a.y+E+2)		
K*K+K3E 3ai" K, 0+tOdyk,OB KFC/ p.EtEa" dfaFF0BatE2)	
The sample matrix was entered per the requested quotation.			
ÖK7 EBEa" ykF3a" - E+k adEkK3E 3ai" K, 0+tOdyk,OB kpBCKCA ZKEFEvi" - K3E+k+a/ p.E+2)	

Samples/Containers

	&' (	\$ %	\$ A
8*KABEa..KFC" tai" EB+K" taFtk" dk6it3K KkEa8+2)		
#*KABEa..ka1E.+K" KFC" tai" EB+ka" dkaBK3EyK" taFtk" dkE- i1.E2)		
~*KCK3E+k+a/ p.Eka1E.+ka" dk 3ai" K, 0+tOdyk,OB K atF3k,OB a/ p.EKD5DatE5a" dk9i/ E2)		
~*k OBpE+EBvEdk1Ot.EkypE+56 a+K3Ep; K3EF8Edka" dk6it3i" ki/ it+2)		
~2*K+K3EBK+0,,iFE" tk+a/ p.EkC.O/ EkOpEBOB ka..KE40E+tEdk6 CB2)		
~*K+K3EBF0+tOdyk+Ea.k" taFtk" ka..KFC" tai" EB+2)
~4*KABEa..k+a/ p.E+K3atKE40iEBKEBK3Ead+paFBAFFEpta1.E2)
~5*KABEa..k+a/ p.EKFC" tai" EB+kappBpBatK,OBa" a.ytiFa.K40iEB/ E" t+2)		
~K*K+K3EBEa" k - =K ~Kbpk1.a" 8kpE+E" t2)
~ÖK+K3EBEa" %AkBpk1.a" 8kpE+E" t2)
~8*K7 EBEa..k+a/ p.E+KEFEvEdk6it3i" K3C.dtk/ E2)		

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
3290	2.2	NA	12	N/A
4330	1.7	NA	12	N/A

7 a+KFEkpE+E" tk" K3E+k3ip/ E" tkFC" tai" EBA*2

No - Wet or gel ice was not present in the shipment container(s).

~.iE" tk 0+tKFC" taFtk" K At ZABOEFID? a" a- EB,ka" a.y+K+3CO.dK OtpCFEEdk,OB+a/ p.E+KEFEvEdk
Cot+idEC,K3EBK3EB a.kpE+EBatiC" kaFFEpta" FBFBtBa@

American West Analytical Labs

2025-08-27

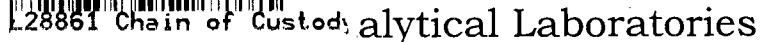
LABORATORY ID: 128861

Date Received: 8/27/2025 4:54

Received By: ddp

Date of Test: 8/27/2025

93EpBE+EBvatiC" IC, k3BkC.O6 i" - k1Ott.Btype+ii+k" QkF3EF8Ediatk+a/ p.BkBEFEipt: k%Pa" - BkQ.ka" dk
- BEa+E*5A0B.BkACta.fFya" idE*5Ai" 8kAdi++CvEdkFya" idE*58B06 " kAb-E" iFk+pEFiatiC" *5(tEB.BkAEFa.k
FCi,OB *5(D9AkA0.,itE*5(i" .lpBE+EBvEdkvia.kACB a" iF+*5\$ a2(2% lpBE+EBvEdkvia.kACB a" iF+*5a" dk
; B=K kACta./di++CvEdk/ EF0Bk1y/ Et3CdK K ~*@



62886

Page 1 of 1

Contact: **Elona Hayward**

Phone: **801-263-8686**

Fax : **801-263-8687**

Email: elona@awal-labs.com

denise@awal-labs.com

QC Level: **2+**

Turn Around Time

Standard

Sample ID:	Date Sampled	Time	# of Containers	Sample Matrix	Radium 226, Total	Radium 228, Total												Comments		
ELF-6	2/2/2016	9:45	2	Aq	x	x														
ELF-5	2/2/2016	10:55	2	Aq	x	x														
ELF-4	2/2/2016	12:00	2	Aq	x	x														
ELF-7	2/2/2016	13:10	2	Aq	x	x														
ELF-9	2/2/2016	14:20	2	Aq	x	x														
ELF-2	2/2/2016	15:25	2	Aq	x	x														
ELF-2 DUP	2/2/2016	15:25	2	Aq	x	x														
ELF-11	2/2/2016	10:00	2	Aq	x	x														
ELF-8	2/2/2016	12:00	2	Aq	x	x														
ELF-6 EB	2/2/2016	9:45	2	Aq	x	x														
ELF-7 FB	2/2/2016	15:10	2	Aq	x	x	Samples Sent to ACZ													
							Appropriate Utah state certifications required.													

Laboratory Use Only

Samples Were:

- Shipped or hand delivered
Y N
- Ambient or Chilled
Y N
- Temperature _____
Y N
- Received Broken/Leaking (Improperly Sealed)
Y N
- Properly Preserved
Y N
- Received Within Holding Times
Y N

COC Tape Was:

- Present on Outer Package
Y N NA
- Unbroken on Outer Package
Y N NA
- Present on Sample
Y N NA
- Unbroken on Sample
Y N NA

Discrepancies Between Sample Labels and COC Record?
Y N

Special Instructions: Include project name and PO# on final report and invoice. Email results to both Elona and Denise.

Relinquished by: Signature <i>Denise Bruun</i>	Date: <i>2/4/16</i>	Received by: Signature <i>Thomas A. Carver</i>	Date: <i>2-9-16</i>
Print Name <i>Denise Bruun</i>	Time: <i>12:30</i>	Print Name <i>THOMAS A. CARVER</i>	Time: <i>0928</i>
Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name	Time:	Print Name	Time:

L28861-1602261317

Page 18 of 18



**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Jeff Tucker
Water & Environmental Technologies
480 E Park Street, Suite 200
Butte, MT 59701
TEL: (801) 220-2989

RE: Hunter CCR Sampling / PERCM52

Dear Jeff Tucker:

Lab Set ID: 1603217B

3440 South 700 West
Salt Lake City, Utah
84119

American West Analytical Laboratories received sample(s) on 3/9/2016 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

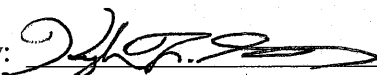
All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

This is a revision to a report originally issued 3/23/2016. The samples included, Lab Set ID, and Lab Sample IDs have been revised.

Thank You,

Approved by:


Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:

Radiologicals



**AMERICAN
WEST
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LABORATORIES**

INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-009

Client Sample ID: DUP

Collection Date: 3/9/2016 1100h

Received Date: 3/9/2016 1653h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	3/10/2016 1120h	3/15/2016 1620h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	3/10/2016 1120h	3/15/2016 1620h	E200.8	0.00200	< 0.00200	
Barium	mg/L	3/10/2016 1120h	3/15/2016 1620h	E200.8	0.00200	0.0123	
Beryllium	mg/L	3/10/2016 1120h	3/15/2016 1620h	E200.8	0.00200	< 0.00200	
Boron	mg/L	3/10/2016 1120h	3/11/2016 1302h	E200.7	0.500	1.82	
Cadmium	mg/L	3/10/2016 1120h	3/15/2016 1620h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	3/10/2016 1120h	3/11/2016 1109h	E200.7	100	450	
Chromium	mg/L	3/10/2016 1120h	3/15/2016 1620h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	3/10/2016 1120h	3/15/2016 1620h	E200.8	0.00400	0.00682	
Lead	mg/L	3/10/2016 1120h	3/15/2016 1620h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	3/10/2016 1120h	3/21/2016 1415h	E200.7	0.100	2.76	~
Magnesium	mg/L	3/10/2016 1120h	3/11/2016 1109h	E200.7	100	638	
Mercury	mg/L	3/17/2016 1700h	3/18/2016 1124h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	3/10/2016 1120h	3/15/2016 1620h	E200.8	0.00200	0.00239	
Selenium	mg/L	3/10/2016 1120h	3/15/2016 1620h	E200.8	0.00200	0.392	
Sodium	mg/L	3/10/2016 1120h	3/11/2016 1023h	E200.7	1,000	4,310	
Thallium	mg/L	3/10/2016 1120h	3/15/2016 1620h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

3440 South 700 West
Salt Lake City, Utah
84119

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



**AMERICAN
WEST
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LABORATORIES**

INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-010

Client Sample ID: FB

Collection Date: 3/9/2016 900h

Received Date: 3/9/2016 1653h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	3/10/2016 1120h	3/15/2016 1623h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	3/10/2016 1120h	3/15/2016 1623h	E200.8	0.00200	< 0.00200	
Barium	mg/L	3/10/2016 1120h	3/15/2016 1623h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	3/10/2016 1120h	3/15/2016 1623h	E200.8	0.00200	< 0.00200	
Boron	mg/L	3/10/2016 1120h	3/11/2016 1049h	E200.7	0.500	< 0.500	
Cadmium	mg/L	3/10/2016 1120h	3/15/2016 1623h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	3/10/2016 1120h	3/11/2016 1049h	E200.7	1.00	< 1.00	
Chromium	mg/L	3/10/2016 1120h	3/15/2016 1623h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	3/10/2016 1120h	3/15/2016 1623h	E200.8	0.00400	< 0.00400	
Lead	mg/L	3/10/2016 1120h	3/15/2016 1623h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	3/10/2016 1120h	3/21/2016 1418h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	3/10/2016 1120h	3/11/2016 1049h	E200.7	1.00	< 1.00	
Mercury	mg/L	3/17/2016 1700h	3/18/2016 1125h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	3/10/2016 1120h	3/15/2016 1623h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	3/10/2016 1120h	3/15/2016 1623h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	3/10/2016 1120h	3/11/2016 1049h	E200.7	1.00	< 1.00	
Thallium	mg/L	3/10/2016 1120h	3/15/2016 1623h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

3440 South 700 West
Salt Lake City, Utah
84119

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-011

Client Sample ID: EB

Collection Date: 3/9/2016 905h

Received Date: 3/9/2016 1653h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	3/10/2016 1120h	3/15/2016 1636h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	3/10/2016 1120h	3/15/2016 1636h	E200.8	0.00200	< 0.00200	
Barium	mg/L	3/10/2016 1120h	3/15/2016 1636h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	3/10/2016 1120h	3/15/2016 1636h	E200.8	0.00200	< 0.00200	
Boron	mg/L	3/10/2016 1120h	3/11/2016 1051h	E200.7	0.500	< 0.500	
Cadmium	mg/L	3/10/2016 1120h	3/15/2016 1636h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	3/10/2016 1120h	3/11/2016 1051h	E200.7	1.00	< 1.00	
Chromium	mg/L	3/10/2016 1120h	3/15/2016 1636h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	3/10/2016 1120h	3/15/2016 1636h	E200.8	0.00400	< 0.00400	
Lead	mg/L	3/10/2016 1120h	3/15/2016 1636h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	3/10/2016 1120h	3/21/2016 1418h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	3/10/2016 1120h	3/11/2016 1051h	E200.7	1.00	< 1.00	
Mercury	mg/L	3/17/2016 1700h	3/18/2016 1127h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	3/10/2016 1120h	3/15/2016 1636h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	3/10/2016 1120h	3/15/2016 1636h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	3/10/2016 1120h	3/11/2016 1051h	E200.7	1.00	< 1.00	
Thallium	mg/L	3/10/2016 1120h	3/15/2016 1636h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-012

Client Sample ID: ELF-2

Collection Date: 3/9/2016 1330h

Received Date: 3/9/2016 1653h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	3/10/2016 1120h	3/15/2016 1639h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	3/10/2016 1120h	3/15/2016 1639h	E200.8	0.00200	< 0.00200	
Barium	mg/L	3/10/2016 1120h	3/15/2016 1639h	E200.8	0.00200	0.0138	
Beryllium	mg/L	3/10/2016 1120h	3/15/2016 1639h	E200.8	0.00200	< 0.00200	
Boron	mg/L	3/10/2016 1120h	3/11/2016 1304h	E200.7	0.500	3.48	
Cadmium	mg/L	3/10/2016 1120h	3/15/2016 1639h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	3/10/2016 1120h	3/11/2016 1111h	E200.7	100	395	
Chromium	mg/L	3/10/2016 1120h	3/15/2016 1639h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	3/10/2016 1120h	3/15/2016 1639h	E200.8	0.00400	0.00767	
Lead	mg/L	3/10/2016 1120h	3/15/2016 1639h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	3/10/2016 1120h	3/21/2016 1419h	E200.7	0.100	2.14	~
Magnesium	mg/L	3/10/2016 1120h	3/11/2016 1111h	E200.7	100	321	
Mercury	mg/L	3/17/2016 1700h	3/18/2016 1129h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	3/10/2016 1120h	3/15/2016 1639h	E200.8	0.00200	0.00389	
Selenium	mg/L	3/10/2016 1120h	3/15/2016 1639h	E200.8	0.00200	0.451	
Sodium	mg/L	3/10/2016 1120h	3/11/2016 1025h	E200.7	1,000	3,160	
Thallium	mg/L	3/10/2016 1120h	3/15/2016 1639h	E200.8	0.00200	< 0.00200	

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**AMERICAN
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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-013

Client Sample ID: ELF-8

Collection Date: 3/9/2016 1305h

Received Date: 3/9/2016 1653h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	3/10/2016 1120h	3/15/2016 1642h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	3/10/2016 1120h	3/15/2016 1642h	E200.8	0.00200	0.00299	
Barium	mg/L	3/10/2016 1120h	3/15/2016 1642h	E200.8	0.00200	0.0533	
Beryllium	mg/L	3/10/2016 1120h	3/15/2016 1642h	E200.8	0.00200	< 0.00200	
Boron	mg/L	3/10/2016 1120h	3/18/2016 1124h	E200.7	5.00	26.6	
Cadmium	mg/L	3/10/2016 1120h	3/15/2016 1642h	E200.8	0.000500	0.00113	
Calcium	mg/L	3/10/2016 1120h	3/11/2016 1146h	E200.7	100	590	
Chromium	mg/L	3/10/2016 1120h	3/15/2016 1642h	E200.8	0.00200	0.00887	
Cobalt	mg/L	3/10/2016 1120h	3/15/2016 1642h	E200.8	0.00400	0.202	
Lead	mg/L	3/10/2016 1120h	3/15/2016 1642h	E200.8	0.00200	0.00682	
Lithium	mg/L	3/10/2016 1120h	3/21/2016 1420h	E200.7	0.100	5.09	~
Magnesium	mg/L	3/10/2016 1120h	3/11/2016 1154h	E200.7	10.0	139	
Mercury	mg/L	3/17/2016 1700h	3/18/2016 1131h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	3/10/2016 1120h	3/15/2016 1642h	E200.8	0.00200	0.433	
Selenium	mg/L	3/10/2016 1120h	3/15/2016 1642h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	3/10/2016 1120h	3/11/2016 1146h	E200.7	100	1,880	
Thallium	mg/L	3/10/2016 1120h	3/15/2016 1642h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: Water & Environmental Technologies
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1603217B-014
Client Sample ID: ELF-9
Collection Date: 3/9/2016 1230h
Received Date: 3/9/2016 1653h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	3/10/2016 1120h	3/15/2016 1645h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	3/10/2016 1120h	3/15/2016 1645h	E200.8	0.00200	0.00674	
Barium	mg/L	3/10/2016 1120h	3/15/2016 1645h	E200.8	0.00200	0.0411	
Beryllium	mg/L	3/10/2016 1120h	3/15/2016 1645h	E200.8	0.00200	< 0.00200	
Boron	mg/L	3/10/2016 1120h	3/11/2016 1308h	E200.7	0.500	1.61	
Cadmium	mg/L	3/10/2016 1120h	3/15/2016 1645h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	3/10/2016 1120h	3/11/2016 1156h	E200.7	10.0	84.2	
Chromium	mg/L	3/10/2016 1120h	3/15/2016 1645h	E200.8	0.00200	0.00557	
Cobalt	mg/L	3/10/2016 1120h	3/15/2016 1645h	E200.8	0.00400	< 0.00400	
Lead	mg/L	3/10/2016 1120h	3/15/2016 1645h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	3/10/2016 1120h	3/21/2016 1421h	E200.7	0.100	1.05	~
Magnesium	mg/L	3/10/2016 1120h	3/11/2016 1156h	E200.7	10.0	52.4	
Mercury	mg/L	3/17/2016 1700h	3/18/2016 1136h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	3/10/2016 1120h	3/15/2016 1645h	E200.8	0.00200	0.158	
Selenium	mg/L	3/10/2016 1120h	3/15/2016 1645h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	3/10/2016 1120h	3/11/2016 1033h	E200.7	1,000	4,110	
Thallium	mg/L	3/10/2016 1120h	3/15/2016 1645h	E200.8	0.00200	< 0.00200	

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**AMERICAN
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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-015

Client Sample ID: ELF-7

Collection Date: 3/9/2016 1050h

Received Date: 3/9/2016 1653h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	3/10/2016 1120h	3/15/2016 1648h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	3/10/2016 1120h	3/15/2016 1648h	E200.8	0.00200	< 0.00200	
Barium	mg/L	3/10/2016 1120h	3/15/2016 1648h	E200.8	0.00200	0.0120	
Beryllium	mg/L	3/10/2016 1120h	3/15/2016 1648h	E200.8	0.00200	< 0.00200	
Boron	mg/L	3/10/2016 1120h	3/11/2016 1317h	E200.7	0.500	1.79	
Cadmium	mg/L	3/10/2016 1120h	3/15/2016 1648h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	3/10/2016 1120h	3/11/2016 1113h	E200.7	100	443	²
Chromium	mg/L	3/10/2016 1120h	3/15/2016 1648h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	3/10/2016 1120h	3/15/2016 1648h	E200.8	0.00400	0.00668	
Lead	mg/L	3/10/2016 1120h	3/15/2016 1648h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	3/10/2016 1120h	3/21/2016 1422h	E200.7	0.100	2.73	~
Magnesium	mg/L	3/10/2016 1120h	3/11/2016 1113h	E200.7	100	617	²
Mercury	mg/L	3/17/2016 1700h	3/18/2016 1138h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	3/10/2016 1120h	3/15/2016 1648h	E200.8	0.00200	0.00295	
Selenium	mg/L	3/10/2016 1120h	3/15/2016 1648h	E200.8	0.00200	0.383	
Sodium	mg/L	3/10/2016 1120h	3/11/2016 1039h	E200.7	1,000	4,510	²
Thallium	mg/L	3/10/2016 1120h	3/15/2016 1648h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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**AMERICAN
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LABORATORIES**

INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-016

Client Sample ID: ELF-4

Collection Date: 3/9/2016 1030h

Received Date: 3/9/2016 1653h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	3/11/2016 1547h	3/15/2016 928h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	3/11/2016 1547h	3/15/2016 928h	E200.8	0.00200	< 0.00200	
Barium	mg/L	3/11/2016 1547h	3/15/2016 928h	E200.8	0.00200	0.0153	
Beryllium	mg/L	3/11/2016 1547h	3/15/2016 928h	E200.8	0.00200	< 0.00200	
Boron	mg/L	3/11/2016 1547h	3/18/2016 1548h	E200.7	0.500	4.96	
Cadmium	mg/L	3/11/2016 1547h	3/15/2016 928h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	3/11/2016 1547h	3/18/2016 1514h	E200.7	100	496	²
Chromium	mg/L	3/11/2016 1547h	3/15/2016 928h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	3/11/2016 1547h	3/15/2016 928h	E200.8	0.00400	0.00729	
Lead	mg/L	3/11/2016 1547h	3/15/2016 928h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	3/11/2016 1547h	3/21/2016 1423h	E200.7	0.100	2.37	~
Magnesium	mg/L	3/11/2016 1547h	3/18/2016 1514h	E200.7	100	537	²
Mercury	mg/L	3/17/2016 1700h	3/18/2016 1140h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	3/11/2016 1547h	3/15/2016 928h	E200.8	0.00200	0.00308	
Selenium	mg/L	3/11/2016 1547h	3/15/2016 928h	E200.8	0.00200	0.00360	
Sodium	mg/L	3/11/2016 1547h	3/18/2016 1441h	E200.7	1,000	2,740	²
Thallium	mg/L	3/11/2016 1547h	3/15/2016 928h	E200.8	0.00200	< 0.00200	

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² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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**AMERICAN
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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-017

Client Sample ID: ELF-5

Collection Date: 3/9/2016 950h

Received Date: 3/9/2016 1653h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	3/11/2016 1547h	3/15/2016 944h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	3/11/2016 1547h	3/15/2016 944h	E200.8	0.00200	< 0.00200	
Barium	mg/L	3/11/2016 1547h	3/15/2016 944h	E200.8	0.00200	0.0123	
Beryllium	mg/L	3/11/2016 1547h	3/15/2016 944h	E200.8	0.00200	< 0.00200	
Boron	mg/L	3/11/2016 1547h	3/18/2016 1603h	E200.7	0.500	6.55	
Cadmium	mg/L	3/11/2016 1547h	3/15/2016 944h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	3/11/2016 1547h	3/18/2016 1522h	E200.7	100	492	
Chromium	mg/L	3/11/2016 1547h	3/15/2016 944h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	3/11/2016 1547h	3/15/2016 944h	E200.8	0.00400	0.00413	
Lead	mg/L	3/11/2016 1547h	3/15/2016 944h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	3/11/2016 1547h	3/21/2016 1424h	E200.7	0.100	5.83	~
Magnesium	mg/L	3/11/2016 1547h	3/18/2016 1522h	E200.7	100	980	
Mercury	mg/L	3/17/2016 1700h	3/18/2016 1141h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	3/11/2016 1547h	3/15/2016 944h	E200.8	0.00200	0.00497	
Selenium	mg/L	3/11/2016 1547h	3/15/2016 944h	E200.8	0.00200	0.0297	
Sodium	mg/L	3/11/2016 1547h	3/18/2016 1448h	E200.7	1,000	6,580	
Thallium	mg/L	3/11/2016 1547h	3/15/2016 944h	E200.8	0.00200	< 0.00200	

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**AMERICAN
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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-018

Client Sample ID: ELF-6

Collection Date: 3/9/2016 920h

Received Date: 3/9/2016 1653h

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	3/11/2016 1547h	3/15/2016 947h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	3/11/2016 1547h	3/15/2016 947h	E200.8	0.00200	< 0.00200	
Barium	mg/L	3/11/2016 1547h	3/15/2016 947h	E200.8	0.00200	0.0109	
Beryllium	mg/L	3/11/2016 1547h	3/15/2016 947h	E200.8	0.00200	< 0.00200	
Boron	mg/L	3/11/2016 1547h	3/18/2016 1606h	E200.7	0.500	15.7	
Cadmium	mg/L	3/11/2016 1547h	3/15/2016 947h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	3/11/2016 1547h	3/18/2016 1525h	E200.7	100	500	
Chromium	mg/L	3/11/2016 1547h	3/15/2016 947h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	3/11/2016 1547h	3/15/2016 947h	E200.8	0.00400	0.0206	
Lead	mg/L	3/11/2016 1547h	3/15/2016 947h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	3/11/2016 1547h	3/21/2016 1425h	E200.7	0.100	7.20	~
Magnesium	mg/L	3/11/2016 1547h	3/18/2016 1525h	E200.7	100	694	
Mercury	mg/L	3/17/2016 1700h	3/18/2016 1143h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	3/11/2016 1547h	3/15/2016 947h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	3/11/2016 1547h	3/15/2016 947h	E200.8	0.00200	0.0959	
Sodium	mg/L	3/11/2016 1547h	3/18/2016 1451h	E200.7	1,000	5,690	
Thallium	mg/L	3/11/2016 1547h	3/15/2016 947h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

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Client: Water & Environmental Technologies
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1603217B-019
Client Sample ID: ELF-11
Collection Date: 3/9/2016 845h
Received Date: 3/9/2016 1653h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	3/11/2016 1547h	3/15/2016 950h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	3/11/2016 1547h	3/15/2016 950h	E200.8	0.00200	< 0.00200	
Barium	mg/L	3/11/2016 1547h	3/15/2016 950h	E200.8	0.00200	0.0224	
Beryllium	mg/L	3/11/2016 1547h	3/15/2016 950h	E200.8	0.00200	< 0.00200	
Boron	mg/L	3/11/2016 1547h	3/18/2016 1609h	E200.7	0.500	18.1	
Cadmium	mg/L	3/11/2016 1547h	3/15/2016 950h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	3/11/2016 1547h	3/18/2016 1527h	E200.7	100	413	
Chromium	mg/L	3/11/2016 1547h	3/15/2016 950h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	3/11/2016 1547h	3/15/2016 950h	E200.8	0.00400	0.0131	
Lead	mg/L	3/11/2016 1547h	3/15/2016 950h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	3/11/2016 1547h	3/21/2016 1427h	E200.7	0.100	4.33	~
Magnesium	mg/L	3/11/2016 1547h	3/18/2016 1527h	E200.7	100	369	
Mercury	mg/L	3/17/2016 1700h	3/18/2016 1145h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	3/11/2016 1547h	3/15/2016 950h	E200.8	0.00200	0.0241	
Selenium	mg/L	3/11/2016 1547h	3/15/2016 950h	E200.8	0.00200	0.00545	
Sodium	mg/L	3/11/2016 1547h	3/18/2016 1453h	E200.7	1,000	4,400	
Thallium	mg/L	3/11/2016 1547h	3/15/2016 950h	E200.8	0.00200	< 0.00200	

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**AMERICAN
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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Jeff Tucker
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1603217B-009
Client Sample ID: DUP
Collection Date: 3/9/2016 1100h
Received Date: 3/9/2016 1653h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	514	
Bicarbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	514	
Carbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Chloride	mg/L		3/17/2016 2036h	E300.0	100	2,530	
Fluoride	mg/L		3/18/2016 521h	E300.0	0.100	3.41	
Nitrate/Nitrite (as N)	mg/L		3/10/2016 1323h	E353.2	1.00	127	
pH @ 25° C	pH Units		3/9/2016 1819h	SM4500-H+B	1.00	7.03	
Sulfate	mg/L		3/17/2016 2036h	E300.0	750	7,850	
Total Dissolved Solids	mg/L		3/11/2016 1040h	SM2540C	100	16,800	

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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Jeff Tucker
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1603217B-010
Client Sample ID: FB
Collection Date: 3/9/2016 900h
Received Date: 3/9/2016 1653h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Chloride	mg/L		3/18/2016 939h	E300.0	0.100	< 0.100	
Fluoride	mg/L		3/18/2016 939h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		3/10/2016 1301h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		3/9/2016 1819h	SM4500-H+B	1.00	8.43	
Sulfate	mg/L		3/18/2016 939h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		3/11/2016 1040h	SM2540C	10.0	< 10.0	

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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-011

Client Sample ID: EB

Collection Date: 3/9/2016 905h

Received Date: 3/9/2016 1653h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Chloride	mg/L		3/18/2016 957h	E300.0	0.100	< 0.100	
Fluoride	mg/L		3/18/2016 957h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		3/10/2016 1302h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		3/9/2016 1819h	SM4500-H+B	1.00	7.95	
Sulfate	mg/L		3/18/2016 957h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		3/11/2016 1040h	SM2540C	10.0	< 10.0	

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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-012

Client Sample ID: ELF-2

Collection Date: 3/9/2016 1330h

Received Date: 3/9/2016 1653h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	422	
Bicarbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	422	
Carbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Chloride	mg/L		3/18/2016 140h	E300.0	10.0	430	
Fluoride	mg/L		3/18/2016 537h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		3/10/2016 1303h	E353.2	0.100	14.0	
pH @ 25° C	pH Units		3/9/2016 1819h	SM4500-H+B	1.00	7.21	
Sulfate	mg/L		3/17/2016 2053h	E300.0	750	7,190	
Total Dissolved Solids	mg/L		3/11/2016 1040h	SM2540C	100	11,400	

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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-013

Client Sample ID: ELF-8

Collection Date: 3/9/2016 1305h

Received Date: 3/9/2016 1653h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	82.8	
Bicarbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	82.8	
Carbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Chloride	mg/L		3/17/2016 2110h	E300.0	100	2,240	
Fluoride	mg/L		3/18/2016 628h	E300.0	0.100	0.837	
Nitrate/Nitrite (as N)	mg/L		3/10/2016 1324h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		3/9/2016 1819h	SM4500-H+B	1.00	7.48	
Sulfate	mg/L		3/17/2016 2110h	E300.0	750	2,950	
Total Dissolved Solids	mg/L		3/11/2016 1040h	SM2540C	100	7,580	

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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-014

Client Sample ID: ELF-9

Collection Date: 3/9/2016 1230h

Received Date: 3/9/2016 1653h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	500	
Bicarbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	500	
Carbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Chloride	mg/L		3/18/2016 157h	E300.0	10.0	469	
Fluoride	mg/L		3/18/2016 645h	E300.0	0.100	0.260	
Nitrate/Nitrite (as N)	mg/L		3/10/2016 1325h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		3/9/2016 1819h	SM4500-H+B	1.00	8.05	
Sulfate	mg/L		3/17/2016 2200h	E300.0	750	8,030	
Total Dissolved Solids	mg/L		3/11/2016 1040h	SM2540C	100	11,900	

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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-015

Client Sample ID: ELF-7

Collection Date: 3/9/2016 1050h

Received Date: 3/9/2016 1653h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	546	
Bicarbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	546	
Carbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Chloride	mg/L		3/17/2016 2217h	E300.0	100	2,710	
Fluoride	mg/L		3/18/2016 703h	E300.0	0.100	3.37	
Nitrate/Nitrite (as N)	mg/L		3/10/2016 1326h	E353.2	1.00	122	
pH @ 25° C	pH Units		3/9/2016 1819h	SM4500-H+B	1.00	7.01	
Sulfate	mg/L		3/17/2016 2217h	E300.0	750	8,180	
Total Dissolved Solids	mg/L		3/11/2016 1040h	SM2540C	100	16,800	

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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-016

Client Sample ID: ELF-4

Collection Date: 3/9/2016 1030h

Received Date: 3/9/2016 1653h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	355	
Bicarbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	355	
Carbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Chloride	mg/L		3/17/2016 2234h	E300.0	100	2,240	
Fluoride	mg/L		3/18/2016 720h	E300.0	0.100	4.06	
Nitrate/Nitrite (as N)	mg/L		3/10/2016 1326h	E353.2	1.00	14.2	
pH @ 25° C	pH Units		3/9/2016 1819h	SM4500-H+B	1.00	7.03	
Sulfate	mg/L		3/17/2016 2234h	E300.0	750	5,290	
Total Dissolved Solids	mg/L		3/11/2016 1040h	SM2540C	100	11,200	

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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Jeff Tucker
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1603217B-017
Client Sample ID: ELF-5
Collection Date: 3/9/2016 950h
Received Date: 3/9/2016 1653h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	496	
Bicarbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	496	
Carbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Chloride	mg/L		3/17/2016 2251h	E300.0	100	4,170	
Fluoride	mg/L		3/18/2016 847h	E300.0	0.100	4.62	
Nitrate/Nitrite (as N)	mg/L		3/10/2016 1327h	E353.2	1.00	19.1	
pH @ 25° C	pH Units		3/9/2016 1819h	SM4500-H+B	1.00	7.05	
Sulfate	mg/L		3/17/2016 1731h	E300.0	7,500	10,300	
Total Dissolved Solids	mg/L		3/11/2016 1040h	SM2540C	100	22,300	

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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies **Contact:** Jeff Tucker
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1603217B-018
Client Sample ID: ELF-6
Collection Date: 3/9/2016 920h
Received Date: 3/9/2016 1653h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	469	
Bicarbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	469	
Carbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Chloride	mg/L		3/17/2016 2342h	E300.0	100	1,190	
Fluoride	mg/L		3/18/2016 812h	E300.0	0.100	5.07	
Nitrate/Nitrite (as N)	mg/L		3/10/2016 1335h	E353.2	1.00	24.4	
pH @ 25° C	pH Units		3/9/2016 1819h	SM4500-H+B	1.00	6.90	
Sulfate	mg/L		3/17/2016 2342h	E300.0	750	9,930	
Total Dissolved Solids	mg/L		3/11/2016 1040h	SM2540C	500	20,800	

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INORGANIC ANALYTICAL REPORT

Client: Water & Environmental Technologies

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

Lab Sample ID: 1603217B-019

Client Sample ID: ELF-11

Collection Date: 3/9/2016 845h

Received Date: 3/9/2016 1653h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	428	
Bicarbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	428	
Carbonate (as CaCO ₃)	mg/L		3/10/2016 1042h	SM2320B	10.0	< 10.0	
Chloride	mg/L		3/17/2016 2359h	E300.0	100	4,290	
Fluoride	mg/L		3/18/2016 830h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		3/10/2016 1329h	E353.2	0.100	1.51	
pH @ 25° C	pH Units		3/9/2016 1819h	SM4500-H+B	1.00	7.32	
Sulfate	mg/L		3/17/2016 2359h	E300.0	750	9,020	
Total Dissolved Solids	mg/L		3/11/2016 1040h	SM2540C	100	15,700	

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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-41866													
Date Analyzed:		03/11/2016 1011h											
Test Code:		200.7-W											
Date Prepared:		03/10/2016 1120h											
Boron	1.01	mg/L	E200.7	0.00514	0.500	1.000	0	101	85 - 115				
Calcium	9.43	mg/L	E200.7	0.0401	1.00	10.00	0	94.3	85 - 115				
Magnesium	9.74	mg/L	E200.7	0.0294	1.00	10.00	0	97.4	85 - 115				
Sodium	9.63	mg/L	E200.7	0.0330	1.00	10.00	0	96.3	85 - 115				
Lab Sample ID: LCS-41911													
Date Analyzed:		03/18/2016 1507h											
Test Code:		200.7-W											
Date Prepared:		03/11/2016 1547h											
Boron	1.01	mg/L	E200.7	0.00514	0.500	1.000	0	101	85 - 115				
Calcium	10.2	mg/L	E200.7	0.0401	1.00	10.00	0	102	85 - 115				
Magnesium	10.4	mg/L	E200.7	0.0294	1.00	10.00	0	104	85 - 115				
Sodium	10.4	mg/L	E200.7	0.0330	1.00	10.00	0	104	85 - 115				
Lab Sample ID: LCS-41866													
Date Analyzed:		03/18/2016 1136h											
Test Code:		200.7-W											
Date Prepared:		03/10/2016 1120h											
Boron	1.08	mg/L	E200.7	0.00514	0.500	1.000	0	108	85 - 115				
Lab Sample ID: LCS-41912													
Date Analyzed:		03/15/2016 925h											
Test Code:		200.8-W											
Date Prepared:		03/11/2016 1547h											
Antimony	0.172	mg/L	E200.8	0.000306	0.00200	0.2000	0	86.1	85 - 115				
Arsenic	0.217	mg/L	E200.8	0.000540	0.00200	0.2000	0	108	85 - 115				
Barium	0.200	mg/L	E200.8	0.000600	0.00200	0.2000	0	100	85 - 115				
Beryllium	0.215	mg/L	E200.8	0.000177	0.00200	0.2000	0	107	85 - 115				
Cadmium	0.205	mg/L	E200.8	0.0000666	0.000500	0.2000	0	102	85 - 115				
Chromium	0.198	mg/L	E200.8	0.000998	0.00200	0.2000	0	99.0	85 - 115				
Cobalt	0.196	mg/L	E200.8	0.0000990	0.00400	0.2000	0	97.8	85 - 115				
Lead	0.193	mg/L	E200.8	0.000125	0.00200	0.2000	0	96.7	85 - 115				
Molybdenum	0.194	mg/L	E200.8	0.000202	0.00200	0.2000	0	96.9	85 - 115				
Selenium	0.224	mg/L	E200.8	0.000310	0.00200	0.2000	0	112	85 - 115				
Thallium	0.192	mg/L	E200.8	0.0000500	0.00200	0.2000	0	96.0	85 - 115				

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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-41867		Date Analyzed:	03/15/2016 1521h										
Test Code: 200.8-W		Date Prepared:	03/10/2016 1120h										
Antimony	0.187	mg/L	E200.8	0.000306	0.00200	0.2000	0	93.4	85 - 115				
Arsenic	0.210	mg/L	E200.8	0.000540	0.00200	0.2000	0	105	85 - 115				
Barium	0.190	mg/L	E200.8	0.000600	0.00200	0.2000	0	95.0	85 - 115				
Beryllium	0.206	mg/L	E200.8	0.000177	0.00200	0.2000	0	103	85 - 115				
Cadmium	0.205	mg/L	E200.8	0.0000666	0.000500	0.2000	0	103	85 - 115				
Chromium	0.207	mg/L	E200.8	0.000998	0.00200	0.2000	0	104	85 - 115				
Cobalt	0.203	mg/L	E200.8	0.0000990	0.00400	0.2000	0	102	85 - 115				
Lead	0.185	mg/L	E200.8	0.000125	0.00200	0.2000	0	92.3	85 - 115				
Molybdenum	0.206	mg/L	E200.8	0.000202	0.00200	0.2000	0	103	85 - 115				
Selenium	0.213	mg/L	E200.8	0.000310	0.00200	0.2000	0	106	85 - 115				
Thallium	0.184	mg/L	E200.8	0.0000500	0.00200	0.2000	0	91.9	85 - 115				
Lab Sample ID: LCS-42020		Date Analyzed:	03/18/2016 1057h										
Test Code: HG-DW-245.1		Date Prepared:	03/17/2016 1700h										
Mercury	0.00342	mg/L	E245.1	0.00000559	0.000150	0.003330	0	103	85 - 115				



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-41866		Date Analyzed:	03/11/2016 1009h										
Test Code: 200.7-W		Date Prepared:	03/10/2016 1120h										
Boron	< 0.500	mg/L	E200.7	0.00514	0.500								
Calcium	< 1.00	mg/L	E200.7	0.0401	1.00								
Magnesium	< 1.00	mg/L	E200.7	0.0294	1.00								
Sodium	< 1.00	mg/L	E200.7	0.0330	1.00								
Lab Sample ID: MB-41911		Date Analyzed:	03/18/2016 1505h										
Test Code: 200.7-W		Date Prepared:	03/11/2016 1547h										
Boron	< 0.500	mg/L	E200.7	0.00514	0.500								
Calcium	< 1.00	mg/L	E200.7	0.0401	1.00								
Magnesium	< 1.00	mg/L	E200.7	0.0294	1.00								
Sodium	< 1.00	mg/L	E200.7	0.0330	1.00								
Lab Sample ID: MB-41866		Date Analyzed:	03/18/2016 1127h										
Test Code: 200.7-W		Date Prepared:	03/10/2016 1120h										
Boron	< 0.500	mg/L	E200.7	0.00514	0.500								
Lab Sample ID: MB-41866		Date Analyzed:	03/21/2016 1408h										
Test Code: 200.7-W		Date Prepared:	03/10/2016 1120h										
Lithium	< 0.100	mg/L	E200.7	0	0.100								~
Lab Sample ID: MB-41911		Date Analyzed:	03/21/2016 1423h										
Test Code: 200.7-W		Date Prepared:	03/11/2016 1547h										
Lithium	< 0.100	mg/L	E200.7	0	0.100								~
Lab Sample ID: MB-41912		Date Analyzed:	03/15/2016 922h										
Test Code: 200.8-W		Date Prepared:	03/11/2016 1547h										
Antimony	< 0.00200	mg/L	E200.8	0.000306	0.00200								
Arsenic	< 0.00200	mg/L	E200.8	0.000540	0.00200								
Barium	< 0.00200	mg/L	E200.8	0.000600	0.00200								

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-41912		Date Analyzed:	03/15/2016 922h										
Test Code: 200.8-W		Date Prepared:	03/11/2016 1547h										
Beryllium	< 0.00200	mg/L	E200.8	0.000177	0.00200								
Cadmium	< 0.000500	mg/L	E200.8	0.0000666	0.000500								
Chromium	< 0.00200	mg/L	E200.8	0.000998	0.00200								
Cobalt	< 0.00400	mg/L	E200.8	0.0000990	0.00400								
Lead	< 0.00200	mg/L	E200.8	0.000125	0.00200								
Molybdenum	< 0.00200	mg/L	E200.8	0.000202	0.00200								
Selenium	< 0.00200	mg/L	E200.8	0.000310	0.00200								
Thallium	< 0.00200	mg/L	E200.8	0.0000500	0.00200								
Lab Sample ID: MB-41867		Date Analyzed:	03/15/2016 1518h										
Test Code: 200.8-W		Date Prepared:	03/10/2016 1120h										
Antimony	< 0.00200	mg/L	E200.8	0.000306	0.00200								
Arsenic	< 0.00200	mg/L	E200.8	0.000540	0.00200								
Barium	< 0.00200	mg/L	E200.8	0.000600	0.00200								
Beryllium	< 0.00200	mg/L	E200.8	0.000177	0.00200								
Cadmium	< 0.000500	mg/L	E200.8	0.0000666	0.000500								
Chromium	< 0.00200	mg/L	E200.8	0.000998	0.00200								
Cobalt	< 0.00400	mg/L	E200.8	0.0000990	0.00400								
Lead	< 0.00200	mg/L	E200.8	0.000125	0.00200								
Molybdenum	< 0.00200	mg/L	E200.8	0.000202	0.00200								
Selenium	< 0.00200	mg/L	E200.8	0.000310	0.00200								
Thallium	< 0.00200	mg/L	E200.8	0.0000500	0.00200								
Lab Sample ID: MB-42020		Date Analyzed:	03/18/2016 1055h										
Test Code: HG-DW-245.1		Date Prepared:	03/17/2016 1700h										
Mercury	< 0.000150	mg/L	E245.1	0.00000559	0.000150								

-- The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1603217-015CMS													
Date Analyzed:		03/11/2016 1041h											
Test Code:		200.7-W											
Date Prepared:		03/10/2016 1120h											
Sodium	4,240	mg/L	E200.7	33.0	1,000	10.00	4510	-2,640	70 - 130				2
Lab Sample ID: 1603217-015CMS													
Date Analyzed:		03/11/2016 1115h											
Test Code:		200.7-W											
Date Prepared:		03/10/2016 1120h											
Calcium	446	mg/L	E200.7	4.01	100	10.00	443	32.6	70 - 130				2
Magnesium	613	mg/L	E200.7	2.94	100	10.00	617	-42.4	70 - 130				2
Lab Sample ID: 1603217-015CMS													
Date Analyzed:		03/11/2016 1232h											
Test Code:		200.7-W											
Date Prepared:		03/10/2016 1120h											
Boron	2.90	mg/L	E200.7	0.00514	0.500	1.000	1.79	111	70 - 130				
Lab Sample ID: 1603217-016CMS													
Date Analyzed:		03/18/2016 1444h											
Test Code:		200.7-W											
Date Prepared:		03/11/2016 1547h											
Sodium	2,730	mg/L	E200.7	33.0	1,000	10.00	2740	-76.9	70 - 130				2
Lab Sample ID: 1603217-016CMS													
Date Analyzed:		03/18/2016 1517h											
Test Code:		200.7-W											
Date Prepared:		03/11/2016 1547h											
Calcium	514	mg/L	E200.7	4.01	100	10.00	496	181	70 - 130				2
Magnesium	547	mg/L	E200.7	2.94	100	10.00	537	100	70 - 130				
Lab Sample ID: 1603217-016CMS													
Date Analyzed:		03/18/2016 1550h											
Test Code:		200.7-W											
Date Prepared:		03/11/2016 1547h											
Boron	6.16	mg/L	E200.7	0.00514	0.500	1.000	4.96	120	70 - 130				
Lab Sample ID: 1603217-015CMS													
Date Analyzed:		03/18/2016 1110h											
Test Code:		200.7-W											
Date Prepared:		03/10/2016 1120h											
Boron	3.02	mg/L	E200.7	0.00514	0.500	1.000	1.79	123	70 - 130				

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QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1603217-016CMS													
Date Analyzed:		03/15/2016 937h											
Test Code:		200.8-W											
Date Prepared:		03/11/2016 1547h											
Antimony	0.209	mg/L	E200.8	0.000306	0.00200	0.2000	0.00134	104	75 - 125				
Arsenic	0.230	mg/L	E200.8	0.000540	0.00200	0.2000	0	115	75 - 125				
Barium	0.217	mg/L	E200.8	0.000600	0.00200	0.2000	0.0153	101	75 - 125				
Beryllium	0.194	mg/L	E200.8	0.000177	0.00200	0.2000	0	97.1	75 - 125				
Cadmium	0.198	mg/L	E200.8	0.0000666	0.000500	0.2000	0.000458	98.6	75 - 125				
Chromium	0.200	mg/L	E200.8	0.000998	0.00200	0.2000	0.0017	99.0	75 - 125				
Cobalt	0.197	mg/L	E200.8	0.0000990	0.00400	0.2000	0.00729	94.9	75 - 125				
Lead	0.182	mg/L	E200.8	0.000125	0.00200	0.2000	0	90.8	75 - 125				
Molybdenum	0.226	mg/L	E200.8	0.000202	0.00200	0.2000	0.00308	111	75 - 125				
Selenium	0.221	mg/L	E200.8	0.000310	0.00200	0.2000	0.0036	108	75 - 125				
Thallium	0.181	mg/L	E200.8	0.0000500	0.00200	0.2000	0	90.5	75 - 125				
Lab Sample ID: 1603217-015CMS													
Date Analyzed:		03/15/2016 1652h											
Test Code:		200.8-W											
Date Prepared:		03/10/2016 1120h											
Antimony	0.211	mg/L	E200.8	0.000306	0.00200	0.2000	0	105	75 - 125				
Arsenic	0.234	mg/L	E200.8	0.000540	0.00200	0.2000	0.001	116	75 - 125				
Barium	0.202	mg/L	E200.8	0.000600	0.00200	0.2000	0.012	94.8	75 - 125				
Beryllium	0.193	mg/L	E200.8	0.000177	0.00200	0.2000	0	96.5	75 - 125				
Cadmium	0.200	mg/L	E200.8	0.0000666	0.000500	0.2000	0.000459	99.8	75 - 125				
Chromium	0.203	mg/L	E200.8	0.000998	0.00200	0.2000	0.00149	101	75 - 125				
Cobalt	0.197	mg/L	E200.8	0.0000990	0.00400	0.2000	0.00668	95.1	75 - 125				
Lead	0.169	mg/L	E200.8	0.000125	0.00200	0.2000	0	84.7	75 - 125				
Molybdenum	0.231	mg/L	E200.8	0.000202	0.00200	0.2000	0.00295	114	75 - 125				
Selenium	0.601	mg/L	E200.8	0.000310	0.00200	0.2000	0.383	109	75 - 125				
Thallium	0.168	mg/L	E200.8	0.0000500	0.00200	0.2000	0	83.9	75 - 125				



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1603217-001CMS	Date Analyzed:	03/18/2016	1104h										
Test Code: HG-DW-245.1	Date Prepared:	03/17/2016	1700h										
Mercury	0.00337	mg/L	E245.1	0.00000559	0.000150	0.003330	0	101	80 - 120				

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1603217-015CMSD													
Test Code:	200.7-W												
Date Analyzed:	03/11/2016 1043h												
Date Prepared:	03/10/2016 1120h												
Sodium	4,190	mg/L	E200.7	33.0	1,000	10.00	4510	-3,200	70 - 130	4240	1.33	20	²
Lab Sample ID: 1603217-015CMSD													
Test Code:	200.7-W												
Date Analyzed:	03/11/2016 1117h												
Date Prepared:	03/10/2016 1120h												
Calcium	445	mg/L	E200.7	4.01	100	10.00	443	21.4	70 - 130	446	0.251	20	²
Magnesium	625	mg/L	E200.7	2.94	100	10.00	617	80.2	70 - 130	613	1.98	20	
Lab Sample ID: 1603217-015CMSD													
Test Code:	200.7-W												
Date Analyzed:	03/11/2016 1235h												
Date Prepared:	03/10/2016 1120h												
Boron	2.91	mg/L	E200.7	0.00514	0.500	1.000	1.79	113	70 - 130	2.9	0.648	20	
Lab Sample ID: 1603217-016CMSD													
Test Code:	200.7-W												
Date Analyzed:	03/18/2016 1446h												
Date Prepared:	03/11/2016 1547h												
Sodium	2,810	mg/L	E200.7	33.0	1,000	10.00	2740	693	70 - 130	2730	2.77	20	²
Lab Sample ID: 1603217-016CMSD													
Test Code:	200.7-W												
Date Analyzed:	03/18/2016 1520h												
Date Prepared:	03/11/2016 1547h												
Calcium	462	mg/L	E200.7	4.01	100	10.00	496	-335	70 - 130	514	10.6	20	²
Magnesium	506	mg/L	E200.7	2.94	100	10.00	537	-314	70 - 130	547	7.87	20	²
Lab Sample ID: 1603217-016CMSD													
Test Code:	200.7-W												
Date Analyzed:	03/18/2016 1553h												
Date Prepared:	03/11/2016 1547h												
Boron	6.17	mg/L	E200.7	0.00514	0.500	1.000	4.96	121	70 - 130	6.16	0.143	20	
Lab Sample ID: 1603217-015CMSD													
Test Code:	200.7-W												
Date Analyzed:	03/18/2016 1113h												
Date Prepared:	03/10/2016 1120h												
Boron	2.99	mg/L	E200.7	0.00514	0.500	1.000	1.79	120	70 - 130	3.02	0.880	20	

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Jose Rocha
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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1603217-016CMSD													
Test Code:	200.8-W	Date Analyzed:	03/15/2016 941h	Date Prepared:	03/11/2016 1547h								
Antimony	0.204	mg/L	E200.8	0.000306	0.00200	0.2000	0.00134	101	75 - 125	0.209	2.18	20	
Arsenic	0.226	mg/L	E200.8	0.000540	0.00200	0.2000	0	113	75 - 125	0.23	1.87	20	
Barium	0.210	mg/L	E200.8	0.000600	0.00200	0.2000	0.0153	97.4	75 - 125	0.217	3.08	20	
Beryllium	0.190	mg/L	E200.8	0.000177	0.00200	0.2000	0	95.0	75 - 125	0.194	2.21	20	
Cadmium	0.194	mg/L	E200.8	0.0000666	0.000500	0.2000	0.000458	96.6	75 - 125	0.198	2.03	20	
Chromium	0.196	mg/L	E200.8	0.000998	0.00200	0.2000	0.0017	97.0	75 - 125	0.2	2.02	20	
Cobalt	0.193	mg/L	E200.8	0.0000990	0.00400	0.2000	0.00729	93.0	75 - 125	0.197	1.96	20	
Lead	0.179	mg/L	E200.8	0.000125	0.00200	0.2000	0	89.3	75 - 125	0.182	1.63	20	
Molybdenum	0.221	mg/L	E200.8	0.000202	0.00200	0.2000	0.00308	109	75 - 125	0.226	2.29	20	
Selenium	0.214	mg/L	E200.8	0.000310	0.00200	0.2000	0.0036	105	75 - 125	0.221	2.88	20	
Thallium	0.175	mg/L	E200.8	0.0000500	0.00200	0.2000	0	87.5	75 - 125	0.181	3.34	20	
Lab Sample ID: 1603217-015CMSD													
Test Code:	200.8-W	Date Analyzed:	03/15/2016 1655h	Date Prepared:	03/10/2016 1120h								
Antimony	0.209	mg/L	E200.8	0.000306	0.00200	0.2000	0	105	75 - 125	0.211	0.733	20	
Arsenic	0.233	mg/L	E200.8	0.000540	0.00200	0.2000	0.001	116	75 - 125	0.234	0.547	20	
Barium	0.202	mg/L	E200.8	0.000600	0.00200	0.2000	0.012	94.8	75 - 125	0.202	0.0152	20	
Beryllium	0.191	mg/L	E200.8	0.000177	0.00200	0.2000	0	95.7	75 - 125	0.193	0.892	20	
Cadmium	0.199	mg/L	E200.8	0.0000666	0.000500	0.2000	0.000459	99.2	75 - 125	0.2	0.627	20	
Chromium	0.201	mg/L	E200.8	0.000998	0.00200	0.2000	0.00149	99.9	75 - 125	0.203	0.832	20	
Cobalt	0.195	mg/L	E200.8	0.0000990	0.00400	0.2000	0.00668	94.2	75 - 125	0.197	0.883	20	
Lead	0.169	mg/L	E200.8	0.000125	0.00200	0.2000	0	84.3	75 - 125	0.169	0.532	20	
Molybdenum	0.230	mg/L	E200.8	0.000202	0.00200	0.2000	0.00295	113	75 - 125	0.231	0.522	20	
Selenium	0.595	mg/L	E200.8	0.000310	0.00200	0.2000	0.383	106	75 - 125	0.601	1.11	20	
Thallium	0.168	mg/L	E200.8	0.0000500	0.00200	0.2000	0	83.8	75 - 125	0.168	0.208	20	

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Jose Rocha
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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1603217-001CMSD		Date Analyzed:	03/18/2016 1106h										
Test Code: HG-DW-245.1		Date Prepared:	03/17/2016 1700h										
Mercury	0.00336	mg/L	E245.1	0.00000559	0.000150	0.003330	0	101	80 - 120	0.00337	0.149	20	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1603217-010ADUP Date Analyzed: 03/09/2016 1819h													
Test Code: PH-4500H+B													
pH @ 25° C	8.39	pH Units	SM4500-H+B	1.00	1.00					8.43	0.476	5	
Lab Sample ID: 1603217-019ADUP Date Analyzed: 03/09/2016 1819h													
Test Code: PH-4500H+B													
pH @ 25° C	7.34	pH Units	SM4500-H+B	1.00	1.00					7.32	0.273	5	
Lab Sample ID: 1603217-001ADUP Date Analyzed: 03/11/2016 1040h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	8,900	mg/L	SM2540C	87.7	100					9120	2.44	5	
Lab Sample ID: 1603217-012ADUP Date Analyzed: 03/11/2016 1040h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	11,500	mg/L	SM2540C	87.7	100					11400	0.701	5	

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-R88381 Date Analyzed: 03/17/2016 1714h													
Test Code: 300.0-W													
Chloride	4.97	mg/L	E300.0	0.00516	0.100	5.000	0	99.4	90 - 110				
Fluoride	4.86	mg/L	E300.0	0.0139	0.100	5.000	0	97.2	90 - 110				
Sulfate	4.80	mg/L	E300.0	0.0201	0.750	5.000	0	96.0	90 - 110				
Lab Sample ID: LCS-R88126 Date Analyzed: 03/10/2016 954h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	49,100	mg/L	SM2320B	1.38	10.0	50,000	0	98.3	90 - 110				
Lab Sample ID: LCS-R88127 Date Analyzed: 03/10/2016 1042h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	50,000	mg/L	SM2320B	1.38	10.0	50,000	0	100	90 - 110				
Lab Sample ID: LCS-R88136 Date Analyzed: 03/10/2016 1235h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.02	mg/L	E353.2	0.00833	0.0100	1.000	0	102	90 - 110				
Lab Sample ID: LCS-R88106 Date Analyzed: 03/09/2016 1819h													
Test Code: PH-4500H+B													
pH @ 25° C	8.97	pH Units	SM4500-H+B	1.00	1.00	9.000	0	99.7	98 - 102				
Lab Sample ID: LCS-R88216 Date Analyzed: 03/11/2016 1040h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	208	mg/L	SM2540C	8.77	10.0	205.0	0	101	80 - 120				

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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-R88381 Date Analyzed: 03/17/2016 1657h													
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.00516	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.0139	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0201	0.750								
Lab Sample ID: MB-R88126 Date Analyzed: 03/10/2016 954h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Bicarbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Carbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Lab Sample ID: MB-R88127 Date Analyzed: 03/10/2016 1042h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Bicarbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Carbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Lab Sample ID: MB-R88136 Date Analyzed: 03/10/2016 1234h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID: MB-R88216 Date Analyzed: 03/11/2016 1040h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	8.77	10.0								

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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1603217-001AMS Date Analyzed: 03/17/2016 1804h													
Test Code: 300.0-W													
Chloride	12,200	mg/L	E300.0	10.3	200	10,000	2220	100	90 - 110				
Fluoride	9,990	mg/L	E300.0	27.8	200	10,000	0	99.9	90 - 110				
Sulfate	12,900	mg/L	E300.0	40.2	1,500	10,000	3810	90.4	90 - 110				
Lab Sample ID: 1603217-013AMS Date Analyzed: 03/17/2016 2126h													
Test Code: 300.0-W													
Chloride	12,200	mg/L	E300.0	10.3	200	10,000	2240	99.5	90 - 110				
Fluoride	9,940	mg/L	E300.0	27.8	200	10,000	0	99.4	90 - 110				
Sulfate	12,900	mg/L	E300.0	40.2	1,500	10,000	2950	99.9	90 - 110				
Lab Sample ID: 1603217-008AMS Date Analyzed: 03/10/2016 954h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	592	mg/L	SM2320B	1.38	10.0	250.0	355	94.6	80 - 120				
Lab Sample ID: 1603217-009AMS Date Analyzed: 03/10/2016 1042h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	755	mg/L	SM2320B	1.38	10.0	250.0	514	96.4	80 - 120				
Lab Sample ID: 1603217-019AMS Date Analyzed: 03/10/2016 1042h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	660	mg/L	SM2320B	1.38	10.0	250.0	428	92.8	80 - 120				
Lab Sample ID: 1603217-001BMS Date Analyzed: 03/10/2016 1243h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	16.4	mg/L	E353.2	0.0833	0.100	10.00	6.41	99.6	90 - 110				
Lab Sample ID: 1603217-006BMS Date Analyzed: 03/10/2016 1249h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	13.2	mg/L	E353.2	0.0833	0.100	10.00	0.398	128	90 - 110				1

¹ - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

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QC SUMMARY REPORT

Client: Water & Environmental Technologies
Lab Set ID: 1603217B
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1603217-001AMSD Date Analyzed: 03/17/2016 1821h													
Test Code: 300.0-W													
Chloride	12,400	mg/L	E300.0	10.3	200	10,000	2220	101	90 - 110	12200	0.999	20	
Fluoride	10,300	mg/L	E300.0	27.8	200	10,000	0	103	90 - 110	9990	2.86	20	
Sulfate	13,300	mg/L	E300.0	40.2	1,500	10,000	3810	95.3	90 - 110	12900	3.74	20	
Lab Sample ID: 1603217-013AMSD Date Analyzed: 03/17/2016 2143h													
Test Code: 300.0-W													
Chloride	12,300	mg/L	E300.0	10.3	200	10,000	2240	100	90 - 110	12200	0.690	20	
Fluoride	10,100	mg/L	E300.0	27.8	200	10,000	0	101	90 - 110	9940	2.09	20	
Sulfate	12,400	mg/L	E300.0	40.2	1,500	10,000	2950	94.4	90 - 110	12900	4.36	20	
Lab Sample ID: 1603217-008AMSD Date Analyzed: 03/10/2016 954h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	596	mg/L	SM2320B	1.38	10.0	250.0	355	96.5	80 - 120	592	0.775	10	
Lab Sample ID: 1603217-009AMSD Date Analyzed: 03/10/2016 1042h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	764	mg/L	SM2320B	1.38	10.0	250.0	514	100	80 - 120	755	1.20	10	
Lab Sample ID: 1603217-019AMSD Date Analyzed: 03/10/2016 1042h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	664	mg/L	SM2320B	1.38	10.0	250.0	428	94.6	80 - 120	660	0.680	10	
Lab Sample ID: 1603217-001BMSD Date Analyzed: 03/10/2016 1244h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	16.2	mg/L	E353.2	0.0833	0.100	10.00	6.41	98.3	90 - 110	16.4	0.797	10	
Lab Sample ID: 1603217-006BMSD Date Analyzed: 03/10/2016 1250h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	11.3	mg/L	E353.2	0.0833	0.100	10.00	0.398	109	90 - 110	13.2	15.7	10	@

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

Report Date: 4/5/2016 Page 38 of 38

WORK ORDER Summary

Work Order: **1603217** Page 5 of 9

Client: PacifiCorp

Due Date: 3/23/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1603217-010A	FB	3/9/2016 0900h	3/9/2016 1653h	ALK-W-2320B	Aqueous		DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1603217-010B				NO2/NO3-W-353.2			DF-NO2/NO3
1603217-010C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1603217-010D				OUTSIDE LAB			ACZ
1603217-011A	EB	3/9/2016 0905h	3/9/2016 1653h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1603217-011B				NO2/NO3-W-353.2			DF-NO2/NO3
1603217-011C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1603217-011D				OUTSIDE LAB			ACZ
1603217-012A	ELF-2	3/9/2016 1330h	3/9/2016 1653h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1603217-012B				NO2/NO3-W-353.2			DF-NO2/NO3

1603217B

WORK ORDER Summary

Work Order: **1603217**

Page 6 of 9

Client: PacifiCorp

Due Date: 3/23/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1603217-012C	ELF-2	3/9/2016 1330h	3/9/2016 1653h	200.7-W 5 SEL Analytes: B CA LI MG NA	Aqueous		DF-Metals 1
				200.7-W-PR			DF-Metals
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			DF-Metals
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1603217-012D				OUTSIDE LAB			ACZ 2
1603217-013A	ELF-8	3/9/2016 1305h	3/9/2016 1653h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous		DF-WC 1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC			DF-WC
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1603217-013B				NO2/NO3-W-353.2			DF-NO2/NO3
1603217-013C				200.7-W 5 SEL Analytes: B CA LI MG NA			DF-Metals
				200.7-W-PR			DF-Metals
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			DF-Metals
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1603217-013D				OUTSIDE LAB			ACZ 2
1603217-014A	ELF-9	3/9/2016 1230h	3/9/2016 1653h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous		DF-WC 1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC			DF-WC
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1603217-014B				NO2/NO3-W-353.2			DF-NO2/NO3
1603217-014C				200.7-W 5 SEL Analytes: B CA LI MG NA			DF-Metals
				200.7-W-PR			DF-Metals
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			DF-Metals
				200.8-W-PR			DF-Metals

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WORK ORDER Summary

Work Order: **1603217** Page 7 of 9

Client: PacifiCorp

Due Date: 3/23/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1603217-014C	ELF-9	3/9/2016 1230h	3/9/2016 1653h	HG-DW-245.1	Aqueous	DF-Metals	1
				HG-DW-PR		DF-Metals	
1603217-014D				OUTSIDE LAB		ACZ	2
1603217-015A	ELF-7	3/9/2016 1050h	3/9/2016 1653h	300.0-W	Aqueous	DF-WC	1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B		DF-WC	
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B		DF-WC	
				TDS-W-2540C		DF-WC	
1603217-015B				NO2/NO3-W-353.2		DF-NO2/NO3	
1603217-015C				200.7-W		DF-Metals	
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR		DF-Metals	
				200.8-W		DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR		DF-Metals	
				HG-DW-245.1		DF-Metals	
				HG-DW-PR		DF-Metals	
1603217-015D				OUTSIDE LAB		ACZ	2
1603217-016A	ELF-4	3/9/2016 1030h	3/9/2016 1653h	300.0-W	Aqueous	DF-WC	1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B		DF-WC	
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B		DF-WC	
				TDS-W-2540C		DF-WC	
1603217-016B				NO2/NO3-W-353.2		DF-NO2/NO3	
1603217-016C				200.7-W		DF-Metals	
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR		DF-Metals	
				200.8-W		DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR		DF-Metals	
				HG-DW-245.1		DF-Metals	
				HG-DW-PR		DF-Metals	
1603217-016D				OUTSIDE LAB		ACZ	2
1603217-017A	ELF-5	3/9/2016 0950h	3/9/2016 1653h	300.0-W	Aqueous	DF-WC	1
				3 SEL Analytes: CL F SO4			

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WORK ORDER Summary

Work Order: **1603217** Page 8 of 9

Client: PacifiCorp

Due Date: 3/23/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1603217-017A	ELF-5	3/9/2016 0950h	3/9/2016 1653h	ALK-W-2320B	Aqueous		DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1603217-017B				NO2/NO3-W-353.2			DF-NO2/NO3	
1603217-017C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR		DF-Metals		
				HG-DW-245.1		DF-Metals		
				HG-DW-PR		DF-Metals		
1603217-017D				OUTSIDE LAB		ACZ		
1603217-018A	ELF-6	3/9/2016 0920h	3/9/2016 1653h	300.0-W	Aqueous		DF-WC	
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1603217-018B				NO2/NO3-W-353.2			DF-NO2/NO3	
1603217-018C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
	200.8-W		DF-Metals					
	11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL							
				200.8-W-PR		DF-Metals		
				HG-DW-245.1		DF-Metals		
				HG-DW-PR		DF-Metals		
1603217-018D				OUTSIDE LAB		ACZ		
1603217-019A	ELF-11	3/9/2016 0845h	3/9/2016 1653h	300.0-W	Aqueous		DF-WC	
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C		DF-WC		
1603217-019B				NO2/NO3-W-353.2		DF-NO2/NO3		

WORK ORDER Summary

Work Order: **1603217** Page 9 of 9

Client: PacifiCorp

Due Date: 3/23/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1603217-019C	ELF-11	3/9/2016 0845h	3/9/2016 1653h	200.7-W	Aqueous		DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1603217-019D				OUTSIDE LAB			ACZ



1603217B
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AWAL LAB SAMPLE SET #
PAGE 2 OF 3

DUE DATE:
3/23/16

DISCREPANCIES BETWEEN SAMPLE
LABELS AND COC RECORD?

Y N

RELINQUISHED BY: SIGNATURE <i>[Signature]</i>	DATE: <i>3/9/16</i>	RECEIVED BY: SIGNATURE <i>Denise Brown</i>	DATE: <i>3/9/16</i>
PRINT NAME: <i>DOTTIE BARBACK</i>	TIME: <i>16:53</i>	PRINT NAME: <i>Denise Brown</i>	TIME: <i>16:53</i>
RELINQUISHED BY: SIGNATURE	DATE:	RECEIVED BY: SIGNATURE	DATE:
PRINT NAME:	TIME:	PRINT NAME:	TIME:
RELINQUISHED BY: SIGNATURE	DATE:	RECEIVED BY: SIGNATURE	DATE:
PRINT NAME:	TIME:	PRINT NAME:	TIME:
RELINQUISHED BY: SIGNATURE	DATE:	RECEIVED BY: SIGNATURE	DATE:
PRINT NAME:	TIME:	PRINT NAME:	TIME:

SPECIAL INSTRUCTIONS:



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CHAIN OF CUSTODY

ALL ANALYSIS WILL BE CONDUCTED USING NELAP ACCREDITED METHODS AND ALL DATA WILL BE REPORTED USING AWAL'S STANDARD ANALYTE LISTS AND REPORTING LIMITS (PQL) UNLESS SPECIFICALLY REQUESTED OTHERWISE ON THIS CHAIN OF CUSTODY AND/OR ATTACHED DOCUMENTATION.

1603217B

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AWAL LAB SAMPLE SET #
PAGE 3 OF 3

QC Level:		Turn Around Time:		Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.		DUE DATE:								
1	2	2+	3	3+	1	2	3	4	5	Std	3/23/16			
# OF CONTAINERS	SAMPLE MATRIX	TDS, pH, Alkalinity	Anions	Fluoride	Total Metals	Total Mercury	Nitrogen, Nitrite + Nitrate	Radium 226 + Radium 228	<input type="checkbox"/> REPORT DOWN TO THE MDL <input checked="" type="checkbox"/> INCLUDE EDD: <input type="checkbox"/> LAB FILTER FOR: <input type="checkbox"/> FIELD FILTERED FOR: FOR COMPLIANCE WITH: <input type="checkbox"/> NELAP <input type="checkbox"/> RCRA <input type="checkbox"/> CWA <input type="checkbox"/> SDWA <input type="checkbox"/> ELAP / A2LA <input type="checkbox"/> NLLAP <input type="checkbox"/> NON-COMPLIANCE <input type="checkbox"/> OTHER:				LABORATORY USE ONLY SAMPLES WERE: 1 SHIPPED OR HAND DELIVERED 2 AMBIENT OR CHILLED 3 TEMPERATURE 6.8 °C 4 RECEIVED BROKEN/LEAKING (IMPROPERLY SEALED) Y N 5 PROPERLY PRESERVED Y N CHECKED AT BENCH 6 RECEIVED WITHIN HOLDING TIMES Y N	
									KNOWN HAZARDS & SAMPLE COMMENTS				COC TAPE WAS: 1 PRESENT ON OUTER PACKAGE Y N (NA) 2 UNBROKEN ON OUTER PACKAGE Y N (NA) 3 PRESENT ON SAMPLE Y N (NA) 4 UNBROKEN ON SAMPLE Y N (NA) DISCREPANCIES BETWEEN SAMPLE LABELS AND COC RECORD? Y N	

SAMPLE ID:	DATE SAMPLED	TIME SAMPLED	# OF CONTAINERS	SAMPLE MATRIX	TDS, pH, Alkalinity	Anions	Fluoride	Total Metals	Total Mercury	Nitrogen, Nitrite + Nitrate	Radium 226 + Radium 228	KNOWN HAZARDS & SAMPLE COMMENTS
12 ELF-2	3/9/16	1330	5	W	X	X	X	X	X	X	X	
13 ELF-8		1305	5	W	X	X	X	X	X	X	X	
14 ELF-9		1230	5	W	X	X	X	X	X	X	X	
4 ELF-10			5	W	X	X	X	X	X	X	X	
5 ELF-3			5	W	X	X	X	X	X	X	X	
15 ELF-7		1050	5	W	X	X	X	X	X	X	X	
16 ELF-4		1030	5	W	X	X	X	X	X	X	X	
17 ELF ELF-5		0950	5	W	X	X	X	X	X	X	X	
18 ELF-6		0920	5	W	X	X	X	X	X	X	X	
19 ELF-11		0845	5	W	X	X	X	X	X	X	X	
11			5	W	X	X	X	X	X	X	X	
12			5	W	X	X	X	X	X	X	X	

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:	SPECIAL INSTRUCTIONS:
SIGNATURE: <i>Laura Watson</i>	3/9/16	SIGNATURE: <i>L</i>		
PRINT NAME: Laura Watson		PRINT NAME:		
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:	
SIGNATURE: <i>John Barcock</i>	3/9/16	SIGNATURE: <i>Denise Brown</i>	3/9/16	
PRINT NAME: John Barcock	TIME: 16:53	PRINT NAME: Denise Brown	TIME: 16:53	
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:	
SIGNATURE:		SIGNATURE:		
PRINT NAME:		PRINT NAME:		
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:	
SIGNATURE:		SIGNATURE:		
PRINT NAME:		PRINT NAME:		

Water & Environmental Technologies

Analyte Method Reporting Limit	Method	Reporting Limit	Price/sample ¹
pH	SM4500-H+ B	1.0 s.u.	\$11.70
Solids, Total Dissolved	SM2540 C	10 mg/L	\$13.50
Alkalinity Total as CaCO ₃	SM2320 B	10 mg/L	\$17.10
Bicarbonate as HCO ₃	SM2320 B	10 mg/L	\$0.00
Carbonate as CO ₃	SM2320 B	10 mg/L	\$0.00
Chloride	E300.0	0.1 mg/L	\$11.70
Sulfate	E300.0	0.75 mg/L	\$11.70
Fluoride	A4500-F C/E300.0	0.1 mg/L	\$12.60
Nitrogen, Nitrate+Nitrite	E353.2	0.01 mg/L	\$11.70
Antimony	E200.8	0.002 mg/L	\$9.00
Arsenic	E200.8	0.002 mg/L	\$9.00
Barium	E200.8	0.002 mg/L	\$9.00
Beryllium	E200.8	0.002 mg/L	\$9.00
Boron	E200.7	0.5 mg/L	\$9.00
Cadmium	E200.8	0.0005 mg/L	\$9.00
Calcium	E200.7	1.0 mg/L	\$9.00
Chromium	E200.8	0.002 mg/L	\$9.00
Cobalt	E200.8	0.004 mg/L	\$9.00
Lead	E200.8	0.002 mg/L	\$9.00
Lithium	E200.7	0.1 mg/L	\$9.00
Magnesium	E200.7	1.0 mg/L	\$9.00
Molybdenum	E200.8	0.002 mg/L	\$9.00
Selenium	E200.8	0.002 mg/L	\$9.00
Sodium	E200.7	1.0 mg/L	\$9.00
Thallium	E200.8	0.002 mg/L	\$9.00
Mercury, Total	E245.1	0.00015 mg/L	\$25.20
Radium 226 + Radium 228 ²	M903.1 + M904.0		\$182.16
Radium 226, Total ²	M903.1	0.4 pCi/L	\$0.00
Radium 228, Total ²	M904.0	1.5 pCi/L	\$0.00
Metals digestion/sample			\$18.00
Total/sample - Not including shipping			\$459.36
Monthly Price for 17 samples - Not including shipping			\$7,809.12
Total Project Cost (20 months) - Not including shipping			\$156,182.40

¹ - Includes 10% discount for 10 or more samples/delivery.

² - UPS shipping costs to Colorado will be applied to these analyses.

Radium analyses will be subcontracted to ACZ Labs in CO.

Lab Set ID: 1603217

Preservation Check Sheet

Sample Set Extension and pH

[illegible]

Procedure:

- 1) Pour a small amount of sample in the sample lid
- 2) Pour sample from Lid gently over wide range pH paper
- 3) **Do Not** dip the pH paper in the sample bottle or lid
- 4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
- 5) Flag COC, notify client if requested
- 6) Place client conversation on COC
- 7) Samples may be adjusted

Frequency:

All samples requiring preservation

- * The sample required additional preservative upon receipt.
- + The sample was received unpreserved.
- ▲ The sample was received unpreserved and therefore preserved upon receipt.
- # The sample pH was unadjustable to a pH < 2 due to the sample matrix.
- The sample pH was unadjustable to a pH > due to the sample matrix interference.

March 29, 2016

Report to:

Elona Hayward
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

Bill to:

Lynn Turner
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

cc: Denise Bruun

Project ID: 1603217

ACZ Project ID: L29389

Elona Hayward:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on March 14, 2016. This project has been assigned to ACZ's project number, L29389. Please reference this number in all future inquiries.

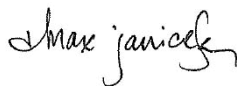
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L29389. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after April 28, 2016. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.



Max Janicek has reviewed and
approved this report.



