Groundwater Monitoring & Corrective Action Report

CCR Landfill - Hunter Power Plant Castle Dale, Utah

January 2020







Prepared For: Hunter Power Plant Highway 10, S of Castle Dale Castle Dale, UT 84513

PacifiCorp 1407 West North Temple, Suite 280 Salt Lake City, Utah 84116

Prepared By: Water & Environmental Technologies 480 East Park Street Butte, Montana 59701 406.782.5220



TABLE OF CONTENTS

| 1.0 | INT | RODUCTION | . 1 |
|-----|-----|---|-----|
| | 1.1 | Summary of Previous Work | 1 |
| | 1.2 | Report Purpose and Organization | 1 |
| 2.0 | GRO | OUNDWATER MONITORING NETWORK | . 2 |
| | 2.1 | Monitoring Well Decommissioning & Replacement in 2019 | 3 |
| | 2.2 | Additions to the Monitoring Network in 2019 | 3 |
| 3.0 | GRO | DUNDWATER MONITORING | . 3 |
| | 3.1 | Continuation - Assessment Monitoring | 3 |
| 4.0 | NAT | URE AND EXTENT INVESTIGATION | . 8 |
| 5.0 | ASS | ESSMENT OF CORRECTIVE MEASURES | . 8 |
| | 5.1 | Public Meeting | 9 |
| 6.0 | SEL | ECTION OF REMEDY | . 9 |
| 7.0 | PRC | BLEMS & RESOLUTIONS | . 9 |
| 8.0 | UPC | COMING YEAR | . 9 |
| 9.0 | REF | ERENCES 1 | 10 |



LIST OF FIGURES

Figure 1. Hunter Power Plant CCR Landfill - CCR Sampling Locations

LIST OF TABLES

| Table 1. | Field and Laboratory Data |
|-----------|--|
| Table 2a. | Summary of Groundwater Quality Comparisons – May 2019 Event |
| Table 2b. | Summary of Groundwater Quality Comparisons - August 2019 Event |

APPENDICES

| Attachment A: | Field Summary Report – May 2019 Event |
|---------------|--|
| Attachment B: | Field Summary Report – August 2019 Event |



ACRONYMS

- AMSL Above Mean Sea Level
- bgs Below Ground Surface
- CCR Coal Combustion Residuals
- CFR U.S. Code of Federal Regulations
- EPA U.S. Environmental Protection Agency
- FGD Flue-Gas Desulfurization
- SAP Sampling and Analysis Plan
- SSI Statistically Significant Increase
- 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*).

1.1 Summary of Previous Work

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*. PacifiCorp met this requirement and provided the findings of initial detection monitoring in the first Groundwater Monitoring and Corrective Action Report for the CCR Landfill (WET 2018).

The results of detection monitoring revealed all Appendix III constituents exceeded site-specific background concentrations. Based on these findings, the CCR Landfill monitoring program transitioned to assessment monitoring in 2018. Two rounds of sampling were completed in 2018, groundwater protection standards were established for the CCR Landfill, and assessment monitoring results were compared to these standards. These comparisons revealed Appendix IV constituents: lithium and molybdenum exceeded the groundwater protection standards. As a result, a nature and extent investigation to assess groundwater impacts was initiated in 2018 and completed in 2019.

1.2 Report Purpose and Organization

The following sections provide a status update for activities initiated or completed at the Hunter Power Plant CCR Landfill, during the 2019 monitoring period. 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 (Section 2.0);
- Summarize key actions completed (Section 5.0);
- Describe any problems encountered (Section 7.0);
- Discuss actions taken to resolve problems (Section 7.0); and
- Define key activities for the upcoming year (Section 8.0).



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 2.1 and 2.2).
- 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 3.0 and Table 1).
- A narrative discussion of any transition between monitoring programs (i.e. transitioning from detection monitoring to assessment monitoring) in addition to identifying constituents detected at a statistically significant increase over background levels (Section 3.1).
- Other information required to be included as specified in § 257.90 through § 257.98 of the *Final Rule* not listed above, is also included in the report.

2.0 GROUNDWATER MONITORING NETWORK

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 monitoring wells for the CCR Landfill utilized to conduct detection and assessment monitoring between 2015 and 2019 include four background wells and seven downgradient wells. The background wells include four locations spanning the extent of the CCR Landfill east to west, and include: ELF-1D, ELF-2, ELF-9, and ELF-10. The background well spacing and distribution were developed to comply with the requirements of the *Final Rule*. 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.

Downgradient monitoring wells for the CCR Landfill include seven locations placed to capture groundwater as it passes the waste unit boundary. 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. The downgradient monitoring wells include the following: ELF-3, ELF-4, ELF-5, ELF-6, ELF-7, ELF-8, and ELF-11.



2.1 Monitoring Well Decommissioning & Replacement in 2019

No wells were replaced or decommissioned for the Hunter Landfill monitoring network in 2019.

2.2 Additions to the Monitoring Network in 2019

To support an evaluation of the nature and extent of past releases at the CCR Landfill, three new wells were installed in November of 2018 east and downgradient of the CCR Landfill. The three new wells included: ELF-12, ELF-13, and ELF-14 (Figure 1). These wells were incorporated into the groundwater monitoring program in 2019 and will continue to undergo semi-annual monitoring in accordance with the *Final Rule* throughout remedy selection and implementation.

3.0 GROUNDWATER MONITORING

The CCR Landfill was transitioned to assessment monitoring in 2018. Two rounds of sampling and analysis were completed in 2019 to comply with the *Final Rule*, and statistical analyses were completed comparing downgradient well results with groundwater protection standards. All of the samples underwent analysis in accordance with the requirements defined in the *Final Rule*. In addition, water level and field data were acquired each time the wells were sampled, in accordance with the SAP. Table 1 provides 2019 assessment monitoring data collected for the CCR Landfill. Attachments A and B contain groundwater contour maps, data validation, statistical analyses, field data sheets, and laboratory data packages for each event.

3.1 Continuation - Assessment Monitoring

In accordance with the *Final Rule*, the CCR Landfill remains in assessment monitoring while PacifiCorp prepares to implement corrective measures. To support ongoing monitoring, sitespecific background (UTL) concentrations were combined with *EPA National Primary Drinking Water Standards* to create groundwater protection standards for the CCR Landfill. After updating the statistics to incorporate the 2019 monitoring data for upgradient wells, the higher of these values was adopted as the groundwater protection standard. These comparisons for the two 2019 monitoring events are provided in Tables 2a and 2b below.

Table 2a indicates cobalt, lithium, and molybdenum exhibited statistically significant increases (SSIs) above their groundwater protection standards for the May 2019 event. Table 2b indicates cobalt, lithium, molybdenum, and selenium exhibited SSIs above groundwater protection standards for the August 2019 event. The remaining Appendix IV constituents were below groundwater protection standards.

Table 1. Hunter Power Plant - Ash Landfill Assessment Monitoring Results

| , T | | wer Plant - As | | | | | | | Appendix I | 11 | | | | | | | | | Арре | endix IV | | | | | | |
|-----------|------------|---|---------------|--|--|---|--|--|--------------------------------------|---|---|--|--|---|--|--|---|---|--|---|---|--|--|---|--|--------------------------------|
| | | | | | | - | | | | | | | | | | | | | | | | | | | | |
| SAMPLE ID | WELL TYPE | COLLECTION DATE | TOC AMSL (ft) | DTW (ft) | GWE AMSL (ft) | В | Ca | CI | F | рН | SO ₄ | TDS | Sb | As | Ва | Ве | Cd | Cr | Co | Pb | Li | Hg | Мо | Se | ті | Radium |
| | | | | | | | | | | | | | | | | | | | | | | _ | | | | 226+228 |
| | | | | | | mg/L | Q mg/L (| Q mg/L Q | mg/L Q | s.u Q | mg/L Q n | ng/L Q | mg/L Q | mg/L | Q mg/L | Q mg/L C | Q mg/L | Q mg/L (| Q mg/L | Q mg/L (| Q mg/L Q | mg/L Q | mg/L Q | mg/L (|) mg/L Q | pCi/L Q |
| | | 9/18/2015 | 5669.55 | 84.43 | 5585.12 | | t enough wate | | 0, 4 | | 0, 4 | 0, 4 | 0, 4 | 0, | - U | | , <u>o</u> , | | . 0, | | | 0, 4 | - - - | , | | |
| | | 11/10/2015 | | NM | NM | | t enough wate | | | | | | | | | | | | | | | | | | | |
| | | 12/1/2015 | | 84.41 | 5585.14 | | t enough wate | | | | | | | | | | | | | | | | | | | |
| | | 1/12/2016 2/2/2016 | | 84.25 84.14 | 5585.30 5585.41 | | t enough wate t enough wate | | | | | | | | | | | | | | | | | | | |
| | | 3/9/2016 | | 84.14 NM | NM | | t enough wate | | | | | | | | | | | | | | | | | | | |
| | | 4/6/2016 | | 83.45 | 5586.10 | | t enough wate | | | | | | | | | | | | | | | | | | | |
| ELF-1D | Background | 5/4/2016 | | 83.60 | 5585.95 | NS - Not | t enough wate | er | | | | | | | | | | | | | | | | | | |
| | | 5/9/2017 | | 82.60 | 5586.95 | | t enough wate | | | | | | | | | | | | | | | | | | | |
| | | 8/2/2017 | | 82.35 | 5587.20 | NS - Not | t enough wate | er | | | | | 0.00000 | | | | | | | | | 0.000450 | | | | |
| | | 2/15/2018 5/30/2018 | | 98.82 99.87 | 5570.73 5569.68 | NA NS - Not | t enough wate | or | | | | | <0.00200 | <0.00200 | 0.0103 | <0.00200 | <0.000500 | <0.00200 | 0.00542 | <0.00200 | 2.12 | <0.000150 | 0.0165 | <0.00200 | <0.00200 | 2.63 |
| | | 5/8/2019 | | 81.81 | 5587.74 | 2.23 | - | 6880 | <0.100 | 7.02 | 7730 26 | 6800 | <0.00400 | <0.00200 | 0.00846 | <0.00200 | <0.000500 | 0.00234 | <0.00400 | <0.00200 | 2.2 J+ | <0.0000900 | 0.0207 | <0.00200 | <0.00200 | 1.23 |
| | | 8/20/2019 | | 83.22 | 5586.33 | 2.19 | 366 J- | | <0.200 | | | 7000 | < 0.00400 | < 0.00200 | 0.00842 | <0.00200 | <0.000500 | <0.00200 | < 0.00400 | <0.00200 | 2.19 | <0.0000900 UJ | | < 0.00200 | <0.00200 | 1.09 |
| 1 | | 9/18/2015 | 5612.02 | 20.20 | 5591.82 | 3.31 | 419 | 469 | 0.5 | 7.30 | 8150 12 | 1400 | <0.001 | <0.001 | <0.05 | <0.001 | <0.001 | <0.001 | 0.006 | 0.001 | 1.50 | <0.0001 | 0.0030 | 0.608 | <0.0005 | 2.3 |
| | | 11/10/2015 | | 20.65 | 5591.37 | 3.27 | 419 | 444 | <0.1 | | | 1300 | <0.002 | <0.002 | 0.00915 | <0.002 | <0.0005 | <0.002 | <0.004 | <0.002 | 4.93 | <0.00015 | 0.00337 | 0.556 | <0.002 | 0.8 |
| | | 12/1/2015 | | 21.02 | 5591.00 | 3.24 | 392 | 461 | | | | 1500 | <0.002 | < 0.002 | 0.0128 | <0.002 | < 0.0005 | <0.002 | 0.00559 | <0.002 | 3.97 | <0.00015 | 0.00381 | 0.53 | <0.002 | 8.1 J+ |
| | | 1/12/2016 2/2/2016 | | 21.29 21.43 | 5590.73 5590.59 | 3.38 3.50 | 420 | 473 471 | 0.277 0.100 | | | 2300 2000 | <0.002 <0.002 | <0.002 <0.002 | 0.0207 | <0.002 <0.002 | <0.0005 <0.0005 | <0.002 | 0.0114 | <0.002 | 4.08 | <0.00015 <0.00015 | 0.00431 0.00310 | 0.499 | <0.002 <0.002 | 1.99 1.25 |
| (I | | 3/9/2016 | | 21.43 | 5590.46 | 3.48 | 395 | 430 | <0.1 | | | 1400 | <0.002 | <0.002 | 0.0119 | <0.002 | < 0.0005 | <0.002 | 0.00301 | <0.002 | 2.14 | <0.00015 | 0.00310 | 0.451 | <0.002 | 2.87 |
| (I | | 4/7/2016 | | 21.50 | 5590.35 | 3.33 | 404 | 457 | <0.1 | | | 2400 | <0.002 | <0.002 | 0.0130 | <0.002 | < 0.0005 | 0.011 | < 0.004 | <0.002 | 1.34 | <0.00015 | 0.00505 | 0.463 | <0.002 | 0.94 |
| ELF-2 | Background | 5/4/2016 | | 21.69 | 5590.33 | 3.15 | 364 | 439 | 0.103 | | | 1700 | <0.002 | < 0.002 | 0.00951 | <0.002 | <0.0005 | <0.002 | < 0.004 | <0.002 | 1.45 | <0.00015 | 0.0030 | 0.398 | <0.002 | 0.85 |
| (I | | 9/8/2016 | | 22.12 | 5589.90 | 3.25 | 428 | 446 | 0.299 | 7.30 | 7950 12 | 2300 | <0.002 | <0.002 | 0.00849 | <0.002 | <0.0005 | <0.002 | < 0.004 | <0.002 | 3.50 | <0.00015 | 0.00288 | 0.366 | <0.002 | 0.61 |
| | | 5/9/2017 | | 22.21 | 5589.81 | - | t enough wate | | | | | | | | | | | | | | | | | | | |
| (I | | 8/2/2017 | | 22.14 | 5589.88 | 3.11 | 383 | 363 | <0.100 | 7.42 | 7950 12 | 1600 | <0.00200 | <0.00200 | 0.012 | <0.00200 | <0.000500 | <0.00200 | 0.00565 | <0.00200 | 1.54 | <0.000150 | 0.00321 | 0.198 | <0.00200 | 1.37 |
| (I | | 2/15/2018 | | 22.30 22.24 | 5589.72 | NA 3.58 | | 245 | 0.102 | 7 1 2 | <u></u> | 2000 | <0.00200 | <0.00200 | 0.0113 | <0.00200 | <0.000500 | <0.00200 | 0.00677 | <0.00200 | 1.61 | <0.000150 | 0.00305 | 0.0879 | <0.00200 | 2.29 0.99 |
| (I | | 5/30/2018 5/8/2019 | | 22.24 | 5589.78 5589.49 | 3.58 | 430 | - 245 222 | | | | 2000 2200 | <0.00100 <0.00400 | <0.00200 <0.00200 | 0.00998 | <0.00200 <0.00200 | <0.000500 <0.000500 | <0.00200 | <0.00400 <0.00400 | <0.00200 | | <0.000150 J- <0.0000900 | 0.00255 | 0.0766 0.0319 | <0.00200 <0.00200 | 0.99 |
| (I | | 8/20/2019 | | 22.33 | 5589.30 | 3.53 | | | | | | 2600 | < 0.00400 | <0.00200 | 0.00835 | <0.00200 | <0.000500 | < 0.00238 | < 0.00400 | <0.00200 | 1.52 | <0.0000900 UJ | _ | 0.0313 | <0.00200 | 1.49 |
| | | 9/18/2015 | 5661.00 | NM | NM | | t enough wate | | .01200 | 7110 | 0,00 1 | 2000 | 10100100 | .0100200 | 0.00000 | .0100200 | .010000000 | 10100200 | 10100 100 | 10100200 | 1.01 | 1010000000000000 | 0.00255 | 01001 | 10100200 | 1110 |
| | | 11/10/2015 | | NM | NM | NS - Not | t enough wate | er | | | | | | | | | | | | | | | | | | |
| (I | | 12/1/2015 | | NM | NM | | t enough wate | | | | | | | | | | | | | | | | | | | |
| (I | | 1/12/2016 | | 51.14 | 5609.86 | | t enough wate | | Lessel | | | | | [] | | | | | 1 1 | | | | 1 I | | | 1 1 |
| (I | | 2/2/2016 3/9/2016 | | 36.85 23.63 | 5624.15 5637.37 | <5.00 1.61 | 166 84.2 | 284 469 | 0.276 | | | 420 1900 | <0.002 <0.002 | 0.00499 0.00674 | 0.0794 0.0411 | <0.002 <0.002 | <0.0005 <0.0005 | 0.0157 | <0.004 <0.004 | 0.00435 | 2.48 | <0.00015 <0.00015 | 0.0983 0.158 | 0.00424 <0.002 | <0.002 <0.002 | 1.14 1.15 |
| (I | | 4/7/2016 | | 23.65 | 5637.51 | 1.35 | 112 | 316 | <0.1 | | | 0400 | <0.002 | 0.00674 | 0.0411 | <0.002 | < 0.0005 | 0.00557 | 0.00498 | 0.00549 | 0.724 | <0.00015 | 0.138 | <0.002 | <0.002 | 2.6 |
| | | 5/4/2016 | | 23.45 | 5637.53 | 1.30 | 64.6 | 282 | 1.29 | | | 0100 | <0.002 | 0.00546 | 0.0323 | <0.002 | <0.0005 | 0.00359 | < 0.00430 | <0.002 | 1.03 | <0.00015 | 0.122 | <0.002 | <0.002 | 0.64 |
| ELF-9 | Background | 9/8/2016 | | 23.40 | 5637.60 | 1.36 | | 352 | 1.65 | | | 0600 | <0.002 | 0.00524 | 0.0189 | <0.002 | < 0.0005 | <0.002 | <0.004 | <0.002 | 1.60 | <0.00015 | 0.123 | <0.002 | <0.002 | 0.66 |
| (I | | 5/9/2017 | | 23.39 | 5637.61 | NS - Not | t enough wate | er | | | | | | | | | | | | | | | | | | |
| (I | | 8/2/2017 | | 31.38 | 5629.62 | 1.32 | 91.9 | 446 | 1.27 | | | 2000 | <0.00200 | 0.01140 | 0.102 | <0.00200 | 0.000532 | 0.02010 | 0.0052 | 0.00768 | 0.748 | <0.000150 | 0.141 | <0.00200 | <0.00200 | 1.84 |
| (I | | 8/29/2017 | | 22.01 | 5638.99 | 1.50 | 53.9 | 391 | | | | 0500 | <0.00200 | 0.00622 | 0.0165 | <0.00200 | <0.000500 | <0.00200 | < 0.00400 | <0.00200 | 0.801 | < 0.000150 | 0.106 | <0.00200 | <0.00200 | 2.23 |
| (I | | 9/15/2017 | | 23.32 | 5637.68 | 1.39 NA | 60.3 | 359 | 1.84 | 8.06 | 5600 12 | 1900 | <0.00200 | 0.00762 | 0.0348 | | <0.000500 | | <0.00400 | | 0.783 | <0.000150 | | <0.00200 | <0.00200 | 1.92 1.38 |
| | | 2/15/2018 5/30/2018 | | 22.81 23.25 | 5638.19 5637.75 | 1.57 | 52.7 J | - 416 | 1.19 | 7.89 | 5460 11 | 1200 | <0.00200 <0.00100 | 0.0117 | 0.0767 | <0.00200 <0.00200 | <0.000500 <0.000500 | 0.0137 <0.00200 | <0.00400 <0.00400 | 0.00489 | 0.74 1.1 J- | <0.000150 <0.000150 J- | 0.127 | <0.00200 <0.00200 | <0.00200 <0.00200 | 0.7 |
| | | 5/8/2019 | | 23.23 | 5637.76 | 1.87 | | 527 | | | | 0300 | <0.00100 | 0.0096 | 0.0137 | <0.00200 | <0.000500 | <0.00200 | < 0.00400 | <0.00200 | | <0.0000900 | 0.103 | <0.00200 | <0.00200 | 1.34 |
| | | 8/20/2019 | 1 | 23.25 | 5637.75 | + + | | | | | | 0700 | < 0.00400 | 0.00663 | 0.0134 | <0.00200 | <0.000500 | <0.00200 | < 0.00400 | < 0.00200 | 0.888 | <0.0000900 UJ | | <0.00200 | <0.00200 | 1.5 |
| | | | | 23.25 | 3037.73 | 1.91 | 57.7 J- | + 3/1 | <0.200 | | | | 10.00400 | | | | | | | | | | | | ····· | |
| • | | 9/18/2015 | 5620.57 | 50.64 | 5569.93 | NS - Not | t enough wate | er | | | | | 10.00400 | | | | | | | | | | · · · | | | |
| | | 9/18/2015 11/10/2015 | 5620.57 | 50.64 43.09 | 5569.93 5577.48 | NS - Not 1.56 | t enough wate 446 | er 6790 | <0.1 | 7.10 | 19900 37 | 7200 | <0.002 | 0.00292 | 0.0501 | <0.002 | 0.000563 | 0.00569 | 0.00788 | 0.00318 | 4.59 | <0.00015 | 0.115 | 0.41 | <0.002 | 0.7 |
| | | 9/18/2015 11/10/2015 12/1/2015 | 5620.57 | 50.64 43.09 44.21 | 5569.93 5577.48 5576.36 | NS - Not 1.56 1.68 | t enough wate 446 457 | er 6790 7530 | <0.1 3.98 | 7.10 7.21 | 19900 37 20100 40 | 7200 0300 | <0.002 <0.002 | 0.00292 <0.002 | 0.0329 | <0.002 | 0.000511 | <0.002 | 0.0055 | <0.002 | 3.49 | <0.00015 | 0.124 | 0.29 | <0.002 | 14.2 J+ |
| | | 9/18/2015 11/10/2015 12/1/2015 1/12/2016 | 5620.57 | 50.64 43.09 44.21 46.50 | 5569.93 5577.48 5576.36 5574.07 | NS - Not 1.56 1.68 1.62 | t enough wate 446 457 484 | er 6790 7530 7670 | <0.1 3.98 | 7.10 7.21 | 19900 37 20100 40 | 7200 | <0.002 | 0.00292 | | | | | | | | | | | | |
| | | 9/18/2015 11/10/2015 12/1/2015 1/12/2016 2/2/2016 | 5620.57 | 50.64 43.09 44.21 46.50 46.09 | 5569.93 5577.48 5576.36 5574.07 5574.48 | NS - Not 1.56 1.68 1.62 NS - Not | t enough wate 446 457 | er 6790 7530 7670 er | <0.1 3.98 | 7.10 7.21 | 19900 37 20100 40 | 7200 0300 | <0.002 <0.002 | 0.00292 <0.002 | 0.0329 | <0.002 | 0.000511 | <0.002 | 0.0055 | <0.002 | 3.49 | <0.00015 | 0.124 | 0.29 | <0.002 | 14.2 J+ |
| | | 9/18/2015 11/10/2015 12/1/2015 1/12/2016 | 5620.57 | 50.64 43.09 44.21 46.50 | 5569.93 5577.48 5576.36 5574.07 | NS - Not 1.56 1.68 1.62 NS - Not NS - Not | t enough wate 446 457 484 t enough wate | er 6790 7530 7670 er er | <0.1 3.98 4.36 | 7.10 7.21 7.41 | 19900 37 20100 40 | 7200 0300 0100 | <0.002 <0.002 | 0.00292 <0.002 | 0.0329 | <0.002 | 0.000511 | <0.002 | 0.0055 | <0.002 <0.002 | 3.49 | <0.00015 | 0.124 | 0.29 | <0.002 | 14.2 J+ |
| | | 9/18/2015 11/10/2015 12/1/2015 1/12/2016 2/2/2016 3/9/2016 | 5620.57 | 50.64 43.09 44.21 46.50 46.09 47.82 | 5569.93 5577.48 5576.36 5574.07 5574.48 5572.75 | NS - Not 1.56 1.68 1.62 NS - Not NS - Not 1.54 | t enough wate 446 457 484 t enough wate t enough wate | er 6790 7530 7670 er er 7120 | <0.1 3.98 4.36 3.97 | 7.10 7.21 7.41 7.15 | 19900 37 20100 40 19800 40 | 7200 0300 0100 8400 | <0.002 <0.002 <0.002 | 0.00292 <0.002 <0.002 | 0.0329 | <0.002 <0.002 | 0.000511 0.000576 | <0.002 <0.002 | 0.0055 | <0.002 <0.002 | 3.49 3.60 | <0.00015 <0.00015 | 0.124 0.124 | 0.29 0.157 | <0.002 <0.002 | 14.2 J+ 1.14 |
| ELF-10 | Background | 9/18/2015 11/10/2015 12/1/2015 1/12/2016 2/2/2016 3/9/2016 4/7/2016 5/4/2016 9/8/2016 | 5620.57 | 50.64 43.09 44.21 46.50 46.09 47.82 47.35 48.73 48.05 | 5569.93 5577.48 5576.36 5574.07 5574.48 5572.75 5573.22 5571.84 5572.52 | NS - Not 1.56 1.68 1.62 NS - Not NS - Not 1.54 1.48 NS - Not | t enough wate 446 457 484 t enough wate t enough wate 479 470 t enough wate | er 6790 7530 7670 er er 7120 7530 7530 er | <0.1 3.98 4.36 3.97 | 7.10 7.21 7.41 7.15 | 19900 33 20100 40 19800 40 20700 38 | 7200 0300 0100 8400 | <0.002 <0.002 <0.002 <0.002 <0.002 | 0.00292 <0.002 <0.002 <0.002 | 0.0329 0.0353 0.0519 | <0.002 <0.002 <0.002 | 0.000511 0.000576 0.000595 | <0.002 <0.002 0.00497 | 0.0055 0.00493 0.00444 | <0.002 <0.002 0.00325 | 3.49 3.60 0.841 | <0.00015 <0.00015 <0.00015 | 0.124 0.124 0.118 | 0.29 0.157 0.146 | <0.002 <0.002 <0.002 | 14.2 J+ 1.14 2.66 |
| ELF-10 | Background | 9/18/2015 11/10/2015 12/1/2015 1/12/2016 2/2/2016 3/9/2016 4/7/2016 5/4/2016 9/8/2016 5/9/2017 | 5620.57 | 50.64 43.09 44.21 46.50 46.09 47.82 47.35 48.73 48.05 45.41 | 5569.93 5577.48 5576.36 5574.07 5574.48 5572.75 5573.22 5571.84 5572.52 5575.16 | NS - Not 1.56 1.68 1.62 NS - Not 1.54 1.48 NS - Not NS - Not | t enough wate 446 457 484 t enough wate t enough wate 479 470 t enough wate t enough wate | er 6790 7530 7670 er 7670 er 7120 7530 er | <0.1 3.98 4.36 3.97 3.87 | 7.10 7.21 7.41 7.15 8.37 | 19900 33 20100 4(19800 4(20700 38 19300 33 | 7200 0300 0100 8400 7800 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 | 0.00292 <0.002 <0.002 0.00366 0.00929 | 0.0329 0.0353 0.0519 0.08627 | <0.002 <0.002 <0.002 <0.002 <0.002 | 0.000511 0.000576 0.000595 0.0011 | <0.002 <0.002 0.00497 0.0164 | 0.0055 0.00493 0.00444 0.00793 | <pre><0.002 <0.002 0.00325 0.012</pre> | 3.49 3.60 0.841 1.12 | <0.00015 <0.00015 <0.00015 <0.00015 | 0.124 0.124 0.118 0.117 | 0.29 0.157 0.146 0.105 | <0.002 <0.002 <0.002 <0.002 <0.002 | 14.2 J+ 1.14 2.66 3.1 |
| ELF-10 | Background | 9/18/2015 11/10/2015 12/1/2015 1/12/2016 2/2/2016 3/9/2016 4/7/2016 5/4/2016 9/8/2016 5/9/2017 8/2/2017 | 5620.57 | 50.64 43.09 44.21 46.50 46.09 47.82 47.35 48.73 48.73 48.05 45.41 46.80 | 5569.93 5577.48 5576.36 5574.07 5574.48 5572.75 5573.22 5571.84 5572.52 5575.16 5573.77 | NS - Not 1.56 1.68 1.62 NS - Not 1.54 1.48 NS - Not 1.54 1.48 NS - Not 1.64 | t enough wate 446 457 484 t enough wate 479 470 t enough wate t enough wate 509 | er 6790 7530 7670 er 7720 7120 7530 er er 7150 | <0.1 3.98 4.36 3.97 3.87 | 7.10 7.21 7.41 7.15 8.37 7.00 | 19900 33 20100 4(19800 4(20700 38 19300 33 17300 38 | 7200 0 0300 0 0100 0 8400 0 7800 0 8600 0 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 | 0.00292 <0.002 <0.002 <0.002 0.00366 0.00929 <0.00929 | 0.0329 0.0353 0.0519 0.08627 0.0391 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 | 0.000511 0.000576 0.000595 0.0011 0.000563 | <0.002 <0.002 0.00497 0.0164 0.00841 | 0.0055 0.00493 0.00444 0.00793 0.00793 | <0.002 <0.002 0.00325 0.012 0.00217 | 3.49 3.60 0.841 1.12 2.09 | <0.00015 <0.00015 <0.00015 <0.00015 <0.00015 <0.000150 | 0.124 0.124 0.118 0.107 0.0871 | 0.29 0.157 0.146 0.105 0.00903 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 | 14.2 J+ 1.14 |
| ELF-10 | Background | 9/18/2015 11/10/2015 12/1/2015 1/12/2016 2/2/2016 3/9/2016 4/7/2016 5/4/2016 5/4/2016 5/9/2017 8/2/2017 8/29/2017 | 5620.57 | 50.64 43.09 44.21 46.50 46.09 47.82 47.35 48.73 48.73 48.05 45.41 46.80 48.10 | 5569.93 5577.48 5576.36 5574.07 5574.48 5572.75 5573.22 5571.84 5572.52 5575.16 5573.77 5572.47 | NS - Not 1.56 1.68 1.62 NS - Not 1.54 1.48 NS - Not NS - Not 1.64 1.84 | t enough wate 446 457 484 t enough wate 479 470 t enough wate t enough wate 509 500 | er 6790 7530 7670 er 7120 7530 er 7120 7530 er 7120 7530 6960 | <0.1 3.98 4.36 3.97 3.87 | 7.10 7.21 7.41 7.15 8.37 7.00 7.28 | 19900 33 20100 44 19800 44 20700 38 19300 33 17300 38 16800 38 | 7200 0300 0100 8400 7800 8600 8200 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.00200 <0.00200 | 0.00292 <0.002 <0.002 0.00366 0.00929 <0.00929 <0.00200 | 0.0329 0.0353 0.0519 0.08627 0.0391 0.0205 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.00200 <0.00200 | 0.000511 0.000576 0.000595 0.0011 0.000163 <0.000563 | <0.002 <0.002 0.00497 0.0164 0.00841 0.00204 | 0.0055 0.00493 0.00444 0.00793 0.00411 <0.00401 | <0.002 <0.002 <0.00325 0.012 < | 3.49 3.60 0.841 1.12 2.09 1.53 | <0.00015 <0.00015 <0.00015 <0.00015 <0.00015 <0.000150 <0.000150 | 0.124 0.124 0.118 0.107 0.0871 0.0855 | 0.29 0.157 0.146 0.105 0.00903 0.00903 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.00200 <0.00200 | 14.2 J+ 1.14 |
| ELF-10 | Background | 9/18/2015 11/10/2015 12/1/2015 1/12/2016 2/2/2016 3/9/2016 4/7/2016 5/4/2016 9/8/2016 5/9/2017 8/29/2017 8/29/2017 9/15/2017 | 5620.57 | 50.64 43.09 44.21 46.50 46.09 47.82 47.35 48.73 48.05 45.41 46.80 48.10 51.74 | 5569.93 5577.48 5576.36 5574.07 5574.48 5572.75 5573.22 5571.84 5572.52 5575.16 5573.77 5572.47 5568.83 | NS - Not 1.56 1.68 1.62 NS - Not 1.54 1.48 NS - Not 1.64 1.84 1.6 | t enough wate 446 457 484 t enough wate 479 470 t enough wate t enough wate 509 500 | er 6790 7530 7670 er 7720 7120 7530 er er 7150 | <0.1 3.98 4.36 3.97 3.87 | 7.10 7.21 7.41 7.15 8.37 7.00 7.28 | 19900 33 20100 44 19800 44 20700 38 19300 33 17300 38 16800 38 | 7200 0 0300 0 0100 0 8400 0 7800 0 8600 0 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.00200 <0.00200 | 0.00292 <0.002 <0.002 <0.002 0.00366 0.00929 // | 0.0329 0.0353 0.0519 0.08627 0.0391 0.0205 0.0601 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.00200 <0.00200 <0.00200 | 0.000511 0.000576 0.000595 0.0011 0.000563 <0.000500 <0.000500 | <0.002 <0.002 <0.00497 0.0164 0.00841 0.00204 0.00648 | 0.0055 0.00493 0.00444 0.00793 0.00411 <0.00400 <0.00400 | <0.002 <0.002 <0.00325 0.012 < | 3.49 3.60 0.841 1.12 2.09 1.53 2.20 | <0.00015 <0.00015 <0.00015 <0.00015 <0.000150 <0.000150 <0.000150 | 0.124 0.124 0.118 0.107 0.0871 0.0855 0.0795 | 0.29 0.157 0.146 0.105 0.00903 0.00821 0.0105 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.00200 <0.00200 <0.00200 | 14.2 J+ 1.14 |
| ELF-10 | Background | 9/18/2015 11/10/2015 12/1/2015 1/12/2016 2/2/2016 3/9/2016 4/7/2016 5/4/2016 9/8/2016 5/9/2017 8/29/2017 8/29/2017 9/15/2017 2/15/2018 | 5620.57 | 50.64 43.09 44.21 46.50 46.09 47.82 47.35 48.73 48.73 48.73 48.05 45.41 46.80 48.10 51.74 49.84 | 5569.93 5577.48 5576.36 5574.07 5574.48 5572.75 5573.22 5571.84 5572.52 5575.16 5573.77 5572.47 5568.83 5570.73 | NS - Not 1.56 1.68 1.62 NS - Not 1.54 1.48 NS - Not 1.64 1.84 1.6 | t enough wate 446 457 484 t enough wate 479 470 t enough wate t enough wate 509 500 445 | er 6790 7530 7670 er 7120 7530 7530 7530 7530 7550 6960 5710 | <0.1 3.98 4.36 3.97 3.87 | 7.10 7.21 7.41 7.15 8.37 7.00 7.28 7.23 | 19900 33 20100 4(1 19800 4(1 20700 38 19300 33 19300 33 11300 38 16800 38 13100 38 | 7200 0300 0100 8400 7800 8600 8200 9600 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.00200 <0.00200 <0.00200 | 0.00292 <0.002 <0.002 0.00366 0.00929 //> | 0.0329 0.0353 0.0519 0.08627 0.08627 0.0391 0.0205 0.0601 0.0679 | <0.002 <0.002 | 0.000511 0.000576 0.000595 0.0011 0.0011 0.000563 <0.000500 <0.000500 <0.000500 | <0.002 <0.002 <0.00497 0.0164 0.00841 0.00204 0.00648 0.00518 | 0.0055 0.00493 0.00493 0.00444 0.00793 0.00401 <0.00400 <0.00400 0.00429 | <0.002 <0.002 <0.00325 0.012 <li<< li=""> <li<< li=""> </li<<></li<<> | 3.49 3.60 0.841 1.12 2.09 1.53 2.20 1.88 | <0.00015 <0.00015 <0.00015 <0.00015 <0.000150 <0.000150 <0.000150 <0.000150 | 0.124 0.124 0.118 0.107 0.0871 0.0855 0.0795 0.0618 | 0.29 0.157 0.146 0.105 0.00903 0.00821 0.0105 <0.00200 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.00200 <0.00200 <0.00200 <0.00200 | 14.2 J+ 1.14 |
| ELF-10 | Background | 9/18/2015 11/10/2015 12/1/2015 1/12/2016 2/2/2016 3/9/2016 4/7/2016 5/4/2016 9/8/2016 5/9/2017 8/29/2017 8/29/2017 9/15/2017 | 5620.57 | 50.64 43.09 44.21 46.50 46.09 47.82 47.35 48.73 48.05 45.41 46.80 48.10 51.74 | 5569.93 5577.48 5576.36 5574.07 5574.48 5572.75 5573.22 5571.84 5572.52 5575.16 5573.77 5572.47 5568.83 | NS - Not 1.56 1.68 1.62 NS - Not 1.54 1.48 NS - Not 1.64 1.84 1.6 | t enough wate 446 457 484 t enough wate 479 470 t enough wate t enough wate 509 500 445 | er 6790 7530 7670 er 7120 7530 er 7120 7530 er 7120 7530 6960 | <0.1 3.98 4.36 3.97 3.87 | 7.10 7.21 7.41 7.15 8.37 7.00 7.28 7.23 | 19900 33 20100 40 19800 40 20700 33 19300 33 19300 33 17300 33 16800 33 13100 35 10000 35 | 7200 0300 0100 8400 7800 8600 8200 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.002 <0.00200 <0.00200 | 0.00292 <0.002 <0.002 <0.002 0.00366 0.00929 // | 0.0329 0.0353 0.0519 0.08627 0.0391 0.0205 0.0601 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.00200 <0.00200 <0.00200 | 0.000511 0.000576 0.000595 0.0011 0.000563 <0.000500 <0.000500 | <0.002 <0.002 <0.00497 0.0164 0.00841 0.00204 0.00648 | 0.0055 0.00493 0.00444 0.00793 0.00411 <0.00400 <0.00400 | <0.002 <0.002 <0.00325 0.012 < | 3.49 3.60 0.841 1.12 2.09 1.53 2.20 1.88 2.17 J- | <0.00015 <0.00015 <0.00015 <0.00015 <0.000150 <0.000150 <0.000150 <0.000150 | 0.124 0.124 0.118 0.107 0.0871 0.0855 0.0795 | 0.29 0.157 0.146 0.105 0.00903 0.00821 0.0105 | <0.002 <0.002 <0.002 <0.002 <0.002 <0.00200 <0.00200 <0.00200 | 14.2 J+ 1.14 |

NS: Not Sampled

NM: Not Measured

GWE: Ground Water Elevation 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 1. Hunter Power Plant - Ash Landfill Assessment Monitoring Results

| | | | | | | | | | Appendix | III | | | | | | | | | Appe | ndix IV | | | | | | |
|-----------|--------------|-------------------------|---------------|----------------|--------------------|--------------|------------------------|-----------------|--------------|-------|---------------|----------------|-----------------|-----------------|---------------------------------------|-----------------|---------------------|-------------------|--------------|------------------|--------------|-------------------------|-----------------|---------------------------------------|------------------|-------------------|
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SAMPLE ID | WELL TYPE | COLLECTION DATE | TOC AMSL (ft) | DTW (ft) | GWE AMSL (ft) | В | Ca | CI | F | рН | SO4 | TDS | Sb | As | Ва | Ве | Cd | Cr | Co | Pb | Li | Hg | Мо | Se | ті | Radium 226+228 |
| | | 0/10/2015 | F C 0 4 70 | 24.27 | FF70.44 | | | | Q mg/L C | l s.u | Q mg/L | Q mg/L | Q mg/L | Q mg/L Q | mg/L | Q mg/L Q | mg/L Q | (mg/L | Q mg/L (| Q mg/L | Q mg/L Q | mg/L Q | mg/L (| Q mg/L (| Q mg/L | Q pCi/L Q |
| | | 9/18/2015 11/10/2015 | 5604.78 | 34.37 NM | 5570.41 NM | | enough wa enough wa | | | | | | | | | | | | | | | | | | | |
| | | 12/1/2015 | | 34.40 | 5570.38 | | enough wa | | | | | | | | | | | | | | | | | | | |
| | | 1/12/2016 | | 34.30 | 5570.48 | | enough wa | | | | | | | | | | | | | | | | | | | |
| | | 2/2/2016 | | 34.25 | 5570.53 | NS - Not e | enough wa | iter | | | | | | | | | | | | | | | | | | |
| | | 3/9/2016 | | NM | NM | | enough wa | | | | | | | | | | | | | | | | | | | |
| | | 4/7/2016 | | 34.30 | 5570.48 | | enough wa | | | | | | | | | | | | | | | | | | | |
| ELF-3 | Downgradient | 5/4/2016 | | NM 24.02 | NM | | enough wa enough wa | | | | | | | | | | | | | | | | | | | |
| | | 9/8/2016 5/9/2017 | | 34.02 33.43 | 5570.76 5571.35 | | enough wa | | | | | | | | | | | | | | | | | | | |
| | | 8/2/2017 | | 33.32 | 5571.46 | | 492 | | <0.100 | 7.79 | 33000 | 47700 | <0.00200 | <0.00200 | 0.015 | <0.00200 | <0.000500 | <0.00200 | 0.00455 | <0.00200 | 4.20 | <0.000150 | 0.032 | 0.169 | <0.00200 | 3.76 |
| | | 2/15/2018 | | 34.04 | 5570.74 | NA | | 005 | .01200 | | 00000 | | < 0.00200 | <0.00200 | 0.0118 | <0.00200 | <0.000500 | <0.00200 | < 0.00400 | <0.00200 | | < 0.000150 | 0.0335 | 0.125 | <0.00200 | 2.22 |
| | | 5/30/2018 | | 34.80 | 5569.98 | NS - Not e | enough wa | iter | | | | | | | 1 | | 1 1 | <u> </u> | | | | <u> </u> | <u> </u> | <u> </u> | <u> </u> | |
| | | 5/8/2019 | | 31.75 | 5573.03 | 1.51 | 465 | 768 | <0.100 | 7.52 | 27700 | 50700 | < 0.00400 | 0.00205 | 0.0391 | < 0.00200 | 0.000779 | 0.00422 | 0.0214 | 0.00605 | 3.26 J+ | <0.0000900 | 0.0209 | 0.502 | <0.00200 | 3.61 |
| | | 8/20/2019 | | 30.30 | 5574.48 | <5.00 | 431 | | <0.400 | 7.79 | 32000 | 50400 | <0.00400 | <0.00200 | 0.0111 | <0.00200 | <0.000500 | 0.00253 | <0.00400 | <0.00200 | 2.81 | <0.0000900 UJ | | 0.617 | <0.00200 | 3.04 |
| | | 9/18/2015 | 5581.50 | 15.03 | 5566.47 | 4.66 | 526 | 2320 | 0.3 | 7.20 | 5790 | 10400 | < 0.001 | < 0.001 | <0.05 | <0.001 | <0.001 | 0.002 | J+ 0.008 | < 0.001 | 1.70 | <0.0001 | 0.001 | 0.004 | + <0.0005 | 2.1 |
| | | 11/10/2015 | | 14.97 | 5566.53 | 4.93 | 486 | 2040 | 4.46 | 6.94 | 5350 | 11200 | <0.002 | < 0.002 | 0.0116 | <0.002 | <0.0005 | <0.002 | 0.00583 | <0.002 | 5.41 | <0.00015 | 0.00256 | 0.00496 | <0.002 | 1.6 |
| | | 12/1/2015 | | 15.12 | 5566.38 | 4.88 | 482 | 2370 | 3.67 | 7.01 | 6240 | 11400 | <0.002 | <0.002 | 0.0118 | <0.002 | <0.0005 | <0.002 | 0.00591 | <0.002 | 4.31 | <0.00015 | 0.00256 | 0.00486 | <0.002 | 11.59 J+ |
| | | 1/12/2016 2/2/2016 | | 15.22 15.25 | 5566.28 5566.25 | 5.02 5.19 | 514 495 | 2500 2170 | 3.93 4.25 | 7.52 | 5900 5410 | 12400 11500 | <0.002 | <0.002 | 0.0155 | <0.002 | <0.0005 <0.0005 | <0.002 <0.002 | <0.004 | <0.002 <0.002 | 4.43 4.39 | <0.00015 <0.00015 | 0.00297 0.00252 | 0.00471 0.00352 | <0.002 <0.002 | 1.39 3.6 |
| | | 3/9/2016 | | 15.36 | 5566.14 | 4.96 | 496 | 2240 | 4.06 | 7.03 | 5290 | 11200 | <0.002 | <0.002 | 0.0113 | <0.002 | <0.0005 | <0.002 | 0.00729 | <0.002 | 2.37 | <0.00015 | 0.00308 | 0.00352 | <0.002 | 2.2 |
| | | 4/6/2016 | | 15.38 | 5566.12 | 4.77 | 519 | 2320 | 3.63 | 6.97 | 6110 | 11300 | < 0.002 | < 0.002 | 0.0139 | < 0.002 | <0.0005 | < 0.002 | 0.00675 | <0.002 | 2.96 | < 0.00015 | 0.00260 | 0.00365 | <0.002 | 0.62 |
| ELF-4 | Downgradient | 5/4/2016 | | 14.41 | 5567.09 | 4.42 | 476 | 2280 | <0.1 | 7.16 | 6010 | 11600 | < 0.002 | < 0.002 | 0.0123 | < 0.002 | < 0.0005 | < 0.002 | 0.00637 | < 0.002 | 1.40 | < 0.00015 | 0.00236 | 0.00281 | <0.002 | 1.98 |
| | - | 9/8/2016 | | NM | NM | NS - Not e | enough wa | | | | | | - I I | - I - I | | - I - I | | | - <u>+</u> + | | | | | | | |
| | | 5/9/2017 | | 16.05 | 5565.45 | NS - Not e | enough wa | iter | | | | | | | | | | | | | | | | | | |
| | | 8/2/2017 | | 16.25 | 5565.25 | 4.35 | 483 | 2240 | <0.100 | 7.21 | 5750 | 11600 | <0.00200 | <0.00200 | 0.0115 | <0.00200 | <0.000500 | <0.00200 | 0.00611 | <0.00200 | | <0.000150 | 0.00266 | 0.00255 | <0.00200 | 2.57 |
| | | 2/15/2018 | | 16.52 | 5564.98 | NA | | | | | | | <0.00200 | <0.00200 | 0.0141 | <0.00200 | <0.000500 | 0.00435 | 0.00833 | <0.00200 | 1.71 | <0.000150 | 0.00261 | <0.00200 | <0.00200 | 1.57 |
| | | 5/30/2018 | | 16.53 | 5564.97 | 4.88 | | J- 2200 | 0.339 | 6.98 | 5290 | 11700 | <0.00100 | <0.00200 | 0.0116 | <0.00200 | <0.000500 | <0.00200 | 0.00666 | <0.00200 | 1.78 J- | <0.000150 J- | 0.00278 | <0.00200 | <0.00200 | 1.81 |
| | | 5/8/2019 | | 16.49 | 5565.01 | 5.00 | 515 | 1980 J+ 1840 | 0.187 | 7.06 | 4800 | 11800 | <0.00400 | <0.00200 | 0.0118 | <0.00200 | <0.000500 | <0.00200 | 0.00593 | <0.00200 | | <0.0000900 | 0.00272 | <0.00200 | <0.00200 | 1.72 |
| | | 8/20/2019 9/18/2015 | 5577.79 | 16.88 16.61 | 5564.62 5561.18 | 4.98 5.44 | 464 | 4250 | 0.941 | 7.22 | 4890 11200 | 12200 21000 | <0.00400 <0.001 | <0.00200 <0.001 | 0.0103 <0.05 | <0.00200 <0.001 | <0.000500 <0.001 | <0.00200 0.004 | 0.00637 | <0.00200 <0.001 | 1.71 3.70 | <0.000900 UJ <0.0001 | 0.0024 | <0.00200 | <0.00200 | 2.73 |
| | | 11/10/2015 | 5577.75 | 16.20 | 5561.59 | 5.89 | 404 | 4110 | <0.1 | 6.98 | 11200 | 22600 | <0.001 | <0.001 | 0.0131 | <0.001 | <0.001 | <0.004 | <0.003 | <0.001 | 13.7 | <0.0001 | 0.002 | 0.0453 | <0.0003 | 1.7 |
| | | 12/2/2015 | | 16.74 | 5561.05 | 5.53 | 480 | 4150 | 3.49 | 6.99 | 11200 | 21000 | <0.002 | <0.002 | 0.00971 | <0.002 | <0.0005 | <0.002 | < 0.004 | <0.002 | 9.96 | <0.00015 | 0.0044 | 0.0376 | <0.002 | 10.36 J+ |
| | | 1/12/2016 | | 16.85 | 5560.94 | 6.20 | 503 | 4210 | 4.85 | 7.26 | 11100 | 21300 | < 0.002 | < 0.002 | 0.0112 | < 0.002 | < 0.0005 | < 0.002 | 0.00402 | < 0.002 | 11.7 | <0.00015 | 0.00451 | 0.0364 | <0.002 | 1.56 |
| | | 2/2/2016 | | 16.52 | 5561.27 | 6.10 | 481 | 3750 | 3.96 | 7.04 | 9890 | 21000 | <0.002 | <0.002 | 0.0097 | <0.002 | <0.0005 | <0.002 | <0.004 | <0.002 | 10.6 | <0.00015 | 0.00458 | 0.0325 | < 0.002 | 1.61 |
| | | 3/9/2016 | | 16.47 | 5561.32 | 6.55 | 492 | 4170 | 4.62 | 7.05 | 10300 | 22300 | <0.002 | <0.002 | 0.0123 | <0.002 | <0.0005 | <0.002 | 0.00413 | <0.002 | 5.83 | <0.00015 | 0.00497 | 0.0297 | <0.002 | 2.89 |
| | | 4/6/2016 | | 16.31 | 5561.48 | 5.35 | 476 | 3700 | 3.53 | 7.10 | 11200 | 19200 | <0.002 | <0.002 | 0.0179 | <0.002 | <0.0005 | 0.00215 | 0.00457 | <0.002 | 3.10 | <0.00015 | 0.00446 | 0.0337 | <0.002 | 3.7 |
| ELF-5 | Downgradient | 5/4/2016 | | 15.35 | 5562.44 | 5.99 | 465 | 3900 | <0.1 | 7.19 | 10700 | 21100 | <0.002 | <0.002 | 0.0151 | <0.002 | <0.0005 | <0.002 | 0.00424 | <0.002 | 5.68 | <0.00015 | 0.00439 | 0.0306 | <0.002 | 1.75 |
| | | 9/8/2016 | | 17.30 | 5560.49 | 6.03 | 491 | 3980 | <0.1 | 7.03 | 10300 | 20600 | <0.002 | <0.002 | 0.017 | <0.002 | <0.0005 | 0.00232 | 0.00409 | <0.002 | 8.64 | <0.00015 | 0.00417 | 0.0397 | <0.002 | 2.02 |
| | | 5/9/2017 | | 17.13 | 5560.66 | | enough wa | | | | | | | | | | | | | | | | | | | |
| | | 8/2/2017 2/15/2018 | <u> </u> | NM 18.00 | NM 5559.79 | NS - NOT e | enough wa | iter | | | | | <0.00200 | <0.00200 | 0.0103 | <0.00200 | <0.000500 | <0.00200 | <0.00400 | <0.00200 | 4.35 | <0.000150 | 0.00457 | 0.0181 | <0.00200 | 1.81 |
| | | 5/30/2018 | | 17.98 | 5559.79 | 7.61 | 459 | J- 4420 | 0.104 | 7.04 | 11100 | 27800 | <0.00200 | <0.00200 | 0.0103 | <0.00200 | <0.000500 | <0.00200 | 0.00400 | <0.00200 | | <0.000150 J- | | 0.0181 | <0.00200 | 2.37 |
| | | 5/8/2019 | 1 | 18.58 | 5559.21 | 6.06 | 489 | 3180 | 0.104 | 7.09 | 8640 | 21600 | <0.00100 | <0.00200 | 0.0138 | <0.00200 | <0.000500 | <0.00200 | 0.0102 | <0.00200 | | <0.000130 J | 0.00486 | 0.00913 | <0.00200 | 2.85 |
| | | 8/20/2019 | | 18.69 | 5559.10 | 8.7 | | J+ 4440 | 0.962 | 7.23 | 12300 | 24000 | < 0.00400 | 0.00212 | 0.0267 | <0.00200 | <0.000500 | 0.00436 | 0.00618 | 0.00246 | 5.93 | <0.0000900 UJ | | 0.0127 | <0.00200 | 2.77 |
| | | 9/18/2015 | 5579.61 | 15.97 | 5563.64 | 14.3 | 531 | 5650 | 0.6 | 7.20 | 9470 | 22100 | <0.001 | <0.002 | <0.05 | <0.001 | <0.001 | 0.001 | J+ 0.027 | < 0.001 | 5.80 | <0.0001 | <0.001 | 0.284 | < 0.0005 | 4.7 |
| | | 11/10/2015 | | 16.02 | 5563.59 | 16.0 | 518 | 4670 | <0.10 | 6.78 | 9130 | 19500 | <0.002 | <0.002 | 0.0102 | <0.002 | <0.0005 | <0.002 | 0.0226 | <0.002 | 18.7 | <0.00015 | <0.002 | 0.0797 | <0.002 | 1.4 |
| | | 12/1/2015 | | 16.09 | 5563.52 | 14.4 | 454 | 4850 | 4.03 | 7.03 | 10300 | 19500 | <0.002 | <0.002 | 0.00936 | <0.002 | <0.0005 | <0.002 | 0.0208 | <0.002 | 14.6 | <0.00015 | <0.002 | 0.0887 | <0.002 | 33.62 J+ |
| | | 1/12/2016 | | 16.20 | 5563.41 | 14.6 | 505 | NA | NA | NA | NA | NA | <0.002 | <0.002 | 0.0105 | <0.002 | <0.0005 | <0.002 | 0.0208 | <0.002 | 15.1 | <0.00015 | <0.002 | 0.0892 | <0.002 | 1.68 |
| | | 2/2/2016 | | 16.29 | 5563.32 | 13.6 | 493 | 4060 | 5.13 | 6.94 | 8800 | 20100 | < 0.002 | < 0.002 | 0.00932 | < 0.002 | < 0.0005 | < 0.002 | 0.0191 | < 0.002 | 14.2 | <0.00015 | <0.002 | 0.0828 | < 0.002 | 2.26 |
| | | 3/9/2016 | | 16.26 | 5563.35 | 15.7 | 500 | 1190 | 5.07 | 6.90 | 930 | 20800 | <0.002 | < 0.002 | 0.0109 | < 0.002 | < 0.0005 | < 0.002 | 0.0206 | < 0.002 | 7.20 | <0.00015 | <0.002 | 0.0959 | <0.002 | 2.7 |
| ELF-6 | Downgradient | 4/6/2016 | | 16.30 | 5563.31 | 13.3 | 491 | 4890 | 4.87 | 7.04 | 9910 8400 | 20200 | < 0.002 | <0.002 | 0.00885 | <0.002 | <0.0005 | <0.002 | 0.0178 | <0.002 | 1.63 | <0.00015 | <0.002 | 0.0951 | <0.002 | 1.93 1.53 |
| ELF-0 | Downgraulent | 5/4/2016 9/8/2016 | <u> </u> | 16.12 NM | 5563.49 NM | | 491 enough wa | 4630 | <0.1 | 7.40 | 8400 | 19600 | <0.002 | <0.002 | 0.0115 | <0.002 | <0.0005 | <0.002 | 0.0186 | <0.002 | 7.92 | <0.00015 | <0.002 | 0.0917 | <0.002 | 1.53 |
| | | 5/9/2017 | | 16.52 | 5563.09 | | enough wa | | | | | | | | | | | | | | | | | | | |
| | | 8/2/2017 | 1 | NM | NM | | enough wa | | | | | | | | | | | | | | | | | | | |
| | | 2/15/2018 | | 16.30 | 5563.31 | NA | J | | | | | | <0.00200 | <0.00200 | 0.00994 | <0.00200 | <0.000500 | <0.00200 | 0.0147 | <0.00200 | 5.5 | <0.000150 | 0.0024 | 0.0924 | <0.00200 | 1.76 |
| | | 5/30/2018 | | 17.87 | 5561.74 | NS - Not e | enough wa | iter | | | | | | | · · · · · · · · · · · · · · · · · · · | | · · · | · · · | | | | · · · | • • • • • | • • • • • • • • • • • • • • • • • • • | | <u> </u> |
| | | 5/50/2010 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 5/8/2019 | | 17.62 | 5561.99 | 12.4 | 539 | 3810 | 0.139 | 7.06 | 7840 | 23700 | < 0.00400 | <0.00200 | 0.0159 | <0.00200 | <0.000500 | < 0.00200 | 0.0358 | < 0.00200 | 5.56 J+ | <0.0000900 | < 0.00200 | 0.00795 | <0.00200 | 5.23 |