American West Analytical Labs

Project ID: 1603217

Sample ID: DUP

Locator:

ACZ Sample ID: **L29389-09**

Date Sampled: 03/09/16 11:00

Date Received: 03/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	03/29/16 0:14		0.9	0.17	0.37	pCi/L		kls

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	03/28/16 11:46		1.6	0.63	0.55	pCi/L	*	djc

American West Analytical Labs

Project ID: 1603217

Sample ID: FB

Locator:

ACZ Sample ID: **L29389-10**

Date Sampled: 03/09/16 9:00

Date Received: 03/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	03/29/16 0:15		0.09	0.1	0.24	pCi/L		kls

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	03/28/16 11:46		1.3	0.81	0.77	pCi/L	*	djc

American West Analytical Labs

Project ID: 1603217

Sample ID: EB

Locator:

ACZ Sample ID: **L29389-11**

Date Sampled: 03/09/16 9:05

Date Received: 03/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	03/29/16 0:17		0.14	0.08	0.2	pCi/L		kls

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	03/28/16 11:46		1.1	1.4	1.4	pCi/L	*	djc

American West Analytical Labs

Project ID: 1603217

Sample ID: ELF-2

Locator:

ACZ Sample ID: **L29389-12**

Date Sampled: 03/09/16 13:30

Date Received: 03/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	03/29/16 0:18		0.37	0.15	0.45	pCi/L		kls

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	03/28/16 11:46		2.5	0.95	0.83	pCi/L	*	djc

American West Analytical Labs

Project ID: 1603217

Sample ID: ELF-8

Locator:

ACZ Sample ID: **L29389-13**

Date Sampled: 03/09/16 13:05

Date Received: 03/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	03/29/16 0:20		1.1	0.15	0.09	pCi/L		kls

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	03/28/16 11:46		2.6	0.88	0.75	pCi/L	*	djc

American West Analytical Labs

Project ID: 1603217

Sample ID: ELF-9

Locator:

ACZ Sample ID: **L29389-14**

Date Sampled: 03/09/16 12:30

Date Received: 03/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	03/29/16 0:21		0.26	0.12	0.23	pCi/L		kls

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	03/28/16 11:46		0.89	0.63	0.61	pCi/L	*	djc

American West Analytical Labs

Project ID: 1603217

Sample ID: ELF-7

Locator:

ACZ Sample ID: **L29389-15**

Date Sampled: 03/09/16 10:50

Date Received: 03/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	03/29/16 0:23		0.6	0.15	0.31	pCi/L		kls

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	03/28/16 13:48		2.3	0.68	0.57	pCi/L	*	djc

American West Analytical Labs

Project ID: 1603217

Sample ID: ELF-4

Locator:

ACZ Sample ID: **L29389-16**

Date Sampled: 03/09/16 10:30

Date Received: 03/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	03/29/16 0:24		0.5	0.19	0.55	pCi/L		kls

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	03/28/16 13:48		1.7	0.55	0.47	pCi/L	*	djc

American West Analytical Labs

Project ID: 1603217

Sample ID: ELF-5

Locator:

ACZ Sample ID: **L29389-17**

Date Sampled: 03/09/16 9:50

Date Received: 03/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	03/29/16 0:25		0.59	0.16	0.2	pCi/L		kls

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	03/28/16 13:48		2.3	0.75	0.63	pCi/L	*	djc

American West Analytical Labs

Project ID: 1603217

Sample ID: ELF-6

Locator:

ACZ Sample ID: **L29389-18**

Date Sampled: 03/09/16 9:20

Date Received: 03/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	03/29/16 0:27		0.4	0.13	0.23	pCi/L		kls

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	03/28/16 13:48		2.3	0.87	0.77	pCi/L	*	djc

American West Analytical Labs

Project ID: 1603217

Sample ID: ELF-11

Locator:

ACZ Sample ID: **L29389-19**

Date Sampled: 03/09/16 8:45

Date Received: 03/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	03/29/16 0:28		0.23	0.12	0.16	pCi/L		kls

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	03/28/16 13:48		3	1.3	1.1	pCi/L	*	djc

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
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Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

American West Analytical Labs

ACZ Project ID: **L29389**

Radium 226		M903.1										Units: pCi/L				
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG400708																
WG400496PBW	PBW	03/29/16						.09	0.13	0.15			0.3			
WG400496LCSW	LCSW	03/29/16	PCN49536	20				19	0.6	0.25	95	43	148			
L29389-04DUP	DUP-RER	03/29/16			0.07	0.13	0.3	.97	0.46	0.83				1.88	2	
L29393-01DUP	DUP-RER	03/29/16			7.6	0.39	0.25	7.9	0.39	0.14				0.54	2	
L29393-01MS	MS	03/29/16	PCN49536	20	7.6	0.39	0.25	32	0.79	0.15	122	43	148			
Radium 228		M904.0										Units: pCi/L				
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG400667																
WG400269PBW	PBW	03/28/16						1	0.79	0.77			1.54			
WG400269LCSW	LCSW	03/28/16	PCN48442	17.69				17	1.3	0.57	96	47	123			
L29389-03MS	MS	03/28/16	PCN48442	35.38	2	1.3	1.3	55	3.7	1.5	150	47	123			M1
L29389-11DUP	DUP-RER	03/28/16			1.1	1.4	1.4	1.3	1.1	1.1				0.11	2	
L29389-02DUP	DUP-RER	03/28/16			4.6	1.7	1.5	3.6	1.7	1.6				0.42	2	

American West Analytical Labs

ACZ Project ID: **L29389**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L29389-01	WG400667	Radium 228	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-02	WG400708	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.
	WG400667	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
			M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-03	WG400667	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
			M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-04	WG400667	Radium 228	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-05	WG400667	Radium 228	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-06	WG400667	Radium 228	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-07	WG400667	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
			M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-08	WG400667	Radium 228	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-09	WG400667	Radium 228	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-10	WG400667	Radium 228	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-11	WG400667	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
			M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-12	WG400667	Radium 228	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-13	WG400667	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
			M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-14	WG400667	Radium 228	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-15	WG400667	Radium 228	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-16	WG400667	Radium 228	M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-17	WG400667	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
			M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-18	WG400667	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
			M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
L29389-19	WG400667	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
			M904.0	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.

American West Analytical Labs
1603217

ACZ Project ID: L29389
Date Received: 03/14/2016 09:35
Received By: ddp
Date Printed: 3/14/2016

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2) Is the Chain of Custody form or other directive shipping papers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Does this project require special handling procedures such as CLP protocol?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4) Are any samples NRC licensable material?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) If samples are received past hold time, proceed with requested short hold time analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Is the Chain of Custody form complete and accurate? The sample matrix was entered per the requested quotation.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples? A change was made in the ID Line 12 on COC 1 and ID Line 3 on COC 2 section prior to ACZ custody.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Are all labels on containers and are they intact and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) For preserved bottle types, was the pH checked and within limits? ¹	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Is there sufficient sample volume to perform all requested work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Is the custody seal intact on all containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14) Are samples that require zero headspace acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Are all sample containers appropriate for analytical requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Is there an Hg-1631 trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Is there a VOA trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18) Were all samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
3838	11.8	NA	13	N/A
4267	10.3	NA	12	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

American West Analytical Labs
1603217

ACZ Project ID: L29389

Date Received: 03/14/2016 09:35

Received By: ddp

Date Printed: 3/14/2016

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



L29389 Chain of Custody

629389

American West Analytical Laboratories

Chain of Custody

Lab Sample Set #

Client: American West Analytical Laboratories
Address: 3440 S. 700 W.
Salt Lake City, UT 84119

Contact: Elona Hayward
Phone: 801-263-8686
Fax: 801-263-8687

Project Name: 1603217

PO#: Hunter CCR Sampling / PERCM52/53

Email: elona@awal-labs.com
denise@awal-labs.com

Page 1 of 2

QC Level: 2+

Turn Around Time

Standard

Sample ID:	Date Sampled	Time	# of Containers	Sample Matrix	Radium 226 + Radium 228	Radium 226, Total	Radium 228, Total	Comments
HDP-1	3/9/2016	8:00	2	Aq	x	x	x	
DUP-1	3/9/2016	8:10	2	Aq	x	x	x	
FB-1	3/9/2016	8:20	2	Aq	x	x	x	
EB-1	3/9/2016	8:30	2	Aq	x	x	x	
HDP-2	3/9/2016	9:00	2	Aq	x	x	x	
HLF-1N	3/9/2016	10:10	2	Aq	x	x	x	
HLF-3ND	3/9/2016	10:50	2	Aq	x	x	x	
HLF-4N	3/9/2016	11:30	2	Aq	x	x	x	
DUP	3/9/2016	11:00	2	Aq	x	x	x	
FB	3/9/2016	9:00	2	Aq	x	x	x	
EB	3/9/2016	9:05	2	Aq	x	x	x	
ELF-2	3/9/2016	13:30	2	Aq	x	x	x	Appropriate Utah state certifications required.
ELF-8	3/9/2016	13:05	2	Aq	x	x	x	
ELF-9	3/9/2016	12:30	2	Aq	x	x	x	
ELF-7	3/9/2016	10:50	2	Aq	x	x	x	

Laboratory Use Only

1. Samples Were: ☐ Shipped on Ice ☐ Delivered ☐ Ambient ☐ Chilled

2. Temperature: _____

3. Received Broken/Leaking (Improperly Sealed): ☐ N

4. Sample Preserved: ☐ N

5. Re-Sealed Within: _____

6. Holding Time: _____

QC Use Only

7. Recent on Outer Package: ☐ N ☐ Y

8. Unbroken on Outer Package: ☐ N ☐ Y

9. Preserved Sample: ☐ N ☐ Y

10. Unbroken on Sample: ☐ N ☐ Y

11. Discrepancy Between Sample Labels and CCR Record: ☐ N ☐ Y

Special Instructions: Include project name and PO# on final report and invoice. Email results to both Elona and Denise.

Relinquished by: Signature <i>Denise Brown</i>	Received by: Signature <i>Elona Hayward</i>
Print Name Denise Brown	Print Name Elona Hayward
Date: 3/10/16	Date: 3/10/16
Time: 15:00	Time: 0940
Relinquished by: Signature	Received by: Signature
Print Name	Print Name
Date:	Date:
Time:	Time:

Client: American West Analytical Laboratories
Address: 3440 S. 700 W.

Contact: Elona Hayward
Phone: 801-263-8686
Fax: 801-263-8687

Page 2 of 2

Salt Lake City, UT 84119

Project Name: 1603217

Email: elona@awal-labs.com
denise@awal-labs.com

QC Level: 2+
Around Time
Standard

[illegible]

Special Instructions: Include project name and PO# on final report and invoice. Email results to both Elena and Denise.

Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name	Time:	Print Name	Time:
Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name	Time:	Print Name	Time:



**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Jeff Tucker
PacifiCorp
1407 West North Temple, # 280
Salt Lake City, UT 84116
TEL: (801) 220-2989

RE: Hunter CCR Sampling / PERCM52

Dear Jeff Tucker:

Lab Set ID: 1604177

3440 South 700 West
Salt Lake City, Utah
84119

American West Analytical Laboratories received sample(s) on 4/7/2016 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Jose G. Rocha
Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:

Radium 226 + Radium 228



INORGANIC ANALYTICAL REPORT

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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-001
Client Sample ID: ELF-9
Collection Date: 4/7/2016 1030h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1612h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1612h	E200.8	0.00200	0.00679	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1612h	E200.8	0.00200	0.0946	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1612h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/18/2016 1311h	E200.7	0.500	1.35	
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1612h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1157h	E200.7	100	112	
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1612h	E200.8	0.00200	0.0183	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1612h	E200.8	0.00400	0.00498	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1612h	E200.8	0.00200	0.00549	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1208h	E200.7	0.100	0.724	~
Magnesium	mg/L	4/8/2016 1159h	4/15/2016 1347h	E200.7	10.0	56.7	
Mercury	mg/L	4/15/2016 1710h	4/18/2016 838h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1612h	E200.8	0.00200	0.129	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1612h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1357h	E200.7	1,000	3,600	
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1612h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-002
Client Sample ID: ELF-10
Collection Date: 4/7/2016 930h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1616h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1616h	E200.8	0.00200	0.00366	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1616h	E200.8	0.00200	0.0519	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1616h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/18/2016 1313h	E200.7	0.500	1.54	
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1616h	E200.8	0.000500	0.000595	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1159h	E200.7	100	479	
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1616h	E200.8	0.00200	0.00497	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1616h	E200.8	0.00400	0.00444	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1616h	E200.8	0.00200	0.00325	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1208h	E200.7	0.100	0.841	~
Magnesium	mg/L	4/8/2016 1159h	4/14/2016 1159h	E200.7	100	479	
Mercury	mg/L	4/15/2016 1710h	4/18/2016 843h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1616h	E200.8	0.00200	0.118	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1616h	E200.8	0.00200	0.146	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1400h	E200.7	1,000	13,400	
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1616h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-003
Client Sample ID: ELF-2
Collection Date: 4/7/2016 1145h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1619h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1619h	E200.8	0.00200	< 0.00200	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1619h	E200.8	0.00200	0.00910	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1619h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/18/2016 1316h	E200.7	0.500	3.33	
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1619h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1207h	E200.7	100	404	²
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1619h	E200.8	0.00200	0.0110	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1619h	E200.8	0.00400	< 0.00400	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1619h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1209h	E200.7	0.100	1.34	~
Magnesium	mg/L	4/8/2016 1159h	4/14/2016 1207h	E200.7	100	323	²
Mercury	mg/L	4/15/2016 1710h	4/18/2016 845h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1619h	E200.8	0.00200	0.00505	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1619h	E200.8	0.00200	0.463	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1402h	E200.7	1,000	3,220	²
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1619h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-004
Client Sample ID: ELF-2 FB
Collection Date: 4/7/2016 1145h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1634h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1634h	E200.8	0.00200	< 0.00200	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1634h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1634h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/14/2016 1416h	E200.7	0.500	< 0.500	
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1634h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1416h	E200.7	1.00	< 1.00	
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1634h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1634h	E200.8	0.00400	< 0.00400	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1634h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1210h	E200.7	0.100	4.40	~
Magnesium	mg/L	4/8/2016 1159h	4/14/2016 1416h	E200.7	1.00	< 1.00	
Mercury	mg/L	4/15/2016 1710h	4/18/2016 852h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1634h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1634h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1416h	E200.7	1.00	< 1.00	
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1634h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-005
Client Sample ID: ELF-10 EB
Collection Date: 4/7/2016 930h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1638h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1638h	E200.8	0.00200	< 0.00200	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1638h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1638h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/14/2016 1419h	E200.7	0.500	< 0.500	
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1638h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1419h	E200.7	1.00	< 1.00	
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1638h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1638h	E200.8	0.00400	< 0.00400	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1638h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1211h	E200.7	0.100	1.45	~
Magnesium	mg/L	4/8/2016 1159h	4/14/2016 1419h	E200.7	1.00	< 1.00	
Mercury	mg/L	4/15/2016 1710h	4/18/2016 853h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1638h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1638h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1419h	E200.7	1.00	< 1.00	
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1638h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-006
Client Sample ID: ELF-6
Collection Date: 4/6/2016 1730h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1650h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1650h	E200.8	0.00200	< 0.00200	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1650h	E200.8	0.00200	0.00885	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1650h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/18/2016 1324h	E200.7	0.500	13.3	
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1650h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1222h	E200.7	100	491	
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1650h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1650h	E200.8	0.00400	0.0178	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1650h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1212h	E200.7	0.100	1.63	~
Magnesium	mg/L	4/8/2016 1159h	4/14/2016 1222h	E200.7	100	710	
Mercury	mg/L	4/15/2016 1710h	4/18/2016 855h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1650h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1650h	E200.8	0.00200	0.0951	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1421h	E200.7	1,000	5,680	
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1650h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Jose Rocha
QA Officer



**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-007
Client Sample ID: ELF-4
Collection Date: 4/6/2016 1930h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1653h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1653h	E200.8	0.00200	< 0.00200	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1653h	E200.8	0.00200	0.0139	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1653h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/18/2016 1327h	E200.7	0.500	4.77	
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1653h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1224h	E200.7	100	519	
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1653h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1653h	E200.8	0.00400	0.00675	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1653h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1213h	E200.7	0.100	2.96	~
Magnesium	mg/L	4/8/2016 1159h	4/14/2016 1224h	E200.7	100	554	
Mercury	mg/L	4/15/2016 1710h	4/18/2016 857h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1653h	E200.8	0.00200	0.00260	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1653h	E200.8	0.00200	0.00365	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1424h	E200.7	1,000	2,880	
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1653h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-008
Client Sample ID: ELF-7
Collection Date: 4/6/2016 2000h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1656h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1656h	E200.8	0.00200	< 0.00200	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1656h	E200.8	0.00200	0.00925	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1656h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/15/2016 1326h	E200.7	0.500	1.70	
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1656h	E200.8	0.000500	0.000502	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1227h	E200.7	100	485	
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1656h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1656h	E200.8	0.00400	0.00447	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1656h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1213h	E200.7	0.100	2.64	~
Magnesium	mg/L	4/8/2016 1159h	4/14/2016 1227h	E200.7	100	703	
Mercury	mg/L	4/15/2016 1710h	4/18/2016 859h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1656h	E200.8	0.00200	0.00226	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1656h	E200.8	0.00200	0.421	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1426h	E200.7	1,000	4,880	
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1656h	E200.8	0.00200	< 0.00200	

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Jose Rocha
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**AMERICAN
WEST
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LABORATORIES**

INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-009
Client Sample ID: ELF-5
Collection Date: 4/6/2016 1830h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1700h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1700h	E200.8	0.00200	< 0.00200	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1700h	E200.8	0.00200	0.0179	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1700h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/15/2016 1329h	E200.7	0.500	5.35	
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1700h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1230h	E200.7	100	476	
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1700h	E200.8	0.00200	0.00215	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1700h	E200.8	0.00400	0.00457	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1700h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1214h	E200.7	0.100	3.10	~
Magnesium	mg/L	4/8/2016 1159h	4/14/2016 1230h	E200.7	100	817	
Mercury	mg/L	4/15/2016 1710h	4/18/2016 901h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1700h	E200.8	0.00200	0.00446	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1700h	E200.8	0.00200	0.0337	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1428h	E200.7	1,000	5,350	
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1700h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-010
Client Sample ID: ELF-11
Collection Date: 4/6/2016 1530h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1703h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1703h	E200.8	0.00200	< 0.00200	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1703h	E200.8	0.00200	0.0191	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1703h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/15/2016 1331h	E200.7	5.00	15.2	
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1703h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1232h	E200.7	100	412	
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1703h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1703h	E200.8	0.00400	0.0147	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1703h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1217h	E200.7	0.100	3.29	
Magnesium	mg/L	4/8/2016 1159h	4/14/2016 1232h	E200.7	100	374	
Mercury	mg/L	4/15/2016 1710h	4/18/2016 902h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1703h	E200.8	0.00200	0.0214	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1703h	E200.8	0.00200	0.00700	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1431h	E200.7	1,000	4,490	
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1703h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-011
Client Sample ID: ELF-8 DUP
Collection Date: 4/6/2016 1715h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1706h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1706h	E200.8	0.00200	< 0.00200	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1706h	E200.8	0.00200	0.0205	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1706h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/15/2016 1334h	E200.7	5.00	25.4	
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1706h	E200.8	0.000500	0.00119	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1235h	E200.7	100	600	
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1706h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1706h	E200.8	0.00400	0.161	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1706h	E200.8	0.00200	0.00512	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1218h	E200.7	0.100	2.84	~
Magnesium	mg/L	4/8/2016 1159h	4/14/2016 1235h	E200.7	100	128	
Mercury	mg/L	4/15/2016 1710h	4/18/2016 904h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1706h	E200.8	0.00200	0.483	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1706h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1433h	E200.7	1,000	1,990	
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1706h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-012
Client Sample ID: ELF-8
Collection Date: 4/6/2016 1700h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1709h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1709h	E200.8	0.00200	< 0.00200	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1709h	E200.8	0.00200	0.0244	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1709h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/15/2016 1337h	E200.7	5.00	25.4	
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1709h	E200.8	0.000500	0.00114	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1237h	E200.7	100	609	
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1709h	E200.8	0.00200	0.00293	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1709h	E200.8	0.00400	0.166	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1709h	E200.8	0.00200	0.00545	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1218h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	4/8/2016 1159h	4/14/2016 1237h	E200.7	100	129	
Mercury	mg/L	4/15/2016 1710h	4/18/2016 906h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1709h	E200.8	0.00200	0.481	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1709h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1443h	E200.7	1,000	1,980	
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1709h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-013
Client Sample ID: ELF-1 DUP
Collection Date: 4/6/2016 1600h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	4/8/2016 1159h	4/13/2016 1712h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	4/8/2016 1159h	4/13/2016 1712h	E200.8	0.00200	< 0.00200	
Barium	mg/L	4/8/2016 1159h	4/13/2016 1712h	E200.8	0.00200	0.0164	
Beryllium	mg/L	4/8/2016 1159h	4/13/2016 1712h	E200.8	0.00200	< 0.00200	
Boron	mg/L	4/8/2016 1159h	4/15/2016 1339h	E200.7	5.00	15.2	²
Cadmium	mg/L	4/8/2016 1159h	4/13/2016 1712h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	4/8/2016 1159h	4/14/2016 1240h	E200.7	100	422	²
Chromium	mg/L	4/8/2016 1159h	4/13/2016 1712h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	4/8/2016 1159h	4/13/2016 1712h	E200.8	0.00400	0.0154	
Lead	mg/L	4/8/2016 1159h	4/13/2016 1712h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	4/8/2016 1159h	4/15/2016 1219h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	4/8/2016 1159h	4/14/2016 1240h	E200.7	100	386	²
Mercury	mg/L	4/15/2016 1710h	4/18/2016 911h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	4/8/2016 1159h	4/13/2016 1712h	E200.8	0.00200	0.0206	
Selenium	mg/L	4/8/2016 1159h	4/13/2016 1712h	E200.8	0.00200	0.00784	
Sodium	mg/L	4/8/2016 1159h	4/14/2016 1445h	E200.7	1,000	4,730	²
Thallium	mg/L	4/8/2016 1159h	4/13/2016 1712h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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INORGANIC ANALYTICAL REPORT

**AMERICAN
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LABORATORIES**

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-001
Client Sample ID: ELF-9
Collection Date: 4/7/2016 1030h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	520	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	520	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1928h	E300.0	10.0	316	
Fluoride	mg/L		4/19/2016 014h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 008h	E353.2	0.0100	0.222	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	7.86	
Sulfate	mg/L		4/18/2016 1854h	E300.0	750	7,080	
Total Dissolved Solids	mg/L		4/8/2016 1134h	SM2540C	100	10,400	

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INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-002
Client Sample ID: ELF-10
Collection Date: 4/7/2016 930h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	1,040	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	1,040	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1639h	E300.0	100	7,120	
Fluoride	mg/L		4/18/2016 2052h	E300.0	0.100	3.97	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 120h	E353.2	0.200	18.3	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	7.15	
Sulfate	mg/L		4/18/2016 1351h	E300.0	7,500	20,700	
Total Dissolved Solids	mg/L		4/8/2016 1134h	SM2540C	100	38,400	

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INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-003
Client Sample ID: ELF-2
Collection Date: 4/7/2016 1145h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	417	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	417	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1944h	E300.0	10.0	457	
Fluoride	mg/L		4/18/2016 2357h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 010h	E353.2	0.100	15.5	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	7.16	
Sulfate	mg/L		4/18/2016 1911h	E300.0	750	8,370	
Total Dissolved Solids	mg/L		4/8/2016 1134h	SM2540C	100	12,400	

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INORGANIC ANALYTICAL REPORT

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-004
Client Sample ID: ELF-2 FB
Collection Date: 4/7/2016 1145h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1300h	E300.0	0.100	0.215	
Fluoride	mg/L		4/18/2016 1300h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 011h	E353.2	0.0100	0.118	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	7.96	
Sulfate	mg/L		4/18/2016 1300h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		4/11/2016 1401h	SM2540C	10.0	< 10.0	

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INORGANIC ANALYTICAL REPORT

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-005
Client Sample ID: ELF-10 EB
Collection Date: 4/7/2016 930h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1317h	E300.0	0.100	0.208	
Fluoride	mg/L		4/18/2016 1317h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 018h	E353.2	0.0100	0.0914	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	7.66	
Sulfate	mg/L		4/18/2016 1317h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		4/11/2016 1401h	SM2540C	10.0	< 10.0	

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-006
Client Sample ID: ELF-6
Collection Date: 4/6/2016 1730h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	469	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	469	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1407h	E300.0	100	4,890	
Fluoride	mg/L		4/18/2016 2126h	E300.0	0.100	4.87	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 030h	E353.2	0.200	27.3	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	7.04	H
Sulfate	mg/L		4/18/2016 1407h	E300.0	750	9,910	
Total Dissolved Solids	mg/L		4/11/2016 1401h	SM2540C	100	20,200	

H - Sample was received outside of the holding time.

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-007
Client Sample ID: ELF-4
Collection Date: 4/6/2016 1930h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	366	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	366	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1656h	E300.0	100	2,320	
Fluoride	mg/L		4/18/2016 2142h	E300.0	0.100	3.63	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 022h	E353.2	0.100	15.8	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	6.97	H
Sulfate	mg/L		4/18/2016 1656h	E300.0	750	6,110	
Total Dissolved Solids	mg/L		4/11/2016 1401h	SM2540C	100	11,300	

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-008
Client Sample ID: ELF-7
Collection Date: 4/6/2016 2000h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	525	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	525	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1532h	E300.0	100	2,850	
Fluoride	mg/L		4/18/2016 2159h	E300.0	0.100	3.19	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 121h	E353.2	1.00	71.2	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	6.94	H
Sulfate	mg/L		4/18/2016 1532h	E300.0	750	9,580	
Total Dissolved Solids	mg/L		4/11/2016 1401h	SM2540C	100	16,500	

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-009
Client Sample ID: ELF-5
Collection Date: 4/6/2016 1830h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	477	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	477	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1622h	E300.0	100	3,700	
Fluoride	mg/L		4/18/2016 2109h	E300.0	0.100	3.53	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 117h	E353.2	0.200	15.9	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	7.10	H
Sulfate	mg/L		4/18/2016 1334h	E300.0	7,500	11,200	
Total Dissolved Solids	mg/L		4/11/2016 1401h	SM2540C	100	19,200	

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-010
Client Sample ID: ELF-11
Collection Date: 4/6/2016 1530h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	460	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	460	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1713h	E300.0	100	1,230	
Fluoride	mg/L		4/18/2016 2340h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 025h	E353.2	0.100	1.99	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	7.28	H
Sulfate	mg/L		4/19/2016 741h	E300.0	7,500	11,100	
Total Dissolved Solids	mg/L		4/11/2016 1401h	SM2540C	100	15,800	

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-011
Client Sample ID: ELF-8 DUP
Collection Date: 4/6/2016 1715h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	82.6	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	82.6	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1730h	E300.0	100	2,220	
Fluoride	mg/L		4/18/2016 2216h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 118h	E353.2	0.0100	0.226	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	7.48	H
Sulfate	mg/L		4/18/2016 1730h	E300.0	750	3,320	
Total Dissolved Solids	mg/L		4/11/2016 1401h	SM2540C	100	7,640	

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-012
Client Sample ID: ELF-8
Collection Date: 4/6/2016 1700h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	82.6	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	82.6	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1747h	E300.0	100	2,300	
Fluoride	mg/L		4/18/2016 2233h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 119h	E353.2	0.0100	0.0753	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	7.46	H
Sulfate	mg/L		4/18/2016 1747h	E300.0	750	3,390	
Total Dissolved Solids	mg/L		4/11/2016 1401h	SM2540C	100	7,440	

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1604177-013
Client Sample ID: ELF-1 DUP
Collection Date: 4/6/2016 1600h
Received Date: 4/7/2016 1550h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	430	
Bicarbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	430	
Carbonate (as CaCO ₃)	mg/L		4/12/2016 640h	SM2320B	10.0	< 10.0	
Chloride	mg/L		4/18/2016 1803h	E300.0	100	1,220	
Fluoride	mg/L		4/18/2016 2250h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		4/21/2016 033h	E353.2	0.100	2.27	
pH @ 25° C	pH Units		4/7/2016 1835h	SM4500-H+B	1.00	7.33	H
Sulfate	mg/L		4/19/2016 758h	E300.0	7,500	11,500	
Total Dissolved Solids	mg/L		4/11/2016 1401h	SM2540C	100	15,800	

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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1604177
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-42364		Date Analyzed:	04/14/2016 1355h										
Test Code: 200.7-W		Date Prepared:	04/08/2016 1159h										
Boron	0.998	mg/L	E200.7	0.0163	0.500	1.000	0	99.8	85 - 115				
Calcium	10.4	mg/L	E200.7	0.0579	1.00	10.00	0	104	85 - 115				
Magnesium	10.4	mg/L	E200.7	0.0495	1.00	10.00	0	104	85 - 115				
Sodium	10.0	mg/L	E200.7	0.0125	1.00	10.00	0	100	85 - 115				
Lab Sample ID: LCS-42365		Date Analyzed:	04/13/2016 1600h										
Test Code: 200.8-W		Date Prepared:	04/08/2016 1159h										
Antimony	0.187	mg/L	E200.8	0.000306	0.00200	0.2000	0	93.5	85 - 115				
Arsenic	0.213	mg/L	E200.8	0.000540	0.00200	0.2000	0	107	85 - 115				
Barium	0.204	mg/L	E200.8	0.000600	0.00200	0.2000	0	102	85 - 115				
Beryllium	0.208	mg/L	E200.8	0.000177	0.00200	0.2000	0	104	85 - 115				
Cadmium	0.207	mg/L	E200.8	0.0000666	0.000500	0.2000	0	103	85 - 115				
Chromium	0.206	mg/L	E200.8	0.000998	0.00200	0.2000	0	103	85 - 115				
Cobalt	0.202	mg/L	E200.8	0.0000990	0.00400	0.2000	0	101	85 - 115				
Lead	0.194	mg/L	E200.8	0.000125	0.00200	0.2000	0	96.9	85 - 115				
Molybdenum	0.208	mg/L	E200.8	0.000202	0.00200	0.2000	0	104	85 - 115				
Selenium	0.218	mg/L	E200.8	0.000310	0.00200	0.2000	0	109	85 - 115				
Thallium	0.189	mg/L	E200.8	0.0000500	0.00200	0.2000	0	94.6	85 - 115				
Lab Sample ID: LCS-42502		Date Analyzed:	04/18/2016 832h										
Test Code: HG-DW-245.1		Date Prepared:	04/15/2016 1710h										
Mercury	0.00336	mg/L	E245.1	0.00000559	0.000150	0.003330	0	101	85 - 115				



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1604177
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-42364													
Date Analyzed:		04/15/2016 1207h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Lithium	< 0.100	mg/L	E200.7	0.0000100	0.100								~
Lab Sample ID: MB-42364													
Date Analyzed:		04/14/2016 1352h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Boron	< 0.500	mg/L	E200.7	0.0163	0.500								
Calcium	< 1.00	mg/L	E200.7	0.0579	1.00								
Magnesium	< 1.00	mg/L	E200.7	0.0495	1.00								
Sodium	< 1.00	mg/L	E200.7	0.0125	1.00								
Lab Sample ID: MB-42365													
Date Analyzed:		04/13/2016 1557h											
Test Code:		200.8-W											
Date Prepared:		04/08/2016 1159h											
Antimony	< 0.00200	mg/L	E200.8	0.000306	0.00200								
Arsenic	< 0.00200	mg/L	E200.8	0.000540	0.00200								
Barium	< 0.00200	mg/L	E200.8	0.000600	0.00200								
Beryllium	< 0.00200	mg/L	E200.8	0.000177	0.00200								
Cadmium	< 0.000500	mg/L	E200.8	0.0000666	0.000500								
Chromium	< 0.00200	mg/L	E200.8	0.000998	0.00200								
Cobalt	< 0.00400	mg/L	E200.8	0.0000990	0.00400								
Lead	< 0.00200	mg/L	E200.8	0.000125	0.00200								
Molybdenum	< 0.00200	mg/L	E200.8	0.000202	0.00200								
Selenium	< 0.00200	mg/L	E200.8	0.000310	0.00200								
Thallium	< 0.00200	mg/L	E200.8	0.0000500	0.00200								
Lab Sample ID: MB-42502													
Date Analyzed:		04/18/2016 831h											
Test Code:		HG-DW-245.1											
Date Prepared:		04/15/2016 1710h											
Mercury	< 0.000150	mg/L	E245.1	0.00000559	0.000150								

~ - The above result was not performed in accordance with NELAP requirements.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1604177
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1604177-003CMS													
Date Analyzed:		04/14/2016 1217h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Calcium	420	mg/L	E200.7	5.79	100	10.00	404	160	70 - 130				2
Magnesium	338	mg/L	E200.7	4.95	100	10.00	323	144	70 - 130				2
Lab Sample ID: 1604177-013CMS													
Date Analyzed:		04/14/2016 1250h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Calcium	428	mg/L	E200.7	5.79	100	10.00	422	56.2	70 - 130				2
Magnesium	390	mg/L	E200.7	4.95	100	10.00	386	47.5	70 - 130				2
Lab Sample ID: 1604177-003CMS													
Date Analyzed:		04/14/2016 1412h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Sodium	3,200	mg/L	E200.7	12.5	1,000	10.00	3220	-157	70 - 130				2
Lab Sample ID: 1604177-013CMS													
Date Analyzed:		04/14/2016 1447h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Sodium	4,540	mg/L	E200.7	12.5	1,000	10.00	4730	-1,870	70 - 130				2
Lab Sample ID: 1604177-013CMS													
Date Analyzed:		04/15/2016 1342h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Boron	16.1	mg/L	E200.7	0.163	5.00	1.000	15.2	96.1	70 - 130				
Lab Sample ID: 1604177-003CMS													
Date Analyzed:		04/18/2016 1319h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Boron	4.47	mg/L	E200.7	0.0163	0.500	1.000	3.33	114	70 - 130				
Lab Sample ID: 1604177-003CMS													
Date Analyzed:		04/13/2016 1628h											
Test Code:		200.8-W											
Date Prepared:		04/08/2016 1159h											
Antimony	0.208	mg/L	E200.8	0.000306	0.00200	0.2000	0	104	75 - 125				
Arsenic	0.232	mg/L	E200.8	0.000540	0.00200	0.2000	0	116	75 - 125				
Barium	0.209	mg/L	E200.8	0.000600	0.00200	0.2000	0.0091	99.9	75 - 125				
Beryllium	0.199	mg/L	E200.8	0.000177	0.00200	0.2000	0	99.5	75 - 125				

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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1604177
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1604177-003CMS													
Date Analyzed:		04/13/2016 1628h											
Test Code:		200.8-W											
Date Prepared:		04/08/2016 1159h											
Cadmium	0.195	mg/L	E200.8	0.000666	0.000500	0.2000	0.0000802	97.3	75 - 125				
Chromium	0.190	mg/L	E200.8	0.000998	0.00200	0.2000	0.011	89.5	75 - 125				
Cobalt	0.185	mg/L	E200.8	0.000990	0.00400	0.2000	0.00275	91.3	75 - 125				
Lead	0.177	mg/L	E200.8	0.000125	0.00200	0.2000	0	88.6	75 - 125				
Molybdenum	0.227	mg/L	E200.8	0.000202	0.00200	0.2000	0.00505	111	75 - 125				
Selenium	0.676	mg/L	E200.8	0.000310	0.00200	0.2000	0.463	107	75 - 125				
Thallium	0.173	mg/L	E200.8	0.0000500	0.00200	0.2000	0	86.3	75 - 125				
Lab Sample ID: 1604177-013CMS													
Date Analyzed:		04/13/2016 1715h											
Test Code:		200.8-W											
Date Prepared:		04/08/2016 1159h											
Antimony	0.214	mg/L	E200.8	0.000306	0.00200	0.2000	0	107	75 - 125				
Arsenic	0.243	mg/L	E200.8	0.000540	0.00200	0.2000	0	121	75 - 125				
Barium	0.222	mg/L	E200.8	0.000600	0.00200	0.2000	0.0164	103	75 - 125				
Beryllium	0.202	mg/L	E200.8	0.000177	0.00200	0.2000	0	101	75 - 125				
Cadmium	0.200	mg/L	E200.8	0.000666	0.000500	0.2000	0.000179	100	75 - 125				
Chromium	0.196	mg/L	E200.8	0.000998	0.00200	0.2000	0.000707	97.8	75 - 125				
Cobalt	0.202	mg/L	E200.8	0.000990	0.00400	0.2000	0.0154	93.2	75 - 125				
Lead	0.182	mg/L	E200.8	0.000125	0.00200	0.2000	0	90.8	75 - 125				
Molybdenum	0.255	mg/L	E200.8	0.000202	0.00200	0.2000	0.0206	117	75 - 125				
Selenium	0.238	mg/L	E200.8	0.000310	0.00200	0.2000	0.00784	115	75 - 125				
Thallium	0.177	mg/L	E200.8	0.0000500	0.00200	0.2000	0	88.5	75 - 125				
Lab Sample ID: 1604177-001CMS													
Date Analyzed:		04/18/2016 839h											
Test Code:		HG-DW-245.1											
Date Prepared:		04/15/2016 1710h											
Mercury	0.00284	mg/L	E245.1	0.00000559	0.000150	0.003330	0.0000217	84.8	80 - 120				

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1604177
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1604177-003CMSD													
Date Analyzed:		04/14/2016 1219h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Calcium	416	mg/L	E200.7	5.79	100	10.00	404	119	70 - 130	420	0.967	20	
Magnesium	335	mg/L	E200.7	4.95	100	10.00	323	112	70 - 130	338	0.936	20	
Lab Sample ID: 1604177-013CMSD													
Date Analyzed:		04/14/2016 1252h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Calcium	421	mg/L	E200.7	5.79	100	10.00	422	-12.5	70 - 130	428	1.62	20	²
Magnesium	380	mg/L	E200.7	4.95	100	10.00	386	-57.3	70 - 130	390	2.72	20	²
Lab Sample ID: 1604177-003CMSD													
Date Analyzed:		04/14/2016 1414h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Sodium	3,300	mg/L	E200.7	12.5	1,000	10.00	3220	804	70 - 130	3200	2.96	20	²
Lab Sample ID: 1604177-013CMSD													
Date Analyzed:		04/14/2016 1450h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Sodium	4,480	mg/L	E200.7	12.5	1,000	10.00	4730	-2,460	70 - 130	4540	1.32	20	²
Lab Sample ID: 1604177-013CMSD													
Date Analyzed:		04/15/2016 1345h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Boron	15.7	mg/L	E200.7	0.163	5.00	1.000	15.2	53.1	70 - 130	16.1	2.70	20	²
Lab Sample ID: 1604177-003CMSD													
Date Analyzed:		04/18/2016 1322h											
Test Code:		200.7-W											
Date Prepared:		04/08/2016 1159h											
Boron	4.48	mg/L	E200.7	0.0163	0.500	1.000	3.33	114	70 - 130	4.47	0.0690	20	
Lab Sample ID: 1604177-003CMSD													
Date Analyzed:		04/13/2016 1631h											
Test Code:		200.8-W											
Date Prepared:		04/08/2016 1159h											
Antimony	0.209	mg/L	E200.8	0.000306	0.00200	0.2000	0	105	75 - 125	0.208	0.705	20	
Arsenic	0.233	mg/L	E200.8	0.000540	0.00200	0.2000	0	117	75 - 125	0.232	0.469	20	
Barium	0.209	mg/L	E200.8	0.000600	0.00200	0.2000	0.0091	100	75 - 125	0.209	0.140	20	
Beryllium	0.201	mg/L	E200.8	0.000177	0.00200	0.2000	0	101	75 - 125	0.199	1.09	20	

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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1604177
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1604177-003CMSD													
Date Analyzed:		04/13/2016 1631h											
Test Code:		200.8-W											
Date Prepared:		04/08/2016 1159h											
Cadmium	0.198	mg/L	E200.8	0.0000666	0.000500	0.2000	0.0000802	99.1	75 - 125	0.195	1.79	20	
Chromium	0.192	mg/L	E200.8	0.000998	0.00200	0.2000	0.011	90.3	75 - 125	0.19	0.821	20	
Cobalt	0.186	mg/L	E200.8	0.0000990	0.00400	0.2000	0.00275	91.8	75 - 125	0.185	0.497	20	
Lead	0.179	mg/L	E200.8	0.000125	0.00200	0.2000	0	89.4	75 - 125	0.177	0.833	20	
Molybdenum	0.229	mg/L	E200.8	0.000202	0.00200	0.2000	0.00505	112	75 - 125	0.227	0.807	20	
Selenium	0.683	mg/L	E200.8	0.000310	0.00200	0.2000	0.463	110	75 - 125	0.676	1.08	20	
Thallium	0.175	mg/L	E200.8	0.0000500	0.00200	0.2000	0	87.5	75 - 125	0.173	1.38	20	
Lab Sample ID: 1604177-013CMSD													
Date Analyzed:		04/13/2016 1718h											
Test Code:		200.8-W											
Date Prepared:		04/08/2016 1159h											
Antimony	0.211	mg/L	E200.8	0.000306	0.00200	0.2000	0	105	75 - 125	0.214	1.33	20	
Arsenic	0.241	mg/L	E200.8	0.000540	0.00200	0.2000	0	120	75 - 125	0.243	0.667	20	
Barium	0.218	mg/L	E200.8	0.000600	0.00200	0.2000	0.0164	101	75 - 125	0.222	2.19	20	
Beryllium	0.201	mg/L	E200.8	0.000177	0.00200	0.2000	0	101	75 - 125	0.202	0.510	20	
Cadmium	0.198	mg/L	E200.8	0.0000666	0.000500	0.2000	0.000179	99.2	75 - 125	0.2	0.947	20	
Chromium	0.193	mg/L	E200.8	0.000998	0.00200	0.2000	0.000707	96.3	75 - 125	0.196	1.56	20	
Cobalt	0.198	mg/L	E200.8	0.0000990	0.00400	0.2000	0.0154	91.1	75 - 125	0.202	2.09	20	
Lead	0.179	mg/L	E200.8	0.000125	0.00200	0.2000	0	89.3	75 - 125	0.182	1.57	20	
Molybdenum	0.250	mg/L	E200.8	0.000202	0.00200	0.2000	0.0206	115	75 - 125	0.255	2.20	20	
Selenium	0.237	mg/L	E200.8	0.000310	0.00200	0.2000	0.00784	115	75 - 125	0.238	0.603	20	
Thallium	0.174	mg/L	E200.8	0.0000500	0.00200	0.2000	0	86.9	75 - 125	0.177	1.87	20	
Lab Sample ID: 1604177-001CMSD													
Date Analyzed:		04/18/2016 841h											
Test Code:		HG-DW-245.1											
Date Prepared:		04/15/2016 1710h											
Mercury	0.00285	mg/L	E245.1	0.00000559	0.000150	0.003330	0.0000217	85.0	80 - 120	0.00285	0.292	20	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1604177
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1604177-008ADUP Date Analyzed: 04/07/2016 1835h													
Test Code: PH-4500H+B													
pH @ 25° C	6.96	pH Units	SM4500-H+B	1.00	1.00					6.94	0.288	5	H
Lab Sample ID: 1604178-005ADUP Date Analyzed: 04/07/2016 1835h													
Test Code: PH-4500H+B													
pH @ 25° C	7.12	pH Units	SM4500-H+B	1.00	1.00					7.11	0.141	5	H
Lab Sample ID: 1604110-011ADUP Date Analyzed: 04/08/2016 1134h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	6,060	mg/L	SM2540C	87.7	100					5860	3.36	5	
Lab Sample ID: 1604177-001ADUP Date Analyzed: 04/08/2016 1134h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	10,200	mg/L	SM2540C	87.7	100					10400	1.75	5	
Lab Sample ID: 1604177-004ADUP Date Analyzed: 04/11/2016 1401h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	8.77	10.0					0	0	5	
Lab Sample ID: 1604178-001ADUP Date Analyzed: 04/11/2016 1401h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	3,120	mg/L	SM2540C	87.7	100					3180	1.90	5	

H - Sample was received outside of the holding time.



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1604177
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-R89290 Date Analyzed: 04/18/2016 1243h													
Test Code:	300.0-W												
Chloride	5.08	mg/L	E300.0	0.00516	0.100	5.000	0	102	90 - 110				
Fluoride	5.08	mg/L	E300.0	0.0139	0.100	5.000	0	102	90 - 110				
Sulfate	4.61	mg/L	E300.0	0.0201	0.750	5.000	0	92.2	90 - 110				
Lab Sample ID: LCS-R89049 Date Analyzed: 04/12/2016 640h													
Test Code:	ALK-W-2320B												
Alkalinity (as CaCO ₃)	49,000	mg/L	SM2320B	1.38	10.0	50,000	0	98.0	90 - 110				
Lab Sample ID: LCS-R89403 Date Analyzed: 04/21/2016 003h													
Test Code:	NO2/NO3-W-353.2												
Nitrate/Nitrite (as N)	1.01	mg/L	E353.2	0.00833	0.0100	1.000	0	101	90 - 110				
Lab Sample ID: LCS-R89404 Date Analyzed: 04/21/2016 116h													
Test Code:	NO2/NO3-W-353.2												
Nitrate/Nitrite (as N)	0.973	mg/L	E353.2	0.00833	0.0100	1.000	0	97.3	90 - 110				
Lab Sample ID: LCS-R88939 Date Analyzed: 04/07/2016 1835h													
Test Code:	PH-4500H+B												
pH @ 25° C	8.87	pH Units	SM4500-H+B	1.00	1.00	9.000	0	98.6	98 - 102				
Lab Sample ID: LCS-R89032 Date Analyzed: 04/08/2016 1134h													
Test Code:	TDS-W-2540C												
Total Dissolved Solids	198	mg/L	SM2540C	8.77	10.0	205.0	0	96.6	80 - 120				
Lab Sample ID: LCS-R89082 Date Analyzed: 04/11/2016 1401h													
Test Code:	TDS-W-2540C												
Total Dissolved Solids	198	mg/L	SM2540C	8.77	10.0	205.0	0	96.6	80 - 120				

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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1604177
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-R89290 Date Analyzed: 04/18/2016 1226h													
Test Code:	300.0-W												
Chloride	< 0.100	mg/L	E300.0	0.00516	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.0139	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0201	0.750								
Lab Sample ID: MB-R89049 Date Analyzed: 04/12/2016 640h													
Test Code:	ALK-W-2320B												
Alkalinity (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Bicarbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Carbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Lab Sample ID: MB-R89403 Date Analyzed: 04/21/2016 002h													
Test Code:	NO2/NO3-W-353.2												
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID: MB-R89404 Date Analyzed: 04/21/2016 115h													
Test Code:	NO2/NO3-W-353.2												
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID: MB-R89032 Date Analyzed: 04/08/2016 1134h													
Test Code:	TDS-W-2540C												
Total Dissolved Solids	< 10.0	mg/L	SM2540C	8.77	10.0								
Lab Sample ID: MB-R89082 Date Analyzed: 04/11/2016 1401h													
Test Code:	TDS-W-2540C												
Total Dissolved Solids	< 10.0	mg/L	SM2540C	8.77	10.0								

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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1604177
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1604177-006AMS Date Analyzed: 04/18/2016 1424h													
Test Code: 300.0-W													
Chloride	15,100	mg/L	E300.0	10.3	200	10,000	4890	102	90 - 110				
Fluoride	10,300	mg/L	E300.0	27.8	200	10,000	0	103	90 - 110				
Sulfate	19,800	mg/L	E300.0	40.2	1,500	10,000	9910	98.4	90 - 110				
Lab Sample ID: 1604177-008AMS Date Analyzed: 04/18/2016 1549h													
Test Code: 300.0-W													
Chloride	13,000	mg/L	E300.0	10.3	200	10,000	2850	102	90 - 110				
Fluoride	10,300	mg/L	E300.0	27.8	200	10,000	0	103	90 - 110				
Sulfate	20,500	mg/L	E300.0	40.2	1,500	10,000	9580	109	90 - 110				
Lab Sample ID: 1604177-001AMS Date Analyzed: 04/12/2016 640h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	761	mg/L	SM2320B	1.38	10.0	250.0	520	96.3	80 - 120				
Lab Sample ID: 1604177-011AMS Date Analyzed: 04/12/2016 640h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	131	mg/L	SM2320B	1.38	10.0	50.00	82.6	96.2	80 - 120				
Lab Sample ID: 1604018-002CMS Date Analyzed: 04/21/2016 006h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.65	mg/L	E353.2	0.00833	0.0100	1.000	0.612	104	90 - 110				
Lab Sample ID: 1604177-004BMS Date Analyzed: 04/21/2016 016h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.13	mg/L	E353.2	0.00833	0.0100	1.000	0.118	102	90 - 110				
Lab Sample ID: 1604177-005BMS Date Analyzed: 04/21/2016 019h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.09	mg/L	E353.2	0.00833	0.0100	1.000	0.0914	99.5	90 - 110				

Report Date: 4/21/2016 Page 37 of 40



AMERICAN WEST ANALYTICAL LABORATORIES

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1604177

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1604178-001BMS		Date Analyzed: 04/21/2016 136h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	9.87	mg/L	E353.2	0.0833	0.100	10.00	0	98.7	90 - 110				

Report Date: 4/21/2016 Page 38 of 40



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1604177
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1604177-006AMSD Date Analyzed: 04/18/2016 1441h													
Test Code: 300.0-W													
Chloride	15,000	mg/L	E300.0	10.3	200	10,000	4890	101	90 - 110	15100	0.266	20	
Fluoride	10,300	mg/L	E300.0	27.8	200	10,000	0	103	90 - 110	10300	0.0400	20	
Sulfate	19,700	mg/L	E300.0	40.2	1,500	10,000	9910	97.7	90 - 110	19800	0.384	20	
Lab Sample ID: 1604177-008AMSD Date Analyzed: 04/18/2016 1605h													
Test Code: 300.0-W													
Chloride	13,100	mg/L	E300.0	10.3	200	10,000	2850	102	90 - 110	13000	0.170	20	
Fluoride	10,300	mg/L	E300.0	27.8	200	10,000	0	103	90 - 110	10300	0.183	20	
Sulfate	19,600	mg/L	E300.0	40.2	1,500	10,000	9580	100	90 - 110	20500	4.52	20	
Lab Sample ID: 1604177-001AMSD Date Analyzed: 04/12/2016 640h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	761	mg/L	SM2320B	1.38	10.0	250.0	520	96.3	80 - 120	757	0.567	10	
Lab Sample ID: 1604177-011AMSD Date Analyzed: 04/12/2016 640h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	132	mg/L	SM2320B	1.38	10.0	50.00	82.6	99.6	80 - 120	131	1.29	10	
Lab Sample ID: 1604018-002CMSD Date Analyzed: 04/21/2016 007h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.69	mg/L	E353.2	0.00833	0.0100	1.000	0.612	108	90 - 110	1.65	2.16	10	
Lab Sample ID: 1604177-004BMSD Date Analyzed: 04/21/2016 017h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.11	mg/L	E353.2	0.00833	0.0100	1.000	0.118	99.2	90 - 110	1.13	2.05	10	
Lab Sample ID: 1604177-005BMSD Date Analyzed: 04/21/2016 020h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.08	mg/L	E353.2	0.00833	0.0100	1.000	0.0914	98.7	90 - 110	1.09	0.739	10	

Report Date: 4/21/2016 Page 39 of 40



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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1604177

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1604178-001BMSD		Date Analyzed: 04/21/2016 137h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	9.93	mg/L	E353.2	0.0833	0.100	10.00	0	99.3	90 - 110	9.87	0.637	10	

Report Date: 4/21/2016 Page 40 of 40

WORK ORDER Summary

Work Order: **1604177**

Page 1 of 6

Client: PacifiCorp

Client ID: PAC900

Contact: Jeff Tucker

Due Date: 4/21/2016

Project: Hunter CCR Sampling / PERCM52

QC Level: II+

WO Type: Standard

Comments: QC2+. Include EDD. RADS sent to AZC. Cc: Report to mshirley@waterenvtech.com;

DB

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1604177-001A	ELF-9	4/7/2016 1030h	4/7/2016 1550h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1604177-001B				NO2/NO3-W-353.2			DF-NO2/NO3	
1604177-001C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1604177-001D				OUTSIDE LAB			ACZ	2
1604177-002A	ELF-10	4/7/2016 0930h	4/7/2016 1550h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1604177-002B				NO2/NO3-W-353.2			DF-NO2/NO3	
1604177-002C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1604177-002D				OUTSIDE LAB			ACZ	2

WORK ORDER Summary

Work Order: **1604177**

Page 2 of 6

Client: PacifiCorp

Due Date: 4/21/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1604177-003A	ELF-2	4/7/2016 1145h	4/7/2016 1550h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous		DF-WC	1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC			DF-WC	
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1604177-003B				NO2/NO3-W-353.2			DF-NO2/NO3	
1604177-003C				200.7-W 5 SEL Analytes: B CA LI MG NA			DF-Metals	
				200.7-W-PR			DF-Metals	
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			DF-Metals	
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1604177-003D				OUTSIDE LAB			ACZ	2
1604177-004A	ELF-2 FB	4/7/2016 1145h	4/7/2016 1550h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous		DF-WC	1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC			DF-WC	
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1604177-004B				NO2/NO3-W-353.2			DF-NO2/NO3	
1604177-004C				200.7-W 5 SEL Analytes: B CA LI MG NA			DF-Metals	
				200.7-W-PR			DF-Metals	
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			DF-Metals	
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1604177-004D				OUTSIDE LAB			ACZ	2
1604177-005A	ELF-10 EB	4/7/2016 0930h	4/7/2016 1550h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous		DF-WC	1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC			DF-WC	
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	

WORK ORDER Summary

Work Order: **1604177** Page 3 of 6

Client: PacifiCorp

Due Date: 4/21/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage		
1604177-005B	ELF-10 EB	4/7/2016 0930h	4/7/2016 1550h	NO2/NO3-W-353.2	Aqueous		DF-NO2/NO3	1	
1604177-005C				200.7-W			DF-Metals		
				5 SEL Analytes: B CA LI MG NA					
				200.7-W-PR			DF-Metals		
				200.8-W			DF-Metals		
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL					
				200.8-W-PR			DF-Metals		
				HG-DW-245.1			DF-Metals		
				HG-DW-PR			DF-Metals		
1604177-005D				OUTSIDE LAB			ACZ	2	
1604177-006A	ELF-6	4/6/2016 1730h	4/7/2016 1550h	300.0-W	Aqueous		DF-WC	1	
				3 SEL Analytes: CL F SO4					
				ALK-W-2320B			DF-WC		
				3 SEL Analytes: ALK ALKB ALKC					
				PH-4500H+B			DF-WC		
				TDS-W-2540C			DF-WC		
1604177-006B				NO2/NO3-W-353.2			DF-NO2/NO3		
1604177-006C				200.7-W			DF-Metals		
	5 SEL Analytes: B CA LI MG NA								
				200.7-W-PR			DF-Metals		
				200.8-W			DF-Metals		
	11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL								
				200.8-W-PR			DF-Metals		
				HG-DW-245.1			DF-Metals		
				HG-DW-PR			DF-Metals		
1604177-006D				OUTSIDE LAB			ACZ	2	
1604177-007A	ELF-4	4/6/2016 1930h	4/7/2016 1550h	300.0-W	Aqueous		DF-WC	1	
				3 SEL Analytes: CL F SO4					
				ALK-W-2320B			DF-WC		
				3 SEL Analytes: ALK ALKB ALKC					
				PH-4500H+B			DF-WC		
				TDS-W-2540C			DF-WC		
1604177-007B				NO2/NO3-W-353.2			DF-NO2/NO3		
1604177-007C				200.7-W			DF-Metals		
	5 SEL Analytes: B CA LI MG NA								
				200.7-W-PR			DF-Metals		
				200.8-W			DF-Metals		
	11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL								

WORK ORDER Summary

Work Order: **1604177**

Page 4 of 6

Client: PacifiCorp

Due Date: 4/21/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1604177-007C	ELF-4	4/6/2016 1930h	4/7/2016 1550h	200.8-W-PR	Aqueous		DF-Metals	1
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1604177-007D				OUTSIDE LAB			ACZ	2
1604177-008A	ELF-7	4/6/2016 2000h	4/7/2016 1550h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1604177-008B				NO2/NO3-W-353.2			DF-NO2/NO3	
1604177-008C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1604177-008D				OUTSIDE LAB			ACZ	2
1604177-009A	ELF-5	4/6/2016 1830h	4/7/2016 1550h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1604177-009B				NO2/NO3-W-353.2			DF-NO2/NO3	
1604177-009C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1604177-009D				OUTSIDE LAB			ACZ	2
1604177-010A	ELF-11	4/6/2016 1530h	4/7/2016 1550h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				

WORK ORDER Summary

Work Order: **1604177**

Page 5 of 6

Client: PacifiCorp

Due Date: 4/21/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1604177-010A	ELF-11	4/6/2016 1530h	4/7/2016 1550h	ALK-W-2320B	Aqueous		DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1604177-010B				NO2/NO3-W-353.2			DF-NO2/NO3
1604177-010C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1604177-010D				OUTSIDE LAB			ACZ
1604177-011A	ELF-8 DUP	4/6/2016 1715h	4/7/2016 1550h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1604177-011B				NO2/NO3-W-353.2			DF-NO2/NO3
1604177-011C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1604177-011D				OUTSIDE LAB			ACZ
1604177-012A	ELF-8	4/6/2016 1700h	4/7/2016 1550h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1604177-012B				NO2/NO3-W-353.2			DF-NO2/NO3

WORK ORDER Summary

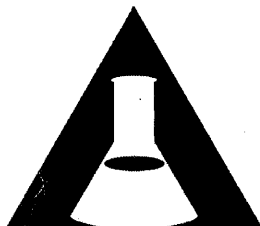
Work Order: **1604177**

Page 6 of 6

Client: PacifiCorp

Due Date: 4/21/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1604177-012C	ELF-8	4/6/2016 1700h	4/7/2016 1550h	200.7-W	Aqueous		DF-Metals	1
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1604177-012D				OUTSIDE LAB			ACZ	2
1604177-013A	ELF-1 DUP	4/6/2016 1600h	4/7/2016 1550h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1604177-013B				NO2/NO3-W-353.2			DF-NO2/NO3	
1604177-013C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1604177-013D				OUTSIDE LAB			ACZ	2



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CHAIN OF CUSTODY

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

16004177

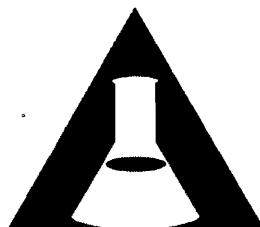
AWAL Lab Sample Set #

Page 1 of 1

Client: **PacifiCorp**
Address: _____
Contact: **Jeff Tucker**
Phone #: _____ Cell #: _____
Email: _____
Project Name: **Hunter CCR Sampling**
Project #: **PERCM52**
PO #: _____
Sampler Name: _____

QC Level:					Turn Around Time:					Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.					Due Date					
1	2	2+	3	3+	1	2	3	4	5	Std						4/21/16				
1 2 3 4 5 6 7 8 9 10 11 12	Sample ID:				Date Sampled	Time Sampled	# of Containers	Sample Matrix	TDS, pH, Alkalinity	Anions	Fluoride	Total Metals	Total Mercury	Nitrogen, Nitrite + Nitrate	Radium 226 + Radium 228	Laboratory Use Only				
																Samples Were:				
																1 Shipped or hand delivered				
																2 Ambient or Onlined				
																3 Temperature 1.4 °C				
																4 Received Broken/Leaking (Improperly Sealed) Y N				
																5 Properly Preserved Y N Checked at bench				
																6 Received Within Holding Times Y N				
																COC Tape Was:				
																1 Present on Outer Package Y N NA				
																2 Unbroken on Outer Package Y N NA				
																3 Present on Sample Y N NA				
															4 Unbroken on Sample Y N NA					
															Discrepancies Between Sample Labels and COC Record Y N					

Relinquished by: Signature: <i>[Signature]</i>	Date: 4/6/16	Received by: Signature: Denise Bruun	Date: 4/6/16	Special Instructions:
Print Name: Mike Shirley	Time: 1550	Print Name: Denise Bruun	Time: 1550	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	



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Fax # (801) 263-8687 Email awal@awal-labs.com

www.awal-labs.com

CHAIN OF CUSTODY

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

1604177

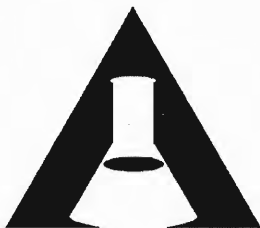
AWAL Lab Sample Set #

Page of

Client: **PacifiCorp**
Address: _____
Contact: **Jeff Tucker**
Phone #: _____ Cell #: _____
Email: _____
Project Name: **Hunter CCR Sampling**
Project #: **PERCM52**
PO #: _____
Sampler Name: _____

QC Level:				Turn Around Time:				Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.				Due Date:						
1	2	2+	3+	1	2	3	4	5	Std					4/21/16				
Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample Matrix	TDS, pH, Alkalinity	Anions	Fluoride	Total Metals	Total Mercury	Nitrogen, Nitrite + Nitrate	Radium 226 + Radium 228					Report down to the MDL X Include EDD: Lab Filter for: Field Filtered For: For Compliance With: <input type="checkbox"/> NELAP <input type="checkbox"/> RCRA <input type="checkbox"/> CWA <input type="checkbox"/> SDWA <input type="checkbox"/> ELAP / A2LA <input type="checkbox"/> NLLAP <input type="checkbox"/> Non-Compliance <input type="checkbox"/> Other: Known Hazards & Sample Comments	Laboratory Use Only	
																	Samples Were:	
																	1 Shipped or hand delivered	
																	2 Ambient or Chilled	
																	3 Temperature 7.4 °C	
																	4 Received Broken/Leaking (Improperly Sealed) Y N	
																	5 Properly Preserved Y N Checked at bench	
																	6 Received Within Holding Times 4/21/16 N SOME pH out of HOLD	
																	COC Tape Was:	
																	1 Present on Outer Package Y N NA	
																	2 Unbroken on Outer Package Y N NA	
																	3 Present on Sample Y N NA	
4 Unbroken on Sample Y N NA																		
Discrepancies Between Sample Labels and COC Record? Y N																		

Relinquished by: Signature: <i>[Signature]</i>	Date: 4/7/2016	Received by: Signature: <i>[Signature]</i>	Date: 4/7/16	Special Instructions:
Print Name: Michael Shirley	Time: 15:50	Print Name: Denise Bruun	Time: 15:50	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	Special Instructions:
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	



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1604177

AWAL Lab Sample Set #

Page of

Client: **PacifiCorp**
Address: _____
Contact: **Jeff Tucker**
Phone #: _____ Cell #: _____
Email: _____
Project Name: **Hunter CCR Sampling**
Project #: **PERCM52**
PO #: _____
Sampler Name: _____

QC Level:		Turn Around Time:		Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.		Due Date:					
1	2	3	3+	1	2	3	4	5	Std		
										Laboratory Use Only	
										Samples Were:	
										1 Shipped or hand delivered	
										2 Ambient or Chilled	
										3 Temperature 1.4 °C	
										4 Received Broken/Leaking (Improperly Sealed)	
										Y N	
										5 Properly Preserved	
										Y N Checked at bench	
										6 Received Within Holding Times	
										Y N	
										COC Tape Was:	
										1 Present on Outer Package	
										Y N NA	
										2 Unbroken on Outer Package	
										Y N NA	
										3 Present on Sample	
										Y N NA	
										4 Unbroken on Sample	
										Y N NA	
										Discrepancies Between Sample Labels and COC Record	
										Y N	

Relinquished by:		Date:		Received by:		Date:		Special Instructions:	
Signature: <i>Mike Shirley</i>		4/7/2016		Signature: <i>Elaine Hays</i>		4-7-16			
Print Name: <i>Mike Shirley</i>		1550		Print Name: <i>Elaine Hays</i>		1550			
Relinquished by:				Received by:					
Signature:				Signature:					
Print Name:				Print Name:					
Relinquished by:				Received by:					
Signature:				Signature:					
Print Name:				Print Name:					
Relinquished by:				Received by:					
Signature:				Signature:					
Print Name:				Print Name:					

Water & Environmental Technologies

Analyte Method Reporting Limit	Method	Reporting Limit	Price/sample ¹
pH	SM4500-H+ B	1.0 s.u.	\$11.70
Solids, Total Dissolved	SM2540 C	10 mg/L	\$13.50
Alkalinity, Total as CaCO ₃	SM2320 B	10 mg/L	\$17.10
Bicarbonate as HCO ₃	SM2320 B	10 mg/L	\$0.00
Carbonate as CO ₃	SM2320 B	10 mg/L	\$0.00
Chloride	E300.0	0.1 mg/L	\$11.70
Sulfate	E300.0	0.75 mg/L	\$11.70
Fluoride	A4500-F C/E300.0	0.1 mg/L	\$12.60
Nitrogen, Nitrate+Nitrite	E353.2	0.01 mg/L	\$11.70
Antimony	E200.8	0.002 mg/L	\$9.00
Arsenic	E200.8	0.002 mg/L	\$9.00
Barium	E200.8	0.002 mg/L	\$9.00
Beryllium	E200.8	0.002 mg/L	\$9.00
Boron	E200.7	0.5 mg/L	\$9.00
Cadmium	E200.8	0.0005 mg/L	\$9.00
Calcium	E200.7	1.0 mg/L	\$9.00
Chromium	E200.8	0.002 mg/L	\$9.00
Cobalt	E200.8	0.004 mg/L	\$9.00
Lead	E200.8	0.002 mg/L	\$9.00
Lithium	E200.7	0.1 mg/L	\$9.00
Magnesium	E200.7	1.0 mg/L	\$9.00
Molybdenum	E200.8	0.002 mg/L	\$9.00
Selenium	E200.8	0.002 mg/L	\$9.00
Sodium	E200.7	1.0 mg/L	\$9.00
Thallium	E200.8	0.002 mg/L	\$9.00
Mercury, Total	E245.1	0.00015 mg/L	\$25.20
Radium 226 + Radium 228 ²	M903.1 + M904.0		\$182.16
Radium 226, Total ²	M903.1	0.4 pCi/L	\$0.00
Radium 228, Total ²	M904.0	1.5 pCi/L	\$0.00
Metals digestion/sample			\$18.00
Total/sample - Not including shipping			\$459.36
Monthly Price for 17 samples - Not including shipping			\$7,809.12
Total Project Cost (20 months) - Not including shipping			\$156,182.40

¹ - Includes 10% discount for 10 or more samples/delivery.

² - UPS shipping costs to Colorado will be applied to these analyses.

Radium analyses will be subcontracted to ACZ Labs in CO.

Lab Set ID: 1604177

Preservation Check Sheet

Sample Set Extension and pH

[illegible]

Procedure:

- 1) Pour a small amount of sample in the sample lid
- 2) Pour sample from Lid gently over wide range pH paper
- 3) **Do Not** dip the pH paper in the sample bottle or lid
- 4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
- 5) Flag COC, notify client if requested
- 6) Place client conversation on COC
- 7) Samples may be adjusted

Frequency:

All samples requiring preservation

- * The sample required additional preservative upon receipt.
- + The sample was received unpreserved.
- ▲ The sample was received unpreserved and therefore preserved upon receipt.
- # The sample pH was unadjustable to a pH < 2 due to the sample matrix.
- The sample pH was unadjustable to a pH > due to the sample matrix interference.

May 05, 2016

Report to:

Elona Hayward
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

Bill to:

Lynn Turner
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

cc: Denise Bruun

Project ID: 1604177

ACZ Project ID: L29843

Elona Hayward:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 12, 2016. This project has been assigned to ACZ's project number, L29843. Please reference this number in all future inquiries.

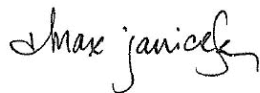
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L29843. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after June 04, 2016. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.



Max Janicek has reviewed and
approved this report.



American West Analytical Labs

May 05, 2016

Project ID: 1604177

ACZ Project ID: L29843

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 13 ground water samples from American West Analytical Labs on April 12, 2016. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L29843. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for radiochemistry parameters. The individual methods are referenced on both the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures. In addition the following has been noted with this specific project:

The Radium-228 values for L29843 have been qualified with the N1 flag on the extended qualifier report. The chemist noted that the relative error ratio (RER) between the sample and sample duplicate of this workgroup exceeded the control limit of 1.0, indicating the precision of the sample preparation batch is questionable. There is insufficient sample remaining to perform re-analysis in hopes of achieving more precise results; data qualification and/or comparison to historical results may be necessary.

American West Analytical Labs

Project ID: 1604177

Sample ID: ELF-9

Locator:

ACZ Sample ID: **L29843-01**

Date Sampled: 04/07/16 10:30

Date Received: 04/12/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:04		1.4	0.31	0.43	pCi/L	*	mns

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/03/16 12:43		1.2	0.68	0.64	pCi/L		djc

American West Analytical Labs

Project ID: 1604177

Sample ID: ELF-10

Locator:

ACZ Sample ID: **L29843-02**

Date Sampled: 04/07/16 9:30

Date Received: 04/12/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:05		1.7	0.26	0.14	pCi/L	*	mns

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/03/16 12:43		0.96	0.52	0.49	pCi/L		djc

American West Analytical Labs

Project ID: 1604177

Sample ID: ELF-2

Locator:

ACZ Sample ID: **L29843-03**

Date Sampled: 04/07/16 11:45

Date Received: 04/12/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:07		0.55	0.24	0.71	pCi/L	*	mns

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/03/16 12:43		0.39	0.53	0.54	pCi/L	*	djc

American West Analytical Labs

Project ID: 1604177
Sample ID: ELF-2 FB
Locator:

ACZ Sample ID: **L29843-04**
Date Sampled: 04/07/16 11:45
Date Received: 04/12/16
Sample Matrix: Ground Water

Radium 226
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:08		0.25	0.17	0.27	pCi/L	*	mns

Radium 228
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/03/16 12:43		-0.32	0.48	0.54	pCi/L	*	djc

American West Analytical Labs

Project ID: 1604177

Sample ID: ELF-10 EB

Locator:

ACZ Sample ID: **L29843-05**

Date Sampled: 04/07/16 9:30

Date Received: 04/12/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:10		0.19	0.16	0.29	pCi/L	*	mns

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/03/16 12:43		0.45	1	1.1	pCi/L	*	djc

American West Analytical Labs

Project ID: 1604177

Sample ID: ELF-6

Locator:

ACZ Sample ID: **L29843-06**

Date Sampled: 04/06/16 17:30

Date Received: 04/12/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:11		0.33	0.08	0.19	pCi/L		mns

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/03/16 12:43		1.6	1	0.99	pCi/L	*	djc

American West Analytical Labs

Project ID: 1604177

Sample ID: ELF-4

Locator:

ACZ Sample ID: **L29843-07**

Date Sampled: 04/06/16 19:30

Date Received: 04/12/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:12		0.62	0.12	0.17	pCi/L	*	mns

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/03/16 14:43		-0.47	0.87	0.95	pCi/L	*	djc

American West Analytical Labs

Project ID: 1604177

Sample ID: ELF-7

Locator:

ACZ Sample ID: **L29843-08**

Date Sampled: 04/06/16 20:00

Date Received: 04/12/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:14		0.67	0.17	0.21	pCi/L	*	mns

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/03/16 14:43		0.72	0.73	0.73	pCi/L	*	djc

American West Analytical Labs

Project ID: 1604177

Sample ID: ELF-5

Locator:

ACZ Sample ID: **L29843-09**

Date Sampled: 04/06/16 18:30

Date Received: 04/12/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:15		1.8	0.29	0.26	pCi/L	*	mns

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/03/16 14:43		1.9	0.58	0.49	pCi/L	*	djc

American West Analytical Labs

Project ID: 1604177

Sample ID: ELF-11

Locator:

ACZ Sample ID: **L29843-10**

Date Sampled: 04/06/16 15:30

Date Received: 04/12/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:17		0.6	0.13	0.18	pCi/L	*	mns

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/03/16 14:43		0.64	0.49	0.48	pCi/L	*	djc

American West Analytical Labs

Project ID: 1604177

Sample ID: ELF-8 DUP

Locator:

ACZ Sample ID: **L29843-11**

Date Sampled: 04/06/16 17:15

Date Received: 04/12/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:18		1	0.23	0.16	pCi/L	*	mns

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/03/16 14:43		0.5	0.58	0.58	pCi/L	*	djc

American West Analytical Labs

Project ID: 1604177

Sample ID: ELF-8

Locator:

ACZ Sample ID: **L29843-12**

Date Sampled: 04/06/16 17:00

Date Received: 04/12/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:20		1	0.22	0.13	pCi/L	*	mns

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/03/16 14:43		1.6	0.7	0.64	pCi/L	*	djc

American West Analytical Labs

Project ID: 1604177

Sample ID: ELF-1 DUP

Locator:

ACZ Sample ID: **L29843-13**

Date Sampled: 04/06/16 16:00

Date Received: 04/12/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	05/04/16 0:21		0.42	0.15	0.19	pCi/L	*	mns

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	05/02/16 11:37		1.2	0.53	0.48	pCi/L		tjr

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

American West Analytical Labs

ACZ Project ID: **L29843**

Radium 226

M903.1

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG402517																
WG401956PBW	PBW	05/04/16						.12	0.1	0.1			0.2			
WG401956LCSW	LCSW	05/04/16	PCN49533	20				16	0.45	0.17	80	43	148			
L29843-03DUP	DUP-RER	05/04/16			0.55	0.24	0.71	.37	0.18	0.48				0.6	2	
L29843-04DUP	DUP-RER	05/04/16			0.25	0.17	0.27	.26	0.25	0.26				0.03	2	
L29843-05MS	MS	05/04/16	PCN49533	40	0.19	0.16	0.29	36	1.1	0.12	90	43	148			

Radium 228

M904.0

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG402368																
WG401879PBW	PBW	05/02/16						-.24	0.32	0.36			0.72			
WG401879LCSW	LCSW	05/02/16	PCN50549	19.41				15	1.1	0.52	77	47	123			
L29946-05MS	MS	05/02/16	PCN50549	19.41	0.43	0.51	0.52	13	1.1	0.52	65	47	123			
L29946-02DUP	DUP-RER	05/02/16			-0.43	0.55	0.63	.23	0.51	0.53				0.88	2	
L29905-04DUP	DUP-RER	05/02/16			0.68	0.47	0.46	.38	0.52	0.53				0.43	2	
WG402434																
WG401694PBW	PBW	05/03/16						1.5	0.92	0.89			1.78			
WG401694LCSW	LCSW	05/03/16	PCN50549	19.41				20	1.3	0.53	103	47	123			
L29843-05DUP	DUP-RER	05/03/16			0.45	1	1.1	5.7	1.6	1.4				2.78	2	N1
L29843-06MS	MS	05/03/16	PCN50549	38.81	1.6	1	0.99	44	3	1.2	109	47	123			
L29842-06DUP	DUP-RER	05/03/16			2.2	0.8	0.69	.97	1.4	1.4				0.76	2	

American West Analytical Labs

ACZ Project ID: **L29843**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L29843-01	WG402517	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
L29843-02	WG402517	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
L29843-03	WG402517	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.
	WG402434	Radium 228	M904.0	N1	See Case Narrative.
L29843-04	WG402517	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.
	WG402434	Radium 228	M904.0	N1	See Case Narrative.
L29843-05	WG402517	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.
	WG402434	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
			M904.0	N1	See Case Narrative.
L29843-06	WG402434	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
			M904.0	N1	See Case Narrative.
L29843-07	WG402517	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
	WG402434	Radium 228	M904.0	N1	See Case Narrative.
L29843-08	WG402517	Radium 226	M903.1	DD	Sample required dilution due to matrix color or odor.
	WG402434	Radium 228	M904.0	N1	See Case Narrative.
L29843-09	WG402517	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
	WG402434	Radium 228	M904.0	N1	See Case Narrative.
L29843-10	WG402517	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
	WG402434	Radium 228	M904.0	N1	See Case Narrative.
L29843-11	WG402517	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
	WG402434	Radium 228	M904.0	N1	See Case Narrative.
L29843-12	WG402517	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
	WG402434	Radium 228	M904.0	N1	See Case Narrative.
L29843-13	WG402517	Radium 226	M903.1	DF	Sample required dilution due to high sediment.

American West Analytical Labs
1604177

ACZ Project ID: L29843
Date Received: 04/12/2016 09:17
Received By: ddp
Date Printed: 4/12/2016

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2) Is the Chain of Custody form or other directive shipping papers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Does this project require special handling procedures such as CLP protocol?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4) Are any samples NRC licensable material?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) If samples are received past hold time, proceed with requested short hold time analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Is the Chain of Custody form complete and accurate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Are all labels on containers and are they intact and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) For preserved bottle types, was the pH checked and within limits? ¹	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Is there sufficient sample volume to perform all requested work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Is the custody seal intact on all containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14) Are samples that require zero headspace acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Are all sample containers appropriate for analytical requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Is there an Hg-1631 trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Is there a VOA trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18) Were all samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
3975	18.2	NA	15	N/A
NA23690	11.9	NA	16	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

American West Analytical Labs
1604177

ACZ Project ID: L29843
Date Received: 04/12/2016 09:17
Received By: ddp
Date Printed: 4/12/2016

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



Lab Sample Set #

Page 1 of 1

QC Level: **2+**
Turn Around Time
Standard

Special Instructions: Include project name and PO# on final report and invoice. Email results to both Elona and Denise.

L29843-1605051500



**AMERICAN
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LABORATORIES**

Jeff Tucker
PacifiCorp
1407 West North Temple, # 280
Salt Lake City, UT 84116
TEL: (801) 220-2989

RE: Hunter CCR Sampling / PERCM52

Dear Jeff Tucker:

Lab Set ID: 1605116

3440 South 700 West
Salt Lake City, Utah
84119

American West Analytical Laboratories received sample(s) on 5/5/2016 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

(801) 263-8686
Toll Free (888) 263-8686
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e-mail: awal@awal-labs.com

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Jose B. Rocha
Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:

Radiological Testing



INORGANIC ANALYTICAL REPORT

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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-001
Client Sample ID: ELF-2
Collection Date: 5/4/2016 940h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/6/2016 1311h	5/10/2016 1658h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/6/2016 1311h	5/10/2016 1658h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/6/2016 1311h	5/10/2016 1658h	E200.8	0.00200	0.00951	
Beryllium	mg/L	5/6/2016 1311h	5/11/2016 1740h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/6/2016 1311h	5/13/2016 1540h	E200.7	0.500	3.15	
Cadmium	mg/L	5/6/2016 1311h	5/10/2016 1658h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/6/2016 1311h	5/13/2016 1448h	E200.7	100	364	²
Chromium	mg/L	5/6/2016 1311h	5/10/2016 1658h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/6/2016 1311h	5/10/2016 1658h	E200.8	0.00400	< 0.00400	
Lead	mg/L	5/6/2016 1311h	5/10/2016 1658h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/6/2016 1311h	5/16/2016 1000h	E200.7	0.100	1.45	~
Magnesium	mg/L	5/6/2016 1311h	5/13/2016 1448h	E200.7	100	285	²
Mercury	mg/L	5/9/2016 1600h	5/10/2016 1127h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/6/2016 1311h	5/10/2016 1658h	E200.8	0.00200	0.00296	
Selenium	mg/L	5/6/2016 1311h	5/10/2016 1658h	E200.8	0.00200	0.398	
Sodium	mg/L	5/6/2016 1311h	5/13/2016 1313h	E200.7	1,000	3,060	²
Thallium	mg/L	5/6/2016 1311h	5/10/2016 1658h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-002
Client Sample ID: ELF-9
Collection Date: 5/4/2016 1030h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/6/2016 1311h	5/10/2016 1714h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/6/2016 1311h	5/10/2016 1714h	E200.8	0.00200	0.00546	
Barium	mg/L	5/6/2016 1311h	5/10/2016 1714h	E200.8	0.00200	0.0323	
Beryllium	mg/L	5/6/2016 1311h	5/11/2016 1759h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/6/2016 1311h	5/13/2016 1548h	E200.7	0.500	1.30	
Cadmium	mg/L	5/6/2016 1311h	5/10/2016 1714h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/6/2016 1311h	5/13/2016 1713h	E200.7	10.0	64.6	
Chromium	mg/L	5/6/2016 1311h	5/10/2016 1714h	E200.8	0.00200	0.00359	
Cobalt	mg/L	5/6/2016 1311h	5/10/2016 1714h	E200.8	0.00400	< 0.00400	
Lead	mg/L	5/6/2016 1311h	5/10/2016 1714h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/6/2016 1311h	5/16/2016 1001h	E200.7	0.100	1.03	~
Magnesium	mg/L	5/6/2016 1311h	5/13/2016 1713h	E200.7	10.0	40.8	
Mercury	mg/L	5/9/2016 1600h	5/10/2016 1132h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/6/2016 1311h	5/10/2016 1714h	E200.8	0.00200	0.122	
Selenium	mg/L	5/6/2016 1311h	5/10/2016 1714h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	5/6/2016 1311h	5/13/2016 1321h	E200.7	1,000	3,380	
Thallium	mg/L	5/6/2016 1311h	5/10/2016 1714h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-003
Client Sample ID: DUP-1
Collection Date: 5/4/2016 1040h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/6/2016 1311h	5/10/2016 1717h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/6/2016 1311h	5/10/2016 1717h	E200.8	0.00200	0.00294	
Barium	mg/L	5/6/2016 1311h	5/10/2016 1717h	E200.8	0.00200	0.0256	
Beryllium	mg/L	5/6/2016 1311h	5/11/2016 1802h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/6/2016 1311h	5/13/2016 1551h	E200.7	0.500	1.30	
Cadmium	mg/L	5/6/2016 1311h	5/10/2016 1717h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/6/2016 1311h	5/13/2016 1723h	E200.7	10.0	106	
Chromium	mg/L	5/6/2016 1311h	5/10/2016 1717h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/6/2016 1311h	5/10/2016 1717h	E200.8	0.00400	< 0.00400	
Lead	mg/L	5/6/2016 1311h	5/10/2016 1717h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/6/2016 1311h	5/16/2016 1004h	E200.7	0.100	2.03	~
Magnesium	mg/L	5/6/2016 1311h	5/13/2016 1723h	E200.7	10.0	70.4	
Mercury	mg/L	5/9/2016 1600h	5/10/2016 1134h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/6/2016 1311h	5/10/2016 1717h	E200.8	0.00200	0.0768	
Selenium	mg/L	5/6/2016 1311h	5/10/2016 1717h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	5/6/2016 1311h	5/13/2016 1323h	E200.7	1,000	2,800	
Thallium	mg/L	5/6/2016 1311h	5/10/2016 1717h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Laboratory Director

Jose Rocha
QA Officer



**AMERICAN
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-004
Client Sample ID: ELF-10
Collection Date: 5/4/2016 1100h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/6/2016 1311h	5/10/2016 1720h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/6/2016 1311h	5/10/2016 1720h	E200.8	0.00200	0.00929	
Barium	mg/L	5/6/2016 1311h	5/10/2016 1720h	E200.8	0.00200	0.0867	
Beryllium	mg/L	5/6/2016 1311h	5/11/2016 1805h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/6/2016 1311h	5/13/2016 1553h	E200.7	0.500	1.48	
Cadmium	mg/L	5/6/2016 1311h	5/10/2016 1720h	E200.8	0.000500	0.00110	
Calcium	mg/L	5/6/2016 1311h	5/13/2016 1500h	E200.7	100	470	
Chromium	mg/L	5/6/2016 1311h	5/10/2016 1720h	E200.8	0.00200	0.0164	
Cobalt	mg/L	5/6/2016 1311h	5/10/2016 1720h	E200.8	0.00400	0.00793	
Lead	mg/L	5/6/2016 1311h	5/10/2016 1720h	E200.8	0.00200	0.0120	
Lithium	mg/L	5/6/2016 1311h	5/16/2016 1005h	E200.7	0.100	1.12	~
Magnesium	mg/L	5/6/2016 1311h	5/13/2016 1500h	E200.7	100	426	
Mercury	mg/L	5/9/2016 1600h	5/10/2016 1139h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/6/2016 1311h	5/10/2016 1720h	E200.8	0.00200	0.107	
Selenium	mg/L	5/6/2016 1311h	5/10/2016 1720h	E200.8	0.00200	0.105	
Sodium	mg/L	5/6/2016 1311h	5/13/2016 1325h	E200.7	1,000	12,800	
Thallium	mg/L	5/6/2016 1311h	5/10/2016 1720h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-005
Client Sample ID: ELF-7
Collection Date: 5/4/2016 1150h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/6/2016 1311h	5/10/2016 1733h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/6/2016 1311h	5/10/2016 1733h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/6/2016 1311h	5/10/2016 1733h	E200.8	0.00200	0.00983	
Beryllium	mg/L	5/6/2016 1311h	5/11/2016 1808h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/6/2016 1311h	5/13/2016 1557h	E200.7	0.500	1.58	
Cadmium	mg/L	5/6/2016 1311h	5/10/2016 1733h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/6/2016 1311h	5/13/2016 1503h	E200.7	100	445	
Chromium	mg/L	5/6/2016 1311h	5/10/2016 1733h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/6/2016 1311h	5/10/2016 1733h	E200.8	0.00400	0.00483	
Lead	mg/L	5/6/2016 1311h	5/10/2016 1733h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/6/2016 1311h	5/16/2016 1006h	E200.7	0.100	0.639	~
Magnesium	mg/L	5/6/2016 1311h	5/13/2016 1503h	E200.7	100	642	
Mercury	mg/L	5/9/2016 1600h	5/10/2016 1141h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/6/2016 1311h	5/10/2016 1733h	E200.8	0.00200	0.00209	
Selenium	mg/L	5/6/2016 1311h	5/10/2016 1733h	E200.8	0.00200	0.360	
Sodium	mg/L	5/6/2016 1311h	5/13/2016 1335h	E200.7	1,000	4,350	
Thallium	mg/L	5/6/2016 1311h	5/10/2016 1733h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-006
Client Sample ID: ELF-4
Collection Date: 5/4/2016 1220h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/6/2016 1311h	5/10/2016 1736h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/6/2016 1311h	5/10/2016 1736h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/6/2016 1311h	5/10/2016 1736h	E200.8	0.00200	0.0123	
Beryllium	mg/L	5/6/2016 1311h	5/11/2016 1811h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/6/2016 1311h	5/13/2016 1559h	E200.7	0.500	4.42	
Cadmium	mg/L	5/6/2016 1311h	5/10/2016 1736h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/6/2016 1311h	5/13/2016 1505h	E200.7	100	476	
Chromium	mg/L	5/6/2016 1311h	5/10/2016 1736h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/6/2016 1311h	5/10/2016 1736h	E200.8	0.00400	0.00637	
Lead	mg/L	5/6/2016 1311h	5/10/2016 1736h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/6/2016 1311h	5/16/2016 1007h	E200.7	0.100	1.40	~
Magnesium	mg/L	5/6/2016 1311h	5/13/2016 1505h	E200.7	100	503	
Mercury	mg/L	5/9/2016 1600h	5/10/2016 1143h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/6/2016 1311h	5/10/2016 1736h	E200.8	0.00200	0.00236	
Selenium	mg/L	5/6/2016 1311h	5/10/2016 1736h	E200.8	0.00200	0.00281	
Sodium	mg/L	5/6/2016 1311h	5/13/2016 1337h	E200.7	1,000	2,660	
Thallium	mg/L	5/6/2016 1311h	5/10/2016 1736h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-007
Client Sample ID: ELF-8
Collection Date: 5/4/2016 1240h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/6/2016 1311h	5/10/2016 1739h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/6/2016 1311h	5/10/2016 1739h	E200.8	0.00200	0.00224	
Barium	mg/L	5/6/2016 1311h	5/10/2016 1739h	E200.8	0.00200	0.0507	
Beryllium	mg/L	5/6/2016 1311h	5/11/2016 1824h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/6/2016 1311h	5/13/2016 1728h	E200.7	5.00	25.4	
Cadmium	mg/L	5/6/2016 1311h	5/10/2016 1739h	E200.8	0.000500	0.00105	
Calcium	mg/L	5/6/2016 1311h	5/13/2016 1515h	E200.7	100	588	
Chromium	mg/L	5/6/2016 1311h	5/10/2016 1739h	E200.8	0.00200	0.00966	
Cobalt	mg/L	5/6/2016 1311h	5/10/2016 1739h	E200.8	0.00400	0.172	
Lead	mg/L	5/6/2016 1311h	5/10/2016 1739h	E200.8	0.00200	0.00657	
Lithium	mg/L	5/6/2016 1311h	5/16/2016 1008h	E200.7	0.100	4.40	~
Magnesium	mg/L	5/6/2016 1311h	5/13/2016 1515h	E200.7	100	126	
Mercury	mg/L	5/9/2016 1600h	5/10/2016 1144h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/6/2016 1311h	5/10/2016 1739h	E200.8	0.00200	0.431	
Selenium	mg/L	5/6/2016 1311h	5/10/2016 1739h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	5/6/2016 1311h	5/13/2016 1340h	E200.7	1,000	1,910	
Thallium	mg/L	5/6/2016 1311h	5/10/2016 1739h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-008
Client Sample ID: ELF-5
Collection Date: 5/4/2016 1150h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/6/2016 1311h	5/10/2016 1742h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/6/2016 1311h	5/10/2016 1742h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/6/2016 1311h	5/10/2016 1742h	E200.8	0.00200	0.0151	
Beryllium	mg/L	5/6/2016 1311h	5/11/2016 1827h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/6/2016 1311h	5/13/2016 1605h	E200.7	0.500	5.99	
Cadmium	mg/L	5/6/2016 1311h	5/10/2016 1742h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/6/2016 1311h	5/13/2016 1517h	E200.7	100	465	
Chromium	mg/L	5/6/2016 1311h	5/10/2016 1742h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/6/2016 1311h	5/10/2016 1742h	E200.8	0.00400	0.00424	
Lead	mg/L	5/6/2016 1311h	5/10/2016 1742h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/6/2016 1311h	5/16/2016 1009h	E200.7	0.100	5.68	~
Magnesium	mg/L	5/6/2016 1311h	5/13/2016 1517h	E200.7	100	846	
Mercury	mg/L	5/9/2016 1600h	5/10/2016 1146h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/6/2016 1311h	5/10/2016 1742h	E200.8	0.00200	0.00439	
Selenium	mg/L	5/6/2016 1311h	5/10/2016 1742h	E200.8	0.00200	0.0306	
Sodium	mg/L	5/6/2016 1311h	5/13/2016 1342h	E200.7	1,000	6,030	
Thallium	mg/L	5/6/2016 1311h	5/10/2016 1742h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

AMERICAN
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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-009
Client Sample ID: FB-1
Collection Date: 5/4/2016 950h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/6/2016 1311h	5/10/2016 1745h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/6/2016 1311h	5/10/2016 1745h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/6/2016 1311h	5/10/2016 1745h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	5/6/2016 1311h	5/11/2016 1830h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/6/2016 1311h	5/13/2016 1345h	E200.7	0.500	< 0.500	
Cadmium	mg/L	5/6/2016 1311h	5/10/2016 1745h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/6/2016 1311h	5/13/2016 1345h	E200.7	1.00	< 1.00	
Chromium	mg/L	5/6/2016 1311h	5/10/2016 1745h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/6/2016 1311h	5/10/2016 1745h	E200.8	0.00400	< 0.00400	
Lead	mg/L	5/6/2016 1311h	5/10/2016 1745h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/6/2016 1311h	5/16/2016 1016h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	5/6/2016 1311h	5/13/2016 1345h	E200.7	1.00	< 1.00	
Mercury	mg/L	5/9/2016 1600h	5/10/2016 1148h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/6/2016 1311h	5/10/2016 1745h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	5/6/2016 1311h	5/10/2016 1745h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	5/6/2016 1311h	5/13/2016 1345h	E200.7	1.00	< 1.00	
Thallium	mg/L	5/6/2016 1311h	5/10/2016 1745h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-010
Client Sample ID: ELF-11
Collection Date: 5/4/2016 1000h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/6/2016 1311h	5/10/2016 1749h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/6/2016 1311h	5/10/2016 1749h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/6/2016 1311h	5/10/2016 1749h	E200.8	0.00200	0.0245	
Beryllium	mg/L	5/6/2016 1311h	5/11/2016 1833h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/6/2016 1311h	5/13/2016 1731h	E200.7	5.00	14.9	
Cadmium	mg/L	5/6/2016 1311h	5/10/2016 1749h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/6/2016 1311h	5/13/2016 1520h	E200.7	100	399	
Chromium	mg/L	5/6/2016 1311h	5/10/2016 1749h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/6/2016 1311h	5/10/2016 1749h	E200.8	0.00400	0.0140	
Lead	mg/L	5/6/2016 1311h	5/10/2016 1749h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/6/2016 1311h	5/16/2016 1010h	E200.7	0.100	4.31	~
Magnesium	mg/L	5/6/2016 1311h	5/13/2016 1520h	E200.7	100	350	
Mercury	mg/L	5/9/2016 1600h	5/10/2016 1150h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/6/2016 1311h	5/10/2016 1749h	E200.8	0.00200	0.0205	
Selenium	mg/L	5/6/2016 1311h	5/10/2016 1749h	E200.8	0.00200	0.00666	
Sodium	mg/L	5/6/2016 1311h	5/13/2016 1347h	E200.7	1,000	4,470	
Thallium	mg/L	5/6/2016 1311h	5/10/2016 1749h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.



INORGANIC ANALYTICAL REPORT

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-011
Client Sample ID: EB-1
Collection Date: 5/4/2016 1020h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/6/2016 1311h	5/10/2016 1752h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/6/2016 1311h	5/10/2016 1752h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/6/2016 1311h	5/10/2016 1752h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	5/6/2016 1311h	5/11/2016 1836h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/6/2016 1311h	5/13/2016 1349h	E200.7	0.500	< 0.500	
Cadmium	mg/L	5/6/2016 1311h	5/10/2016 1752h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/6/2016 1311h	5/13/2016 1349h	E200.7	1.00	< 1.00	
Chromium	mg/L	5/6/2016 1311h	5/10/2016 1752h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/6/2016 1311h	5/10/2016 1752h	E200.8	0.00400	< 0.00400	
Lead	mg/L	5/6/2016 1311h	5/10/2016 1752h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/6/2016 1311h	5/16/2016 1017h	E200.7	0.100	< 0.100	~
Magnesium	mg/L	5/6/2016 1311h	5/13/2016 1349h	E200.7	1.00	< 1.00	
Mercury	mg/L	5/9/2016 1600h	5/10/2016 1151h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/6/2016 1311h	5/10/2016 1752h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	5/6/2016 1311h	5/10/2016 1752h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	5/6/2016 1311h	5/13/2016 1349h	E200.7	1.00	< 1.00	
Thallium	mg/L	5/6/2016 1311h	5/10/2016 1752h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-012
Client Sample ID: ELF-6
Collection Date: 5/4/2016 1110h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/6/2016 1311h	5/10/2016 1755h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/6/2016 1311h	5/10/2016 1755h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/6/2016 1311h	5/10/2016 1755h	E200.8	0.00200	0.0115	
Beryllium	mg/L	5/6/2016 1311h	5/11/2016 1849h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/6/2016 1311h	5/13/2016 1734h	E200.7	5.00	12.6	²
Cadmium	mg/L	5/6/2016 1311h	5/10/2016 1755h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/6/2016 1311h	5/13/2016 1522h	E200.7	100	491	²
Chromium	mg/L	5/6/2016 1311h	5/10/2016 1755h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/6/2016 1311h	5/10/2016 1755h	E200.8	0.00400	0.0186	
Lead	mg/L	5/6/2016 1311h	5/10/2016 1755h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/6/2016 1311h	5/16/2016 1011h	E200.7	0.100	7.92	~
Magnesium	mg/L	5/6/2016 1311h	5/13/2016 1522h	E200.7	100	642	²
Mercury	mg/L	5/9/2016 1600h	5/10/2016 1153h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/6/2016 1311h	5/10/2016 1755h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	5/6/2016 1311h	5/10/2016 1755h	E200.8	0.00200	0.0917	
Sodium	mg/L	5/6/2016 1311h	5/13/2016 1352h	E200.7	1,000	5,460	²
Thallium	mg/L	5/6/2016 1311h	5/10/2016 1755h	E200.8	0.00200	< 0.00200	

~ - The above result was not performed in accordance with NELAP requirements.

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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INORGANIC ANALYTICAL REPORT

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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-001
Client Sample ID: ELF-2
Collection Date: 5/4/2016 940h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	427	
Bicarbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	427	
Carbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/12/2016 802h	E300.0	10.0	439	
Fluoride	mg/L		5/12/2016 119h	E300.0	0.100	0.103	
Nitrate/Nitrite (as N)	mg/L		5/18/2016 1153h	E353.2	0.100	14.2	
pH @ 25° C	pH Units		5/5/2016 1533h	SM4500-H+B	1.00	7.76	H
Sulfate	mg/L		5/11/2016 2140h	E300.0	750	8,040	
Total Dissolved Solids	mg/L		5/6/2016 1223h	SM2540C	100	11,700	

H - Sample was received outside of the holding time.

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-002
Client Sample ID: ELF-9
Collection Date: 5/4/2016 1030h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	554	
Bicarbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	554	
Carbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/12/2016 819h	E300.0	10.0	282	
Fluoride	mg/L		5/12/2016 136h	E300.0	0.100	1.29	
Nitrate/Nitrite (as N)	mg/L		5/18/2016 1157h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		5/5/2016 1533h	SM4500-H+B	1.00	7.75	H
Sulfate	mg/L		5/11/2016 2156h	E300.0	750	6,850	
Total Dissolved Solids	mg/L		5/6/2016 1223h	SM2540C	100	10,100	

H - Sample was received outside of the holding time.

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INORGANIC ANALYTICAL REPORT

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LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-003
Client Sample ID: DUP-1
Collection Date: 5/4/2016 1040h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	537	
Bicarbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	537	
Carbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/12/2016 836h	E300.0	10.0	268	
Fluoride	mg/L		5/12/2016 153h	E300.0	0.100	1.14	
Nitrate/Nitrite (as N)	mg/L		5/18/2016 1226h	E353.2	0.0500	1.51	
pH @ 25° C	pH Units		5/5/2016 1702h	SM4500-H+B	1.00	7.85	H
Sulfate	mg/L		5/11/2016 1237h	E300.0	750	6,490	
Total Dissolved Solids	mg/L		5/6/2016 1223h	SM2540C	100	9,480	

H - Sample was received outside of the holding time.

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**AMERICAN
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-004
Client Sample ID: ELF-10
Collection Date: 5/4/2016 1100h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	1,010	
Bicarbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	1,010	
Carbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/11/2016 1603h	E300.0	100	7,530	
Fluoride	mg/L		5/12/2016 211h	E300.0	0.100	3.87	
Nitrate/Nitrite (as N)	mg/L		5/18/2016 1159h	E353.2	0.200	13.6	
pH @ 25° C	pH Units		5/5/2016 1702h	SM4500-H+B	1.00	8.37	H
Sulfate	mg/L		5/11/2016 1254h	E300.0	7,500	19,300	
Total Dissolved Solids	mg/L		5/6/2016 1223h	SM2540C	100	37,800	

H - Sample was received outside of the holding time.

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INORGANIC ANALYTICAL REPORT

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-005
Client Sample ID: ELF-7
Collection Date: 5/4/2016 1150h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	525	
Bicarbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	525	
Carbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/11/2016 1942h	E300.0	100	2,650	
Fluoride	mg/L		5/12/2016 228h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		5/18/2016 1238h	E353.2	1.00	126	
pH @ 25° C	pH Units		5/5/2016 1702h	SM4500-H+B	1.00	7.16	H
Sulfate	mg/L		5/11/2016 1942h	E300.0	750	8,680	
Total Dissolved Solids	mg/L		5/6/2016 1223h	SM2540C	100	16,900	

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-006
Client Sample ID: ELF-4
Collection Date: 5/4/2016 1220h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	353	
Bicarbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	353	
Carbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/11/2016 1959h	E300.0	100	2,280	
Fluoride	mg/L		5/12/2016 246h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		5/18/2016 1214h	E353.2	1.00	16.2	
pH @ 25° C	pH Units		5/5/2016 1702h	SM4500-H+B	1.00	7.16	H
Sulfate	mg/L		5/11/2016 1959h	E300.0	750	6,010	
Total Dissolved Solids	mg/L		5/6/2016 1223h	SM2540C	100	11,600	

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INORGANIC ANALYTICAL REPORT

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-007
Client Sample ID: ELF-8
Collection Date: 5/4/2016 1240h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	55.0	
Bicarbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	55.0	
Carbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/11/2016 1710h	E300.0	100	2,190	
Fluoride	mg/L		5/12/2016 303h	E300.0	0.100	0.946	
Nitrate/Nitrite (as N)	mg/L		5/18/2016 1215h	E353.2	0.0100	0.0109	
pH @ 25° C	pH Units		5/5/2016 1702h	SM4500-H+B	1.00	7.61	H
Sulfate	mg/L		5/11/2016 1710h	E300.0	750	3,170	
Total Dissolved Solids	mg/L		5/6/2016 1223h	SM2540C	100	7,900	

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INORGANIC ANALYTICAL REPORT

AMERICAN
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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-008
Client Sample ID: ELF-5
Collection Date: 5/4/2016 1150h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	498	
Bicarbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	498	
Carbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/11/2016 2015h	E300.0	100	3,900	
Fluoride	mg/L		5/12/2016 320h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		5/18/2016 1217h	E353.2	1.00	26.4	
pH @ 25° C	pH Units		5/5/2016 1702h	SM4500-H+B	1.00	7.19	H
Sulfate	mg/L		5/11/2016 2015h	E300.0	750	10,700	
Total Dissolved Solids	mg/L		5/6/2016 1223h	SM2540C	100	21,100	

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INORGANIC ANALYTICAL REPORT

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-009
Client Sample ID: FB-1
Collection Date: 5/4/2016 950h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/11/2016 1147h	E300.0	0.100	< 0.100	
Fluoride	mg/L		5/11/2016 1147h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		5/18/2016 1218h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		5/5/2016 1702h	SM4500-H+B	1.00	6.14	H
Sulfate	mg/L		5/11/2016 1147h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		5/6/2016 1223h	SM2540C	10.0	18.0	

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-010
Client Sample ID: ELF-11
Collection Date: 5/4/2016 1000h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	451	
Bicarbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	451	
Carbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/11/2016 2032h	E300.0	100	1,170	
Fluoride	mg/L		5/12/2016 337h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		5/18/2016 1220h	E353.2	0.100	2.37	
pH @ 25° C	pH Units		5/5/2016 1702h	SM4500-H+B	1.00	8.01	H
Sulfate	mg/L		5/11/2016 2032h	E300.0	750	10,000	
Total Dissolved Solids	mg/L		5/6/2016 1223h	SM2540C	100	15,700	

H - Sample was received outside of the holding time.



INORGANIC ANALYTICAL REPORT

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Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-011
Client Sample ID: EB-1
Collection Date: 5/4/2016 1020h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/11/2016 1203h	E300.0	0.100	< 0.100	
Fluoride	mg/L		5/11/2016 1203h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		5/18/2016 1221h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		5/5/2016 1702h	SM4500-H+B	1.00	6.76	H
Sulfate	mg/L		5/11/2016 1203h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		5/6/2016 1223h	SM2540C	10.0	12.0	

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1605116-012
Client Sample ID: ELF-6
Collection Date: 5/4/2016 1110h
Received Date: 5/5/2016 930h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	482	
Bicarbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	482	
Carbonate (as CaCO ₃)	mg/L		5/6/2016 1011h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/11/2016 1801h	E300.0	100	4,630	
Fluoride	mg/L		5/12/2016 354h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		5/18/2016 1339h	E353.2	1.00	22.9	
pH @ 25° C	pH Units		5/5/2016 1702h	SM4500-H+B	1.00	7.40	H
Sulfate	mg/L		5/11/2016 1801h	E300.0	750	8,400	
Total Dissolved Solids	mg/L		5/6/2016 1223h	SM2540C	100	19,600	

H - Sample was received outside of the holding time.

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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1605116
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-42902		Date Analyzed:	05/13/2016 1311h										
Test Code: 200.7-W		Date Prepared:	05/06/2016 1311h										
Boron	0.936	mg/L	E200.7	0.0163	0.500	1.000	0	93.6	85 - 115				
Calcium	9.47	mg/L	E200.7	0.0579	1.00	10.00	0	94.7	85 - 115				
Magnesium	9.48	mg/L	E200.7	0.0495	1.00	10.00	0	94.8	85 - 115				
Sodium	9.93	mg/L	E200.7	0.0125	1.00	10.00	0	99.3	85 - 115				
Lab Sample ID: LCS-42903		Date Analyzed:	05/10/2016 1655h										
Test Code: 200.8-W		Date Prepared:	05/06/2016 1311h										
Antimony	0.170	mg/L	E200.8	0.000306	0.00200	0.2000	0	85.1	85 - 115				
Arsenic	0.193	mg/L	E200.8	0.000540	0.00200	0.2000	0	96.6	85 - 115				
Barium	0.189	mg/L	E200.8	0.000600	0.00200	0.2000	0	94.6	85 - 115				
Cadmium	0.191	mg/L	E200.8	0.0000666	0.000500	0.2000	0	95.4	85 - 115				
Chromium	0.194	mg/L	E200.8	0.000998	0.00200	0.2000	0	96.8	85 - 115				
Cobalt	0.191	mg/L	E200.8	0.0000990	0.00400	0.2000	0	95.3	85 - 115				
Lead	0.182	mg/L	E200.8	0.000125	0.00200	0.2000	0	90.8	85 - 115				
Molybdenum	0.192	mg/L	E200.8	0.000202	0.00200	0.2000	0	95.9	85 - 115				
Selenium	0.192	mg/L	E200.8	0.000310	0.00200	0.2000	0	95.8	85 - 115				
Thallium	0.183	mg/L	E200.8	0.0000500	0.00200	0.2000	0	91.6	85 - 115				
Lab Sample ID: LCS-42903		Date Analyzed:	05/11/2016 1737h										
Test Code: 200.8-W		Date Prepared:	05/06/2016 1311h										
Beryllium	0.200	mg/L	E200.8	0.000177	0.00200	0.2000	0	99.9	85 - 115				
Lab Sample ID: LCS-42931		Date Analyzed:	05/10/2016 1121h										
Test Code: HG-DW-245.1		Date Prepared:	05/09/2016 1600h										
Mercury	0.00335	mg/L	E245.1	0.00000559	0.000150	0.003330	0	101	85 - 115				



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QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1605116

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-42902													
Date Analyzed:		05/13/2016 1309h											
Test Code:		200.7-W											
Date Prepared:		05/06/2016 1311h											
Boron	< 0.500	mg/L	E200.7	0.0163	0.500								
Calcium	< 1.00	mg/L	E200.7	0.0579	1.00								
Magnesium	< 1.00	mg/L	E200.7	0.0495	1.00								
Sodium	< 1.00	mg/L	E200.7	0.0125	1.00								
Lab Sample ID: MB-42902													
Date Analyzed:		05/16/2016 959h											
Test Code:		200.7-W											
Date Prepared:		05/06/2016 1311h											
Lithium	< 0.100	mg/L	E200.7	0.0000100	0.100								~
Lab Sample ID: MB-42903													
Date Analyzed:		05/10/2016 1652h											
Test Code:		200.8-W											
Date Prepared:		05/06/2016 1311h											
Antimony	< 0.00200	mg/L	E200.8	0.000306	0.00200								
Arsenic	< 0.00200	mg/L	E200.8	0.000540	0.00200								
Barium	< 0.00200	mg/L	E200.8	0.000600	0.00200								
Cadmium	< 0.000500	mg/L	E200.8	0.0000666	0.000500								
Chromium	< 0.00200	mg/L	E200.8	0.000998	0.00200								
Cobalt	< 0.00400	mg/L	E200.8	0.0000990	0.00400								
Lead	< 0.00200	mg/L	E200.8	0.000125	0.00200								
Molybdenum	< 0.00200	mg/L	E200.8	0.000202	0.00200								
Selenium	< 0.00200	mg/L	E200.8	0.000310	0.00200								
Thallium	< 0.00200	mg/L	E200.8	0.0000500	0.00200								
Lab Sample ID: MB-42903													
Date Analyzed:		05/11/2016 1733h											
Test Code:		200.8-W											
Date Prepared:		05/06/2016 1311h											
Beryllium	< 0.00200	mg/L	E200.8	0.000177	0.00200								
Lab Sample ID: MB-42931													
Date Analyzed:		05/10/2016 1119h											
Test Code:		HG-DW-245.1											
Date Prepared:		05/09/2016 1600h											
Mercury	< 0.000150	mg/L	E245.1	0.00000559	0.000150								

-- The above result was not performed in accordance with NELAP requirements.

Report Date: 5/19/2016 Page 27 of 40



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1605116
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1605116-001CMS													
Test Code:	200.7-W												
Sodium	3,180	mg/L	E200.7	12.5	1,000	10.00	3060	1,190	70 - 130				2
Lab Sample ID: 1605116-012CMS													
Test Code:	200.7-W												
Sodium	5,380	mg/L	E200.7	12.5	1,000	10.00	5460	-865	70 - 130				2
Lab Sample ID: 1605116-001CMS													
Test Code:	200.7-W												
Calcium	384	mg/L	E200.7	5.79	100	10.00	364	196	70 - 130				2
Magnesium	308	mg/L	E200.7	4.95	100	10.00	285	227	70 - 130				2
Lab Sample ID: 1605116-012CMS													
Test Code:	200.7-W												
Calcium	490	mg/L	E200.7	5.79	100	10.00	491	-8.28	70 - 130				2
Magnesium	633	mg/L	E200.7	4.95	100	10.00	642	-88.9	70 - 130				2
Lab Sample ID: 1605116-001CMS													
Test Code:	200.7-W												
Boron	4.20	mg/L	E200.7	0.0163	0.500	1.000	3.15	105	70 - 130				
Lab Sample ID: 1605116-012CMS													
Test Code:	200.7-W												
Boron	14.3	mg/L	E200.7	0.163	5.00	1.000	12.6	175	70 - 130				2
Lab Sample ID: 1605116-001CMS													
Test Code:	200.8-W												
Antimony	0.193	mg/L	E200.8	0.000306	0.00200	0.2000	0.00145	95.9	75 - 125				
Arsenic	0.212	mg/L	E200.8	0.000540	0.00200	0.2000	0	106	75 - 125				
Barium	0.196	mg/L	E200.8	0.000600	0.00200	0.2000	0.00951	93.3	75 - 125				

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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1605116
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1605116-001CMS													
Date Analyzed:		05/10/2016 1708h											
Test Code:		200.8-W											
Date Prepared:		05/06/2016 1311h											
Cadmium	0.185	mg/L	E200.8	0.000666	0.000500	0.2000	0.000106	92.5	75 - 125				
Chromium	0.186	mg/L	E200.8	0.000998	0.00200	0.2000	0	92.8	75 - 125				
Cobalt	0.182	mg/L	E200.8	0.000990	0.00400	0.2000	0.0026	89.7	75 - 125				
Lead	0.165	mg/L	E200.8	0.000125	0.00200	0.2000	0	82.6	75 - 125				
Molybdenum	0.212	mg/L	E200.8	0.000202	0.00200	0.2000	0.00296	104	75 - 125				
Selenium	0.586	mg/L	E200.8	0.000310	0.00200	0.2000	0.398	93.9	75 - 125				
Thallium	0.167	mg/L	E200.8	0.000500	0.00200	0.2000	0	83.4	75 - 125				
Lab Sample ID: 1605116-012CMS													
Date Analyzed:		05/10/2016 1758h											
Test Code:		200.8-W											
Date Prepared:		05/06/2016 1311h											
Antimony	0.199	mg/L	E200.8	0.000306	0.00200	0.2000	0	99.6	75 - 125				
Arsenic	0.223	mg/L	E200.8	0.000540	0.00200	0.2000	0.000712	111	75 - 125				
Barium	0.205	mg/L	E200.8	0.000600	0.00200	0.2000	0.0115	96.5	75 - 125				
Cadmium	0.187	mg/L	E200.8	0.000666	0.000500	0.2000	0.000105	93.5	75 - 125				
Chromium	0.186	mg/L	E200.8	0.000998	0.00200	0.2000	0	93.1	75 - 125				
Cobalt	0.196	mg/L	E200.8	0.000990	0.00400	0.2000	0.0186	88.6	75 - 125				
Lead	0.170	mg/L	E200.8	0.000125	0.00200	0.2000	0	85.2	75 - 125				
Molybdenum	0.217	mg/L	E200.8	0.000202	0.00200	0.2000	0.00143	108	75 - 125				
Selenium	0.292	mg/L	E200.8	0.000310	0.00200	0.2000	0.0917	100	75 - 125				
Thallium	0.172	mg/L	E200.8	0.000500	0.00200	0.2000	0	86.2	75 - 125				
Lab Sample ID: 1605116-001CMS													
Date Analyzed:		05/11/2016 1743h											
Test Code:		200.8-W											
Date Prepared:		05/06/2016 1311h											
Beryllium	0.186	mg/L	E200.8	0.000177	0.00200	0.2000	0	93.1	75 - 125				
Lab Sample ID: 1605116-012CMS													
Date Analyzed:		05/11/2016 1852h											
Test Code:		200.8-W											
Date Prepared:		05/06/2016 1311h											
Beryllium	0.192	mg/L	E200.8	0.000177	0.00200	0.2000	0	95.8	75 - 125				

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1605116

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1605116-001CMS	Date Analyzed:	05/10/2016	1128h										
Test Code: HG-DW-245.1	Date Prepared:	05/09/2016	1600h										
Mercury	0.00332	mg/L	E245.1	0.00000559	0.000150	0.003330	0.0000133	99.2	80 - 120				

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1605116
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1605116-001CMSD Date Analyzed: 05/13/2016 1318h Test Code: 200.7-W Date Prepared: 05/06/2016 1311h													
Sodium	2,990	mg/L	E200.7	12.5	1,000	10.00	3060	-635	70 - 130	3180	5.91	20	²
Lab Sample ID: 1605116-012CMSD Date Analyzed: 05/13/2016 1356h Test Code: 200.7-W Date Prepared: 05/06/2016 1311h													
Sodium	5,430	mg/L	E200.7	12.5	1,000	10.00	5460	-318	70 - 130	5380	1.01	20	²
Lab Sample ID: 1605116-001CMSD Date Analyzed: 05/13/2016 1453h Test Code: 200.7-W Date Prepared: 05/06/2016 1311h													
Calcium	385	mg/L	E200.7	5.79	100	10.00	364	207	70 - 130	384	0.303	20	²
Magnesium	304	mg/L	E200.7	4.95	100	10.00	285	193	70 - 130	308	1.12	20	²
Lab Sample ID: 1605116-012CMSD Date Analyzed: 05/13/2016 1527h Test Code: 200.7-W Date Prepared: 05/06/2016 1311h													
Calcium	481	mg/L	E200.7	5.79	100	10.00	491	-95.6	70 - 130	490	1.80	20	²
Magnesium	631	mg/L	E200.7	4.95	100	10.00	642	-113	70 - 130	633	0.388	20	²
Lab Sample ID: 1605116-001CMSD Date Analyzed: 05/13/2016 1545h Test Code: 200.7-W Date Prepared: 05/06/2016 1311h													
Boron	4.23	mg/L	E200.7	0.0163	0.500	1.000	3.15	108	70 - 130	4.2	0.582	20	
Lab Sample ID: 1605116-012CMSD Date Analyzed: 05/13/2016 1739h Test Code: 200.7-W Date Prepared: 05/06/2016 1311h													
Boron	14.3	mg/L	E200.7	0.163	5.00	1.000	12.6	171	70 - 130	14.3	0.312	20	²
Lab Sample ID: 1605116-001CMSD Date Analyzed: 05/10/2016 1711h Test Code: 200.8-W Date Prepared: 05/06/2016 1311h													
Antimony	0.193	mg/L	E200.8	0.000306	0.00200	0.2000	0.00145	95.9	75 - 125	0.193	0.00995	20	
Arsenic	0.211	mg/L	E200.8	0.000540	0.00200	0.2000	0	105	75 - 125	0.212	0.311	20	
Barium	0.195	mg/L	E200.8	0.000600	0.00200	0.2000	0.00951	93.0	75 - 125	0.196	0.331	20	

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Kyle F. Gross
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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1605116
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1605116-001CMSD													
Date Analyzed:		05/10/2016 1711h											
Test Code:		200.8-W											
Date Prepared:		05/06/2016 1311h											
Cadmium	0.186	mg/L	E200.8	0.000666	0.000500	0.2000	0.000106	92.9	75 - 125	0.185	0.472	20	
Chromium	0.186	mg/L	E200.8	0.000998	0.00200	0.2000	0	93.2	75 - 125	0.186	0.461	20	
Cobalt	0.182	mg/L	E200.8	0.000990	0.00400	0.2000	0.0026	89.6	75 - 125	0.182	0.146	20	
Lead	0.165	mg/L	E200.8	0.000125	0.00200	0.2000	0	82.7	75 - 125	0.165	0.0632	20	
Molybdenum	0.212	mg/L	E200.8	0.000202	0.00200	0.2000	0.00296	105	75 - 125	0.212	0.249	20	
Selenium	0.585	mg/L	E200.8	0.000310	0.00200	0.2000	0.398	93.6	75 - 125	0.586	0.120	20	
Thallium	0.166	mg/L	E200.8	0.000500	0.00200	0.2000	0	83.0	75 - 125	0.167	0.425	20	
Lab Sample ID: 1605116-012CMSD													
Date Analyzed:		05/10/2016 1801h											
Test Code:		200.8-W											
Date Prepared:		05/06/2016 1311h											
Antimony	0.196	mg/L	E200.8	0.000306	0.00200	0.2000	0	98.1	75 - 125	0.199	1.52	20	
Arsenic	0.221	mg/L	E200.8	0.000540	0.00200	0.2000	0.000712	110	75 - 125	0.223	0.755	20	
Barium	0.204	mg/L	E200.8	0.000600	0.00200	0.2000	0.0115	96.1	75 - 125	0.205	0.381	20	
Cadmium	0.185	mg/L	E200.8	0.000666	0.000500	0.2000	0.000105	92.4	75 - 125	0.187	1.16	20	
Chromium	0.188	mg/L	E200.8	0.000998	0.00200	0.2000	0	94.1	75 - 125	0.186	1.15	20	
Cobalt	0.198	mg/L	E200.8	0.000990	0.00400	0.2000	0.0186	89.8	75 - 125	0.196	1.29	20	
Lead	0.171	mg/L	E200.8	0.000125	0.00200	0.2000	0	85.5	75 - 125	0.17	0.263	20	
Molybdenum	0.215	mg/L	E200.8	0.000202	0.00200	0.2000	0.00143	107	75 - 125	0.217	0.753	20	
Selenium	0.292	mg/L	E200.8	0.000310	0.00200	0.2000	0.0917	100	75 - 125	0.292	0.221	20	
Thallium	0.173	mg/L	E200.8	0.000500	0.00200	0.2000	0	86.3	75 - 125	0.172	0.110	20	
Lab Sample ID: 1605116-001CMSD													
Date Analyzed:		05/11/2016 1746h											
Test Code:		200.8-W											
Date Prepared:		05/06/2016 1311h											
Beryllium	0.184	mg/L	E200.8	0.000177	0.00200	0.2000	0	92.0	75 - 125	0.186	1.23	20	
Lab Sample ID: 1605116-012CMSD													
Date Analyzed:		05/11/2016 1855h											
Test Code:		200.8-W											
Date Prepared:		05/06/2016 1311h											
Beryllium	0.190	mg/L	E200.8	0.000177	0.00200	0.2000	0	95.2	75 - 125	0.192	0.612	20	

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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1605116

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1605116-001CMSD	Date Analyzed:	05/10/2016 1130h											
Test Code: HG-DW-245.1	Date Prepared:	05/09/2016 1600h											
Mercury	0.00327	mg/L	E245.1	0.00000559	0.000150	0.003330	0.0000133	97.9	80 - 120	0.00332	1.37	20	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1605116
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1605115-008ADUP Date Analyzed: 05/05/2016 1533h													
Test Code: PH-4500H+B													
pH @ 25° C	5.40	pH Units	SM4500-H+B	1.00	1.00					5.4	0	5	H
Lab Sample ID: 1605116-012ADUP Date Analyzed: 05/05/2016 1702h													
Test Code: PH-4500H+B													
pH @ 25° C	7.41	pH Units	SM4500-H+B	1.00	1.00					7.4	0.135	5	H
Lab Sample ID: 1605116-001ADUP Date Analyzed: 05/06/2016 1223h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	11,500	mg/L	SM2540C	87.7	100					11700	1.73	5	

H - Sample was received outside of the holding time.



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1605116
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-R90104 Date Analyzed: 05/11/2016 1056h													
Test Code: 300.0-W													
Chloride	5.02	mg/L	E300.0	0.00516	0.100	5.000	0	100	90 - 110				
Fluoride	5.05	mg/L	E300.0	0.0139	0.100	5.000	0	101	90 - 110				
Sulfate	5.14	mg/L	E300.0	0.0201	0.750	5.000	0	103	90 - 110				
Lab Sample ID: LCS-R89899 Date Analyzed: 05/06/2016 1011h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	50,700	mg/L	SM2320B	1.38	10.0	50,000	0	101	90 - 110				
Lab Sample ID: LCS-R90281 Date Analyzed: 05/18/2016 1129h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.02	mg/L	E353.2	0.00833	0.0100	1.000	0	102	90 - 110				
Lab Sample ID: LCSR90285 Date Analyzed: 05/18/2016 1247h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.02	mg/L	E353.2	0.00833	0.0100	1.000	0	102	90 - 110				
Lab Sample ID: LCS-R89874 Date Analyzed: 05/05/2016 1533h													
Test Code: PH-4500H+B													
pH @ 25° C	8.92	pH Units	SM4500-H+B	1.00	1.00	9.000	0	99.1	98 - 102				
Lab Sample ID: LCS-R89875 Date Analyzed: 05/05/2016 1702h													
Test Code: PH-4500H+B													
pH @ 25° C	8.97	pH Units	SM4500-H+B	1.00	1.00	9.000	0	99.7	98 - 102				
Lab Sample ID: LCS-R89967 Date Analyzed: 05/06/2016 1223h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	202	mg/L	SM2540C	8.77	10.0	205.0	0	98.5	80 - 120				



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Jose Rocha
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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1605116
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-R90104 Date Analyzed: 05/11/2016 1039h													
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.00516	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.0139	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0201	0.750								
Lab Sample ID: MB-R89899 Date Analyzed: 05/06/2016 1011h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Bicarbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Carbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Lab Sample ID: MB-R90281 Date Analyzed: 05/18/2016 1128h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID: MB-R90285 Date Analyzed: 05/18/2016 1246h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID: MB-R89967 Date Analyzed: 05/06/2016 1223h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	8.77	10.0								



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1605116
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1605115-008AMS Date Analyzed: 05/11/2016 1636h													
Test Code: 300.0-W													
Chloride	12,500	mg/L	E300.0	10.3	200	10,000	2460	101	90 - 110				
Fluoride	10,100	mg/L	E300.0	27.8	200	10,000	0	101	90 - 110				
Sulfate	15,200	mg/L	E300.0	40.2	1,500	10,000	5100	101	90 - 110				
Lab Sample ID: 1605116-007AMS Date Analyzed: 05/11/2016 1727h													
Test Code: 300.0-W													
Chloride	12,300	mg/L	E300.0	10.3	200	10,000	2190	101	90 - 110				
Fluoride	10,200	mg/L	E300.0	27.8	200	10,000	0	102	90 - 110				
Sulfate	13,000	mg/L	E300.0	40.2	1,500	10,000	3170	98.7	90 - 110				
Lab Sample ID: 1605116-012AMS Date Analyzed: 05/11/2016 1817h													
Test Code: 300.0-W													
Chloride	14,700	mg/L	E300.0	10.3	200	10,000	4630	100	90 - 110				
Fluoride	10,100	mg/L	E300.0	27.8	200	10,000	0	101	90 - 110				
Sulfate	18,000	mg/L	E300.0	40.2	1,500	10,000	8400	96.4	90 - 110				
Lab Sample ID: 1605116-001AMS Date Analyzed: 05/06/2016 1011h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	626	mg/L	SM2320B	1.38	10.0	200.0	427	99.8	80 - 120				
Lab Sample ID: 1605116-011AMS Date Analyzed: 05/06/2016 1011h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	52.5	mg/L	SM2320B	1.38	10.0	50.00	0	105	80 - 120				
Lab Sample ID: 1605115-001BMS Date Analyzed: 05/18/2016 1133h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	0.956	mg/L	E353.2	0.00833	0.0100	1.000	0	95.6	90 - 110				

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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1605116
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1605116-001BMS Date Analyzed: 05/18/2016 1235h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	61.6	mg/L	E353.2	0.417	0.500	50.00	14.2	94.7	90 - 110				
Lab Sample ID: 1605116-012BMS Date Analyzed: 05/18/2016 1340h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	128	mg/L	E353.2	0.833	1.00	100.0	22.9	105	90 - 110				



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QC SUMMARY REPORT

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Lab Set ID: 1605116
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1605115-008AMSD Date Analyzed: 05/11/2016 1653h													
Test Code:	300.0-W												
Chloride	12,500	mg/L	E300.0	10.3	200	10,000	2460	101	90 - 110	12500	0.0676	20	
Fluoride	10,200	mg/L	E300.0	27.8	200	10,000	0	102	90 - 110	10100	0.251	20	
Sulfate	15,000	mg/L	E300.0	40.2	1,500	10,000	5100	99.0	90 - 110	15200	1.12	20	
Lab Sample ID: 1605116-007AMSD Date Analyzed: 05/11/2016 1744h													
Test Code:	300.0-W												
Chloride	12,300	mg/L	E300.0	10.3	200	10,000	2190	101	90 - 110	12300	0.0595	20	
Fluoride	10,200	mg/L	E300.0	27.8	200	10,000	0	102	90 - 110	10200	0.0429	20	
Sulfate	13,000	mg/L	E300.0	40.2	1,500	10,000	3170	98.4	90 - 110	13000	0.265	20	
Lab Sample ID: 1605116-012AMSD Date Analyzed: 05/11/2016 1834h													
Test Code:	300.0-W												
Chloride	14,700	mg/L	E300.0	10.3	200	10,000	4630	101	90 - 110	14700	0.530	20	
Fluoride	10,200	mg/L	E300.0	27.8	200	10,000	0	102	90 - 110	10100	0.889	20	
Sulfate	18,500	mg/L	E300.0	40.2	1,500	10,000	8400	101	90 - 110	18000	2.69	20	
Lab Sample ID: 1605116-001AMSD Date Analyzed: 05/06/2016 1011h													
Test Code:	ALK-W-2320B												
Alkalinity (as CaCO ₃)	633	mg/L	SM2320B	1.38	10.0	200.0	427	103	80 - 120	626	1.10	10	
Lab Sample ID: 1605116-011AMSD Date Analyzed: 05/06/2016 1011h													
Test Code:	ALK-W-2320B												
Alkalinity (as CaCO ₃)	54.2	mg/L	SM2320B	1.38	10.0	50.00	0	108	80 - 120	52.5	3.19	10	
Lab Sample ID: 1605115-001BMSD Date Analyzed: 05/18/2016 1135h													
Test Code:	NO2/NO3-W-353.2												
Nitrate/Nitrite (as N)	0.942	mg/L	E353.2	0.00833	0.0100	1.000	0	94.2	90 - 110	0.956	1.49	10	

Report Date: 5/19/2016 Page 39 of 40



AMERICAN WEST ANALYTICAL LABORATORIES

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1605116
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1605116-001BMSD Date Analyzed: 05/18/2016 1236h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	62.4	mg/L	E353.2	0.417	0.500	50.00	14.2	96.2	90 - 110	61.6	1.24	10	
Lab Sample ID: 1605116-012BMSD Date Analyzed: 05/18/2016 1354h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	117	mg/L	E353.2	0.833	1.00	100.0	22.9	94.0	90 - 110	128	8.75	10	

WORK ORDER Summary

Work Order: **1605116** Page 1 of 6

Client: PacifiCorp

Client ID: PAC900

Contact: Jeff Tucker

Due Date: 5/19/2016

Project: Hunter CCR Sampling / PERCM52

QC Level: II+

WO Type: Standard

Comments: QC2+. Include EDD. Footnote report, pH received outside of hold. RADS sent to AZC. Cc: Report to mshirley@waterenvtech.com, Laura Watson, Dave Erickson.;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1605116-001A	ELF-2	5/4/2016 0940h	5/5/2016 0930h	300.0-W <i>3 SEL Analytes: CL F SO4</i>	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1
				ALK-W-2320B <i>3 SEL Analytes: ALK ALKB ALKC</i>		<input checked="" type="checkbox"/>	DF-WC	
				PH-4500H+B		<input type="checkbox"/>	DF-WC	
				TDS-W-2540C		<input type="checkbox"/>	DF-WC	
1605116-001B				NO2/NO3-W-353.2		<input type="checkbox"/>	DF-NO2/NO3	
1605116-001C				200.7-W <i>5 SEL Analytes: B CA LI MG NA</i>		<input checked="" type="checkbox"/>	DF-Metals	
				200.7-W-PR		<input type="checkbox"/>	DF-Metals	
				200.8-W <i>11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL</i>		<input checked="" type="checkbox"/>	DF-Metals	
				200.8-W-PR		<input type="checkbox"/>	DF-Metals	
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals	
				HG-DW-PR		<input type="checkbox"/>	DF-Metals	
1605116-001D				OUTSIDE LAB		<input type="checkbox"/>	ACZ	2
1605116-002A	ELF-9	5/4/2016 1030h	5/5/2016 0930h	300.0-W <i>3 SEL Analytes: CL F SO4</i>	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1
				ALK-W-2320B <i>3 SEL Analytes: ALK ALKB ALKC</i>		<input checked="" type="checkbox"/>	DF-WC	
				PH-4500H+B		<input type="checkbox"/>	DF-WC	
				TDS-W-2540C		<input type="checkbox"/>	DF-WC	
1605116-002B				NO2/NO3-W-353.2		<input type="checkbox"/>	DF-NO2/NO3	
1605116-002C				200.7-W <i>5 SEL Analytes: B CA LI MG NA</i>		<input checked="" type="checkbox"/>	DF-Metals	
				200.7-W-PR		<input type="checkbox"/>	DF-Metals	
				200.8-W <i>11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL</i>		<input checked="" type="checkbox"/>	DF-Metals	
				200.8-W-PR		<input type="checkbox"/>	DF-Metals	
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals	
				HG-DW-PR		<input type="checkbox"/>	DF-Metals	
1605116-002D				OUTSIDE LAB		<input type="checkbox"/>	ACZ	2

WORK ORDER Summary

Work Order: **1605116**

Page 2 of 6

Client: PacifiCorp

Due Date: 5/19/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1605116-003A	DUP-1	5/4/2016 1040h	5/5/2016 0930h	300.0-W <i>3 SEL Analytes: CL F SO4</i>	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1
				ALK-W-2320B <i>3 SEL Analytes: ALK ALKB ALKC</i>		<input checked="" type="checkbox"/>	DF-WC	
				PH-4500H+B		<input type="checkbox"/>	DF-WC	
				TDS-W-2540C		<input type="checkbox"/>	DF-WC	
1605116-003B				NO2/NO3-W-353.2		<input type="checkbox"/>	DF-NO2/NO3	
1605116-003C				200.7-W <i>5 SEL Analytes: B CA LI MG NA</i>		<input checked="" type="checkbox"/>	DF-Metals	
				200.7-W-PR		<input type="checkbox"/>	DF-Metals	
				200.8-W <i>11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL</i>		<input checked="" type="checkbox"/>	DF-Metals	
				200.8-W-PR		<input type="checkbox"/>	DF-Metals	
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals	
				HG-DW-PR		<input type="checkbox"/>	DF-Metals	
1605116-003D				OUTSIDE LAB		<input type="checkbox"/>	ACZ	2
1605116-004A	ELF-10	5/4/2016 1100h	5/5/2016 0930h	300.0-W <i>3 SEL Analytes: CL F SO4</i>	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1
				ALK-W-2320B <i>3 SEL Analytes: ALK ALKB ALKC</i>		<input checked="" type="checkbox"/>	DF-WC	
				PH-4500H+B		<input type="checkbox"/>	DF-WC	
				TDS-W-2540C		<input type="checkbox"/>	DF-WC	
1605116-004B				NO2/NO3-W-353.2		<input type="checkbox"/>	DF-NO2/NO3	
1605116-004C				200.7-W <i>5 SEL Analytes: B CA LI MG NA</i>		<input checked="" type="checkbox"/>	DF-Metals	
				200.7-W-PR		<input type="checkbox"/>	DF-Metals	
				200.8-W <i>11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL</i>		<input checked="" type="checkbox"/>	DF-Metals	
				200.8-W-PR		<input type="checkbox"/>	DF-Metals	
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals	
				HG-DW-PR		<input type="checkbox"/>	DF-Metals	
1605116-004D				OUTSIDE LAB		<input type="checkbox"/>	ACZ	2
1605116-005A	ELF-7	5/4/2016 1150h	5/5/2016 0930h	300.0-W <i>3 SEL Analytes: CL F SO4</i>	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1
				ALK-W-2320B <i>3 SEL Analytes: ALK ALKB ALKC</i>		<input checked="" type="checkbox"/>	DF-WC	
				PH-4500H+B		<input type="checkbox"/>	DF-WC	
				TDS-W-2540C		<input type="checkbox"/>	DF-WC	

WORK ORDER Summary

Work Order: **1605116**

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Client: PacifiCorp

Due Date: 5/19/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1605116-005B	ELF-7	5/4/2016 1150h	5/5/2016 0930h	NO2/NO3-W-353.2	Aqueous	<input type="checkbox"/>	DF-NO2/NO3	1
1605116-005C				200.7-W		<input checked="" type="checkbox"/>	DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR		<input type="checkbox"/>	DF-Metals	
				200.8-W		<input checked="" type="checkbox"/>	DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR		<input type="checkbox"/>	DF-Metals	
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals	
				HG-DW-PR		<input type="checkbox"/>	DF-Metals	
1605116-005D				OUTSIDE LAB		<input type="checkbox"/>	ACZ	2
1605116-006A	ELF-4	5/4/2016 1220h	5/5/2016 0930h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B		<input type="checkbox"/>	DF-WC	
				TDS-W-2540C		<input type="checkbox"/>	DF-WC	
1605116-006B				NO2/NO3-W-353.2		<input type="checkbox"/>	DF-NO2/NO3	
1605116-006C				200.7-W		<input checked="" type="checkbox"/>	DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR		<input type="checkbox"/>	DF-Metals	
				200.8-W		<input checked="" type="checkbox"/>	DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR		<input type="checkbox"/>	DF-Metals	
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals	
				HG-DW-PR		<input type="checkbox"/>	DF-Metals	
1605116-006D				OUTSIDE LAB		<input type="checkbox"/>	ACZ	2
1605116-007A	ELF-8	5/4/2016 1240h	5/5/2016 0930h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B		<input type="checkbox"/>	DF-WC	
				TDS-W-2540C		<input type="checkbox"/>	DF-WC	
1605116-007B				NO2/NO3-W-353.2		<input type="checkbox"/>	DF-NO2/NO3	
1605116-007C				200.7-W		<input checked="" type="checkbox"/>	DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR		<input type="checkbox"/>	DF-Metals	
				200.8-W		<input checked="" type="checkbox"/>	DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				

WORK ORDER Summary

Work Order: **1605116**

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Client: PacifiCorp

Due Date: 5/19/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1605116-007C	ELF-8	5/4/2016 1240h	5/5/2016 0930h	200.8-W-PR	Aqueous	<input type="checkbox"/>	DF-Metals	1
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals	
				HG-DW-PR		<input type="checkbox"/>	DF-Metals	
1605116-007D				OUTSIDE LAB		<input type="checkbox"/>	ACZ	2
1605116-008A	ELF-5	5/4/2016 1150h	5/5/2016 0930h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1
				<i>3 SEL Analytes: CL F SO4</i>				
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF-WC	
				<i>3 SEL Analytes: ALK ALKB ALKC</i>				
				PH-4500H+B		<input type="checkbox"/>	DF-WC	
				TDS-W-2540C		<input type="checkbox"/>	DF-WC	
1605116-008B				NO2/NO3-W-353.2		<input type="checkbox"/>	DF-NO2/NO3	
1605116-008C				200.7-W		<input checked="" type="checkbox"/>	DF-Metals	
				<i>5 SEL Analytes: B CA LI MG NA</i>				
				200.7-W-PR		<input type="checkbox"/>	DF-Metals	
				200.8-W		<input checked="" type="checkbox"/>	DF-Metals	
				<i>11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL</i>				
				200.8-W-PR		<input type="checkbox"/>	DF-Metals	
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals	
				HG-DW-PR		<input type="checkbox"/>	DF-Metals	
1605116-008D				OUTSIDE LAB		<input type="checkbox"/>	ACZ	2
1605116-009A	FB-1	5/4/2016 0950h	5/5/2016 0930h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1
				<i>3 SEL Analytes: CL F SO4</i>				
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF-WC	
				<i>3 SEL Analytes: ALK ALKB ALKC</i>				
				PH-4500H+B		<input type="checkbox"/>	DF-WC	
				TDS-W-2540C		<input type="checkbox"/>	DF-WC	
1605116-009B				NO2/NO3-W-353.2		<input type="checkbox"/>	DF-NO2/NO3	
1605116-009C				200.7-W		<input checked="" type="checkbox"/>	DF-Metals	
				<i>5 SEL Analytes: B CA LI MG NA</i>				
				200.7-W-PR		<input type="checkbox"/>	DF-Metals	
				200.8-W		<input checked="" type="checkbox"/>	DF-Metals	
				<i>11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL</i>				
				200.8-W-PR		<input type="checkbox"/>	DF-Metals	
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals	
				HG-DW-PR		<input type="checkbox"/>	DF-Metals	
1605116-009D				OUTSIDE LAB		<input type="checkbox"/>	ACZ	2
1605116-010A	ELF-11	5/4/2016 1000h	5/5/2016 0930h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1
				<i>3 SEL Analytes: CL F SO4</i>				

WORK ORDER Summary

Work Order: **1605116** Page 5 of 6

Client: PacifiCorp

Due Date: 5/19/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage		
1605116-010A	ELF-11	5/4/2016 1000h	5/5/2016 0930h	ALK-W-2320B	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1	
				3 SEL Analytes: ALK ALKB ALKC					
				PH-4500H+B		<input type="checkbox"/>	DF-WC		
				TDS-W-2540C		<input type="checkbox"/>	DF-WC		
1605116-010B				NO2/NO3-W-353.2		<input type="checkbox"/>	DF-NO2/NO3		
1605116-010C				200.7-W		<input checked="" type="checkbox"/>	DF-Metals		
				5 SEL Analytes: B CA LI MG NA					
				200.7-W-PR		<input type="checkbox"/>	DF-Metals		
				200.8-W		<input checked="" type="checkbox"/>	DF-Metals		
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL					
				200.8-W-PR		<input type="checkbox"/>	DF-Metals		
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals		
				HG-DW-PR		<input type="checkbox"/>	DF-Metals		
1605116-010D				OUTSIDE LAB		<input type="checkbox"/>	ACZ	2	
1605116-011A	EB-1	5/4/2016 1020h	5/5/2016 0930h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1	
				3 SEL Analytes: CL F SO4					
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF-WC		
				3 SEL Analytes: ALK ALKB ALKC					
				PH-4500H+B		<input type="checkbox"/>	DF-WC		
				TDS-W-2540C		<input type="checkbox"/>	DF-WC		
1605116-011B				NO2/NO3-W-353.2		<input type="checkbox"/>	DF-NO2/NO3		
1605116-011C				200.7-W		<input checked="" type="checkbox"/>	DF-Metals		
				5 SEL Analytes: B CA LI MG NA					
				200.7-W-PR		<input type="checkbox"/>	DF-Metals		
	200.8-W	<input checked="" type="checkbox"/>	DF-Metals						
	11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL								
				200.8-W-PR		<input type="checkbox"/>	DF-Metals		
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals		
				HG-DW-PR		<input type="checkbox"/>	DF-Metals		
1605116-011D				OUTSIDE LAB		<input type="checkbox"/>	ACZ	2	
1605116-012A	ELF-6	5/4/2016 1110h	5/5/2016 0930h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	DF-WC	1	
				3 SEL Analytes: CL F SO4					
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF-WC		
				3 SEL Analytes: ALK ALKB ALKC					
				PH-4500H+B		<input type="checkbox"/>	DF-WC		
				TDS-W-2540C		<input type="checkbox"/>	DF-WC		
1605116-012B				NO2/NO3-W-353.2		<input type="checkbox"/>	DF-NO2/NO3		

WORK ORDER Summary

Work Order: **1605116**

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Client: PacifiCorp

Due Date: 5/19/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1605116-012C	ELF-6	5/4/2016 1110h	5/5/2016 0930h	200.7-W	Aqueous	<input checked="" type="checkbox"/>	DF-Metals	1
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR		<input type="checkbox"/>	DF-Metals	
				200.8-W		<input checked="" type="checkbox"/>	DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR		<input type="checkbox"/>	DF-Metals	
				HG-DW-245.1		<input type="checkbox"/>	DF-Metals	
				HG-DW-PR		<input type="checkbox"/>	DF-Metals	
1605116-012D				OUTSIDE LAB		<input type="checkbox"/>	ACZ	2

**AMERICAN WEST
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FAX # (801) 263-8687 EMAIL AWAL@AWAL-LABS.COM

WWW.AWAL-LABS.COM

CHAIN OF CUSTODY

ALL ANALYSIS WILL BE CONDUCTED USING NELAP ACCREDITED METHODS AND ALL DATA WILL BE REPORTED USING AWAL'S STANDARD ANALYTE LISTS AND REPORTING LIMITS (PQL) UNLESS SPECIFICALLY REQUESTED OTHERWISE ON THIS CHAIN OF CUSTODY AND/OR ATTACHED DOCUMENTATION.

1605116

AWAL LAB SAMPLE SET #
PAGE 1 OF 2

PAGE 1 OF 2

DUE DATE:

5/19/16

CLIENT: **PacifiCorp**

ADDRESS:

CONTACT: Jeff Tucker

PHONE #: CELL #:

EMAIL:

PROJECT NAME: **Hunter CCR Sampling**

PROJECT #: PERCM52

PO #:

SAMPLER NAME: JOHN BABCOCK 406-498-4570

SAMPLE ID:		DATE SAMPLED	TIME SAMPLED	# OF CO	SAMPLE	TDS, p	Anions	Fluorid	Total M	Total M	Nitroge	Radium	KNOWN HAZARDS & SAMPLE COMMENTS	
1	ELF-2	5/4/16	0940	5	W	X	X	X	X	X	X	X		COOLN #1 WET #16
2	ELF-9		1030	5	W	X	X	X	X	X	X	X		
3	DUP-1		1040	5	W	X	X	X	X	X	X	X		
4	ELF-10		1100	5	W	X	X	X	X	X	X	X		COOLN #2 WET #16
5	ELF-7		1150	5	W	X	X	X	X	X	X	X		
6	ELF-4		1220	5	W	X	X	X	X	X	X	X		
7	ELF-8		1240	5	W	X	X	X	X	X	X	X		
8	ELF-5		1150	5	W	X	X	X	X	X	X	X		
9				5	W	X	X	X	X	X	X	X		
10				5	W	X	X	X	X	X	X	X		
11				5	W	X	X	X	X	X	X	X		
12				5	W	X	X	X	X	X	X	X		

6 RECEIVED WITHIN HOLDING TIMES
Y ☒ N

COOLN #1
WET #16

COOLN #2
WET #16

DISCREPANCIES BETWEEN SAMPLE LABELS AND COC RECORD?
Y ☐ N ☐

RELINQUISHED BY: Mandy Machinal
SIGNATURE
PRINT NAME: ~~Deborah Machinal~~ Mandy Machinal

DATE:	5/5/16
TIME:	9:30

RECEIVED BY:	<i>Denise Braun</i>
SIGNATURE	
PRINT NAME:	<i>Denise Braun</i>

DATE: 5/5/10
TIME: 9:30

RELINQUISHED BY:
SIGNATURE _____

PRINT NAME: _____

DATE:	
TIME:	

PRINT NAME:	JOHN A. BROWN
RECEIVED BY:	
SIGNATURE	
PRINT NAME:	

DATE	
TIME	

RELINQUISHED BY:
SIGNATURE

DATE: _____

TIME: _____

PRINT NAME,
RECEIVED BY;
SIGNATURE

DATE _____
Time _____

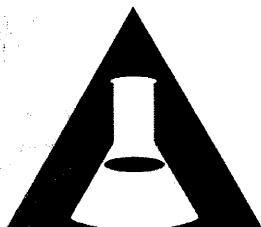
PRINT NAME:
RELINQUISHED BY:
SIGNATURE

DATE:

PRINT NAME:	
RECEIVED BY:	
SIGNATURE	

	DATE
--	------

SPECIAL INSTRUCTIONS:



AMERICAN WEST
ANALYTICAL LABORATORIES

3440 S. 700 W. SALT LAKE CITY, UT 84119
PHONE # (801) 263-8686 TOLL FREE # (888) 263-8686

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WWW.AWAL-LABS.COM

CHAIN OF CUSTODY

ALL ANALYSIS WILL BE CONDUCTED USING NELAP ACCREDITED METHODS AND ALL DATA WILL BE REPORTED USING AWAL'S STANDARD ANALYTE LISTS AND REPORTING LIMITS (PQL) UNLESS SPECIFICALLY REQUESTED OTHERWISE ON THIS CHAIN OF CUSTODY AND/OR ATTACHED DOCUMENTATION.

11605116

AWAL LAB SAMPLE SET #

PAGE 2 OF 2

CLIENT: **PacifiCorp**
ADDRESS: _____
CONTACT: **Jeff Tucker**
PHONE #: _____ CELL #: _____
EMAIL: _____
PROJECT NAME: **Hunter CCR Sampling**
PROJECT #: **PERCM52**
PO #: _____
SAMPLER NAME: **John Babcock 406-490-4570**

QC Level:		Turn Around Time:		Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.		DUE DATE:						
1	2	2+	3	3+	1	2	3	4	5	Std	5/19/16	
# OF CONTAINERS	SAMPLE MATRIX	TDS, pH, Alkalinity	Anions	Fluoride	Total Metals	Total Mercury	Nitrogen, Nitrite + Nitrate	Radium 226 + Radium 228	For Compliance With:			LABORATORY USE ONLY
									<input type="checkbox"/> REPORT DOWN TO THE MDL <input checked="" type="checkbox"/> INCLUDE EDD: <input type="checkbox"/> LAB FILTER FOR: <input type="checkbox"/> FIELD FILTERED FOR: <input type="checkbox"/> NELAP <input type="checkbox"/> RCRA <input type="checkbox"/> CWA <input type="checkbox"/> SDWA <input type="checkbox"/> ELAP / A2LA <input type="checkbox"/> NLLAP <input type="checkbox"/> NON-COMPLIANCE <input type="checkbox"/> OTHER:			SAMPLES WERE: 1 SHIPPED OR HAND DELIVERED 2 AMBIENT OR CHILLED 3 TEMPERATURE 4.4°C 4 RECEIVED BROKEN/LEAKING (IMPROPERLY SEALED) Y N 5 PROPERLY PRESERVED Y N CHECKED AT BENCH 6 RECEIVED WITHIN HOLDING TIMES Y N
KNOWN HAZARDS & SAMPLE COMMENTS									pH out of hold			
1	FB-1	5/4/16	9:30	5	W	X	X	X	X	X	cooler #216	
2	ELF-11	5/4/16	10:00	5	W	X	X	X	X	X		
3	EB-1	5/4/16	10:20	5	W	X	X	X	X	X		
4	ELF-6	5/4/16	11:10	5	W	X	X	X	X	X		
5				5	W	X	X	X	X	X		
6				5	W	X	X	X	X	X		
7				5	W	X	X	X	X	X		
8				5	W	X	X	X	X	X		
9				5	W	X	X	X	X	X		
10				5	W	X	X	X	X	X		
11				5	W	X	X	X	X	X		
12				5	W	X	X	X	X	X		

RELINQUISHED BY:		DATE:		RECEIVED BY:		DATE:		SPECIAL INSTRUCTIONS:	
SIGNATURE	TIME	SIGNATURE	TIME	SIGNATURE	TIME	SIGNATURE	TIME		
<i>Mandy Machinal</i>	9:30	<i>Denise Bruun</i>	9:30						
PRINT NAME:		PRINT NAME:							
RELINQUISHED BY:		RECEIVED BY:							
SIGNATURE		SIGNATURE							
PRINT NAME:		PRINT NAME:							
RELINQUISHED BY:		RECEIVED BY:							
SIGNATURE		SIGNATURE							
PRINT NAME:		PRINT NAME:							
RELINQUISHED BY:		RECEIVED BY:							
SIGNATURE		SIGNATURE							
PRINT NAME:		PRINT NAME:							

Water & Environmental Technologies

Analyte Method Reporting Limit	Method	Reporting Limit	Price/sample ¹
pH	SM4500-H+ B	1.0 s.u.	\$11.70
Solids, Total Dissolved	SM2540 C	10 mg/L	\$13.50
Alkalinity-Total as CaCO ₃	SM2320 B	10 mg/L	\$17.10
Bicarbonate as HCO ₃	SM2320 B	10 mg/L	\$0.00
Carbonate as CO ₃	SM2320 B	10 mg/L	\$0.00
Chloride	E300.0	0.1 mg/L	\$11.70
Sulfate	E300.0	0.75 mg/L	\$11.70
Fluoride	A4500-F C/E300.0	0.1 mg/L	\$12.60
Nitrogen, Nitrate-Nitrite	E353.2	0.01 mg/L	\$11.70
Antimony	E200.8	0.002 mg/L	\$9.00
Arsenic	E200.8	0.002 mg/L	\$9.00
Barium	E200.8	0.002 mg/L	\$9.00
Beryllium	E200.8	0.002 mg/L	\$9.00
Boron	E200.7	0.5 mg/L	\$9.00
Cadmium	E200.8	0.0005 mg/L	\$9.00
Calcium	E200.7	1.0 mg/L	\$9.00
Chromium	E200.8	0.002 mg/L	\$9.00
Cobalt	E200.8	0.004 mg/L	\$9.00
Lead	E200.8	0.002 mg/L	\$9.00
Lithium	E200.7	0.1 mg/L	\$9.00
Magnesium	E200.7	1.0 mg/L	\$9.00
Molybdenum	E200.8	0.002 mg/L	\$9.00
Selenium	E200.8	0.002 mg/L	\$9.00
Sodium	E200.7	1.0 mg/L	\$9.00
Thallium	E200.8	0.002 mg/L	\$9.00
Mercury, Total	E245.1	0.00015 mg/L	\$25.20
Radium 226 + Radium 228 ²	M903.1 + M904.0		\$182.16
Radium 226, Total ²	M903.1	0.4 pCi/L	\$0.00
Radium 228, Total ²	M904.0	1.5 pCi/L	\$0.00
Metals digestion/sample			\$18.00
Total/sample - Not including shipping			\$459.36
Monthly Price for 17 samples - Not including shipping			\$7,809.12
Total Project Cost (20 months) - Not including shipping			\$156,182.40

¹ - Includes 10% discount for 10 or more samples/delivery.

² - UPS shipping costs to Colorado will be applied to these analyses.

Radium analyses will be subcontracted to ACZ Labs in CO.

Lab Set ID: 1605116

Preservation Check Sheet

pH Lot # 5002

Sample Set Extension and pH

[illegible]

Procedure:

- 1) Pour a small amount of sample in the sample lid
- 2) Pour sample from Lid gently over wide range pH paper
- 3) **Do Not** dip the pH paper in the sample bottle or lid
- 4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
- 5) Flag COC, notify client if requested
- 6) Place client conversation on COC
- 7) Samples may be adjusted

Frequency:

All samples requiring preservation

- * The sample required additional preservative upon receipt.
- + The sample was received unpreserved.
- ▲ The sample was received unpreserved and therefore preserved upon receipt.
- # The sample pH was unadjustable to a pH < 2 due to the sample matrix.
- The sample pH was unadjustable to a pH > ____ due to the sample matrix interference.

2 1 B31, 18013

AV/! r00 %
(Dnř ě) ř E* ř r+
K YrÖř nkA YBÖ nř BÖř Bř bB
3440KS.1700KA .
Sř Bř kYKÖE,UT#84119
cc%\$ YnÖYBr- - n

BÖÖ %
FEnnKT- mYr
K YrÖř nkA YBÖ nř BÖř Bř bB
3440KS.1700KA .
Sř Bř kYKÖE,UT#84119

rl "Yc0\$ %130' 113
CZk rl "Yc0\$ %F303&

(Dnř ě) ř E* ř r+%

(ncDBY+ř rYK Yř nř BÖř Bř bB- Bk! rK / DB1B- bK ÖY+KÖ CZKř b! ř CrÖB,nc.10 CZK nř2 ř B09,18013.ř
T, Öř r! "Yc0\$ ř BÖYnř BÖÖnY+KÖ CZKř r! "Yc0- K bYr, F303& .ř Dř Bř kY. YrYncYKÖ Ön- K bYrÖř B- GrYk
Ö6- ÖÖB.