NS: Not Sampled

NM: Not Measured

GWE: Ground Water Elevation 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 1. Hunter Power Plant - Ash Landfill Assessment Monitoring Results

| | | | | | | | | | Appendix | : 111 | | | | | | | _ | | Appen | lix IV | | | | | | |
|---------------|--------------|-------------------------|---------------|----------------|--------------------|-----------------------|-----------------------|--------------|--------------|-------|----------|----------------|------------------|---------------|-----------------|---------------|-------------------|------------------|-----------|------------------|-----------|---------------------|-----------|-----------|-------------------|-------------------|
| SAMPLE ID | WELL TYPE | COLLECTION DATE | TOC AMSL (ft) | DTW (ft) | GWE AMSL (ft) | В | Ca | сі | F | рН | SO₄ | TDS | Sb | As | Ва | Ве | Cd | Cr | Co | Pb | Li | Hg | Мо | Se | т | Radium 226+228 |
| | | | | | | mg/L | Q mg/L Q | mg/L Q | mg/L (| Q s.u | Q mg/L Q | mg/L Q | mg/L | Q mg/L Q | mg/L | Q mg/L Q | mg/L Q | mg/L | Q mg/L Q | mg/L | Q mg/L (| Q mg/L Q | mg/L (| Q mg/L (|) mg/L | Q pCi/L Q |
| | | 9/18/2015 | 5579.81 | 13.24 | 5566.57 | 1.72 | 496 | 2800 | 0.4 | 7.10 | 8720 | 15300 | <0.001 | <0.001 | <0.05 | <0.001 | <0.001 | < 0.001 | <0.005 | <0.001 | 2.00 | <0.0001 | <0.001 | 0.455 | <0.0005 | 3.0 |
| | | 11/10/2015 | | 13.42 | 5566.39 | 1.86 | 480 | 2600 | 4.00 | 6.93 | 8650 | 19200 | <0.002 | <0.002 | 0.0101 | <0.002 | <0.0005 | <0.002 | 0.00529 | <0.002 | 6.83 | <0.00015 | 0.00236 | 0.392 | < 0.002 | 1.5 |
| | | 12/1/2015 | | 13.60 | 5566.21 | 1.98 | 471 | 2790 | 3.12 | 6.99 | 9050 | 16800 | <0.002 | <0.002 | 0.0112 | <0.002 | <0.0005 | <0.002 | 0.00508 | <0.002 | 5.41 | <0.00015 | 0.00275 | 0.408 | <0.002 | 9.8 J+ |
| | | 1/12/2016 | | 13.68 | 5566.13 | 1.79 | | 2910 | 4.36 | 7.11 | | 14900 | <0.002 | <0.002 | 0.0126 | | <0.0005 | <0.002 | 0.00604 | <0.002 | 5.67 | | 0.00256 | 0.400 | <0.002 | 1.27 |
| | | 2/2/2016 | | 13.67 | 5566.14 | 1.81 | 469 | 2660 | 4.63 | 6.13 | 8250 | 17100 | <0.002 | <0.002 | 0.0100 | | <0.0005 | <0.002 | 0.00428 | <0.002 | 5.35 | | 0.00212 | 0.373 | <0.002 | 3.84 |
| | | 3/9/2016 | | 13.77 | 5566.04 | 1.79 | | 2710 | 3.37 | 7.01 | 8180 | 16800 | <0.002 | < 0.002 | 0.012 | < 0.002 | <0.0005 | <0.002 | 0.00668 | <0.002 | 2.73 | | 0.00295 | 0.383 | <0.002 | 2.9 |
| | | 4/6/2016 | | 13.76 | 5566.05 | 1.70 | | 2850 | 3.19 | 6.94 | 9580 | 16500 | < 0.002 | < 0.002 | 0.00925 | | 0.000502 | < 0.002 | 0.00447 | <0.002 | 2.64 | | 0.00226 | 0.421 | < 0.002 | 1.39 |
| ELF-7 | Downgradient | 5/4/2016 | | 13.87 | 5565.94 | 1.58 | 445 | 2650 | <0.1 | 7.16 | 8680 | 16900 | <0.002 | < 0.002 | 0.00983 | | < 0.0005 | <0.002 | 0.00483 | <0.002 | 0.639 | | 0.00209 | 0.36 | <0.002 | 1.64 |
| | | 9/8/2016 5/9/2017 | | 14.12 16.27 | 5565.69 5563.54 | 1.84 | 458 t enough water | 2660 | <0.1 | 7.07 | 8640 | 18100 | <0.002 | <0.002 | 0.00957 | <0.002 | <0.0005 | <0.002 | 0.00498 | <0.002 | 4.59 | <0.00015 | 0.00241 | 0.36 | <0.002 | 2.34 |
| | | 8/2/2017 | | 16.27 | 5565.44 | 1.72 | | 2480 | <0.100 | 7.13 | 8680 | 17800 | <0.00200 | <0.00200 | 0.0124 | <0.00200 | <0.000500 | <0.00200 | 0.00816 | <0.00200 | 2.12 | <0.000150 | 0.00254 | 0.253 | <0.00200 | 2.28 |
| | | 2/15/2018 | | 14.37 | 5565.10 | 1.72 NA | 470 | 2460 | <0.100 | 7.15 | 8080 | 17800 | <0.00200 | <0.00200 | 0.0124 | <0.00200 | <0.000500 | <0.00200 | 0.00613 | <0.00200 | 2.12 | | 0.00234 | 0.233 | <0.00200 | 1.35 |
| | | 5/30/2018 | | 14.25 | 5565.56 | 1.86 | 444 J- | 2590 | 0.329 | 6.99 | 8460 | 17200 | <0.00100 | <0.00200 | 0.0088 | <0.00200 | <0.000500 | <0.00200 | < 0.00400 | <0.00200 | 2.49 J | | 0.00249 | 0.136 | <0.00200 | 1.63 |
| | | 5/8/2019 | | 14.86 | 5564.95 | 1.86 | 471 | 2710 | 0.132 | 7.03 | 8260 | 17200 | <0.00100 | <0.00200 | 0.00947 | <0.00200 | <0.000500 | <0.00200 | 0.0053 | <0.00200 | | + <0.0000900 | 0.00245 | 0.0662 | <0.00200 | 2.26 |
| | | 8/20/2019 | | 15.22 | 5564.59 | 2.24 | 459 J+ | | 3.88 | 7.19 | 9480 | 19500 | < 0.00400 | <0.00200 | 0.0119 | <0.00200 | <0.000500 | <0.00200 | <0.00400 | <0.00200 | 2.23 | | 0.00272 | 0.0819 | <0.00200 | 2.22 |
| | | 9/18/2015 | 5584.50 | 8.37 | 5576.13 | 26.6 | 628 | 2320 | 1.40 | 7.60 | 3120 | 7430 | < 0.001 | 0.002 | 0.07 | < 0.001 | 0.01 | 0.013 | 0.196 | 0.012 | 3.50 | <0.0001 | 0.437 | < 0.004 | <0.002 | 3.6 |
| | | 11/10/2015 | | 8.15 | 5576.35 | 30.4 | 577 | 2160 | <0.1 | 7.30 | 3140 | 7690 | < 0.002 | <0.002 | 0.0163 | <0.002 | 0.000729 | <0.002 | 0.147 | 0.00527 | 10.7 | <0.00015 | 0.522 | <0.002 | <0.002 | 2.2 |
| | | 12/1/2015 | | 8.29 | 5576.21 | 30.2 | 586 | 2370 | 0.874 | 7.52 | 3410 | 8070 | < 0.002 | <0.002 | 0.0275 | <0.002 | 0.000896 | 0.0035 | 0.15 | 0.00536 | 8.59 | <0.00015 | 0.488 | < 0.002 | < 0.002 | 18.9 J+ |
| | | 1/12/2016 | | 8.32 | 5576.18 | 29.7 | 623 | 2380 J+ | 1.04 | 7.62 | 3130 | 8340 | <0.002 | <0.002 | 0.0218 | <0.002 | 0.000992 | 0.00216 | 0.200 | 0.00473 | 9.43 | <0.00015 | 0.459 | <0.002 | <0.002 | 1.8 |
| | | 2/2/2016 | | 8.14 | 5576.36 | 27.2 | 579 | 2180 | <0.100 | 7.47 | 2970 | 7860 | <0.002 | <0.002 | 0.0140 | <0.002 | < 0.0005 | <0.002 | 0.0143 | <0.002 | 8.79 | <0.00015 | 0.0173 | 0.00716 | <0.002 | 1.98 |
| | | 3/9/2016 | | 8.26 | 5576.24 | 26.6 | 590 | 2240 | 0.837 | 7.48 | 2950 | 7580 | <0.002 | 0.00299 | 0.0533 | <0.002 | 0.00113 | 0.00887 | 0.202 | 0.00682 | 5.09 | <0.00015 | 0.433 | <0.002 | <0.002 | 3.7 |
| | | 4/6/2016 | | 8.40 | 5576.10 | 25.4 | 609 | 2300 | <0.1 | 7.46 | 3390 | 7440 | <0.002 | <0.002 | 0.0244 | <0.002 | 0.00114 | 0.00293 | 0.166 | 0.00545 | <0.1 | <0.00015 | 0.481 | <0.002 | <0.002 | 2.6 |
| ELF-8 | Downgradient | 5/4/2016 | | 8.45 | 5576.05 | 25.4 | 588 | 2190 | 0.946 | 7.61 | 3170 | 7900 | <0.002 | 0.00224 | 0.0507 | <0.002 | 0.00105 | 0.00966 | 0.172 | 0.00657 | 4.40 | <0.00015 | 0.431 | <0.002 | <0.002 | 2.4 |
| | | 9/8/2016 | | 8.66 | 5575.84 | 27.4 | | 2350 | 1.33 | 7.53 | 3280 | 8010 | <0.002 | <0.002 | 0.012 | <0.002 | 0.0017 | <0.002 | 0.145 | 0.00628 | 7.77 | <0.00015 | 0.471 | <0.002 | <0.002 | 2.1 |
| | | 5/9/2017 | | 8.60 | 5575.90 | NS - Not enough water | | | | | | | | | | | | | | | | | | | | |
| | | 8/2/2017 | | 8.79 | 5575.71 | 31.6 | 623 | 2110 | 1.69 | 7.54 | 3260 | 8420 | <0.00200 | <0.00200 | 0.0212 | | 0.00294 | 0.0023 | 0.161 | 0.0126 | 3.54 | <0.000150 | 0.478 | <0.00200 | <0.00200 | 1.07 |
| | | 2/15/2018 | | 8.56 | 5575.94 | NA | | 11 | 1 1 | 1 1 | | 1 I | <0.00200 | <0.00200 | 0.013 | <0.00200 | 0.00332 | <0.00200 | 0.197 | 0.00633 | 3.68 | <0.000150 | 0.431 | <0.00200 | <0.00200 | 1.24 |
| | | 5/30/2018 | | 8.81 | 5575.69 | 28.7 | 537 J- | | 0.975 | 7.47 | 2820 | 7920 | <0.00100 | <0.00200 | 0.0114 | | 0.00199 | <0.00200 | 0.188 | 0.00737 | 3.95 J | - <0.000150 J- | 0.441 | <0.00200 | <0.00200 | 1.98 |
| | | 5/8/2019 | | 8.49 | 5576.01 | 29.8 | 606 | 2100 | 1.13 | 7.49 | | 9400 | <0.00400 | < 0.00200 | 0.011 | <0.00200 | 0.00195 | <0.00200 | 0.201 | 0.00643 | | + <0.0000900 | 0.399 | <0.00200 | <0.00200 | 2.25 |
| | | 8/20/2019 | 5507.22 | 9.17 | 5575.33 | 30.2 | | | <0.100 | 7.41 | | 8,240 | < 0.00400 | < 0.00200 | 0.0124 | | 0.00174 | <0.00200 | 0.19 | 0.00762 | 3.42 3.20 | <0.0000900 UJ | | < 0.00200 | <0.00200 | 2.15 |
| | | 9/18/2015 11/10/2015 | 5597.32 | 28.03 28.09 | 5569.29 5569.23 | 14.4 16.3 | | 1230 1180 | 0.50 <0.1 | 7.50 | | 14300 15200 | <0.001 <0.002 | <0.001 <0.002 | <0.05 0.0203 | <0.001 <0.002 | <0.001 <0.0005 | <0.001 <0.002 | 0.017 | <0.001 <0.002 | 10.2 | <0.0001 <0.00015 | 0.016 | 0.007 | <0.0005 <0.002 | 1.2 |
| | | 12/1/2015 | | 28.09 | 5568.87 | 17.0 | | 1290 | <0.1 | 7.40 | 10900 | 17600 | <0.002 | <0.002 | 0.0203 | | <0.0005 | <0.002 | 0.0153 | <0.002 | 8.58 | <0.00015 | 0.0233 | 0.00753 | <0.002 | 31.52 J+ |
| | | 1/12/2016 | | 28.43 | 5568.90 | | t enough water | | \U.1 | 7.55 | 10300 | 17000 | <0.002 | N0.002 | 0.0189 | <0.002 | <0.0003 | <0.002 | 0.0155 | <0.002 | 8.58 | <0.00015 | 0.021 | 0.00733 | <0.002 | 31.32 J+ |
| | | 2/2/2016 | | 28.38 | 5568.94 | 16.3 | | 952 | <0.100 | 7.24 | 7910 | 15600 | <0.002 | <0.002 | 0.0139 | <0.002 | <0.0005 | <0.002 | 0.0143 | <0.002 | 8.49 | <0.00015 | 0.0174 | 0.00739 | <0.002 | 2.12 |
| | | 3/9/2016 | | 28.46 | 5568.86 | 18.1 | 413 | 4290 | <0.100 | 7.32 | 9020 | 15700 | < 0.002 | <0.002 | 0.0224 | | < 0.0005 | <0.002 | 0.0131 | <0.002 | 4.33 | <0.00015 | 0.0241 | 0.00545 | <0.002 | 3.23 |
| | | 4/6/2016 | | 28.41 | 5568.91 | 15.2 | | 1230 | <0.1 | 7.28 | 11100 | 15800 | < 0.002 | < 0.002 | 0.0191 | < 0.002 | < 0.0005 | < 0.002 | 0.0147 | < 0.002 | 3.29 | <0.00015 | 0.0214 | 0.007 | < 0.002 | 1.24 |
| ELF-11 | Downgradient | 5/4/2016 | | 28.31 | 5569.01 | 14.9 | 399 | 1170 | <0.1 | 8.01 | 10000 | 15700 | < 0.002 | <0.002 | 0.0245 | <0.002 | <0.0005 | <0.002 | 0.014 | <0.002 | 4.31 | <0.00015 | 0.0205 | 0.00666 | < 0.002 | 2.78 |
| | | 9/8/2016 | | 28.20 | 5569.12 | 17.3 | 434 | 1180 | <0.1 | 7.24 | 10000 | 16200 | < 0.002 | <0.002 | 0.0163 | <0.002 | < 0.0005 | <0.002 | 0.0126 | <0.002 | 6.44 | <0.00015 | 0.0201 | 0.00885 | <0.002 | 0.95 |
| | | 5/9/2017 | | 28.13 | 5569.19 | NS - No | t enough water | - | | | | | • | | | | | | | | | | | | | |
| | | 8/2/2017 | | 28.36 | 5568.96 | NS - No | t enough wate | - | | | | | | | | | | | | | | | | | | |
| | | 2/15/2018 | | 28.20 | 5569.12 | NA | | | | | | | < 0.00200 | < 0.00200 | 0.0193 | <0.00200 | < 0.000500 | < 0.00200 | 0.0154 | < 0.00200 | 3.43 | <0.000150 | 0.022 | 0.0556 | < 0.00200 | 2.03 |
| | | 5/30/2018 | | 28.19 | 5569.13 | 18.8 | 406 J- | 993 | 0.136 | 7.23 | 8780 | 16700 | < 0.00100 | <0.00200 | 0.0168 | <0.00200 | < 0.000500 | <0.00200 | 0.0202 | <0.00200 | 3.99 J | - <0.000150 J- | 0.0201 | 0.0727 | <0.00200 | 1.83 |
| | | 5/8/2019 | | 28.10 | 5569.22 | 17.8 | 436 | 1100 | 0.173 | 7.23 | 9980 | 16800 | < 0.00400 | <0.00200 | 0.0142 | <0.00200 | < 0.000500 | < 0.00200 | 0.0146 | < 0.00200 | 3.49 J | + <0.0000900 | 0.0183 | 0.0649 | <0.00200 | 1.88 |
| | | 8/20/2019 | | 28.31 | 5569.01 | 17.8 | | | <0.100 | 8.02 | 9910 | 17000 | < 0.00400 | <0.00200 | 0.0151 | <0.00200 | <0.000500 | <0.00200 | 0.0151 | <0.00200 | 3.36 | <0.0000900 UJ | 0.0186 | 0.0627 | <0.00200 | 2.48 |
| | | 11/2/2018 | 5569.99 | 19.35 | 5550.64 | | J+ 225 J- | | 0.26 | 7.65 | 11400 | 21700 | <0.00400 | <0.00200 | 0.0207 | <0.00200 | <0.000500 | <0.00200 | <0.00400 | <0.00200 | 0.82 | | <0.00200 | <0.00200 | <0.00200 | 4.8 |
| ELF-12 | Downgradient | 5/8/2019 | | 19.59 | 5550.40 | 1.68 | | 500 | 0.34 | 7.55 | | 20100 | <0.00400 | <0.00200 | 0.0192 | <0.00200 | <0.000500 | <0.00200 | <0.00400 | <0.00200 | | | <0.00200 | <0.00200 | <0.00200 | 2.25 |
| | | 8/20/2019 | | NM | | 1.68 | 169 J+ | | <0.100 | 7.73 | 11400 | 19900 | <0.00400 | <0.00200 | 0.0165 | | <0.000500 | <0.00200 | <0.00400 | <0.00200 | 0.792 | | <0.00200 | <0.00200 | <0.00200 | 2.83 |
| | | 11/2/2018 | 5559.43 | 3.82 | 5555.61 | | J+ 471 J- | | <0.100 | 7.24 | | 17900 | <0.00400 | <0.00200 | 0.0573 | | <0.000500 | <0.00200 | 0.00471 | < 0.00200 | 1.72 | | <0.00200 | <0.00200 | <0.00200 | 2.26 |
| ELF-13 | Downgradient | 5/8/2019 | | 3.10 | 5556.33 | 0.703 | | 2730 | <0.100 | 7.03 | | 16700 | < 0.00400 | <0.00200 | 0.0111 | | <0.000500 | <0.00200 | <0.00400 | <0.00200 | | | <0.00200 | <0.00200 | <0.00200 | 1.58 |
| | | 8/20/2019 | 55.00.01 | NM | | 0.732 | | | 0.798 | 7.25 | | 17300 | < 0.00400 | <0.00200 | 0.011 | <0.00200 | <0.000500 | <0.00200 | 0.00407 | < 0.00200 | 1.86 | <0.0000900 UJ | | < 0.00200 | < 0.00200 | 2.07 |
| FIE 44 | December 1 | 11/2/2018 | 5560.91 | 6.30 | 5554.61 | | J+ 532 J- | | 0.173 | 7.56 | | 20500 | <0.00400 | <0.00200 | 0.0464 | | < 0.000500 | <0.00200 | 0.0131 | <0.00200 | 4.01 | | < 0.00520 | 0.00401 | <0.00200 | 1.6 |
| ELF-14 | Downgradient | 5/8/2019 | | 6.07 | 5554.84 | 2.4 | | 5070 | <0.100 | 7.13 | | 19700 | < 0.00400 | < 0.00200 | 0.0327 | <0.00200 | < 0.000500 | 0.00888 | 0.00976 | 0.00241 | | | 0.00387 | 0.00512 | <0.00200 | 2.58 |
| | | 8/20/2019 | | NM | | 3.09 | 496 J+ | 3640 | 0.589 | 7.49 | 7280 | 19800 | < 0.00400 | <0.00200 | 0.0137 | <0.00200 | <0.000500 | <0.00200 | 0.00912 | <0.00200 | 4.58 | <0.0000900 UJ | 0.00431 | 0.00664 | < 0.00200 | 2.69 |

NS: Not Sampled

NM: Not Measured

GWE: Ground Water Elevation

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



| Analyte | Background Upper Tolerance Limit (mg/L) | MCL (mg/L) | Groundwater Protection Standard (mg/L) | Downgradient Wells Exceeding the Groundwater Protection Standard |
|------------|--|---------------|---|--|
| Antimony | 0.004 | 0.006 | 0.006 | None Exceed |
| Arsenic | 0.012 | 0.01 | 0.012 | None Exceed |
| Barium | 0.10 | 2.00 | 2.00 | None Exceed |
| Beryllium | 0.002 | 0.004 | 0.004 | None Exceed |
| Cadmium | 0.001 | 0.005 | 0.005 | None Exceed |
| Chromium | 0.020 | 0.1 | 0.1 | None Exceed |
| Cobalt | 0.011 | 0.006 | 0.011 | ELF-11, ELF-3, ELF-6, ELF-8 |
| Fluoride | 4.36 | 4 | 4.36 | None Exceed |
| Lead | 0.012 | 0.015 | 0.015 | None Exceed |
| Lithium | 4.94 | 0.04 | 4.94 | ELF-6 |
| Mercury | 0.0002 | 0.002 | 0.002 | None Exceed |
| Molybdenum | 0.16 | 0.1 | 0.16 | ELF-8 |
| Radium | 7.62 | 5.0 | 7.62 | None Exceed |
| Selenium | 0.61 | 0.05 | 0.61 | None Exceed |
| Thallium | 0.002 | 0.002 | 0.002 | None Exceed |

| Table 2a. Summary of Groundwater | Quality Comparisons – May 2019 Event |
|----------------------------------|--------------------------------------|
|----------------------------------|--------------------------------------|

| Analyte | Upper Tolerance Limit (mg/L) | Maximum Contaminant Level (mg/L) | Groundwater Protection Standard (mg/L) | Downgradient Wells that Exceed Groundwater Protection Standard |
|-----------|---------------------------------------|--|---|--|
| Antimony | 0.004 | 0.006 | 0.006 | None Exceed |
| Arsenic | 0.0117 | 0.01 | 0.0117 | None Exceed |
| Barium | 0.10 | 2.00 | 2.00 | None Exceed |
| Beryllium | 0.002 | 0.004 | 0.004 | None Exceed |
| Cadmium | 0.0011 | 0.005 | 0.005 | None Exceed |
| Chromium | 0.0201 | 0.1 | 0.1 | None Exceed |
| Cobalt | 0.0114 | 0.006 | 0.0114 | ELF-11, ELF-8 |
| Fluoride | 4.36 | 4.0 | 4.36 | None Exceed |
| Lead | 0.012 | 0.015 | 0.015 | None Exceed |
| Lithium | 4.957 | 0.04 | 4.957 | ELF-5 |
| Mercury | 0.00015 | 0.002 | 0.002 | None Exceed |



| Analyte | Upper Tolerance Limit (mg/L) | Maximum Contaminant Level (mg/L) | Groundwater Protection Standard (mg/L) | Downgradient Wells that Exceed Groundwater Protection Standard |
|------------|---------------------------------------|--|---|--|
| Molybdenum | 0.158 | 0.1 | 0.158 | ELF-8 |
| Radium | 7.00 | 5.0 | 7.00 | None Exceed |
| Selenium | 0.608 | 0.05 | 0.608 | ELF-3 |
| Thallium | 0.002 | 0.002 | 0.002 | None Exceed |

4.0 NATURE AND EXTENT INVESTIGATION

The results of assessment monitoring completed in 2018, revealed SSIs above the groundwater protection standard for Appendix IV constituents: lithium and molybdenum. Based on these findings, a nature and extent investigation was initiated in 2018 and completed in 2019.

The investigation included the placement of three new wells (ELF-12, ELF-13, and ELF-14) at the plant boundary to comply with the *Final Rule* and determine if past releases have migrated to the boundary and/or offsite. The data indicates that the release associated with the CCR Landfill has been bounded spatially, as all of the constituents exhibiting SSIs in 2018 and 2019, are below their established groundwater protection standards in each of new downgradient wells during this period (Table 1).

5.0 ASSESSMENT OF CORRECTIVE MEASURES

In parallel with the nature and extent investigation, an assessment of corrective measures was completed April 15, 2019 for the CCR Landfill (WET 2019). The assessment incorporated site-specific conditions and considered a wide range of remedial alternatives to address groundwater impacts. This evaluation indicates current waste management practices coupled with horizontal wells installed to capture groundwater beneath the landfill, have resulted in effective containment of groundwater impacts. Optimization of the existing horizontal wells and/or installation of new wells coupled with a pump and treat system, is estimated to reduce the time to attainment by approximately 10 years. Based on this, enhanced horizontal wells and a pump and treatment system is the preferred option to actively treat the impacted groundwater, as removal of the landfill will have no impact on contamination already in groundwater. The following two alternatives were proposed in 2019 for the Hunter CCR Landfill:

- 1. Alternative 1 Maintain Current Corrective Measures
- 2. Alternative 2 Maintain Current Corrective Measures with a Pump and Treat Groundwater Treatment System



5.1 Public Meeting

A public meeting was held in Castle Dale, Utah to discuss the corrective measures on July 23, 2019. Comments received from stakeholders are being incorporated into the remedy selection report.

6.0 SELECTION OF REMEDY

Following the public meeting in July of 2019 and receipt of stakeholder input, PacifiCorp began evaluating the feasibility of the proposed alternative. An initial inspection of the existing horizontal wells was conducted in September of 2019 to determine if scale build-up or other obstructions have developed in the wells that may prevent them from operating at an optimal level. The Remedy Selection was initiated in 2019 and will be completed in 2020.

7.0 **PROBLEMS & RESOLUTIONS**

Neither monitoring well ELF-1D or ELF-3 have produced sufficient water during detection or assessment monitoring to support sampling. As a result, neither has been used in developing statistical analyses for the site. Water levels, when available, have been used to develop site-specific groundwater elevation maps.

8.0 UPCOMING YEAR

During 2020, it is anticipated PacifiCorp will complete the following activities at the CCR Landfill:

Semi-Annual Monitoring

- Conduct the first semi-annual assessment monitoring event;
- Perform statistical analysis of data;
- Conduct the second semi-annual assessment monitoring event;
- Perform statistical analysis of data; and
- Develop the Annual Groundwater Monitoring and Corrective Action Report.

Corrective Measures

- Complete remedy selection report;
- Implement corrective action groundwater monitoring plan;
- Continue optimization and operation of existing horizontal wells to collect leachate and impacted groundwater.
- Evaluate need for additional remedial activities



9.0 **REFERENCES**

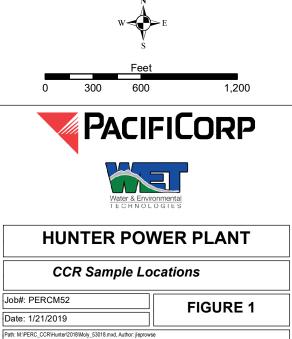
- EPA 2017. National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-540-R-201 7-001, January 2017.
- EPA 2010. Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater from Monitoring Wells, EPASOP-GW 001, January 2010.
- EPA 1989. Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A), EPA/540/1-89/002, December 1989.
- WET, 2019. Corrective Measures Assessment, Hunter Power Plant, Castle Dale, Utah. June 2019.
- WET, 2017. Sampling and Analysis Plan & Well Documentation, CCR Landfill Hunter Power Plant, Castle Dale, Utah, Revision 1, October 2017.



FIGURES









ATTACHMENT A:

Field Summary Report - May 2019 Event



| Facility Name: | Hunter Power Plant – CCR Landfill |
|--------------------|-----------------------------------|
| Event Description: | Assessment Monitoring |
| Event Dates: | May 8, 2019 |
| Field Personnel: | Mike Shirley |

ACTIVITY SUMMARY. WET personnel arrived onsite May 8, 2019 and performed groundwater sampling at Hunter CCR Landfill. Prior to collecting samples, field instruments were calibrated, followed by the collection of water levels in the CCR monitoring wells. After recording water levels, the wells were purged in accordance with the EPA low-flow method. Field parameters were monitored during well purging in accordance with the site-specific sampling and analysis plan (SAP). Once field parameters met the SAP stabilization requirements, groundwater samples were collected for Appendix III and Appendix IV constituents. All calibration data and field measurements were recorded on the WET electronic field form. The wells that underwent sampling during this sampling event included:

| • • • • | ELF-1D ELF-2 ELF-3 ELF-4 ELF-5 ELF-6 ELF-7 | • • • | ELF-8 ELF-9 ELF-10 ELF-11 ELF-12 ELF-13 ELF-14 |
|---------|--|-------------|--|
|---------|--|-------------|--|

The following details dates for conducting field work and post-field work data processing:

- Date fieldwork completed: 5/8/2019
- Dates unvalidated lab data received: 6/12/2019
- Data validation completion date: 7/11/2019

After collection, the samples were preserved in accordance with the SAP, placed on ice, chain of custody forms were completed, and the samples were transported to Energy Laboratories in Casper, WY for analysis. Samples arrived at American West Analytical Laboratories on 5/9/2019. The following information is attached to this summary as a supplement:

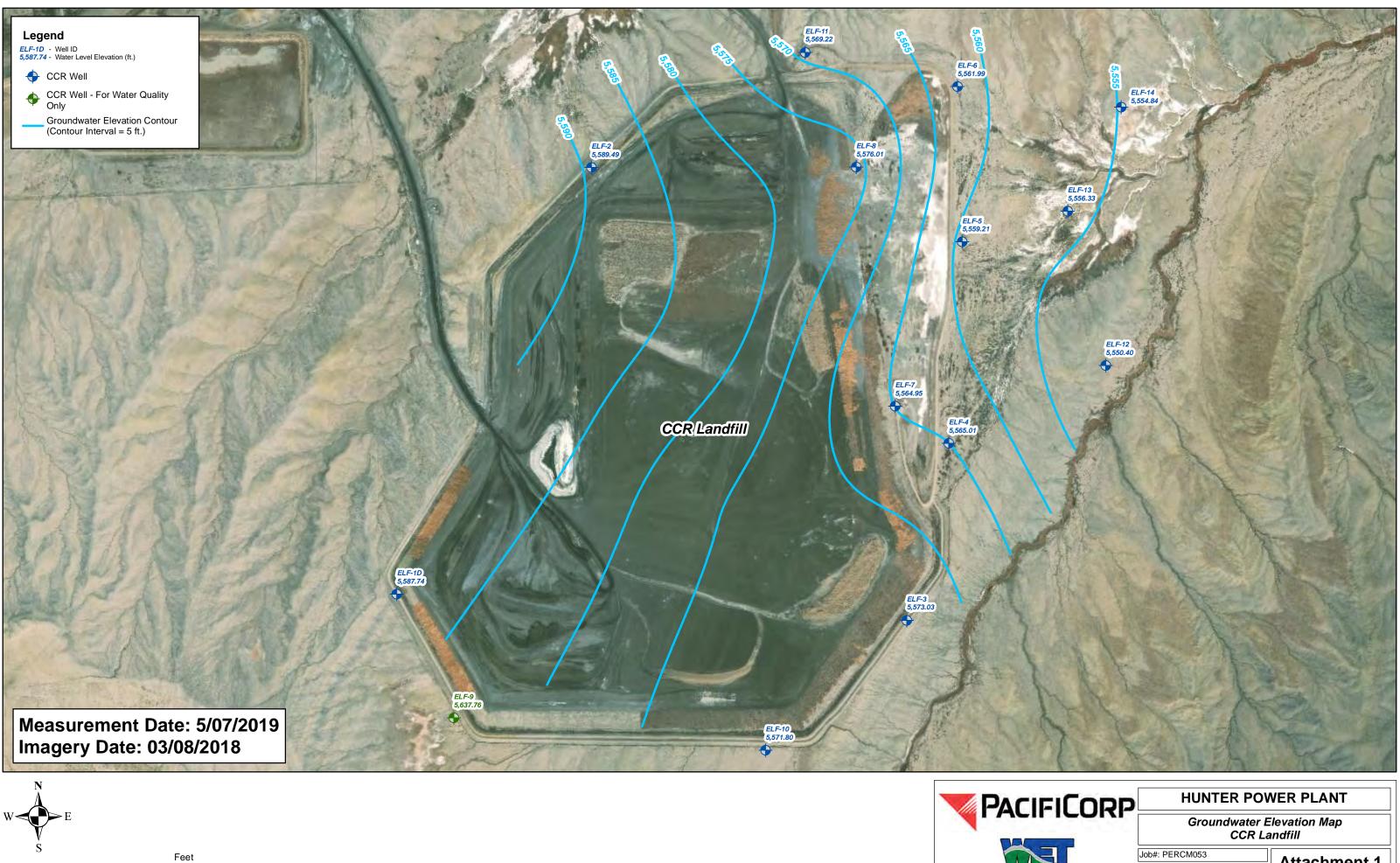
- Attachment A: Groundwater Contour Map
- Attachment B: Data Validation Summary
- Attachment C: Statistical Analysis
- Attachment D: Field Data Sheets
- Attachment E: Laboratory Analytical Reports

SAP DEVIATIONS. None.



Attachment A:

Groundwater Contour Map



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

Job#: PERCM053 Date: 8/12/2019

Water & Environmental TECHNOLOG ES

Attachment 1

Path: M:\PERC_CCR\2019_CCR_Sampling\2019_CCR_GW_Contour Maps.mxd, Author: brutherford



Attachment B:

Data Validation Summary

| Facility Name: | Hunter 05/09/2 | 019 Landfill | | | | | |
|---|---|--|--|--|--|--|--|
| Validator: | | Tim Driscoll 06/13/2019 | | | | | |
| Reviewer: | Pat Seccomb 0 | | | | | | |
| | | | | | | | |
| Laboratory: | | t Analytical Laboratories | | | | | |
| Laboratory Work Order#: | 1905216 | | | | | | |
| Sample Media: | Groundwater | | | | | | |
| Analytical Parameters: | Appendix III: | B, Ca, Cl, ¹ F, pH, S0 ₄ , TDS | | | | | |
| Review Element: | Complete / Criteria Met? (Yes/No) | | | | | | |
| Chain of Custody: | Yes | | | | | | |
| Field Documentation: | Yes | | | | | | |
| Holding Times & Sample Preservation: | Yes | | | | | | |
| Calibrations: | Yes | | | | | | |
| Blanks: | Yes | | | | | | |
| Laboratory Control Sample: | Yes | | | | | | |
| Laboratory Duplicate: | Yes | | | | | | |
| Matrix Spike: | No Lithium was recovered above the upper control limit in the matrix spike, resulting in J+ qualifications. | | | | | | |
| Overall Assessment: | | | | | | | |

Lithium was qualified J+ in the following samples due to a high matrix spike recovery:

ELF-1D, ELF-2, ELF-3, ELF-4, ELF-5, ELF-6, ELF-7, ELF-8, ELF-9, ELF-10, ELF-11, ELF-12, ELF-13, ELF-14 and DUP.

No other qualifications were assigned.

| Facility Name: | Hunter Landfil | 1 5/18/2019 | | | | |
|---|---|--|--|--|--|--|
| Validator: | Marcus Hollan | Marcus Holland 7/11/2019 | | | | |
| Reviewer: | Pat Seccomb 7 | -16-19 | | | | |
| Laboratory: | American Wes | t Analytical Laboratories | | | | |
| Laboratory Work Order#: | 1905216 | | | | | |
| Sample Media: | Groundwater | | | | | |
| Analytical Parameters: | Appendix IV: Ra ²²⁶ | | | | | |
| Review Element: | Complete / Criteria Met? (Yes/No) | | | | | |
| Chain of Custody: | Yes | Samples were subcontracted for analysis by AWAL to ALS. COCs had conflicting dates when compared to samples. Because all results were acquired within hold times, no actions were required. | | | | |
| Field Documentation: | Yes | | | | | |
| Holding Times & Sample Preservation: | Yes | ELF-3, ELF-6, ELF-10, ELF-12, and DUP had pH values out of range, but ≤4 upon receipt at the laboratory. ALS added additional acid to adjust the pH in accordance with the method, Functional Guidelines. No action was warranted. | | | | |
| Calibrations: | Yes | | | | | |
| Blanks: | Yes | | | | | |
| Laboratory Control Sample: | Yes | | | | | |
| Laboratory Duplicate: | Yes | | | | | |
| Matrix Spike: | Yes | | | | | |
| Overall Assessment: | | | | | | |
| No qualifications were required. | | | | | | |

| Facility Name: | ne: Hunter Landfill 5/18/2019 | | | | | |
|---|--|--|--|--|--|--|
| Validator: | Marcus Hollan | Marcus Holland 7/11/2019 | | | | |
| Reviewer: | Pat Seccomb 0 | 7-16-19 | | | | |
| Laboratory: | American Wes | t Analytical Laboratories | | | | |
| Laboratory Work Order#: | 1905216 | | | | | |
| Sample Media: | Groundwater | | | | | |
| Analytical Parameters: | Appendix IV: Ra ²²⁸ | | | | | |
| Review Element: | Complete / Criteria Met? (Yes/No) | If no, describe: | | | | |
| Chain of Custody: | Yes | Samples were subcontracted for analysis by AWAL to ALS. COCs had conflicting dates when compared to samples. Because all results were acquired within hold times, no actions were required. | | | | |
| Field Documentation: | Yes | | | | | |
| Holding Times & Sample Preservation: | Yes | ELF-3, ELF-6, ELF-10, ELF-12, and DUP had pH values out of range, but ≤4 upon receipt at the laboratory. ALS added additional acid to adjust the pH in accordance with the method, Functional Guidelines. No action was warranted. | | | | |
| Calibrations: | Yes | | | | | |
| Blanks: | Yes | | | | | |
| Laboratory Control Sample: | Yes | | | | | |
| Laboratory Duplicate: | Yes | | | | | |
| Matrix Spike: Yes | | | | | | |
| Overall Assessment: | Overall Assessment: | | | | | |
| No qualifications were required. | | | | | | |

| Facility Name: | Hunter 05/09/2019 Landfill | | | | | | |
|---|---|--|--|--|--|--|--|
| Validator: | Tim Driscoll 0 | 6/13/2019 | | | | | |
| Reviewer: | Pat Seccomb 0 | 6-28-19 | | | | | |
| Laboratory: | American Wes | t Analytical Laboratories | | | | | |
| Laboratory Work Order#: | 1905215 | | | | | | |
| Sample Media: | Groundwater | | | | | | |
| Analytical Parameters: | Appendix III: | B, Ca, Cl, ¹ F, pH, S0 ₄ , TDS | | | | | |
| Review Element: | Complete / Criteria Met? (Yes/No) | | | | | | |
| Chain of Custody: | Yes | | | | | | |
| Field Documentation: | Yes | | | | | | |
| Holding Times & Sample Preservation: | Yes | | | | | | |
| Calibrations: | Yes | | | | | | |
| Blanks: | Yes | | | | | | |
| Laboratory Control Sample: | Yes | | | | | | |
| Laboratory Duplicate: | Yes | | | | | | |
| Matrix Spike: | Yes | | | | | | |
| Overall Assessment: | | | | | | | |
| No qualifications were required. | | | | | | | |



Attachment C:

Statistical Analysis

| CONT | ENTS |
|------|------|
|------|------|

| 1.0 | INTF | RODUCTION | 1 |
|-----|------|---|----|
| 2.0 | PRE | ELIMINARY DATA ANALYSIS | 1 |
| | 2.1 | Data Analysis Techniques | |
| | | 2.1.1 Mean | |
| | | 2.1.2 Standard Deviation | |
| | | 2.1.3 Coefficient of Variance | |
| | | 2.1.4 Quartiles and the Five Number Summary | |
| | 2.2 | Visual Tools | |
| | | 2.2.1 Histograms | |
| | | 2.2.2 Normal-Quantile Plots | |
| | | 2.2.3 Outliers. | |
| | | 2.2.4 Treatment of Non-Detects | 5 |
| | 2.3 | Summary Results | 5 |
| 3.0 | UPG | GRADIENT AND DOWNGRADIENT WELL COMPARISON | 11 |
| | 3.1 | Groundwater Protection Limits | |
| | | 3.1.1 Normal Distribution | |
| | | 3.1.2 Upper Tolerance Limits and Groundwater Protection Limit | |
| 4.0 | CON | NCLUSIONS | 14 |
| 5.0 | REFI | FERENCES | 15 |

LIST OF FIGURES

- Figure C.1. Histogram of fluoride data from the CCR Landfill upgradient wells
- Figure C.2. Normal quantile plot of fluoride data the CCR Landfill upgradient wells
- Figure C.3. Summary statistics plots for the CCR Landfill
- Figure C.4. Upper tolerance limit plots for the CCR Landfill

LIST OF TABLES

- Table C.1. Summary statistics for the CCR Landfill upgradient wells
- Table C.2. Five-number summary for the CCR Landfill upgradient wells.
- Table C.3. Shapiro-Wilk Test for the CCR Landfill upgradient wells.
- Table C.4A. Appendix III, comparison of downgradient wells to background.
- Table C.4B. Appendix IV, comparison of downgradient wells to background.

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):

$$\overline{x} = \frac{\sum_{i=1}^{n} x_i}{n} \tag{1}$$

Where:

 \overline{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):

$$s = \sqrt{\frac{\sum_{i=1}^{n} (x_i - \bar{x})^2}{n-1}}$$
(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):

$$CV = \frac{s}{\overline{X}} \times 100\%$$
(3)

Where:

s = standard deviation

 \overline{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

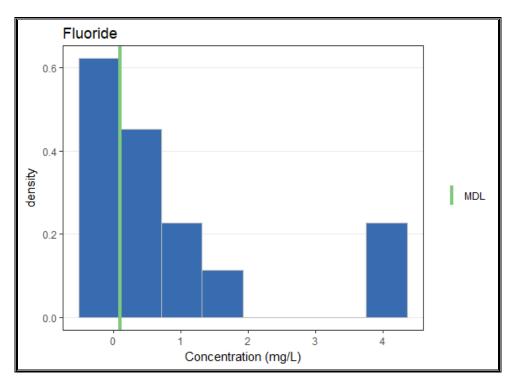
number such that 25% of the data are less than that number and 75% of the data are above the 25th percentile. The median and third quartiles are found in a similar manner.

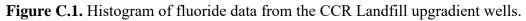
2.2 Visual Tools

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 2018).

2.2.1 Histograms

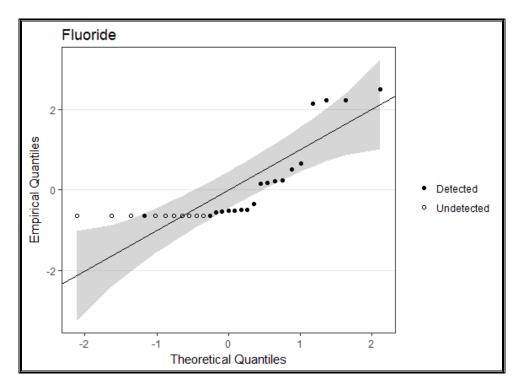
Histograms display the distribution and symmetry of the data. The data are displayed in such a way, that deviations from a normal (i.e., bell shaped) distribution can easily be observed. Outliers are also often identifiable in a histogram. Histograms for the upgradient wells were generated using both 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 largest 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.

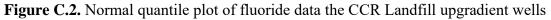




2.2.2 Normal-Quantile Plots

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.





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. Outliers were detected in the cadmium, lead, and radium data CCR Landfill data. However, none of the outliers are extreme enough to warrant removal from the dataset.

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 nondetects, 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. The arsenic, cadmium, chromium, cobalt, and lead data have more than 50% non-detects. Antimony, beryllium, mercury, and thallium were not detected in any of the samples. Thus, statistical analysis cannot be done for those analytes. The fluoride and selenium data have more than 15% non-detects, but more than half of the data are detected. As a result, Kaplan-Meier was used to compute means, standard deviations, and statistical limits used to compare the upgradient downgradient water quality for fluoride and selenium.