Ö nř BÖYK YrYr. rK Y+ř cc! r+Ö4KÖ CZKř - ř BÖÖ B- ř ncYk Dn.řT, YrYncDBY+řYB- BkYDÖK nBÖK
ÇYK K / DBYrYcYÖY+ř n+YrF303& .ř ř c, BÖYÖnř .ř Öř Yr/! rÖ, ř BÖYnřY8Ö* Y+ř n+ř // r! 8Y+řBÖYk
ř // r! / rÖÖř b! ř CrBS- / Yr8Ö r, ř r16- ř BÖÖ+B- bBÖÖ.

(9cY/ Ö Bn! Ö+,K YKÖBÖYB- Bk! rK YK YC! +Bř n+ř ř rY K YCrBÖÖ+ř nk CZKř- rrYnÖ (F CkYrÖÖř Ök
DÖrÖ CZK YrYÖ BÖY6- ÖYK YnÖÖ .ř (F C.

T, Öř Yr/! rÖ, ř BÖYk BY+ř rK / Ö+ř nBÖÖÖYnÖ ÖK CZKř! ÖYB! nBÖÖk! rK Yr! nBÖ6- YncYBř rÖÖ4k
.r! KÖYk BÖÖ .ř ř rÖÖYr/! rC

Ö K / DBř n+ř b-B K / DBř B! cÖÖ+ř ÖKÖ r! "Yc0\$ ÖYk+Ö! BY+ř .ř Öř- nY130,18013.řK Yk
B K / DBř rYkYÖrK ÖY+KÖYk ř>ř r+! - B,ř ++ÖÖnř B, ř r4YBř // Bk! rK Ö! B ÖÖ Öř B?11Ö K / D1.ř#B - k
*! - BÖYK YB K / DBKÖYk YBÖn4YrKř nk CZKřBÖÖ+ř! BÖÖ rKÖYrYGrnY+, ř Dř Bř k! nCÖÖ - rK r! "Yc0
2 ř nř 4YrK rK- BÖK YrSYr8ÖYrA YrYBnÖÖYk! rK- rÇYrY+YÖÖ n+ř B! cÖÖ+ř! BÖÖ CZKřYÖÖ nř BÖř B
ř* ř rYr/! rÖk! rKÖYrYrB.

#B - ř ř 8Yr nB6- YBÖÖnř rK ÇYrYnY+B, ř Dř Bř k! nCÖÖ - rK r! "Yc02 ř nř 4Yr.

Max Janicek

Max Janicek has reviewed and approved this report.



American West Analytical Labs

Project ID 1605116

Order # EFF-2

Detector

Order # **L30325-01**

Order Date 05/04/16 9:40

Order # AcAi" A D 05/09/16

Order # Matrix Ground Water

Order # 226

Project # 0

MSD

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order # 226	05/04/16 09:40		0.02	0.01	0.01	pCi/F	*	jc

Order # 226

Project # 0

MSD, 0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order # 226	05/04/16 16:06		0.05	0.05	0.05	pCi/F		jc

American West Analytical Labs

ProjAct ID 1605116

Order ID EFF-9

FocutorD

Order ID L30325-02

CatA Order ID 05/04/16 10:30

CatA! AcAi" A D 05/09/16

Order ID MatrixD Ground Water

! a i# \$6

PrAp MAT' o D

M90%

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i# \$6	05*16 015		08 (	086	08)	pKi°F	*	ř +,

! a i# \$)

PrAp MAT' o D

M90(8)

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i# \$)	05*16 1606		08	08	08\$	pKi°F		jc

American West Analytical Labs

Frog Act ID 1605116

Order ID CEF-1

Operator

Order ID L30325-03

Order ID 05/04/16 10:40

Order ID 05/09/16

Order ID Matrix Ground Water

Radionuclide

FrAp Mat&odD

M#0\$%

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radionuclide	05/01/16 00:00		0%	0%	0%	pKi(*	*)

Radionuclide

FrAp Mat&odD

M#0, %

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radionuclide	05/01/16 10:00		0%	1%	1%	pKi(	*	djc

American West Analytical Labs

ProjAct ID 1605116

Öař pŕA ID EFF-10

FocatorD

ŦKv Öař pŕA ID **L30325-04**

CatA Öař pŕAdD 05/04/16 11:00

CatA AcAi! AdD 05/09/16

Öař pŕA MatrixD Ground Water

adi"ř ##6

PrAp MAT' odD

MS0%8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"ř ##6	05)4)16 01,		1&	0&#	0	pKi)F	*	ř * +

adi"ř ##,

PrAp MAT' odD

MS0- 8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"ř ##,	05)4)16 1, 1(		1&	1&	1&	pKi)F	*	djc

American West Analytical Labs

ProjAct ID 1605116

Order ID EFF-7

FocutorD

Order ID L30325-05

CatA Order ID 05/04/16 11:50

CatA! AcAi" A D 05/09/16

Order ID MatrixD Ground Water

! a i# \$6

PrAp MAT(o D

M%0&1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i# \$6	05*1*16 000		0') 1	0'16	0'0)	pKi*F	*	ř +,

! a i# \$\$)

PrAp MAT(o D

M%0-'0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i# \$\$)	05*0*16 1) 07		0') &	0'5%	0'57	pKi*F		jc

American West Analytical Labs

ProjAct ID 1605116

Öař pŕA ID EFF-4

FocatorD

ŕKŷ Öař pŕA ID **L30325-06**

CatA Öař pŕA D 05/04/16 12:20

CatA! AcAi" A D 05/09/16

Öař pŕA MatrixD Ground Water

! a i#ř \$6

PrAp MAT(o D

M%0&1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$6	05-01-16 00:01		0'8)	0'0%	0'0*	pKi-F	*	ř , -

! a i#ř \$\$)

PrAp MAT(o D

M%04'0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$\$)	05-01-16 1) 0*		1'6	0'6\$	0'54	pKi-F		jc

American West Analytical Labs

ProjAct ID 1605116

Öař pŕA ID EFF-8

FocatorD

ŕKŷ Öař pŕA ID **L30325-07**

CatA Öař pŕA D 05/04/16 12:40

CatA! AcAi" A D 05/09/16

Öař pŕA MatrixD Ground Water

! a i#ř \$6

PrAp MAT(o D

M%0&'1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$6	05)81)16 08&		1	0'\$	0'1&	pKi)F	*	ř *+

! a i#ř \$8

PrAp MAT(o D

M%0, '0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
! a i#ř \$8	05)80)16 180-		1',	1'\$	1'\$	pKi)F	*	jc

American West Analytical Labs

ProjAct ID 1605116

Öař pŕA ID EFF-5

FocatorD

ŦKV Öař pŕA ID **L30325-08**

CatA Öař pŕAdD 05/04/16 11:50

CatA AcAi! AdD 05/09/16

Öař pŕA MatrixD Ground Water

adi"ř ##6

PrAp MAT' odD

MS0%8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"ř ##6	05)4)16 08,		085	08%	08(	pKi)F	*	ř *+

adi"ř ##(

PrAp MAT' odD

MS0, 8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"ř ##(	05)0)16 1(0-		18	08(	085	pKi)F		djc

American West Analytical Labs

Project ID 1605116

Order # EF-1

Detector

Order # L30325-09

Order # 05/04/16 9:50

Order # 05/09/16

Order # Matrix Ground Water

Order # 6

Order # 6

Order # 6

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order # 6	05/04/16 09:50		0.00%	0.00%	0.00%	pKi		* +

Order # 6

Order # 6

Order # 6

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order # 6	05/04/16 10:00		0.00%	0.00%	0.00%	pKi		djc

American West Analytical Labs

ProjAct ID 1605116

Öar pIA ID EFF-11

FocatorD

~KV Öar pIA ID **L30325-10**

CatA Öar pIA AdD 05/04/16 10:00

CatA AcAi! AdD 05/09/16

Öar pIA MatrixD Ground Water

adi"r ##6

PrAp MAT' odD

MS0%8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"r ##6	05-04-16 08:11		0.8	0.8%	0.8	pKi-F	*	r , -

adi"r ##)

PrAp MAT' odD

MS0* 8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"r ##)	05-04-16 1%10		#	18%	18%	pKi-F	*	djc

American West Analytical Labs

ProjAct ID 1605116

Order ID EF-1

Detector

Order ID L30325-11

Order ID 05/04/16 10:20

Order ID 05/09/16

Order ID Matrix Ground Water

Order ID ##6

Order ID

MSD

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order ID ##6	05/04/16 08:16		0.06	0.00	0.06	pCi/l		***

Order ID ##,

Order ID

MSD - 0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Order ID ##,	05/04/16 10:10		0.06	0.00	0.06	pCi/l		djc

American West Analytical Labs

ProjAct ID 1605116

Öař pŕA ID EFF-6

FocatorD

ŕKv Öař pŕA ID **L30325-12**

CatA Öař pŕAdD 05/04/16 11:10

CatA AcAi! AdD 05/09/16

Öař pŕA MatrixD Ground Water

adi"ř ##6

PrAp MAT' odD

M\$0%8

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"ř ##6	05*/4*16 0D90		08 %	08 (	080	pKi°F	*	ř +,

adi"ř ##-

PrAp MAT' odD

M\$0(80

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
adi"ř ##-	05*/4*16 1%40-		18	08\$	086	pKi°F		djc

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
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Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

American West Analytical Labs

TKY ÖrkABDE L30325

Radium 226

F 903.1

Units: pKi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG403860																
WG403412ÖBW	ÖBW	05/31/16						.12	0.12	0.41			0. 2			
WG403412LK! W	LK! W	05/31/16	ÖK" 510#5	20				19	0.56	0.0	95	43	14			
L3032402D%Ö	D%Ö& &	05/31/16			0.1#	0.12	0.25	.53	0.2	0.46				1.1	2	
L3032406D%Ö	D%Ö& &	05/31/16			\$0.01	0.12	0.25	.31	0.2	0.49				1.05	2	
L303240#F!	F!	05/31/16	ÖK" 510#5	66.6#	0.1	0.13	0.19	65	1.	0.66	9#	43	14			

Radium 228

F 904.0

Units: pKi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG403872																
WG403642ÖBW	ÖBW	05/30/16						.52	0.5	0.59			1.1			
WG403642LK! W	LK! W	05/30/16	ÖK" 5055#	19.23				1	1.5	0.	94	4#	123			
L3029905D%Ö	D%Ö& &	05/30/16			\$0.24	0.5	0.56	.4#	0.61	0.62				0.9	2	
L3029904F!	F!	05/30/16	ÖK" 5055#	19.23	0.26	0.49	0.51	16	1.4	0.63	2	4#	123			
L3029903D%Ö	D%Ö& &	05/30/16			0.5	0.52	0.52	\$0#	0.4	0.53				0. 1	2	
WG403873																
WG403661ÖBW	ÖBW	05/31/16						.32	0.4	0.4			0.			
WG403661LK! W	LK! W	05/31/16	ÖK" 5055#	19.23				12	1.4	0. 6	62	4#	123			
L3033903F!	F!	05/31/16	ÖK" 5055#	19.23	0.45	0.#6	0.#	13	1.6	0.95	65	4#	123			
L3033901D%Ö	D%Ö& &	05/31/16			0.2	0. 2	0. 6	.46	1	1.1				0.14	2	

American West Analytical Labs

TKY ÖrkABDE L30325

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L30325-01	& ' (!) %	#adium \$\$\$	M9 !."	DF	Samplk rkquirkd diluB n duk B high skdimknB
L30325-02	& ' (!) %	#adium \$\$\$	M9 !."	DF	Samplk rkquirkd diluB n duk B high skdimknB
L30325-03	& ' (!) %	#adium \$\$\$	M9 !."	DF	Samplk rkquirkd diluB n duk B high skdimknB
	& ' (!) + \$	#adium \$\$	M9 (.	D"	Samplk rkquirkd diluB n duk B maBi*.
L30325-04	& ' (!) %	#adium \$\$\$	M9 !."	DF	Samplk rkquirkd diluB n duk B high skdimknB
	& ' (!) + \$	#adium \$\$	M9 (.	D"	Samplk rkquirkd diluB n duk B maBi*.
L30325-05	& ' (!) %	#adium \$\$\$	M9 !."	DF	Samplk rkquirkd diluB n duk B high skdimknB
L30325-06	& ' (!) %	#adium \$\$\$	M9 !."	DF	Samplk rkquirkd diluB n duk B high skdimknB
L30325-07	& ' (!) %	#adium \$\$\$	M9 !."	DF	Samplk rkquirkd diluB n duk B high skdimknB
	& ' (!) + \$	#adium \$\$	M9 (.	D"	Samplk rkquirkd diluB n duk B maBi*.
L30325-08	& ' (!) %	#adium \$\$\$	M9 !."	DF	Samplk rkquirkd diluB n duk B high skdimknB
L30325-10	& ' (!) %	#adium \$\$\$	M9 !."	DF	Samplk rkquirkd diluB n duk B high skdimknB
	& ' (!) + !	#adium \$\$	M9 (.	D"	Samplk rkquirkd diluB n duk B maBi*.
L30325-12	& ' (!) %	#adium \$\$\$	M9 !."	DF	Samplk rkquirkd diluB n duk B high skdimknB

American West Analytical Labs
1605 K

ÖCİ k ABCDEFID: " Y 25
DaFD RDEDivDd: Y5/Y9/2Y K Y9: !
RDEDivDd By: lzg
DaFD k A#FDd: 5/9/2Y K

Receipt Verification

	&' (	\$ %	\$ Ö
~* l+ a ,BAÖg# +Bil - DA iFi#B/ dDd ,BAa- - liEa0ID +a. - ID+1)
2* l+ F2D C2ai# B, C/ +fBdy ,BA BABF2DADiADEFivD +2i- - i#g - a- DA+ - AD+D#F1)		
* DBD+ F2i+ - ABCDEFAD3/ iAD+ - DEal 2a#dli#g - ABEDd/ AD+ +/ E2 a+ C" k - ABFBEI1)
4* ÖAD a#y +a. - ID+ \$ RC liED# +a0ID. aFDAl1)
5* l, +a. - ID+ aAD ADEDivDd - a+F2Bld fi. D5- ABEDDd 6 iF2 AD3/ D+FDd +2BAF2Bld fi. Da#aly+D+1)		
K* l+ F2D C2ai# B, C/ +fBdy ,BA EB. - IDFD a#d aEE/ AaFD1)		
! * 7 DAD a#y E2a#gD+ . adFB F2D C2ai# B, C/ +fBdy ,BA - ABAFB ÖCİ ADEDivi#g F2D +a. - ID+1)	

Samples/Containers

	&' (	\$ %	\$ Ö
8* ÖAD all EB#Fai#DA+ i#FaEFa#d 6 iF2 #B IDa9+1)		
9* ÖAD all la0DI+ B# EB#Fai#DA+ a#d aAD F2Dy i#FaEFa#d IDgi0ID1)		
~v* DB F2D +a. - IDla0DI+ a#d C2ai# B, C/ +fBdy ,BA . aFE2 ,BA(a. - IDID5DaFD5a#d : i. D1)		
~* ; BA- AD+DAVdD 0BFFD Fy- D+56 a+ F2D - < E2DE9Dd a#d 6 iF2i# li. iF+1)		
~2* l+ F2DAD +/ ,iED#F+a. - IDvBI/ . DFB - DABA all AD3/ D+FDd 6 BA01)		
~ * l+ F2D E/ +fBdy +Dal i#FaEFB# all EB#Fai#DA+1)
~4* ÖAD +a. - ID+ F2aFAD3/ iAD zDAB 2Dad+ - aED aEED- fa0ID1)
~5* ÖAD all +a. - ID EB#Fai#DA+ a- - AB- AaFD ,BAa#alyfiEal AD3/ iAD. D#F+1)		
~K* l+ F2DAD a# <g=K ~ FA- 0la#9 - AD+D#F1)
~! * l+ F2DAD a >%Ö FA- 0la#9 - AD+D#F1)
~8* 7 DAD all +a. - ID+ ADEDivDd 6 iF2i# 2Bld fi. D1)		

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
4548	8.9	NA	15	Yes
NA23855	7.5	NA	14	N/A

7 a+ iED- AD+D#Fi# F2D +2i- . D#FEB#Fai#DA+*1

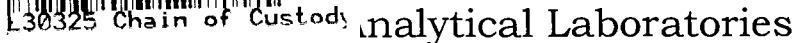
Yes - Wet ice was present in the shipment container(s).

Clid#F. / +FEB#FaEFa# ÖCİ k ABCDEF? a#agDAi, a#aly+i+ +2B/ Id #BF- ABEDDd ,BA+a. - ID+ ADEDivDd
B/ FfidDB, F2DIAF2DA al - AD+DAvaFiB# aEED- fa#ED EAFDAa@

American West Analytical Labs
1605[—]K

ÖCř k ABCDEFID: " Y 25
DaFD RDEDivDd: Y5/Y9/2Y[—]K Y9: !
RDEDivDd By: IZg
DaFD k A#FDd: 5/9/2Y[—]K

— : 2D - AD+DAvaFB# B, f2D, BliB6 i#g 0BffD fy- D+ i+ #BFE2DE9Dd aF+a. - ID ADEDi- F. %A#gD ABil a#d
gADa+D*5k / A ID ABfal Eya#idD*5k i#9 Adl++BlvDd Eya#idD*5B/36 # AaA+D#iE +- DEiaFB#*5(fDAID ADEal
EBli,BA *5' D: Ö A+ / l,iFD*5<Cl - AD+DAVDd vial ABga#iE+*5\$ a2(2% - AD+DAVDd vial ABga#iE+*5a#d
<B=[—]K — ABfal/di++BlvDd . DAE/ Ay 0y . DF2Bd[—]K[—]*@



Lab Sample Set #

Page 1 of 1

QC Level: **2+**

Turn Around Time

Standard

denise@awal-labs.com

Laboratory Use Only			
Samples Were:			
1	Shipped or hand delivered		
2	Ambient or Chilled		
3	Temperature _____		
4	Received Broken/Leaking (Improperly Sealed)		
	Y	N	
5	Properly Preserved		
	Y	N	
6	Received Within Holding Times		
	Y	N	
COC Tape Was:			
1	Present on Outer Package		
	Y	N	NA
2	Unbroken on Outer Package		
	Y	N	NA
3	Present on Sample		
	Y	N	NA
4	Unbroken on Sample		
	Y	N	NA
Discrepancies Between Sample Labels and COC Record?			
	Y	N	

Relinquished by: <i>Signature</i> <i>Denise Brown</i>	Date: <i>5/5/16</i>	Received by: <i>Signature</i> <i>APL</i>	Date: <i>5-9-16</i>
Print Name <i>Denise Brown</i>	Time: <i>1545</i>	Print Name <i>APL</i>	Time: <i>0937</i>
Relinquished by: <i>Signature</i>	Date:	Received by: <i>Signature</i>	Date:
Print Name	Time:	Print Name	Time:

Page 19 of 19



**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Jeff Tucker
PacifiCorp
1407 West North Temple, # 280
Salt Lake City, UT 84116
TEL: (801) 220-2989

RE: Hunter CCR Sampling / PERCM52

Dear Jeff Tucker:

Lab Set ID: 1609194

3440 South 700 West
Salt Lake City, Utah
84119

American West Analytical Laboratories received sample(s) on 9/9/2016 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Jose G. Rocha
Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:

Radiological Testing



INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-001
Client Sample ID: ELF-11
Collection Date: 9/8/2016 1650h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, Utah
84119

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	9/12/2016 1110h	9/14/2016 900h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	9/12/2016 1110h	9/14/2016 900h	E200.8	0.00200	< 0.00200	
Barium	mg/L	9/12/2016 1110h	9/14/2016 900h	E200.8	0.00200	0.0163	
Beryllium	mg/L	9/12/2016 1110h	9/14/2016 900h	E200.8	0.00200	< 0.00200	
Boron	mg/L	9/12/2016 1110h	9/16/2016 1535h	E200.7	0.500	17.3	²
Cadmium	mg/L	9/12/2016 1110h	9/14/2016 900h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	9/12/2016 1110h	9/15/2016 1343h	E200.7	50.0	434	²
Chromium	mg/L	9/12/2016 1110h	9/14/2016 900h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	9/12/2016 1110h	9/14/2016 900h	E200.8	0.00400	0.0126	
Lead	mg/L	9/12/2016 1110h	9/14/2016 900h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	9/12/2016 1110h	9/16/2016 1658h	E200.7	0.400	6.44	
Magnesium	mg/L	9/12/2016 1110h	9/15/2016 1343h	E200.7	50.0	399	²
Mercury	mg/L	9/15/2016 1500h	9/16/2016 913h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	9/12/2016 1110h	9/14/2016 900h	E200.8	0.00200	0.0201	
Selenium	mg/L	9/12/2016 1110h	9/14/2016 900h	E200.8	0.00200	0.00885	
Sodium	mg/L	9/12/2016 1110h	9/15/2016 1212h	E200.7	500	3,730	²
Thallium	mg/L	9/12/2016 1110h	9/14/2016 900h	E200.8	0.00200	< 0.00200	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-002
Client Sample ID: ELF-11FB
Collection Date: 9/8/2016 1710h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

**AMERICAN
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LABORATORIES**

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, Utah
84119

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	9/12/2016 1110h	9/14/2016 909h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	9/12/2016 1110h	9/14/2016 909h	E200.8	0.00200	< 0.00200	
Barium	mg/L	9/12/2016 1110h	9/14/2016 909h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	9/12/2016 1110h	9/14/2016 909h	E200.8	0.00200	< 0.00200	
Boron	mg/L	9/12/2016 1110h	9/15/2016 1405h	E200.7	0.500	< 0.500	
Cadmium	mg/L	9/12/2016 1110h	9/14/2016 909h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	9/12/2016 1110h	9/15/2016 1405h	E200.7	1.00	< 1.00	
Chromium	mg/L	9/12/2016 1110h	9/14/2016 909h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	9/12/2016 1110h	9/14/2016 909h	E200.8	0.00400	< 0.00400	
Lead	mg/L	9/12/2016 1110h	9/14/2016 909h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	9/12/2016 1110h	9/16/2016 1627h	E200.7	0.100	< 0.100	
Magnesium	mg/L	9/12/2016 1110h	9/15/2016 1405h	E200.7	1.00	< 1.00	
Mercury	mg/L	9/15/2016 1500h	9/16/2016 925h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	9/12/2016 1110h	9/14/2016 909h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	9/12/2016 1110h	9/14/2016 909h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	9/12/2016 1110h	9/15/2016 1405h	E200.7	1.00	< 1.00	
Thallium	mg/L	9/12/2016 1110h	9/14/2016 909h	E200.8	0.00200	< 0.00200	



INORGANIC ANALYTICAL REPORT

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-003
Client Sample ID: ELF-5
Collection Date: 9/8/2016 1740h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

3440 South 700 West
Salt Lake City, Utah
84119

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	9/12/2016 1110h	9/14/2016 912h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	9/12/2016 1110h	9/14/2016 912h	E200.8	0.00200	< 0.00200	
Barium	mg/L	9/12/2016 1110h	9/14/2016 912h	E200.8	0.00200	0.0170	
Beryllium	mg/L	9/12/2016 1110h	9/14/2016 912h	E200.8	0.00200	< 0.00200	
Boron	mg/L	9/12/2016 1110h	9/16/2016 1549h	E200.7	0.500	6.03	
Cadmium	mg/L	9/12/2016 1110h	9/14/2016 912h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	9/12/2016 1110h	9/15/2016 1356h	E200.7	50.0	491	
Chromium	mg/L	9/12/2016 1110h	9/14/2016 912h	E200.8	0.00200	0.00232	
Cobalt	mg/L	9/12/2016 1110h	9/14/2016 912h	E200.8	0.00400	0.00409	
Lead	mg/L	9/12/2016 1110h	9/14/2016 912h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	9/12/2016 1110h	9/16/2016 1659h	E200.7	0.400	8.64	
Magnesium	mg/L	9/12/2016 1110h	9/15/2016 1356h	E200.7	50.0	904	
Mercury	mg/L	9/15/2016 1500h	9/16/2016 927h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	9/12/2016 1110h	9/14/2016 912h	E200.8	0.00200	0.00417	
Selenium	mg/L	9/12/2016 1110h	9/14/2016 912h	E200.8	0.00200	0.0397	
Sodium	mg/L	9/12/2016 1110h	9/15/2016 1220h	E200.7	500	6,590	
Thallium	mg/L	9/12/2016 1110h	9/14/2016 912h	E200.8	0.00200	< 0.00200	



INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-004
Client Sample ID: ELF-8 EB
Collection Date: 9/8/2016 1850h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Analytical Results

TOTAL METALS

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84119

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	9/12/2016 1110h	9/14/2016 925h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	9/12/2016 1110h	9/14/2016 925h	E200.8	0.00200	< 0.00200	
Barium	mg/L	9/12/2016 1110h	9/14/2016 925h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	9/12/2016 1110h	9/14/2016 925h	E200.8	0.00200	< 0.00200	
Boron	mg/L	9/12/2016 1110h	9/15/2016 1407h	E200.7	0.500	< 0.500	
Cadmium	mg/L	9/12/2016 1110h	9/14/2016 925h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	9/12/2016 1110h	9/15/2016 1407h	E200.7	1.00	< 1.00	
Chromium	mg/L	9/12/2016 1110h	9/14/2016 925h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	9/12/2016 1110h	9/14/2016 925h	E200.8	0.00400	< 0.00400	
Lead	mg/L	9/12/2016 1110h	9/14/2016 925h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	9/12/2016 1110h	9/16/2016 1629h	E200.7	0.100	< 0.100	
Magnesium	mg/L	9/12/2016 1110h	9/15/2016 1407h	E200.7	1.00	< 1.00	
Mercury	mg/L	9/15/2016 1500h	9/16/2016 929h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	9/12/2016 1110h	9/14/2016 925h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	9/12/2016 1110h	9/14/2016 925h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	9/12/2016 1110h	9/15/2016 1407h	E200.7	1.00	< 1.00	
Thallium	mg/L	9/12/2016 1110h	9/14/2016 925h	E200.8	0.00200	< 0.00200	



INORGANIC ANALYTICAL REPORT

AMERICAN WEST ANALYTICAL LABORATORIES
Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-005
Client Sample ID: ELF-8
Collection Date: 9/8/2016 1915h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

		Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
3440 South 700 West		Antimony	mg/L	9/12/2016 1110h	9/14/2016 928h	E200.8	0.00200	< 0.00200	
Salt Lake City, Utah		Arsenic	mg/L	9/12/2016 1110h	9/14/2016 928h	E200.8	0.00200	< 0.00200	
84119		Barium	mg/L	9/12/2016 1110h	9/14/2016 928h	E200.8	0.00200	0.0120	
		Beryllium	mg/L	9/12/2016 1110h	9/14/2016 928h	E200.8	0.00200	< 0.00200	
		Boron	mg/L	9/12/2016 1110h	9/15/2016 1416h	E200.7	5.00	27.4	
		Cadmium	mg/L	9/12/2016 1110h	9/14/2016 928h	E200.8	0.000500	0.00170	
(801) 263-8686		Calcium	mg/L	9/12/2016 1110h	9/15/2016 1224h	E200.7	100	595	
Toll Free (888) 263-8686		Chromium	mg/L	9/12/2016 1110h	9/14/2016 928h	E200.8	0.00200	< 0.00200	
Fax (801) 263-8687		Cobalt	mg/L	9/12/2016 1110h	9/14/2016 928h	E200.8	0.00400	0.145	
e-mail: awal@awal-labs.com		Lead	mg/L	9/12/2016 1110h	9/14/2016 928h	E200.8	0.00200	0.00628	
		Lithium	mg/L	9/12/2016 1110h	9/16/2016 1630h	E200.7	0.100	7.77	
Kyle F. Gross		Magnesium	mg/L	9/12/2016 1110h	9/15/2016 1416h	E200.7	10.0	124	
Laboratory Director		Mercury	mg/L	9/15/2016 1500h	9/16/2016 930h	E245.1	0.000150	< 0.000150	
		Molybdenum	mg/L	9/12/2016 1110h	9/14/2016 928h	E200.8	0.00200	0.471	
Jose Rocha		Selenium	mg/L	9/12/2016 1110h	9/14/2016 928h	E200.8	0.00200	< 0.00200	
QA Officer		Sodium	mg/L	9/12/2016 1110h	9/15/2016 1250h	E200.7	200	2,120	
		Thallium	mg/L	9/12/2016 1110h	9/14/2016 928h	E200.8	0.00200	< 0.00200	



INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-006
Client Sample ID: ELF-7 DUP
Collection Date: 9/8/2016 1900h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Analytical Results

TOTAL METALS

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84119

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	9/12/2016 1110h	9/14/2016 931h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	9/12/2016 1110h	9/14/2016 931h	E200.8	0.00200	< 0.00200	
Barium	mg/L	9/12/2016 1110h	9/14/2016 931h	E200.8	0.00200	0.00980	
Beryllium	mg/L	9/12/2016 1110h	9/14/2016 931h	E200.8	0.00200	< 0.00200	
Boron	mg/L	9/12/2016 1110h	9/16/2016 1551h	E200.7	0.500	1.86	
Cadmium	mg/L	9/12/2016 1110h	9/14/2016 931h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	9/12/2016 1110h	9/15/2016 1419h	E200.7	50.0	471	
Chromium	mg/L	9/12/2016 1110h	9/14/2016 931h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	9/12/2016 1110h	9/14/2016 931h	E200.8	0.00400	0.00509	
Lead	mg/L	9/12/2016 1110h	9/14/2016 931h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	9/12/2016 1110h	9/16/2016 1652h	E200.7	0.200	4.58	
Magnesium	mg/L	9/12/2016 1110h	9/15/2016 1419h	E200.7	50.0	717	
Mercury	mg/L	9/15/2016 1500h	9/16/2016 932h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	9/12/2016 1110h	9/14/2016 931h	E200.8	0.00200	0.00267	
Selenium	mg/L	9/12/2016 1110h	9/14/2016 931h	E200.8	0.00200	0.360	
Sodium	mg/L	9/12/2016 1110h	9/15/2016 1233h	E200.7	500	5,230	
Thallium	mg/L	9/12/2016 1110h	9/14/2016 931h	E200.8	0.00200	< 0.00200	



INORGANIC ANALYTICAL REPORT

AMERICAN WEST ANALYTICAL LABORATORIES
Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-007
Client Sample ID: ELF-2
Collection Date: 9/8/2016 1630h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

		Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
3440 South 700 West Salt Lake City, Utah 84119 (801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687 e-mail: awal@awal-labs.com Kyle F. Gross Laboratory Director Jose Rocha QA Officer		Antimony	mg/L	9/12/2016 1110h	9/14/2016 934h	E200.8	0.00200	< 0.00200	
		Arsenic	mg/L	9/12/2016 1110h	9/14/2016 934h	E200.8	0.00200	< 0.00200	
		Barium	mg/L	9/12/2016 1110h	9/14/2016 934h	E200.8	0.00200	0.00849	
		Beryllium	mg/L	9/12/2016 1110h	9/14/2016 934h	E200.8	0.00200	< 0.00200	
		Boron	mg/L	9/12/2016 1110h	9/16/2016 1554h	E200.7	0.500	3.25	
		Cadmium	mg/L	9/12/2016 1110h	9/14/2016 934h	E200.8	0.000500	< 0.000500	
		Calcium	mg/L	9/12/2016 1110h	9/15/2016 1235h	E200.7	200	428	
		Chromium	mg/L	9/12/2016 1110h	9/14/2016 934h	E200.8	0.00200	< 0.00200	
		Cobalt	mg/L	9/12/2016 1110h	9/14/2016 934h	E200.8	0.00400	< 0.00400	
		Lead	mg/L	9/12/2016 1110h	9/14/2016 934h	E200.8	0.00200	< 0.00200	
		Lithium	mg/L	9/12/2016 1110h	9/16/2016 1632h	E200.7	0.100	3.50	
		Magnesium	mg/L	9/12/2016 1110h	9/15/2016 1421h	E200.7	20.0	332	
		Mercury	mg/L	9/15/2016 1500h	9/16/2016 934h	E245.1	0.000150	< 0.000150	
		Molybdenum	mg/L	9/12/2016 1110h	9/14/2016 934h	E200.8	0.00200	0.00288	
		Selenium	mg/L	9/12/2016 1110h	9/14/2016 934h	E200.8	0.00200	0.366	
		Sodium	mg/L	9/12/2016 1110h	9/15/2016 1235h	E200.7	200	3,610	
		Thallium	mg/L	9/12/2016 1110h	9/14/2016 934h	E200.8	0.00200	< 0.00200	



INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-008
Client Sample ID: ELF-9
Collection Date: 9/8/2016 1700h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	9/12/2016 1110h	9/14/2016 937h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	9/12/2016 1110h	9/14/2016 937h	E200.8	0.00200	0.00524	
Barium	mg/L	9/12/2016 1110h	9/14/2016 937h	E200.8	0.00200	0.0189	
Beryllium	mg/L	9/12/2016 1110h	9/14/2016 937h	E200.8	0.00200	< 0.00200	
Boron	mg/L	9/12/2016 1110h	9/16/2016 1556h	E200.7	0.500	1.36	
Cadmium	mg/L	9/12/2016 1110h	9/14/2016 937h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	9/12/2016 1110h	9/15/2016 1423h	E200.7	5.00	57.2	
Chromium	mg/L	9/12/2016 1110h	9/14/2016 937h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	9/12/2016 1110h	9/14/2016 937h	E200.8	0.00400	< 0.00400	
Lead	mg/L	9/12/2016 1110h	9/14/2016 937h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	9/12/2016 1110h	9/16/2016 1633h	E200.7	0.100	1.60	
Magnesium	mg/L	9/12/2016 1110h	9/15/2016 1423h	E200.7	5.00	35.7	
Mercury	mg/L	9/15/2016 1500h	9/16/2016 936h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	9/12/2016 1110h	9/14/2016 937h	E200.8	0.00200	0.123	
Selenium	mg/L	9/12/2016 1110h	9/14/2016 937h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	9/12/2016 1110h	9/15/2016 1246h	E200.7	200	3,970	
Thallium	mg/L	9/12/2016 1110h	9/14/2016 937h	E200.8	0.00200	< 0.00200	



INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-009
Client Sample ID: ELF-7
Collection Date: 9/8/2016 1830h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	9/12/2016 1110h	9/14/2016 940h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	9/12/2016 1110h	9/14/2016 940h	E200.8	0.00200	< 0.00200	
Barium	mg/L	9/12/2016 1110h	9/14/2016 940h	E200.8	0.00200	0.00957	
Beryllium	mg/L	9/12/2016 1110h	9/14/2016 940h	E200.8	0.00200	< 0.00200	
Boron	mg/L	9/12/2016 1110h	9/16/2016 1558h	E200.7	0.500	1.84	
Cadmium	mg/L	9/12/2016 1110h	9/14/2016 940h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	9/12/2016 1110h	9/15/2016 1425h	E200.7	50.0	458	
Chromium	mg/L	9/12/2016 1110h	9/14/2016 940h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	9/12/2016 1110h	9/14/2016 940h	E200.8	0.00400	0.00498	
Lead	mg/L	9/12/2016 1110h	9/14/2016 940h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	9/12/2016 1110h	9/16/2016 1653h	E200.7	0.200	4.59	
Magnesium	mg/L	9/12/2016 1110h	9/15/2016 1425h	E200.7	50.0	685	
Mercury	mg/L	9/15/2016 1500h	9/16/2016 937h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	9/12/2016 1110h	9/14/2016 940h	E200.8	0.00200	0.00241	
Selenium	mg/L	9/12/2016 1110h	9/14/2016 940h	E200.8	0.00200	0.360	
Sodium	mg/L	9/12/2016 1110h	9/15/2016 1239h	E200.7	500	4,890	
Thallium	mg/L	9/12/2016 1110h	9/14/2016 940h	E200.8	0.00200	< 0.00200	



INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-001
Client Sample ID: ELF-11
Collection Date: 9/8/2016 1650h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	455	
Bicarbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	455	
Carbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
Chloride	mg/L		9/21/2016 1627h	E300.0	100	1,180	
Fluoride	mg/L		9/22/2016 053h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		9/12/2016 1118h	E353.2	0.100	2.01	
pH @ 25° C	pH Units		9/9/2016 1722h	SM4500-H+B	1.00	7.24	H
Sulfate	mg/L		9/21/2016 1627h	E300.0	750	10,000	
Total Dissolved Solids	mg/L		9/12/2016 1400h	SM2540C	50.0	16,200	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-002
Client Sample ID: ELF-11FB
Collection Date: 9/8/2016 1710h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
Chloride	mg/L		9/22/2016 250h	E300.0	0.100	< 0.100	
Fluoride	mg/L		9/22/2016 250h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		9/12/2016 1135h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		9/9/2016 1722h	SM4500-H+B	1.00	8.34	H
Sulfate	mg/L		9/22/2016 250h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		9/12/2016 1400h	SM2540C	10.0	< 10.0	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-003
Client Sample ID: ELF-5
Collection Date: 9/8/2016 1740h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	480	
Bicarbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	480	
Carbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
Chloride	mg/L		9/21/2016 1718h	E300.0	100	3,980	
Fluoride	mg/L		9/22/2016 109h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		9/12/2016 1120h	E353.2	1.00	29.0	
pH @ 25° C	pH Units		9/9/2016 1722h	SM4500-H+B	1.00	7.03	H
Sulfate	mg/L		9/21/2016 1718h	E300.0	750	10,300	
Total Dissolved Solids	mg/L		9/14/2016 1157h	SM2540C	500	20,600	@

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN WEST ANALYTICAL LABORATORIES
Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-004
Client Sample ID: ELF-8 EB
Collection Date: 9/8/2016 1850h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
3440 South 700 West Salt Lake City, Utah 84119							
Alkalinity (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
Chloride	mg/L		9/22/2016 307h	E300.0	0.100	< 0.100	
Fluoride	mg/L		9/22/2016 307h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		9/12/2016 1121h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		9/9/2016 1722h	SM4500-H+B	1.00	8.40	H
Sulfate	mg/L		9/22/2016 307h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		9/12/2016 1400h	SM2540C	10.0	10.0	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-005
Client Sample ID: ELF-8
Collection Date: 9/8/2016 1915h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	89.2	
Bicarbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	89.2	
Carbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
Chloride	mg/L		9/21/2016 1933h	E300.0	100	2,350	
Fluoride	mg/L		9/22/2016 126h	E300.0	0.100	1.33	
Nitrate/Nitrite (as N)	mg/L		9/12/2016 1124h	E353.2	0.0100	0.166	
pH @ 25° C	pH Units		9/9/2016 1722h	SM4500-H+B	1.00	7.53	H
Sulfate	mg/L		9/21/2016 1933h	E300.0	750	3,280	
Total Dissolved Solids	mg/L		9/12/2016 1400h	SM2540C	50.0	8,010	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN WEST ANALYTICAL LABORATORIES
Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-006
Client Sample ID: ELF-7 DUP
Collection Date: 9/8/2016 1900h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
3440 South 700 West Salt Lake City, Utah 84119							
Alkalinity (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	568	
Bicarbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	568	
Carbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
Chloride	mg/L		9/21/2016 1949h	E300.0	100	2,800	
Fluoride	mg/L		9/22/2016 143h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		9/12/2016 1130h	E353.2	1.00	133	
pH @ 25° C	pH Units		9/9/2016 1722h	SM4500-H+B	1.00	7.12	H
Sulfate	mg/L		9/21/2016 1949h	E300.0	750	9,330	
Total Dissolved Solids	mg/L		9/12/2016 1400h	SM2540C	50.0	18,100	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-007
Client Sample ID: ELF-2
Collection Date: 9/8/2016 1630h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	422	
Bicarbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	422	
Carbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
Chloride	mg/L		9/21/2016 2130h	E300.0	10.0	446	
Fluoride	mg/L		9/22/2016 200h	E300.0	0.100	0.299	
Nitrate/Nitrite (as N)	mg/L		9/12/2016 1131h	E353.2	0.100	14.3	
pH @ 25° C	pH Units		9/9/2016 1722h	SM4500-H+B	1.00	7.30	H
Sulfate	mg/L		9/21/2016 2006h	E300.0	750	7,950	
Total Dissolved Solids	mg/L		9/12/2016 1400h	SM2540C	50.0	12,300	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

AMERICAN WEST ANALYTICAL LABORATORIES
Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-008
Client Sample ID: ELF-9
Collection Date: 9/8/2016 1700h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

		Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
3440 South 700 West Salt Lake City, Utah 84119 (801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687 e-mail: awal@awal-labs.com		Alkalinity (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	568	
		Bicarbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	568	
		Carbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
		Chloride	mg/L		9/21/2016 2147h	E300.0	10.0	352	
		Fluoride	mg/L		9/22/2016 217h	E300.0	0.100	1.65	
		Nitrate/Nitrite (as N)	mg/L		9/12/2016 1132h	E353.2	0.0100	0.881	
		pH @ 25° C	pH Units		9/9/2016 1722h	SM4500-H+B	1.00	8.03	H
		Sulfate	mg/L		9/21/2016 2023h	E300.0	750	6,750	
		Total Dissolved Solids	mg/L		9/12/2016 1400h	SM2540C	50.0	10,600	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



INORGANIC ANALYTICAL REPORT

**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1609194-009
Client Sample ID: ELF-7
Collection Date: 9/8/2016 1830h
Received Date: 9/9/2016 1649h

Contact: Jeff Tucker

Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	568	
Bicarbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	568	
Carbonate (as CaCO ₃)	mg/L		9/12/2016 1053h	SM2320B	10.0	< 10.0	
Chloride	mg/L		9/21/2016 2040h	E300.0	100	2,660	
Fluoride	mg/L		9/22/2016 234h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		9/12/2016 1133h	E353.2	1.00	128	
pH @ 25° C	pH Units		9/9/2016 1722h	SM4500-H+B	1.00	7.07	H
Sulfate	mg/L		9/21/2016 2040h	E300.0	750	8,640	
Total Dissolved Solids	mg/L		9/12/2016 1400h	SM2540C	50.0	18,100	

H - Sample was received outside of the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1609194

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-44928													
Test Code: 200.7-W		Date Analyzed: 09/15/2016 1141h		Date Prepared: 09/12/2016 1110h									
Boron	0.996	mg/L	E200.7	0.0163	0.500	1.000	0	99.6	85 - 115				
Calcium	10.0	mg/L	E200.7	0.0579	1.00	10.00	0	100	85 - 115				
Magnesium	10.5	mg/L	E200.7	0.0495	1.00	10.00	0	105	85 - 115				
Sodium	10.3	mg/L	E200.7	0.0125	1.00	10.00	0	103	85 - 115				
Lab Sample ID: LCS-44929													
Test Code: 200.8-W		Date Analyzed: 09/14/2016 807h		Date Prepared: 09/12/2016 1110h									
Antimony	0.175	mg/L	E200.8	0.000306	0.00200	0.2000	0	87.6	85 - 115				
Arsenic	0.191	mg/L	E200.8	0.000540	0.00200	0.2000	0	95.7	85 - 115				
Barium	0.195	mg/L	E200.8	0.000600	0.00200	0.2000	0	97.4	85 - 115				
Beryllium	0.194	mg/L	E200.8	0.000177	0.00200	0.2000	0	97.1	85 - 115				
Cadmium	0.191	mg/L	E200.8	0.0000666	0.000500	0.2000	0	95.4	85 - 115				
Chromium	0.189	mg/L	E200.8	0.000998	0.00200	0.2000	0	94.7	85 - 115				
Cobalt	0.185	mg/L	E200.8	0.0000990	0.00400	0.2000	0	92.7	85 - 115				
Lead	0.187	mg/L	E200.8	0.000125	0.00200	0.2000	0	93.6	85 - 115				
Molybdenum	0.196	mg/L	E200.8	0.000202	0.00200	0.2000	0	98.2	85 - 115				
Selenium	0.190	mg/L	E200.8	0.000310	0.00200	0.2000	0	95.1	85 - 115				
Thallium	0.186	mg/L	E200.8	0.0000500	0.00200	0.2000	0	92.9	85 - 115				
Lab Sample ID: LCS-45016													
Test Code: HG-DW-245.1		Date Analyzed: 09/16/2016 845h		Date Prepared: 09/15/2016 1500h									
Mercury	0.00333	mg/L	E245.1	0.00000559	0.000150	0.003330	0	99.9	85 - 115				

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1609194
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MBLK

Analyte		Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID:	MB-44928	Date Analyzed:	09/15/2016 1138h											
Test Code:	200.7-W	Date Prepared:	09/12/2016 1110h											
Boron		< 0.500	mg/L	E200.7	0.0163	0.500								
Calcium		< 1.00	mg/L	E200.7	0.0579	1.00								
Magnesium		< 1.00	mg/L	E200.7	0.0495	1.00								
Sodium		< 1.00	mg/L	E200.7	0.0125	1.00								
Lab Sample ID:	MB-44928	Date Analyzed:	09/16/2016 1615h											
Test Code:	200.7-W	Date Prepared:	09/12/2016 1110h											
Lithium		< 0.100	mg/L	E200.7	0.0000100	0.100								
Lab Sample ID:	MB-44929	Date Analyzed:	09/14/2016 804h											
Test Code:	200.8-W	Date Prepared:	09/12/2016 1110h											
Antimony		< 0.00200	mg/L	E200.8	0.000306	0.00200								
Arsenic		< 0.00200	mg/L	E200.8	0.000540	0.00200								
Barium		< 0.00200	mg/L	E200.8	0.000600	0.00200								
Beryllium		< 0.00200	mg/L	E200.8	0.000177	0.00200								
Cadmium		< 0.000500	mg/L	E200.8	0.0000666	0.000500								
Chromium		< 0.00200	mg/L	E200.8	0.000998	0.00200								
Cobalt		< 0.00400	mg/L	E200.8	0.0000990	0.00400								
Lead		< 0.00200	mg/L	E200.8	0.000125	0.00200								
Molybdenum		< 0.00200	mg/L	E200.8	0.000202	0.00200								
Selenium		< 0.00200	mg/L	E200.8	0.000310	0.00200								
Thallium		< 0.00200	mg/L	E200.8	0.0000500	0.00200								
Lab Sample ID:	MB-45016	Date Analyzed:	09/16/2016 843h											
Test Code:	HG-DW-245.1	Date Prepared:	09/15/2016 1500h											
Mercury		< 0.000150	mg/L	E245.1	0.00000559	0.000150								

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1609194
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1609193-001CMS Date Analyzed: 09/15/2016 1145h Test Code: 200.7-W Date Prepared: 09/12/2016 1110h													
Sodium	2,120	mg/L	E200.7	2.50	200	10.00	2140	-166	70 - 130				2
Lab Sample ID: 1609194-001CMS Date Analyzed: 09/15/2016 1213h Test Code: 200.7-W Date Prepared: 09/12/2016 1110h													
Sodium	5,230	mg/L	E200.7	6.25	500	10.00	3730	15,000	70 - 130				2
Lab Sample ID: 1609193-001CMS Date Analyzed: 09/15/2016 1320h Test Code: 200.7-W Date Prepared: 09/12/2016 1110h													
Boron	35.4	mg/L	E200.7	0.815	25.0	1.000	34.5	98.0	70 - 130				
Calcium	540	mg/L	E200.7	2.90	50.0	10.00	527	138	70 - 130				2
Magnesium	882	mg/L	E200.7	2.48	50.0	10.00	865	169	70 - 130				2
Lab Sample ID: 1609194-001CMS Date Analyzed: 09/15/2016 1350h Test Code: 200.7-W Date Prepared: 09/12/2016 1110h													
Calcium	429	mg/L	E200.7	2.90	50.0	10.00	434	-46.7	70 - 130				2
Magnesium	396	mg/L	E200.7	2.48	50.0	10.00	399	-27.2	70 - 130				2
Lab Sample ID: 1609194-001CMS Date Analyzed: 09/16/2016 1537h Test Code: 200.7-W Date Prepared: 09/12/2016 1110h													
Boron	18.8	mg/L	E200.7	0.0163	0.500	1.000	17.3	148	70 - 130				2
Lab Sample ID: 1609193-001CMS Date Analyzed: 09/14/2016 819h Test Code: 200.8-W Date Prepared: 09/12/2016 1110h													
Antimony	0.195	mg/L	E200.8	0.000306	0.00200	0.2000	0.00119	96.8	75 - 125				
Arsenic	0.213	mg/L	E200.8	0.000540	0.00200	0.2000	0	107	75 - 125				
Barium	0.208	mg/L	E200.8	0.000600	0.00200	0.2000	0.0154	96.2	75 - 125				
Beryllium	0.183	mg/L	E200.8	0.000177	0.00200	0.2000	0	91.7	75 - 125				
Cadmium	0.185	mg/L	E200.8	0.0000666	0.000500	0.2000	0.000103	92.3	75 - 125				
Chromium	0.273	mg/L	E200.8	0.000998	0.00200	0.2000	0.092	90.5	75 - 125				

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1609194
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1609193-001CMS													
Date Analyzed:		09/14/2016 819h											
Test Code:		200.8-W											
Date Prepared:		09/12/2016 1110h											
Cobalt	0.180	mg/L	E200.8	0.0000990	0.00400	0.2000	0.00604	87.1	75 - 125				
Lead	0.172	mg/L	E200.8	0.000125	0.00200	0.2000	0	85.9	75 - 125				
Molybdenum	0.232	mg/L	E200.8	0.000202	0.00200	0.2000	0.0232	105	75 - 125				
Selenium	0.309	mg/L	E200.8	0.000310	0.00200	0.2000	0.109	100	75 - 125				
Thallium	0.172	mg/L	E200.8	0.0000500	0.00200	0.2000	0	85.8	75 - 125				
Lab Sample ID: 1609194-001CMS													
Date Analyzed:		09/14/2016 903h											
Test Code:		200.8-W											
Date Prepared:		09/12/2016 1110h											
Antimony	0.193	mg/L	E200.8	0.000306	0.00200	0.2000	0	96.4	75 - 125				
Arsenic	0.216	mg/L	E200.8	0.000540	0.00200	0.2000	0	108	75 - 125				
Barium	0.210	mg/L	E200.8	0.000600	0.00200	0.2000	0.0163	96.7	75 - 125				
Beryllium	0.179	mg/L	E200.8	0.000177	0.00200	0.2000	0	89.5	75 - 125				
Cadmium	0.183	mg/L	E200.8	0.0000666	0.000500	0.2000	0.000168	91.5	75 - 125				
Chromium	0.185	mg/L	E200.8	0.000998	0.00200	0.2000	0	92.4	75 - 125				
Cobalt	0.189	mg/L	E200.8	0.0000990	0.00400	0.2000	0.0126	88.1	75 - 125				
Lead	0.168	mg/L	E200.8	0.000125	0.00200	0.2000	0	84.1	75 - 125				
Molybdenum	0.230	mg/L	E200.8	0.000202	0.00200	0.2000	0.0201	105	75 - 125				
Selenium	0.209	mg/L	E200.8	0.000310	0.00200	0.2000	0.00885	100	75 - 125				
Thallium	0.166	mg/L	E200.8	0.0000500	0.00200	0.2000	0	82.8	75 - 125				
Lab Sample ID: 1609193-001CMS													
Date Analyzed:		09/16/2016 852h											
Test Code:		HG-DW-245.1											
Date Prepared:		09/15/2016 1500h											
Mercury	0.00324	mg/L	E245.1	0.00000559	0.000150	0.003330	0	97.4	80 - 120				
Lab Sample ID: 1609194-001CMS													
Date Analyzed:		09/16/2016 915h											
Test Code:		HG-DW-245.1											
Date Prepared:		09/15/2016 1500h											
Mercury	0.00290	mg/L	E245.1	0.00000559	0.000150	0.003330	0	86.9	80 - 120				

¹ - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1609194

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1609193-001CMSD													
Test Code:	200.7-W												
Date Analyzed:	09/15/2016 1146h												
Date Prepared:	09/12/2016 1110h												
Sodium	2,160	mg/L	E200.7	2.50	200	10.00	2140	196	70 - 130	2120	1.70	20	²
Lab Sample ID: 1609194-001CMSD													
Test Code:	200.7-W												
Date Analyzed:	09/15/2016 1215h												
Date Prepared:	09/12/2016 1110h												
Sodium	5,070	mg/L	E200.7	6.25	500	10.00	3730	13,400	70 - 130	5230	3.14	20	²
Lab Sample ID: 1609193-001CMSD													
Test Code:	200.7-W												
Date Analyzed:	09/15/2016 1322h												
Date Prepared:	09/12/2016 1110h												
Boron	34.6	mg/L	E200.7	0.815	25.0	1.000	34.5	11.1	70 - 130	35.4	2.49	20	²
Calcium	526	mg/L	E200.7	2.90	50.0	10.00	527	-3.99	70 - 130	540	2.67	20	²
Magnesium	858	mg/L	E200.7	2.48	50.0	10.00	865	-72.5	70 - 130	882	2.78	20	²
Lab Sample ID: 1609194-001CMSD													
Test Code:	200.7-W												
Date Analyzed:	09/15/2016 1352h												
Date Prepared:	09/12/2016 1110h												
Calcium	420	mg/L	E200.7	2.90	50.0	10.00	434	-136	70 - 130	429	2.10	20	²
Magnesium	384	mg/L	E200.7	2.48	50.0	10.00	399	-147	70 - 130	396	3.08	20	²
Lab Sample ID: 1609194-001CMSD													
Test Code:	200.7-W												
Date Analyzed:	09/16/2016 1539h												
Date Prepared:	09/12/2016 1110h												
Boron	18.6	mg/L	E200.7	0.0163	0.500	1.000	17.3	129	70 - 130	18.8	1.04	20	
Lab Sample ID: 1609193-001CMSD													
Test Code:	200.8-W												
Date Analyzed:	09/14/2016 822h												
Date Prepared:	09/12/2016 1110h												
Antimony	0.194	mg/L	E200.8	0.000306	0.00200	0.2000	0.00119	96.5	75 - 125	0.195	0.251	20	
Arsenic	0.212	mg/L	E200.8	0.000540	0.00200	0.2000	0	106	75 - 125	0.213	0.816	20	
Barium	0.208	mg/L	E200.8	0.000600	0.00200	0.2000	0.0154	96.5	75 - 125	0.208	0.334	20	
Beryllium	0.184	mg/L	E200.8	0.000177	0.00200	0.2000	0	91.9	75 - 125	0.183	0.247	20	
Cadmium	0.184	mg/L	E200.8	0.0000666	0.000500	0.2000	0.000103	92.2	75 - 125	0.185	0.150	20	
Chromium	0.273	mg/L	E200.8	0.000998	0.00200	0.2000	0.092	90.7	75 - 125	0.273	0.137	20	

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1609194
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1609193-001CMSD													
Date Analyzed:		09/14/2016 822h											
Test Code:		200.8-W											
Date Prepared:		09/12/2016 1110h											
Cobalt	0.183	mg/L	E200.8	0.0000990	0.00400	0.2000	0.00604	88.7	75 - 125	0.18	1.69	20	
Lead	0.173	mg/L	E200.8	0.000125	0.00200	0.2000	0	86.4	75 - 125	0.172	0.474	20	
Molybdenum	0.233	mg/L	E200.8	0.000202	0.00200	0.2000	0.0232	105	75 - 125	0.232	0.201	20	
Selenium	0.308	mg/L	E200.8	0.000310	0.00200	0.2000	0.109	99.5	75 - 125	0.309	0.321	20	
Thallium	0.172	mg/L	E200.8	0.0000500	0.00200	0.2000	0	85.8	75 - 125	0.172	0.00799	20	
Lab Sample ID: 1609194-001CMSD													
Date Analyzed:		09/14/2016 906h											
Test Code:		200.8-W											
Date Prepared:		09/12/2016 1110h											
Antimony	0.188	mg/L	E200.8	0.000306	0.00200	0.2000	0	94.2	75 - 125	0.193	2.29	20	
Arsenic	0.212	mg/L	E200.8	0.000540	0.00200	0.2000	0	106	75 - 125	0.216	1.87	20	
Barium	0.206	mg/L	E200.8	0.000600	0.00200	0.2000	0.0163	95.1	75 - 125	0.21	1.52	20	
Beryllium	0.176	mg/L	E200.8	0.000177	0.00200	0.2000	0	88.2	75 - 125	0.179	1.47	20	
Cadmium	0.180	mg/L	E200.8	0.0000666	0.000500	0.2000	0.000168	89.7	75 - 125	0.183	1.98	20	
Chromium	0.180	mg/L	E200.8	0.000998	0.00200	0.2000	0	89.9	75 - 125	0.185	2.72	20	
Cobalt	0.184	mg/L	E200.8	0.0000990	0.00400	0.2000	0.0126	85.5	75 - 125	0.189	2.83	20	
Lead	0.165	mg/L	E200.8	0.000125	0.00200	0.2000	0	82.4	75 - 125	0.168	2.09	20	
Molybdenum	0.227	mg/L	E200.8	0.000202	0.00200	0.2000	0.0201	104	75 - 125	0.23	1.37	20	
Selenium	0.204	mg/L	E200.8	0.000310	0.00200	0.2000	0.00885	97.8	75 - 125	0.209	2.10	20	
Thallium	0.163	mg/L	E200.8	0.0000500	0.00200	0.2000	0	81.3	75 - 125	0.166	1.76	20	
Lab Sample ID: 1609193-001CMSD													
Date Analyzed:		09/16/2016 854h											
Test Code:		HG-DW-245.1											
Date Prepared:		09/15/2016 1500h											
Mercury	0.00320	mg/L	E245.1	0.00000559	0.000150	0.003330	0	96.1	80 - 120	0.00324	1.35	20	
Lab Sample ID: 1609194-001CMSD													
Date Analyzed:		09/16/2016 922h											
Test Code:		HG-DW-245.1											
Date Prepared:		09/15/2016 1500h											
Mercury	0.00293	mg/L	E245.1	0.00000559	0.000150	0.003330	0	88.0	80 - 120	0.0029	1.20	20	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1609194
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1609193-010ADUP Test Code: PH-4500H+B Date Analyzed: 09/09/2016 1722h													
pH @ 25° C	7.60	pH Units	SM4500-H+B	1.00	1.00					7.59	0.132	5	
Lab Sample ID: 1609194-006ADUP Test Code: PH-4500H+B Date Analyzed: 09/09/2016 1722h													
pH @ 25° C	7.10	pH Units	SM4500-H+B	1.00	1.00					7.12	0.281	5	
Lab Sample ID: 1609194-009ADUP Test Code: PH-4500H+B Date Analyzed: 09/09/2016 1722h													
pH @ 25° C	7.07	pH Units	SM4500-H+B	1.00	1.00					7.07	0	5	
Lab Sample ID: 1609193-001ADUP Test Code: TDS-W-2540C Date Analyzed: 09/12/2016 1400h													
Total Dissolved Solids	11,500	mg/L	SM2540C	43.9	50.0					11400	0.349	5	
Lab Sample ID: 1609194-001ADUP Test Code: TDS-W-2540C Date Analyzed: 09/12/2016 1400h													
Total Dissolved Solids	16,400	mg/L	SM2540C	43.9	50.0					16200	1.04	5	
Lab Sample ID: 1609194-003ADUP Test Code: TDS-W-2540C Date Analyzed: 09/14/2016 1157h													
Total Dissolved Solids	19,300	mg/L	SM2540C	438	500					20600	6.52	5	@

@ - High RPD due to suspected sample non-homogeneity or matrix interference.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1609194
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-R94154 Date Analyzed: 09/21/2016 1503h													
Test Code:	300.0-W												
Chloride	5.24	mg/L	E300.0	0.00516	0.100	5.000	0	105	90 - 110				
Fluoride	5.17	mg/L	E300.0	0.0139	0.100	5.000	0	103	90 - 110				
Sulfate	5.10	mg/L	E300.0	0.0201	0.750	5.000	0	102	90 - 110				
Lab Sample ID: LCS-R93815 Date Analyzed: 09/12/2016 1053h													
Test Code:	ALK-W-2320B												
Alkalinity (as CaCO ₃)	49,100	mg/L	SM2320B	1.38	10.0	50,000	0	98.3	90 - 110				
Lab Sample ID: LCS-R93820 Date Analyzed: 09/12/2016 1102h													
Test Code:	NO2/NO3-W-353.2												
Nitrate/Nitrite (as N)	0.999	mg/L	E353.2	0.00833	0.0100	1.000	0	99.9	90 - 110				
Lab Sample ID: LCS-R93786 Date Analyzed: 09/09/2016 1722h													
Test Code:	PH-4500H+B												
pH @ 25° C	8.91	pH Units	SM4500-H+B	1.00	1.00	9.000	0	99.0	98 - 102				
Lab Sample ID: LCS-R93835 Date Analyzed: 09/09/2016 1722h													
Test Code:	PH-4500H+B												
pH @ 25° C	8.91	pH Units	SM4500-H+B	1.00	1.00	9.000	0	99.0	98 - 102				
Lab Sample ID: LCS-R93872 Date Analyzed: 09/12/2016 1400h													
Test Code:	TDS-W-2540C												
Total Dissolved Solids	182	mg/L	SM2540C	8.77	10.0	205.0	0	88.8	80 - 120				
Lab Sample ID: LCS-R93959 Date Analyzed: 09/14/2016 1157h													
Test Code:	TDS-W-2540C												
Total Dissolved Solids	198	mg/L	SM2540C	8.77	10.0	205.0	0	96.6	80 - 120				

Report Date: 9/23/2016 Page 27 of 30



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1609194
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-R94154 Date Analyzed: 09/21/2016 1446h													
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.00516	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.0139	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0201	0.750								
Lab Sample ID: MB-R93815 Date Analyzed: 09/12/2016 1053h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Bicarbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Carbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	1.38	10.0								
Lab Sample ID: MB-R93820 Date Analyzed: 09/12/2016 1101h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID: MB-R93872 Date Analyzed: 09/12/2016 1400h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	8.77	10.0								
Lab Sample ID: MB-R93959 Date Analyzed: 09/14/2016 1157h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	8.77	10.0								



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1609194
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1609193-001AMS Date Analyzed: 09/21/2016 1537h													
Test Code: 300.0-W													
Chloride	13,300	mg/L	E300.0	10.3	200	10,000	2510	107	90 - 110				
Fluoride	10,400	mg/L	E300.0	27.8	200	10,000	0	104	90 - 110				
Sulfate	15,300	mg/L	E300.0	40.2	1,500	10,000	5170	101	90 - 110				
Lab Sample ID: 1609194-001AMS Date Analyzed: 09/21/2016 1644h													
Test Code: 300.0-W													
Chloride	11,700	mg/L	E300.0	10.3	200	10,000	1180	105	90 - 110				
Fluoride	10,400	mg/L	E300.0	27.8	200	10,000	0	104	90 - 110				
Sulfate	19,500	mg/L	E300.0	40.2	1,500	10,000	10000	95.3	90 - 110				
Lab Sample ID: 1609194-001AMS Date Analyzed: 09/12/2016 1053h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	648	mg/L	SM2320B	1.38	10.0	200.0	455	96.5	80 - 120				
Lab Sample ID: 1609194-004BMS Date Analyzed: 09/12/2016 1122h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	10.9	mg/L	E353.2	0.0833	0.100	10.00	0	109	90 - 110				
Lab Sample ID: 1609193-001BMS Date Analyzed: 09/12/2016 1133h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	66.8	mg/L	E353.2	0.417	0.500	50.00	16.2	101	90 - 110				



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1609194
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1609193-001AMSD Date Analyzed: 09/21/2016 1553h													
Test Code: 300.0-W													
Chloride	13,100	mg/L	E300.0	10.3	200	10,000	2510	106	90 - 110	13300	0.891	20	
Fluoride	10,400	mg/L	E300.0	27.8	200	10,000	0	104	90 - 110	10400	0.367	20	
Sulfate	15,100	mg/L	E300.0	40.2	1,500	10,000	5170	99.8	90 - 110	15300	0.943	20	
Lab Sample ID: 1609194-001AMSD Date Analyzed: 09/21/2016 1701h													
Test Code: 300.0-W													
Chloride	11,700	mg/L	E300.0	10.3	200	10,000	1180	105	90 - 110	11700	0.430	20	
Fluoride	10,400	mg/L	E300.0	27.8	200	10,000	0	104	90 - 110	10400	0.668	20	
Sulfate	19,700	mg/L	E300.0	40.2	1,500	10,000	10000	96.6	90 - 110	19500	0.667	20	
Lab Sample ID: 1609194-001AMSD Date Analyzed: 09/12/2016 1053h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	655	mg/L	SM2320B	1.38	10.0	200.0	455	100	80 - 120	648	1.12	10	
Lab Sample ID: 1609194-004BMSD Date Analyzed: 09/12/2016 1123h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	10.1	mg/L	E353.2	0.0833	0.100	10.00	0	101	90 - 110	10.9	8.00	10	
Lab Sample ID: 1609193-001BMSD Date Analyzed: 09/12/2016 1134h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	64.8	mg/L	E353.2	0.417	0.500	50.00	16.2	97.2	90 - 110	66.8	2.95	10	

Report Date: 9/23/2016 Page 30 of 30

WORK ORDER Summary

Work Order: **1609194** Page 1 of 4

Client: PacifiCorp

Client ID: PAC900

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Due Date: 9/23/2016

QC Level: II+

WO Type: Project

Comments: QC2+. Include EDD. RADS sent to ACZ. Cc: Report to mshirley@waterenvtech.com, Laura Watson and Dave Erickson. Footnote report, pH received outside of hold.;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1609194-001A	ELF-11	9/8/2016 1650h	9/9/2016 1649h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			1
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1609194-001B				NO2/NO3-W-353.2			DF-NO2/NO3
1609194-001C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1609194-001D				OUTSIDE LAB			ACZ
							2
1609194-002A	ELF-11FB	9/8/2016 1710h	9/9/2016 1649h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			1
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1609194-002B				NO2/NO3-W-353.2			DF-NO2/NO3
1609194-002C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1609194-002D				OUTSIDE LAB			ACZ
							2

WORK ORDER Summary

Work Order: **1609194** Page 2 of 4

Client: PacifiCorp

Due Date: 9/23/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1609194-003A	ELF-5	9/8/2016 1740h	9/9/2016 1649h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous		DF-WC 1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC			DF-WC
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1609194-003B				NO2/NO3-W-353.2			DF-NO2/NO3
1609194-003C				200.7-W 5 SEL Analytes: B CA LI MG NA			DF-Metals
				200.7-W-PR			DF-Metals
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			DF-Metals
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1609194-003D				OUTSIDE LAB			ACZ 2
1609194-004A	ELF-8 EB	9/8/2016 1850h	9/9/2016 1649h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous		DF-WC 1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC			DF-WC
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1609194-004B				NO2/NO3-W-353.2			DF-NO2/NO3
1609194-004C				200.7-W 5 SEL Analytes: B CA LI MG NA			DF-Metals
				200.7-W-PR			DF-Metals
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			DF-Metals
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1609194-004D				OUTSIDE LAB			ACZ 2
1609194-005A	ELF-8	9/8/2016 1915h	9/9/2016 1649h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous		DF-WC 1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC			DF-WC
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC

WORK ORDER Summary

Work Order: **1609194**

Page 3 of 4

Client: PacifiCorp

Due Date: 9/23/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1609194-005B	ELF-8	9/8/2016 1915h	9/9/2016 1649h	NO2/NO3-W-353.2	Aqueous		DF-NO2/NO3	1
1609194-005C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1609194-005D				OUTSIDE LAB			ACZ	2
1609194-006A	ELF-7 DUP	9/8/2016 1900h	9/9/2016 1649h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1609194-006B				NO2/NO3-W-353.2			DF-NO2/NO3	
1609194-006C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1609194-006D				OUTSIDE LAB			ACZ	2
1609194-007A	ELF-2	9/8/2016 1630h	9/9/2016 1649h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1609194-007B				NO2/NO3-W-353.2			DF-NO2/NO3	
1609194-007C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				

WORK ORDER Summary

Work Order: **1609194** Page 4 of 4

Client: PacifiCorp

Due Date: 9/23/2016

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1609194-007C	ELF-2	9/8/2016 1630h	9/9/2016 1649h	200.8-W-PR	Aqueous	DF-Metals	1
				HG-DW-245.1		DF-Metals	
				HG-DW-PR		DF-Metals	
1609194-007D				OUTSIDE LAB		ACZ	2
1609194-008A	ELF-9	9/8/2016 1700h	9/9/2016 1649h	300.0-W	Aqueous	DF-WC	1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B		DF-WC	
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B		DF-WC	
				TDS-W-2540C		DF-WC	
1609194-008B				NO2/NO3-W-353.2		DF-NO2/NO3	
1609194-008C				200.7-W		DF-Metals	
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR		DF-Metals	
				200.8-W		DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR		DF-Metals	
				HG-DW-245.1		DF-Metals	
				HG-DW-PR		DF-Metals	
1609194-008D				OUTSIDE LAB		ACZ	2
1609194-009A	ELF-7	9/8/2016 1830h	9/9/2016 1649h	300.0-W	Aqueous	DF-WC	1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B		DF-WC	
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B		DF-WC	
				TDS-W-2540C		DF-WC	
1609194-009B				NO2/NO3-W-353.2		DF-NO2/NO3	
1609194-009C				200.7-W		DF-Metals	
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR		DF-Metals	
				200.8-W		DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR		DF-Metals	
				HG-DW-245.1		DF-Metals	
				HG-DW-PR		DF-Metals	
1609194-009D				OUTSIDE LAB		ACZ	2



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CHAIN OF CUSTODY

ALL ANALYSIS WILL BE CONDUCTED USING NELAP ACCREDITED METHODS AND ALL DATA WILL BE REPORTED USING AWAL'S STANDARD ANALYTE LISTS AND REPORTING LIMITS (PQL) UNLESS SPECIFICALLY REQUESTED OTHERWISE ON THIS CHAIN OF CUSTODY AND/OR ATTACHED DOCUMENTATION.

AWAL LAB SAMPLE SET#

PAGE 1 OF 23

DUE DATE: 9/23/16

CLIENT: **PacifiCorp**
ADDRESS: _____
CONTACT: **Jeff Tucker**
PHONE #: _____ CELL #: _____
EMAIL: _____
PROJECT NAME: **Hunter CCR Sampling**
PROJECT #: **PERCM52**
PO #: _____
SAMPLER NAME: **Rebecca Farren**

QC Level:					Turn Around Time:					
1	2	2+	3	3+	1	2	3	4	5	Std

Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.

- ☐ REPORT DOWN TO THE MDL
☒ INCLUDE EDD:
☐ LAB FILTER FOR:

☐ FIELD FILTERED FOR:

FOR COMPLIANCE WITH:

- ☐ NELAP
☐ RCRA
☐ CWA
☐ SDWA
☐ ELAP / A2LA
☐ NLLAP
☐ NON-COMPLIANCE
☐ OTHER:

**KNOWN HAZARDS
&
SAMPLE COMMENTS**

LABORATORY USE ONLY

SAMPLES WERE:

- 1 SHIPPED OR HAND DELIVERED
- 2 AMBIENT OR CHILLED
- 3 TEMPERATURE 4.6 °C
- 4 RECEIVED BROKEN/LEAKING (IMPROPERLY SEALED)
Y N
- 5 PROPERLY PRESERVED
Y N CHECKED AT BENCH
- 6 RECEIVED WITHIN HOLDING TIMES
Y N

COC TAPE WAS:

- 1 PRESENT ON OUTER PACKAGE
Y N NA
- 2 UNBROKEN ON OUTER PACKAGE
Y N NA
- 3 PRESENT ON SAMPLE
Y N NA
- 4 UNBROKEN ON SAMPLE
Y N NA

DISCREPANCIES BETWEEN SAMPLE LABELS AND COC RECORD?
Y N

	SAMPLE ID:	DATE SAMPLED	TIME SAMPLED	# OF CONTAINERS	SAMPLE MATRIX	TDS, pH, Alkalinity	Anions	Fluoride	Total Metals	Total Mercury	Nitrogen, Nitrite + Nitrate	Radium 226 + Radium 228				
1	ELF-11	9/8/16	16:50	5	W	X	X	X	X	X	X	X				
2	ELF-11 FB	9/8/16	17:10	5	W	X	X	X	X	X	X	X				
3	ELF-5	9/8/16	17:40	5	W	X	X	X	X	X	X	X				
4	ELF-8 EB	9/8/16	18:50	5	W	X	X	X	X	X	X	X				
5	ELF-8	9/8/16	19:15	5	W	X	X	X	X	X	X	X				
6																
7																
8																
9																
10																
11																
12																

RELINQUISHED BY: SIGNATURE <i>Rebecca Farren</i>	DATE: 9/9/16 TIME: 16:49	RECEIVED BY: SIGNATURE <i>Denise Bruum</i>	DATE: 9/9/16 TIME: 16:49
PRINT NAME: Rebecca Farren		PRINT NAME: Denise Bruum	
RELINQUISHED BY: SIGNATURE	DATE: TIME:	RECEIVED BY: SIGNATURE	DATE: TIME:
PRINT NAME:		PRINT NAME:	
RELINQUISHED BY: SIGNATURE	DATE: TIME:	RECEIVED BY: SIGNATURE	DATE: TIME:
PRINT NAME:		PRINT NAME:	
RELINQUISHED BY: SIGNATURE	DATE: TIME:	RECEIVED BY: SIGNATURE	DATE: TIME:
PRINT NAME:		PRINT NAME:	

SPECIAL INSTRUCTIONS:



ALL ANALYSIS WILL BE CONDUCTED USING NELAP ACCREDITED METHODS AND ALL DATA WILL BE REPORTED USING AWAL'S STANDARD ANALYTE LISTS AND REPORTING LIMITS (PQL) UNLESS SPECIFICALLY REQUESTED OTHERWISE ON THIS CHAIN OF CUSTODY AND/OR ATTACHED DOCUMENTATION.

DUE DATE: 9/23/16

Unless other arrangements have been made signed reports will be emailed by **5:00 pm** on the day they are due.

SAMPLES WERE:

- 1 SHIPPED OR HAND DELIVERED ☒
- 2 AMBIENT OR CHILLED ☒
- 3 TEMPERATURE 4.6 °C
- 4 RECEIVED BROKEN / LEAKING
(IMPROPERLY SEALED)
Y ☒ N ☒
- 5 PROPERLY PRESERVED
Y ☒ N ☒
- CHECKED
AT BENCH


6 RECEIVED WITHIN
HOLDING TIMES
Y

COC TAPE WAS:

- | | | | | |
|---|---------------------------|---|---|----|
| 1 | PRESENT ON OUTER PACKAGE | Y | N | NA |
| 2 | UNBROKEN ON OUTER PACKAGE | Y | N | NA |
| 3 | PRESENT ON SAMPLE | Y | N | NA |
| 4 | UNBROKEN ON SAMPLE | Y | N | NA |

DISCREPANCIES BETWEEN SAMPLE
LABELS AND COC RECORD?