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. Analytes that were not detected in any upgradient well samples are not listed in Table C.1.

| Analyte | Well | Number of Samples | Samples Detected | Median (mg/L) | Mean (mg/L) | Standard Deviation (mg/L) | Coefficient of Variation (%) |
|----------|--------|-------------------------|---------------------|------------------|----------------|---------------------------------|---------------------------------------|
| Arsenic | ELF-10 | 11 | 3 | NA | NA | NA | NA |
| Arsenic | ELF-1D | 2 | 0 | NA | NA | NA | NA |
| Arsenic | ELF-2 | 13 | 0 | NA | NA | NA | NA |
| Arsenic | ELF-9 | 11 | 11 | 0.007 | 0.008 | 0.002 | 31% |
| Arsenic | Pooled | 37 | 14 | NA | NA | NA | NA |
| Barium | ELF-10 | 11 | 11 | 0.039 | 0.045 | 0.021 | 46% |
| Barium | ELF-1D | 2 | 2 | NA | NA | NA | NA |
| Barium | ELF-2 | 13 | 12 | 0.010 | 0.012 | 0.003 | 30% |
| Barium | ELF-9 | 11 | 11 | 0.035 | 0.048 | 0.034 | 72% |
| Barium | Pooled | 37 | 36 | 0.019 | 0.032 | 0.027 | 85% |
| Boron | ELF-10 | 10 | 10 | 1.63 | 1.68 | 0.18 | 11% |
| Boron | ELF-1D | 1 | 1 | NA | NA | NA | NA |
| Boron | ELF-2 | 12 | 12 | 3.32 | 3.36 | 0.19 | 6% |
| Boron | ELF-9 | 10 | 9 | 1.39 | 1.47 | 0.20 | 13% |
| Boron | Pooled | 33 | 32 | 1.73 | 2.27 | 0.90 | 40% |
| Cadmium | ELF-10 | 11 | 6 | 0.0005 | 0.0006 | 0.0002 | 31% |
| Cadmium | ELF-1D | 2 | 0 | NA | NA | NA | NA |
| Cadmium | ELF-2 | 13 | 0 | NA | NA | NA | NA |
| Cadmium | ELF-9 | 11 | 1 | NA | NA | NA | NA |
| Cadmium | Pooled | 37 | 7 | NA | NA | NA | NA |
| Calcium | ELF-10 | 10 | 10 | 475 | 480 | 31 | 6% |
| Calcium | ELF-1D | 1 | 1 | NA | NA | NA | NA |
| Calcium | ELF-2 | 12 | 12 | 407 | 403 | 22 | 6% |
| Calcium | ELF-9 | 10 | 10 | 62 | 80 | 36 | 45% |
| Calcium | Pooled | 33 | 33 | 404 | 328 | 171 | 52% |
| Chloride | ELF-10 | 10 | 10 | 7340 | 7515 | 1141 | 15% |
| Chloride | ELF-1D | 1 | 1 | NA | NA | NA | NA |
| Chloride | ELF-2 | 12 | 12 | 445 | 410 | 88 | 21% |
| Chloride | ELF-9 | 10 | 10 | 375 | 384 | 81 | 21% |
| Chloride | Pooled | 33 | 33 | 461 | 2751 | 3435 | 125% |
| Chromium | ELF-10 | 11 | 8 | 0.005 | 0.005 | 0.004 | 84% |
| Chromium | ELF-1D | 2 | 1 | NA | NA | NA | NA |
| Chromium | ELF-2 | 13 | 2 | NA | NA | NA | NA |
| Chromium | ELF-9 | 11 | 7 | 0.005 | 0.009 | 0.007 | 78% |
| Chromium | Pooled | 37 | 18 | NA | NA | NA | NA |

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 (%) |
|------------|--------|-------------------------|---------------------|------------------|----------------|---------------------------------|---------------------------------------|
| Cobalt | ELF-10 | 11 | 8 | 0.004 | 0.005 | 0.001 | 29% |
| Cobalt | ELF-1D | 2 | 1 | NA | NA | NA | NA |
| Cobalt | ELF-2 | 13 | 7 | 0.01 | 0.01 | 0.00 | 31% |
| Cobalt | ELF-9 | 11 | 2 | NA | NA | NA | NA |
| Cobalt | Pooled | 37 | 18 | | 0.01 | 0.00 | 31% |
| Fluoride | ELF-10 | 10 | 5 | | 1.8 | 2.1 | 118% |
| Fluoride | ELF-1D | 1 | 0 | NA | NA | NA | NA |
| Fluoride | ELF-2 | 12 | 7 | 0.1 | 0.2 | 0.13 | 71% |
| Fluoride | ELF-9 | 10 | 9 | 1.2 | 1.1 | 0.59 | 56% |
| Fluoride | Pooled | 33 | 21 | 0.3 | 0.9 | 1.3 | 145% |
| Lead | ELF-10 | 11 | 6 | 0.002 | 0.003 | 0.003 | 90% |
| Lead | ELF-1D | 2 | 0 | NA | NA | NA | NA |
| Lead | ELF-2 | 13 | 1 | NA | NA | NA | NA |
| Lead | ELF-9 | 11 | 4 | NA | NA | NA | NA |
| Lead | Pooled | 37 | 11 | NA | NA | NA | NA |
| Lithium | ELF-10 | 11 | 11 | 2.09 | 2.30 | 1.14 | 50% |
| Lithium | ELF-1D | 2 | 2 | 2.16 | 2.16 | 0.06 | 3% |
| Lithium | ELF-2 | 13 | 13 | 1.76 | 2.58 | 1.29 | 50% |
| Lithium | ELF-9 | 11 | 11 | 0.80 | 1.07 | 0.53 | 50% |
| Lithium | Pooled | 37 | 37 | 1.75 | 2.02 | 1.19 | 59% |
| Molybdenum | ELF-10 | 11 | 11 | 0.087 | 0.092 | 0.028 | 30% |
| Molybdenum | ELF-1D | 2 | 2 | 0.019 | 0.019 | 0.003 | 16% |
| Molybdenum | ELF-2 | 13 | 13 | 0.003 | 0.003 | 0.001 | 20% |
| Molybdenum | ELF-9 | 11 | 11 | 0.122 | 0.122 | 0.017 | 14% |
| Molybdenum | Pooled | 37 | 37 | 0.080 | 0.066 | 0.055 | 83% |
| pН | ELF-10 | 10 | 10 | 7.18 | 7.26 | 0.42 | 6% |
| pН | ELF-1D | 1 | 1 | NA | NA | NA | NA |
| pН | ELF-2 | 12 | 12 | 7.22 | 7.27 | 0.17 | 2% |
| pН | ELF-9 | 10 | 10 | 7.94 | 7.93 | 0.10 | 1% |
| pН | Pooled | 33 | 33 | 7.28 | 7.46 | 0.41 | 5% |
| Radium | ELF-10 | 11 | 11 | 2.47 | 3.29 | 3.76 | 114% |
| Radium | ELF-1D | 2 | 2 | NA | NA | NA | NA |
| Radium | ELF-2 | 13 | 13 | 1.25 | 1.94 | 1.98 | 102% |
| Radium | ELF-9 | 11 | 11 | 1.34 | 1.42 | 0.66 | 46% |
| Radium | Pooled | 37 | 37 | 1.38 | 2.19 | 2.44 | 112% |

| Analyte | Well | Number of Samples | Samples Detected | Median (mg/L) | Mean (mg/L) | Standard Deviation (mg/L) | Coefficient of Variation (%) |
|----------|--------|-------------------------|---------------------|------------------|----------------|---------------------------------|---------------------------------------|
| Selenium | ELF-10 | 11 | 8 | NA | NA | NA | NA |
| Selenium | ELF-1D | 2 | 0 | NA | NA | NA | NA |
| Selenium | ELF-2 | 13 | 13 | 0.45 | 0.36 | 0.20 | 54% |
| Selenium | ELF-9 | 11 | 1 | NA | NA | NA | NA |
| Selenium | Pooled | 37 | 22 | NA | NA | NA | NA |
| Sulfate | ELF-10 | 10 | 10 | 18300 | 16730 | 4128 | 25% |
| Sulfate | ELF-1D | 1 | 1 | NA | NA | NA | NA |
| Sulfate | ELF-2 | 12 | 12 | 7950 | 7696 | 692 | 9% |
| Sulfate | ELF-9 | 10 | 10 | 6610 | 6472 | 811 | 13% |
| Sulfate | Pooled | 33 | 33 | 7950 | 10064 | 5033 | 50% |
| TDS | ELF-10 | 10 | 10 | 38300 | 38070 | 1782 | 5% |
| TDS | ELF-1D | 1 | 1 | NA | NA | NA | NA |
| TDS | ELF-2 | 12 | 12 | 11850 | 11842 | 403 | 3% |
| TDS | ELF-9 | 10 | 10 | 10550 | 10832 | 878 | 8% |
| TDS | Pooled | 33 | 33 | 12000 | 19937 | 12485 | 63% |

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 were not detected in any of the upgradient well samples are not listed in Table C.2.

| Analyte | Well | Minimum (mg/L) | First Quartile (mg/L) | Median (mg/L) | Third Quartile (mg/L) | Maximum (mg/L) |
|---------|--------|-------------------|-----------------------------|------------------|-----------------------------|-------------------|
| Arsenic | ELF-10 | < 0.002 | < 0.002 | < 0.002 | 0.002 | 0.009 |
| Arsenic | ELF-1D | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Arsenic | ELF-2 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Arsenic | ELF-9 | 0.005 | 0.006 | 0.007 | 0.009 | 0.012 |
| Arsenic | Pooled | < 0.001 | < 0.002 | < 0.002 | 0.005 | 0.012 |
| Barium | ELF-10 | 0.0184 | 0.0317 | 0.0391 | 0.0560 | 0.0863 |
| Barium | ELF-1D | 0.0085 | 0.0085 | 0.0094 | 0.0103 | 0.0103 |
| Barium | ELF-2 | < 0.00849 | 0.0095 | 0.0113 | 0.0128 | 0.0500 |
| Barium | ELF-9 | 0.0126 | 0.0177 | 0.0348 | 0.0781 | 0.1020 |
| Barium | Pooled | < 0.00846 | 0.0119 | 0.0205 | 0.0500 | 0.1020 |

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 | 1.56 | 1.63 | 1.73 | 2.12 |
| Boron | ELF-1D | 2.23 | 2.23 | 2.23 | 2.23 | 2.23 |
| Boron | ELF-2 | 3.11 | 3.25 | 3.32 | 3.49 | 3.77 |
| Boron | ELF-9 | <1.3 | 1.35 | 1.45 | 1.61 | 5.00 |
| Boron | Pooled | <1.3 | 1.56 | 1.84 | 3.27 | 5.00 |
| Cadmium | ELF-10 | < 0.0005 | < 0.0005 | 0.0005 | 0.0006 | 0.0011 |
| Cadmium | ELF-1D | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 |
| Cadmium | ELF-2 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0010 |
| Cadmium | ELF-9 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | 0.0005 |
| Cadmium | Pooled | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | 0.0011 |
| Calcium | ELF-10 | 445 | 457 | 475 | 500 | 543 |
| Calcium | ELF-1D | 377 | 377 | 377 | 377 | 377 |
| Calcium | ELF-2 | 364 | 388 | 407 | 420 | 430 |
| Calcium | ELF-9 | 52.7 | 57.2 | 62.5 | 91.9 | 166 |
| Calcium | Pooled | 52.7 | 112 | 404 | 446 | 543 |
| Chloride | ELF-10 | 5710 | 6960 | 7340 | 7670 | 9900 |
| Chloride | ELF-1D | 6880 | 6880 | 6880 | 6880 | 6880 |
| Chloride | ELF-2 | 222 | 396.5 | 445 | 465 | 473 |
| Chloride | ELF-9 | 282 | 316 | 375 | 446 | 527 |
| Chloride | Pooled | 222 | 391 | 461 | 6880 | 9900 |
| Chromium | ELF-10 | < 0.002 | < 0.002 | 0.005 | 0.006 | 0.016 |
| Chromium | ELF-1D | < 0.002 | < 0.002 | < 0.002 | 0.002 | 0.002 |
| Chromium | ELF-2 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | 0.011 |
| Chromium | ELF-9 | < 0.002 | < 0.002 | 0.005 | 0.015 | 0.020 |
| Chromium | Pooled | < 0.001 | < 0.002 | < 0.002 | 0.006 | 0.020 |
| Cobalt | ELF-10 | < 0.004 | < 0.004 | 0.0044 | 0.0055 | 0.0079 |
| Cobalt | ELF-1D | < 0.004 | < 0.004 | < 0.005 | 0.0054 | 0.0054 |
| Cobalt | ELF-2 | < 0.004 | < 0.004 | 0.0050 | 0.0060 | 0.0114 |
| Cobalt | ELF-9 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | 0.0052 |
| Cobalt | Pooled | < 0.004 | < 0.004 | < 0.004 | 0.0055 | 0.0114 |
| Fluoride | ELF-10 | < 0.1 | <0.1 | < 0.172 | 3.97 | 4.36 |
| Fluoride | ELF-1D | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Fluoride | ELF-2 | <0.1 | <0.1 | 0.102 | 0.288 | 0.500 |
| Fluoride | ELF-9 | <0.1 | 0.276 | 1.23 | 1.43 | 1.84 |
| Fluoride | Pooled | <0.1 | <0.1 | 0.26 | 1.27 | 4.36 |
| Lead | ELF-10 | < 0.002 | < 0.002 | 0.0022 | 0.0031 | 0.012 |

| Analyte | Well | Minimum (mg/L) | First Quartile (mg/L) | Median (mg/L) | Third Quartile (mg/L) | Maximum (mg/L) |
|------------|--------|-------------------|-----------------------------|------------------|-----------------------------|-------------------|
| Lead | ELF-1D | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Lead | ELF-2 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | 0.0020 |
| Lead | ELF-9 | < 0.002 | < 0.002 | < 0.002 | 0.0046 | 0.0077 |
| Lead | Pooled | < 0.001 | < 0.002 | < 0.002 | 0.0022 | 0.012 |
| Lithium | ELF-10 | 0.841 | 1.65 | 2.09 | 2.85 | 4.59 |
| Lithium | ELF-1D | 2.12 | 2.12 | 2.16 | 2.20 | 2.20 |
| Lithium | ELF-2 | 1.34 | 1.54 | 1.76 | 3.93 | 4.93 |
| Lithium | ELF-9 | 0.724 | 0.754 | 0.801 | 1.08 | 2.48 |
| Lithium | Pooled | 0.724 | 1.100 | 1.75 | 2.20 | 4.93 |
| Molybdenum | ELF-10 | 0.0516 | 0.0707 | 0.0871 | 0.1165 | 0.1240 |
| Molybdenum | ELF-1D | 0.0165 | 0.0165 | 0.0186 | 0.0207 | 0.0207 |
| Molybdenum | ELF-2 | 0.0026 | 0.0030 | 0.0031 | 0.0038 | 0.0051 |
| Molybdenum | ELF-9 | 0.0983 | 0.1110 | 0.1220 | 0.1280 | 0.1580 |
| Molybdenum | Pooled | 0.0026 | 0.0038 | 0.0795 | 0.1170 | 0.1580 |
| pН | ELF-10 | 6.88 | 7.00 | 7.18 | 7.28 | 8.37 |
| pН | ELF-1D | 7.02 | 7.02 | 7.02 | 7.02 | 7.02 |
| pН | ELF-2 | 7.12 | 7.17 | 7.22 | 7.30 | 7.76 |
| pН | ELF-9 | 7.75 | 7.86 | 7.94 | 8.03 | 8.06 |
| pН | Pooled | 6.88 | 7.16 | 7.28 | 7.86 | 8.37 |
| Radium | ELF-10 | 0.46 | 1.67 | 2.47 | 3.26 | 14.2 |
| Radium | ELF-1D | 1.23 | 1.23 | 1.93 | 2.63 | 2.63 |
| Radium | ELF-2 | 0.61 | 0.85 | 1.25 | 2.29 | 8.10 |
| Radium | ELF-9 | 0.64 | 0.92 | 1.34 | 1.88 | 2.60 |
| Radium | Pooled | 0.46 | 0.94 | 1.38 | 2.47 | 14.2 |
| Selenium | ELF-10 | < 0.002 | < 0.005 | 0.011 | 0.152 | 0.410 |
| Selenium | ELF-1D | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Selenium | ELF-2 | 0.0319 | 0.198 | 0.450 | 0.499 | 0.608 |
| Selenium | ELF-9 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | 0.004 |
| Selenium | Pooled | < 0.002 | < 0.002 | 0.011 | 0.366 | 0.608 |
| Sulfate | ELF-10 | 10000 | 13100 | 18300 | 19900 | 20700 |
| Sulfate | ELF-1D | 7730 | 7730 | 7730 | 7730 | 7730 |
| Sulfate | ELF-2 | 6030 | 7270 | 7950 | 8165 | 8370 |
| Sulfate | ELF-9 | 5460 | 5750 | 6610 | 6900 | 8030 |
| Sulfate | Pooled | 5460 | 6900 | 7950 | 10300 | 20700 |
| TDS | ELF-10 | 35200 | 37200 | 38300 | 39600 | 40300 |
| TDS | ELF-1D | 26800 | 26800 | 26800 | 26800 | 26800 |

| Analyte | Well | Minimum (mg/L) | First Quartile (mg/L) | Median (mg/L) | Third Quartile (mg/L) | Maximum (mg/L) |
|---------|--------|-------------------|-----------------------------|------------------|-----------------------------|-------------------|
| TDS | ELF-2 | 11300 | 11450 | 11850 | 12250 | 12400 |
| TDS | ELF-9 | 9420 | 10300 | 10550 | 11900 | 12000 |
| TDS | Pooled | 9420 | 11400 | 12000 | 35300 | 40300 |

3.0 UPGRADIENT AND DOWNGRADIENT WELL COMPARISON

Groundwater quality was assessed using upper tolerance limits (UTLs) and the Maximum Contaminant Levels (MCL) for each of the Appendix III and IV analytes. The data measured from the upgradient/background wells, was used to compute a UTL, which serves as the background value. The larger of the UTL and MCL was used as the groundwater protection limit (GWPL). Data obtained from the downgradient wells were compared point-by-point to the GWPLs to determine if the site complies with the *Final Rule*. The software package Sanitas[©] v.2016, was used to compute the UTLs. 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 Groundwater Protection 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:

- \overline{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 outliers are present in the cadmium, lead, and radium data. 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 IV analytes where at least 50% of the measurements were detects. An appropriate transformation was found for calcium, lithium, and radium. Non-parametric UTLs were computed for all of the analytes except for calcium, lithium, and radium.

| Analyte | Well | W-Statistic | P-Value | Normal |
|------------------------|--------|-------------|----------|------------|
| Barium | Pooled | 0.8284 | 0.0001 | Not Normal |
| Boron | Pooled | 0.8396 | 0.0002 | Not Normal |
| Calcium | Pooled | 0.7948 | < 0.0001 | Not Normal |
| Calcium Cubed | Pooled | 0.9122 | 0.0112 | Normal |
| Chloride | Pooled | 0.6771 | < 0.0001 | Not Normal |
| Fluoride | Pooled | 0.6586 | < 0.0001 | Not Normal |
| Lithium | Pooled | 0.8742 | 0.0006 | Not Normal |
| Square Root of Lithium | Pooled | 0.9240 | 0.0147 | Normal |
| Molybdenum | Pooled | 0.8334 | 0.0001 | Not Normal |
| pН | Pooled | 0.8868 | 0.0025 | Not Normal |
| Radium | Pooled | 0.5598 | < 0.0001 | Not Normal |
| LN of Radium | Pooled | 0.9469 | 0.0769 | Normal |
| Selenium | Pooled | 0.7491 | < 0.0001 | Not Normal |
| Sulfate | Pooled | 0.7417 | < 0.0001 | Not Normal |

Table C.3. Shapiro-Wilk Test for the CCR Landfill upgradient wells.

| Analyte | Well | W-Statistic | P-Value | Normal |
|---------|--------|-------------|----------|------------|
| TDS | Pooled | 0.6812 | < 0.0001 | Not Normal |

3.1.2 Upper Tolerance Limits and Groundwater Protection Limit

This section contains the GWPL computed for each analyte. Table C.4 lists the UTL, MCL, and GWPL for each of the analytes detected in the upgradient wells. The following criteria was used for determining each GWPL:

- 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 nondetects, the greater of the larger MDL and maximum detected value was used as the UTL.
- If all of the upgradient samples were non-detects, the largest MDL was used as the UTL.
- The larger of the MCL and the UTL was used as the GWPL.

Graphs were constructed for each of the analytes that had at least one detectable measurement in the downgradient wells. The graphs illustrate the GWPL as a horizontal line with the measurements from each of the downgradient wells plotted on the same graph. Non-detects are represented by hollow gray circles on the graphs. These graphs clearly depict how the downgradient measurements compare to the GWPL. Results above the GWPL line represent values exceeding the GWPL. As the graphs illustrate, boron, calcium, cobalt, lithium, molybdenum, sulfate, and total dissolved solids exceed the GWPL. Table C.4 list the GWPLs and the wells that exceed for each analyte and list the downgradient wells that exceed the UTLs (Figure C.4). UTL plots are not provided for analytes that were not detected in any downgradient samples.

| Analyte Background Upper Tolerance Limit (mg/L) | | Downgradient Wells Exceeding Background |
|--|--------|---|
| Boron | 5.0 | ELF-11, ELF-5, ELF-6, ELF-8 |
| Calcium | 544 | ELF-8 |
| Chloride | 9,900 | Within Limit |
| Fluoride | 4.36 | Within Limit |
| pH Basic Range | 8.37 | Within Limit |
| pH Acidic Range | 6.99 | Within Limit |
| Sulfate | 20,700 | ELF-3 |
| TDS | 40,300 | ELF-3 |

Table C.4A. Appendix III, comparison of downgradient wells to background.

| Analyte | Background Upper Tolerance Limit (mg/L) | MCL (mg/L) | Groundwater Protection Standard (mg/L) | Downgradient Wells Exceeding the Groundwater Protection Standard |
|------------|--|---------------|---|--|
| Antimony | 0.004 | 0.006 | 0.006 | Within Limit |
| Arsenic | 0.012 | 0.01 | 0.012 | Within Limit |
| Barium | 0.10 | 2.00 | 2.00 | Within Limit |
| Beryllium | 0.002 | 0.004 | 0.004 | Within Limit |
| Cadmium | 0.001 | 0.005 | 0.005 | Within Limit |
| Chromium | 0.020 | 0.1 | 0.1 | Within Limit |
| Cobalt | 0.011 | 0.006 | 0.011 | ELF-11, ELF-3, ELF-6, ELF-8 |
| Fluoride | 4.36 | 4 | 4.36 | Within Limit |
| Lead | 0.012 | 0.015 | 0.015 | Within Limit |
| Lithium | 4.94 | 0.04 | 4.94 | ELF-6 |
| Mercury | 0.0002 | 0.002 | 0.002 | Within Limit |
| Molybdenum | 0.16 | 0.1 | 0.16 | ELF-8 |
| Radium | 7.62 | 5.0 | 7.62 | Within Limit |
| Selenium | 0.61 | 0.05 | 0.61 | Within Limit |
| Thallium | 0.002 | 0.002 | 0.002 | Within Limit |

Table C.4B. Appendix IV, comparison of downgradient wells to background.

4.0 CONCLUSIONS

Groundwater data was collected from CCR Landfill monitoring network on 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. Statistically significant increases above background were noted for Appendix III constituents: boron, calcium, sulfate, and TDS. Appendix IV constituents, cobalt, lithium, and molybdenum exceeded their groundwater protection standards in wells downgradient of the CCR Landfill.

5.0 **REFERENCES**

- EPA, 2009, "Statistical Analysis Of Groundwater Monitoring Data At RCRA Facilities Unified Guidance," EPA 530/R-09-007, U.S. Environmental Protection Agency, March 2009.
- Helsel, Dennis, 2004, *Nondetects and Data Analysis: Statistic for Censored Environmental Data*, New York: Wiley Interscience.
- R Core Team, 2018, *R: A Language and Environment for Statistical Computing*, <u>https://www.R-project.org</u>, R Foundation for Statistical Computing, Vienna, Austria.

Sanitas Technologies, 2016, Sanitas, www.sanitastech.com, Shawnee, Kansas.

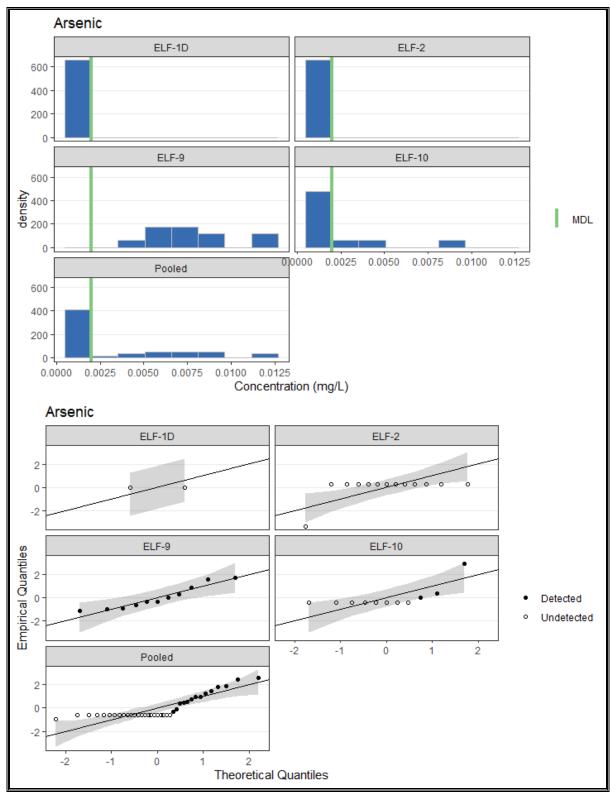


Figure C.3. Summary statistics plots for the CCR Landfill.