Y N



FAX # (801) 263-8687

EMAIL AWAL@AWAL-LABS.COM

WWW.AWAL-LABS.COM

CLIENT:

PacifiCorp

ADDRESS:

CONTACT:

Jeff Tucker

PHONE #:

CELL #:

EMAIL:

PROJECT NAME:

Hunter CCR Sampling

PROJECT #:

PERCM52

PO #:

SAMPLER NAME:

[illegible]

RELINQUISHING PARTY		RECEIVING PARTY		SPECIAL INSTRUCTIONS
RELINQUISHED BY: SIGNATURE	DATE: TIME:	RECEIVED BY: SIGNATURE	DATE: TIME:	
RELINQUISHED BY: SIGNATURE <i>[Signature]</i>	DATE: <i>9/9/2016</i> TIME: <i>1654</i>	RECEIVED BY: SIGNATURE <i>Denise Brown</i>	DATE: <i>9/9/16</i> TIME: <i>1654</i>	
PRINT NAME: <i>Mike Shirley</i>	DATE: TIME:	PRINT NAME: <i>Denise Brown</i>	DATE: TIME:	
RELINQUISHED BY: SIGNATURE	DATE: TIME:	RECEIVED BY: SIGNATURE	DATE: TIME:	
PRINT NAME:	DATE: TIME:	PRINT NAME:	DATE: TIME:	
RELINQUISHED BY: SIGNATURE	DATE: TIME:	RECEIVED BY: SIGNATURE	DATE: TIME:	
PRINT NAME:	DATE: TIME:	PRINT NAME:	DATE: TIME:	
RELINQUISHED BY: SIGNATURE	DATE: TIME:	RECEIVED BY: SIGNATURE	DATE: TIME:	
PRINT NAME:	DATE: TIME:	PRINT NAME:	DATE: TIME:	

**AMERICAN WEST
ANALYTICAL LABORATORIES**

3440 S. 700 W. SALT LAKE CITY, UT 84119
PHONE # (801) 263-8686 TOLL FREE # (888) 263-8686
FAX # (801) 263-8687 EMAIL AWAL@AWAL-LABS.COM

WWW.AWAL-LABS.COM

CLIENT: **PacifiCorp**

ADDRESS:

CONTACT: Jeff Tucker

PHONE #: _____ CELL #: _____

EMAIL:

PROJECT NAME: **Hunter CCR Sampling**

PROJECT #: **PERCM52**

PO #:

SAMPLER NAME:

CHAIN OF CUSTODY

ALL ANALYSIS WILL BE CONDUCTED USING NELAP ACCREDITED METHODS AND ALL DATA WILL BE REPORTED USING AWAL'S STANDARD ANALYTE LISTS AND REPORTING LIMITS (PQL) UNLESS SPECIFICALLY REQUESTED OTHERWISE ON THIS CHAIN OF CUSTODY AND/OR ATTACHED DOCUMENTATION.

AWAL LAB SAMPLE SET #
PAGE 23 OF 3

DUE DATE:

9/23/16

LABORATORY USE ONLY

SAMPLES WERE:

- 1 ~~SHIPPED OR HAND DELIVERED~~
2 ~~AMBIENT OR CHILLED~~
3 TEMPERATURE 4.3 °C
4 RECEIVED BROKEN/LEAKING
(IMPROPERLY SEALED)
Y ~~N~~
5 ~~PROPERLY PRESERVED~~
~~Y~~ N CHECKED
AT BENCH

6 RECEIVED WITHIN
HOLDING TIMES

#35- ptt out of hold

COC TAPE WAS:

- 1 PRESENT ON OUTER PACKAGE
Y N NA
- 2 UNBROKEN ON OUTER PACKAGE
Y N NA
- 3 PRESENT ON SAMPLE
Y N NA
- 4 UNBROKEN ON SAMPLE
Y N NA

DISCREPANCIES BETWEEN SAMPLE
LABELS AND COC RECORD?

[illegible]

RELINQUISHED BY:		DATE:	RECEIVED BY:	DATE:	SPECIAL INSTRUCTIONS:
SIGNATURE		TIME:	SIGNATURE	TIME:	
PRINT NAME: Mice Shirley		DATE: 9/9/2016	PRINT NAME: Denise Brown	DATE: 9/9/16	
RELINQUISHED BY:		TIME: 1:48	RECEIVED BY:	TIME: 1:48	
SIGNATURE			SIGNATURE		
PRINT NAME:		TIME:	PRINT NAME:	TIME:	
RELINQUISHED BY:		DATE:	RECEIVED BY:	DATE:	
SIGNATURE		TIME:	SIGNATURE	TIME:	
PRINT NAME:		DATE:	PRINT NAME:	DATE:	
RELINQUISHED BY:		TIME:	RECEIVED BY:	TIME:	
SIGNATURE		DATE:	SIGNATURE	DATE:	
PRINT NAME:		TIME:	PRINT NAME:	TIME:	

Water & Environmental Technologies

Analyte Method Reporting Limit	Method	Reporting Limit	Price/sample ¹
pH	SM4500-H+ B	1.0 s.u.	\$11.70
Solids, Total Dissolved	SM2540 C	10 mg/L	\$13.50
Alkalinity Total as CaCO ₃	SM2320 B	10 mg/L	\$17.10
Bicarbonate as HCO ₃	SM2320 B	10 mg/L	\$0.00
Carbonate as CO ₃	SM2320 B	10 mg/L	\$0.00
Chloride	E300.0	0.1 mg/L	\$11.70
Sulfate	E300.0	0.75 mg/L	\$11.70
Fluoride	A4500-F C/E300.0	0.1 mg/L	\$12.60
Nitrogen, Nitrate+Nitrite	E353.2	0.01 mg/L	\$11.70
Antimony	E200.8	0.002 mg/L	\$9.00
Arsenic	E200.8	0.002 mg/L	\$9.00
Barium	E200.8	0.002 mg/L	\$9.00
Beryllium	E200.8	0.002 mg/L	\$9.00
Boron	E200.7	0.5 mg/L	\$9.00
Cadmium	E200.8	0.0005 mg/L	\$9.00
Calcium	E200.7	1.0 mg/L	\$9.00
Chromium	E200.8	0.002 mg/L	\$9.00
Cobalt	E200.8	0.004 mg/L	\$9.00
Lead	E200.8	0.002 mg/L	\$9.00
Lithium	E200.7	0.1 mg/L	\$9.00
Magnesium	E200.7	1.0 mg/L	\$9.00
Molybdenum	E200.8	0.002 mg/L	\$9.00
Selenium	E200.8	0.002 mg/L	\$9.00
Sodium	E200.7	1.0 mg/L	\$9.00
Thallium	E200.8	0.002 mg/L	\$9.00
Mercury, Total	E245.1	0.00015 mg/L	\$25.20
Radium 226 + Radium 228 ²	M903.1 + M904.0		\$182.16
Radium 226, Total ²	M903.1	0.4 pCi/L	\$0.00
Radium 228, Total ²	M904.0	1.5 pCi/L	\$0.00
Metals digestion/sample			\$18.00
Total/sample - Not including shipping			\$459.36
Monthly Price for 17 samples - Not including shipping			\$7,809.12
Total Project Cost (20 months) - Not including shipping			\$156,182.40

¹ - Includes 10% discount for 10 or more samples/delivery.

² - UPS shipping costs to Colorado will be applied to these analyses.

Radium analyses will be subcontracted to ACZ Labs in CO.

PH Lot # 5003

Sample Set Extension and pH

Procedure:

- 1) Pour a small amount of sample in the sample lid
- 2) Pour sample from Lid gently over wide range pH paper
- 3) **Do Not** dip the pH paper in the sample bottle or lid
- 4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
- 5) Flag COC, notify client if requested
- 6) Place client conversation on COC
- 7) Samples may be adjusted

- * The sample required additional preservative upon receipt.
- + The sample was received unpreserved.
- ▲ The sample was received unpreserved and therefore preserved upon receipt.
- # The sample pH was unadjustable to a pH < 2 due to the sample matrix.
- The sample pH was unadjustable to a pH > ____ due to the sample matrix interference.

October 21, 2016

Report to:

Elona Hayward
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

Bill to:

Lynn Turner
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

cc: Denise Bruun

Project ID: 1609194

ACZ Project ID: L32924

Elona Hayward:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on September 14, 2016. This project has been assigned to ACZ's project number, L32924. Please reference this number in all future inquiries.

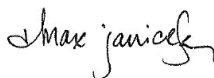
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L32924. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after November 20, 2016. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.



Max Janicek has reviewed and
approved this report.



American West Analytical Labs

Project ID: 1609194

Sample ID: ELF-11

Locator:

ACZ Sample ID: **L32924-01**

Date Sampled: 09/08/16 16:50

Date Received: 09/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/13/16 0:15		0.47	0.18	0.38	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/20/16 17:03		0.48	0.71	0.73	pCi/L		jjo

American West Analytical Labs

Project ID: 1609194

Sample ID: ELF-11 FB

Locator:

ACZ Sample ID: **L32924-02**

Date Sampled: 09/08/16 17:10

Date Received: 09/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/13/16 0:17		0.06	0.07	0.18	pCi/L		djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/20/16 17:03		-0.03	0.61	0.67	pCi/L	*	jjo

American West Analytical Labs

Project ID: 1609194

Sample ID: ELF-5

Locator:

ACZ Sample ID: **L32924-03**

Date Sampled: 09/08/16 17:40

Date Received: 09/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/13/16 0:18		0.92	0.19	0.43	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/20/16 17:03		1.1	0.85	0.83	pCi/L		jjo

American West Analytical Labs

Project ID: 1609194

Sample ID: ELF-8 EB

Locator:

ACZ Sample ID: **L32924-04**

Date Sampled: 09/08/16 18:50

Date Received: 09/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/13/16 0:20		0.06	0.07	0.06	pCi/L		djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/20/16 17:03		-0.06	0.67	0.73	pCi/L	*	jjo

American West Analytical Labs

Project ID: 1609194

Sample ID: ELF-8

Locator:

ACZ Sample ID: **L32924-05**

Date Sampled: 09/08/16 19:50

Date Received: 09/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/13/16 0:21		1	0.15	0.19	pCi/L		djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/20/16 17:03		1.1	0.95	0.94	pCi/L	*	jjo

American West Analytical Labs

Project ID: 1609194

Sample ID: ELF-7 DUP

Locator:

ACZ Sample ID: **L32924-06**

Date Sampled: 09/08/16 19:00

Date Received: 09/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/13/16 0:23		0.7	0.15	0.34	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/20/16 17:03		1	0.72	0.69	pCi/L		jjo

American West Analytical Labs

Project ID: 1609194

Sample ID: ELF-2

Locator:

ACZ Sample ID: **L32924-07**

Date Sampled: 09/08/16 16:30

Date Received: 09/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/13/16 0:24		0.2	0.1	0.33	pCi/L		djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/20/16 19:01		0.41	0.77	0.8	pCi/L		jjo

American West Analytical Labs

Project ID: 1609194

Sample ID: ELF-9

Locator:

ACZ Sample ID: **L32924-08**

Date Sampled: 09/08/16 17:00

Date Received: 09/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/13/16 0:25		0.26	0.12	0.17	pCi/L		djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/20/16 19:01		0.4	1.2	1.3	pCi/L	*	jjo

American West Analytical Labs

Project ID: 1609194

Sample ID: ELF-7

Locator:

ACZ Sample ID: **L32924-09**

Date Sampled: 09/08/16 18:30

Date Received: 09/14/16

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/13/16 0:27		0.74	0.19	0.28	pCi/L	*	djc

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/20/16 19:01		1.6	0.8	0.74	pCi/L		jjo

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

American West Analytical Labs

ACZ Project ID: **L32924**

Radium 226		M903.1										Units: pCi/L				
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG411560																
WG410901PBW	PBW	10/13/16						.05	0.09	0.1			0.2			
WG410901LCSW	LCSW	10/13/16	PCN51069	20				18	0.5	0.19	90	43	148			
L32923-03DUP	DUP-RER	10/13/16			0.81	0.2	0.2	1.1	0.51	0.72				0.53	2	
L32923-04DUP	DUP-RER	10/13/16			0.03	0.15	0.31	.66	0.38	0.51				1.54	2	
L32923-05MS	MS	10/13/16	PCN51069	100	0.42	0.18	0.3	130	3.2	0.62	130	43	148			
Radium 228																
Radium 228		M904.0										Units: pCi/L				
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG411939																
WG411581PBW	PBW	10/20/16						-.3	0.34	0.39			0.78			
WG411581LCSW	LCSW	10/20/16	PCN50555	18.35				12	1.2	0.61	65	47	123			
L32924-03DUP	DUP-RER	10/20/16			1.1	0.85	0.83	.17	2.7	2.9				0.33	2	
L32924-01MS	MS	10/20/16	PCN50555	67.94	0.48	0.71	0.73	47	4.8	2.5	68	47	123			
L32923-06DUP	DUP-RER	10/20/16			2.8	0.92	0.78	1.3	2.7	2.8				0.53	2	

American West Analytical Labs

ACZ Project ID: **L32924**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L32924-01	WG411560	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
L32924-02	WG411939	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
L32924-03	WG411560	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
L32924-04	WG411939	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
L32924-05	WG411939	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
L32924-06	WG411560	Radium 226	M903.1	DD	Sample required dilution due to matrix color or odor.
L32924-08	WG411939	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
L32924-09	WG411560	Radium 226	M903.1	DD	Sample required dilution due to matrix color or odor.

American West Analytical Labs

ACZ Project ID: **L32924**

No certification qualifiers associated with this analysis

American West Analytical Labs
1609194

ACZ Project ID: L32924
Date Received: 09/14/2016 09:25
Received By: kmo
Date Printed: 9/14/2016

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2) Is the Chain of Custody form or other directive shipping papers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Does this project require special handling procedures such as CLP protocol?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4) Are any samples NRC licensable material?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) If samples are received past hold time, proceed with requested short hold time analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Is the Chain of Custody form complete and accurate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Are all labels on containers and are they intact and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) For preserved bottle types, was the pH checked and within limits? ¹	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Is there sufficient sample volume to perform all requested work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Is the custody seal intact on all containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14) Are samples that require zero headspace acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Are all sample containers appropriate for analytical requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Is there an Hg-1631 trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Is there a VOA trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18) Were all samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
4278	17.2	NA	14	N/A
NA24697	19	NA	14	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

American West Analytical Labs
1609194

ACZ Project ID: L32924
Date Received: 09/14/2016 09:25
Received By: kmo
Date Printed: 9/14/2016

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



Ar

L32924 Chain of Custody

Analytical Laboratories

Chain of Custody

L32924

Lab Sample Set #

CONTACT: American West Analytical Laboratories

Address: **3440 S. 700 W.**

Salt Lake City, UT 84119

Project Name: **Hunter CCR Sampling / PERCM52**

PO#: **1609194**

Contact: **Elona Hayward**

Phone: **801-263-8686**

Fax : **801-263-8687**

Email: elona@awal-labs.com

denise@awal-labs.com

Page 1 of 1

QC Level: **2+**

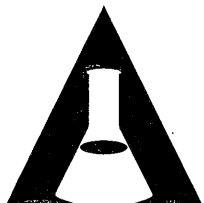
Turn Around Time

Standard

[illegible]

Special Instructions: **Include project name and PO# on final report and invoice. Email results to both Elona and Denise.**

Relinquished by: Signature <i>Denise Bruen</i>	Date: 9/12/16	Received by: Signature <i>Denise Peters</i>	Date: 9/14/16
Print Name <i>Denise Bruen</i>	Time: 11:00	Print Name <i>Denise Peters</i>	Time: 9:25
Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name	Time:	Print Name	Time:



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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Jeff Tucker
PacifiCorp
1407 West North Temple, # 280
Salt Lake City, UT 84116
TEL: (801) 220-2989

RE: Hunter CCR Sampling / PERCM52

Dear Jeff Tucker:

Lab Set ID: 1705243

American West Analytical Laboratories received sample(s) on 5/9/2017 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: 
Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:
Radiological Testing



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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-001
Client Sample ID: ELF-11
Collection Date: 5/9/2017 945h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/10/2017 1243h	5/19/2017 2337h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/10/2017 1243h	5/19/2017 2337h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/10/2017 1243h	5/19/2017 2337h	E200.8	0.00200	0.0194	
Beryllium	mg/L	5/10/2017 1243h	5/19/2017 2337h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/10/2017 1243h	5/19/2017 1824h	E200.7	0.500	18.5	
Cadmium	mg/L	5/10/2017 1243h	5/19/2017 2337h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/10/2017 1243h	5/19/2017 1559h	E200.7	10.0	396	²
Chromium	mg/L	5/10/2017 1243h	5/19/2017 2337h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/10/2017 1243h	5/19/2017 2337h	E200.8	0.00400	0.0130	
Lead	mg/L	5/10/2017 1243h	5/19/2017 2337h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/22/2017 1359h	5/23/2017 1238h	E200.7	0.100	2.98	
Magnesium	mg/L	5/10/2017 1243h	5/19/2017 1559h	E200.7	10.0	347	²
Mercury	mg/L	5/15/2017 1500h	5/17/2017 905h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/10/2017 1243h	5/19/2017 2337h	E200.8	0.00200	0.0224	
Selenium	mg/L	5/10/2017 1243h	5/19/2017 2337h	E200.8	0.00200	0.0266	
Sodium	mg/L	5/10/2017 1243h	5/19/2017 1458h	E200.7	100	4,750	²
Thallium	mg/L	5/10/2017 1243h	5/19/2017 2337h	E200.8	0.00200	< 0.00200	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

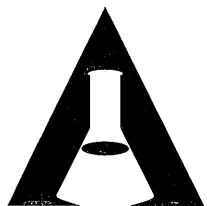
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-002
Client Sample ID: ELF-8
Collection Date: 5/9/2017 1020h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/10/2017 1243h	5/19/2017 2346h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/10/2017 1243h	5/19/2017 2346h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/10/2017 1243h	5/19/2017 2346h	E200.8	0.00200	0.0127	
Beryllium	mg/L	5/10/2017 1243h	5/19/2017 2346h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/10/2017 1243h	5/19/2017 1756h	E200.7	1.00	29.3	
Cadmium	mg/L	5/10/2017 1243h	5/19/2017 2346h	E200.8	0.000500	0.00220	
Calcium	mg/L	5/10/2017 1243h	5/19/2017 1607h	E200.7	10.0	531	
Chromium	mg/L	5/10/2017 1243h	5/19/2017 2346h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/10/2017 1243h	5/19/2017 2346h	E200.8	0.00400	0.171	
Lead	mg/L	5/10/2017 1243h	5/19/2017 2346h	E200.8	0.00200	0.00608	
Lithium	mg/L	5/22/2017 1359h	5/23/2017 1245h	E200.7	0.100	3.03	
Magnesium	mg/L	5/10/2017 1243h	5/19/2017 1607h	E200.7	10.0	114	
Mercury	mg/L	5/15/2017 1500h	5/17/2017 910h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/10/2017 1243h	5/19/2017 2346h	E200.8	0.00200	0.470	
Selenium	mg/L	5/10/2017 1243h	5/19/2017 2346h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	5/10/2017 1243h	5/19/2017 1505h	E200.7	50.0	1,950	
Thallium	mg/L	5/10/2017 1243h	5/19/2017 2346h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

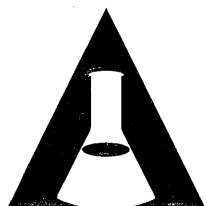
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-003
Client Sample ID: DUP
Collection Date: 5/9/2017 1030h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

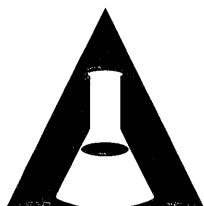
Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/10/2017 1243h	5/19/2017 2348h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/10/2017 1243h	5/19/2017 2348h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/10/2017 1243h	5/19/2017 2348h	E200.8	0.00200	0.0122	
Beryllium	mg/L	5/10/2017 1243h	5/19/2017 2348h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/10/2017 1243h	5/19/2017 1758h	E200.7	1.00	29.0	
Cadmium	mg/L	5/10/2017 1243h	5/19/2017 2348h	E200.8	0.000500	0.00212	
Calcium	mg/L	5/10/2017 1243h	5/19/2017 1609h	E200.7	10.0	531	
Chromium	mg/L	5/10/2017 1243h	5/19/2017 2348h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/10/2017 1243h	5/19/2017 2348h	E200.8	0.00400	0.169	
Lead	mg/L	5/10/2017 1243h	5/19/2017 2348h	E200.8	0.00200	0.00598	
Lithium	mg/L	5/22/2017 1359h	5/23/2017 1247h	E200.7	0.100	3.01	
Magnesium	mg/L	5/10/2017 1243h	5/19/2017 1609h	E200.7	10.0	115	
Mercury	mg/L	5/15/2017 1500h	5/17/2017 912h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/10/2017 1243h	5/19/2017 2348h	E200.8	0.00200	0.460	
Selenium	mg/L	5/10/2017 1243h	5/19/2017 2348h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	5/10/2017 1243h	5/19/2017 1507h	E200.7	50.0	1,930	
Thallium	mg/L	5/10/2017 1243h	5/19/2017 2348h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-004
Client Sample ID: ELF-5
Collection Date: 5/9/2017 1110h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/10/2017 1243h	5/19/2017 2351h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/10/2017 1243h	5/19/2017 2351h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/10/2017 1243h	5/19/2017 2351h	E200.8	0.00200	0.0155	
Beryllium	mg/L	5/10/2017 1243h	5/19/2017 2351h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/10/2017 1243h	5/19/2017 1833h	E200.7	0.500	7.23	
Cadmium	mg/L	5/10/2017 1243h	5/19/2017 2351h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/10/2017 1243h	5/19/2017 1631h	E200.7	20.0	477	
Chromium	mg/L	5/10/2017 1243h	5/19/2017 2351h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/10/2017 1243h	5/19/2017 2351h	E200.8	0.00400	0.00433	
Lead	mg/L	5/10/2017 1243h	5/19/2017 2351h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/22/2017 1359h	5/23/2017 1256h	E200.7	0.100	4.63	
Magnesium	mg/L	5/10/2017 1243h	5/19/2017 1631h	E200.7	20.0	951	
Mercury	mg/L	5/15/2017 1500h	5/17/2017 914h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/10/2017 1243h	5/19/2017 2351h	E200.8	0.00200	0.00512	
Selenium	mg/L	5/10/2017 1243h	5/19/2017 2351h	E200.8	0.00200	0.0261	
Sodium	mg/L	5/10/2017 1243h	5/19/2017 1509h	E200.7	200	7,650	
Thallium	mg/L	5/10/2017 1243h	5/19/2017 2351h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

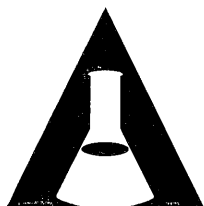
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-005
Client Sample ID: ELF-4
Collection Date: 5/9/2017 1145h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

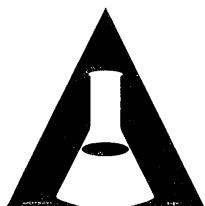
Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/10/2017 1243h	5/20/2017 003h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/10/2017 1243h	5/20/2017 003h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/10/2017 1243h	5/20/2017 003h	E200.8	0.00200	0.0115	
Beryllium	mg/L	5/10/2017 1243h	5/20/2017 003h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/10/2017 1243h	5/19/2017 1836h	E200.7	0.500	4.80	
Cadmium	mg/L	5/10/2017 1243h	5/20/2017 003h	E200.8	0.000500	0.000604	
Calcium	mg/L	5/10/2017 1243h	5/19/2017 1634h	E200.7	10.0	483	
Chromium	mg/L	5/10/2017 1243h	5/20/2017 003h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/10/2017 1243h	5/20/2017 003h	E200.8	0.00400	0.00589	
Lead	mg/L	5/10/2017 1243h	5/20/2017 003h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/22/2017 1359h	5/23/2017 1259h	E200.7	0.100	1.48	
Magnesium	mg/L	5/10/2017 1243h	5/19/2017 1634h	E200.7	10.0	515	
Mercury	mg/L	5/15/2017 1500h	5/17/2017 919h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/10/2017 1243h	5/20/2017 003h	E200.8	0.00200	0.00238	
Selenium	mg/L	5/10/2017 1243h	5/20/2017 003h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	5/10/2017 1243h	5/19/2017 1520h	E200.7	50.0	2,800	
Thallium	mg/L	5/10/2017 1243h	5/20/2017 003h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-006
Client Sample ID: ELF-7
Collection Date: 5/9/2017 1215h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/10/2017 1243h	5/20/2017 006h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/10/2017 1243h	5/20/2017 006h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/10/2017 1243h	5/20/2017 006h	E200.8	0.00200	0.00875	
Beryllium	mg/L	5/10/2017 1243h	5/20/2017 006h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/10/2017 1243h	5/19/2017 1838h	E200.7	0.500	1.84	
Cadmium	mg/L	5/10/2017 1243h	5/20/2017 006h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/10/2017 1243h	5/19/2017 1620h	E200.7	20.0	422	
Chromium	mg/L	5/10/2017 1243h	5/20/2017 006h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/10/2017 1243h	5/20/2017 006h	E200.8	0.00400	0.00484	
Lead	mg/L	5/10/2017 1243h	5/20/2017 006h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/22/2017 1359h	5/23/2017 1301h	E200.7	0.100	1.86	
Magnesium	mg/L	5/10/2017 1243h	5/19/2017 1620h	E200.7	20.0	653	
Mercury	mg/L	5/15/2017 1500h	5/17/2017 921h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/10/2017 1243h	5/20/2017 006h	E200.8	0.00200	0.00236	
Selenium	mg/L	5/10/2017 1243h	5/20/2017 006h	E200.8	0.00200	0.303	
Sodium	mg/L	5/10/2017 1243h	5/19/2017 1523h	E200.7	100	4,670	
Thallium	mg/L	5/10/2017 1243h	5/20/2017 006h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

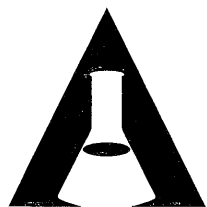
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-007
Client Sample ID: ELF-10
Collection Date: 5/9/2017 1255h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

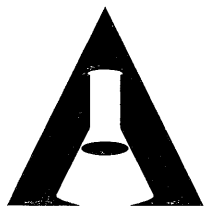
Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/10/2017 1243h	5/20/2017 009h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/10/2017 1243h	5/20/2017 009h	E200.8	0.00200	0.00217	
Barium	mg/L	5/10/2017 1243h	5/20/2017 009h	E200.8	0.00200	0.0486	
Beryllium	mg/L	5/10/2017 1243h	5/20/2017 009h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/10/2017 1243h	5/19/2017 1840h	E200.7	0.500	1.86	
Cadmium	mg/L	5/10/2017 1243h	5/20/2017 009h	E200.8	0.000500	0.000769	
Calcium	mg/L	5/10/2017 1243h	5/19/2017 1622h	E200.7	10.0	459	
Chromium	mg/L	5/10/2017 1243h	5/20/2017 009h	E200.8	0.00200	0.00841	
Cobalt	mg/L	5/10/2017 1243h	5/20/2017 009h	E200.8	0.00400	< 0.00400	
Lead	mg/L	5/10/2017 1243h	5/20/2017 009h	E200.8	0.00200	0.00233	
Lithium	mg/L	5/22/2017 1359h	5/23/2017 1303h	E200.7	0.100	1.61	
Magnesium	mg/L	5/10/2017 1243h	5/19/2017 1622h	E200.7	10.0	427	
Mercury	mg/L	5/15/2017 1500h	5/17/2017 923h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/10/2017 1243h	5/20/2017 009h	E200.8	0.00200	0.0957	
Selenium	mg/L	5/10/2017 1243h	5/20/2017 009h	E200.8	0.00200	0.0210	
Sodium	mg/L	5/10/2017 1243h	5/19/2017 1526h	E200.7	500	11,800	
Thallium	mg/L	5/10/2017 1243h	5/20/2017 009h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-008
Client Sample ID: ELF-9
Collection Date: 5/9/2017 1330h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/10/2017 1243h	5/20/2017 011h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/10/2017 1243h	5/20/2017 011h	E200.8	0.00200	0.00916	
Barium	mg/L	5/10/2017 1243h	5/20/2017 011h	E200.8	0.00200	0.0171	
Beryllium	mg/L	5/10/2017 1243h	5/20/2017 011h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/10/2017 1243h	5/19/2017 1624h	E200.7	0.500	1.43	
Cadmium	mg/L	5/10/2017 1243h	5/20/2017 011h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/10/2017 1243h	5/19/2017 1624h	E200.7	1.00	57.4	
Chromium	mg/L	5/10/2017 1243h	5/20/2017 011h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/10/2017 1243h	5/20/2017 011h	E200.8	0.00400	< 0.00400	
Lead	mg/L	5/10/2017 1243h	5/20/2017 011h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/22/2017 1359h	5/23/2017 1306h	E200.7	0.100	0.596	
Magnesium	mg/L	5/10/2017 1243h	5/19/2017 1624h	E200.7	1.00	33.0	
Mercury	mg/L	5/15/2017 1500h	5/17/2017 925h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/10/2017 1243h	5/20/2017 011h	E200.8	0.00200	0.152	
Selenium	mg/L	5/10/2017 1243h	5/20/2017 011h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	5/10/2017 1243h	5/19/2017 1528h	E200.7	100	4,160	
Thallium	mg/L	5/10/2017 1243h	5/20/2017 011h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

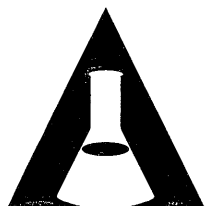
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-009
Client Sample ID: ELF-2
Collection Date: 5/9/2017 1400h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/10/2017 1243h	5/20/2017 014h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/10/2017 1243h	5/20/2017 014h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/10/2017 1243h	5/20/2017 014h	E200.8	0.00200	0.00945	
Beryllium	mg/L	5/10/2017 1243h	5/20/2017 014h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/10/2017 1243h	5/19/2017 1843h	E200.7	0.500	3.54	
Cadmium	mg/L	5/10/2017 1243h	5/20/2017 014h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/10/2017 1243h	5/19/2017 1627h	E200.7	10.0	378	
Chromium	mg/L	5/10/2017 1243h	5/20/2017 014h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/10/2017 1243h	5/20/2017 014h	E200.8	0.00400	< 0.00400	
Lead	mg/L	5/10/2017 1243h	5/20/2017 014h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/22/2017 1359h	5/23/2017 1308h	E200.7	0.100	1.33	
Magnesium	mg/L	5/10/2017 1243h	5/19/2017 1627h	E200.7	10.0	304	
Mercury	mg/L	5/15/2017 1500h	5/17/2017 927h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/10/2017 1243h	5/20/2017 014h	E200.8	0.00200	0.00272	
Selenium	mg/L	5/10/2017 1243h	5/20/2017 014h	E200.8	0.00200	0.239	
Sodium	mg/L	5/10/2017 1243h	5/19/2017 1530h	E200.7	100	3,060	
Thallium	mg/L	5/10/2017 1243h	5/20/2017 014h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

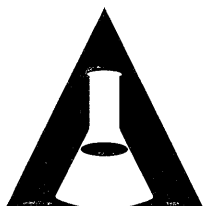
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-010
Client Sample ID: FB
Collection Date: 5/9/2017 1300h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	5/10/2017 1243h	5/20/2017 017h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	5/10/2017 1243h	5/20/2017 017h	E200.8	0.00200	< 0.00200	
Barium	mg/L	5/10/2017 1243h	5/20/2017 017h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	5/10/2017 1243h	5/20/2017 017h	E200.8	0.00200	< 0.00200	
Boron	mg/L	5/10/2017 1243h	5/19/2017 1532h	E200.7	0.500	< 0.500	
Cadmium	mg/L	5/10/2017 1243h	5/20/2017 017h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	5/10/2017 1243h	5/19/2017 1532h	E200.7	1.00	< 1.00	
Chromium	mg/L	5/10/2017 1243h	5/20/2017 017h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	5/10/2017 1243h	5/20/2017 017h	E200.8	0.00400	< 0.00400	
Lead	mg/L	5/10/2017 1243h	5/20/2017 017h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	5/22/2017 1359h	5/23/2017 1310h	E200.7	0.100	< 0.100	
Magnesium	mg/L	5/10/2017 1243h	5/19/2017 1532h	E200.7	1.00	< 1.00	
Mercury	mg/L	5/15/2017 1500h	5/17/2017 928h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	5/10/2017 1243h	5/20/2017 017h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	5/10/2017 1243h	5/20/2017 017h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	5/10/2017 1243h	5/19/2017 1532h	E200.7	1.00	< 1.00	
Thallium	mg/L	5/10/2017 1243h	5/20/2017 017h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

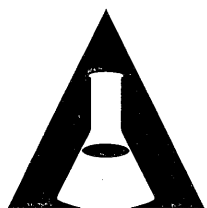
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-001
Client Sample ID: ELF-11
Collection Date: 5/9/2017 945h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	427	
Bicarbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	427	
Carbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/18/2017 1521h	E300.0	100	1,020	
Fluoride	mg/L		5/18/2017 2116h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		5/10/2017 1132h	E353.2	0.100	3.87	
pH @ 25° C	pH Units		5/10/2017 1732h	SM4500-H+B	1.00	7.31	H
Sulfate	mg/L		5/18/2017 1521h	E300.0	750	9,300	
Total Dissolved Solids	mg/L		5/11/2017 1100h	SM2540C	100	16,600	

H - Insufficient time remained after receipt to complete analysis within the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

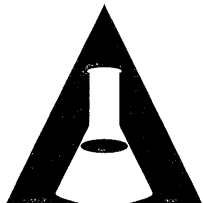
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-002
Client Sample ID: ELF-8
Collection Date: 5/9/2017 1020h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	86.6	
Bicarbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	86.6	
Carbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/18/2017 1612h	E300.0	100	1,890	
Fluoride	mg/L		5/18/2017 2133h	E300.0	0.100	1.31	
Nitrate/Nitrite (as N)	mg/L		5/10/2017 1137h	E353.2	0.0100	0.0252	
pH @ 25° C	pH Units		5/10/2017 1732h	SM4500-H+B	1.00	7.59	H
Sulfate	mg/L		5/18/2017 1612h	E300.0	750	2,930	
Total Dissolved Solids	mg/L		5/11/2017 1100h	SM2540C	100	8,440	

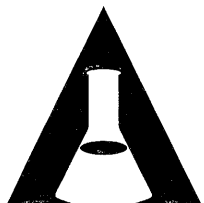
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-003
Client Sample ID: DUP
Collection Date: 5/9/2017 1030h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	84.0	
Bicarbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	84.0	
Carbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/18/2017 1629h	E300.0	100	1,890	
Fluoride	mg/L		5/18/2017 2150h	E300.0	0.100	1.13	
Nitrate/Nitrite (as N)	mg/L		5/10/2017 1138h	E353.2	0.0100	0.0257	
pH @ 25° C	pH Units		5/10/2017 1732h	SM4500-H+B	1.00	7.60	H
Sulfate	mg/L		5/18/2017 1629h	E300.0	750	2,920	
Total Dissolved Solids	mg/L		5/11/2017 1100h	SM2540C	100	8,100	

H - Insufficient time remained after receipt to complete analysis within the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

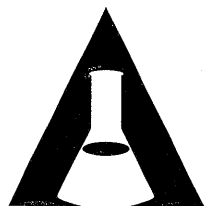
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-004
Client Sample ID: ELF-5
Collection Date: 5/9/2017 1110h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	606	
Bicarbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	606	
Carbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/18/2017 1646h	E300.0	100	4,410	
Fluoride	mg/L		5/18/2017 2207h	E300.0	0.100	6.01	
Nitrate/Nitrite (as N)	mg/L		5/10/2017 1150h	E353.2	0.100	19.4	
pH @ 25° C	pH Units		5/10/2017 1732h	SM4500-H+B	1.00	7.19	H
Sulfate	mg/L		5/18/2017 1646h	E300.0	750	11,400	
Total Dissolved Solids	mg/L		5/11/2017 1100h	SM2540C	500	28,800	

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

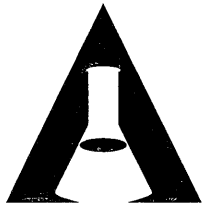
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-005
Client Sample ID: ELF-4
Collection Date: 5/9/2017 1145h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	343	
Bicarbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	343	
Carbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/18/2017 1702h	E300.0	100	1,990	
Fluoride	mg/L		5/18/2017 2224h	E300.0	0.100	3.24	
Nitrate/Nitrite (as N)	mg/L		5/10/2017 1151h	E353.2	0.100	11.6	
pH @ 25° C	pH Units		5/10/2017 1732h	SM4500-H+B	1.00	7.13	H
Sulfate	mg/L		5/18/2017 1702h	E300.0	750	5,170	
Total Dissolved Solids	mg/L		5/11/2017 1100h	SM2540C	100	11,700	

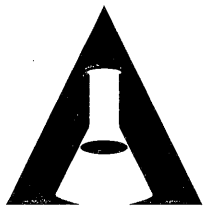
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Kyle F. Gross
Laboratory Director

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-006
Client Sample ID: ELF-7
Collection Date: 5/9/2017 1215h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	542	
Bicarbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	542	
Carbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/18/2017 1719h	E300.0	100	2,410	
Fluoride	mg/L		5/18/2017 2241h	E300.0	0.100	4.19	
Nitrate/Nitrite (as N)	mg/L		5/10/2017 1157h	E353.2	1.00	91.9	
pH @ 25° C	pH Units		5/10/2017 1732h	SM4500-H+B	1.00	7.07	H
Sulfate	mg/L		5/18/2017 1719h	E300.0	750	8,510	
Total Dissolved Solids	mg/L		5/11/2017 1100h	SM2540C	100	17,900	

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

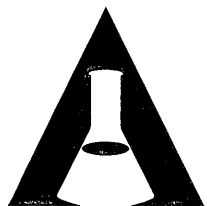
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-007
Client Sample ID: ELF-10
Collection Date: 5/9/2017 1255h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	1,170	
Bicarbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	1,170	
Carbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/18/2017 1810h	E300.0	200	6,310	
Fluoride	mg/L		5/18/2017 2258h	E300.0	0.100	4.08	
Nitrate/Nitrite (as N)	mg/L		5/10/2017 1153h	E353.2	0.100	6.98	
pH @ 25° C	pH Units		5/10/2017 1732h	SM4500-H+B	1.00	8.66	H
Sulfate	mg/L		5/18/2017 1810h	E300.0	1,500	16,200	
Total Dissolved Solids	mg/L		5/11/2017 1100h	SM2540C	100	39,100	

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

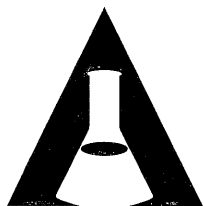
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-008
Client Sample ID: ELF-9
Collection Date: 5/9/2017 1330h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	578	
Bicarbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	578	
Carbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/18/2017 1900h	E300.0	10.0	420	
Fluoride	mg/L		5/18/2017 2314h	E300.0	0.100	1.34	
Nitrate/Nitrite (as N)	mg/L		5/10/2017 1156h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		5/10/2017 1732h	SM4500-H+B	1.00	8.08	H
Sulfate	mg/L		5/18/2017 1827h	E300.0	750	6,430	
Total Dissolved Solids	mg/L		5/11/2017 1100h	SM2540C	100	12,300	

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

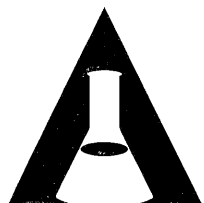
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LABORATORIES

INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-009
Client Sample ID: ELF-2
Collection Date: 5/9/2017 1400h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	430	
Bicarbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	430	
Carbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/18/2017 1917h	E300.0	10.0	348	
Fluoride	mg/L		5/18/2017 2331h	E300.0	0.100	0.188	
Nitrate/Nitrite (as N)	mg/L		5/10/2017 1144h	E353.2	0.100	9.75	
pH @ 25° C	pH Units		5/10/2017 1732h	SM4500-H+B	1.00	7.28	H
Sulfate	mg/L		5/18/2017 1843h	E300.0	750	7,400	
Total Dissolved Solids	mg/L		5/11/2017 1100h	SM2540C	100	12,300	

H - Insufficient time remained after receipt to complete analysis within the holding time.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

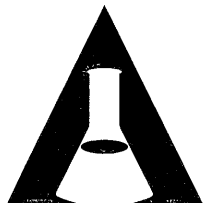
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1705243-010
Client Sample ID: FB
Collection Date: 5/9/2017 1300h
Received Date: 5/9/2017 1845h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		5/11/2017 939h	SM2320B	10.0	< 10.0	
Chloride	mg/L		5/18/2017 1934h	E300.0	0.100	< 0.100	
Fluoride	mg/L		5/18/2017 1934h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		5/10/2017 1145h	E353.2	0.0100	< 0.0100	
pH @ 25° C	pH Units		5/10/2017 1732h	SM4500-H+B	1.00	6.16	H
Sulfate	mg/L		5/18/2017 1934h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		5/11/2017 1100h	SM2540C	10.0	< 10.0	

H - Insufficient time remained after receipt to complete analysis within the holding time.

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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1705243
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-49037		Date Analyzed: 05/19/2017 1423h											
Test Code: 200.7-W		Date Prepared: 05/10/2017 1243h											
Boron	1.03	mg/L	E200.7	0.0139	0.500	1.000	0	103	85 - 115				
Calcium	9.47	mg/L	E200.7	0.0332	1.00	10.00	0	94.7	85 - 115				
Magnesium	9.76	mg/L	E200.7	0.0710	1.00	10.00	0	97.6	85 - 115				
Sodium	10.2	mg/L	E200.7	0.0311	1.00	10.00	0	102	85 - 115				
Lab Sample ID: LCS-49230		Date Analyzed: 05/23/2017 1158h											
Test Code: 200.7-W		Date Prepared: 05/22/2017 1359h											
Lithium	0.952	mg/L	E200.7	0.00194	0.100	1.000	0	95.2	80 - 120				
Lab Sample ID: LCS-49038		Date Analyzed: 05/19/2017 2252h											
Test Code: 200.8-W		Date Prepared: 05/10/2017 1243h											
Antimony	0.191	mg/L	E200.8	0.000416	0.00200	0.2000	0	95.5	85 - 115				
Arsenic	0.195	mg/L	E200.8	0.000177	0.00200	0.2000	0	97.6	85 - 115				
Barium	0.190	mg/L	E200.8	0.000228	0.00200	0.2000	0	95.2	85 - 115				
Beryllium	0.216	mg/L	E200.8	0.0000318	0.00200	0.2000	0	108	85 - 115				
Cadmium	0.195	mg/L	E200.8	0.000226	0.000500	0.2000	0	97.7	85 - 115				
Chromium	0.198	mg/L	E200.8	0.000210	0.00200	0.2000	0	98.9	85 - 115				
Cobalt	0.190	mg/L	E200.8	0.0000336	0.00400	0.2000	0	95.2	85 - 115				
Lead	0.194	mg/L	E200.8	0.000308	0.00200	0.2000	0	97.0	85 - 115				
Molybdenum	0.197	mg/L	E200.8	0.000692	0.00200	0.2000	0	98.6	85 - 115				
Selenium	0.199	mg/L	E200.8	0.000176	0.00200	0.2000	0	99.3	85 - 115				
Thallium	0.194	mg/L	E200.8	0.000462	0.00200	0.2000	0	96.8	85 - 115				
Lab Sample ID: LCS-49116		Date Analyzed: 05/17/2017 900h											
Test Code: HG-DW-245.1		Date Prepared: 05/15/2017 1500h											
Mercury	0.00336	mg/L	E245.1	0.00000511	0.000150	0.003330	0	101	85 - 115				



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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1705243
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-49037		Date Analyzed:	05/19/2017 1420h										
Test Code: 200.7-W		Date Prepared:	05/10/2017 1243h										
Boron	< 0.500	mg/L	E200.7	0.0139	0.500								
Calcium	< 1.00	mg/L	E200.7	0.0332	1.00								
Magnesium	< 1.00	mg/L	E200.7	0.0710	1.00								
Sodium	< 1.00	mg/L	E200.7	0.0311	1.00								
Lab Sample ID: MB-49230		Date Analyzed:	05/23/2017 1156h										
Test Code: 200.7-W		Date Prepared:	05/22/2017 1359h										
Lithium	< 0.100	mg/L	E200.7	0.00194	0.100								
Lab Sample ID: MB-49038		Date Analyzed:	05/19/2017 2249h										
Test Code: 200.8-W		Date Prepared:	05/10/2017 1243h										
Antimony	< 0.00200	mg/L	E200.8	0.000416	0.00200								
Arsenic	< 0.00200	mg/L	E200.8	0.000177	0.00200								
Barium	< 0.00200	mg/L	E200.8	0.000228	0.00200								
Beryllium	< 0.00200	mg/L	E200.8	0.0000318	0.00200								
Cadmium	< 0.000500	mg/L	E200.8	0.000226	0.000500								
Chromium	< 0.00200	mg/L	E200.8	0.000210	0.00200								
Cobalt	< 0.00400	mg/L	E200.8	0.0000336	0.00400								
Lead	< 0.00200	mg/L	E200.8	0.000308	0.00200								
Molybdenum	< 0.00200	mg/L	E200.8	0.000692	0.00200								
Selenium	< 0.00200	mg/L	E200.8	0.000176	0.00200								
Thallium	< 0.00200	mg/L	E200.8	0.000462	0.00200								
Lab Sample ID: MB-49116		Date Analyzed:	05/17/2017 858h										
Test Code: HG-DW-245.1		Date Prepared:	05/15/2017 1500h										
Mercury	< 0.000150	mg/L	E245.1	0.00000511	0.000150								



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1705243
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1705242-001CMS		Date Analyzed:	05/19/2017 1428h										
Test Code: 200.7-W		Date Prepared:	05/10/2017 1243h										
Calcium	593	mg/L	E200.7	1.66	50.0	10.00	548	453	70 - 130				2
Magnesium	807	mg/L	E200.7	3.55	50.0	10.00	744	629	70 - 130				2
Sodium	1,540	mg/L	E200.7	1.56	50.0	10.00	1430	1,030	70 - 130				2
Lab Sample ID: 1705243-001CMS		Date Analyzed:	05/19/2017 1501h										
Test Code: 200.7-W		Date Prepared:	05/10/2017 1243h										
Sodium	4,500	mg/L	E200.7	3.11	100	10.00	4750	-2,460	70 - 130				2
Lab Sample ID: 1705243-001CMS		Date Analyzed:	05/19/2017 1605h										
Test Code: 200.7-W		Date Prepared:	05/10/2017 1243h										
Calcium	402	mg/L	E200.7	0.332	10.0	10.00	396	65.5	70 - 130				2
Magnesium	363	mg/L	E200.7	0.710	10.0	10.00	347	158	70 - 130				2
Lab Sample ID: 1705242-001CMS		Date Analyzed:	05/19/2017 1749h										
Test Code: 200.7-W		Date Prepared:	05/10/2017 1243h										
Boron	54.3	mg/L	E200.7	0.0695	2.50	1.000	53.6	74.6	70 - 130				
Lab Sample ID: 1705243-001CMS		Date Analyzed:	05/19/2017 1830h										
Test Code: 200.7-W		Date Prepared:	05/10/2017 1243h										
Boron	19.7	mg/L	E200.7	0.0139	0.500	1.000	18.5	120	70 - 130				
Lab Sample ID: 1705242-001CMS		Date Analyzed:	05/23/2017 1211h										
Test Code: 200.7-W		Date Prepared:	05/22/2017 1359h										
Lithium	1.73	mg/L	E200.7	0.00194	0.100	1.000	0.812	91.9	75 - 125				
Lab Sample ID: 1705243-001CMS		Date Analyzed:	05/23/2017 1240h										
Test Code: 200.7-W		Date Prepared:	05/22/2017 1359h										
Lithium	3.92	mg/L	E200.7	0.00194	0.100	1.000	2.98	94.1	75 - 125				

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Kyle F. Gross
Laboratory Director

Jose Rocha
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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1705243
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1705242-001CMS													
Test Code: 200.8-W		Date Analyzed: 05/19/2017 2303h		Date Prepared: 05/10/2017 1243h									
Antimony	0.205	mg/L	E200.8	0.000416	0.00200	0.2000	0.000644	102	75 - 125				
Arsenic	0.226	mg/L	E200.8	0.000177	0.00200	0.2000	0.000945	113	75 - 125				
Barium	0.230	mg/L	E200.8	0.000228	0.00200	0.2000	0.033	98.7	75 - 125				
Beryllium	0.213	mg/L	E200.8	0.0000318	0.00200	0.2000	0.000076	107	75 - 125				
Cadmium	0.200	mg/L	E200.8	0.000226	0.000500	0.2000	0.000606	99.9	75 - 125				
Chromium	0.204	mg/L	E200.8	0.000210	0.00200	0.2000	0.00365	100	75 - 125				
Cobalt	0.197	mg/L	E200.8	0.0000336	0.00400	0.2000	0.00991	93.6	75 - 125				
Lead	0.194	mg/L	E200.8	0.000308	0.00200	0.2000	0.00166	96.3	75 - 125				
Molybdenum	0.250	mg/L	E200.8	0.000692	0.00200	0.2000	0.03	110	75 - 125				
Selenium	0.228	mg/L	E200.8	0.000176	0.00200	0.2000	0.00748	110	75 - 125				
Thallium	0.187	mg/L	E200.8	0.000462	0.00200	0.2000	0	93.6	75 - 125				
Lab Sample ID: 1705243-001CMS													
Test Code: 200.8-W		Date Analyzed: 05/19/2017 2340h		Date Prepared: 05/10/2017 1243h									
Antimony	0.206	mg/L	E200.8	0.000416	0.00200	0.2000	0	103	75 - 125				
Arsenic	0.238	mg/L	E200.8	0.000177	0.00200	0.2000	0.000823	118	75 - 125				
Barium	0.221	mg/L	E200.8	0.000228	0.00200	0.2000	0.0194	101	75 - 125				
Beryllium	0.206	mg/L	E200.8	0.0000318	0.00200	0.2000	0	103	75 - 125				
Cadmium	0.200	mg/L	E200.8	0.000226	0.000500	0.2000	0.000287	99.9	75 - 125				
Chromium	0.200	mg/L	E200.8	0.000210	0.00200	0.2000	0.00115	99.3	75 - 125				
Cobalt	0.199	mg/L	E200.8	0.0000336	0.00400	0.2000	0.013	93.2	75 - 125				
Lead	0.191	mg/L	E200.8	0.000308	0.00200	0.2000	0.00066	95.1	75 - 125				
Molybdenum	0.246	mg/L	E200.8	0.000692	0.00200	0.2000	0.0224	112	75 - 125				
Selenium	0.254	mg/L	E200.8	0.000176	0.00200	0.2000	0.0266	114	75 - 125				
Thallium	0.184	mg/L	E200.8	0.000462	0.00200	0.2000	0	92.0	75 - 125				



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Kyle F. Gross
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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1705243

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1705243-001CMS	Date Analyzed:	05/17/2017 907h											
Test Code: HG-DW-245.1	Date Prepared:	05/15/2017 1500h											
Mercury	0.00280	mg/L	E245.1	0.00000511	0.000150	0.003330	0	84.1	80 - 120				

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1705243
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1705242-001CMSD Test Code: 200.7-W													
Date Analyzed: 05/19/2017 1434h		Date Prepared: 05/10/2017 1243h											
Calcium	553	mg/L	E200.7	1.66	50.0	10.00	548	47.1	70 - 130	593	7.08	20	²
Magnesium	738	mg/L	E200.7	3.55	50.0	10.00	744	-59.8	70 - 130	807	8.92	20	²
Sodium	1,430	mg/L	E200.7	1.56	50.0	10.00	1430	-16.9	70 - 130	1540	7.06	20	²
Lab Sample ID: 1705243-001CMSD Test Code: 200.7-W													
Date Analyzed: 05/19/2017 1503h		Date Prepared: 05/10/2017 1243h											
Sodium	4,820	mg/L	E200.7	3.11	100	10.00	4750	657	70 - 130	4500	6.69	20	²
Lab Sample ID: 1705243-001CMSD Test Code: 200.7-W													
Date Analyzed: 05/19/2017 1603h		Date Prepared: 05/10/2017 1243h											
Calcium	402	mg/L	E200.7	0.332	10.0	10.00	396	63.7	70 - 130	402	0.0460	20	²
Magnesium	353	mg/L	E200.7	0.710	10.0	10.00	347	61.2	70 - 130	363	2.71	20	²
Lab Sample ID: 1705242-001CMSD Test Code: 200.7-W													
Date Analyzed: 05/19/2017 1751h		Date Prepared: 05/10/2017 1243h											
Boron	53.5	mg/L	E200.7	0.0695	2.50	1.000	53.6	-4.36	70 - 130	54.3	1.46	20	²
Lab Sample ID: 1705243-001CMSD Test Code: 200.7-W													
Date Analyzed: 05/19/2017 1828h		Date Prepared: 05/10/2017 1243h											
Boron	19.3	mg/L	E200.7	0.0139	0.500	1.000	18.5	82.7	70 - 130	19.7	1.93	20	
Lab Sample ID: 1705242-001CMSD Test Code: 200.7-W													
Date Analyzed: 05/23/2017 1209h		Date Prepared: 05/22/2017 1359h											
Lithium	1.78	mg/L	E200.7	0.00194	0.100	1.000	0.812	97.1	75 - 125	1.73	2.94	20	
Lab Sample ID: 1705243-001CMSD Test Code: 200.7-W													
Date Analyzed: 05/23/2017 1243h		Date Prepared: 05/22/2017 1359h											
Lithium	3.96	mg/L	E200.7	0.00194	0.100	1.000	2.98	98.2	75 - 125	3.92	1.05	20	

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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1705243
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1705242-001CMSD													
Test Code: 200.8-W		Date Analyzed: 05/19/2017 2306h		Date Prepared: 05/10/2017 1243h									
Antimony	0.203	mg/L	E200.8	0.000416	0.00200	0.2000	0.000644	101	75 - 125	0.205	1.23	20	
Arsenic	0.219	mg/L	E200.8	0.000177	0.00200	0.2000	0.000945	109	75 - 125	0.226	3.46	20	
Barium	0.224	mg/L	E200.8	0.000228	0.00200	0.2000	0.033	95.5	75 - 125	0.23	2.78	20	
Beryllium	0.210	mg/L	E200.8	0.0000318	0.00200	0.2000	0.000076	105	75 - 125	0.213	1.68	20	
Cadmium	0.199	mg/L	E200.8	0.000226	0.000500	0.2000	0.000606	99.3	75 - 125	0.2	0.621	20	
Chromium	0.197	mg/L	E200.8	0.000210	0.00200	0.2000	0.00365	96.9	75 - 125	0.204	3.19	20	
Cobalt	0.192	mg/L	E200.8	0.0000336	0.00400	0.2000	0.00991	91.2	75 - 125	0.197	2.47	20	
Lead	0.188	mg/L	E200.8	0.000308	0.00200	0.2000	0.00166	93.4	75 - 125	0.194	3.01	20	
Molybdenum	0.246	mg/L	E200.8	0.000692	0.00200	0.2000	0.03	108	75 - 125	0.25	1.88	20	
Selenium	0.222	mg/L	E200.8	0.000176	0.00200	0.2000	0.00748	107	75 - 125	0.228	2.64	20	
Thallium	0.182	mg/L	E200.8	0.000462	0.00200	0.2000	0	91.0	75 - 125	0.187	2.91	20	
Lab Sample ID: 1705243-001CMSD													
Test Code: 200.8-W		Date Analyzed: 05/19/2017 2343h		Date Prepared: 05/10/2017 1243h									
Antimony	0.200	mg/L	E200.8	0.000416	0.00200	0.2000	0	99.9	75 - 125	0.206	3.07	20	
Arsenic	0.228	mg/L	E200.8	0.000177	0.00200	0.2000	0.000823	114	75 - 125	0.238	4.10	20	
Barium	0.214	mg/L	E200.8	0.000228	0.00200	0.2000	0.0194	97.2	75 - 125	0.221	3.08	20	
Beryllium	0.195	mg/L	E200.8	0.0000318	0.00200	0.2000	0	97.6	75 - 125	0.206	5.43	20	
Cadmium	0.194	mg/L	E200.8	0.000226	0.000500	0.2000	0.000287	96.8	75 - 125	0.2	3.17	20	
Chromium	0.191	mg/L	E200.8	0.000210	0.00200	0.2000	0.00115	94.7	75 - 125	0.2	4.69	20	
Cobalt	0.192	mg/L	E200.8	0.0000336	0.00400	0.2000	0.013	89.4	75 - 125	0.199	3.80	20	
Lead	0.185	mg/L	E200.8	0.000308	0.00200	0.2000	0.00066	91.9	75 - 125	0.191	3.42	20	
Molybdenum	0.240	mg/L	E200.8	0.000692	0.00200	0.2000	0.0224	109	75 - 125	0.246	2.43	20	
Thallium	0.178	mg/L	E200.8	0.000462	0.00200	0.2000	0	88.8	75 - 125	0.184	3.47	20	

Report Date: 5/26/2017 Page 28 of 34



AMERICAN WEST ANALYTICAL LABORATORIES
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1705243

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1705243-001CMSD	Date Analyzed:	05/20/2017	1538h										
Test Code: 200.8-W	Date Prepared:	05/10/2017	1243h										
Selenium	0.237	mg/L	E200.8	0.000176	0.00200	0.2000	0.0266	105	75 - 125	0.254	7.01	20	
Lab Sample ID: 1705243-001CMSD	Date Analyzed:	05/17/2017	909h										
Test Code: HG-DW-245.1	Date Prepared:	05/15/2017	1500h										
Mercury	0.00282	mg/L	E245.1	0.00000511	0.000150	0.003330	0	84.8	80 - 120	0.0028	0.830	20	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1705243
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1705243-001ADUP Date Analyzed: 05/10/2017 1732h													
Test Code: PH-4500H+B													
pH @ 25° C	7.32	pH Units	SM4500-H+B	1.00	1.00					7.31	0.137	5	H
Lab Sample ID: 1705242-001ADUP Date Analyzed: 05/11/2017 1100h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	9,440	mg/L	SM2540C	78.7	100					9860	4.35	5	
Lab Sample ID: 1705243-001ADUP Date Analyzed: 05/11/2017 1100h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	17,200	mg/L	SM2540C	78.7	100					16600	3.67	5	

H - Insufficient time remained after receipt to complete analysis within the holding time.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1705243

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-R101600 Date Analyzed: 05/18/2017 1142h													
Test Code: 300.0-W													
Chloride	5.11	mg/L	E300.0	0.0127	0.100	5.000	0	102	90 - 110				
Fluoride	4.96	mg/L	E300.0	0.0174	0.100	5.000	0	99.1	90 - 110				
Sulfate	5.08	mg/L	E300.0	0.0327	0.750	5.000	0	102	90 - 110				
Lab Sample ID: LCS-R101300 Date Analyzed: 05/11/2017 939h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	249	mg/L	SM2320B	2.14	10.0	250.0	0	99.8	90 - 110				
Lab Sample ID: LCS-R101239 Date Analyzed: 05/10/2017 1118h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	0.945	mg/L	E353.2	0.00833	0.0100	1.000	0	94.5	90 - 110				
Lab Sample ID: LCS-R101281 Date Analyzed: 05/10/2017 1732h													
Test Code: PH-4500H+B													
pH @ 25° C	9.18	pH Units	SM4500-H+B	1.00	1.00	9.000	0	102	98 - 102				
Lab Sample ID: LCS-R101356 Date Analyzed: 05/11/2017 1100h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	190	mg/L	SM2540C	7.87	10.0	205.0	0	92.7	80 - 120				



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1705243

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-R101600 Date Analyzed: 05/18/2017 1125h													
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.0127	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.0174	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0327	0.750								
Lab Sample ID: MB-R101300 Date Analyzed: 05/11/2017 939h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	< 10.0	mg/L	SM2320B	2.14	10.0								
Bicarbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	2.14	10.0								
Carbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	2.14	10.0								
Lab Sample ID: MB-R101239 Date Analyzed: 05/10/2017 1117h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID: MB-R101356 Date Analyzed: 05/11/2017 1100h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	7.87	10.0								



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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1705243
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1705243-001AMS Date Analyzed: 05/18/2017 1538h													
Test Code: 300.0-W													
Chloride	11,300	mg/L	E300.0	25.4	200	10,000	1020	103	90 - 110				
Fluoride	9,880	mg/L	E300.0	34.8	200	10,000	0	98.8	90 - 110				
Sulfate	19,400	mg/L	E300.0	65.4	1,500	10,000	9300	101	90 - 110				
Lab Sample ID: 1705243-001AMS Date Analyzed: 05/11/2017 939h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	623	mg/L	SM2320B	2.14	10.0	200.0	427	98.0	80 - 120				
Lab Sample ID: 1705242-001BMS Date Analyzed: 05/10/2017 1122h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	8.03	mg/L	E353.2	0.0417	0.0500	5.000	3.11	98.4	90 - 110				
Lab Sample ID: 1705243-001BMS Date Analyzed: 05/10/2017 1133h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	14.4	mg/L	E353.2	0.0833	0.100	10.00	3.87	106	90 - 110				



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QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1705243

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1705243-001AMSD Date Analyzed: 05/18/2017 1555h													
Test Code: 300.0-W													
Chloride	11,100	mg/L	E300.0	25.4	200	10,000	1020	100	90 - 110	11300	1.97	20	
Fluoride	9,700	mg/L	E300.0	34.8	200	10,000	0	97.0	90 - 110	9880	1.85	20	
Sulfate	19,100	mg/L	E300.0	65.4	1,500	10,000	9300	98.2	90 - 110	19400	1.24	20	
Lab Sample ID: 1705243-001AMSD Date Analyzed: 05/11/2017 939h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	620	mg/L	SM2320B	2.14	10.0	200.0	427	96.2	80 - 120	623	0.563	10	
Lab Sample ID: 1705242-001BMSD Date Analyzed: 05/10/2017 1125h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	8.29	mg/L	E353.2	0.0417	0.0500	5.000	3.11	104	90 - 110	8.03	3.24	10	
Lab Sample ID: 1705243-001BMSD Date Analyzed: 05/10/2017 1136h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	14.0	mg/L	E353.2	0.0833	0.100	10.00	3.87	101	90 - 110	14.4	3.31	10	

American West Analytical Laboratories

Rpt Emailed:

HC

OL:

GenericEDD QC

WORK ORDER Summary

Work Order: **1705243**

Page 1 of 5

Client: PacifiCorp

Client ID: PAC900

Contact: Jeff Tucker

Due Date: 5/23/2017

Project: Hunter CCR Sampling / PERCM52

QC Level: II+

WO Type: Project

Comments: QC2+. Include EDD. RADS sent to ACZ. Footnote report, not enough time to run pH within hold time. Cc: Report to mshirley@waterenvtech.com, Laura Watson and Dave Erickson.;

DB

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1705243-001A	ELF-11	5/9/2017 0945h	5/9/2017 1845h	300.0-W	Aqueous	df - wc	1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B		df - wc	
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B		df - wc	
				TDS-W-2540C		df - wc	
1705243-001B				NO2/NO3-W-353.2		df - no2/no3	
1705243-001C				200.7-W		df - metals	
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR		df - metals	
				200.8-W		df - metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR		df - metals	
				HG-DW-245.1		df - metals	
				HG-DW-PR		df - metals	
1705243-001D				OUTSIDE LAB		ACZ	2
1705243-002A	ELF-8	5/9/2017 1020h	5/9/2017 1845h	300.0-W	Aqueous	df - wc	1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B		df - wc	
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B		df - wc	
				TDS-W-2540C		df - wc	
1705243-002B				NO2/NO3-W-353.2		df - no2/no3	
1705243-002C				200.7-W		df - metals	
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR		df - metals	
				200.8-W		df - metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR		df - metals	
				HG-DW-245.1		df - metals	
				HG-DW-PR		df - metals	

WORK ORDER Summary

Work Order: **1705243**

Page 2 of 5

Client: PacifiCorp

Due Date: 5/23/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1705243-002D	ELF-8	5/9/2017 1020h	5/9/2017 1845h	OUTSIDE LAB	Aqueous		ACZ	2
1705243-003A	DUP	5/9/2017 1030h	5/9/2017 1845h	300.0-W	Aqueous		df - wc	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			df - wc	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			df - wc	
				TDS-W-2540C			df - wc	
1705243-003B				NO2/NO3-W-353.2			df - no2/no3	
1705243-003C				200.7-W			df - metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			df - metals	
				200.8-W			df - metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			df - metals	
				HG-DW-245.1			df - metals	
				HG-DW-PR			df - metals	
1705243-003D				OUTSIDE LAB			ACZ	2
1705243-004A	ELF-5	5/9/2017 1110h	5/9/2017 1845h	300.0-W	Aqueous		df - wc	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			df - wc	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			df - wc	
				TDS-W-2540C			df - wc	
1705243-004B				NO2/NO3-W-353.2			df - no2/no3	
1705243-004C				200.7-W			df - metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			df - metals	
				200.8-W			df - metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			df - metals	
				HG-DW-245.1			df - metals	
				HG-DW-PR			df - metals	
1705243-004D				OUTSIDE LAB			ACZ	2
1705243-005A	ELF-4	5/9/2017 1145h	5/9/2017 1845h	300.0-W	Aqueous		df - wc	1
				3 SEL Analytes: CL F SO4				

WORK ORDER Summary

Work Order: **1705243**

Page 3 of 5

Client: PacifiCorp

Due Date: 5/23/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1705243-005A	ELF-4	5/9/2017 1145h	5/9/2017 1845h	ALK-W-2320B	Aqueous		df - wc	1
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			df - wc	
				TDS-W-2540C			df - wc	
1705243-005B				NO2/NO3-W-353.2			df - no2/no3	
1705243-005C				200.7-W			df - metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			df - metals	
				200.8-W			df - metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			df - metals	
				HG-DW-245.1			df - metals	
				HG-DW-PR			df - metals	
1705243-005D				OUTSIDE LAB			ACZ	2
1705243-006A	ELF-7	5/9/2017 1215h	5/9/2017 1845h	300.0-W	Aqueous		df - wc	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			df - wc	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			df - wc	
				TDS-W-2540C			df - wc	
1705243-006B				NO2/NO3-W-353.2			df - no2/no3	
1705243-006C				200.7-W			df - metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			df - metals	
				200.8-W			df - metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			df - metals	
				HG-DW-245.1			df - metals	
				HG-DW-PR			df - metals	
1705243-006D				OUTSIDE LAB			ACZ	2
1705243-007A	ELF-10	5/9/2017 1255h	5/9/2017 1845h	300.0-W	Aqueous		df - wc	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			df - wc	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			df - wc	
				TDS-W-2540C			df - wc	
1705243-007B				NO2/NO3-W-353.2			df - no2/no3	

WORK ORDER Summary

Work Order: **1705243**

Page 4 of 5

Client: PacifiCorp

Due Date: 5/23/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1705243-007C	ELF-10	5/9/2017 1255h	5/9/2017 1845h	200.7-W 5 SEL Analytes: B CA LI MG NA	Aqueous	df - metals	1
				200.7-W-PR		df - metals	
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL		df - metals	
				200.8-W-PR		df - metals	
				HG-DW-245.1		df - metals	
				HG-DW-PR		df - metals	
1705243-007D				OUTSIDE LAB		ACZ	2
1705243-008A	ELF-9	5/9/2017 1330h	5/9/2017 1845h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous	df - wc	1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC		df - wc	
				PH-4500H+B		df - wc	
				TDS-W-2540C		df - wc	
1705243-008B				NO2/NO3-W-353.2		df - no2/no3	
1705243-008C				200.7-W 5 SEL Analytes: B CA LI MG NA		df - metals	
				200.7-W-PR		df - metals	
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL		df - metals	
				200.8-W-PR		df - metals	
				HG-DW-245.1		df - metals	
				HG-DW-PR		df - metals	
1705243-008D				OUTSIDE LAB		ACZ	2
1705243-009A	ELF-2	5/9/2017 1400h	5/9/2017 1845h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous	df - wc	1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC		df - wc	
				PH-4500H+B		df - wc	
				TDS-W-2540C		df - wc	
1705243-009B				NO2/NO3-W-353.2		df - no2/no3	
1705243-009C				200.7-W 5 SEL Analytes: B CA LI MG NA		df - metals	
				200.7-W-PR		df - metals	
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL		df - metals	

WORK ORDER SummaryWork Order: **1705243**

Page 5 of 5

Client: PacifiCorp

Due Date: 5/23/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1705243-009C	ELF-2	5/9/2017 1400h	5/9/2017 1845h	200.8-W-PR	Aqueous	df - metals	1
				HG-DW-245.1		df - metals	
				HG-DW-PR		df - metals	
1705243-009D				OUTSIDE LAB		ACZ	2
1705243-010A	FB	5/9/2017 1300h	5/9/2017 1845h	300.0-W	Aqueous	df - wc	1
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B		df - wc	
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B		df - wc	
				TDS-W-2540C		df - wc	
1705243-010B				NO2/NO3-W-353.2		df - no2/no3	
1705243-010C				200.7-W		df - metals	
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR		df - metals	
				200.8-W		df - metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR		df - metals	
				HG-DW-245.1		df - metals	
				HG-DW-PR		df - metals	
1705243-010D				OUTSIDE LAB		ACZ	2



1705243

AWAL LAB SAMPLE SET #

PAGE OF

QC Level:		Turn Around Time:		Due Date:										
1	2	2+	3	3+	1	2	3	4	5	Std	Unless other arrangements have been made, signed reports will be emailed by 5:00 PM on the day they are due.		5/23/17	
# OF CONTAINERS	SAMPLE MATRIX	TDS, pH, Alkalinity	Anions	Fluoride	Total Metals	Total Mercury	Nitrogen, Nitrite + Nitrate	Radium 226 + Radium 228						
5	W	X	X	X	X	X	X	X						
5	W	X	X	X	X	X	X	X						
5	W	X	X	X	X	X	X	X						
5	W	X	X	X	X	X	X	X						
5	W	X	X	X	X	X	X	X						
5	W	X	X	X	X	X	X	X						
5	W	X	X	X	X	X	X	X						
5	W	X	X	X	X	X	X	X						
5	W	X	X	X	X	X	X	X						
5	W	X	X	X	X	X	X	X						
5	W	X	X	X	X	X	X	X						
5	W	X	X	X	X	X	X	X						
5	W	X	X	X	X	X	X	X						

LABORATORY USE ONLY

SAMPLES WERE:

- SHIPPED OR HAND DELIVERED
- AMBIENT OR CHILLED
- TEMPERATURE 16.0 °C
- RECEIVED BROKEN/LEAKING (IMPROPERLY SEALED)
Y N
- PROPERLY PRESERVED
Y N CHECKED AT BENCH
- RECEIVED WITHIN HOLDING TIMES
Y N

COC TAP WAS:

- PRESENT ON OUTER PACKAGING
Y N NA
- UNBROKEN ON OUTER PACKAGE
Y N NA
- PRESENT ON SAMPLE
Y N NA
- UNBROKEN ON SAMPLE
Y N NA

DISCREPANCIES BETWEEN SAMPLE LABELS AND COC RECORD:
Y N

RELINQUISHED BY:		RECEIVED BY:		SPECIAL INSTRUCTIONS:
SIGNATURE	DATE:	SIGNATURE	DATE:	
<i>[Signature]</i> Laura Watson	5/9/17 1845	<i>[Signature]</i> Denise Bruun	5/9/17 1845	
PRINT NAME:	TIME:	PRINT NAME:	TIME:	
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:	
SIGNATURE	TIME:	SIGNATURE	TIME:	
PRINT NAME:	TIME:	PRINT NAME:	TIME:	
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:	
SIGNATURE	TIME:	SIGNATURE	TIME:	
PRINT NAME:	TIME:	PRINT NAME:	TIME:	
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:	
SIGNATURE	TIME:	SIGNATURE	TIME:	
PRINT NAME:	TIME:	PRINT NAME:	TIME:	

Lab Set ID: 1705243
pH Lot #: 5237

Preservation Check Sheet

Sample Set Extension and pH

[illegible]

Procedure:

- 1) Pour a small amount of sample in the sample lid
- 2) Pour sample from lid gently over wide range pH paper
- 3) **Do Not** dip the pH paper in the sample bottle or lid
- 4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
- 5) Flag COC, notify client if requested
- 6) Place client conversation on COC
- 7) Samples may be adjusted

Frequency:

All samples requiring preservation

- * The sample required additional preservative upon receipt.
- + The sample was received unpreserved.
- ▲ The sample was received unpreserved and therefore preserved upon receipt.
- # The sample pH was unadjustable to a pH < 2 due to the sample matrix.
- The sample pH was unadjustable to a pH > ____ due to the sample matrix interference.

June 19, 2017

Report to:

Elona Hayward
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

Bill to:

Lynn Turner
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

cc: Denise Bruun

Project ID: 1705243

ACZ Project ID: L37107

Elona Hayward:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on May 12, 2017. This project has been assigned to ACZ's project number, L37107. Please reference this number in all future inquiries.

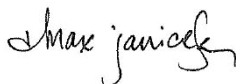
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L37107. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after July 19, 2017. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.



Max Janicek has reviewed and
approved this report.



American West Analytical Labs

Project ID: 1705243

Sample ID: ELF-11

Locator:

ACZ Sample ID: **L37107-01**

Date Sampled: 05/09/17 9:45

Date Received: 05/12/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	06/15/17 0:02		0.38	0.1	0.21	pCi/L	*	tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	06/10/17 12:35		1	0.87	0.86	pCi/L	*	jjo

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1705243

Sample ID: ELF-8

Locator:

ACZ Sample ID: **L37107-02**

Date Sampled: 05/09/17 10:20

Date Received: 05/12/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	06/15/17 0:04		0.63	0.1	0.06	pCi/L	*	tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	06/10/17 12:35		3.4	1.1	0.89	pCi/L		jjo

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1705243

Sample ID: DUP

Locator:

ACZ Sample ID: **L37107-03**

Date Sampled: 05/09/17 10:30

Date Received: 05/12/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	06/15/17 0:05		0.47	0.1	0.07	pCi/L	*	tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	06/10/17 12:35		2	0.99	0.91	pCi/L		jjo

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1705243

Sample ID: ELF-5

Locator:

ACZ Sample ID: **L37107-04**

Date Sampled: 05/09/17 11:10

Date Received: 05/12/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	06/15/17 0:07		0.66	0.1	0.04	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	06/10/17 12:35		2.4	0.96	0.84	pCi/L	*	jjo

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1705243

Sample ID: ELF-4

Locator:

ACZ Sample ID: **L37107-05**

Date Sampled: 05/09/17 11:45

Date Received: 05/12/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	06/15/17 0:08		0.27	0.1	0.05	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	06/10/17 12:35		1.6	0.94	0.89	pCi/L	*	jjo

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1705243

Sample ID: ELF-7

Locator:

ACZ Sample ID: **L37107-06**

Date Sampled: 05/09/17 12:15

Date Received: 05/12/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	06/15/17 0:10		0.66	0.11	0.06	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	06/10/17 14:11		0.11	0.93	0.99	pCi/L	*	jjo

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1705243

Sample ID: ELF-10

Locator:

ACZ Sample ID: **L37107-07**

Date Sampled: 05/09/17 12:55

Date Received: 05/12/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	06/15/17 0:11		0.75	0.2	0.17	pCi/L	*	tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	06/10/17 14:11		1.6	0.97	0.92	pCi/L	*	jjo

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1705243

Sample ID: ELF-9

Locator:

ACZ Sample ID: **L37107-08**

Date Sampled: 05/09/17 13:30

Date Received: 05/12/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	06/15/17 0:12		0.31	0.09	0.1	pCi/L	*	tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	06/10/17 14:11		0.66	0.62	0.62	pCi/L		jjo

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1705243

Sample ID: ELF-2

Locator:

ACZ Sample ID: **L37107-09**

Date Sampled: 05/09/17 14:00

Date Received: 05/12/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	06/15/17 0:14		0.17	0.1	0.13	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	06/10/17 14:11		0.06	0.83	0.9	pCi/L	*	jjo

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1705243

Sample ID: FB

Locator:

ACZ Sample ID: **L37107-10**

Date Sampled: 05/09/17 13:00

Date Received: 05/12/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	06/15/17 0:15		0.07	0.11	0.08	pCi/L	*	tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	06/10/17 14:11		-0.22	0.64	0.71	pCi/L		jjo

Arizona license number: AZ0102

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

American West Analytical Labs

ACZ Project ID: **L37107**

Radium 226

M903.1

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG424918																
WG424055PBW	PBW	06/15/17						.1	0.1	0.31			0.62			
WG424055LCSW	LCSW	06/15/17	PCN52690	20				18	0.49	0.13	90	43	148			
L37107-05DUP	DUP-RER	06/15/17			0.27	0.1	0.05	.94	0.37	0.5				1.75	2	
L37107-06DUP	DUP-RER	06/15/17			0.66	0.11	0.06	.84	0.44	0.29				0.4	2	
L37107-09MS	MS	06/15/17	PCN52690	100	0.17	0.1	0.13	98	2.4	0.21	98	43	148			

Radium 228

M904.0

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG424790																
WG423864PBW	PBW	06/10/17						.43	0.38	0.38			0.76			
WG423864LCSW	LCSW	06/10/17	PCN53180	9.73				8.4	1.1	0.63	86	47	123			
L37107-03MS	MS	06/10/17	PCN53180	38.92	2	0.99	0.91	30	4.2	2.6	72	47	123			
L37107-02DUP	DUP-RER	06/10/17			3.4	1.1	0.89	1.3	2.6	2.8				0.74	2	

American West Analytical Labs

ACZ Project ID: **L37107**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L37107-01	NG424918	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.
	WG424790	Radium 228	M904.0	DF	Sample required dilution due to high sediment.
L37107-02	NG424918	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.
L37107-03	NG424918	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.
L37107-04	NG424790	Radium 228	M904.0	DF	Sample required dilution due to high sediment.
L37107-05	NG424790	Radium 228	M904.0	D1	Sample required dilution due to matrix.
L37107-06	NG424790	Radium 228	M904.0	D1	Sample required dilution due to matrix.
	NG424918	Radium 226	M903.1	D1	Sample required dilution due to matrix.
L37107-07	NG424918	Radium 226	M903.1	D1	Sample required dilution due to matrix.
	WG424790	Radium 228	M904.0	DF	Sample required dilution due to high sediment.
L37107-08	NG424918	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.
L37107-09	NG424790	Radium 228	M904.0	D1	Sample required dilution due to matrix.
L37107-10	NG424918	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.