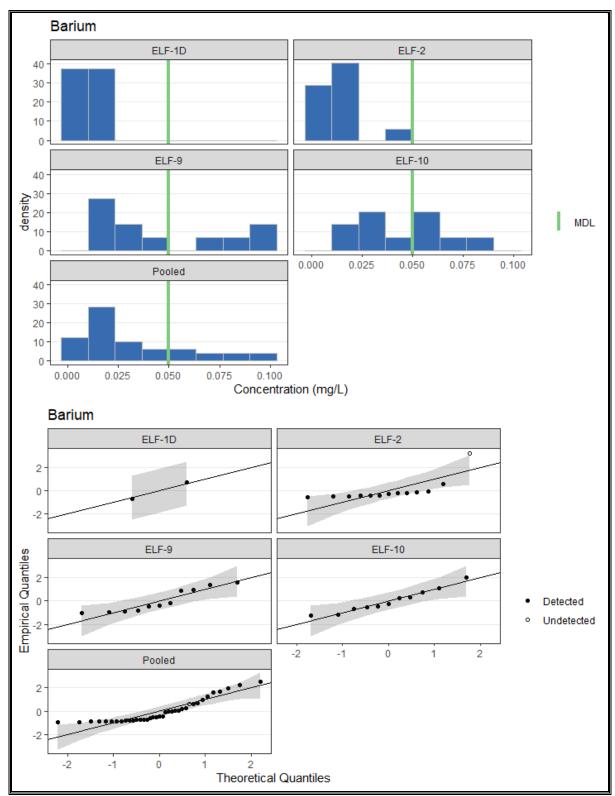


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

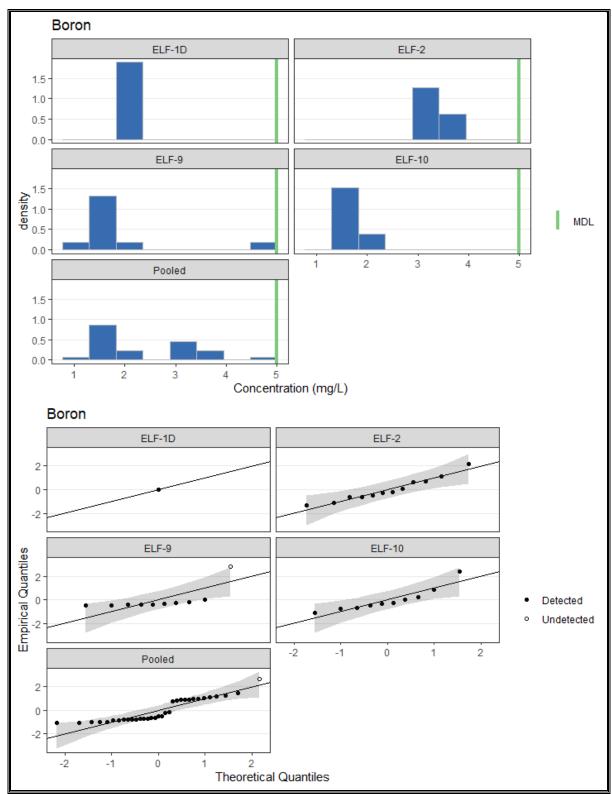


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

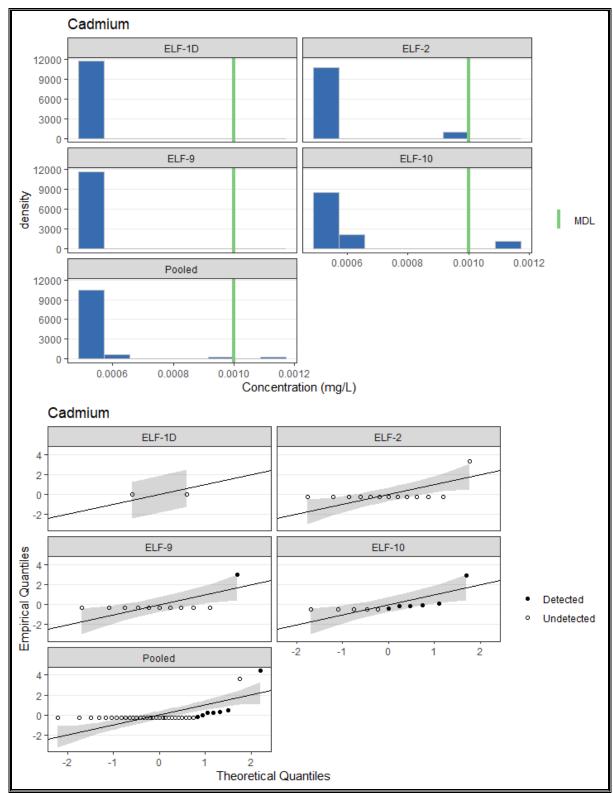


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

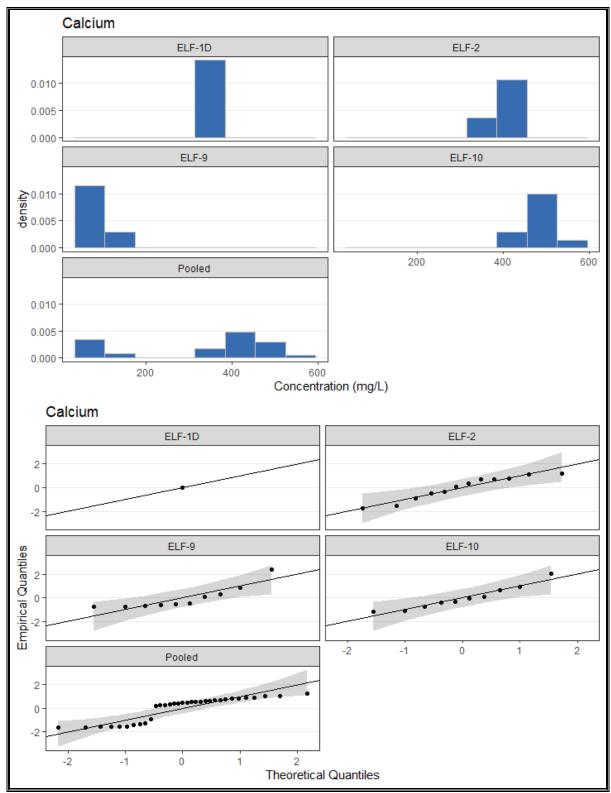


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

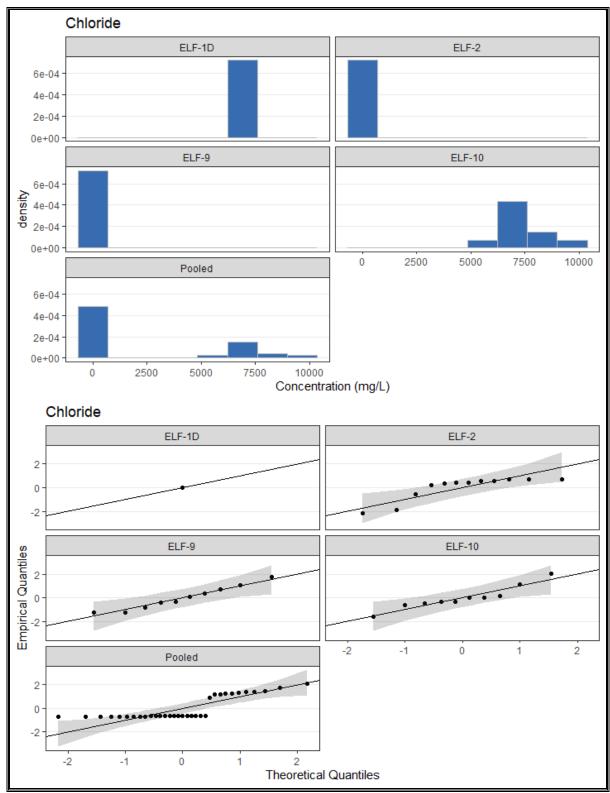


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

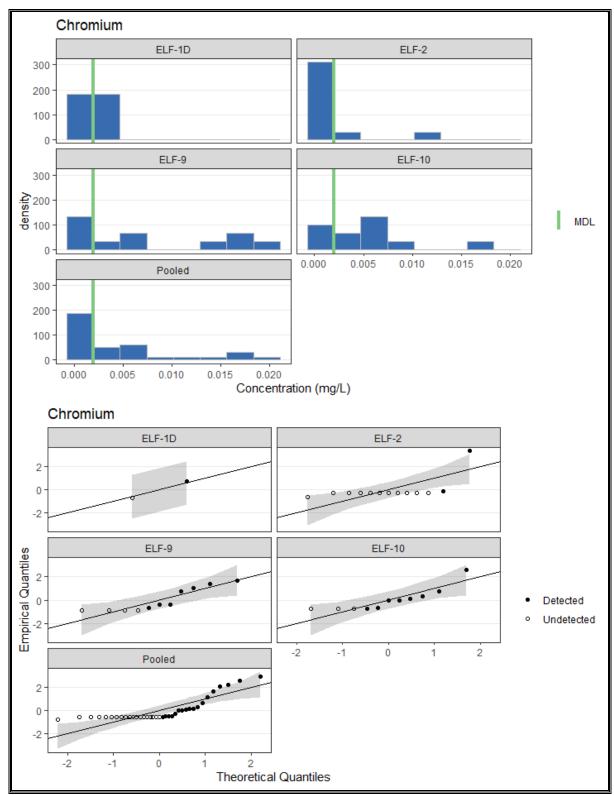


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

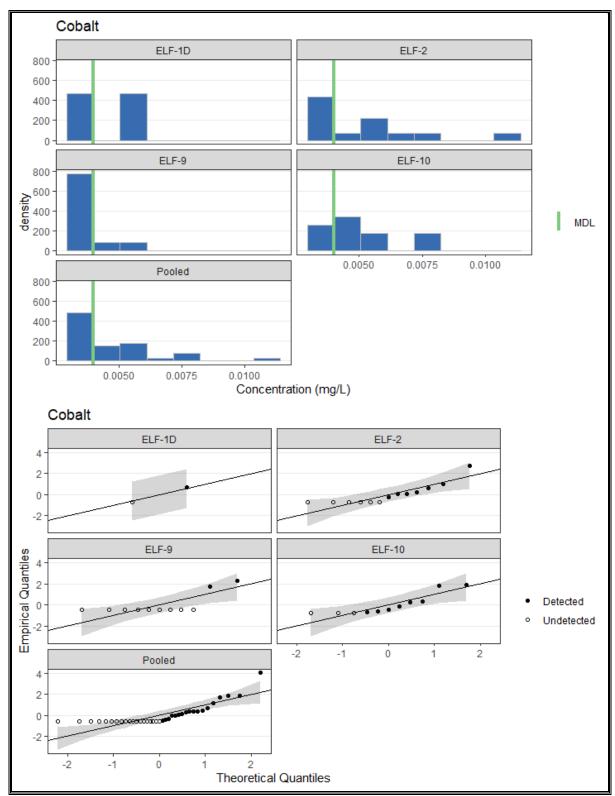


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

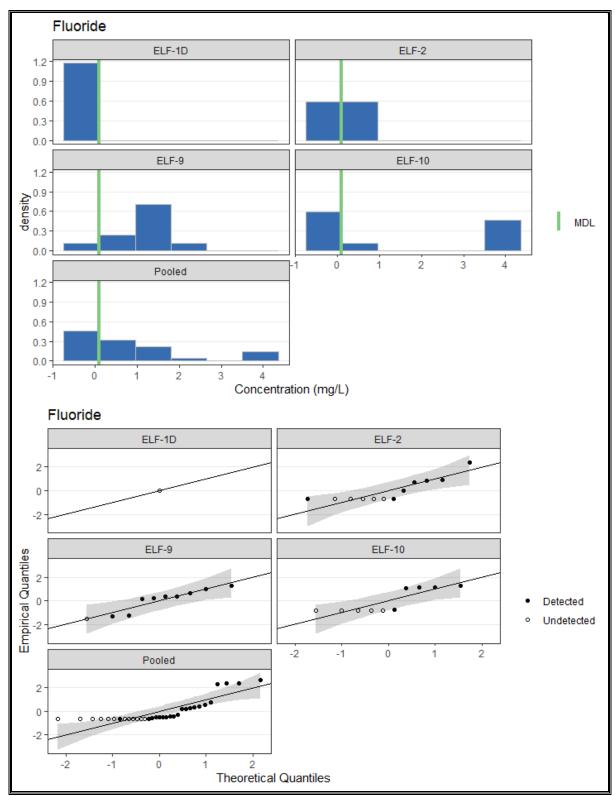


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

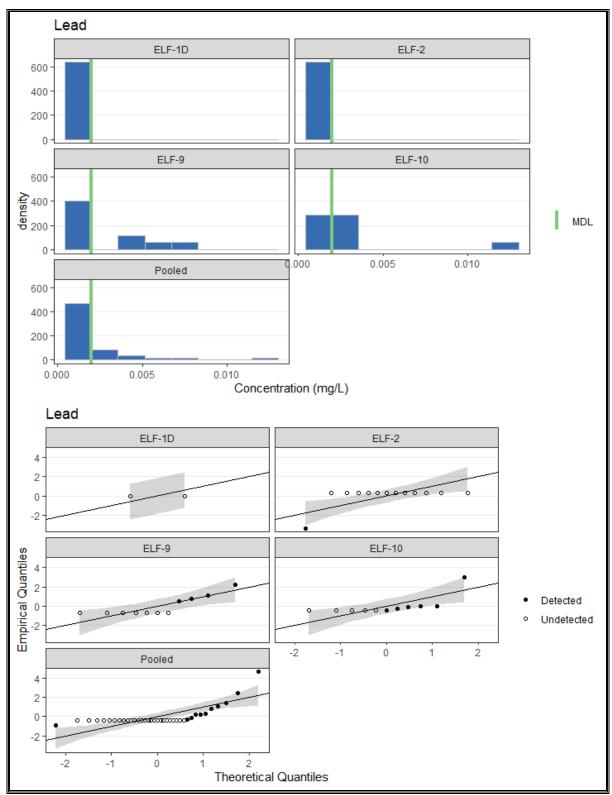


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

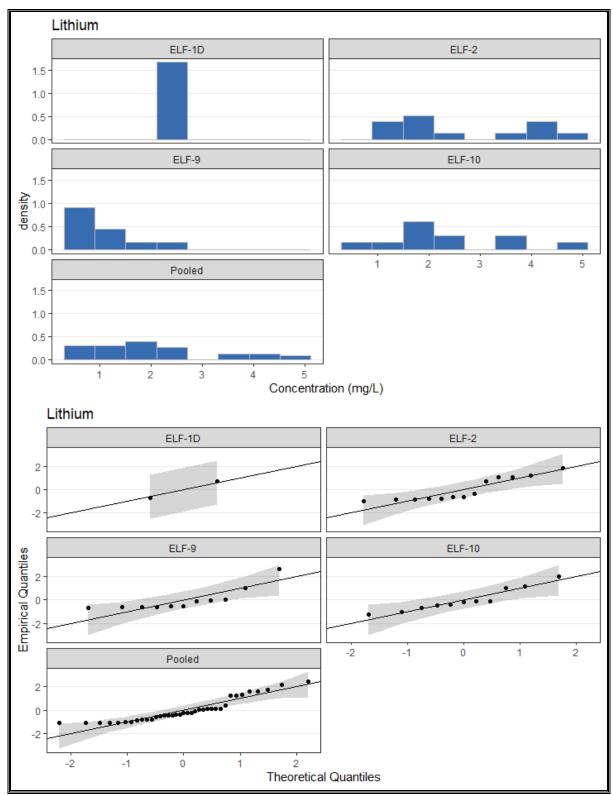


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

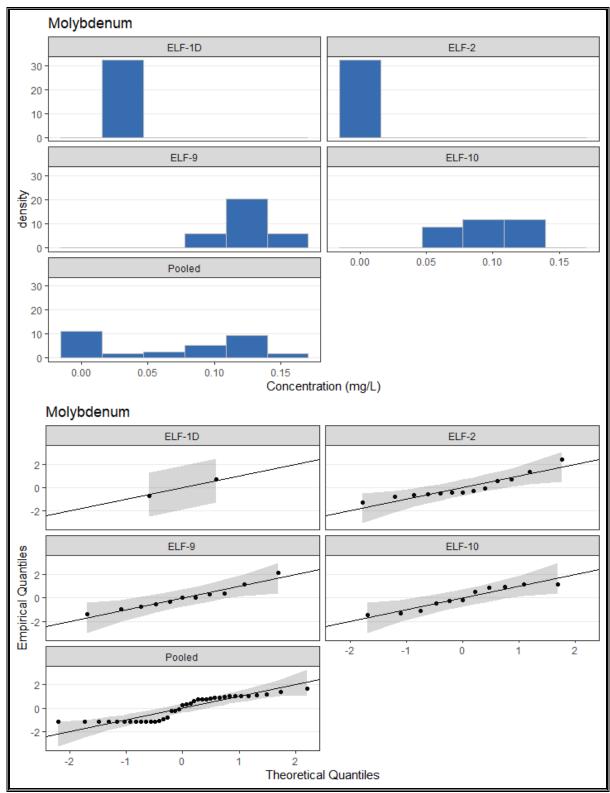


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

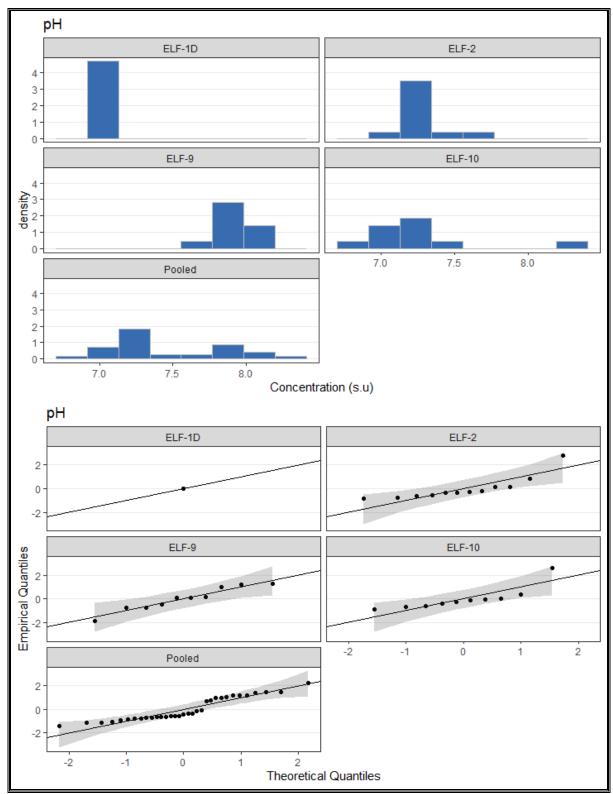


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

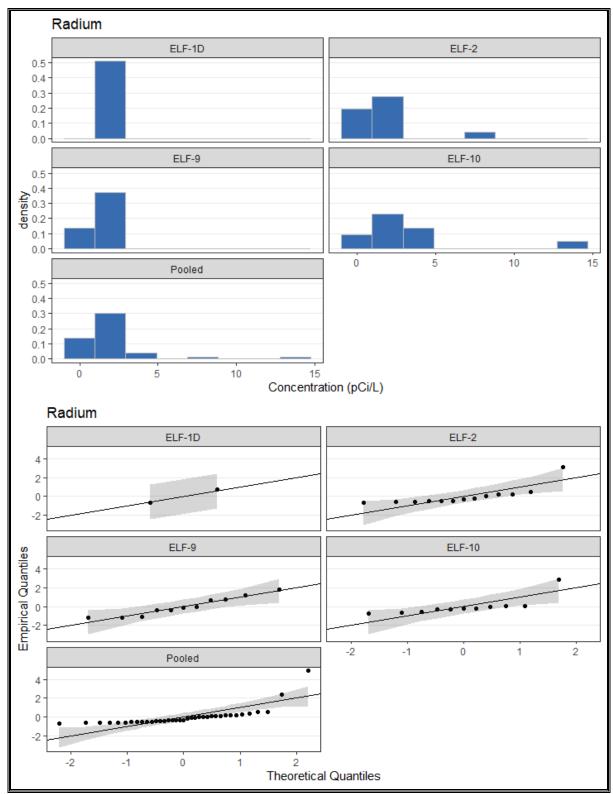


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

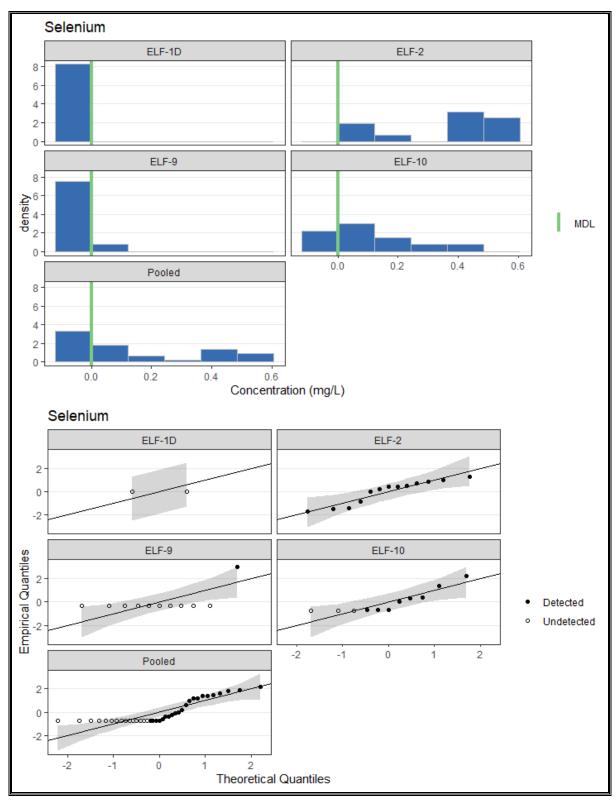


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

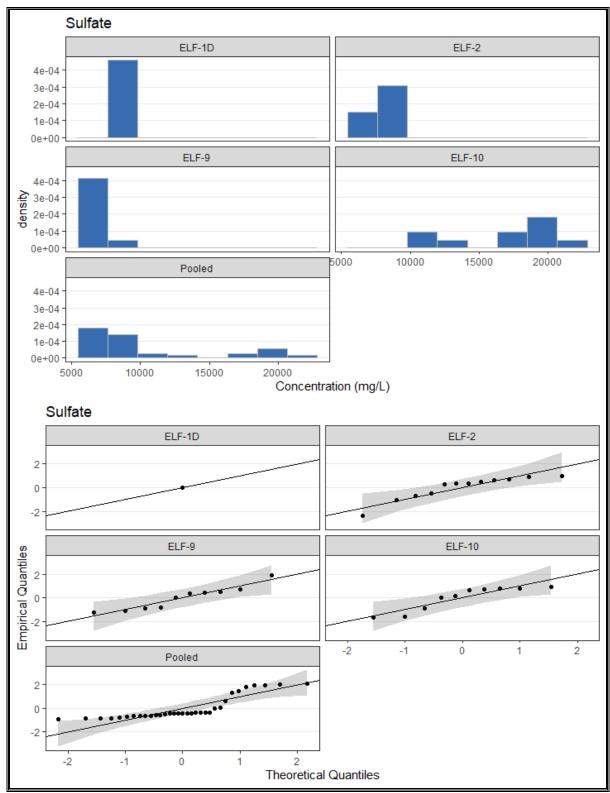


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

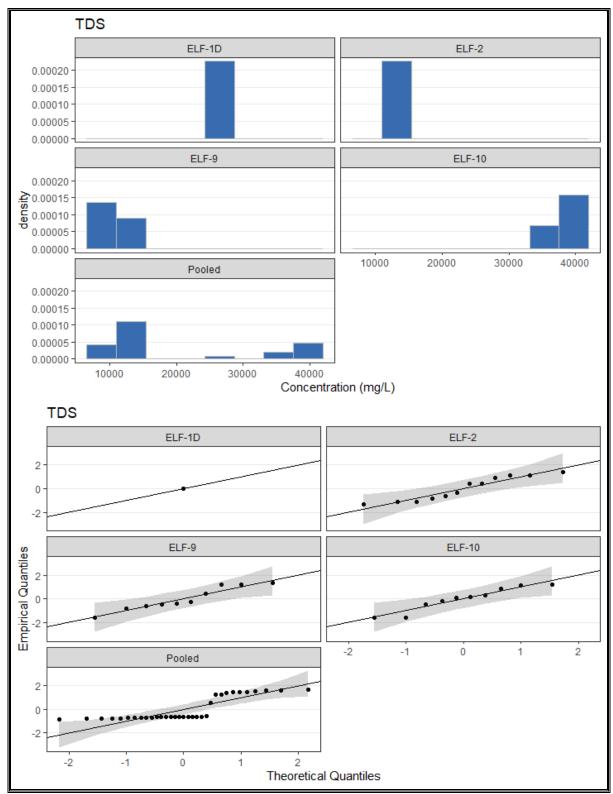


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

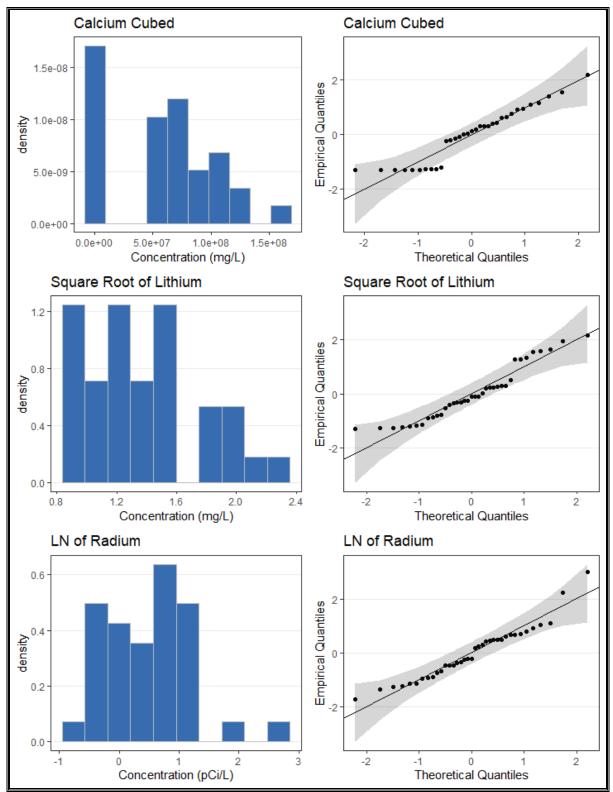


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

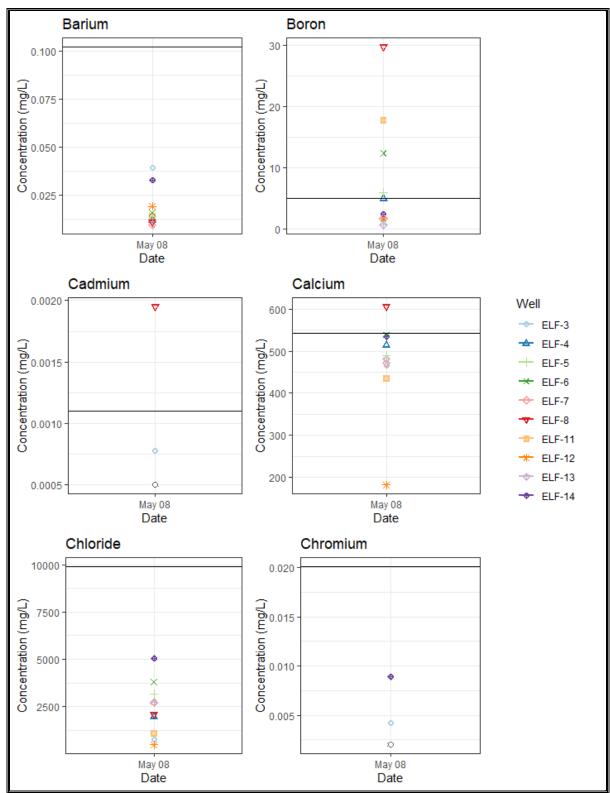


Figure C.4. Upper tolerance limit plots for the CCR Landfill.