American West Analytical Labs

ACZ Project ID: **L37107**

No certification qualifiers associated with this analysis

American West Analytical Labs
1705243

ACZ Project ID: L37107
Date Received: 05/12/2017 10:16
Received By:
Date Printed: 5/12/2017

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2) Is the Chain of Custody form or other directive shipping papers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Does this project require special handling procedures such as CLP protocol?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4) Are any samples NRC licensable material?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) If samples are received past hold time, proceed with requested short hold time analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Is the Chain of Custody form complete and accurate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Are all labels on containers and are they intact and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) For preserved bottle types, was the pH checked and within limits? ¹	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Is there sufficient sample volume to perform all requested work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Is the custody seal intact on all containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14) Are samples that require zero headspace acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Are all sample containers appropriate for analytical requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Is there an Hg-1631 trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Is there a VOA trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18) Were all samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
4802	15	NA	14	No

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

American West Analytical Labs
1705243

ACZ Project ID: L37107
Date Received: 05/12/2017 10:16
Received By:
Date Printed: 5/12/2017

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



L37107 Chain of Custody

Laboratories

Chain of Custody

L37107

Lab Sample Set #

Page 1 of 1

Address: **3440 S. 700 W.**

Salt Lake City, UT 84119

Project Name: **Hunter CCR Sampling / PERCM52**

PO#: **1705243**

Contact: **Elona Hayward**

Phone: **801-263-8686**

Fax: 801-263-8687

Email: elona@awal-labs.com

denise@awal-labs.com

QC Level: **2+**

Turn Around Time

Standard

[illegible]

Special Instructions: Include project name and PO# on final report and invoice. Email results to both Elona and Denise.

Relinquished by: Signature <i>Denise Brun</i>	Date: 5/10/17	Received by: Signature <i>DS</i>	Date: 5/13/17
Print Name Denise Brun	Time: 11:10	Print Name	Time: 10/6
Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name	Time:	Print Name	Time:



AMERICAN
WEST
ANALYTICAL
LABORATORIES

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

3440 South 700 West
Salt Lake City, Utah
84119

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

awal@awal-labs.com

Jeff Tucker
PacifiCorp
1407 West North Temple, # 280
Salt Lake City, UT 84116
TEL: (801) 220-2989

RE: Hunter CCR Sampling / PERCM52

Dear Jeff Tucker:

Lab Set ID: 1708113

American West Analytical Laboratories received sample(s) on 8/3/2017 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

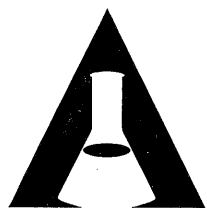
The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: 
Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:

Radiological Testing



AMERICAN
WEST
ANALYTICAL
LABORATORIES

INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-001
Client Sample ID: ELF-8
Collection Date: 8/2/2017 1840h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/4/2017 1433h	8/7/2017 813h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/4/2017 1433h	8/7/2017 813h	E200.8	0.00200	< 0.00200	
Barium	mg/L	8/4/2017 1433h	8/7/2017 813h	E200.8	0.00200	0.0212	
Beryllium	mg/L	8/4/2017 1433h	8/7/2017 813h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/4/2017 1433h	8/15/2017 1357h	E200.7	1.00	31.6	²
Cadmium	mg/L	8/4/2017 1433h	8/7/2017 813h	E200.8	0.000500	0.00294	
Calcium	mg/L	8/4/2017 1433h	8/15/2017 1259h	E200.7	20.0	623	²
Chromium	mg/L	8/4/2017 1433h	8/7/2017 813h	E200.8	0.00200	0.00230	
Cobalt	mg/L	8/4/2017 1433h	8/7/2017 813h	E200.8	0.00400	0.161	
Lead	mg/L	8/4/2017 1433h	8/7/2017 813h	E200.8	0.00200	0.0126	
Lithium	mg/L	8/4/2017 1433h	8/15/2017 1501h	E200.7	0.100	3.54	
Magnesium	mg/L	8/4/2017 1433h	8/15/2017 1220h	E200.7	10.0	121	²
Mercury	mg/L	8/9/2017 1500h	8/10/2017 1000h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/4/2017 1433h	8/7/2017 813h	E200.8	0.00200	0.478	
Selenium	mg/L	8/4/2017 1433h	8/7/2017 813h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	8/4/2017 1433h	8/15/2017 1123h	E200.7	50.0	2,100	²
Thallium	mg/L	8/4/2017 1433h	8/7/2017 813h	E200.8	0.00200	< 0.00200	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

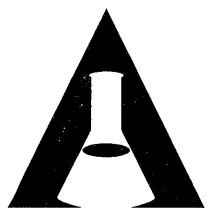
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-002
Client Sample ID: ELF-8 DUP
Collection Date: 8/2/2017 1850h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/4/2017 1433h	8/7/2017 822h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/4/2017 1433h	8/7/2017 822h	E200.8	0.00200	< 0.00200	
Barium	mg/L	8/4/2017 1433h	8/7/2017 822h	E200.8	0.00200	0.0191	
Beryllium	mg/L	8/4/2017 1433h	8/7/2017 822h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/4/2017 1433h	8/15/2017 1403h	E200.7	1.00	32.0	
Cadmium	mg/L	8/4/2017 1433h	8/7/2017 822h	E200.8	0.000500	0.00273	
Calcium	mg/L	8/4/2017 1433h	8/15/2017 1232h	E200.7	10.0	587	
Chromium	mg/L	8/4/2017 1433h	8/7/2017 822h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	8/4/2017 1433h	8/7/2017 822h	E200.8	0.00400	0.161	
Lead	mg/L	8/4/2017 1433h	8/7/2017 822h	E200.8	0.00200	0.00706	
Lithium	mg/L	8/4/2017 1433h	8/15/2017 1507h	E200.7	0.100	3.52	
Magnesium	mg/L	8/4/2017 1433h	8/15/2017 1232h	E200.7	10.0	118	
Mercury	mg/L	8/9/2017 1500h	8/10/2017 1005h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/4/2017 1433h	8/7/2017 822h	E200.8	0.00200	0.475	
Selenium	mg/L	8/4/2017 1433h	8/7/2017 822h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	8/4/2017 1433h	8/15/2017 1128h	E200.7	50.0	1,990	
Thallium	mg/L	8/4/2017 1433h	8/7/2017 822h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

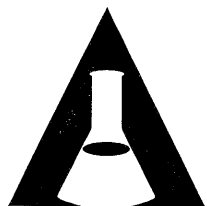
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-003
Client Sample ID: ELF-2
Collection Date: 8/2/2017 1925h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/4/2017 1433h	8/7/2017 825h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/4/2017 1433h	8/7/2017 825h	E200.8	0.00200	< 0.00200	
Barium	mg/L	8/4/2017 1433h	8/7/2017 825h	E200.8	0.00200	0.0120	
Beryllium	mg/L	8/4/2017 1433h	8/7/2017 825h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/4/2017 1433h	8/15/2017 1443h	E200.7	0.500	3.11	
Cadmium	mg/L	8/4/2017 1433h	8/7/2017 825h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	8/4/2017 1433h	8/15/2017 1234h	E200.7	10.0	383	
Chromium	mg/L	8/4/2017 1433h	8/7/2017 825h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	8/4/2017 1433h	8/7/2017 825h	E200.8	0.00400	0.00565	
Lead	mg/L	8/4/2017 1433h	8/7/2017 825h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	8/4/2017 1433h	8/15/2017 1443h	E200.7	0.100	1.54	
Magnesium	mg/L	8/4/2017 1433h	8/15/2017 1234h	E200.7	10.0	311	
Mercury	mg/L	8/9/2017 1500h	8/10/2017 1007h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/4/2017 1433h	8/7/2017 825h	E200.8	0.00200	0.00321	
Selenium	mg/L	8/4/2017 1433h	8/7/2017 825h	E200.8	0.00200	0.198	
Sodium	mg/L	8/4/2017 1433h	8/15/2017 1130h	E200.7	100	3,170	
Thallium	mg/L	8/4/2017 1433h	8/7/2017 825h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

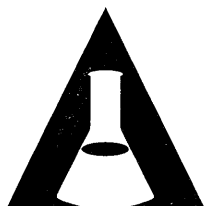
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-004
Client Sample ID: ELF-4
Collection Date: 8/2/2017 1708h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/4/2017 1433h	8/7/2017 828h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/4/2017 1433h	8/7/2017 828h	E200.8	0.00200	< 0.00200	
Barium	mg/L	8/4/2017 1433h	8/7/2017 828h	E200.8	0.00200	0.0115	
Beryllium	mg/L	8/4/2017 1433h	8/7/2017 853h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/4/2017 1433h	8/15/2017 1445h	E200.7	0.500	4.35	
Cadmium	mg/L	8/4/2017 1433h	8/7/2017 828h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	8/4/2017 1433h	8/15/2017 1236h	E200.7	10.0	483	
Chromium	mg/L	8/4/2017 1433h	8/7/2017 828h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	8/4/2017 1433h	8/7/2017 828h	E200.8	0.00400	0.00611	
Lead	mg/L	8/4/2017 1433h	8/7/2017 828h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	8/4/2017 1433h	8/15/2017 1445h	E200.7	0.100	1.65	
Magnesium	mg/L	8/4/2017 1433h	8/15/2017 1236h	E200.7	10.0	520	
Mercury	mg/L	8/9/2017 1500h	8/10/2017 1013h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/4/2017 1433h	8/7/2017 828h	E200.8	0.00200	0.00266	
Selenium	mg/L	8/4/2017 1433h	8/7/2017 828h	E200.8	0.00200	0.00255	
Sodium	mg/L	8/4/2017 1433h	8/15/2017 1132h	E200.7	50.0	2,920	
Thallium	mg/L	8/4/2017 1433h	8/7/2017 828h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

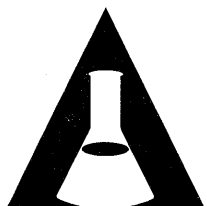
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-005
Client Sample ID: ELF-7
Collection Date: 8/2/2017 1734h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/4/2017 1433h	8/6/2017 2204h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/4/2017 1433h	8/6/2017 2204h	E200.8	0.00200	< 0.00200	
Barium	mg/L	8/4/2017 1433h	8/6/2017 2204h	E200.8	0.00200	0.0124	
Beryllium	mg/L	8/4/2017 1433h	8/6/2017 2204h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/4/2017 1433h	8/15/2017 1447h	E200.7	0.500	1.72	
Cadmium	mg/L	8/4/2017 1433h	8/6/2017 2204h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	8/4/2017 1433h	8/15/2017 1251h	E200.7	20.0	476	
Chromium	mg/L	8/4/2017 1433h	8/6/2017 2204h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	8/4/2017 1433h	8/6/2017 2204h	E200.8	0.00400	0.00816	
Lead	mg/L	8/4/2017 1433h	8/6/2017 2204h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	8/4/2017 1433h	8/15/2017 1447h	E200.7	0.100	2.12	
Magnesium	mg/L	8/4/2017 1433h	8/15/2017 1251h	E200.7	20.0	699	
Mercury	mg/L	8/9/2017 1500h	8/10/2017 1015h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/4/2017 1433h	8/6/2017 2204h	E200.8	0.00200	0.00254	
Selenium	mg/L	8/4/2017 1433h	8/6/2017 2204h	E200.8	0.00200	0.253	
Sodium	mg/L	8/4/2017 1433h	8/15/2017 1134h	E200.7	100	4,700	
Thallium	mg/L	8/4/2017 1433h	8/6/2017 2204h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

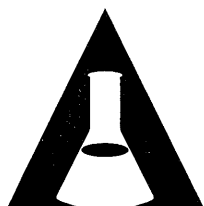
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-006
Client Sample ID: ELF-3
Collection Date: 8/2/2017 1815h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/4/2017 1433h	8/6/2017 2207h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/4/2017 1433h	8/6/2017 2207h	E200.8	0.00200	< 0.00200	
Barium	mg/L	8/4/2017 1433h	8/6/2017 2207h	E200.8	0.00200	0.0150	
Beryllium	mg/L	8/4/2017 1433h	8/6/2017 2207h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/4/2017 1433h	8/15/2017 1449h	E200.7	0.500	1.01	
Cadmium	mg/L	8/4/2017 1433h	8/6/2017 2207h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	8/4/2017 1433h	8/15/2017 1253h	E200.7	20.0	492	
Chromium	mg/L	8/4/2017 1433h	8/6/2017 2207h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	8/4/2017 1433h	8/6/2017 2207h	E200.8	0.00400	0.00455	
Lead	mg/L	8/4/2017 1433h	8/6/2017 2207h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	8/4/2017 1433h	8/15/2017 1449h	E200.7	0.100	4.20	
Magnesium	mg/L	8/4/2017 1433h	8/15/2017 1253h	E200.7	20.0	772	
Mercury	mg/L	8/9/2017 1500h	8/10/2017 1017h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/4/2017 1433h	8/6/2017 2207h	E200.8	0.00200	0.0320	
Selenium	mg/L	8/4/2017 1433h	8/6/2017 2207h	E200.8	0.00200	0.169	
Sodium	mg/L	8/4/2017 1433h	8/15/2017 1154h	E200.7	500	15,200	
Thallium	mg/L	8/4/2017 1433h	8/6/2017 2207h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

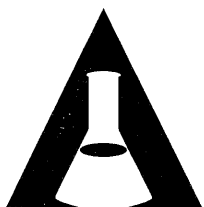
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-007
Client Sample ID: ELF-3-FB
Collection Date: 8/2/2017 1828h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/4/2017 1433h	8/6/2017 2210h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/4/2017 1433h	8/6/2017 2210h	E200.8	0.00200	< 0.00200	
Barium	mg/L	8/4/2017 1433h	8/6/2017 2210h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	8/4/2017 1433h	8/6/2017 2210h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/4/2017 1433h	8/15/2017 1149h	E200.7	0.500	< 0.500	
Cadmium	mg/L	8/4/2017 1433h	8/6/2017 2210h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	8/4/2017 1433h	8/15/2017 1149h	E200.7	1.00	< 1.00	
Chromium	mg/L	8/4/2017 1433h	8/6/2017 2210h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	8/4/2017 1433h	8/6/2017 2210h	E200.8	0.00400	< 0.00400	
Lead	mg/L	8/4/2017 1433h	8/6/2017 2210h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	8/4/2017 1433h	8/15/2017 1149h	E200.7	0.100	< 0.100	
Magnesium	mg/L	8/4/2017 1433h	8/15/2017 1149h	E200.7	1.00	< 1.00	
Mercury	mg/L	8/9/2017 1500h	8/10/2017 1018h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/4/2017 1433h	8/6/2017 2210h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	8/4/2017 1433h	8/6/2017 2210h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	8/4/2017 1433h	8/15/2017 1149h	E200.7	1.00	< 1.00	
Thallium	mg/L	8/4/2017 1433h	8/6/2017 2210h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-008
Client Sample ID: ELF-10
Collection Date: 8/2/2017 1915h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/4/2017 1433h	8/6/2017 2213h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/4/2017 1433h	8/6/2017 2213h	E200.8	0.00200	< 0.00200	
Barium	mg/L	8/4/2017 1433h	8/6/2017 2213h	E200.8	0.00200	0.0391	
Beryllium	mg/L	8/4/2017 1433h	8/6/2017 2213h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/4/2017 1433h	8/15/2017 1451h	E200.7	0.500	1.64	
Cadmium	mg/L	8/4/2017 1433h	8/6/2017 2213h	E200.8	0.000500	0.000563	
Calcium	mg/L	8/4/2017 1433h	8/15/2017 1255h	E200.7	10.0	509	
Chromium	mg/L	8/4/2017 1433h	8/6/2017 2213h	E200.8	0.00200	0.00841	
Cobalt	mg/L	8/4/2017 1433h	8/6/2017 2213h	E200.8	0.00400	0.00411	
Lead	mg/L	8/4/2017 1433h	8/6/2017 2213h	E200.8	0.00200	0.00217	
Lithium	mg/L	8/4/2017 1433h	8/15/2017 1451h	E200.7	0.100	2.09	
Magnesium	mg/L	8/4/2017 1433h	8/15/2017 1255h	E200.7	10.0	477	
Mercury	mg/L	8/9/2017 1500h	8/10/2017 1020h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/4/2017 1433h	8/6/2017 2213h	E200.8	0.00200	0.0871	
Selenium	mg/L	8/4/2017 1433h	8/6/2017 2213h	E200.8	0.00200	0.00903	
Sodium	mg/L	8/4/2017 1433h	8/15/2017 1205h	E200.7	400	14,300	
Thallium	mg/L	8/4/2017 1433h	8/6/2017 2213h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

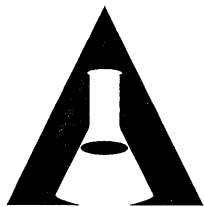
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-009
Client Sample ID: ELF-9
Collection Date: 8/2/2017 1951h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/4/2017 1433h	8/6/2017 2216h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/4/2017 1433h	8/6/2017 2216h	E200.8	0.00200	0.0114	
Barium	mg/L	8/4/2017 1433h	8/6/2017 2216h	E200.8	0.00200	0.102	
Beryllium	mg/L	8/4/2017 1433h	8/6/2017 2216h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/4/2017 1433h	8/15/2017 1432h	E200.7	0.500	1.32	
Cadmium	mg/L	8/4/2017 1433h	8/6/2017 2216h	E200.8	0.000500	0.000532	
Calcium	mg/L	8/4/2017 1433h	8/15/2017 1257h	E200.7	2.00	91.9	
Chromium	mg/L	8/4/2017 1433h	8/6/2017 2216h	E200.8	0.00200	0.0201	
Cobalt	mg/L	8/4/2017 1433h	8/6/2017 2216h	E200.8	0.00400	0.00520	
Lead	mg/L	8/4/2017 1433h	8/6/2017 2216h	E200.8	0.00200	0.00768	
Lithium	mg/L	8/4/2017 1433h	8/15/2017 1432h	E200.7	0.100	0.748	
Magnesium	mg/L	8/4/2017 1433h	8/15/2017 1432h	E200.7	1.00	40.0	
Mercury	mg/L	8/9/2017 1500h	8/10/2017 1022h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/4/2017 1433h	8/6/2017 2216h	E200.8	0.00200	0.141	
Selenium	mg/L	8/4/2017 1433h	8/6/2017 2216h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	8/4/2017 1433h	8/15/2017 1153h	E200.7	100	4,410	
Thallium	mg/L	8/4/2017 1433h	8/6/2017 2216h	E200.8	0.00200	< 0.00200	

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Lab Sample ID: 1708113-001

Client Sample ID: ELF-8

Collection Date: 8/2/2017 1840h

Received Date: 8/3/2017 1840h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	85.8	
Bicarbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	85.8	
Carbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/10/2017 1232h	E300.0	50.0	2,110	
Fluoride	mg/L		8/11/2017 235h	E300.0	0.100	1.69	
Nitrate/Nitrite (as N)	mg/L		8/7/2017 1100h	E353.2	0.0100	0.550	
pH @ 25° C	pH Units		8/4/2017 1055h	SM4500-H+B	1.00	7.54	H
Sulfate	mg/L		8/10/2017 1232h	E300.0	375	3,260	
Total Dissolved Solids	mg/L		8/4/2017 1120h	SM2540C	100	8,420	@

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

H - Sample was received outside of the holding time.

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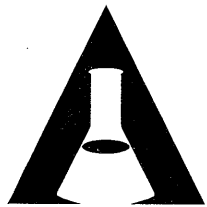
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-002
Client Sample ID: ELF-8 DUP
Collection Date: 8/2/2017 1850h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	87.5	
Bicarbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	87.5	
Carbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/10/2017 1232h	E300.0	100	2,130	
Fluoride	mg/L		8/11/2017 252h	E300.0	0.100	1.51	
Nitrate/Nitrite (as N)	mg/L		8/7/2017 1103h	E353.2	0.0100	0.629	
pH @ 25° C	pH Units		8/4/2017 1055h	SM4500-H+B	1.00	7.57	H
Sulfate	mg/L		8/10/2017 1232h	E300.0	750	3,340	
Total Dissolved Solids	mg/L		8/4/2017 1120h	SM2540C	100	7,680	

H - Sample was received outside of the holding time.

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-003
Client Sample ID: ELF-2
Collection Date: 8/2/2017 1925h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	444	
Bicarbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	444	
Carbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/10/2017 1917h	E300.0	5.00	363	
Fluoride	mg/L		8/11/2017 309h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		8/7/2017 1105h	E353.2	0.100	6.25	
pH @ 25° C	pH Units		8/4/2017 1055h	SM4500-H+B	1.00	7.42	H
Sulfate	mg/L		8/10/2017 1232h	E300.0	375	7,950	
Total Dissolved Solids	mg/L		8/4/2017 1120h	SM2540C	100	11,600	

H - Sample was received outside of the holding time.

Kyle F. Gross
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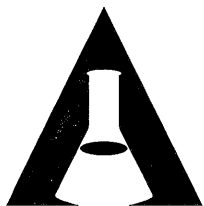
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-004
Client Sample ID: ELF-4
Collection Date: 8/2/2017 1708h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	364	
Bicarbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	364	
Carbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/14/2017 1624h	E300.0	100	2,240	
Fluoride	mg/L		8/15/2017 220h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		8/7/2017 1106h	E353.2	0.100	11.6	
pH @ 25° C	pH Units		8/4/2017 1055h	SM4500-H+B	1.00	7.21	H
Sulfate	mg/L		8/14/2017 1624h	E300.0	750	5,750	
Total Dissolved Solids	mg/L		8/4/2017 1120h	SM2540C	100	11,600	

H - Sample was received outside of the holding time.

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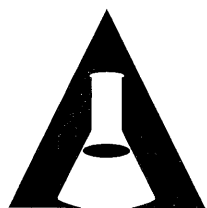
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-005
Client Sample ID: ELF-7
Collection Date: 8/2/2017 1734h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	536	
Bicarbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	536	
Carbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/14/2017 1500h	E300.0	100	2,480	
Fluoride	mg/L		8/15/2017 238h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		8/7/2017 1107h	E353.2	1.00	102	
pH @ 25° C	pH Units		8/4/2017 1055h	SM4500-H+B	1.00	7.13	H
Sulfate	mg/L		8/14/2017 1500h	E300.0	750	8,680	
Total Dissolved Solids	mg/L		8/4/2017 1120h	SM2540C	100	17,800	

H - Sample was received outside of the holding time.

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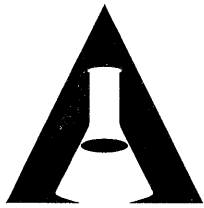
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-006
Client Sample ID: ELF-3
Collection Date: 8/2/2017 1815h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	651	
Bicarbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	651	
Carbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/10/2017 1232h	E300.0	50.0	609	
Fluoride	mg/L		8/11/2017 359h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		8/7/2017 1108h	E353.2	10.0	198	
pH @ 25° C	pH Units		8/4/2017 1055h	SM4500-H+B	1.00	7.79	H
Sulfate	mg/L		8/10/2017 1933h	E300.0	3,750	33,000	
Total Dissolved Solids	mg/L		8/4/2017 1120h	SM2540C	500	47,700	

H - Sample was received outside of the holding time.

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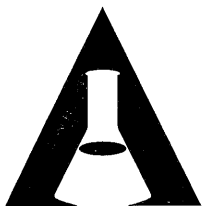
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-007
Client Sample ID: ELF-3-FB
Collection Date: 8/2/2017 1828h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/10/2017 1950h	E300.0	0.100	0.117	
Fluoride	mg/L		8/10/2017 1950h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		8/7/2017 1109h	E353.2	0.0100	0.0183	
pH @ 25° C	pH Units		8/4/2017 1055h	SM4500-H+B	1.00	5.95	H
Sulfate	mg/L		8/10/2017 1950h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		8/4/2017 1120h	SM2540C	10.0	< 10.0	

H - Sample was received outside of the holding time.

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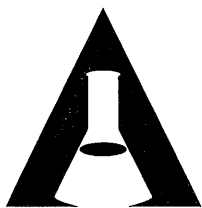
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-008
Client Sample ID: ELF-10
Collection Date: 8/2/2017 1915h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	1,190	
Bicarbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	1,190	
Carbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/14/2017 1641h	E300.0	200	7,150	
Fluoride	mg/L		8/15/2017 255h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		8/7/2017 1110h	E353.2	0.100	3.50	
pH @ 25° C	pH Units		8/4/2017 1055h	SM4500-H+B	1.00	7.00	H
Sulfate	mg/L		8/14/2017 1641h	E300.0	1,500	17,300	
Total Dissolved Solids	mg/L		8/4/2017 1120h	SM2540C	100	38,600	

H - Sample was received outside of the holding time.

Kyle F. Gross
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Jose Rocha
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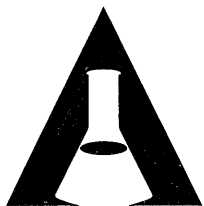
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708113-009
Client Sample ID: ELF-9
Collection Date: 8/2/2017 1951h
Received Date: 8/3/2017 1840h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	595	
Bicarbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	595	
Carbonate (as CaCO ₃)	mg/L		8/7/2017 810h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/14/2017 2111h	E300.0	10.0	446	
Fluoride	mg/L		8/15/2017 313h	E300.0	0.100	1.27	
Nitrate/Nitrite (as N)	mg/L		8/7/2017 1111h	E353.2	0.0100	0.101	
pH @ 25° C	pH Units		8/4/2017 1055h	SM4500-H+B	1.00	7.94	H
Sulfate	mg/L		8/14/2017 1658h	E300.0	750	6,900	
Total Dissolved Solids	mg/L		8/4/2017 1120h	SM2540C	100	12,000	

H - Sample was received outside of the holding time.

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QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708113

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-50585													
Date Analyzed:		08/15/2017 1121h											
Test Code:		200.7-W											
Date Prepared:		08/04/2017 1433h											
Boron	1.09	mg/L	E200.7	0.0139	0.500	1.000	0	109	85 - 115				
Calcium	10.4	mg/L	E200.7	0.0332	1.00	10.00	0	104	85 - 115				
Lithium	1.07	mg/L	E200.7	0.00194	0.100	1.000	0	107	80 - 120				
Magnesium	11.2	mg/L	E200.7	0.0710	1.00	10.00	0	112	85 - 115				
Sodium	10.4	mg/L	E200.7	0.0311	1.00	10.00	0	104	85 - 115				
Lab Sample ID: LCS-50586													
Date Analyzed:		08/07/2017 809h											
Test Code:		200.8-W											
Date Prepared:		08/04/2017 1433h											
Antimony	0.190	mg/L	E200.8	0.000416	0.00200	0.2000	0	95.2	85 - 115				
Arsenic	0.211	mg/L	E200.8	0.000177	0.00200	0.2000	0	105	85 - 115				
Barium	0.202	mg/L	E200.8	0.000228	0.00200	0.2000	0	101	85 - 115				
Beryllium	0.209	mg/L	E200.8	0.0000318	0.00200	0.2000	0	105	85 - 115				
Cadmium	0.206	mg/L	E200.8	0.000226	0.000500	0.2000	0	103	85 - 115				
Chromium	0.202	mg/L	E200.8	0.000210	0.00200	0.2000	0	101	85 - 115				
Cobalt	0.197	mg/L	E200.8	0.0000336	0.00400	0.2000	0	98.3	85 - 115				
Lead	0.197	mg/L	E200.8	0.000308	0.00200	0.2000	0	98.7	85 - 115				
Molybdenum	0.203	mg/L	E200.8	0.000692	0.00200	0.2000	0	102	85 - 115				
Selenium	0.216	mg/L	E200.8	0.000176	0.00200	0.2000	0	108	85 - 115				
Thallium	0.194	mg/L	E200.8	0.000462	0.00200	0.2000	0	97.1	85 - 115				
Lab Sample ID: LCS-50680													
Date Analyzed:		08/10/2017 954h											
Test Code:		HG-DW-245.1											
Date Prepared:		08/09/2017 1500h											
Mercury	0.00344	mg/L	E245.1	0.00000511	0.000150	0.003330	0	103	85 - 115				



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Kyle F. Gross
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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708113

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-50585	Date Analyzed:	08/15/2017 1119h											
Test Code: 200.7-W	Date Prepared:	08/04/2017 1433h											
Boron	< 0.500	mg/L	E200.7	0.0139	0.500								
Calcium	< 1.00	mg/L	E200.7	0.0332	1.00								
Lithium	< 0.100	mg/L	E200.7	0.00194	0.100								
Magnesium	< 1.00	mg/L	E200.7	0.0710	1.00								
Sodium	< 1.00	mg/L	E200.7	0.0311	1.00								
Lab Sample ID: MB-50586	Date Analyzed:	08/07/2017 806h											
Test Code: 200.8-W	Date Prepared:	08/04/2017 1433h											
Antimony	< 0.00200	mg/L	E200.8	0.000416	0.00200								
Arsenic	< 0.00200	mg/L	E200.8	0.000177	0.00200								
Barium	< 0.00200	mg/L	E200.8	0.000228	0.00200								
Beryllium	< 0.00200	mg/L	E200.8	0.0000318	0.00200								
Cadmium	< 0.000500	mg/L	E200.8	0.000226	0.000500								
Chromium	< 0.00200	mg/L	E200.8	0.000210	0.00200								
Cobalt	< 0.00400	mg/L	E200.8	0.0000336	0.00400								
Lead	< 0.00200	mg/L	E200.8	0.000308	0.00200								
Molybdenum	< 0.00200	mg/L	E200.8	0.000692	0.00200								
Selenium	< 0.00200	mg/L	E200.8	0.000176	0.00200								
Thallium	< 0.00200	mg/L	E200.8	0.000462	0.00200								
Lab Sample ID: MB-50680	Date Analyzed:	08/10/2017 952h											
Test Code: HG-DW-245.1	Date Prepared:	08/09/2017 1500h											
Mercury	< 0.000150	mg/L	E245.1	0.00000511	0.000150								

Report Date: 8/17/2017 Page 21 of 33



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1708113
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708113-001CMS Date Analyzed: 08/15/2017 1125h													
Test Code: 200.7-W Date Prepared: 08/04/2017 1433h													
Sodium	2,040	mg/L	E200.7	1.56	50.0	10.00	2100	-614	70 - 130				2
Lab Sample ID: 1708113-001CMS Date Analyzed: 08/15/2017 1228h													
Test Code: 200.7-W Date Prepared: 08/04/2017 1433h													
Magnesium	130	mg/L	E200.7	0.710	10.0	10.00	121	87.1	70 - 130				
Lab Sample ID: 1708113-001CMS Date Analyzed: 08/15/2017 1301h													
Test Code: 200.7-W Date Prepared: 08/04/2017 1433h													
Calcium	602	mg/L	E200.7	0.664	20.0	10.00	623	-215	70 - 130				2
Lab Sample ID: 1708113-001CMS Date Analyzed: 08/15/2017 1359h													
Test Code: 200.7-W Date Prepared: 08/04/2017 1433h													
Boron	33.8	mg/L	E200.7	0.0278	1.00	1.000	31.6	219	70 - 130				2
Lab Sample ID: 1708113-001CMS Date Analyzed: 08/15/2017 1503h													
Test Code: 200.7-W Date Prepared: 08/04/2017 1433h													
Lithium	4.38	mg/L	E200.7	0.00194	0.100	1.000	3.54	84.4	75 - 125				
Lab Sample ID: 1708113-001CMS Date Analyzed: 08/07/2017 816h													
Test Code: 200.8-W Date Prepared: 08/04/2017 1433h													
Antimony	0.204	mg/L	E200.8	0.000416	0.00200	0.2000	0.000607	102	75 - 125				
Arsenic	0.230	mg/L	E200.8	0.000177	0.00200	0.2000	0.000803	115	75 - 125				
Barium	0.225	mg/L	E200.8	0.000228	0.00200	0.2000	0.0212	102	75 - 125				
Beryllium	0.200	mg/L	E200.8	0.0000318	0.00200	0.2000	0.000152	100	75 - 125				
Cadmium	0.204	mg/L	E200.8	0.000226	0.000500	0.2000	0.00294	100	75 - 125				
Chromium	0.197	mg/L	E200.8	0.000210	0.00200	0.2000	0.0023	97.3	75 - 125				
Cobalt	0.343	mg/L	E200.8	0.0000336	0.00400	0.2000	0.161	90.6	75 - 125				
Lead	0.192	mg/L	E200.8	0.000308	0.00200	0.2000	0.0126	89.8	75 - 125				
Molybdenum	0.697	mg/L	E200.8	0.000692	0.00200	0.2000	0.478	109	75 - 125				

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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1708113
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708113-001CMS	Date Analyzed: 08/07/2017 816h												
Test Code: 200.8-W	Date Prepared: 08/04/2017 1433h												
Selenium	0.225	mg/L	E200.8	0.000176	0.00200	0.2000	0.00111	112	75 - 125				
Thallium	0.182	mg/L	E200.8	0.000462	0.00200	0.2000	0.000783	90.8	75 - 125				
Lab Sample ID: 1708113-001CMS	Date Analyzed: 08/10/2017 1002h												
Test Code: HG-DW-245.1	Date Prepared: 08/09/2017 1500h												
Mercury	0.00291	mg/L	E245.1	0.00000511	0.000150	0.003330	0	87.4	80 - 120				
Lab Sample ID: 1708114-002CMS	Date Analyzed: 08/10/2017 1026h												
Test Code: HG-DW-245.1	Date Prepared: 08/09/2017 1500h												
Mercury	0.00348	mg/L	E245.1	0.00000511	0.000150	0.003330	0	105	80 - 120				

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1708113
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708113-001CMSD Test Code: 200.7-W Date Analyzed: 08/15/2017 1127h Date Prepared: 08/04/2017 1433h													
Sodium	2,030	mg/L	E200.7	1.56	50.0	10.00	2100	-698	70 - 130	2040	0.414	20	2
Lab Sample ID: 1708113-001CMSD Test Code: 200.7-W Date Analyzed: 08/15/2017 1230h Date Prepared: 08/04/2017 1433h													
Magnesium	125	mg/L	E200.7	0.710	10.0	10.00	121	37.4	70 - 130	130	3.90	20	2
Lab Sample ID: 1708113-001CMSD Test Code: 200.7-W Date Analyzed: 08/15/2017 1303h Date Prepared: 08/04/2017 1433h													
Calcium	607	mg/L	E200.7	0.664	20.0	10.00	623	-163	70 - 130	602	0.861	20	2
Lab Sample ID: 1708113-001CMSD Test Code: 200.7-W Date Analyzed: 08/15/2017 1401h Date Prepared: 08/04/2017 1433h													
Boron	33.5	mg/L	E200.7	0.0278	1.00	1.000	31.6	189	70 - 130	33.8	0.894	20	2
Lab Sample ID: 1708113-001CMSD Test Code: 200.7-W Date Analyzed: 08/15/2017 1505h Date Prepared: 08/04/2017 1433h													
Lithium	4.48	mg/L	E200.7	0.00194	0.100	1.000	3.54	94.2	75 - 125	4.38	2.22	20	
Lab Sample ID: 1708113-001CMSD Test Code: 200.8-W Date Analyzed: 08/07/2017 819h Date Prepared: 08/04/2017 1433h													
Antimony	0.202	mg/L	E200.8	0.000416	0.00200	0.2000	0.000607	101	75 - 125	0.204	0.896	20	
Arsenic	0.230	mg/L	E200.8	0.000177	0.00200	0.2000	0.000803	115	75 - 125	0.23	0.0944	20	
Barium	0.223	mg/L	E200.8	0.000228	0.00200	0.2000	0.0212	101	75 - 125	0.225	0.673	20	
Beryllium	0.197	mg/L	E200.8	0.0000318	0.00200	0.2000	0.000152	98.4	75 - 125	0.2	1.64	20	
Cadmium	0.202	mg/L	E200.8	0.000226	0.000500	0.2000	0.00294	99.7	75 - 125	0.204	0.593	20	
Chromium	0.196	mg/L	E200.8	0.000210	0.00200	0.2000	0.0023	97.1	75 - 125	0.197	0.243	20	
Cobalt	0.338	mg/L	E200.8	0.0000336	0.00400	0.2000	0.161	88.2	75 - 125	0.343	1.41	20	
Lead	0.190	mg/L	E200.8	0.000308	0.00200	0.2000	0.0126	88.8	75 - 125	0.192	0.968	20	
Molybdenum	0.696	mg/L	E200.8	0.000692	0.00200	0.2000	0.478	109	75 - 125	0.697	0.209	20	

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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708113

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708113-001CMSD													
Date Analyzed:		08/07/2017 819h											
Test Code:		200.8-W											
Date Prepared:		08/04/2017 1433h											
Selenium	0.222	mg/L	E200.8	0.000176	0.00200	0.2000	0.00111	111	75 - 125	0.225	1.24	20	
Thallium	0.180	mg/L	E200.8	0.000462	0.00200	0.2000	0.000783	89.8	75 - 125	0.182	1.08	20	
Lab Sample ID: 1708113-001CMSD													
Date Analyzed:		08/10/2017 1003h											
Test Code:		HG-DW-245.1											
Date Prepared:		08/09/2017 1500h											
Mercury	0.00297	mg/L	E245.1	0.00000511	0.000150	0.003330	0	89.3	80 - 120	0.00291	2.10	20	
Lab Sample ID: 1708114-002CMSD													
Date Analyzed:		08/10/2017 1032h											
Test Code:		HG-DW-245.1											
Date Prepared:		08/09/2017 1500h											
Mercury	0.00354	mg/L	E245.1	0.00000511	0.000150	0.003330	0	106	80 - 120	0.00348	1.66	20	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Kyle F. Gross
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Jose Rocha
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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1708113
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708113-001ADUP		Date Analyzed: 08/04/2017 1055h											
Test Code: PH-4500H+B													
pH @ 25° C	7.55	pH Units	SM4500-H+B	1.00	1.00					7.54	0.133	5	H
Lab Sample ID: 1708113-001ADUP		Date Analyzed: 08/04/2017 1120h											
Test Code: TDS-W-2540C													
Total Dissolved Solids	7,660	mg/L	SM2540C	78.7	100					8420	9.45	5	@
Lab Sample ID: 1708114-001ADUP		Date Analyzed: 08/04/2017 1120h											
Test Code: TDS-W-2540C													
Total Dissolved Solids	17,700	mg/L	SM2540C	78.7	100					17800	0.338	5	

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

H - Sample was received outside of the holding time.



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1708113
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-R104297 Date Analyzed: 08/10/2017 1232h													
Test Code: 300.0-W													
Chloride	5.19	mg/L	E300.0	0.0127	0.100	5.000	0	104	90 - 110				
Sulfate	5.38	mg/L	E300.0	0.0327	0.750	5.000	0	108	90 - 110				
Lab Sample ID: LCS-R104300 Date Analyzed: 08/10/2017 1826h													
Test Code: 300.0-W													
Chloride	5.32	mg/L	E300.0	0.0127	0.100	5.000	0	106	90 - 110				
Fluoride	5.20	mg/L	E300.0	0.0174	0.100	5.000	0	104	90 - 110				
Sulfate	5.33	mg/L	E300.0	0.0327	0.750	5.000	0	107	90 - 110				
Lab Sample ID: LCS-R104379 Date Analyzed: 08/14/2017 1041h													
Test Code: 300.0-W													
Chloride	5.37	mg/L	E300.0	0.0127	0.100	5.000	0	107	90 - 110				
Fluoride	5.23	mg/L	E300.0	0.0174	0.100	5.000	0	105	90 - 110				
Sulfate	5.37	mg/L	E300.0	0.0327	0.750	5.000	0	107	90 - 110				
Lab Sample ID: LCS-R104099 Date Analyzed: 08/07/2017 810h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	245	mg/L	SM2320B	2.14	10.0	250.0	0	98.0	90 - 110				
Lab Sample ID: LCS-R104108 Date Analyzed: 08/07/2017 1051h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.03	mg/L	E353.2	0.00833	0.0100	1.000	0	103	90 - 110				
Lab Sample ID: LCS-R104062 Date Analyzed: 08/04/2017 1055h													
Test Code: PH-4500H+B													
pH @ 25° C	8.93	pH Units	SM4500-H+B	1.00	1.00	9.000	0	99.2	98 - 102				

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708113

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<hr/>													
Lab Sample ID: LCS-R104119	Date Analyzed: 08/04/2017 1120h												
Test Code: TDS-W-2540C													
<hr/>													
Total Dissolved Solids	186	mg/L	SM2540C	7.87	10.0	205.0	0	90.7	80 - 120				
<hr/>													

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Kyle F. Gross
Laboratory DirectorJose Rocha
QA Officer**QC SUMMARY REPORT****Client:** PacifiCorp**Lab Set ID:** 1708113**Project:** Hunter CCR Sampling / PERCM52**Contact:** Jeff Tucker**Dept:** WC**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-R104297	Date Analyzed:	08/10/2017 1232h											
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.0127	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0327	0.750								
Lab Sample ID: MB-R104300	Date Analyzed:	08/10/2017 1809h											
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.0127	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.0174	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0327	0.750								
Lab Sample ID: MB-R104379	Date Analyzed:	08/14/2017 1024h											
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.0127	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.0174	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0327	0.750								
Lab Sample ID: MB-R104099	Date Analyzed:	08/07/2017 810h											
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	< 10.0	mg/L	SM2320B	2.14	10.0								
Bicarbonate (as CaCO3)	< 10.0	mg/L	SM2320B	2.14	10.0								
Carbonate (as CaCO3)	< 10.0	mg/L	SM2320B	2.14	10.0								
Lab Sample ID: MB-R104108	Date Analyzed:	08/07/2017 1050h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID: MB-R104119	Date Analyzed:	08/04/2017 1120h											
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	7.87	10.0								

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QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708113

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708113-001AMS Date Analyzed: 08/10/2017 1232h													
Test Code: 300.0-W													
Chloride	15,200	mg/L	E300.0	31.8	250	12,500	2110	105	90 - 110				
Sulfate	16,700	mg/L	E300.0	81.8	1,880	12,500	3260	107	90 - 110				
Lab Sample ID: 1708113-007AMS Date Analyzed: 08/10/2017 2007h													
Test Code: 300.0-W													
Chloride	26.3	mg/L	E300.0	0.0635	0.500	25.00	0.117	105	90 - 110				
Fluoride	25.7	mg/L	E300.0	0.0870	0.500	25.00	0	103	90 - 110				
Sulfate	26.3	mg/L	E300.0	0.164	3.75	25.00	0	105	90 - 110				
Lab Sample ID: 1708113-005AMS Date Analyzed: 08/14/2017 1517h													
Test Code: 300.0-W													
Chloride	13,400	mg/L	E300.0	25.4	200	10,000	2480	110	90 - 110				
Fluoride	10,500	mg/L	E300.0	34.8	200	10,000	0	105	90 - 110				
Sulfate	19,300	mg/L	E300.0	65.4	1,500	10,000	8680	106	90 - 110				
Lab Sample ID: 1708114-004AMS Date Analyzed: 08/14/2017 1822h													
Test Code: 300.0-W													
Chloride	14,100	mg/L	E300.0	25.4	200	10,000	3250	108	90 - 110				
Fluoride	10,500	mg/L	E300.0	34.8	200	10,000	0	105	90 - 110				
Sulfate	16,600	mg/L	E300.0	65.4	1,500	10,000	5970	106	90 - 110				
Lab Sample ID: 1708113-001AMS Date Analyzed: 08/07/2017 810h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	187	mg/L	SM2320B	2.14	10.0	100.0	85.8	102	80 - 120				
Lab Sample ID: 1708113-001BMS Date Analyzed: 08/07/2017 1101h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.59	mg/L	E353.2	0.00833	0.0100	1.000	0.55	104	90 - 110				

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QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708113

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708114-001BMS		Date Analyzed: 08/07/2017 1113h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.01	mg/L	E353.2	0.00833	0.0100	1.000	0.0235	98.5	90 - 110				

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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1708113
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708113-001AMSD Date Analyzed: 08/10/2017 1232h													
Test Code: 300.0-W													
Chloride	15,200	mg/L	E300.0	31.8	250	12,500	2110	104	90 - 110	15200	0.224	20	
Sulfate	16,700	mg/L	E300.0	81.8	1,880	12,500	3260	107	90 - 110	16700	0.00922	20	
Lab Sample ID: 1708113-007AMSD Date Analyzed: 08/10/2017 2024h													
Test Code: 300.0-W													
Chloride	26.6	mg/L	E300.0	0.0635	0.500	25.00	0.117	106	90 - 110	26.3	1.39	20	
Fluoride	26.1	mg/L	E300.0	0.0870	0.500	25.00	0	104	90 - 110	25.7	1.52	20	
Sulfate	26.5	mg/L	E300.0	0.164	3.75	25.00	0	106	90 - 110	26.3	0.854	20	
Lab Sample ID: 1708113-005AMSD Date Analyzed: 08/14/2017 1534h													
Test Code: 300.0-W													
Chloride	13,400	mg/L	E300.0	25.4	200	10,000	2480	109	90 - 110	13400	0.0702	20	
Fluoride	10,500	mg/L	E300.0	34.8	200	10,000	0	105	90 - 110	10500	0.579	20	
Sulfate	19,300	mg/L	E300.0	65.4	1,500	10,000	8680	106	90 - 110	19300	0.0372	20	
Lab Sample ID: 1708114-004AMSD Date Analyzed: 08/14/2017 1839h													
Test Code: 300.0-W													
Chloride	14,100	mg/L	E300.0	25.4	200	10,000	3250	109	90 - 110	14100	0.263	20	
Fluoride	10,600	mg/L	E300.0	34.8	200	10,000	0	106	90 - 110	10500	0.968	20	
Sulfate	16,500	mg/L	E300.0	65.4	1,500	10,000	5970	105	90 - 110	16600	0.784	20	
Lab Sample ID: 1708113-001AMSD Date Analyzed: 08/07/2017 810h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	189	mg/L	SM2320B	2.14	10.0	100.0	85.8	103	80 - 120	187	0.904	10	
Lab Sample ID: 1708113-001BMSD Date Analyzed: 08/07/2017 1102h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.62	mg/L	E353.2	0.00833	0.0100	1.000	0.55	106	90 - 110	1.59	1.37	10	

Report Date: 8/17/2017 Page 32 of 33



AMERICAN WEST ANALYTICAL LABORATORIES
3440 South 700 West
Salt Lake City, Utah 84119
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1708113
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708114-001BMSD		Date Analyzed: 08/07/2017 1114h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.03	mg/L	E353.2	0.00833	0.0100	1.000	0.0235	101	90 - 110	1.01	2.06	10	

Report Date: 8/17/2017 Page 33 of 33

WORK ORDER Summary

Work Order: **1708113** Page 1 of 5

Client: PacifiCorp

Due Date: 8/17/2017

Client ID: PAC900

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

QC Level: II+

WO Type: Project

Comments: QC2+. Include EDD. Sample #6 has limited volume; use sparingly. Footnote report, pH received outside of hold. RADS sent to ACZ. Cc: Report to mshirley@waterenvtech.com, Laura Watson and Dave Erickson.;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1708113-001A	ELF-8	8/2/2017 1840h	8/3/2017 1840h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708113-001B				NO2/NO3-W-353.2			DF-NO2/NO3	
1708113-001C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1708113-001D				OUTSIDE LAB			ACZ	2
1708113-002A	ELF-8 DUP	8/2/2017 1850h	8/3/2017 1840h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708113-002B				NO2/NO3-W-353.2			DF-NO2/NO3	
1708113-002C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	

WORK ORDER Summary

Work Order: **1708113** Page 2 of 5

Client: PacifiCorp

Due Date: 8/17/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1708113-002D	ELF-8 DUP	8/2/2017 1850h	8/3/2017 1840h	OUTSIDE LAB	Aqueous		ACZ	2
1708113-003A	ELF-2	8/2/2017 1925h	8/3/2017 1840h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708113-003B				NO2/NO3-W-353.2			DF-NO2/NO3	
1708113-003C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1708113-003D				OUTSIDE LAB			ACZ	2
1708113-004A	ELF-4	8/2/2017 1708h	8/3/2017 1840h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708113-004B				NO2/NO3-W-353.2			DF-NO2/NO3	
1708113-004C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1708113-004D				OUTSIDE LAB			ACZ	2
1708113-005A	ELF-7	8/2/2017 1734h	8/3/2017 1840h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				

WORK ORDER Summary

Work Order: **1708113**

Page 3 of 5

Client: PacifiCorp

Due Date: 8/17/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1708113-005A	ELF-7	8/2/2017 1734h	8/3/2017 1840h	ALK-W-2320B	Aqueous		DF-WC	1
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708113-005B				NO2/NO3-W-353.2			DF-NO2/NO3	
1708113-005C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1708113-005D				OUTSIDE LAB			ACZ	2
1708113-006A	ELF-3	8/2/2017 1815h	8/3/2017 1840h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708113-006B				NO2/NO3-W-353.2			DF-NO2/NO3	
1708113-006C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1708113-006D				OUTSIDE LAB			ACZ	
1708113-007A	ELF-3-FB	8/2/2017 1828h	8/3/2017 1840h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708113-007B				NO2/NO3-W-353.2			DF-NO2/NO3	

WORK ORDER Summary

Work Order: **1708113**

Page 4 of 5

Client: PacifiCorp

Due Date: 8/17/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1708113-007C	ELF-3-FB	8/2/2017 1828h	8/3/2017 1840h	200.7-W	Aqueous		DF-Metals	1
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1708113-007D				OUTSIDE LAB			ACZ	2
1708113-008A	ELF-10	8/2/2017 1915h	8/3/2017 1840h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708113-008B				NO2/NO3-W-353.2			DF-NO2/NO3	
1708113-008C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1708113-008D				OUTSIDE LAB			ACZ	2
1708113-009A	ELF-9	8/2/2017 1951h	8/3/2017 1840h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708113-009B				NO2/NO3-W-353.2			DF-NO2/NO3	
1708113-009C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				

WORK ORDER Summary

Work Order: **1708113** Page 5 of 5

Client: PacifiCorp

Due Date: 8/17/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1708113-009C	ELF-9	8/2/2017 1951h	8/3/2017 1840h	200.8-W-PR	Aqueous		DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1708113-009D				OUTSIDE LAB			ACZ

SPECIAL INSTRUCTIONS:

RELINQUISHED BY: SIGNATURE	DATE: 8/3/17	RECEIVED BY: SIGNATURE	DATE: 8/3/17	SPECIAL INSTRUCTIONS:
PRINT NAME: Rebecca Farren	TIME: 18:40	PRINT NAME: Denise Bruun	TIME: 18:40	
RELINQUISHED BY: SIGNATURE	DATE:	RECEIVED BY: SIGNATURE	DATE:	
PRINT NAME:	TIME:	PRINT NAME:	TIME:	
RELINQUISHED BY: SIGNATURE	DATE:	RECEIVED BY: SIGNATURE	DATE:	
PRINT NAME:	TIME:	PRINT NAME:	TIME:	
RELINQUISHED BY: SIGNATURE	DATE:	RECEIVED BY: SIGNATURE	DATE:	
PRINT NAME:	TIME:	PRINT NAME:	TIME:	

Water & Environmental Technologies

Analyte Method Reporting Limit	Method	Reporting Limit	Price/sample ¹
pH	SM4500-H+ B	1.0 s.u.	\$11.70
Solids, Total Dissolved	SM2540 C	10 mg/L	\$13.50
Alkalinity Total as CaCO ₃	SM2320 B	10 mg/L	\$17.10
Bicarbonate as HCO ₃	SM2320 B	10 mg/L	\$0.00
Carbonate as CO ₃	SM2320 B	10 mg/L	\$0.00
Chloride	E300.0	0.1 mg/L	\$11.70
Sulfate	E300.0	0.75 mg/L	\$11.70
Fluoride	A4500-F C/E300.0	0.1 mg/L	\$12.60
Nitrogen, Nitrate+Nitrite	E353.2	0.01 mg/L	\$11.70
Antimony	E200.8	0.002 mg/L	\$9.00
Arsenic	E200.8	0.002 mg/L	\$9.00
Barium	E200.8	0.002 mg/L	\$9.00
Beryllium	E200.8	0.002 mg/L	\$9.00
Boron	E200.7	0.5 mg/L	\$9.00
Cadmium	E200.8	0.0005 mg/L	\$9.00
Calcium	E200.7	1.0 mg/L	\$9.00
Chromium	E200.8	0.002 mg/L	\$9.00
Cobalt	E200.8	0.004 mg/L	\$9.00
Lead	E200.8	0.002 mg/L	\$9.00
Lithium	E200.7	0.1 mg/L	\$9.00
Magnesium	E200.7	1.0 mg/L	\$9.00
Molybdenum	E200.8	0.002 mg/L	\$9.00
Selenium	E200.8	0.002 mg/L	\$9.00
Sodium	E200.7	1.0 mg/L	\$9.00
Thallium	E200.8	0.002 mg/L	\$9.00
Mercury, Total	E245.1	0.00015 mg/L	\$25.20
Radium 226 + Radium 228 ²	M903.1 + M904.0		\$182.16
Radium 226, Total ²	M903.1	0.4 pCi/L	\$0.00
Radium 228, Total ²	M904.0	1.5 pCi/L	\$0.00
Metals digestion/sample			\$18.00
Total/sample - Not including shipping			\$459.36
Monthly Price for 17 samples - Not including shipping			\$7,809.12
Total Project Cost (20 months) - Not including shipping			\$156,182.40

¹ - Includes 10% discount for 10 or more samples/delivery.

² - UPS shipping costs to Colorado will be applied to these analyses.

Radium analyses will be subcontracted to ACZ Labs in CO.

Lab Set ID: 1708113
pH Lot #: 5281

Preservation Check Sheet

Sample Set Extension and pH

[illegible]

Procedure:

- 1) Pour a small amount of sample in the sample lid
- 2) Pour sample from lid gently over wide range pH paper
- 3) **Do Not** dip the pH paper in the sample bottle or lid
- 4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
- 5) Flag COC, notify client if requested
- 6) Place client conversation on COC
- 7) Samples may be adjusted

Frequency:

All samples requiring preservation

- * The sample required additional preservative upon receipt.
- + The sample was received unpreserved.
- ▲ The sample was received unpreserved and therefore preserved upon receipt.
- # The sample pH was unadjustable to a pH < 2 due to the sample matrix.
- The sample pH was unadjustable to a pH > _____ due to the sample matrix interference.

September 22, 2017

Report to:

Elona Hayward
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

Bill to:

Lynn Turner
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

cc: Denise Bruun

Project ID: 1708113

ACZ Project ID: L38999

Elona Hayward:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 07, 2017. This project has been assigned to ACZ's project number, L38999. Please reference this number in all future inquiries.

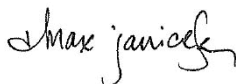
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L38999. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after October 22, 2017. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.



Max Janicek has reviewed and
approved this report.



American West Analytical Labs

Project ID: 1708113

Sample ID: ELF-8

Locator:

ACZ Sample ID: **L38999-01**

Date Sampled: 08/02/17 18:40

Date Received: 08/07/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	09/21/17 0:17		1	0.13	0.15	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/08/17 17:16		0.07	1.4	1.5	pCi/L	*	jlg/gjb

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1708113

Sample ID: ELF-8 DUP

Locator:

ACZ Sample ID: **L38999-02**

Date Sampled: 08/02/17 18:50

Date Received: 08/07/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	09/21/17 0:18		0.73	0.14	0.34	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/08/17 17:16		1.1	1.6	1.7	pCi/L	*	jlg/gjb

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1708113

Sample ID: ELF-2

Locator:

ACZ Sample ID: **L38999-03**

Date Sampled: 08/02/17 19:25

Date Received: 08/07/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	09/21/17 0:20		0.27	0.07	0.12	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/08/17 17:16		1.1	0.59	0.56	pCi/L		jlg/gjb

American West Analytical Labs

Project ID: 1708113

Sample ID: ELF-4

Locator:

ACZ Sample ID: **L38999-04**

Date Sampled: 08/02/17 17:08

Date Received: 08/07/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	09/21/17 0:21		0.37	0.1	0.07	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/08/17 17:16		2.2	0.71	0.62	pCi/L		jlg/gjb

American West Analytical Labs

Project ID: 1708113

Sample ID: ELF-7

Locator:

ACZ Sample ID: **L38999-05**

Date Sampled: 08/02/17 17:34

Date Received: 08/07/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	09/21/17 0:23		0.78	0.1	0.03	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/08/17 17:16		1.5	1.4	1.4	pCi/L	*	jlg/gjb

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1708113

Sample ID: ELF-3

Locator:

ACZ Sample ID: **L38999-06**

Date Sampled: 08/02/17 18:15

Date Received: 08/07/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	09/21/17 0:24		0.66	0.16	0.06	pCi/L	*	tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/09/17 13:15		3.1	2.1	2	pCi/L	*	jlg/gjb

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1708113
Sample ID: ELF-3-FB
Locator:

ACZ Sample ID: **L38999-07**
Date Sampled: 08/02/17 18:28
Date Received: 08/07/17
Sample Matrix: Ground Water

Radium 226
M903.1

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	09/21/17 0:25		0.05	0.06	0.04	pCi/L		tjr

Radium 228
M904.0

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/09/17 13:15		0.04	0.75	0.79	pCi/L		jlg/gjb

American West Analytical Labs

Project ID: 1708113

Sample ID: ELF-10

Locator:

ACZ Sample ID: **L38999-08**

Date Sampled: 08/02/17 19:15

Date Received: 08/07/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	09/21/17 0:27		0.27	0.07	0.04	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/09/17 13:15		-0.19	1.1	1.2	pCi/L	*	jlg/gjb

American West Analytical Labs

Project ID: 1708113

Sample ID: ELF-9

Locator:

ACZ Sample ID: **L38999-09**

Date Sampled: 08/02/17 19:51

Date Received: 08/07/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	09/21/17 0:28		1.3	0.17	0.09	pCi/L	*	tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/09/17 13:15		0.54	1.6	1.7	pCi/L	*	jlg/gjb

Arizona license number: AZ0102

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

American West Analytical Labs

ACZ Project ID: **L38999**

Radium 226

M903.1

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG431874																
WG430694PBW	PBW	09/21/17						.07	0.06	0.17			0.34			
WG430694LCSW	LCSW	09/21/17	PCN52691	20				21	0.5	0.12	105	43	148			
L38988-02DUP	DUP-RER	09/21/17			0.08	0.06	0.06	.14	0.07	0.09				0.65	2	
L38988-03DUP	DUP-RER	09/21/17			0.11	0.06	0.07	.13	0.06	0.05				0.23	2	
L38988-04MS	MS	09/21/17	PCN52691	20	0.16	0.06	0.04	21	0.48	0.04	104	43	148			

Radium 228

M904.0

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG430979																
WG430530PBW	PBW	09/08/17						.01	0.53	0.57			1.14			
WG430530LCSW	LCSW	09/08/17	PCN53180	9.45				9.5	0.96	0.55	101	47	123			
L39093-01DUP	DUP-RER	09/11/17			0.83	0.67	0.65	.71	0.66	0.66				0.13	2	
L38960-02MS	MS	09/11/17	PCN53180	9.44	-0.61	0.61	0.68	8.4	0.97	0.6	95	47	123			
L38960-01DUP	DUP-RER	09/11/17			-0.02	0.54	0.58	.77	0.56	0.55				1.02	2	

American West Analytical Labs

ACZ Project ID: **L38999**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L38999-01	WG430979	Radium 228	M904.0	DF	Sample required dilution due to high sediment.
L38999-02	WG430979	Radium 228	M904.0	DF	Sample required dilution due to high sediment.
L38999-05	WG430979	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
L38999-06	WG431874	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.
	WG430979	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
L38999-08	WG430979	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
L38999-09	WG431874	Radium 226	M903.1	DF	Sample required dilution due to high sediment.
	WG430979	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.

American West Analytical Labs

ACZ Project ID: **L38999**

No certification qualifiers associated with this analysis

American West Analytical Labs
1708113

ACZ Project ID: L38999
Date Received: 08/07/2017 08:47
Received By:
Date Printed: 8/7/2017

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2) Is the Chain of Custody form or other directive shipping papers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Does this project require special handling procedures such as CLP protocol?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4) Are any samples NRC licensable material?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) If samples are received past hold time, proceed with requested short hold time analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Is the Chain of Custody form complete and accurate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Are all labels on containers and are they intact and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) For preserved bottle types, was the pH checked and within limits? ¹	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Is there sufficient sample volume to perform all requested work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Is the custody seal intact on all containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14) Are samples that require zero headspace acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Are all sample containers appropriate for analytical requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Is there an Hg-1631 trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Is there a VOA trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18) Were all samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
4187	19.9	NA	15	Yes

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

American West Analytical Labs
1708113

ACZ Project ID: L38999
Date Received: 08/07/2017 08:47
Received By:
Date Printed: 8/7/2017

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

Americ.



Laboratories

Chain of Custody

Lab Sample Set #

28099 Chain of Custody, West Analytical Laboratories

Contact: **Elona Hayward**

Page 1 of 1

5440 S. 700 W.

Phone: **801-263-8686**

Salt Lake City, UT 84119

Fax : **801-263-8687**

Project Name: **Hunter CCR Sampling / PERCM52**

Email: elona@awal-labs.com

QC Level: **2+**

PO#: **1708113**

denise@awal-labs.com

Turn Around Time

Standard

Sample ID:	Date Sampled	Time	# of Containers	Sample Matrix		Radium 226 + Radium 228														Comments
ELF-8	8/2/2017	18:40	2	Aq		x														
ELF-8 DUP	8/2/2017	18:50	2	Aq		x														QC 2+: Include
ELF-2	8/2/2017	19:25	2	Aq		x														Batch QC summaries
ELF-4	8/2/2017	17:08	2	Aq		x														performed on client
ELF-7	8/2/2017	17:34	2	Aq		x														sample in report
ELF-3	8/2/2017	18:15	1	Aq		x				(Low volume)										
ELF-3-FB	8/2/2017	18:28	2	Aq		x														
ELF-10	8/2/2017	19:15	2	Aq		x														
ELF-9	8/2/2017	19:51	2	Aq		x														
										Samples sent to ACZ										
										Appropriate Utah state certifications required.										

Laboratory Use Only

Samples Were:

1 Shipped or hand delivered

2 Ambient or Chilled

3 Temperature _____

4 Received Broken/Leaking (Improperly Sealed)

Y N

5 Properly Preserved

Y N

6 Received Within _____ Holding Times

Y N

COC Tape Was:

1 Present on Outer Package

Y N NA

2 Unbroken on Outer Package

Y N NA

3 Present on Sample

Y N NA

4 Unbroken on Sample

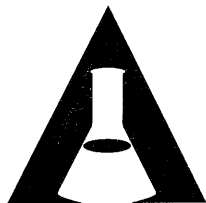
Y N NA

Discrepancies Between Sample Labels and COC Record?

Y N

Special Instructions: **Include project name and PO# on final report and invoice. Email results to both Elona and Denise.**

Relinquished by: <i>Signature</i> <i>Denise Brown</i>	Date: <i>8/4/17</i>	Received by: <i>Signature</i> <i>ES</i>	Date: <i>8/3/17</i>
Print Name <i>Denise Brown</i>	Time: <i>11:15</i>	Print Name	Time: <i>0847</i>
Relinquished by: <i>Signature</i>	Date:	Received by: <i>Signature</i>	Date:
Print Name	Time:	Print Name	Time:



**AMERICAN
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LABORATORIES**

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

3440 South 700 West
Salt Lake City, Utah
84119

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awal@awal-labs.com

Jeff Tucker
PacifiCorp
1407 West North Temple, # 280
Salt Lake City, UT 84116
TEL: (801) 220-2989

RE: Hunter CCR Sampling / PERCM52

Dear Jeff Tucker:

Lab Set ID: 1708672

American West Analytical Laboratories received sample(s) on 8/30/2017 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

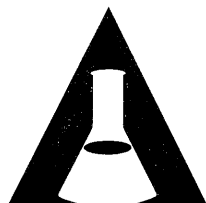
The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: 
Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:

Radiological Testing



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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708672-001
Client Sample ID: ELF-9
Collection Date: 8/29/2017 1530h
Received Date: 8/30/2017 725h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/31/2017 1145h	9/6/2017 1551h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/31/2017 1145h	9/6/2017 1551h	E200.8	0.00200	0.00622	
Barium	mg/L	8/31/2017 1145h	9/6/2017 1551h	E200.8	0.00200	0.0165	
Beryllium	mg/L	8/31/2017 1145h	9/6/2017 1551h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/31/2017 1145h	9/5/2017 1344h	E200.7	0.500	1.50	
Cadmium	mg/L	8/31/2017 1145h	9/6/2017 1551h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	8/31/2017 1145h	9/5/2017 1409h	E200.7	2.00	53.9	
Chromium	mg/L	8/31/2017 1145h	9/6/2017 1551h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	8/31/2017 1145h	9/6/2017 1551h	E200.8	0.00400	< 0.00400	
Lead	mg/L	8/31/2017 1145h	9/6/2017 1551h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	8/31/2017 1145h	9/5/2017 1344h	E200.7	0.100	0.801	
Magnesium	mg/L	8/31/2017 1145h	9/5/2017 1344h	E200.7	1.00	34.9	
Mercury	mg/L	9/6/2017 1530h	9/7/2017 813h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/31/2017 1145h	9/6/2017 1551h	E200.8	0.00200	0.106	
Selenium	mg/L	8/31/2017 1145h	9/6/2017 1551h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	8/31/2017 1145h	9/5/2017 1246h	E200.7	100	3,590	²
Thallium	mg/L	8/31/2017 1145h	9/6/2017 1551h	E200.8	0.00200	< 0.00200	

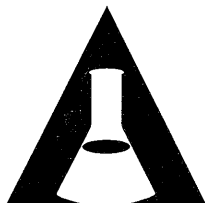
² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708672-002
Client Sample ID: ELF-9 Dup
Collection Date: 8/29/2017 1545h
Received Date: 8/30/2017 725h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/31/2017 1145h	9/6/2017 1609h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/31/2017 1145h	9/6/2017 1609h	E200.8	0.00200	0.00548	
Barium	mg/L	8/31/2017 1145h	9/6/2017 1609h	E200.8	0.00200	0.0151	
Beryllium	mg/L	8/31/2017 1145h	9/6/2017 1609h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/31/2017 1145h	9/5/2017 1450h	E200.7	0.500	1.47	
Cadmium	mg/L	8/31/2017 1145h	9/6/2017 1609h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	8/31/2017 1145h	9/5/2017 1351h	E200.7	2.00	65.8	
Chromium	mg/L	8/31/2017 1145h	9/6/2017 1609h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	8/31/2017 1145h	9/6/2017 1609h	E200.8	0.00400	< 0.00400	
Lead	mg/L	8/31/2017 1145h	9/6/2017 1609h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	8/31/2017 1145h	9/5/2017 1450h	E200.7	0.100	0.874	
Magnesium	mg/L	8/31/2017 1145h	9/5/2017 1351h	E200.7	2.00	44.7	
Mercury	mg/L	9/6/2017 1530h	9/7/2017 819h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/31/2017 1145h	9/6/2017 1609h	E200.8	0.00200	0.0813	
Selenium	mg/L	8/31/2017 1145h	9/6/2017 1609h	E200.8	0.00200	0.00226	
Sodium	mg/L	8/31/2017 1145h	9/5/2017 1253h	E200.7	100	3,610	
Thallium	mg/L	8/31/2017 1145h	9/6/2017 1609h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

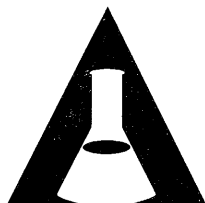
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708672-003
Client Sample ID: ELF-10
Collection Date: 8/29/2017 1630h
Received Date: 8/30/2017 725h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/31/2017 1145h	9/6/2017 1625h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/31/2017 1145h	9/6/2017 1625h	E200.8	0.00200	< 0.00200	
Barium	mg/L	8/31/2017 1145h	9/6/2017 1625h	E200.8	0.00200	0.0205	
Beryllium	mg/L	8/31/2017 1145h	9/6/2017 1625h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/31/2017 1145h	9/5/2017 1453h	E200.7	0.500	1.84	
Cadmium	mg/L	8/31/2017 1145h	9/6/2017 1625h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	8/31/2017 1145h	9/5/2017 1353h	E200.7	10.0	500	
Chromium	mg/L	8/31/2017 1145h	9/6/2017 1625h	E200.8	0.00200	0.00204	
Cobalt	mg/L	8/31/2017 1145h	9/6/2017 1625h	E200.8	0.00400	< 0.00400	
Lead	mg/L	8/31/2017 1145h	9/6/2017 1625h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	8/31/2017 1145h	9/5/2017 1453h	E200.7	0.100	1.53	
Magnesium	mg/L	8/31/2017 1145h	9/5/2017 1353h	E200.7	10.0	483	
Mercury	mg/L	9/6/2017 1530h	9/7/2017 821h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/31/2017 1145h	9/6/2017 1625h	E200.8	0.00200	0.0855	
Selenium	mg/L	8/31/2017 1145h	9/6/2017 1625h	E200.8	0.00200	0.00821	
Sodium	mg/L	8/31/2017 1145h	9/5/2017 1255h	E200.7	500	13,900	
Thallium	mg/L	8/31/2017 1145h	9/6/2017 1625h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

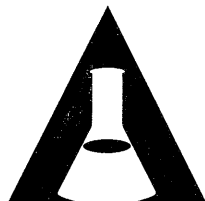
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708672-004
Client Sample ID: ELF-10 FB
Collection Date: 8/29/2017 1645h
Received Date: 8/30/2017 725h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	8/31/2017 1145h	9/6/2017 1628h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	8/31/2017 1145h	9/6/2017 1628h	E200.8	0.00200	< 0.00200	
Barium	mg/L	8/31/2017 1145h	9/6/2017 1628h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	8/31/2017 1145h	9/6/2017 1628h	E200.8	0.00200	< 0.00200	
Boron	mg/L	8/31/2017 1145h	9/5/2017 1305h	E200.7	0.500	< 0.500	
Cadmium	mg/L	8/31/2017 1145h	9/6/2017 1628h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	8/31/2017 1145h	9/5/2017 1305h	E200.7	1.00	< 1.00	
Chromium	mg/L	8/31/2017 1145h	9/6/2017 1628h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	8/31/2017 1145h	9/6/2017 1628h	E200.8	0.00400	< 0.00400	
Lead	mg/L	8/31/2017 1145h	9/6/2017 1628h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	8/31/2017 1145h	9/5/2017 1305h	E200.7	0.100	< 0.100	
Magnesium	mg/L	8/31/2017 1145h	9/5/2017 1305h	E200.7	1.00	< 1.00	
Mercury	mg/L	9/6/2017 1530h	9/7/2017 823h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	8/31/2017 1145h	9/6/2017 1628h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	8/31/2017 1145h	9/6/2017 1628h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	8/31/2017 1145h	9/5/2017 1305h	E200.7	1.00	< 1.00	
Thallium	mg/L	8/31/2017 1145h	9/6/2017 1628h	E200.8	0.00200	< 0.00200	

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Jose Rocha
QA Officer

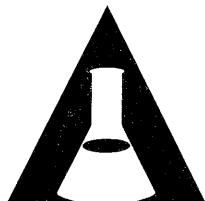
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708672-001
Client Sample ID: ELF-9
Collection Date: 8/29/2017 1530h
Received Date: 8/30/2017 725h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/31/2017 847h	SM2320B	10.0	595	
Bicarbonate (as CaCO ₃)	mg/L		8/31/2017 847h	SM2320B	10.0	595	
Carbonate (as CaCO ₃)	mg/L		8/31/2017 847h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/31/2017 2040h	E300.0	10.0	391	
Fluoride	mg/L		8/31/2017 2312h	E300.0	0.100	1.16	
Nitrate/Nitrite (as N)	mg/L		8/30/2017 1929h	E353.2	0.0100	0.893	
pH @ 25° C	pH Units		8/30/2017 1438h	SM4500-H+B	1.00	7.94	H
Sulfate	mg/L		8/31/2017 1611h	E300.0	750	5,830	
Total Dissolved Solids	mg/L		8/31/2017 1030h	SM2540C	100	10,500	

H - Sample was received outside of the holding time.

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Laboratory Director

Jose Rocha
QA Officer

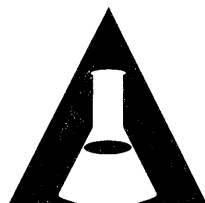
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INORGANIC ANALYTICAL REPORT

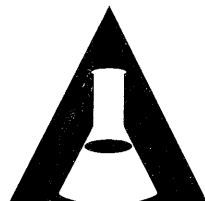
Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708672-002
Client Sample ID: ELF-9 Dup
Collection Date: 8/29/2017 1545h
Received Date: 8/30/2017 725h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/31/2017 847h	SM2320B	10.0	623	
Bicarbonate (as CaCO ₃)	mg/L		8/31/2017 847h	SM2320B	10.0	623	
Carbonate (as CaCO ₃)	mg/L		8/31/2017 847h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/31/2017 2057h	E300.0	10.0	284	
Fluoride	mg/L		8/31/2017 2329h	E300.0	0.100	0.968	
Nitrate/Nitrite (as N)	mg/L		8/30/2017 2016h	E353.2	0.100	7.36	
pH @ 25° C	pH Units		8/30/2017 1438h	SM4500-H+B	1.00	7.85	H
Sulfate	mg/L		8/31/2017 1701h	E300.0	750	5,550	
Total Dissolved Solids	mg/L		8/31/2017 1030h	SM2540C	100	10,100	

H - Sample was received outside of the holding time.



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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708672-003
Client Sample ID: ELF-10
Collection Date: 8/29/2017 1630h
Received Date: 8/30/2017 725h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/31/2017 847h	SM2320B	10.0	1,160	
Bicarbonate (as CaCO ₃)	mg/L		8/31/2017 847h	SM2320B	10.0	1,160	
Carbonate (as CaCO ₃)	mg/L		8/31/2017 847h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/31/2017 1718h	E300.0	200	6,960	
Fluoride	mg/L		8/31/2017 2346h	E300.0	0.100	4.27	
Nitrate/Nitrite (as N)	mg/L		8/30/2017 1931h	E353.2	0.100	0.916	
pH @ 25° C	pH Units		8/30/2017 1438h	SM4500-H+B	1.00	7.28	H
Sulfate	mg/L		8/31/2017 1718h	E300.0	1,500	16,800	
Total Dissolved Solids	mg/L		8/31/2017 1030h	SM2540C	100	38,200	

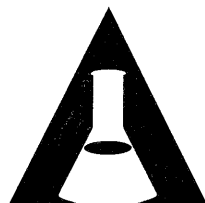
H - Sample was received outside of the holding time.

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1708672-004
Client Sample ID: ELF-10 FB
Collection Date: 8/29/2017 1645h
Received Date: 8/30/2017 725h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		8/31/2017 847h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		8/31/2017 847h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		8/31/2017 847h	SM2320B	10.0	< 10.0	
Chloride	mg/L		8/31/2017 1554h	E300.0	0.100	< 0.100	
Fluoride	mg/L		8/31/2017 1554h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		8/30/2017 1933h	E353.2	0.0100	0.0552	
pH @ 25° C	pH Units		8/30/2017 1438h	SM4500-H+B	1.00	5.03	H
Sulfate	mg/L		8/31/2017 1554h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		9/1/2017 1230h	SM2540C	10.0	< 10.0	

H - Sample was received outside of the holding time.



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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1708672
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-51056													
Date Analyzed:		09/05/2017 1220h											
Test Code:		200.7-W											
Date Prepared:		08/31/2017 1145h											
Boron	1.10	mg/L	E200.7	0.0139	0.500	1.000	0	110	85 - 115				
Calcium	10.6	mg/L	E200.7	0.0332	1.00	10.00	0	106	85 - 115				
Lithium	1.07	mg/L	E200.7	0.00194	0.100	1.000	0	107	80 - 120				
Magnesium	10.9	mg/L	E200.7	0.0710	1.00	10.00	0	109	85 - 115				
Sodium	10.5	mg/L	E200.7	0.0311	1.00	10.00	0	105	85 - 115				
Lab Sample ID: LCS-51055													
Date Analyzed:		08/31/2017 2031h											
Test Code:		200.8-W											
Date Prepared:		08/31/2017 1145h											
Antimony	0.198	mg/L	E200.8	0.000416	0.00200	0.2000	0	99.0	85 - 115				
Arsenic	0.203	mg/L	E200.8	0.000177	0.00200	0.2000	0	102	85 - 115				
Barium	0.200	mg/L	E200.8	0.000228	0.00200	0.2000	0	99.9	85 - 115				
Beryllium	0.185	mg/L	E200.8	0.0000318	0.00200	0.2000	0	92.3	85 - 115				
Cadmium	0.204	mg/L	E200.8	0.000226	0.000500	0.2000	0	102	85 - 115				
Chromium	0.208	mg/L	E200.8	0.000210	0.00200	0.2000	0	104	85 - 115				
Cobalt	0.202	mg/L	E200.8	0.0000336	0.00400	0.2000	0	101	85 - 115				
Lead	0.201	mg/L	E200.8	0.000308	0.00200	0.2000	0	101	85 - 115				
Molybdenum	0.208	mg/L	E200.8	0.000692	0.00200	0.2000	0	104	85 - 115				
Selenium	0.203	mg/L	E200.8	0.000176	0.00200	0.2000	0	102	85 - 115				
Thallium	0.198	mg/L	E200.8	0.000462	0.00200	0.2000	0	99.0	85 - 115				
Lab Sample ID: LCS-51132													
Date Analyzed:		09/07/2017 751h											
Test Code:		HG-DW-245.1											
Date Prepared:		09/06/2017 1530h											
Mercury	0.00345	mg/L	E245.1	0.00000511	0.000150	0.003330	0	104	85 - 115				



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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708672

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-51056	Date Analyzed:	09/05/2017 1218h											
Test Code: 200.7-W	Date Prepared:	08/31/2017 1145h											
Boron	< 0.500	mg/L	E200.7	0.0139	0.500								
Calcium	< 1.00	mg/L	E200.7	0.0332	1.00								
Lithium	< 0.100	mg/L	E200.7	0.00194	0.100								
Magnesium	< 1.00	mg/L	E200.7	0.0710	1.00								
Sodium	< 1.00	mg/L	E200.7	0.0311	1.00								
Lab Sample ID: MB-51055	Date Analyzed:	08/31/2017 2028h											
Test Code: 200.8-W	Date Prepared:	08/31/2017 1145h											
Antimony	< 0.000100	mg/L	E200.8	0.0000208	0.000100								
Arsenic	< 0.000100	mg/L	E200.8	0.00000883	0.000100								
Barium	< 0.000100	mg/L	E200.8	0.0000114	0.000100								
Beryllium	< 0.000100	mg/L	E200.8	0.00000159	0.000100								
Cadmium	< 0.0000250	mg/L	E200.8	0.0000113	0.0000250								
Chromium	< 0.000100	mg/L	E200.8	0.0000105	0.000100								
Cobalt	< 0.000200	mg/L	E200.8	0.00000168	0.000200								
Lead	< 0.000100	mg/L	E200.8	0.0000154	0.000100								
Molybdenum	< 0.000100	mg/L	E200.8	0.0000346	0.000100								
Selenium	< 0.000100	mg/L	E200.8	0.00000878	0.000100								
Thallium	< 0.000100	mg/L	E200.8	0.0000231	0.000100								
Lab Sample ID: MB-51132	Date Analyzed:	09/07/2017 749h											
Test Code: HG-DW-245.1	Date Prepared:	09/06/2017 1530h											
Mercury	< 0.000150	mg/L	E245.1	0.00000511	0.000150								



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1708672
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708671-001CMS	Date Analyzed:	09/05/2017 1226h											
Test Code: 200.7-W	Date Prepared:	08/31/2017 1145h											
Sodium	7,930	mg/L	E200.7	6.22	200	10.00	7020	9,070	70 - 130				2
Lab Sample ID: 1708672-001CMS	Date Analyzed:	09/05/2017 1248h											
Test Code: 200.7-W	Date Prepared:	08/31/2017 1145h											
Sodium	3,720	mg/L	E200.7	3.11	100	10.00	3590	1,320	70 - 130				2
Lab Sample ID: 1708671-001CMS	Date Analyzed:	09/05/2017 1324h											
Test Code: 200.7-W	Date Prepared:	08/31/2017 1145h											
Magnesium	150	mg/L	E200.7	0.355	5.00	10.00	142	73.1	70 - 130				
Lab Sample ID: 1708672-001CMS	Date Analyzed:	09/05/2017 1346h											
Test Code: 200.7-W	Date Prepared:	08/31/2017 1145h											
Boron	2.52	mg/L	E200.7	0.0139	0.500	1.000	1.5	102	70 - 130				
Lithium	1.87	mg/L	E200.7	0.00194	0.100	1.000	0.801	106	75 - 125				
Magnesium	45.2	mg/L	E200.7	0.0710	1.00	10.00	34.9	103	70 - 130				
Lab Sample ID: 1708671-001CMS	Date Analyzed:	09/05/2017 1405h											
Test Code: 200.7-W	Date Prepared:	08/31/2017 1145h											
Calcium	280	mg/L	E200.7	0.332	10.0	10.00	249	315	70 - 130				2
Lab Sample ID: 1708672-001CMS	Date Analyzed:	09/05/2017 1412h											
Test Code: 200.7-W	Date Prepared:	08/31/2017 1145h											
Calcium	63.8	mg/L	E200.7	0.0664	2.00	10.00	53.9	98.4	70 - 130				
Lab Sample ID: 1708671-001CMS	Date Analyzed:	09/05/2017 1441h											
Test Code: 200.7-W	Date Prepared:	08/31/2017 1145h											
Boron	1.83	mg/L	E200.7	0.0139	0.500	1.000	0.647	118	70 - 130				
Lithium	1.67	mg/L	E200.7	0.00194	0.100	1.000	0.662	101	75 - 125				

Report Date: 9/13/2017 Page 12 of 22



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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708672

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708671-001CMS													
Test Code:	200.8-W	Date Analyzed:	08/31/2017 2108h	Date Prepared:	08/31/2017 1145h								
Antimony	0.206	mg/L	E200.8	0.000416	0.00200	0.2000	0	103	75 - 125				
Arsenic	0.229	mg/L	E200.8	0.000177	0.00200	0.2000	0.00596	111	75 - 125				
Barium	0.521	mg/L	E200.8	0.000228	0.00200	0.2000	0.318	102	75 - 125				
Beryllium	0.176	mg/L	E200.8	0.0000318	0.00200	0.2000	0.00195	87.2	75 - 125				
Cadmium	0.202	mg/L	E200.8	0.000226	0.000500	0.2000	0.00155	100	75 - 125				
Lead	0.222	mg/L	E200.8	0.000308	0.00200	0.2000	0.0379	92.2	75 - 125				
Molybdenum	0.234	mg/L	E200.8	0.000692	0.00200	0.2000	0.0122	111	75 - 125				
Selenium	0.207	mg/L	E200.8	0.000176	0.00200	0.2000	0.000616	103	75 - 125				
Thallium	0.182	mg/L	E200.8	0.000462	0.00200	0.2000	0	90.8	75 - 125				
Lab Sample ID: 1708671-001CMS													
Test Code:	200.8-W	Date Analyzed:	09/06/2017 1533h	Date Prepared:	08/31/2017 1145h								
Chromium	0.204	mg/L	E200.8	0.000210	0.00200	0.2000	0.013	95.7	75 - 125				
Cobalt	0.180	mg/L	E200.8	0.0000336	0.00400	0.2000	0.00601	87.2	75 - 125				
Lab Sample ID: 1708672-001CMS													
Test Code:	200.8-W	Date Analyzed:	09/06/2017 1603h	Date Prepared:	08/31/2017 1145h								
Antimony	0.210	mg/L	E200.8	0.000416	0.00200	0.2000	0.000978	104	75 - 125				
Arsenic	0.227	mg/L	E200.8	0.000177	0.00200	0.2000	0.00622	111	75 - 125				
Barium	0.210	mg/L	E200.8	0.000228	0.00200	0.2000	0.0165	97.0	75 - 125				
Beryllium	0.201	mg/L	E200.8	0.0000318	0.00200	0.2000	0	101	75 - 125				
Cadmium	0.198	mg/L	E200.8	0.000226	0.000500	0.2000	0	99.2	75 - 125				
Chromium	0.202	mg/L	E200.8	0.000210	0.00200	0.2000	0.000754	101	75 - 125				
Cobalt	0.190	mg/L	E200.8	0.0000336	0.00400	0.2000	0.000727	94.5	75 - 125				
Lead	0.184	mg/L	E200.8	0.000308	0.00200	0.2000	0.000355	91.8	75 - 125				
Molybdenum	0.324	mg/L	E200.8	0.000692	0.00200	0.2000	0.106	109	75 - 125				
Selenium	0.213	mg/L	E200.8	0.000176	0.00200	0.2000	0.0011	106	75 - 125				
Thallium	0.182	mg/L	E200.8	0.000462	0.00200	0.2000	0	91.0	75 - 125				

Report Date: 9/13/2017 Page 13 of 22



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Kyle F. Gross
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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708672

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708671-002CMS	Date Analyzed:	09/07/2017 758h											
Test Code: HG-DW-245.1	Date Prepared:	09/06/2017 1530h											
Mercury	0.00342	mg/L	E245.1	0.00000511	0.000150	0.003330	0	103	80 - 120				
Lab Sample ID: 1708672-001CMS	Date Analyzed:	09/07/2017 815h											
Test Code: HG-DW-245.1	Date Prepared:	09/06/2017 1530h											
Mercury	0.00303	mg/L	E245.1	0.00000511	0.000150	0.003330	0	91.1	80 - 120				

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708672

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708671-001CMSD	Date Analyzed: 09/05/2017 1228h												
Test Code: 200.7-W	Date Prepared: 08/31/2017 1145h												
Sodium	6,540	mg/L	E200.7	6.22	200	10.00	7020	-4,800	70 - 130	7930	19.2	20	2
Lab Sample ID: 1708672-001CMSD	Date Analyzed: 09/05/2017 1251h												
Test Code: 200.7-W	Date Prepared: 08/31/2017 1145h												
Sodium	3,500	mg/L	E200.7	3.11	100	10.00	3590	-862	70 - 130	3720	6.04	20	2
Lab Sample ID: 1708671-001CMSD	Date Analyzed: 09/05/2017 1326h												
Test Code: 200.7-W	Date Prepared: 08/31/2017 1145h												
Magnesium	149	mg/L	E200.7	0.355	5.00	10.00	142	68.0	70 - 130	150	0.338	20	2
Lab Sample ID: 1708672-001CMSD	Date Analyzed: 09/05/2017 1348h												
Test Code: 200.7-W	Date Prepared: 08/31/2017 1145h												
Boron	2.52	mg/L	E200.7	0.0139	0.500	1.000	1.5	102	70 - 130	2.52	0.0320	20	
Lithium	1.84	mg/L	E200.7	0.00194	0.100	1.000	0.801	104	75 - 125	1.87	1.16	20	
Magnesium	44.4	mg/L	E200.7	0.0710	1.00	10.00	34.9	95.2	70 - 130	45.2	1.72	20	
Lab Sample ID: 1708671-001CMSD	Date Analyzed: 09/05/2017 1407h												
Test Code: 200.7-W	Date Prepared: 08/31/2017 1145h												
Calcium	272	mg/L	E200.7	0.332	10.0	10.00	249	232	70 - 130	280	3.02	20	2
Lab Sample ID: 1708672-001CMSD	Date Analyzed: 09/05/2017 1414h												
Test Code: 200.7-W	Date Prepared: 08/31/2017 1145h												
Calcium	63.5	mg/L	E200.7	0.0664	2.00	10.00	53.9	95.4	70 - 130	63.8	0.479	20	
Lab Sample ID: 1708671-001CMSD	Date Analyzed: 09/05/2017 1443h												
Test Code: 200.7-W	Date Prepared: 08/31/2017 1145h												
Boron	1.81	mg/L	E200.7	0.0139	0.500	1.000	0.647	117	70 - 130	1.83	0.904	20	
Lithium	1.65	mg/L	E200.7	0.00194	0.100	1.000	0.662	98.6	75 - 125	1.67	1.19	20	

Report Date: 9/13/2017 Page 15 of 22



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1708672
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708671-001CMSD													
Test Code:	200.8-W	Date Analyzed:	08/31/2017 2111h	Date Prepared:	08/31/2017 1145h								
Antimony	0.203	mg/L	E200.8	0.000416	0.00200	0.2000	0	102	75 - 125	0.206	1.44	20	
Arsenic	0.232	mg/L	E200.8	0.000177	0.00200	0.2000	0.00596	113	75 - 125	0.229	1.32	20	
Barium	0.521	mg/L	E200.8	0.000228	0.00200	0.2000	0.318	102	75 - 125	0.521	0.0560	20	
Beryllium	0.177	mg/L	E200.8	0.0000318	0.00200	0.2000	0.00195	87.5	75 - 125	0.176	0.363	20	
Cadmium	0.200	mg/L	E200.8	0.000226	0.000500	0.2000	0.00155	99.4	75 - 125	0.202	0.985	20	
Lead	0.221	mg/L	E200.8	0.000308	0.00200	0.2000	0.0379	91.3	75 - 125	0.222	0.785	20	
Molybdenum	0.235	mg/L	E200.8	0.000692	0.00200	0.2000	0.0122	111	75 - 125	0.234	0.227	20	
Selenium	0.206	mg/L	E200.8	0.000176	0.00200	0.2000	0.000616	103	75 - 125	0.207	0.119	20	
Thallium	0.181	mg/L	E200.8	0.000462	0.00200	0.2000	0	90.6	75 - 125	0.182	0.290	20	
Lab Sample ID: 1708671-001CMSD													
Test Code:	200.8-W	Date Analyzed:	09/06/2017 1536h	Date Prepared:	08/31/2017 1145h								
Chromium	0.200	mg/L	E200.8	0.000210	0.00200	0.2000	0.013	93.3	75 - 125	0.204	2.39	20	
Cobalt	0.178	mg/L	E200.8	0.0000336	0.00400	0.2000	0.00601	85.8	75 - 125	0.18	1.60	20	
Lab Sample ID: 1708672-001CMSD													
Test Code:	200.8-W	Date Analyzed:	09/06/2017 1606h	Date Prepared:	08/31/2017 1145h								
Antimony	0.211	mg/L	E200.8	0.000416	0.00200	0.2000	0.000978	105	75 - 125	0.21	0.873	20	
Arsenic	0.236	mg/L	E200.8	0.000177	0.00200	0.2000	0.00622	115	75 - 125	0.227	3.74	20	
Barium	0.210	mg/L	E200.8	0.000228	0.00200	0.2000	0.0165	97.0	75 - 125	0.21	0.00475	20	
Beryllium	0.193	mg/L	E200.8	0.0000318	0.00200	0.2000	0	96.4	75 - 125	0.201	4.15	20	
Cadmium	0.200	mg/L	E200.8	0.000226	0.000500	0.2000	0	100	75 - 125	0.198	0.808	20	
Chromium	0.201	mg/L	E200.8	0.000210	0.00200	0.2000	0.000754	100	75 - 125	0.202	0.776	20	
Cobalt	0.189	mg/L	E200.8	0.0000336	0.00400	0.2000	0.000727	93.9	75 - 125	0.19	0.632	20	
Lead	0.181	mg/L	E200.8	0.000308	0.00200	0.2000	0.000355	90.3	75 - 125	0.184	1.70	20	
Molybdenum	0.323	mg/L	E200.8	0.000692	0.00200	0.2000	0.106	109	75 - 125	0.324	0.176	20	
Selenium	0.210	mg/L	E200.8	0.000176	0.00200	0.2000	0.0011	105	75 - 125	0.213	1.18	20	
Thallium	0.180	mg/L	E200.8	0.000462	0.00200	0.2000	0	89.8	75 - 125	0.182	1.32	20	



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708672

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708671-002CMSD		Date Analyzed:	09/07/2017 800h										
Test Code: HG-DW-245.1		Date Prepared:	09/06/2017 1530h										
Mercury	0.00344	mg/L	E245.1	0.00000511	0.000150	0.003330	0	103	80 - 120	0.00343	0.292	20	
Lab Sample ID: 1708672-001CMSD		Date Analyzed:	09/07/2017 817h										
Test Code: HG-DW-245.1		Date Prepared:	09/06/2017 1530h										
Mercury	0.00312	mg/L	E245.1	0.00000511	0.000150	0.003330	0	93.6	80 - 120	0.00303	2.76	20	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1708672
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708671-001ADUP Test Code: PH-4500H+B Date Analyzed: 08/30/2017 1438h													
pH @ 25° C	7.76	pH Units	SM4500-H+B	1.00	1.00					7.81	0.642	5	H
Lab Sample ID: 1708672-001ADUP Test Code: PH-4500H+B Date Analyzed: 08/30/2017 1438h													
pH @ 25° C	7.96	pH Units	SM4500-H+B	1.00	1.00					7.94	0.252	5	H
Lab Sample ID: 1708671-001ADUP Test Code: TDS-W-2540C Date Analyzed: 08/31/2017 1030h													
Total Dissolved Solids	18,500	mg/L	SM2540C	78.7	100					17300	6.83	5	@
Lab Sample ID: 1708672-001ADUP Test Code: TDS-W-2540C Date Analyzed: 08/31/2017 1030h													
Total Dissolved Solids	10,100	mg/L	SM2540C	78.7	100					10500	3.90	5	
Lab Sample ID: 1708695-001ADUP Test Code: TDS-W-2540C Date Analyzed: 09/01/2017 1230h													
Total Dissolved Solids	620	mg/L	SM2540C	15.7	20.0					632	1.92	5	
Lab Sample ID: 1708707-007CDUP Test Code: TDS-W-2540C Date Analyzed: 09/01/2017 1230h													
Total Dissolved Solids	153,000	mg/L	SM2540C	394	500					168000	9.33	5	@

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

H - Sample was received outside of the holding time.



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QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708672

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-R104973		Date Analyzed: 08/31/2017 1025h											
Test Code: 300.0-W													
Chloride	5.26	mg/L	E300.0	0.0127	0.100	5.000	0	105	90 - 110				
Fluoride	4.99	mg/L	E300.0	0.0174	0.100	5.000	0	99.8	90 - 110				
Sulfate	5.22	mg/L	E300.0	0.0327	0.750	5.000	0	104	90 - 110				
Lab Sample ID: LCS-R104897		Date Analyzed: 08/31/2017 847h											
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	249	mg/L	SM2320B	2.14	10.0	250.0	0	99.8	90 - 110				
Lab Sample ID: LCS-R104875		Date Analyzed: 08/30/2017 1905h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.03	mg/L	E353.2	0.00833	0.0100	1.000	0	103	90 - 110				
Lab Sample ID: LCS-R104873		Date Analyzed: 08/30/2017 1438h											
Test Code: PH-4500H+B													
pH @ 25° C	8.91	pH Units	SM4500-H+B	1.00	1.00	9.000	0	99.0	98 - 102				
Lab Sample ID: LCS-R104951		Date Analyzed: 08/31/2017 1030h											
Test Code: TDS-W-2540C													
Total Dissolved Solids	210	mg/L	SM2540C	7.87	10.0	205.0	0	102	80 - 120				
Lab Sample ID: LCS-R104989		Date Analyzed: 09/01/2017 1230h											
Test Code: TDS-W-2540C													
Total Dissolved Solids	186	mg/L	SM2540C	7.87	10.0	205.0	0	90.7	80 - 120				



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QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708672

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-R104973		Date Analyzed: 08/31/2017 1008h											
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.0127	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.0174	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0327	0.750								
Lab Sample ID: MB-R104897		Date Analyzed: 08/31/2017 847h											
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	< 10.0	mg/L	SM2320B	2.14	10.0								
Bicarbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	2.14	10.0								
Carbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	2.14	10.0								
Lab Sample ID: MB-R104875		Date Analyzed: 08/30/2017 1903h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								
Lab Sample ID: MB-R104951		Date Analyzed: 08/31/2017 1030h											
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	7.87	10.0								
Lab Sample ID: MB-R104989		Date Analyzed: 09/01/2017 1230h											
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	7.87	10.0								

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Kyle F. Gross
Laboratory DirectorJose Rocha
QA Officer**QC SUMMARY REPORT****Client:** PacifiCorp**Lab Set ID:** 1708672**Project:** Hunter CCR Sampling / PERCM52**Contact:** Jeff Tucker**Dept:** WC**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708671-002AMS		Date Analyzed: 08/31/2017 1414h											
Test Code: 300.0-W													
Chloride	13,200	mg/L	E300.0	25.4	200	10,000	2600	106	90 - 110				
Fluoride	9,970	mg/L	E300.0	34.8	200	10,000	33.9	99.4	90 - 110				
Sulfate	14,800	mg/L	E300.0	65.4	1,500	10,000	4610	101	90 - 110				
Lab Sample ID: 1708672-003AMS		Date Analyzed: 08/31/2017 1735h											
Test Code: 300.0-W													
Chloride	32,500	mg/L	E300.0	63.5	500	25,000	6960	102	90 - 110				
Fluoride	24,400	mg/L	E300.0	87.0	500	25,000	0	97.8	90 - 110				
Sulfate	40,700	mg/L	E300.0	164	3,750	25,000	16800	95.4	90 - 110				
Lab Sample ID: 1708672-001AMS		Date Analyzed: 08/31/2017 847h											
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	798	mg/L	SM2320B	2.14	10.0	200.0	595	102	80 - 120				
Lab Sample ID: 1708672-004BMS		Date Analyzed: 08/30/2017 1934h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.11	mg/L	E353.2	0.00833	0.0100	1.000	0.0552	106	90 - 110				



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QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1708672

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1708671-002AMSD		Date Analyzed: 08/31/2017 1430h											
Test Code: 300.0-W													
Chloride	13,300	mg/L	E300.0	25.4	200	10,000	2600	107	90 - 110	13200	0.183	20	
Fluoride	10,100	mg/L	E300.0	34.8	200	10,000	33.9	100	90 - 110	9970	0.851	20	
Sulfate	14,700	mg/L	E300.0	65.4	1,500	10,000	4610	101	90 - 110	14800	0.542	20	
Lab Sample ID: 1708672-003AMSD		Date Analyzed: 08/31/2017 1752h											
Test Code: 300.0-W													
Chloride	32,500	mg/L	E300.0	63.5	500	25,000	6960	102	90 - 110	32500	0.181	20	
Fluoride	24,400	mg/L	E300.0	87.0	500	25,000	0	97.5	90 - 110	24400	0.318	20	
Sulfate	40,500	mg/L	E300.0	164	3,750	25,000	16800	94.7	90 - 110	40700	0.480	20	
Lab Sample ID: 1708672-001AMSD		Date Analyzed: 08/31/2017 847h											
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	794	mg/L	SM2320B	2.14	10.0	200.0	595	99.8	80 - 120	798	0.440	10	
Lab Sample ID: 1708672-004BMSD		Date Analyzed: 08/30/2017 1935h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.11	mg/L	E353.2	0.00833	0.0100	1.000	0.0552	105	90 - 110	1.11	0.450	10	

WORK ORDER Summary

Work Order: **1708672**

Page 1 of 3

Client: PacifiCorp

Due Date: 9/14/2017

Client ID: PAC900

Contact: Jeff Tucker

Project: Hunter CCR Sampling / PERCM52

QC Level: II+

WO Type: Project

Comments: QC2+. Footnote report, pH received outside of hold. Include EDD. RADS sent to ACZ. Cc: Report to mshirley@waterenvtech.com, Laura Watson and Dave Erickson.;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1708672-001A	ELF-9	8/29/2017 1530h	8/30/2017 0725h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708672-001B				NO2/NO3-W-353.2			DF-NO2/NO3	
1708672-001C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1708672-001D				OUTSIDE LAB			ACZ	2
1708672-002A	ELF-9 Dup	8/29/2017 1545h	8/30/2017 0725h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708672-002B				NO2/NO3-W-353.2			DF-NO2/NO3	
1708672-002C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	

WORK ORDER Summary

Work Order: **1708672**

Page 2 of 3

Client: PacifiCorp

Due Date: 9/14/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1708672-002D	ELF-9 Dup	8/29/2017 1545h	8/30/2017 0725h	OUTSIDE LAB	Aqueous		ACZ	2
1708672-003A	ELF-10	8/29/2017 1630h	8/30/2017 0725h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708672-003B				NO2/NO3-W-353.2			DF-NO2/NO3	
1708672-003C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1708672-003D				OUTSIDE LAB			ACZ	2
1708672-004A	ELF-10 FB	8/29/2017 1645h	8/30/2017 0725h	300.0-W	Aqueous		DF-WC	1
				3 SEL Analytes: CL F SO4				
				ALK-W-2320B			DF-WC	
				3 SEL Analytes: ALK ALKB ALKC				
				PH-4500H+B			DF-WC	
				TDS-W-2540C			DF-WC	
1708672-004B				NO2/NO3-W-353.2			DF-NO2/NO3	
1708672-004C				200.7-W			DF-Metals	
				5 SEL Analytes: B CA LI MG NA				
				200.7-W-PR			DF-Metals	
				200.8-W			DF-Metals	
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL				
				200.8-W-PR			DF-Metals	
				HG-DW-245.1			DF-Metals	
				HG-DW-PR			DF-Metals	
1708672-004D				OUTSIDE LAB			ACZ	2

WORK ORDER Summary

Work Order: **1708672**

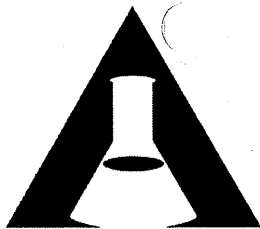
Page 3 of 3

Client: PacifiCorp

Due Date: 9/14/2017

AWAL Use Only - One or more samples expired upon receipt:

Test Code
PH-4500H+B
PH-4500H+B
PH-4500H+B
PH-4500H+B



AMERICAN WEST ANALYTICAL LABORATORIES

3440 S. 700 W. SALT LAKE CITY, UT 84119
PHONE # (801) 263-8686 TOLL FREE # (888) 263-8686
FAX # (801) 263-8687 EMAIL AWAL@AWAL-LABS.COM

WWW.AWAL-LABS.COM

CHAIN OF CUSTODY

ALL ANALYSIS WILL BE CONDUCTED USING NELAP ACCREDITED METHODS AND ALL DATA WILL BE REPORTED USING AWAL'S STANDARD ANALYTE LISTS AND REPORTING LIMITS (PQL) UNLESS SPECIFICALLY REQUESTED OTHERWISE ON THIS CHAIN OF CUSTODY AND/OR ATTACHED DOCUMENTATION.

1708672
AWAL LAB SAMPLE SET #
PAGE OF

CLIENT: **PacifiCorp**

ADDRESS: _____

CONTACT: **Jeff Tucker**

PHONE #: _____ CELL #: _____

EMAIL: _____

PROJECT NAME: **Hunter CCR Sampling**

PROJECT #: **PERCM52**

PO #: _____

SAMPLER NAME: _____

QC Level:		Turn Around Time:		Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.		DUE DATE:												
1	2 (2+)	3	3+	1	2	3	4	5	6	7	8	9	10	11	12	9-14		
# OF CONTAINERS	SAMPLE MATRIX	TDS, pH, Alkalinity	Anions	Fluoride	Total Metals	Total Mercury	Nitrogen, Nitrite + Nitrate	Radium 226 + Radium 228									LABORATORY USE ONLY	
																	SAMPLES WERE:	
																	1 SHIPPED OR HAND DELIVERED	
																	2 AMBIENT OR CHILLED	
																	3 TEMPERATURE 3.9 °C	
																	4 RECEIVED BROKEN/LEAKING (IMPROPERLY SEALED)	
																	Y N	
																	5 PROPERLY PRESERVED	
																	Y N CHECKED AT BENCH	
																	6 RECEIVED WITHIN HOLDING TIMES	
																	Y N	
																	pH rec outside of lab	
COC TAPE WAS:																		
1 PRESENT ON OUTER PACKAGE																		
Y N NA																		
2 UNBROKEN ON OUTER PACKAGE																		
Y N NA																		
3 PRESENT ON SAMPLE																		
Y N NA																		
4 UNBROKEN ON SAMPLE																		
Y N NA																		
DISCREPANCIES BETWEEN SAMPLE LABELS AND COC RECORD?																		
Y N																		

RELINQUISHED BY:		DATE:		RECEIVED BY:		DATE:		SPECIAL INSTRUCTIONS:	
SIGNATURE		8/30/17	7:25	SIGNATURE		8/30/17	7:25		
PRINT NAME:	Mike Sharkey			PRINT NAME:	Lynn Greenhill				
RELINQUISHED BY:		DATE:		RECEIVED BY:		DATE:			
SIGNATURE		TIME:		SIGNATURE		TIME:			
PRINT NAME:				PRINT NAME:					
RELINQUISHED BY:		DATE:		RECEIVED BY:		DATE:			
SIGNATURE		TIME:		SIGNATURE		TIME:			
PRINT NAME:				PRINT NAME:					
RELINQUISHED BY:		DATE:		RECEIVED BY:		DATE:			
SIGNATURE		TIME:		SIGNATURE		TIME:			
PRINT NAME:				PRINT NAME:					

Lab Set ID: 1708672
pH Lot #: 5337

Preservation Check Sheet

Sample Set Extension and pH

[illegible]

Procedure:

- 1) Pour a small amount of sample in the sample lid
- 2) Pour sample from lid gently over wide range pH paper
- 3) **Do Not** dip the pH paper in the sample bottle or lid
- 4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
- 5) Flag COC, notify client if requested
- 6) Place client conversation on COC
- 7) Samples may be adjusted

Frequency: All samples requiring preservation

- * The sample required additional preservative upon receipt.
- + The sample was received unpreserved.
- ▲ The sample was received unpreserved and therefore preserved upon receipt.
- # The sample pH was unadjustable to a pH < 2 due to the sample matrix.
- The sample pH was unadjustable to a pH > due to the sample matrix interference.

October 19, 2017

Report to:

Elona Hayward
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

Bill to:

Lynn Turner
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

cc: Denise Bruun

Project ID: 1708672

ACZ Project ID: L39607

Elona Hayward:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on September 01, 2017. This project has been assigned to ACZ's project number, L39607. Please reference this number in all future inquiries.

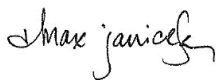
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L39607. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after November 18, 2017. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.



Max Janicek has reviewed and
approved this report.



American West Analytical Labs

Project ID: 1708672

Sample ID: ELF-9

Locator:

ACZ Sample ID: **L39607-01**

Date Sampled: 08/29/17 15:30

Date Received: 09/01/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/18/17 0:14		0.33	0.12	0.09	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/29/17 13:40		1.9	1.5	1.4	pCi/L	*	djc

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1708672

Sample ID: ELF-9 DUP

Locator:

ACZ Sample ID: **L39607-02**

Date Sampled: 08/29/17 15:45

Date Received: 09/01/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/18/17 0:15		0.23	0.09	0.22	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/29/17 13:40		2.2	1.4	1.3	pCi/L	*	djc

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1708672

Sample ID: ELF-10

Locator:

ACZ Sample ID: **L39607-03**

Date Sampled: 08/29/17 16:30

Date Received: 09/01/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/18/17 0:17		0.66	0.2	0.23	pCi/L	*	tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/29/17 13:40		2.9	1.5	1.4	pCi/L	*	djc

American West Analytical Labs

Project ID: 1708672

Sample ID: ELF-10 FB

Locator:

ACZ Sample ID: **L39607-04**

Date Sampled: 08/29/17 16:45

Date Received: 09/01/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/18/17 0:18		0.08	0.09	0.22	pCi/L	*	tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	09/29/17 13:40		2	0.82	0.75	pCi/L	*	djc

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
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Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

American West Analytical Labs

ACZ Project ID: **L39607**

Radium 226

M903.1

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG433935																
WG432637PBW	PBW	10/18/17						.05	0.07	0.04			0.08			
WG432637LCSW	LCSW	10/18/17	PCN52691	20				18	0.49	0.04	90	43	148			
L39587-01DUP	DUP-RER	10/18/17			0.63	0.09	0.02	.57	0.11	0.05				0.42	2	
L39629-02DUP	DUP-RER	10/18/17			0.12	0.06	0.1	.15	0.07	0.05				0.32	2	
L39629-05MS	MS	10/18/17	PCN52691	20	0.08	0.06	0.05	17	0.47	0.08	85	43	148			

Radium 228

M904.0

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG432661																
WG431805PBW	PBW	09/29/17						1.3	0.81	0.77			1.54			
WG431805LCSW	LCSW	09/29/17	PCN52272	17.86				14	1.4	0.77	78	47	123			
L39586-01DUP	DUP-RER	09/29/17			3.6	0.89	0.74	.11	0.7	0.74				3.08	2	RM
L39561-02MS	MS	09/29/17	PCN52272	23.81	0.72	0.75	0.75	12	1.3	0.79	47	47	123			
L39561-01DUP	DUP-RER	09/29/17			3	0.83	0.7	.99	0.93	0.93				1.61	2	

American West Analytical Labs

ACZ Project ID: **L39607**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L39607-01	WG432661	Radium 228	M904.0	D1	Sample required dilution due to matrix.
			M904.0	RM	For a water matrix, the duplicate precision assessment (RPD or RER) exceeded the control limit. High sediment, turbidity, or presence of an immiscible liquid attributed to non-homogeneity of the sample.
L39607-02	WG432661	Radium 228	M904.0	D1	Sample required dilution due to matrix.
			M904.0	RM	For a water matrix, the duplicate precision assessment (RPD or RER) exceeded the control limit. High sediment, turbidity, or presence of an immiscible liquid attributed to non-homogeneity of the sample.
L39607-03	WG433935	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.
	WG432661	Radium 228	M904.0	D1	Sample required dilution due to matrix.
			M904.0	RM	For a water matrix, the duplicate precision assessment (RPD or RER) exceeded the control limit. High sediment, turbidity, or presence of an immiscible liquid attributed to non-homogeneity of the sample.
L39607-04	WG433935	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.
	WG432661	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.
			M904.0	RM	For a water matrix, the duplicate precision assessment (RPD or RER) exceeded the control limit. High sediment, turbidity, or presence of an immiscible liquid attributed to non-homogeneity of the sample.

American West Analytical Labs

ACZ Project ID: **L39607**

No certification qualifiers associated with this analysis

American West Analytical Labs
1708672

ACZ Project ID: L39607
Date Received: 09/01/2017 11:31
Received By:
Date Printed: 9/1/2017

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2) Is the Chain of Custody form or other directive shipping papers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Does this project require special handling procedures such as CLP protocol?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4) Are any samples NRC licensable material?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) If samples are received past hold time, proceed with requested short hold time analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Is the Chain of Custody form complete and accurate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Are all labels on containers and are they intact and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) For preserved bottle types, was the pH checked and within limits? ¹	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Is there sufficient sample volume to perform all requested work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Is the custody seal intact on all containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14) Are samples that require zero headspace acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Are all sample containers appropriate for analytical requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Is there an Hg-1631 trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Is there a VOA trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18) Were all samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA26789	22.6	NA	14	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

American West Analytical Labs
1708672

ACZ Project ID: L39607
Date Received: 09/01/2017 11:31
Received By:
Date Printed: 9/1/2017

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



Client: **American West Analytical Laboratories**
Address: **3440 S. 700 W.**
Salt Lake City, UT 84119
Project Name: **Hunter CCR Sampling / PERCM52**
PO#: **1708672**

Contact: Elona Hayward
Phone: 801-263-8686
Fax : 801-263-8687
Email: elona@awal-labs
denise@awal-labs

Page 1 of 1

QC Level: 2+

Turn Around Time

Standard

elona@awal-labs.com
denise@awal-labs.com

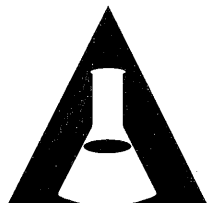
Project Name: **Hunter CCR Sampling / PERCM52**
PO#: **1708672**

Turn Around Time Standard

[illegible]

Special Instructions: Include project name and PO# on final report and invoice. Email results to both Elona and Denise.

Relinquished by: Signature	<i>[Signature]</i>	Date: 8/20/17	Received by: Signature	<i>[Signature]</i>	Date: 11/3
Print Name	Elmer Hernandez	Time: 1410	Print Name		Time: 1131
Relinquished by: Signature	<i>[Signature]</i>	Date: _____	Received by: Signature		Date: _____
Print Name		Time: _____	Print Name		Time: _____



**AMERICAN
WEST
ANALYTICAL
LABORATORIES**

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

3440 South 700 West
Salt Lake City, Utah
84119

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

awal@awal-labs.com

Jeff Tucker
PacifiCorp
1407 West North Temple, # 280
Salt Lake City, UT 84116
TEL: (801) 220-2989

RE: Hunter CCR Sampling / PERCM52

Dear Jeff Tucker:

Lab Set ID: 1709322

American West Analytical Laboratories received sample(s) on 9/15/2017 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

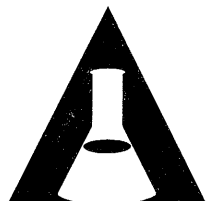
Thank You,

Approved by:


Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:

Radiological Testing



AMERICAN
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ANALYTICAL
LABORATORIES

INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1709322-001
Client Sample ID: ELF-9
Collection Date: 9/15/2017 1000h
Received Date: 9/15/2017 1750h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	9/19/2017 1026h	9/20/2017 1238h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	9/19/2017 1026h	9/20/2017 1238h	E200.8	0.00200	0.00762	
Barium	mg/L	9/19/2017 1026h	9/20/2017 1238h	E200.8	0.00200	0.0348	
Beryllium	mg/L	9/19/2017 1026h	9/20/2017 1238h	E200.8	0.00200	< 0.00200	
Boron	mg/L	9/19/2017 1026h	9/25/2017 1410h	E200.7	0.500	1.39	
Cadmium	mg/L	9/19/2017 1026h	9/20/2017 1238h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	9/19/2017 1026h	9/25/2017 1321h	E200.7	2.00	60.3	
Chromium	mg/L	9/19/2017 1026h	9/20/2017 1238h	E200.8	0.00200	0.00529	
Cobalt	mg/L	9/19/2017 1026h	9/20/2017 1238h	E200.8	0.00400	< 0.00400	
Lead	mg/L	9/19/2017 1026h	9/20/2017 1238h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	9/19/2017 1026h	9/25/2017 1410h	E200.7	0.100	0.783	
Magnesium	mg/L	9/19/2017 1026h	9/25/2017 1410h	E200.7	1.00	33.8	
Mercury	mg/L	9/21/2017 1419h	9/22/2017 806h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	9/19/2017 1026h	9/20/2017 1238h	E200.8	0.00200	0.117	
Selenium	mg/L	9/19/2017 1026h	9/20/2017 1238h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	9/19/2017 1026h	9/25/2017 1152h	E200.7	100	3,810	²
Thallium	mg/L	9/19/2017 1026h	9/20/2017 1238h	E200.8	0.00200	< 0.00200	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

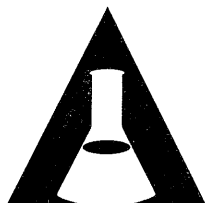
3440 South 700 West
Salt Lake City, Utah
84119

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

awal@awal-labs.com



AMERICAN
WEST
ANALYTICAL
LABORATORIES

INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1709322-002
Client Sample ID: ELF-9 DUP
Collection Date: 9/15/2017 1015h
Received Date: 9/15/2017 1750h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	9/19/2017 1026h	9/20/2017 1200h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	9/19/2017 1026h	9/20/2017 1200h	E200.8	0.00200	0.00610	
Barium	mg/L	9/19/2017 1026h	9/20/2017 1200h	E200.8	0.00200	0.0322	
Beryllium	mg/L	9/19/2017 1026h	9/20/2017 1200h	E200.8	0.00200	< 0.00200	
Boron	mg/L	9/19/2017 1026h	9/25/2017 1417h	E200.7	0.500	1.36	
Cadmium	mg/L	9/19/2017 1026h	9/20/2017 1200h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	9/19/2017 1026h	9/25/2017 1417h	E200.7	1.00	57.4	
Chromium	mg/L	9/19/2017 1026h	9/20/2017 1200h	E200.8	0.00200	0.00369	
Cobalt	mg/L	9/19/2017 1026h	9/20/2017 1200h	E200.8	0.00400	< 0.00400	
Lead	mg/L	9/19/2017 1026h	9/20/2017 1200h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	9/19/2017 1026h	9/25/2017 1417h	E200.7	0.100	0.866	
Magnesium	mg/L	9/19/2017 1026h	9/25/2017 1417h	E200.7	1.00	37.5	
Mercury	mg/L	9/21/2017 1419h	9/22/2017 834h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	9/19/2017 1026h	9/20/2017 1200h	E200.8	0.00200	0.0991	
Selenium	mg/L	9/19/2017 1026h	9/20/2017 1200h	E200.8	0.00200	0.00210	
Sodium	mg/L	9/19/2017 1026h	9/25/2017 1158h	E200.7	100	3,350	
Thallium	mg/L	9/19/2017 1026h	9/20/2017 1200h	E200.8	0.00200	< 0.00200	

Kyle F. Gross
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Jose Rocha
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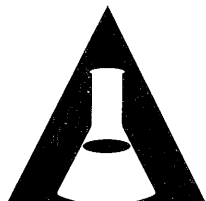
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1709322-003
Client Sample ID: ELF-10
Collection Date: 9/15/2017 1145h
Received Date: 9/15/2017 1750h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared		Date Analyzed		Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	9/19/2017	1026h	9/20/2017	1203h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	9/19/2017	1026h	9/20/2017	1203h	E200.8	0.00200	< 0.00200	
Barium	mg/L	9/19/2017	1026h	9/20/2017	1203h	E200.8	0.00200	0.0601	
Beryllium	mg/L	9/19/2017	1026h	9/20/2017	1203h	E200.8	0.00200	< 0.00200	
Boron	mg/L	9/19/2017	1026h	9/25/2017	1431h	E200.7	0.500	1.60	
Cadmium	mg/L	9/19/2017	1026h	9/20/2017	1203h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	9/19/2017	1026h	9/25/2017	1331h	E200.7	10.0	445	
Chromium	mg/L	9/19/2017	1026h	9/20/2017	1203h	E200.8	0.00200	0.00648	
Cobalt	mg/L	9/19/2017	1026h	9/20/2017	1203h	E200.8	0.00400	< 0.00400	
Lead	mg/L	9/19/2017	1026h	9/20/2017	1203h	E200.8	0.00200	0.00311	
Lithium	mg/L	9/19/2017	1026h	9/25/2017	1431h	E200.7	0.100	2.20	
Magnesium	mg/L	9/19/2017	1026h	9/25/2017	1331h	E200.7	10.0	390	
Mercury	mg/L	9/21/2017	1419h	9/22/2017	836h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	9/19/2017	1026h	9/20/2017	1203h	E200.8	0.00200	0.0795	
Selenium	mg/L	9/19/2017	1026h	9/20/2017	1203h	E200.8	0.00200	0.0105	
Sodium	mg/L	9/19/2017	1026h	9/25/2017	1200h	E200.7	500	12,000	
Thallium	mg/L	9/19/2017	1026h	9/20/2017	1203h	E200.8	0.00200	< 0.00200	

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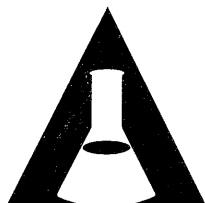
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1709322-004
Client Sample ID: ELF-10 FB
Collection Date: 9/15/2017 1200h
Received Date: 9/15/2017 1750h

Contact: Jeff Tucker

Analytical Results

TOTAL METALS

Compound	Units	Date Prepared		Date Analyzed		Method Used	Reporting Limit	Analytical Result	Qual
Antimony	mg/L	9/19/2017	1026h	9/20/2017	1207h	E200.8	0.00200	< 0.00200	
Arsenic	mg/L	9/19/2017	1026h	9/20/2017	1207h	E200.8	0.00200	< 0.00200	
Barium	mg/L	9/19/2017	1026h	9/20/2017	1207h	E200.8	0.00200	< 0.00200	
Beryllium	mg/L	9/19/2017	1026h	9/20/2017	1207h	E200.8	0.00200	< 0.00200	
Boron	mg/L	9/19/2017	1026h	9/25/2017	1202h	E200.7	0.500	< 0.500	
Cadmium	mg/L	9/19/2017	1026h	9/20/2017	1207h	E200.8	0.000500	< 0.000500	
Calcium	mg/L	9/19/2017	1026h	9/25/2017	1202h	E200.7	1.00	< 1.00	
Chromium	mg/L	9/19/2017	1026h	9/20/2017	1207h	E200.8	0.00200	< 0.00200	
Cobalt	mg/L	9/19/2017	1026h	9/20/2017	1207h	E200.8	0.00400	< 0.00400	
Lead	mg/L	9/19/2017	1026h	9/20/2017	1207h	E200.8	0.00200	< 0.00200	
Lithium	mg/L	9/19/2017	1026h	9/25/2017	1202h	E200.7	0.100	< 0.100	
Magnesium	mg/L	9/19/2017	1026h	9/25/2017	1202h	E200.7	1.00	< 1.00	
Mercury	mg/L	9/21/2017	1419h	9/22/2017	838h	E245.1	0.000150	< 0.000150	
Molybdenum	mg/L	9/19/2017	1026h	9/20/2017	1207h	E200.8	0.00200	< 0.00200	
Selenium	mg/L	9/19/2017	1026h	9/20/2017	1207h	E200.8	0.00200	< 0.00200	
Sodium	mg/L	9/19/2017	1026h	9/25/2017	1202h	E200.7	1.00	< 1.00	
Thallium	mg/L	9/19/2017	1026h	9/20/2017	1207h	E200.8	0.00200	< 0.00200	

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Jose Rocha
QA Officer

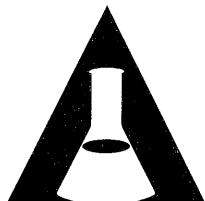
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1709322-001
Client Sample ID: ELF-9
Collection Date: 9/15/2017 1000h
Received Date: 9/15/2017 1750h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		9/18/2017 844h	SM2320B	10.0	584	
Bicarbonate (as CaCO ₃)	mg/L		9/18/2017 844h	SM2320B	10.0	584	
Carbonate (as CaCO ₃)	mg/L		9/18/2017 844h	SM2320B	10.0	< 10.0	
Chloride	mg/L		9/23/2017 233h	E300.0	10.0	359	
Fluoride	mg/L		9/27/2017 2005h	E300.0	0.100	1.84	
Nitrate/Nitrite (as N)	mg/L		9/18/2017 1719h	E353.2	0.0100	0.363	
pH @ 25° C	pH Units		9/15/2017 1830h	SM4500-H+B	1.00	8.06	
Sulfate	mg/L		9/22/2017 1915h	E300.0	750	5,600	
Total Dissolved Solids	mg/L		9/18/2017 1320h	SM2540C	50.0	11,900	@

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

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Jose Rocha
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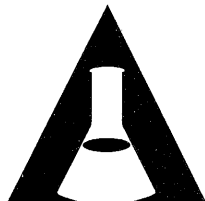
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1709322-002
Client Sample ID: ELF-9 DUP
Collection Date: 9/15/2017 1015h
Received Date: 9/15/2017 1750h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		9/18/2017 844h	SM2320B	10.0	588	
Bicarbonate (as CaCO ₃)	mg/L		9/18/2017 844h	SM2320B	10.0	588	
Carbonate (as CaCO ₃)	mg/L		9/18/2017 844h	SM2320B	10.0	< 10.0	
Chloride	mg/L		9/23/2017 249h	E300.0	10.0	269	
Fluoride	mg/L		9/27/2017 2022h	E300.0	0.100	1.63	
Nitrate/Nitrite (as N)	mg/L		9/18/2017 1737h	E353.2	0.100	5.86	
pH @ 25° C	pH Units		9/15/2017 1830h	SM4500-H+B	1.00	8.00	
Sulfate	mg/L		9/22/2017 1931h	E300.0	750	4,900	
Total Dissolved Solids	mg/L		9/18/2017 1320h	SM2540C	50.0	10,300	

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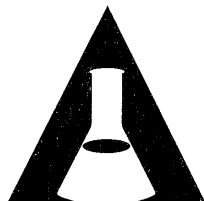
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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1709322-003
Client Sample ID: ELF-10
Collection Date: 9/15/2017 1145h
Received Date: 9/15/2017 1750h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		9/18/2017 844h	SM2320B	10.0	1,190	
Bicarbonate (as CaCO ₃)	mg/L		9/18/2017 844h	SM2320B	10.0	1,190	
Carbonate (as CaCO ₃)	mg/L		9/18/2017 844h	SM2320B	10.0	< 10.0	
Chloride	mg/L		9/22/2017 2129h	E300.0	500	5,710	
Fluoride	mg/L		9/27/2017 2039h	E300.0	0.100	0.244	
Nitrate/Nitrite (as N)	mg/L		9/18/2017 1738h	E353.2	0.0100	0.0627	
pH @ 25° C	pH Units		9/15/2017 1830h	SM4500-H+B	1.00	7.23	
Sulfate	mg/L		9/22/2017 2129h	E300.0	3,750	13,100	
Total Dissolved Solids	mg/L		9/28/2017 1700h	SM2540C	50.0	39,600	H

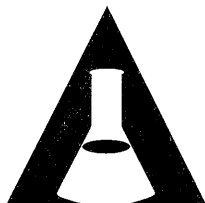
H - The original analysis was performed within the holding time yielding an anomalous result; thus, the sample was reanalyzed outside the holding time.

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INORGANIC ANALYTICAL REPORT

Client: PacifiCorp
Project: Hunter CCR Sampling / PERCM52
Lab Sample ID: 1709322-004
Client Sample ID: ELF-10 FB
Collection Date: 9/15/2017 1200h
Received Date: 9/15/2017 1750h

Contact: Jeff Tucker

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Alkalinity (as CaCO ₃)	mg/L		9/18/2017 844h	SM2320B	10.0	< 10.0	
Bicarbonate (as CaCO ₃)	mg/L		9/18/2017 844h	SM2320B	10.0	< 10.0	
Carbonate (as CaCO ₃)	mg/L		9/18/2017 844h	SM2320B	10.0	< 10.0	
Chloride	mg/L		9/22/2017 1948h	E300.0	0.100	< 0.100	
Fluoride	mg/L		9/22/2017 1948h	E300.0	0.100	< 0.100	
Nitrate/Nitrite (as N)	mg/L		9/18/2017 1725h	E353.2	0.0100	0.0135	
pH @ 25° C	pH Units		9/15/2017 1830h	SM4500-H+B	1.00	4.97	
Sulfate	mg/L		9/22/2017 1948h	E300.0	0.750	< 0.750	
Total Dissolved Solids	mg/L		9/18/2017 1320h	SM2540C	10.0	< 10.0	

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Kyle F. Gross
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Jose Rocha
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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1709322
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-51346													
Test Code: 200.7-W		Date Analyzed: 09/25/2017 1150h		Date Prepared: 09/19/2017 1026h									
Boron	1.08	mg/L	E200.7	0.0139	0.500	1.000	0	108	85 - 115				
Calcium	9.86	mg/L	E200.7	0.0332	1.00	10.00	0	98.6	85 - 115				
Lithium	1.02	mg/L	E200.7	0.00194	0.100	1.000	0	102	80 - 120				
Magnesium	9.79	mg/L	E200.7	0.0710	1.00	10.00	0	97.9	85 - 115				
Sodium	10.1	mg/L	E200.7	0.0311	1.00	10.00	0	101	85 - 115				
Lab Sample ID: LCS-51347													
Test Code: 200.8-W		Date Analyzed: 09/20/2017 1118h		Date Prepared: 09/19/2017 1026h									
Antimony	0.190	mg/L	E200.8	0.000416	0.00200	0.2000	0	94.8	85 - 115				
Arsenic	0.205	mg/L	E200.8	0.000177	0.00200	0.2000	0	103	85 - 115				
Barium	0.202	mg/L	E200.8	0.000228	0.00200	0.2000	0	101	85 - 115				
Beryllium	0.205	mg/L	E200.8	0.0000318	0.00200	0.2000	0	103	85 - 115				
Cadmium	0.203	mg/L	E200.8	0.000226	0.000500	0.2000	0	101	85 - 115				
Chromium	0.200	mg/L	E200.8	0.000210	0.00200	0.2000	0	100	85 - 115				
Cobalt	0.195	mg/L	E200.8	0.0000336	0.00400	0.2000	0	97.5	85 - 115				
Lead	0.199	mg/L	E200.8	0.000308	0.00200	0.2000	0	99.7	85 - 115				
Molybdenum	0.201	mg/L	E200.8	0.000692	0.00200	0.2000	0	101	85 - 115				
Selenium	0.206	mg/L	E200.8	0.000176	0.00200	0.2000	0	103	85 - 115				
Thallium	0.193	mg/L	E200.8	0.000462	0.00200	0.2000	0	96.6	85 - 115				
Lab Sample ID: LCS-51420													
Test Code: HG-DW-245.1		Date Analyzed: 09/22/2017 800h		Date Prepared: 09/21/2017 1419h									
Mercury	0.00354	mg/L	E245.1	0.00000511	0.000150	0.003330	0	106	85 - 115				
Lab Sample ID: LCS-51420 F													
Test Code: HG-DW-245.1		Date Analyzed: 09/22/2017 900h											
Mercury	0.00347	mg/L	E245.1	0.00000511	0.000150	0.003330	0	104	85 - 115				



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Kyle F. Gross
Laboratory Director

Jose Rocha
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QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1709322

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-51346													
Date Analyzed:		09/25/2017 1148h											
Test Code:		200.7-W											
Date Prepared:		09/19/2017 1026h											
Boron	< 0.500	mg/L	E200.7	0.0139	0.500								
Calcium	< 1.00	mg/L	E200.7	0.0332	1.00								
Lithium	< 0.100	mg/L	E200.7	0.00194	0.100								
Magnesium	< 1.00	mg/L	E200.7	0.0710	1.00								
Sodium	< 1.00	mg/L	E200.7	0.0311	1.00								
Lab Sample ID: MB-51347													
Date Analyzed:		09/20/2017 1115h											
Test Code:		200.8-W											
Date Prepared:		09/19/2017 1026h											
Antimony	< 0.00200	mg/L	E200.8	0.000416	0.00200								
Arsenic	< 0.00200	mg/L	E200.8	0.000177	0.00200								
Barium	< 0.00200	mg/L	E200.8	0.000228	0.00200								
Beryllium	< 0.00200	mg/L	E200.8	0.0000318	0.00200								
Cadmium	< 0.000500	mg/L	E200.8	0.000226	0.000500								
Chromium	< 0.00200	mg/L	E200.8	0.000210	0.00200								
Cobalt	< 0.00400	mg/L	E200.8	0.0000336	0.00400								
Lead	< 0.00200	mg/L	E200.8	0.000308	0.00200								
Molybdenum	< 0.00200	mg/L	E200.8	0.000692	0.00200								
Selenium	< 0.00200	mg/L	E200.8	0.000176	0.00200								
Thallium	< 0.00200	mg/L	E200.8	0.000462	0.00200								
Lab Sample ID: MB-51420													
Date Analyzed:		09/22/2017 758h											
Test Code:		HG-DW-245.1											
Date Prepared:		09/21/2017 1419h											
Mercury	< 0.000150	mg/L	E245.1	0.00000511	0.000150								
Lab Sample ID: MB-51420 F													
Date Analyzed:		09/22/2017 858h											
Test Code:		HG-DW-245.1											
Mercury	< 0.000150	mg/L	E245.1	0.00000511	0.000150								



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1709322

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1709322-001CMS	Date Analyzed: 09/25/2017 1154h												
Test Code: 200.7-W	Date Prepared: 09/19/2017 1026h												
Sodium	3,270	mg/L	E200.7	3.11	100	10.00	3810	-5,410	70 - 130				2
Lab Sample ID: 1709323-001CMS	Date Analyzed: 09/25/2017 1217h												
Test Code: 200.7-W	Date Prepared: 09/19/2017 1026h												
Sodium	2,020	mg/L	E200.7	1.56	50.0	10.00	2120	-1,000	70 - 130				2
Lab Sample ID: 1709322-001CMS	Date Analyzed: 09/25/2017 1324h												
Test Code: 200.7-W	Date Prepared: 09/19/2017 1026h												
Calcium	68.5	mg/L	E200.7	0.0664	2.00	10.00	60.3	82.6	70 - 130				
Lab Sample ID: 1709323-001CMS	Date Analyzed: 09/25/2017 1335h												
Test Code: 200.7-W	Date Prepared: 09/19/2017 1026h												
Calcium	508	mg/L	E200.7	0.664	20.0	10.00	485	238	70 - 130				2
Magnesium	932	mg/L	E200.7	1.42	20.0	10.00	860	724	70 - 130				2
Lab Sample ID: 1709322-001CMS	Date Analyzed: 09/25/2017 1412h												
Test Code: 200.7-W	Date Prepared: 09/19/2017 1026h												
Boron	2.46	mg/L	E200.7	0.0139	0.500	1.000	1.39	107	70 - 130				
Lithium	1.89	mg/L	E200.7	0.00194	0.100	1.000	0.783	111	75 - 125				
Magnesium	43.2	mg/L	E200.7	0.0710	1.00	10.00	33.8	94.4	70 - 130				
Lab Sample ID: 1709323-001CMS	Date Analyzed: 09/25/2017 1436h												
Test Code: 200.7-W	Date Prepared: 09/19/2017 1026h												
Boron	3.20	mg/L	E200.7	0.0139	0.500	1.000	2.11	110	70 - 130				
Lithium	4.66	mg/L	E200.7	0.00194	0.100	1.000	3.57	109	75 - 125				
Lab Sample ID: 1709323-001CMS	Date Analyzed: 09/20/2017 1213h												
Test Code: 200.8-W	Date Prepared: 09/19/2017 1026h												
Antimony	0.205	mg/L	E200.8	0.000416	0.00200	0.2000	0.000417	103	75 - 125				

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1709322
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1709323-001CMS													
Test Code: 200.8-W		Date Analyzed: 09/20/2017 1213h		Date Prepared: 09/19/2017 1026h									
Arsenic	0.227	mg/L	E200.8	0.000177	0.00200	0.2000	0.000544	113	75 - 125				
Barium	0.232	mg/L	E200.8	0.000228	0.00200	0.2000	0.0278	102	75 - 125				
Beryllium	0.199	mg/L	E200.8	0.0000318	0.00200	0.2000	0.0000659	99.3	75 - 125				
Cadmium	0.197	mg/L	E200.8	0.000226	0.000500	0.2000	0	98.7	75 - 125				
Chromium	0.196	mg/L	E200.8	0.000210	0.00200	0.2000	0.000651	97.7	75 - 125				
Cobalt	0.185	mg/L	E200.8	0.0000336	0.00400	0.2000	0.00051	92.3	75 - 125				
Lead	0.184	mg/L	E200.8	0.000308	0.00200	0.2000	0.00106	91.5	75 - 125				
Molybdenum	0.227	mg/L	E200.8	0.000692	0.00200	0.2000	0.00428	111	75 - 125				
Selenium	0.270	mg/L	E200.8	0.000176	0.00200	0.2000	0.0534	108	75 - 125				
Thallium	0.179	mg/L	E200.8	0.000462	0.00200	0.2000	0	89.3	75 - 125				
Lab Sample ID: 1709322-001CMS													
Test Code: 200.8-W		Date Analyzed: 09/20/2017 1241h		Date Prepared: 09/19/2017 1026h									
Antimony	0.196	mg/L	E200.8	0.000416	0.00200	0.2000	0.00065	97.7	75 - 125				
Arsenic	0.220	mg/L	E200.8	0.000177	0.00200	0.2000	0.00762	106	75 - 125				
Barium	0.231	mg/L	E200.8	0.000228	0.00200	0.2000	0.0348	98.1	75 - 125				
Beryllium	0.186	mg/L	E200.8	0.0000318	0.00200	0.2000	0.000121	93.1	75 - 125				
Cadmium	0.193	mg/L	E200.8	0.000226	0.000500	0.2000	0	96.7	75 - 125				
Chromium	0.192	mg/L	E200.8	0.000210	0.00200	0.2000	0.00529	93.5	75 - 125				
Cobalt	0.181	mg/L	E200.8	0.0000336	0.00400	0.2000	0.00153	89.5	75 - 125				
Lead	0.180	mg/L	E200.8	0.000308	0.00200	0.2000	0.00189	89.3	75 - 125				
Molybdenum	0.326	mg/L	E200.8	0.000692	0.00200	0.2000	0.117	104	75 - 125				
Selenium	0.202	mg/L	E200.8	0.000176	0.00200	0.2000	0.00056	101	75 - 125				
Thallium	0.173	mg/L	E200.8	0.000462	0.00200	0.2000	0	86.5	75 - 125				
Lab Sample ID: 1709322-001CMS													
Test Code: HG-DW-245.1		Date Analyzed: 09/22/2017 808h		Date Prepared: 09/21/2017 1419h									
Mercury	0.00300	mg/L	E245.1	0.00000511	0.000150	0.003330	0.0000383	88.9	80 - 120				



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Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1709322

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1709323-001CMS	Date Analyzed:	09/22/2017 842h											
Test Code: HG-DW-245.1	Date Prepared:	09/21/2017 1419h											
Mercury	0.00334	mg/L	E245.1	0.00000511	0.000150	0.003330	0	100	80 - 120				

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1709322
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1709322-001CMSD													
Date Analyzed:		09/25/2017 1156h											
Test Code:		200.7-W											
Date Prepared:		09/19/2017 1026h											
Sodium	3,430	mg/L	E200.7	3.11	100	10.00	3810	-3,860	70 - 130	3270	4.62	20	²
Lab Sample ID: 1709323-001CMSD													
Date Analyzed:		09/25/2017 1219h											
Test Code:		200.7-W											
Date Prepared:		09/19/2017 1026h											
Sodium	2,030	mg/L	E200.7	1.56	50.0	10.00	2120	-901	70 - 130	2020	0.504	20	²
Lab Sample ID: 1709322-001CMSD													
Date Analyzed:		09/25/2017 1326h											
Test Code:		200.7-W											
Date Prepared:		09/19/2017 1026h											
Calcium	68.9	mg/L	E200.7	0.0664	2.00	10.00	60.3	86.1	70 - 130	68.5	0.506	20	
Lab Sample ID: 1709323-001CMSD													
Date Analyzed:		09/25/2017 1337h											
Test Code:		200.7-W											
Date Prepared:		09/19/2017 1026h											
Calcium	507	mg/L	E200.7	0.664	20.0	10.00	485	227	70 - 130	508	0.213	20	²
Magnesium	919	mg/L	E200.7	1.42	20.0	10.00	860	587	70 - 130	932	1.48	20	²
Lab Sample ID: 1709322-001CMSD													
Date Analyzed:		09/25/2017 1415h											
Test Code:		200.7-W											
Date Prepared:		09/19/2017 1026h											
Boron	2.47	mg/L	E200.7	0.0139	0.500	1.000	1.39	108	70 - 130	2.46	0.359	20	
Lithium	1.89	mg/L	E200.7	0.00194	0.100	1.000	0.783	111	75 - 125	1.89	0.0418	20	
Magnesium	43.1	mg/L	E200.7	0.0710	1.00	10.00	33.8	92.7	70 - 130	43.2	0.385	20	
Lab Sample ID: 1709323-001CMSD													
Date Analyzed:		09/25/2017 1438h											
Test Code:		200.7-W											
Date Prepared:		09/19/2017 1026h											
Boron	3.27	mg/L	E200.7	0.0139	0.500	1.000	2.11	116	70 - 130	3.2	2.00	20	
Lithium	4.77	mg/L	E200.7	0.00194	0.100	1.000	3.57	120	75 - 125	4.66	2.30	20	
Lab Sample ID: 1709323-001CMSD													
Date Analyzed:		09/20/2017 1216h											
Test Code:		200.8-W											
Date Prepared:		09/19/2017 1026h											
Antimony	0.207	mg/L	E200.8	0.000416	0.00200	0.2000	0.000417	103	75 - 125	0.205	0.930	20	

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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1709322
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: ME
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1709323-001CMSD													
Test Code: 200.8-W		Date Analyzed: 09/20/2017 1216h		Date Prepared: 09/19/2017 1026h									
Arsenic	0.228	mg/L	E200.8	0.000177	0.00200	0.2000	0.000544	114	75 - 125	0.227	0.705	20	
Barium	0.233	mg/L	E200.8	0.000228	0.00200	0.2000	0.0278	103	75 - 125	0.232	0.364	20	
Beryllium	0.199	mg/L	E200.8	0.0000318	0.00200	0.2000	0.0000659	99.5	75 - 125	0.199	0.179	20	
Cadmium	0.199	mg/L	E200.8	0.000226	0.000500	0.2000	0	99.7	75 - 125	0.197	1.05	20	
Chromium	0.202	mg/L	E200.8	0.000210	0.00200	0.2000	0.000651	100	75 - 125	0.196	2.83	20	
Cobalt	0.189	mg/L	E200.8	0.0000336	0.00400	0.2000	0.00051	94.1	75 - 125	0.185	1.91	20	
Lead	0.186	mg/L	E200.8	0.000308	0.00200	0.2000	0.00106	92.3	75 - 125	0.184	0.840	20	
Molybdenum	0.230	mg/L	E200.8	0.000692	0.00200	0.2000	0.00428	113	75 - 125	0.227	1.27	20	
Selenium	0.269	mg/L	E200.8	0.000176	0.00200	0.2000	0.0534	108	75 - 125	0.27	0.220	20	
Thallium	0.181	mg/L	E200.8	0.000462	0.00200	0.2000	0	90.5	75 - 125	0.179	1.31	20	
Lab Sample ID: 1709322-001CMSD													
Test Code: 200.8-W		Date Analyzed: 09/20/2017 1244h		Date Prepared: 09/19/2017 1026h									
Antimony	0.193	mg/L	E200.8	0.000416	0.00200	0.2000	0.00065	96.0	75 - 125	0.196	1.74	20	
Arsenic	0.221	mg/L	E200.8	0.000177	0.00200	0.2000	0.00762	107	75 - 125	0.22	0.337	20	
Barium	0.230	mg/L	E200.8	0.000228	0.00200	0.2000	0.0348	97.8	75 - 125	0.231	0.291	20	
Beryllium	0.187	mg/L	E200.8	0.0000318	0.00200	0.2000	0.000121	93.4	75 - 125	0.186	0.332	20	
Cadmium	0.190	mg/L	E200.8	0.000226	0.000500	0.2000	0	94.9	75 - 125	0.193	1.89	20	
Chromium	0.197	mg/L	E200.8	0.000210	0.00200	0.2000	0.00529	95.7	75 - 125	0.192	2.33	20	
Cobalt	0.179	mg/L	E200.8	0.0000336	0.00400	0.2000	0.00153	88.7	75 - 125	0.181	0.881	20	
Lead	0.179	mg/L	E200.8	0.000308	0.00200	0.2000	0.00189	88.4	75 - 125	0.18	1.03	20	
Molybdenum	0.326	mg/L	E200.8	0.000692	0.00200	0.2000	0.117	104	75 - 125	0.326	0.101	20	
Selenium	0.203	mg/L	E200.8	0.000176	0.00200	0.2000	0.00056	101	75 - 125	0.202	0.419	20	
Thallium	0.171	mg/L	E200.8	0.000462	0.00200	0.2000	0	85.6	75 - 125	0.173	1.03	20	
Lab Sample ID: 1709322-001CMSD													
Test Code: HG-DW-245.1		Date Analyzed: 09/22/2017 809h		Date Prepared: 09/21/2017 1419h									
Mercury	0.00303	mg/L	E245.1	0.00000511	0.000150	0.003330	0.0000383	89.8	80 - 120	0.003	0.940	20	



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Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1709322

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: ME

QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1709323-001CMSD		Date Analyzed:	09/22/2017 843h										
Test Code: HG-DW-245.1		Date Prepared:	09/21/2017 1419h										
Mercury	0.00333	mg/L	E245.1	0.00000511	0.000150	0.003330	0	99.9	80 - 120	0.00334	0.400	20	

² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1709322
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1709322-001ADUP		Date Analyzed: 09/15/2017 1830h											
Test Code: PH-4500H+B													
pH @ 25° C	8.05	pH Units	SM4500-H+B	1.00	1.00					8.06	0.124	5	
Lab Sample ID: 1709323-001ADUP		Date Analyzed: 09/15/2017 1830h											
Test Code: PH-4500H+B													
pH @ 25° C	7.16	pH Units	SM4500-H+B	1.00	1.00					7.16	0	5	H
Lab Sample ID: 1709322-001ADUP		Date Analyzed: 09/18/2017 1320h											
Test Code: TDS-W-2540C													
Total Dissolved Solids	11,000	mg/L	SM2540C	39.4	50.0					11900	8.03	5	@
Lab Sample ID: 1709323-001ADUP		Date Analyzed: 09/18/2017 1320h											
Test Code: TDS-W-2540C													
Total Dissolved Solids	12,900	mg/L	SM2540C	39.4	50.0					12500	2.91	5	
Lab Sample ID: 1709322-003ADUP		Date Analyzed: 09/28/2017 1700h											
Test Code: TDS-W-2540C													
Total Dissolved Solids	39,200	mg/L	SM2540C	39.4	50.0					39700	1.22	5	H*

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

H - Sample was received outside of the holding time.

H* - The original analysis was performed within the holding time yielding an anomalous result; thus, the sample was reanalyzed outside the holding time.