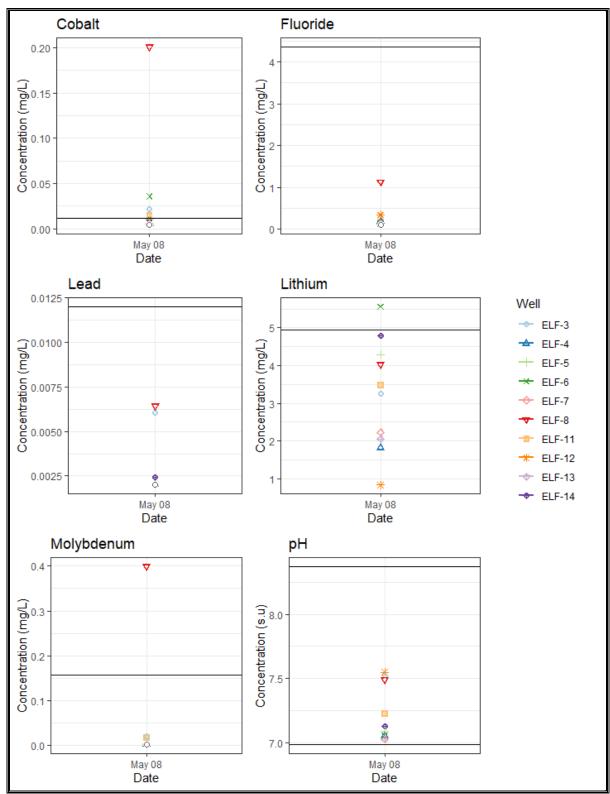


Figure C.4 (cont). Upper tolerance limit plots for the CCR Landfill.

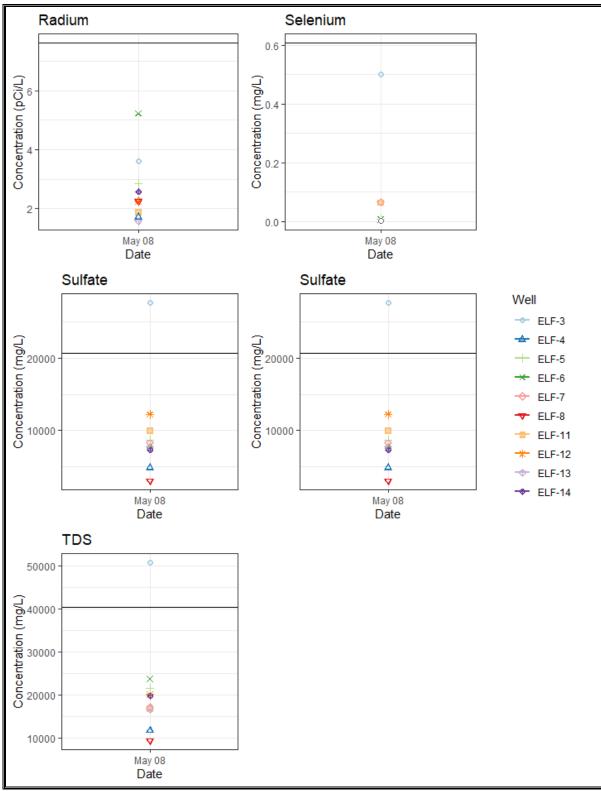


Figure C.4 (cont). Upper tolerance limit plots for the CCR Landfill.



Attachment D:

Field Data Sheets



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | DB | Project Number: | PERCM052 | | |
| Sample ID: | ELF-14 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | Partly cloudy 50 degrees F | | | | |
| Depth to Water (ft): | 6.07 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | ТЕМР (С) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 9.00 | 23,676 | 61.30 | 6.52 | 216.80 | 999.00 |
| 2 | 9.00 | 23,923 | 55.60 | 6.72 | 215.00 | 999.00 |
| 5 | 8.90 | 24,041 | 53.50 | 6.78 | 212.30 | 999.00 |
| 8 | 9.00 | 24,219 | 48.80 | 6.83 | 208.00 | 999.00 |
| 11 | 9.00 | 24,248 | 46.20 | 6.84 | 204.00 | 999.00 |

| opendix: 3_4 Sample T | | Sample Time: | ple Time: 09:15 | | |
|-----------------------|--|---------------|-----------------|---------------------------------------|--|
| 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 | | Nitrate + Nitrite | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | |

Comments/Observations:

Percent DO recorded instead of mg/l



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|------------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | DB | Project Number: | PERCM052 | | |
| Sample ID: | ELF-13 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | Sunny 58 degrees F and clear skies | - | | | |
| Depth to Water (ft): | 3.10 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 8.30 | 20,411 | 2.76 | 6.38 | 204.10 | 13.80 |
| 2 | 8.30 | 20,396 | 1.89 | 6.48 | 202.50 | 13.80 |
| 6 | 8.40 | 20,398 | 1.63 | 6.52 | 199.50 | 3.00 |
| | | | | | | |
| | | | | | | |

| SAMPLE COLLECTION | | | | | | |
|----------------------------|--|---------------|--|---------------------------------------|---|--|
| Appendix: 3_4 Sample Time: | | 10:00 | | | | |
| 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 | | Nitrate + Nitrite | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | 7 | |



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | DB | Project Number: | PERCM052 | | |
| Sample ID: | ELF-12 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | Sunny 70 F clear skies | - | | | |
| Depth to Water (ft): | 19.59 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 11.40 | 22,583 | 0.45 | 6.94 | 77.80 | 218.00 |
| 3 | 11.40 | 22,586 | 0.72 | 7.01 | 53.30 | 218.00 |
| 6 | 11.30 | 22,584 | 0.57 | 7.03 | 31.50 | 71.00 |
| | | | | | | |
| | | | | | | |

| SAMPLE COLLECTION | | | | | | | |
|--|---|---------------|--|---------------------------------------|---|--|--|
| Appendix: 3_4 Sample Time: 10:45 | | | | | | | |
| 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 | | Nitrate + Nitrite | | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | 7 | | |



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | DB | Project Number: | PERCM052 | | |
| Sample ID: | ELF-11 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | Sunny 70 degrees some clouds | | | | |
| Depth to Water (ft): | 28.10 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 12.80 | 18,400 | 0.64 | 6.63 | 136.60 | 88.70 |
| 3 | 12.90 | 16,482 | 0.48 | 6.68 | 133.70 | 88.70 |
| 6 | 12.90 | 16,744 | 0.24 | 6.69 | 132.00 | 53.70 |
| | | | | | | |
| | | | | | | |

| SAMPLE COLLECTION | | | | | | |
|--|---|---------------|--|---------------------------------------|--|--|
| Appendix: 3_4 Sample Time: 11:15 | | | | | | |
| 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 | | Nitrate + Nitrite | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | |



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | DB | Project Number: | PERCM052 | | |
| Sample ID: | ELF-8 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | Cloudy 70 F | - | <u>.</u> | | |
| Depth to Water (ft): | 8.49 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 11.50 | 11,319 | 0.07 | 6.21 | 138.20 | 53.70 |
| 2 | 11.00 | 11,162 | 0.13 | 6.66 | 137.70 | 53.70 |
| 6 | 10.90 | 11,171 | 0.09 | 6.77 | 136.80 | 3.72 |
| | | | | | | |
| | | | | | | |

| SAMPLE COLLECTION | | | | | | | |
|-------------------|-----|---------------|--------------|---------------------------------------|--|--|--|
| Appendix: | 3_4 | | Sample Time: | | | | |
| 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 | | Nitrate + Nitrite | | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | | |



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | MLS | Project Number: | PERCM052 | | |
| Sample ID: | ELF-6 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | Overcast, WINDY | | | | |
| Depth to Water (ft): | 17.62 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|--|--|-------------|----------------|--|
| TIME (min) | TEMP (C) | | | ORP (mv) | Turb. (NTU) | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| ppendix: | ppendix: 3_4 Sample T | | | nple Time: 12:30 | | | |
|------------------|-----------------------|---------------|--|---------------------------------------|---|--|--|
| 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 | | Nitrate + Nitrite | | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | 7 | | |

Comments/Observations:

WATER LEVEL AT VERY BOTTOM OF WELL. VERY SLOW PUMPING. WELL MIGHT NEED TO BE DEEPENED



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | DB | Project Number: | PERCM052 | | |
| Sample ID: | ELF-5 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | Cloudytrce rain 55 F | | | | |
| Depth to Water (ft): | 18.58 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 11.10 | 24,996 | 3.04 | 6.48 | 27.80 | 9.48 |
| 2 | 11.00 | 24,555 | 2.33 | 6.54 | 21.50 | 9.48 |
| 7 | 10.90 | 24,038 | 2.10 | 6.58 | 17.30 | 2.45 |
| | | | | | | |
| | | | | | | |

| SAMPLE COLLECTION | | | | | | |
|----------------------------|---|---------------|--|---------------------------------------|---|--|
| Appendix: 3_4 Sample Time: | | 12:45 | | | | |
| Containers | | Preservatives | | Analytes/Comments | | |
| (1) 1/2 gal poly HNO3 | | HNO3 | | Radium 226 + 228 | | |
| (1) 250 mL poly | 1 | HNO3 | | Total metals, Total mercury | | |
| (1) 250 mL poly | 1 | H2SO4 | | Nitrate + Nitrite | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | 7 | |



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | DB | Project Number: | PERCM052 | | |
| Sample ID: | ELF-4 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | Overcast 60 F | | | | |
| Depth to Water (ft): | 16.49 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 10.90 | 14,871 | 0.82 | 6.26 | 113.90 | 20.60 |
| 2 | 10.90 | 14,860 | 0.43 | 6.39 | 112.20 | 20.60 |
| 7 | 10.90 | 14,861 | 0.31 | 6.43 | 111.00 | 9.72 |
| | | | | | | |
| | | | | | | |

| SAMPLE COLLECTION | | | | | |
|--|-----------------------|----------------------------------|--|---------------------------------------|--|
| Appendix: 3_4 Sample Time: 13:30 | | | | | |
| Containers | | Preservatives | | Analytes/Comments | |
| (1) 1/2 gal poly | (1) 1/2 gal poly HNO3 | | | Radium 226 + 228 | |
| (1) 250 mL poly | | HNO3 Total metals, Total mercury | | | |
| (1) 250 mL poly | | H2SO4 | | Nitrate + Nitrite | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | |



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | DB | Project Number: | PERCM052 | | |
| Sample ID: | ELF-7 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | Sunny clear skies 70F | | | | |
| Depth to Water (ft): | 14.86 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 11.20 | 21,688 | 1.49 | 6.37 | 133.40 | 110.00 |
| 2 | 11.20 | 21,727 | 0.50 | 6.42 | 132.10 | 110.00 |
| 4 | 60.90 | 21,726 | 0.33 | 6.45 | 131.00 | 40.40 |
| 6 | 11.10 | 21,707 | 0.24 | 6.46 | 130.20 | 35.30 |
| | | | | | | |

| SAMPLE COLLECTION | | | | | | | |
|-------------------|-----|---------------|--------------------|---------------------------------------|--|--|--|
| Appendix: | 3_4 | | Sample Time: 14:00 | | | | |
| 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 | | Nitrate + Nitrite | | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | | |

Comments/Observations:



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | DB | Project Number: | PERCM052 | | |
| Sample ID: | ELF-3 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | Cloudy 60F | - | | | |
| Depth to Water (ft): | 31.75 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 12.70 | 43,859 | 6.28 | 6.39 | 149.30 | 124.00 |
| | 12.40 | 44,418 | 5.45 | 6.77 | 151.70 | 124.00 |
| 4 | 12.20 | 53,675 | 4.18 | 6.85 | 152.20 | 74.20 |
| 6 | 12.20 | 44,478 | 4.28 | 6.89 | 152.20 | 58.10 |
| | | | | | | |

| ppendix: | andix: 3_4 | | Sample Time: | 14:30 | | |
|------------------|------------|---------------|--------------|---------------------------------------|--|--|
| 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 | | Nitrate + Nitrite | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | |

Comments/Observations:

Samples taken before parameters stabilized due to high likelihood of well going dry during pumping.



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | DB | Project Number: | PERCM052 | | |
| Sample ID: | ELF-10 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | OVERCAST, WINDY | | | | |
| Depth to Water (ft): | 48.77 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 12.00 | 45,260 | 2.46 | 6.32 | 160.40 | 409.00 |
| 2 | 12.00 | 45,259 | 1.34 | 6.33 | 159.50 | 409.00 |
| 6 | 12.00 | 45,308 | 0.95 | 6.32 | 157.90 | 419.00 |
| | | | | | | |
| | | | | | | |

| SAMPLE COLLECTION | | | | | | |
|-------------------|-----|---------------|--------------|---------------------------------------|---|--|
| Appendix: | 3_4 | | Sample Time: | 15:00 | | |
| 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 | | Nitrate + Nitrite | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | 7 | |

Comments/Observations:

Duplicate sample taken at 1520. Tagged top of pump for final depth to water. Well was barely able to produce a duplicate sample. Was pumping very slowly



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | MLS | Project Number: | PERCM052 | | |
| Sample ID: | ELF-9 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | OVERCAST, WINDY | - | | | |
| Depth to Water (ft): | 23.24 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 11.20 | 13,370 | 5.16 | 6.54 | 119.80 | 352.00 |
| 2 | 11.20 | 15,710 | 0.62 | 6.98 | 68.60 | 352.00 |
| 4 | 11.20 | 15,029 | 0.37 | 7.11 | 75.60 | 33.30 |
| 6 | 11.10 | 14,555 | 0.27 | 7.18 | 18.00 | 8.50 |
| | | | | | | |

| ppendix: | ppendix: 3_4 | | ample Time: | 16:30 | | |
|------------------|--------------|---------------|-------------|---------------------------------------|--|--|
| 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 | | Nitrate + Nitrite | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | |

Comments/Observations:



| Project Name: | Hunter Power Plant CCR Monitoring | | |
|----------------------|-----------------------------------|-------------------|---------------------|
| Sampler Initials: | MLS | Project Number: | PERCM052 |
| Sample ID: | ELD-1D | Project Location: | Castle Dale UT |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment |
| Field Conditions: | OVERCAST, RAINY | - | - |
| Depth to Water (ft): | 81.81 | | |

| | | | FIELD PARAME | ETERS | | |
|---------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 12.10 | 34,027 | 1.15 | 6.22 | 144.80 | 33.60 |
| 2 | 12.00 | 34,259 | 0.60 | 6.40 | 139.20 | 33.60 |
| 4 | 12.00 | 34,294 | 0.49 | 6.43 | 136.30 | 6.99 |
| 6 | 12.00 | 34,307 | 0.45 | 6.46 | 133.30 | 6.02 |
| | | | | | | |

| | | | SAMPI | LE COLLECTION | |
|------------------|-----|---------------|--------------|---------------------------------------|---|
| Appendix: | 3_4 | | Sample Time: | 16:35 | |
| 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 | | Nitrate + Nitrite |] |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity |] |

Comments/Observations:

BOTTLES FIILLED FIRST, THEN PARAMETERS WERW TAKEN IN ANTICIPATION OF WELL GOING DRY FEOM HISTORICAL EXPERIENCE WITH THIS WELL. TAGGED TOP OF PUMP FOR FINAL DTW. WELL WAS PRODUCING VERY SLOWLY



| Project Name: | Hunter Power Plant CCR Monitoring | | |
|----------------------|-----------------------------------|-------------------|---------------------|
| Sampler Initials: | MLS | Project Number: | PERCM052 |
| Sample ID: | ELF-2 | Project Location: | Castle Dale UT |
| Water Disposal: | Ground | Sample Date: | 5/7/2019 |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment |
| Field Conditions: | OVERCAST, WINDY | | |
| Depth to Water (ft): | 22.53 | | |

| | | | FIELD PARAMI | ETERS | | |
|---------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 11.90 | 13,516 | 1.42 | 6.30 | 120.10 | 56.30 |
| 2 | 11.90 | 13,507 | 0.98 | 6.42 | 120.40 | 56.30 |
| 4 | 11.90 | 13,507 | 0.76 | 6.57 | 120.50 | 4.56 |
| 6 | 11.90 | 13,509 | 0.70 | 6.58 | 120.30 | 4.93 |
| | | | | | | |

| Appendix: | 3_4 | | Sample Time: | 17:30 | |
|------------------|-----|---------------|--------------|---------------------------------------|--|
| 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 | | Nitrate + Nitrite | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | |

Comments/Observations:



Attachment E:

Laboratory Analytical Reports



Radium-226

Case Narrative

American West Analytical Labs

Hunter CCR Groundwater Sampling – PERCM052

Work Order Number: 1905234

- 1. This report consists of the analytical results for 16 water samples received by ALS on 05/13/2019.
- 2. These samples were prepared and analyzed according to the current revision of SOP 783. Modifications were made to the method for samples 1905234-1, -6, -7, and -15 as described on QASS 458103. The analyses were completed on 06/03/2019.
- 3. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.
- 4. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate in both batches.
- ALS uses the following convention for reporting significant digits in the TPU and MDC results. The TPU value is rounded to two significant digits. The MDC value is rounded to the same decimal place as the TPU value. In practice, this could result in an MDC reported value of zero for samples with significant activity, including the batch laboratory control sample.
- 6. No anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.



The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

yee 1 men Pik Yee Yuen

Radiochemistry Primary Data Reviewer

M.W-

Radiochemistry Final Data Reviewer

<u>6/6/19</u> Date

6/10/19

Date

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1905234 Client Name: American West Analytical Labs Client Project Name: Hunter CCR Groundwater Sampling Client Project Number: PERCM052 Client PO Number: 1905216

| Client Sample Number | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|-------------------------|----------------------|------------|--------|-------------------|-------------------|
| ELF-1D | 1905234-1 | | WATER | 08-May-19 | 16:35 |
| ELF-2 | 1905234-2 | | WATER | 08-May-19 | 17:30 |
| ELF-3 | 1905234-3 | | WATER | 08-May-19 | 14:30 |
| ELF-4 | 1905234-4 | | WATER | 08-May-19 | 13:30 |
| ELF-5 | 1905234-5 | | WATER | 08-May-19 | 12:45 |
| ELF-6 | 1905234-6 | | WATER | 08-May-19 | 12:30 |
| ELF-7 | 1905234-7 | | WATER | 08-May-19 | 14:00 |
| ELF-8 | 1905234-8 | | WATER | 08-May-19 | 11:45 |
| ELF-9 | 1905234-9 | | WATER | 08-May-19 | 16:30 |
| ELF-10 | 1905234-10 | | WATER | 08-May-19 | 15:00 |
| ELF-11 | 1905234-11 | | WATER | 08-May-19 | 11:15 |
| ELF-12 | 1905234-12 | | WATER | 08-May-19 | 10:45 |
| ELF-13 | 1905234-13 | | WATER | 08-May-19 | 10:00 |
| ELF-14 | 1905234-14 | | WATER | 08-May-19 | 9:15 |
| DUP | 1905234-15 | | WATER | 07-May-19 | 15:20 |
| FB | 1905234-16 | | WATER | 08-May-19 | 12:00 |

| American West | est | | | | | CHAIN | CHAIN OF CUSTODY | | Musay |
|---|-------------------------------------|---------------------------|-------------|---------------------|---|---|--|---|--|
| Analyucal Laboratories 3440.5.700 W. Salt Lake City. UT 84119 Phone # (801) 263-8585 Toil Free # (858) 253-8586 | atories r 84119 888) 263-8686 | | II | analysis y repoi | will be conducted using rting limits (PQL) unles | g NELAP accredited meth ss specifically requested of | ods and all data will herwise on this Cha | 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 # Pace 1 of 2 |
| Fax # (801) 263-8687 Email awal@awal-labs.com | awal-labs.com | | | ð | QC Level: | Tum Aro | Turn Around Time: | Unless other arrangements have been made, signed | Due Date: |
| www.awal-labs.com | в | | | | 2+ | Standard | lard | reports will be emailed by 5:00 ptm on the day they are due. | |
| Client: American West Analytical Laboratories | | | | ┝─ | | | | C Report down to the MDL | Laboratory Use Only |
| Address: 3440 S. 700 W. | | | | | | | | | CTOT Taxes West |
| City, State, Zip: Salt Lake City , UT 84119 | | | | | | | | Field Filtered For: | 1 Present on Outer Package |
| Contact: Elona Hayward | | | | | | | | | 2 Unhmken im Outer Parkase |
| Phone #: (801) 263-8686 Cell #: | | | | | | | | | A N NA |
| E-mail: elona@awal-labs.com; denise@awal-labs.com | | | | | pəui | | | | 3 Present on Sample |
| Project Name: Hunter CCR Groundwater Sampling | | | | | | | | | Turbutur an Court |
| Project #: PERCM052 | | | | 0 00 | 23.87 | | | D Non Compliance | |
| PO#: 1905216 | | | \$ | | 7 PUE | | | Cher: | Samples Were |
| Sampler Name: | | | tənistr | xinteN | : 526 | | | Known Hararde | 1 Shipped or hand delivered |
| | Date | Time | roD | | wnt | | | | 2 Ambient or Chilled |
| Sample ID: | Sampled | Sampled | 30 # | _ | D & M | | | Sample Comments | 103 Temperature |
| ELF-1D | 5/8/2019 | 16:35 | 1 | × M | × | | | | Preceived Inhact |
| ELF-2 | 5/8/2019 | 17:30 | 2 | M | × | | | | |
| 3 ELF-3 | 5/8/2019 | 14:30 | 2 | M | × | | | | |
| ▲ ELF-4 | 5/8/2019 | 13:30 | 2 | M | × | | | | 5 Property Preserved Y N Checked at bench |
| S ELF-5 | 5/8/2019 | 12:45 | 2 | M | × | | | | |
| © ELF-6 | 5/8/2019 | 12:30 | - | 3 | × | | | | |
| Z ELF-7 | 5/8/2019 | 14:00 | - | 3 | × | | | | 6 Received Within Holdine Times |
| S ELF-8 | 5/8/2019 | 11:45 | ы | 3 | × | | | | N N |
| ELF-9 | 5/8/2019 | 16:30 | 2 | 3 | × | | | | |
| ÉLF-10 | 5/8/2019 | 15:00 | 2 | 3 | × | | | | |
| n ELF-11 | 5/8/2019 | 11:15 | 2 | 3 | × | | | | Sample Labets and COC Record Match? |
| BLF-12 | 5/8/2019 | 10:45 | 2 | 3 | × | | | | × |
| J LF-13 | 5/8/2019 | 10:00 | 2 | 3 | × | | | | |
| jt.F-14 | 5/8/2019 | 9:15 | 2 | 3 | × | | | | |
| 13 Dur | 5/7/2019 | 15:20 | - | 3 | × | | | | |
| Retinguished by KUMAQAPAQA | | Received by: Signature | | NL | 2 | | 5-13-10 | Special Instructions: | |
| Print Name ILEMSE BOLIND | 06', pm | Print Name: | KEL | | - AFRI SHIT | | 77mm | QC 2+ = Final Report, COC, surrogate, recoveries, MB, LCS, | gate, recoveries, MB, LCS, |
| celinquished by: signature | | Received by: Signature | | ľ | | | Date: | MS/MSD performed on customer sample | r sample |
| trint Name. | | Print Name. | | | | | Time: | | |
| telinquished by: Signature | Date: | Received by: Signature | | | | | Date: | Samples sent to ALS - Ft. Collins. | |
| Print Name. | Time: | Print Name: | | | · · | | Time: | | |