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QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1709322

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-R105608 Date Analyzed: 09/22/2017 1105h													
Test Code: 300.0-W													
Chloride	4.69	mg/L	E300.0	0.0127	0.100	5.000	0	93.7	90 - 110				
Fluoride	4.64	mg/L	E300.0	0.0174	0.100	5.000	0	92.9	90 - 110				
Sulfate	4.66	mg/L	E300.0	0.0327	0.750	5.000	0	93.3	90 - 110				
Lab Sample ID: LCS-R105723 Date Analyzed: 09/27/2017 1423h													
Test Code: 300.0-W													
Fluoride	5.09	mg/L	E300.0	0.0174	0.100	5.000	0	102	90 - 110				
Lab Sample ID: LCS-R105351 Date Analyzed: 09/18/2017 844h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	249	mg/L	SM2320B	2.14	10.0	250.0	0	99.8	90 - 110				
Lab Sample ID: LCS-R105379 Date Analyzed: 09/18/2017 1702h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.00	mg/L	E353.2	0.00240	0.0100	1.000	0	100	90 - 110				
Lab Sample ID: LCS-R105330 Date Analyzed: 09/15/2017 1830h													
Test Code: PH-4500H+B													
pH @ 25° C	8.96	pH Units	SM4500-H+B	1.00	1.00	9.000	0	99.6	98 - 102				
Lab Sample ID: LCS-R105414 Date Analyzed: 09/18/2017 1320h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	220	mg/L	SM2540C	7.87	10.0	205.0	0	107	80 - 120				
Lab Sample ID: LCS-R105793 Date Analyzed: 09/28/2017 1700h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	208	mg/L	SM2540C	7.87	10.0	205.0	0	101	80 - 120				

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QC SUMMARY REPORT

Client: PacifiCorp

Lab Set ID: 1709322

Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker

Dept: WC

QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-R105608 Date Analyzed: 09/22/2017 1048h													
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.0127	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.0174	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.0327	0.750								
Lab Sample ID: MB-R105723 Date Analyzed: 09/27/2017 1406h													
Test Code: 300.0-W													
Fluoride	< 0.100	mg/L	E300.0	0.0174	0.100								
Lab Sample ID: MB-R105351 Date Analyzed: 09/18/2017 844h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	< 10.0	mg/L	SM2320B	2.14	10.0								
Bicarbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	2.14	10.0								
Carbonate (as CaCO ₃)	< 10.0	mg/L	SM2320B	2.14	10.0								
Lab Sample ID: MB-R105379 Date Analyzed: 09/18/2017 1700h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00240	0.0100								
Lab Sample ID: MB-R105414 Date Analyzed: 09/18/2017 1320h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	7.87	10.0								
Lab Sample ID: MB-R105793 Date Analyzed: 09/28/2017 1700h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	7.87	10.0								



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QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1709322
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1709322-003AMS		Date Analyzed: 09/22/2017 2146h											
Test Code: 300.0-W													
Chloride	55,300	mg/L	E300.0	127	1,000	50,000	5710	99.1	90 - 110				
Fluoride	48,600	mg/L	E300.0	174	1,000	50,000	0	97.2	90 - 110				
Sulfate	62,300	mg/L	E300.0	327	7,500	50,000	13100	98.4	90 - 110				
Lab Sample ID: 1709323-003AMS		Date Analyzed: 09/27/2017 1609h											
Test Code: 300.0-W													
Fluoride	2,600	mg/L	E300.0	8.70	50.0	2,500	0	104	90 - 110				
Lab Sample ID: 1709322-001AMS		Date Analyzed: 09/18/2017 844h											
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	780	mg/L	SM2320B	2.14	10.0	200.0	585	98.0	80 - 120				
Lab Sample ID: 1709323-001AMS		Date Analyzed: 09/18/2017 844h											
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	525	mg/L	SM2320B	2.14	10.0	200.0	326	99.8	80 - 120				
Lab Sample ID: 1709322-001BMS		Date Analyzed: 09/18/2017 1721h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.40	mg/L	E353.2	0.00240	0.0100	1.000	0.363	103	90 - 110				
Lab Sample ID: 1709323-001BMS		Date Analyzed: 09/18/2017 1740h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	66.4	mg/L	E353.2	0.120	0.500	50.00	14.8	103	90 - 110				



AMERICAN WEST ANALYTICAL LABORATORIES
3440 South 700 West
Salt Lake City, Utah 84119
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

QC SUMMARY REPORT

Client: PacifiCorp
Lab Set ID: 1709322
Project: Hunter CCR Sampling / PERCM52

Contact: Jeff Tucker
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1709322-003AMSD		Date Analyzed: 09/22/2017 2203h											
Test Code: 300.0-W													
Chloride	54,900	mg/L	E300.0	127	1,000	50,000	5710	98.5	90 - 110	55300	0.620	20	
Fluoride	48,300	mg/L	E300.0	174	1,000	50,000	0	96.7	90 - 110	48600	0.488	20	
Sulfate	62,200	mg/L	E300.0	327	7,500	50,000	13100	98.3	90 - 110	62300	0.140	20	
Lab Sample ID: 1709323-003AMSD		Date Analyzed: 09/27/2017 1626h											
Test Code: 300.0-W													
Fluoride	2,590	mg/L	E300.0	8.70	50.0	2,500	0	104	90 - 110	2600	0.0786	20	
Lab Sample ID: 1709322-001AMSD		Date Analyzed: 09/18/2017 844h											
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	788	mg/L	SM2320B	2.14	10.0	200.0	585	102	80 - 120	781	0.893	10	
Lab Sample ID: 1709323-001AMSD		Date Analyzed: 09/18/2017 844h											
Test Code: ALK-W-2320B													
Alkalinity (as CaCO ₃)	528	mg/L	SM2320B	2.14	10.0	200.0	326	102	80 - 120	525	0.664	10	
Lab Sample ID: 1709322-001BMSD		Date Analyzed: 09/18/2017 1722h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.40	mg/L	E353.2	0.00240	0.0100	1.000	0.363	104	90 - 110	1.4	0.501	10	
Lab Sample ID: 1709323-001BMSD		Date Analyzed: 09/18/2017 1741h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	67.6	mg/L	E353.2	0.120	0.500	50.00	14.8	106	90 - 110	66.4	1.81	10	

WORK ORDER Summary

Work Order: **1709322**

Page 1 of 2

Client: PacifiCorp

Client ID: PAC900

Contact: Jeff Tucker

Due Date: 9/29/2017

Project: Hunter CCR Sampling / PERCM52

QC Level: II+

WO Type: Project

Comments: QC2+. Include EDD. RADS sent to ACZ. CC: Report to mshirley@waterenvtech.com, Laura Watson and Dave Erickson.;

VNS

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1709322-001A	ELF-9	9/15/2017 1000h	9/15/2017 1750h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1709322-001B				NO2/NO3-W-353.2			DF-NO2/NO3
1709322-001C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1709322-001D				OUTSIDE LAB			ACZ
1709322-002A	ELF-9 DUP	9/15/2017 1015h	9/15/2017 1750h	300.0-W	Aqueous		DF-WC
				3 SEL Analytes: CL F SO4			
				ALK-W-2320B			DF-WC
				3 SEL Analytes: ALK ALKB ALKC			
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1709322-002B				NO2/NO3-W-353.2			DF-NO2/NO3
1709322-002C				200.7-W			DF-Metals
				5 SEL Analytes: B CA LI MG NA			
				200.7-W-PR			DF-Metals
				200.8-W			DF-Metals
				11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1709322-002D				OUTSIDE LAB			ACZ

WORK ORDER Summary

Work Order: **1709322**

Page 2 of 2

Client: PacifiCorp

Due Date: 9/29/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage
1709322-003A	ELF-10	9/15/2017 1145h	9/15/2017 1750h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous		DF-WC 1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC			DF-WC
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1709322-003B				NO2/NO3-W-353.2			DF-NO2/NO3
1709322-003C				200.7-W 5 SEL Analytes: B CA LI MG NA			DF-Metals
				200.7-W-PR			DF-Metals
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			DF-Metals
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1709322-003D				OUTSIDE LAB			ACZ 2
1709322-004A	ELF-10 FB	9/15/2017 1200h	9/15/2017 1750h	300.0-W 3 SEL Analytes: CL F SO4	Aqueous		DF-WC 1
				ALK-W-2320B 3 SEL Analytes: ALK ALKB ALKC			DF-WC
				PH-4500H+B			DF-WC
				TDS-W-2540C			DF-WC
1709322-004B				NO2/NO3-W-353.2			DF-NO2/NO3
1709322-004C				200.7-W 5 SEL Analytes: B CA LI MG NA			DF-Metals
				200.7-W-PR			DF-Metals
				200.8-W 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE TL			DF-Metals
				200.8-W-PR			DF-Metals
				HG-DW-245.1			DF-Metals
				HG-DW-PR			DF-Metals
1709322-004D				OUTSIDE LAB			ACZ 2

Water & Environmental Technologies

Analyte Method Reporting Limit	Method	Reporting Limit	Price/sample ¹
pH	SM4500-H+ B	1.0 s.u.	\$11.70
Solids, Total Dissolved	SM2540 C	10 mg/L	\$13.50
Alkalinity Total as CaCO ₃	SM2320 B	10 mg/L	\$17.10
Bicarbonate as HCO ₃	SM2320 B	10 mg/L	\$0.00
Carbonate as CO ₃	SM2320 B	10 mg/L	\$0.00
Chloride	E300.0	0.1 mg/L	\$11.70
Sulfate	E300.0	0.75 mg/L	\$11.70
Fluoride	A4500-F C/E300.0	0.1 mg/L	\$12.60
Nitrogen, Nitrate+Nitrite	E353.2	0.01 mg/L	\$11.70
Antimony	E200.8	0.002 mg/L	\$9.00
Arsenic	E200.8	0.002 mg/L	\$9.00
Barium	E200.8	0.002 mg/L	\$9.00
Beryllium	E200.8	0.002 mg/L	\$9.00
Boron	E200.7	0.5 mg/L	\$9.00
Cadmium	E200.8	0.0005 mg/L	\$9.00
Calcium	E200.7	1.0 mg/L	\$9.00
Chromium	E200.8	0.002 mg/L	\$9.00
Cobalt	E200.8	0.004 mg/L	\$9.00
Lead	E200.8	0.002 mg/L	\$9.00
Lithium	E200.7	0.1 mg/L	\$9.00
Magnesium	E200.7	1.0 mg/L	\$9.00
Molybdenum	E200.8	0.002 mg/L	\$9.00
Selenium	E200.8	0.002 mg/L	\$9.00
Sodium	E200.7	1.0 mg/L	\$9.00
Thallium	E200.8	0.002 mg/L	\$9.00
Mercury, Total	E245.1	0.00015 mg/L	\$25.20
Radium 226 + Radium 228 ²	M903.1 + M904.0		\$182.16
Radium 226, Total ²	M903.1	0.4 pCi/L	\$0.00
Radium 228, Total ²	M904.0	1.5 pCi/L	\$0.00
Metals digestion/sample			\$18.00
Total/sample - Not including shipping			\$459.36
Monthly Price for 17 samples - Not including shipping			\$7,809.12
Total Project Cost (20 months) - Not including shipping			\$156,182.40

¹ - Includes 10% discount for 10 or more samples/delivery.

² - UPS shipping costs to Colorado will be applied to these analyses.

Radium analyses will be subcontracted to ACZ Labs in CO.

Lab Set ID: 1709322
pH Lot #: 5337

Preservation Check Sheet

Sample Set Extension and pH

[illegible]

Procedure:

- 1) Pour a small amount of sample in the sample lid
- 2) Pour sample from lid gently over wide range pH paper
- 3) **Do Not** dip the pH paper in the sample bottle or lid
- 4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
- 5) Flag COC, notify client if requested
- 6) Place client conversation on COC
- 7) Samples may be adjusted

Frequency: All samples requiring preservation

- * The sample required additional preservative upon receipt.
- + The sample was received unpreserved.
- ▲ The sample was received unpreserved and therefore preserved upon receipt.
- # The sample pH was unadjustable to a pH < 2 due to the sample matrix.
- The sample pH was unadjustable to a pH > due to the sample matrix interference.

Lab Sample Set

Contact: **Elona Hayward**
Phone: **801-263-8686**
Fax: **801-263-8687**

Page 1 of 1

Email: elona@awal-labs.com
denise@awal-labs.com

QC Level: 2+
Turn Around Time
Standard

[illegible]

Special Instructions: **Include project name and PO# on final report and invoice. Email results to both Elona and Denise.**

Relinquished by: <i>Signature</i> <i>[Signature]</i>	Date: 9-18-17	Received by: <i>Signature</i>	Date:
Print Name Z. [Signature]	Time: 1331	Print Name	Time:
Relinquished by: <i>Signature</i>	Date:	Received by: <i>Signature</i>	Date:
Print Name	Time:	Print Name	Time:

October 31, 2017

Report to:

Elona Hayward
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

Bill to:

Lynn Turner
American West Analytical Labs
3440 S. 700 W.
Salt Lake City, UT 84119

cc: Denise Bruun

Project ID: 1709322

ACZ Project ID: L39994

Elona Hayward:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on September 20, 2017. This project has been assigned to ACZ's project number, L39994. Please reference this number in all future inquiries.

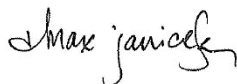
All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L39994. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after November 30, 2017. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.



Max Janicek has reviewed and
approved this report.



American West Analytical Labs

Project ID: 1709322

Sample ID: ELF-9

Locator:

ACZ Sample ID: **L39994-01**

Date Sampled: 09/15/17 10:00

Date Received: 09/20/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/30/17 0:12		0.62	0.12	0.2	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/14/17 10:25		1.3	0.54	0.49	pCi/L		jlg

American West Analytical Labs

Project ID: 1709322

Sample ID: ELF-9 DUP

Locator:

ACZ Sample ID: **L39994-02**

Date Sampled: 09/15/17 10:15

Date Received: 09/20/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/30/17 0:14		0.65	0.14	0.16	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/14/17 10:25		1.5	0.64	0.59	pCi/L		jlg

American West Analytical Labs

Project ID: 1709322

Sample ID: ELF-10

Locator:

ACZ Sample ID: **L39994-03**

Date Sampled: 09/15/17 11:45

Date Received: 09/20/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/30/17 0:15		0.72	0.2	0.21	pCi/L	*	tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/14/17 10:25		2.7	1.3	1.2	pCi/L	*	jlg

Arizona license number: AZ0102

American West Analytical Labs

Project ID: 1709322

Sample ID: ELF-10 FB

Locator:

ACZ Sample ID: **L39994-04**

Date Sampled: 09/15/17 12:00

Date Received: 09/20/17

Sample Matrix: Ground Water

Radium 226

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226	10/30/17 0:17		0.08	0.08	0.13	pCi/L		tjr

Radium 228

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228	10/14/17 12:19		0.26	0.68	0.7	pCi/L		jlg

**Report Header Explanations**

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

American West Analytical Labs

ACZ Project ID: **L39994**

Radium 226		M903.1										Units: pCi/L				
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG434862																
WG434170PBW	PBW	10/30/17						-.11	0.1	0.31			0.62			
WG434170LCSW	LCSW	10/30/17	PCN52691	20				22	0.63	0.09	110	43	148			
L39992-02DUP	DUP-RER	10/30/17			-0.04	0.13	0.2	.09	0.08	0.14				0.85	2	
L40072-01DUP	DUP-RER	10/30/17			0.07	0.11	0.12	.17	0.09	0.07				0.7	2	
L40072-02MS	MS	10/30/17	PCN52691	20	2.5	0.23	0.19	15	0.46	0.07	63	43	148			
Radium 228		M904.0										Units: pCi/L				
ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec	Lower	Upper	RPD/RER	Limit	Qual
WG433594																
WG433021PBW	PBW	10/14/17						.16	0.33	0.34			0.68			
WG433021LCSW	LCSW	10/14/17	PCN53180	9.33				11	1.3	0.8	118	47	123			
L40072-02DUP	DUP-RER	10/14/17			1.7	0.59	0.52	2.4	0.72	0.61				0.75	2	
L39993-01MS	MS	10/14/17	PCN53180	9.33	0.85	0.6	0.59	10	1.2	0.72	98	47	123			
L39991-01DUP	DUP-RER	10/14/17			0.62	0.7	0.71	.26	0.67	0.69				0.37	2	

American West Analytical Labs

ACZ Project ID: **L39994**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L39994-03	WG434862	Radium 226	M903.1	DJ	Sample dilution required due to insufficient sample.
	WG433594	Radium 228	M904.0	DJ	Sample dilution required due to insufficient sample.

American West Analytical Labs

ACZ Project ID: **L39994**

No certification qualifiers associated with this analysis

American West Analytical Labs
1709322

ACZ Project ID: L39994
Date Received: 09/20/2017 11:17
Received By:
Date Printed: 9/21/2017

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		X	
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? ¹	X		
12) Is there sufficient sample volume to perform all requested work?		X	
L39994-03 Container B1892039 (RED RAD): There is limited supply in this container.			
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
NA26901	12.8	NA	15	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

American West Analytical Labs
1709322

ACZ Project ID: L39994
Date Received: 09/20/2017 11:17
Received By:
Date Printed: 9/21/2017

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

(39994)

Client: **American West Analytical Laboratories**
Address: **3440 S. 700 W.**

Salt Lake City, UT 84119

Project Name: **Hunter CCR Sampling / PERCM52**
PO#: **1709322**

Contact: Elona Hayward
Phone: 801-263-8686
Fax: 801-263-8687

Email: elona@awal-labs.com
denise@awal-labs.com

QC Level: 2+
Turn Around Time
Standard

[illegible]

Special Instructions: Include project name and PO# on final report and invoice. Email results to both Elona and Denise.

Relinquished by: <u>Elmer</u>	Date: <u>9-18-17</u>	Received by: <u>WSP</u>	Date: <u>9/20/17</u>
Print Name <u>Elmer</u>	Time: <u>1330</u>	Print Name	Time:
Relinquished by: <u>Hayden</u>	Date:	Received by: <u>WSP</u>	Date: <u>11/17</u>
Print Name	Time:	Print Name	Time:

Appendix C

Data Validation Results

Facility Name:	Hunter	
Validator:	Tim Driscoll 12-06-17	
Reviewer:	Pat Seccomb 12-07-17	
Laboratory:	American West Analytical Laboratories and Energy Laboratories	
Sample Media:	Groundwater	
Analytical Parameters:	Appendix III: B, Ca, Cl, ¹ F, pH, S04, TDS	
Lab Report#:	Date:	Overall assessment:
² B15091870	09/18/2015	No qualifications were required.
² B15091872	09/18/2015	No qualifications were required.
² B15091850	09/19/2015	No qualifications were required.
¹ 1512066	12/02/2015	No qualifications were required.
¹ 1601156	01/12/2016	Chloride in ELF-8 was qualified. J+ due to a low detection in the equipment blank. No other qualifications were required.
¹ 1602071	02/02/2016	No qualifications were required.
¹ 1603217B	03/09/2016	No qualifications were required.
¹ 1604177	04/07/2016	No qualifications were required.
¹ 1605116	05/04/2016	No qualifications were required.
¹ 1609194	09/08/2016	No qualifications were required.
¹ 1511197	11/11/2016	No qualifications were required.
¹ 1708113	08/02/2017	No qualifications were required.
¹ 1708672	08/23/2017	No qualifications were required.
¹ 1709322	09/15/2017	No qualifications were required.

¹ American West Analytical Laboratories

² Energy Laboratories

Appendix D

Statistical Analysis

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1.0 INTRODUCTION

This appendix contains a statistical analysis of the data collected from the groundwater monitoring wells associated with the CCR Landfill at the Hunter Power Plant in Castle Dale, Utah. Methods used to compare upgradient with downgradient wells vary depending on the characteristics of the upgradient well data. Upgradient well data were analyzed for outliers, normality, non-detects, and other characteristics that affect the comparison measures. A comprehensive statistical analysis is presented in along with a discussion of the methods used to compare upgradient with downgradient water quality.

2.0 PRELIMINARY DATA ANALYSIS

The primary purpose of this statistical analysis was to establish background values from the upgradient well data, and compare these to the downgradient well data to determine if the downgradient water quality has been impacted by the CCR Landfill. Familiarity with numerical and distributional characteristics of the upgradient wells aid in computing appropriate limits and in correctly interpreting those limits. This section contains a statistical summary of the upgradient well data. It is essential to understand the statistical characteristics of the data, prior to making the upgradient / downgradient well comparison. This understanding helps to ensure the appropriate calculations have been done and comparisons are completed using the proper statistical measures. The mean, standard deviation, quartiles, and other statistical quantities and corresponding graphs are presented in the following sections.

2.1 Data Analysis Techniques

The following sections summarize the statistical tools and techniques, used to evaluate upgradient well data from the CCR Landfill.

2.1.1 Mean

One measure of primary interest is the center of the data. The average (\bar{x}), or the mean, is the most commonly used measure of the central tendency of the data. However, it can be heavily influenced by outliers and by asymmetric data. The mean is calculated using Equation (1):

$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n} \quad (1)$$

Where:

\bar{x} = mean

n = number of observations

x_i = i^{th} observation.

2.1.2 Standard Deviation

Another quantity of interest is the spread of the data. The standard deviation (s) is the most commonly used measure of spread, as it is easy to interpret and is used in many other statistical methods. Because it is calculated using the average, it is also sensitive to outliers and affected by data that are not symmetric. The standard deviation is calculated using Equation (2):

$$s = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}} \quad (2)$$

Where:

s = standard deviation

n = number of observations

x_i = i^{th} observation

\bar{x} = mean of the observations.

2.1.3 Coefficient of Variance

The coefficient of variance (CV) is a relative measure of variation in the sample data which expresses the standard deviation relative to the mean. The CV is expressed as a percentage and provides a direct comparison to the standard deviations of two different data sets. It is important to note the mean of the data may be very close to or very far away from zero and the spread may be independent of the distance from the mean to zero. Therefore, no firm guidelines have been established for interpreting the CV. The CV was calculated for each detected analyte in each data grouping using Equation (3):

$$CV = \frac{s}{\bar{X}} \times 100\% \quad (3)$$

Where:

s = standard deviation

\bar{X} = mean of the observations

2.1.4 Quartiles and the Five Number Summary

The five-number summary is a set of five numbers that are used to assess the spread of the data. It consists of the minimum value, first quartile, median, third quartile, and maximum of the data value. The first quartile is the 25th percentile of the data, the median is the 50th percentile of the data, and the third quartile is the 75th percentile of the data. The 25th percentile of the data is the

number such that 25% of the data are less than that number and 75% of the data are above the 25th percentile. The median and third quartiles are found in a similar manner.

2.2 Visual Tools

It is difficult to review numerical summary statistics and identify the degree of symmetry or normality of data without the aid of visual tools. In completing the statistical analysis for the CCR Landfill, histograms and normal-quantile plots were developed for each of the analytes with at least on detectable observation. All graphs were developed using the R Statistical Package (R Core Team 2017).

2.2.1 Histograms

Histograms display the distribution and symmetry of the data. The data are displayed in such a way, that deviations from a normal (i.e., bell shaped) distribution can easily be observed. Outliers are also often identifiable in a histogram. Histograms for the upgradient wells were generated using both non-detects and detected results. The method detection limit (MDL) is plotted on the histogram for non-detect observations. A line was added to the histograms presenting non-detect values to show the location of the MDL on the graph. Figure C.1 below is a histogram of fluoride data for the upgradient wells for the CCR Landfill. It is provided here to illustrate data distribution using a histogram. All of the histograms used to examine the analytes from the CCR Landfill upgradient well data, are provided in at the end of this appendix in Figure C.3.

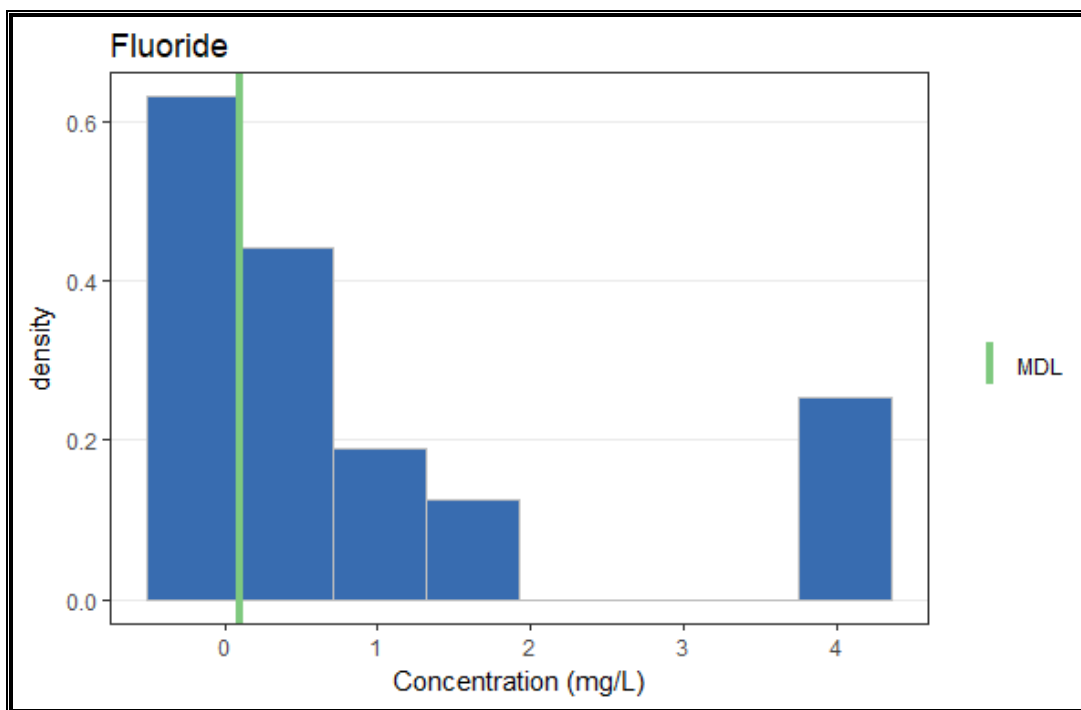


Figure C.1. Histogram of calcium data from the CCR Landfill upgradient wells.

2.2.2 Normal-Quantile Plots

A normal-quantile plot is a graphical tool used to determine if the data follow a normal distribution and to look for outliers. When the data follow a normal distribution, the points on the graph lie along a straight line. Any deviations from a straight line are indicative of deviations from normality. It is important to note that no real-world data set is perfectly normal, so a certain amount of deviation from the line is to be expected even in data that are sufficiently normal to perform normality based statistics. Normal-quantile plots in this document were generated using both non-detects and detected values. The MDL was used to plot a non-detected value. Detected values are denoted by solid circles and non-detected values are identified by hollow circles. The gray area shows the region of acceptable deviations from normality. Figure C.2 uses the same fluoride data points used to develop the Figure C.1. Several of the points fall outside of the gray region. This indicates that the data are not normally distributed. All of the normal-quantile plots used to examine the CCR Landfill upgradient well data are provided at the end of this appendix in Figure C.3.

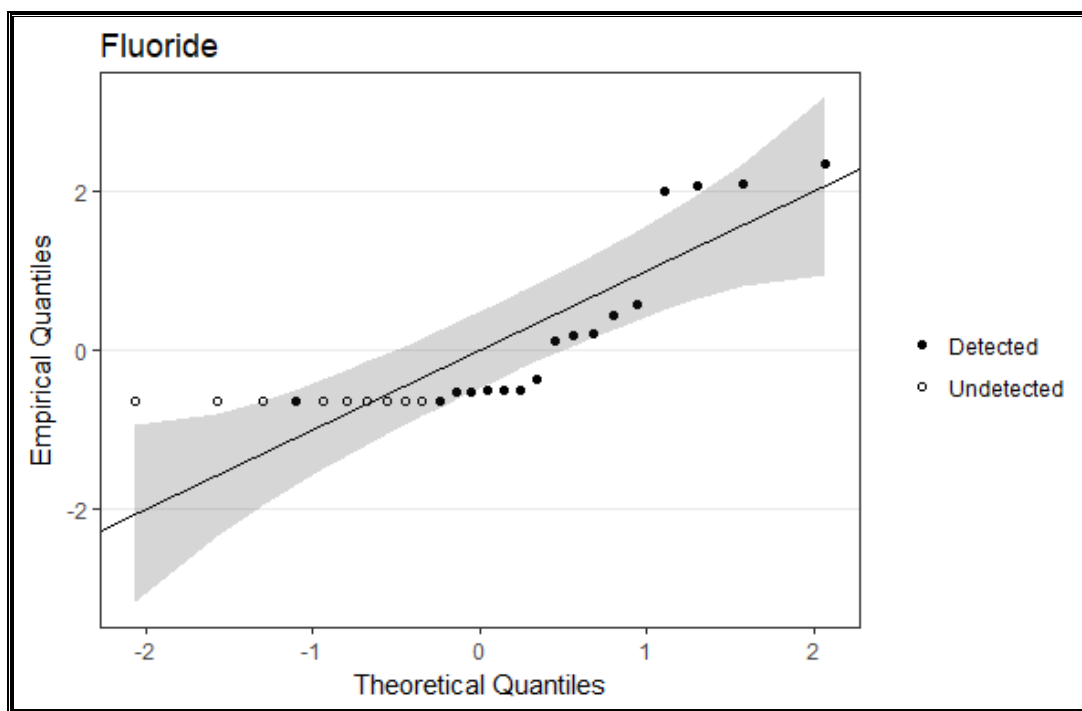


Figure C.2. Normal quantile plot of fluoride data the CCR Landfill upgradient wells

2.2.3 Outliers

Outliers are data points that are notably larger or smaller than the rest of the data set and may indicate a problem with the data point or the data set as a whole. Examples which may be indicative of outliers include: 1) a misreported or erroneous concentration, 2) analytical error(s), or 3) natural variations in groundwater concentrations. Outliers are generally not omitted from project data simply because they are outliers. Rather, the result is examined individually or by project, to ensure the outlier does not represent an erroneous result or another concern warranting

either additional sampling or omission of the outlier from the data analysis. There are reasonable situations when it is appropriate to remove outliers. For example, if outliers which represent exceedingly low concentrations are used to compute background concentrations, they may result in background levels which are too conservative. Conversely, use of excessively high outlier concentrations to compute background values, may result in an overestimation of background concentrations resulting in false-negative comparisons for downgradient groundwater quality. No outliers were detected in the CCR Landfill data.

2.2.4 Treatment of Non-Detects

Non-detect values are common in environmental data. When present in data sets, non-detects produce difficulties in computing statistical metrics because reliable values cannot be assigned. Substituting a value such as the MDL or one-half of the MDL for non-detects are common practices. However, use of the detection limit, or one-half of the detection limit, can produce unstable or unreliable results (EPA 2009). Statistical methods, such as Kaplan-Meier (Helsel 2004), can be used to appropriately evaluate data sets containing significant quantities of non-detects, by producing estimates of the survival probability function for non-detects. These estimates can then be used to compute summary statistics on the data set. However, Kaplan-Meier does not perform well if more than 50% of the results are non-detects or if fewer than eight detections are available for evaluation. However, none of the Appendix III analytes have more than 50% non-detects.

The boron and fluoride contains non-detects. As a result, Kaplan-Meier was used to compute means, standard deviations, and statistical limits used to compare the upgradient downgradient water quality for boron and fluoride.

2.3 Summary Results

Table C.1 provides summary statistics for the CCR Landfill upgradient well data. Although the data from the upgradient wells were combined when compared to the downgradient wells, the summary statistics presented in this section are separated by well and are presented as pooled data. The data are presented in this way, due to observed differences between the different wells for many of the analytes. These tables in conjunction with the histograms and normal-quantile plots, provide information about differences between wells and the data properties of the combined data.

Table C.1. Summary statistics for the CCR Landfill upgradient wells

Analyte	Well	Number of Samples	Samples Detected	Median (mg/L)	Mean (mg/L)	Standard Deviation (mg/L)	Coefficient of Variation (%)
Boron	ELF-10	8	8	1.61	1.62	0.11	7%
Boron	ELF-2	10	10	3.29	3.30	0.13	4%
Boron	ELF-9	8	7	1.36	1.40	0.12	8%
Boron	Pooled	26	25	1.64	2.23	0.92	41%

Analyte	Well	Number of Samples	Samples Detected	Median (mg/L)	Mean (mg/L)	Standard Deviation (mg/L)	Coefficient of Variation (%)
Calcium	ELF-10	8	8	475	474	24	5%
Calcium	ELF-2	10	10	407	403	20	5%
Calcium	ELF-9	8	8	74	86	38	44%
Calcium	Pooled	26	26	407	327	169	52%
Chloride	ELF-10	8	8	7135	7058	625	9%
Chloride	ELF-2	10	10	452	445	32	7%
Chloride	ELF-9	8	8	356	362	70	19%
Chloride	Pooled	26	26	459	2454	3147	128%
Fluoride	ELF-10	8	5	0.24	2.14	2.13	99%
Fluoride	ELF-2	10	5	NA	0.18	0.15	82%
Fluoride	ELF-9	8	7	1.16	1.00	0.65	65%
Fluoride	Pooled	26	17	0.26	1.01	1.43	142%
pH	ELF-10	8	8	7.22	7.34	0.43	6%
pH	ELF-2	10	10	7.23	7.30	0.18	2%
pH	ELF-9	8	8	7.94	7.94	0.11	1%
pH	Pooled	26	26	7.30	7.51	0.39	5%
Sulfate	ELF-10	8	8	19550	18375	2537	14%
Sulfate	ELF-2	10	10	7995	7937	388	5%
Sulfate	ELF-9	8	8	6800	6689	756	11%
Sulfate	Pooled	26	26	8035	10765	5391	50%
TDS	ELF-10	8	8	38500	38775	1115	3%
TDS	ELF-2	10	10	11650	11790	423	4%
TDS	ELF-9	8	8	10550	10853	965	9%
TDS	Pooled	26	26	11950	19805	12929	65%

Table C.2 provides the five-number summaries for the CCR Landfill upgradient wells. As with the summary statistics, a five-number summary was computed for each well as well as for the pooled data. If a minimum or a quartile falls within the range of non-detects it is denoted using a less-than (<) symbol. Analytes that do not contain any detects are not listed in the tables.

Table C.2. Five-number summary for the CCR Landfill upgradient wells.

Analyte	Well	Minimum (mg/L)	First Quartile (mg/L)	Median (mg/L)	Third Quartile (mg/L)	Maximum (mg/L)
Boron	ELF-10	1.48	1.55	1.61	1.66	1.84
Boron	ELF-2	3.11	3.24	3.29	3.38	3.50

Analyte	Well	Minimum (mg/L)	First Quartile (mg/L)	Median (mg/L)	Third Quartile (mg/L)	Maximum (mg/L)
Boron	ELF-9	<1.3	1.34	1.38	1.56	5.00
Boron	Pooled	<1.3	1.50	1.66	3.27	5.00
Calcium	ELF-10	445	452	475	492	509
Calcium	ELF-2	364	392	407	419	428
Calcium	ELF-9	54	59	74	102	166
Calcium	Pooled	54	112	407	446	509
Chloride	ELF-10	5710	6875	7135	7530	7670
Chloride	ELF-2	363	439	451.5	469	473
Chloride	ELF-9	282	300	355.5	418.5	469
Chloride	Pooled	282	391	459	6790	7670
Fluoride	ELF-10	<0.1	<0.1	2.06	3.98	4.36
Fluoride	ELF-2	<0.1	<0.1	<0.1	0.28	0.50
Fluoride	ELF-9	<0.1	0.27	1.22	1.47	1.84
Fluoride	Pooled	<0.1	<0.1	0.27	1.29	4.36
pH	ELF-10	7.00	7.13	7.22	7.35	8.37
pH	ELF-2	7.14	7.21	7.23	7.30	7.76
pH	ELF-9	7.75	7.86	7.94	8.04	8.06
pH	Pooled	7.00	7.21	7.30	7.86	8.37
Sulfate	ELF-10	13100	17050	19550	20000	20700
Sulfate	ELF-2	7190	7870	7995	8180	8370
Sulfate	ELF-9	5600	6150	6800	6990	8030
Sulfate	Pooled	5600	7080	8035	16800	20700
TDS	ELF-10	37200	38000	38500	39850	40300
TDS	ELF-2	11300	11400	11650	12300	12400
TDS	ELF-9	9420	10250	10550	11900	12000
TDS	Pooled	9420	11400	11950	37800	40300

3.0 UPGRAIDENT AND DOWNGRAIDENT WELL COMPARISON

Groundwater quality was assessed using upper tolerance limits (UTLs) by comparing upgradient/background groundwater concentrations for Appendix III constituents, with individual downgradient groundwater well results. The data measured from the upgradient/background wells, was used to compute a UTL, which serves as the both the background value and groundwater protection standard. Data obtained from the downgradient wells were compared point-by-point to the UTLs, to determine if the site complies with the *Final Rule*. The software package Sanitas© v.2016, was used to compute the UTLs and perform the comparisons. As part of this evaluation, groundwater data were examined for characteristics that impact how the UTL was computed. These characteristics include the:

- Number of non-detect results
- Data distribution
- Site-wide false-positive rate (SWFPR)
- Spatial and seasonal variability.

Summary statistics and other statistical characteristics of the data are discussed in the previous section. These characteristics were used to compute the appropriate UTL for each analyte.

3.1 Upper Tolerance Limits

The shape or distribution of the data was assessed to ensure that the most appropriate UTL was used for comparison purposes. The most efficient UTL is a parametric UTL that assumes the data follow a normal distribution. If the data do not follow a normal distribution, a non-parametric UTL is typically used. Thus, the data for each analyte are assessed to determine if a parametric UTL can be computed from the data. The parametric UTL is computed using the formula below:

$$UTL = \bar{X} + \kappa \times S$$

Where:

\bar{X} = the average of the background data

κ = multiplier from EPA Unified Guidance, March 2009

S = standard deviation of the background data

3.1.1 Normal Distribution

Histograms and normal-quantile plots were used to visually inspect the data for deviations from normality and to determine if outliers were present. This examination reveals the data does not contain outliers or analytes with more than 50% non-detects. The Shapiro-Wilk test was used to assess normality in conjunction with the normal quantile plots. If the p-value associated with the test was greater than or equal to 0.05, the data are considered normally distributed and a parametric UTL was computed using the upgradient measurements. If the p-value is less than 0.05, then the maximum detectable value was used as the UTL.

Note: The 0.05 p-value is not a hard and fast rule. Parametric UTLs were computed for analytes whose p-values were close to 0.05 as selected by the Sanitas software (Sanitas 2016).

If the data for an analyte were not normally distributed, the ladder of powers method was used to determine if a reasonable transformation existed that would produce normal data. The ladder of powers tests different monotonic transformations of the data, such as the natural logarithm or square, to see if the transformed data have a normal distribution. If a transformation within the ladder of powers can be found that produces normal data, a parametric UTL was computed using the transformed data. If a transformation was identified, it was applied to both upgradient / background and downgradient groundwater data prior to comparison.

A non-parametric UTL was computed for data that are not normally distributed and cannot be transformed. The non-parametric UTL is the largest value measured in the upgradient /

background wells. Table C.3 summarizes the results of the Shapiro-Wilk test for each of the Appendix III and analytes where at least 50% of the measurements were detects. An appropriate transformation was found for calcium. Non-parametric UTLs were computed for all of the analytes except for calcium.

Table C.3. Shapiro-Wilk Test for the CCR Landfill upgradient wells.

Analyte	Well	W-Statistic	P-Value	Normal
Boron	Pooled	0.8068	0.0002	Not Normal
Calcium	Pooled	0.7802	0.0001	Not Normal
Calcium to the Fourth Power	Pooled	0.9112	0.0281	Normal
Chloride	Pooled	0.6275	<0.0001	Not Normal
Fluoride	Pooled	0.6754	<0.0001	Not Normal
pH	Pooled	0.8716	0.0038	Not Normal
Sulfate	Pooled	0.7413	<0.0001	Not Normal
TDS	Pooled	0.6473	<0.0001	Not Normal

3.1.2 Upper Tolerance Limits

This section contains the UTLs computed for each analyte. Table C.4 lists the UTL for each of the analytes detected in the upgradient wells. The following criteria was used for determining each UTL:

- If more than 50% of the data were detected and have a normal distribution, a parametric UTL was computed.
- If the data were not normally distributed or more than 50% of the data were non-detects, the maximum detected value was used as the UTL.
- If all of the upgradient samples were non-detects, the MDL was used as the UTL.

Graphs were constructed for each of the analytes that had at least one detectable measurement in the downgradient wells. The graphs illustrate the UTL as a horizontal line with the measurements from each of the downgradient wells plotted on the same graph. Non-detects are represented by hollow circles on the graphs. These graphs clearly depict how the downgradient measurements compare to the UTL. Results above the UTL line represent values exceeding the UTL. As the graphs illustrate, all of the Appendix III constituents except for alkaline pH in CCR Landfill exceed the background value / groundwater protection standard. Table C.4 list the UTLs and the wells that exceed for each analyte and list the downgradient wells that exceed the UTLs (Figure C.4).

Table C.4. Comparison of upgradient and downgradient wells.

Analyte	Upper Tolerance Limit (mg/L)	Type of Upper Tolerance Limit	Downgradient Wells that Exceed Upper Tolerance Limit
Boron	2.99	Max Value	ELF-11, ELF-4, ELF-5, ELF-6, ELF-8
Calcium	554.8	Parametric	ELF-8
Chloride	2630	Max Value	ELF-11, ELF-5, ELF-6, ELF-7
Fluoride	0.5385	Max Value	ELF-4, ELF-5, ELF-6, ELF-7, ELF-8
pH Alkaline	8.37	Max Value	None exceed
pH Acidic	7.0	Min Value	ELF-4, ELF-5, ELF-6, ELF-7
Sulfate	15000	Max Value	ELF-3
TDS	26400	Max Value	ELF-3

4.0 CONCLUSIONS

Data were collected from detection monitoring wells placed at the CCR Landfill at the Hunter Power Plant. A comprehensive data analysis was completed on the upgradient wells to ensure that comparisons between upgradient and downgradient wells were done correctly. Exceedances were noted in downgradient wells for the CCR Landfill as outlined in Table C.4.

5.0 REFERENCES

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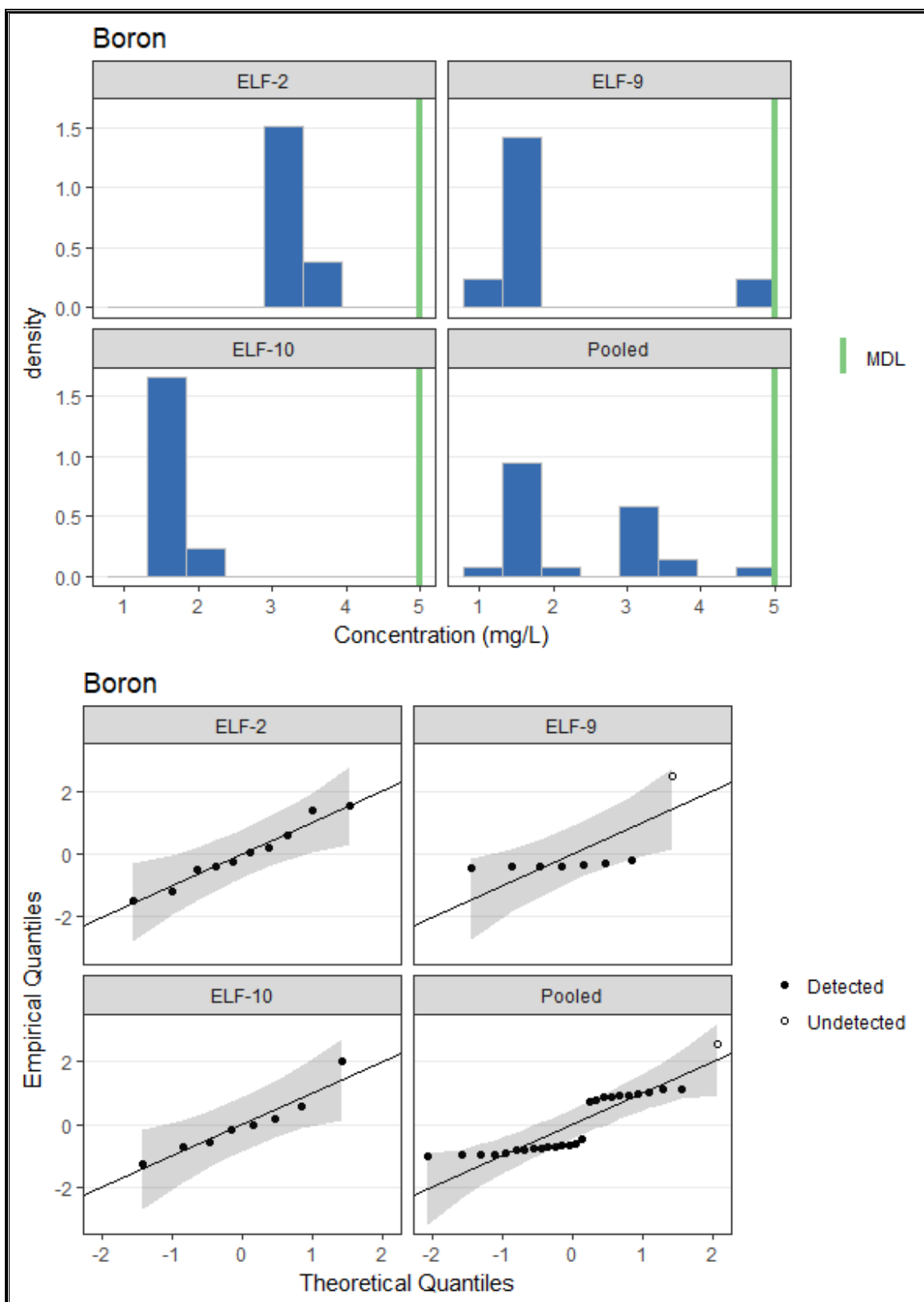


Figure C.3. Summary statistics plots for the CCR Landfill.

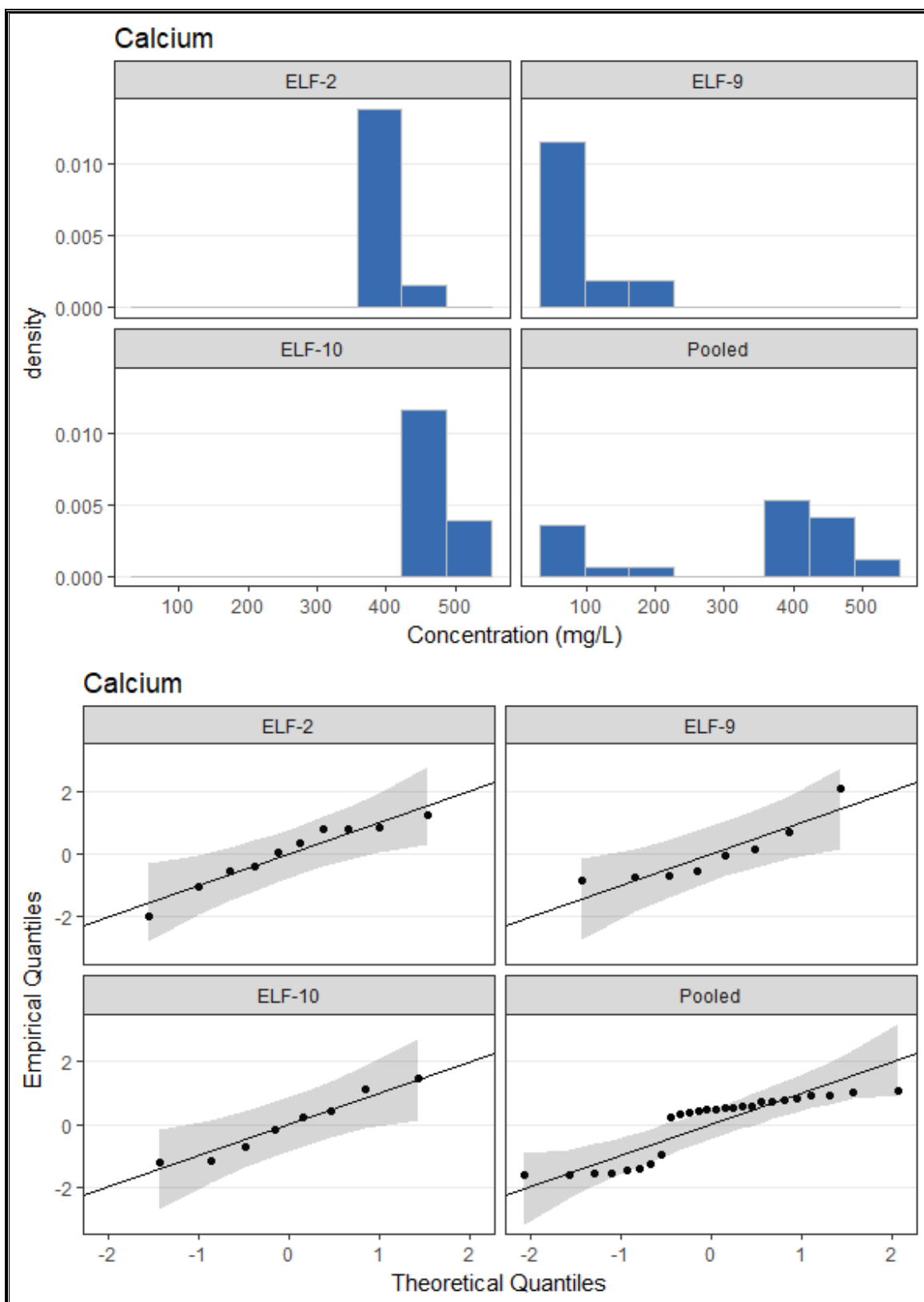


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

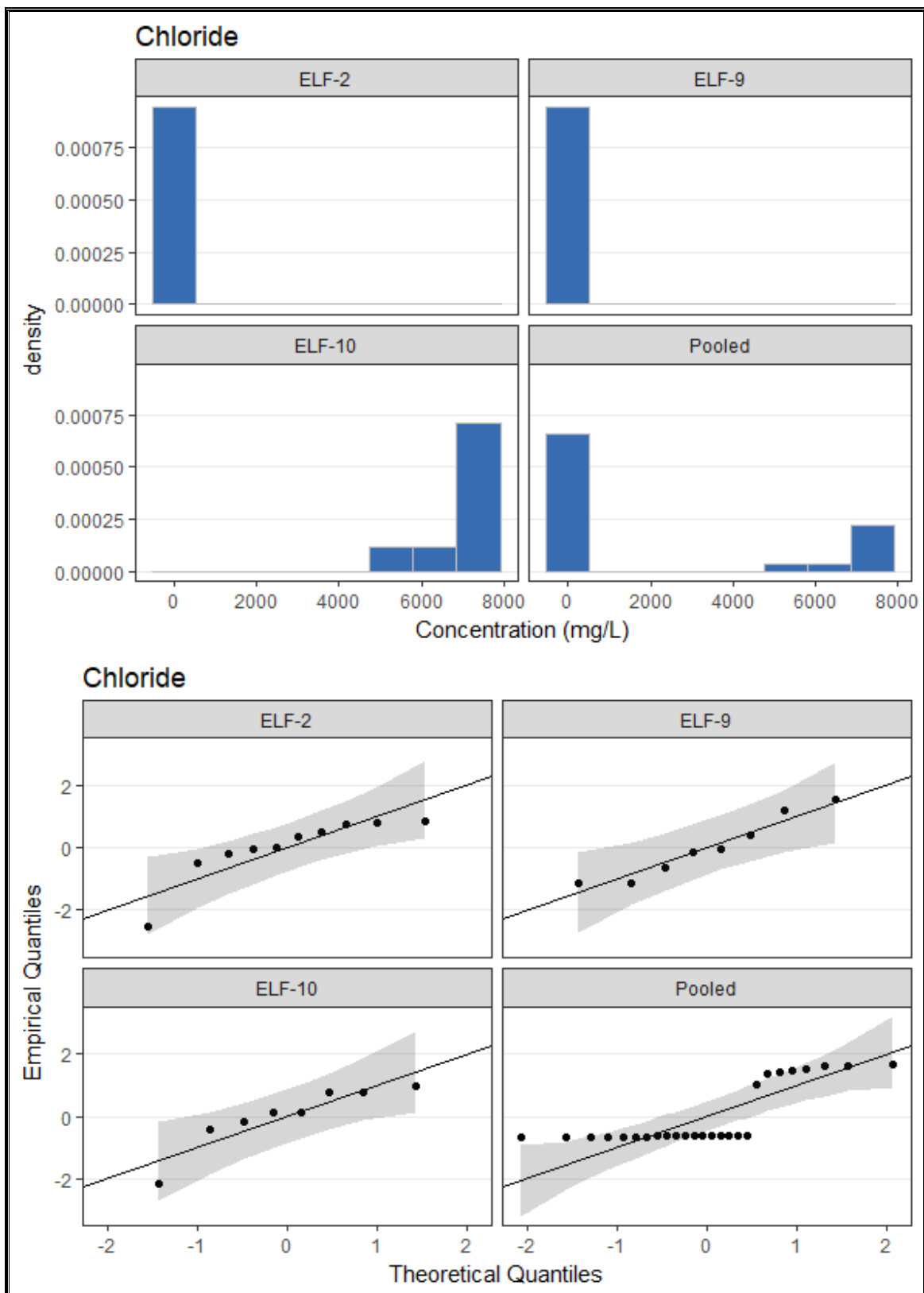


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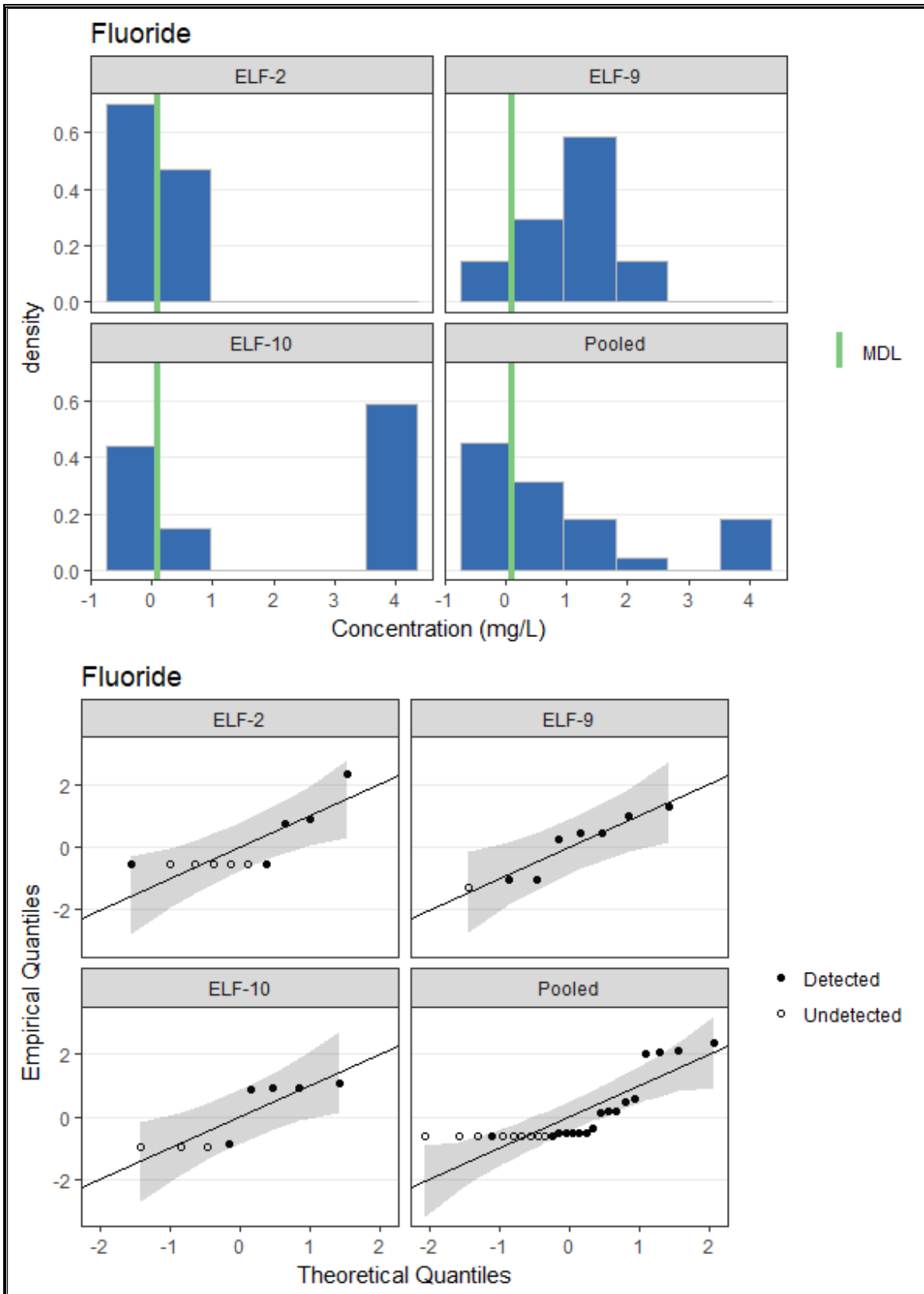


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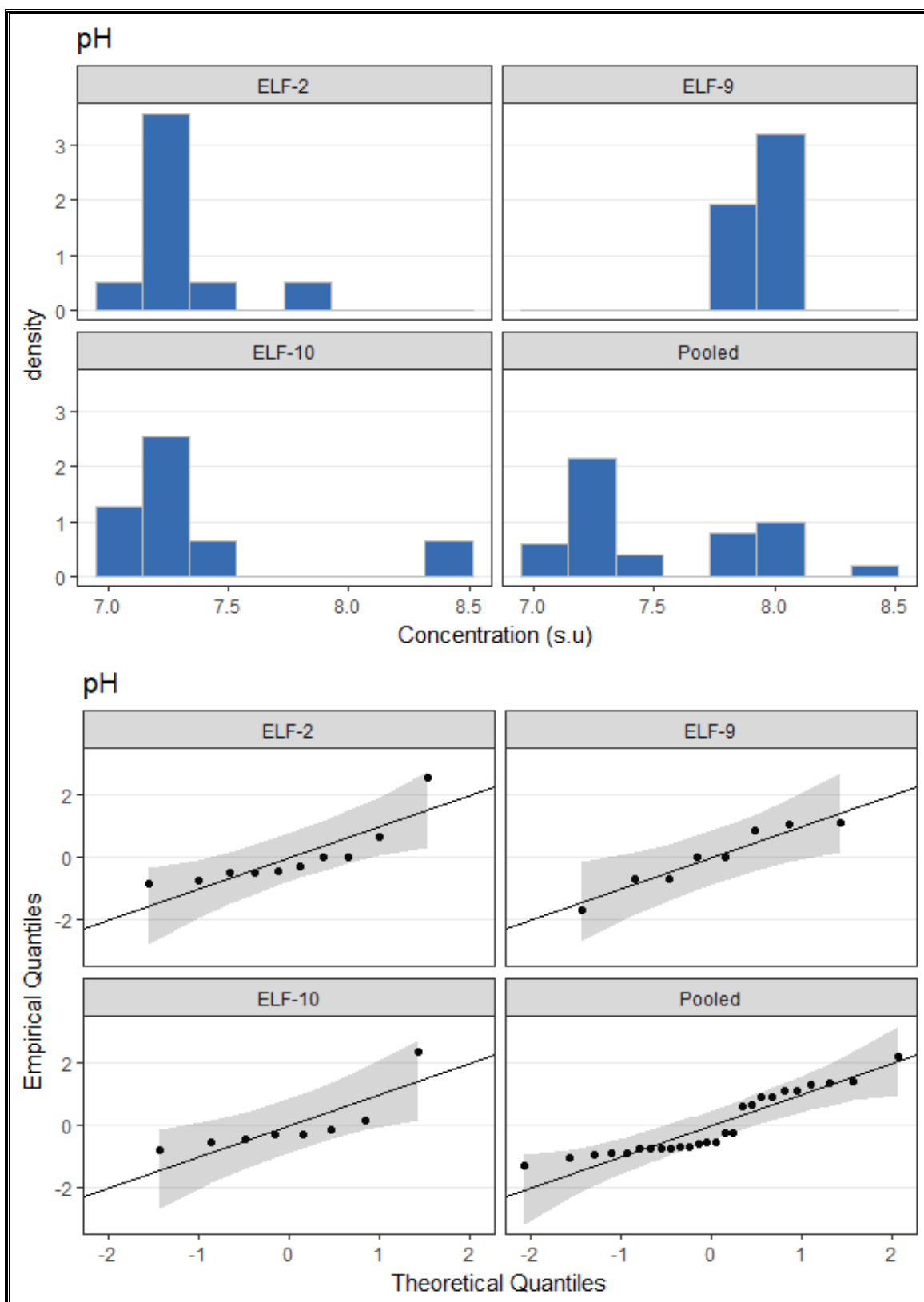


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

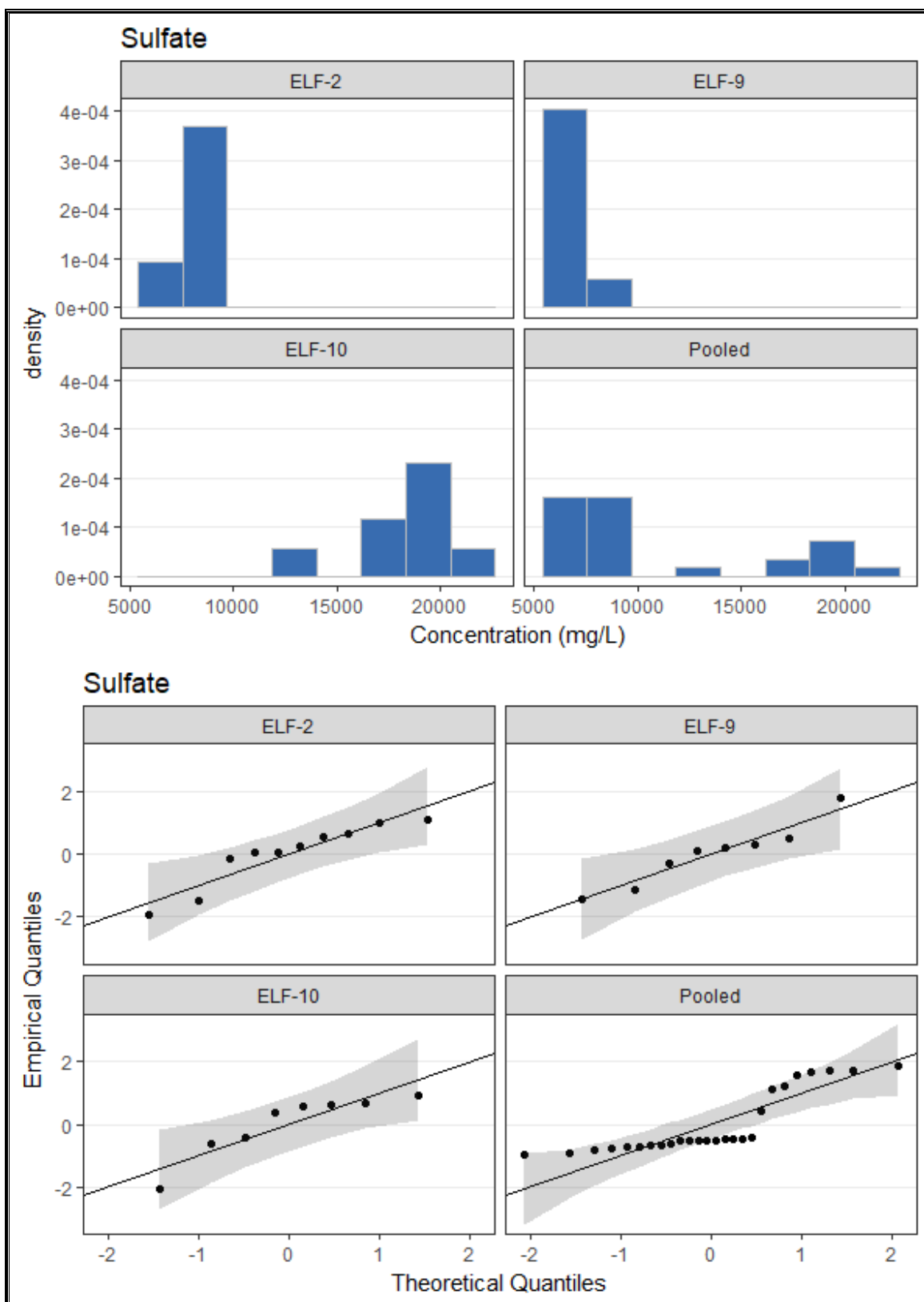


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

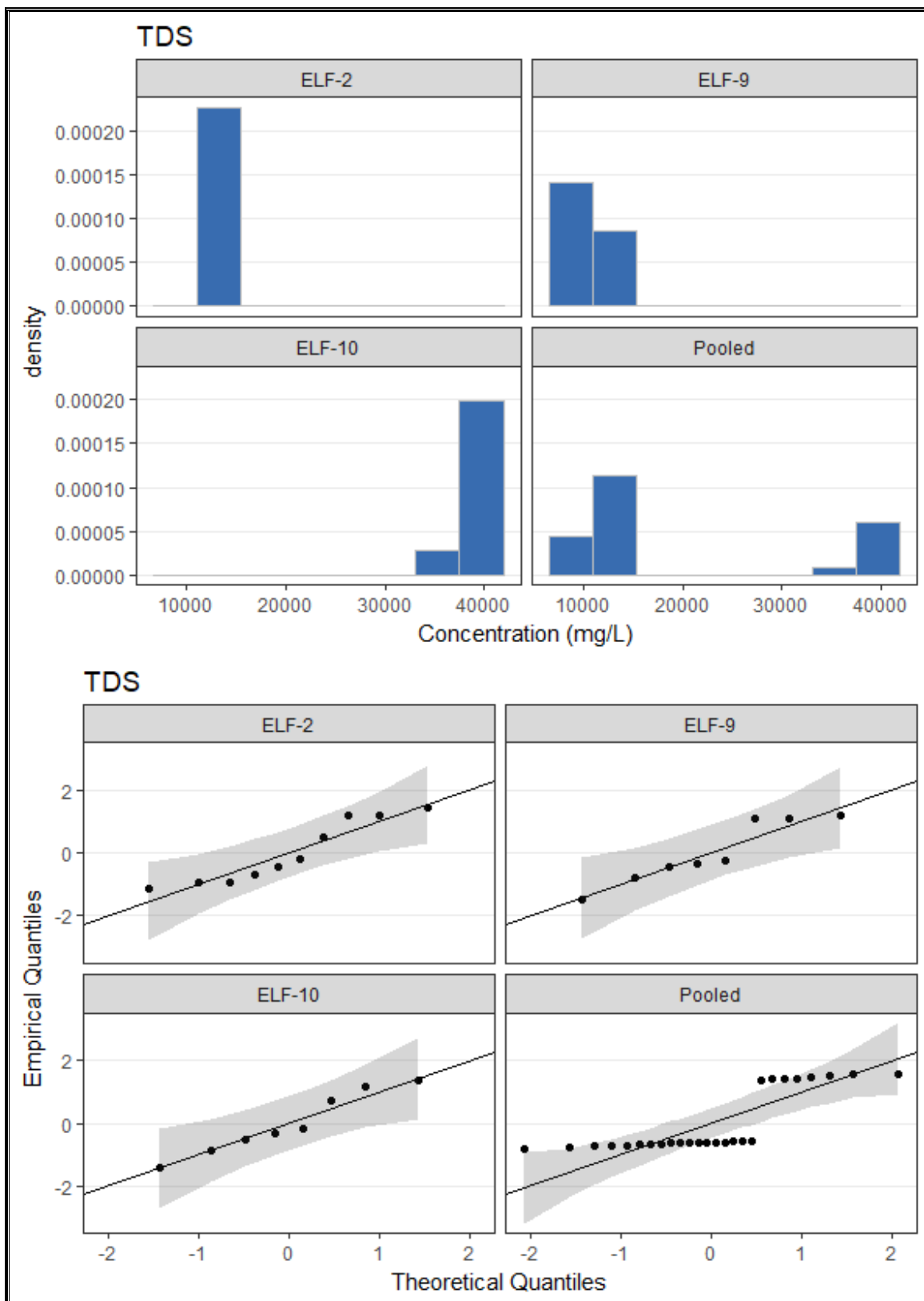


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

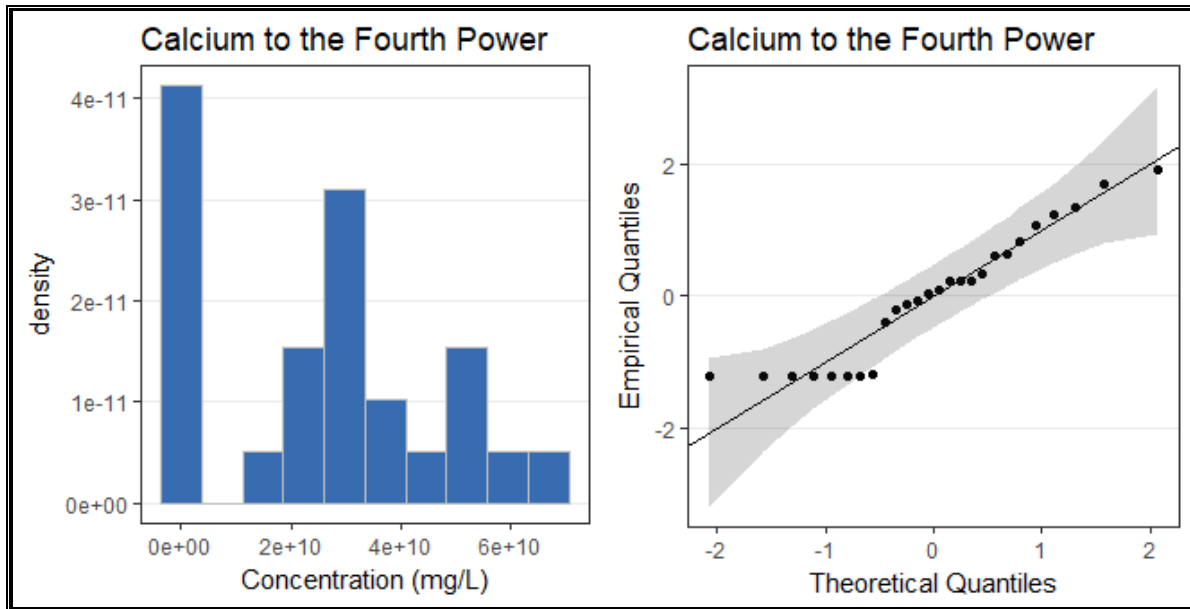


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

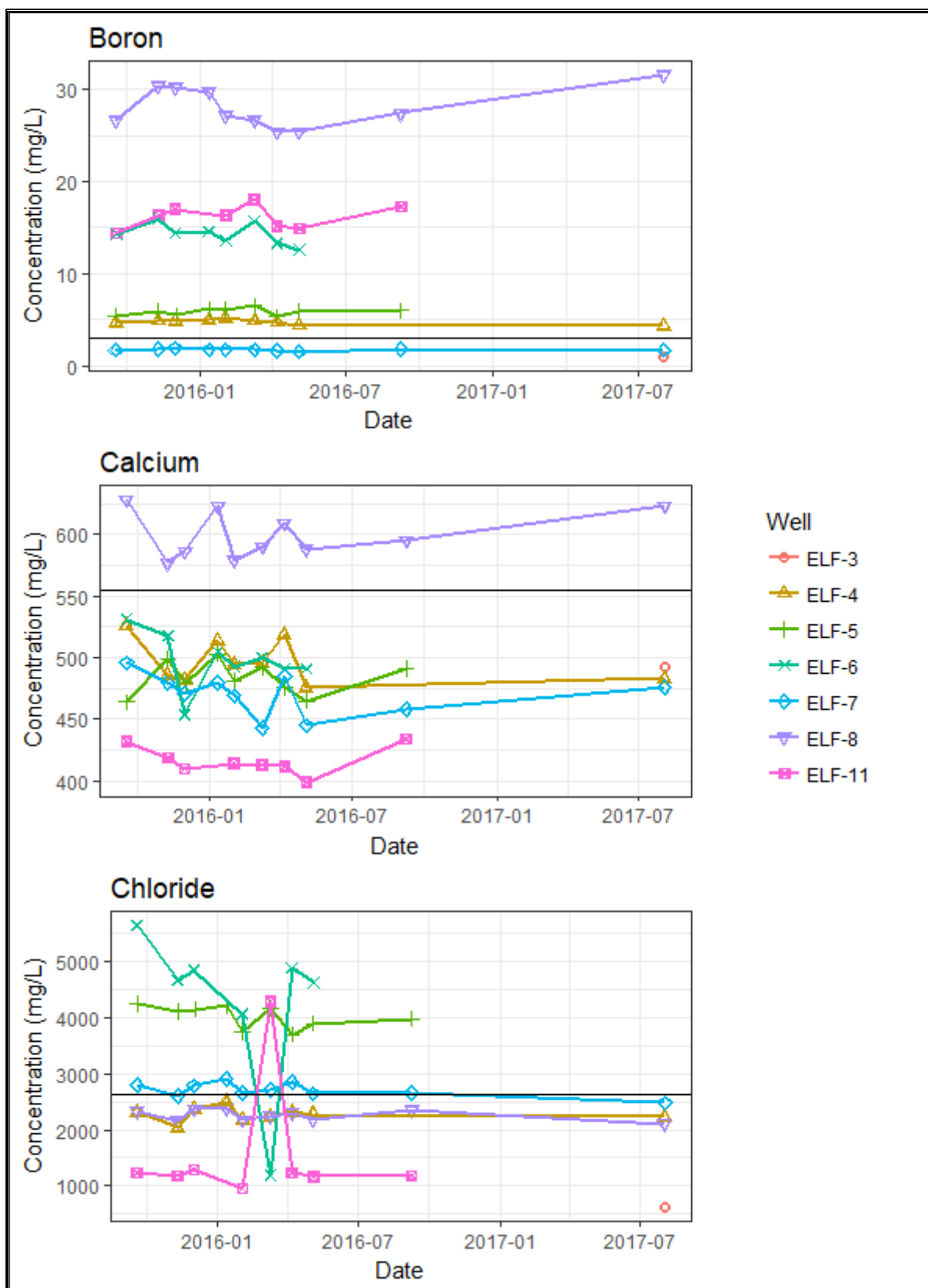


Figure C.4. Upper tolerance limit plots for the CCR Landfill.

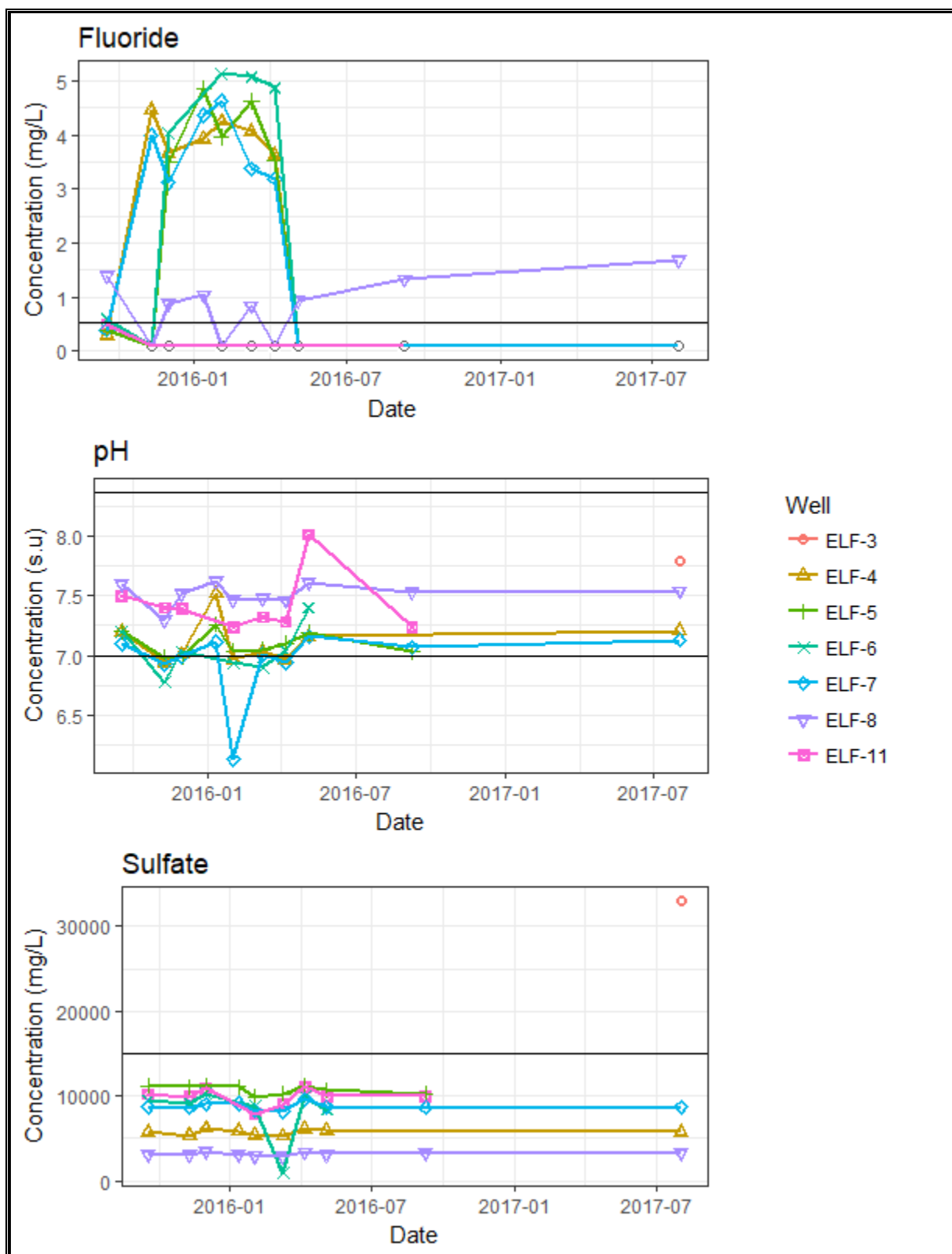


Figure C.4 (cont). Upper tolerance limit plots for the CCR Landfill.

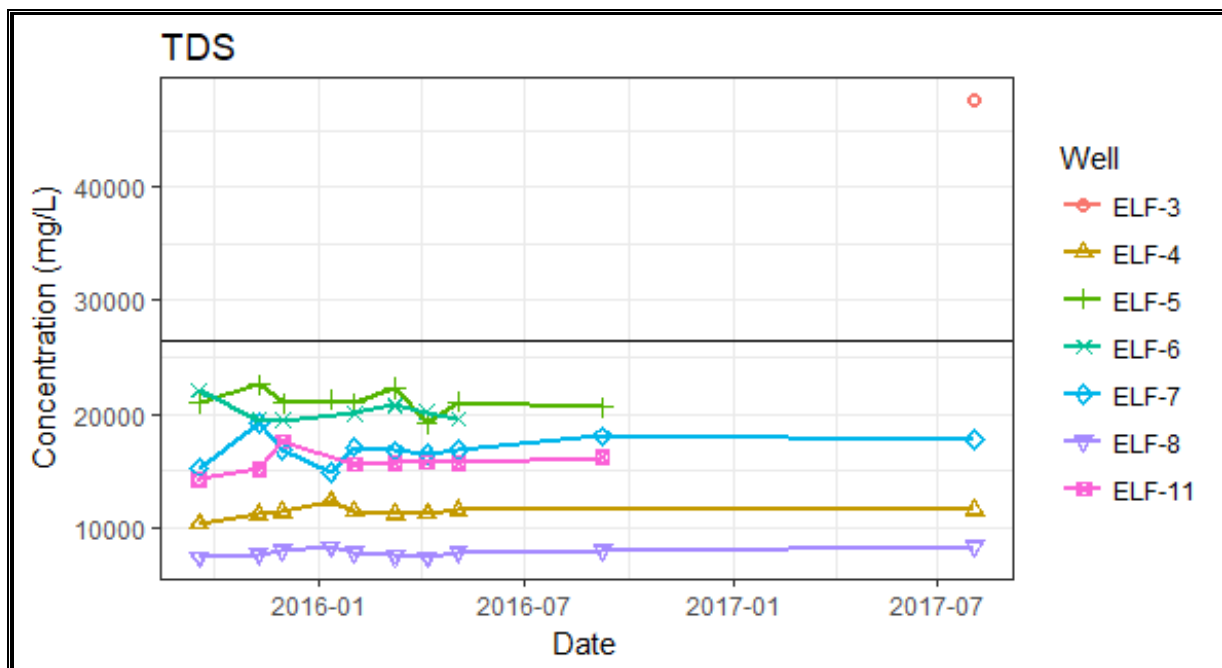


Figure C.4 (cont). Upper tolerance limit plots for the CCR Landfill.