| American West Analytical Laboratories | est atories | | | | CHA] | CHAIN OF CUSTODY | CUST(| | 1905134 |
|--|---------------------------------------|---------------------------|-------------------|---|---|---------------------------------|-------------------------------------|---|--|
| 3440 S. 700 W. Salt Lake City, UT 84119 Phone # (801) 263-8686 Toll Free # (888) 263-8686 | T 84119 888) 26 3-8 686 | • | All analy r | sis will be conducted porting limits (PQL) | l using NELAP accredite unless specifically requ | d methods and sted otherwise | all data will be on this Chain e | 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 2 of 2 |
| Fax # (801) 263-8657 Email aval@awai-labs.com | awal-labs.com | | | QC Level: | Тип | Tum Around Time: | ime | Unless other arrangements have been made, signed reports will be emailed by | Due Da |
| www.awal-labs.com | E | | | 2+ | | Standard | | 5:00 pm on the day they are due. | |
| Client: American West Analytical Laboratories | | | | | | | | Report down to the MDL Include FDD. | Laboratory Use Only |
| Address: 3440 S. 700 W. | | | | | | | | □ Lab Filter for: | |
| City, State, Zip: Salt Lake City , UT 84119 | | | | | | | | Field Filtered For: | 1 Present on Outer Package |
| Contact: Elona Hayward | | | | | | | | | uter Packa |
| Phone #: (801) 263-8686 Cell #: | | | | | | | | For Compliance With: | |
| E-mail: elona@awal-labs.com; denise@awal-labs.com | | | | bəni | | | | | 3 Present on Sample Y |
| Project Name: Hunter CCR Groundwater Sampling | | | | qwo | | | | | 4 Unbroten on Samula |
| Project #. PERCM052 | | | | C) 827 | | | | | |
| PO.F. 1905216 | | | | z put | | | | | Samiles Weere |
| Sampler Name: | | | rəninər XirteM | 977 1 | | | | Known Hazarde | 1 Shipped or hand delivered |
| | Date | Time | | muit | | | | | 2 Ambient or Chilled |
| Sample ID: | Sampled | Sampled | _ | Rad | | | | Sample Comments | 3 Temperature |
| 16)38 Hord Alla | ` | 14:00 | 2 W | x | | | | | 4 Received Intact |
| | 6/8/16 | 1200 | | | | | | | × |
| | | | | | | | _ | | |
| | | | | | | | | | 5 Properly Preserved Y N Checked at bench |
| - 8 | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | 6 Received Within Holding Times |
| | | | | | | | | | Ζ. |
| | | | | | | | | | |
| 0 | | | _ | | | | | | |
| | | | | | | | _ | | Sample Labels and COC Record Match? |
| | | | | | | | - | | - |
| | | | + | - | | | | | |
| | | | - | | | | | | |
| Retinguished by: XU MI A WY W | | Received by: Signature | | | 5 | Ň | S:R· 9 | Special Instructions: | |
| <u>ل</u> ل | | | KELI- | JEAN SHITH | 114 | T^{ime} | Time D 850 | QC 2+ = Final Report, COC, surrogate, recoveries, MB, LCS | ite, recoveries, MB, LCS, |
| Relinquished by: Berndure | | Received by: Signature | 4444 | | | Date: | | MS/MSD performed on customer sample | ample |
| Quit Name: | | Print Name: | | | | Time | | | |
| Scinquished by: Scrature | | Received by: Signature | | | | Date: | | | |
| Print Name: | Time. | Print Name: | | | | Time | | | |



ALS Environmental - Fort Collins CONDITION OF SAMPLE UPON RECEIPT FORM

| (ALS) | | | IALC | 171 | |
|---|---|---------------------------------------|--------------------|------------------|-------------------|
| Client: | AWAL | Workorder No: | 1905 | 134 | _ |
| Project Manager: | KMD | Initials: | Date: | \$13.19 | - |
| Are airbills / shipping | documents present and/or removable? | | DROP | OFF YES | NO |
| Are custody seals on sl | hipping containers intact? | · · · · · · · · · · · · · · · · · · · | NON | VE YES | NO * |
| Are custody seals on s | ample containers intact? | · · · | NON | VE YES | NO * |
| Is there a COC (chain- | of-custody) present? | · · · · · · · · · | | YES | NO * |
| Is the COC in agreeme matrix, requested analy | nt with samples received? (IDs, dates, t yses, etc.) | times, # of samples, # | of containers | YES | NO |
| Are short-hold samples | s present? | | | YES | NO |
| Are all samples within | holding times for the requested analys | es? | | TES | • NO * |
| Were all sample contai | iners received intact? (not broken or le | eaking) | | YES | NO * |
| Is there sufficient samp | ble for the requested analyses? | | | YES | NO * |
| 0. Are all samples in the | proper containers for the requested ana | lyses? | | (YES) | NO * |
| 11. Are all aqueous sample | es preserved correctly, if required? (exe | cluding volatiles) | N// | A YES | (M) |
| 2. Are all aqueous non-pr | eserved samples pH 4-9? | | N/2 | A YES | NO * |
| Are all samples requiri > 6 mm (1/4 inch) diam | ng no headspace (VOC, GRO, RSK/M neter? (i.e. size of green pea) | IEE, radon) free of bu | ibbles N/2 | yes | NO |
| 4. Were the samples ship | ped on ice? | | | YES (| NO |
| 5. Were cooler temperatu | res measured at 0.1-6.0°C? | #1 #3 | #4 ONL | | NO |
| | Cooler #: 2 | | | | |
| | Temperature (°C): TMB TMB | | | | |
| No. of custo | bdy seals on cooler: | | | | |
| DOT Survey | rnal μ R/hr reading: 10 10 | | | | |
| Information | bund μ R/hr reading: 1 | | | | |
| - | two times background and within DOT acceptance of | criteria? YES NO / NA | (If no. see Form (|)()8.) | |
| | e for NO responses to gray boxes above - fo | | | | gi n . |
| <) Samples | 1-14 both bothes in | sitten label | date | = 517 | F/19 |
|) 11 | 2C3 printed label de | te = 5 8 | 19 | Correct | |
| Sinde 1 | le written label time | date = 120 | 0 58 | | collet |
| <u> </u> | ac iprinted label - | fineldate= | MÓOI | 5/7/19 | |
| <u>\</u> | · · · · · · · · · · · · · · · · · · · | . (· | <i>l</i> | | |
| 1) initial pH. | 3 top: | initial ptt | 4 tre! | S | + |
| | stilled 2ml the 182345 | <u></u> 世10 | bottle | { Inl 1 | TNU3, |
| <u></u> | ml jof 19 dec | #15 | |) /ot 1 | 9734 |
| #12 bottle2 | / mu para | | | | ade |
| | \sim | ttle ID's vs ALS lab | ID's double | -checked by | r LLA |
| f applicable, was the client cor | ntacted? (ES) NO / NA Contact: | ma Itayward | Dat | e/Time: <u>}</u> | 19013 |
| Project Manager Signatur | e / Date: | - S/13/19 | | | |
| | | | | | |



•

Radium-226 by Radon Emanation - Method 903.1 PAI 783 Rev 13 Method Blank Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RE190521-2MB

Sample Matrix: WATER Prep SOP: PAI 783 Rev 13 Date Collected: 21-May-19 Date Prepared: 21-May-19 Date Analyzed: 30-May-19 Prep Batch: RE190521-2 QCBatchID: RE190521-2-1 Run ID: RE190521-2A Count Time: 15 minutes Final Aliquot: 995 ml Result Units: pCi/l File Name: Manual Entry

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.12 +/- 0.20 | 0.33 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16450 | 15790 | ug | 96.0 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

 ${\sf U}~$ - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

DL - Decision Level

Radium-226 by Radon Emanation - Method 903.1 PAI 783 Rev 14 Method Blank Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RE190521-11MB

Sample Matrix: WATER Prep SOP: PAI 783 Rev 13 Date Collected: 21-May-19 Date Prepared: 21-May-19 Date Analyzed: 03-Jun-19 Prep Batch: RE190521-11 QCBatchID: RE190521-11-1 Run ID: RE190521-11A Count Time: 30 minutes Final Aliquot: 993 ml Result Units: pCi/l File Name: Manual Entry

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.04 +/- 0.21 | 0.39 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 33680 | 29180 | ug | 86.6 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

 ${\sf U}~$ - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

DL - Decision Level

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 14

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RE190521-11LCS

Sample Matrix: WATER Prep SOP: PAI 783 Rev 13 Date Collected: 21-May-19 Date Prepared: 21-May-19 Date Analyzed: 03-Jun-19 Prep Batch: RE190521-11 QCBatchID: RE190521-11-1 Run ID: RE190521-11A Count Time: 15 minutes Final Aliquot: 993 ml Result Units: pCi/l File Name: Manual Entry

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-----|--------------------|------------------|
| 13982-63-3 | Ra-226 | 56 +/- 14 | 0 | 47.86 | 116 | 67 - 120 | Р |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 33680 | 29030 | ug | 86.2 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RE1905234-1

Abbreviations:

TPU - Total Propagated Uncertainty

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 14

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RE190521-11LCSD

Sample Matrix: WATER Prep SOP: PAI 783 Rev 13 Date Collected: 21-May-19 Date Prepared: 21-May-19 Date Analyzed: 03-Jun-19 Prep Batch: RE190521-11 QCBatchID: RE190521-11-1 Run ID: RE190521-11A Count Time: 15 minutes Final Aliquot: 993 ml Result Units: pCi/l File Name: Manual Entry

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-----|--------------------|------------------|
| 13982-63-3 | Ra-226 | 50 +/- 13 | 0 | 47.86 | 104 | 67 - 120 | Р |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 33680 | 29330 | ug | 87.1 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RE1905234-1

Abbreviations:

TPU - Total Propagated Uncertainty

Radium-226 by Radon Emanation - Method 903.1 PAI 783 Rev 13

FAI 103 KEV 13

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RE190521-2LCS

Sample Matrix: WATER Prep SOP: PAI 783 Rev 13 Date Collected: 21-May-19 Date Prepared: 21-May-19 Date Analyzed: 30-May-19 Prep Batch: RE190521-2 QCBatchID: RE190521-2-1 Run ID: RE190521-2A Count Time: 15 minutes Final Aliquot: 995 ml Result Units: pCi/l File Name: Manual Entry

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-----|--------------------|------------------|
| 13982-63-3 | Ra-226 | 52 +/- 13 | 0 | 47.86 | 109 | 67 - 120 | Р |

Chemical Yield Summary

| Ca | rrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----|--------------|--------------|--------|-------|-------|-------------------|------|
| | BARIUM | 16450 | 15720 | ug | 95.6 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RE1905234-1

Abbreviations:

TPU - Total Propagated Uncertainty

Radium-226 by Radon Emanation - Method 903.1 PAI 783 Rev 13

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RE190521-2LCSD

Sample Matrix: WATER Prep SOP: PAI 783 Rev 13 Date Collected: 21-May-19 Date Prepared: 21-May-19 Date Analyzed: 30-May-19 Prep Batch: RE190521-2 QCBatchID: RE190521-2-1 Run ID: RE190521-2A Count Time: 15 minutes Final Aliquot: 995 ml Result Units: pCi/l File Name: Manual Entry

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|------|--------------------|------------------|
| 13982-63-3 | Ra-226 | 42 +/- 10 | 0 | 47.86 | 87.4 | 67 - 120 | Р |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16460 | 15720 | ug | 95.5 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RE1905234-1

Abbreviations:

TPU - Total Propagated Uncertainty

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 14

Duplicate Sample Results (DER)

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: Lab ID: RE190521-11LCSD | | Date Collected: 21-May Date Prepared: 21-May | Prep SOP: PAI 783 Rev 13 Date Collected: 21-May-19 | | Batch: RE190521-11 tchID: RE190521-11-1 un ID: RE190521-11A Time: 15 minutes | Moisture(% Result Unit | i s: Unfiltered 6): NA | | |
|--------------------------------------|---------|---|---|-------|---|---------------------------|----------------------------------|-----|------------|
| CASNO | Analyte | Sample Result +/- 2 s TPU | e MDC | Flags | Dupli Result +/- 2 s TPU | cate MDC | Flags | DER | DER Lim |
| | | | | | | | | 1 | 1 |

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

- Y2 Chemical Yield outside default limits.
- W DER is greater than Warning Limit of 1.42
- D DER is greater than Control Limit of 2.13

LT - Result is less than Request MDC, greater than sample specific MDC

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported

activity is greater than the reported MDC. L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

Data Package ID: RE1905234-1

Abbreviations:

TPU - Total Propagated Uncertainty

DER - Duplicate Error Ratio

BDL - Below Detection Limit

NR - Not Reported

Page 1 of 2

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 13

Duplicate Sample Results (DER)

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: Lab ID: R | E190521-2LCSD | Sample Matrix: WATER Prep SOP: PAI 783 Date Collected: 21-May- Date Prepared: 21-May- Date Analyzed: 30-May- | Rev 13 19 19 | QCBat R | Batch: RE190521-2 tchID: RE190521-2-1 un ID: RE190521-2A Time: 15 minutes | Moisture(% Result Unit | i s: Unfiltered 6): NA | | |
|------------------------|---------------|--|--------------------|------------|--|---------------------------|----------------------------------|-----|------------|
| CASNO | Analyte | Sample Result +/- 2 s TPU | e MDC | Flags | Dupli Result +/- 2 s TPU | cate MDC | Flags | DER | DER Lim |
| | | | | | | | | | |

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

- Y2 Chemical Yield outside default limits.
- W DER is greater than Warning Limit of 1.42
- D DER is greater than Control Limit of 2.13

LT - Result is less than Request MDC, greater than sample specific MDC

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported

activity is greater than the reported MDC. L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

Data Package ID: RE1905234-1

Abbreviations:

TPU - Total Propagated Uncertainty

DER - Duplicate Error Ratio

BDL - Below Detection Limit

NR - Not Reported

Page 2 of 2

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-1D | Sample Matrix: WATER | Prep Batch: RE190521-11 | Final Aliquot: 993 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1905234-1 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-11-1 Run ID: RE190521-11A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 21-May-19 | Count Time: 30 minutes | Result Units: pCi/l |
| | | Date Analyzed: 03-Jun-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.13 +/- 0.21 | 0.36 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 33690 | 26860 | ug | 79.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-2 | Sample Matrix: WATER | Prep Batch: RE190521-2 | Final Aliquot: 945 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1905234-2 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-2-1 Run ID: RE190521-2A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 21-May-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.12 +/- 0.19 | 0.32 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16460 | 15880 | ug | 96.4 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-3 | Sample Matrix: WATER | Prep Batch: RE190521-2 | Final Aliquot: 945 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1905234-3 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-2-1 Run ID: RE190521-2A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 21-May-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.24 +/- 0.32 | 0.52 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16480 | 15760 | ug | 95.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-4 | Sample Matrix: WATER | Prep Batch: RE190521-2 | Final Aliquot: 995 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1905234-4 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-2-1 Run ID: RE190521-2A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 21-May-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.16 +/- 0.26 | 0.43 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16460 | 15570 | ug | 94.6 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-5 | Sample Matrix: WATER | Prep Batch: RE190521-2 | Final Aliquot: 995 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1905234-5 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-2-1 Run ID: RE190521-2A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 21-May-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.86 +/- 0.43 | 0.33 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16470 | 15820 | ug | 96.0 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-6 | Sample Matrix: WATER | Prep Batch: RE190521-11 | Final Aliquot: 993 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1905234-6 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-11-1 Run ID: RE190521-11A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 21-May-19 | Count Time: 30 minutes | Result Units: pCi/l |
| _ | | Date Analyzed: 03-Jun-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 1.13 +/- 0.49 | 0.45 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 33700 | 27670 | ug | 82.1 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-7 | Sample Matrix: WATER | Prep Batch: RE190521-11 | Final Aliquot: 993 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1905234-7 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-11-1 Run ID: RE190521-11A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 21-May-19 | Count Time: 30 minutes | Result Units: pCi/l |
| | | Date Analyzed: 03-Jun-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.87 +/- 0.40 | 0.36 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 33690 | 28050 | ug | 83.2 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-8 | Sample Matrix: WATER | Prep Batch: RE190521-2 | Final Aliquot: 995 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1905234-8 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-2-1 Run ID: RE190521-2A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 21-May-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.75 +/- 0.34 | 0.20 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16470 | 15910 | ug | 96.5 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-9 | Sample Matrix: WATER | Prep Batch: RE190521-2 | Final Aliquot: 995 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1905234-9 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-2-1 Run ID: RE190521-2A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 21-May-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.29 +/- 0.21 | 0.24 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16470 | 15830 | ug | 96.1 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-10 | Sample Matrix: WATER | Prep Batch: RE190521-2 | Final Aliquot: 995 ml |
|--------------------|---------------------------|--------------------------|-------------------------|
| Lab ID: 1905234-10 | Prep SOP: PAI 783 Rev 13 | QCBatchID: RE190521-2-1 | Prep Basis: Unfiltered |
| | Date Collected: 08-May-19 | Run ID: RE190521-2A | Moisture(%): NA |
| | Date Prepared: 21-May-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.49 +/- 0.29 | 0.29 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16480 | 15800 | ug | 95.9 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-11 | Sample Matrix: WATER | Prep Batch: RE190521-2 | Final Aliquot: 995 ml |
|-----------|------------|---|--|---|
| Lab ID: | 1905234-11 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-2-1 Run ID: RE190521-2A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 21-May-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.35 +/- 0.26 | 0.29 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16470 | 15700 | ug | 95.3 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-12 | Sample Matrix: WATER | Prep Batch: RE190521-2 | Final Aliquot: 955 ml |
|-----------|------------|---|--|---|
| Lab ID: | 1905234-12 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-2-1 Run ID: RE190521-2A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 21-May-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0 +/- 0.24 | 0.48 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16470 | 15720 | ug | 95.5 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-13 | Sample Matrix: WATER | Prep Batch: RE190521-2 | Final Aliquot: 935 ml |
|--------------------|---------------------------|--------------------------|-------------------------|
| Lab ID: 1905234-13 | Prep SOP: PAI 783 Rev 13 | QCBatchID: RE190521-2-1 | Prep Basis: Unfiltered |
| | Date Collected: 08-May-19 | Run ID: RE190521-2A | Moisture(%): NA |
| | Date Prepared: 21-May-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.12 +/- 0.21 | 0.37 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16480 | 15740 | ug | 95.5 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-14 | Sample Matrix: WATER | Prep Batch: RE190521-2 | Final Aliquot: 995 ml | |
|-----------|------------|---|--|---|--|
| Lab ID: | 1905234-14 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-2-1 Run ID: RE190521-2A | Prep Basis: Unfiltered Moisture(%): NA | |
| | | Date Prepared: 21-May-19 | Count Time: 15 minutes | Result Units: pCi/l | |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: Manual Entry | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 1.01 +/- 0.43 | 0.28 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16500 | 15430 | ug | 93.5 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Radium-226 by Radon Emanation - Method 903.1 PAI 783 Rev 14 Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | DUP | Sample Matrix: WATER | Prep Batch: RE190521-11 | Final Aliquot: 993 ml |
|-----------|------------|---|--|---|
| Lab ID: | 1905234-15 | Prep SOP: PAI 783 Rev 13 Date Collected: 07-May-19 | QCBatchID: RE190521-11-1 Run ID: RE190521-11A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 21-May-19 | Count Time: 30 minutes | Result Units: pCi/l |
| | | Date Analyzed: 03-Jun-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.53 +/- 0.29 | 0.24 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 33700 | 28310 | ug | 84.0 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Radium-226 by Radon Emanation - Method 903.1 PAI 783 Rev 13 Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: FB | Sample Matrix: WATER | Prep Batch: RE190521-2 | Final Aliquot: 995 ml |
|--------------------|---|--|---|
| Lab ID: 1905234-16 | Prep SOP: PAI 783 Rev 13 Date Collected: 08-May-19 | QCBatchID: RE190521-2-1 Run ID: RE190521-2A | Prep Basis: Unfiltered Moisture(%): NA |
| | Date Prepared: 21-May-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.02 +/- 0.15 | 0.30 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 17640 | 16030 | ug | 90.9 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

ALS

| QUALITY ASSURANCE SUMMARY SHEET | (secol |
|---|-------------------|
| ALS W.O. #/ BATCH Raddbern (Segretic | alprep w/kadds ye |
| TEST Radden - Reaciv | es Radas woon- |
| METHOD Prep | |
| SOP/REV (PREP) | |
| | |
| SOP/REV (ANAL) | |
| Briefly document any QA or other problems or deviations associated with the analysis amples. Problems could result from: log-in, color, odor, dilution, consistency, acheduling, equipment, or instrumentation, or may include documentation of minor deviations necessary due to unique DQO's or sample characteristics. | of |
| After Na 220 was plantatered plantatered | |
| 2. One mL of lead carrier, a transfer piperce of photosphere $18N H_2SO_4$ were added to the cup on a stirring hotplate. | |
| 2. 6N H.SO, was added from a squeeze bottle until a pink color was achieved. | |
| 4. Additional 6N H_2SO_4 was added slowly until the pH dropped enough that | |
| the phenoinhthalein lost color. | |
| The pH was checked to ensure that the sample solution was slightly acidic. | |
| After stirring for five minutes, the stir bar was removed, and the sample | |
| was allowed to settle for two hours. | 161 |
| 7. The supernatant was decanted, and the precipitate was transferred with | 'zhilib |
| $0.1N H_2SO_4$ to a 50mL centrifuge tube. | Spiono |
| 8. The precipitate was spun down, and the supernatant discarded. | |
| The resultant precipitate was dissolved in 25mL of EDTA. The resultant precipitate was dissolved in 25mL of EDTA. | |
| 10. A new final ICP aliquot of .1mL was taken and diluted to 10mL with ICP | * |
| solution. 11. The barium recovery specific to Ra-226 by Radon Emanation was | • |
| 11. The barium recovery specific to the 220 by fiducities and calculated from this new final ICP. | |
| 12. Due to LIMS limitations on the ICP calculation worksheet, the "final ICP | - |
| aliquot" must be entered as 0.15mL to account for the final ICP aliquots | - |
| taken for both Ra228 and Ra226em batches. The "final ICP dilution | |
| volume" must be entered as 1SmL for LIMS to calculate out the correct | - |
| mass using a 100 fold dilution factor. By changing these values on the ICP | |
| calculation worksheet, LIMS can now account for all aliquots taken nom | |
| the sample to calculate out a new "final aliquet" on the benchsheet. | - |
| 1 801.1 DATE 3/2 | 6/16 |
| TECHNICIAN/ANALYST | elle |
| DEPARTMENT MANAGER | |

FORM 302r6.doc (4/22/04)

32 of 32

1310

5 - J

458103

fille.



Radium-228

Case Narrative

American West Analytical Labs

Hunter CCR Groundwater Sampling – PERCM052

Work Order Number: 1905234

- 1. This report consists of the analytical results for 16 water samples received by ALS on 05/13/2019.
- 2. These samples were prepared according to the current revision of SOP 749, with procedure modifications outlined in QASS 452599 for samples 1905234-16 and RA190522-5LCSD.
- The samples were analyzed for the presence of ²²⁸Ra by low background gas flow proportional counting of ²²⁸Ac, which is the ingrown progeny of ²²⁸Ra, according to the current revision of SOP 724. The analyses were completed on 06/03/2019.
- 4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.
- 5. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate in both batches.
- 6. To reduce matrix interference, a reduced aliquot was used for the preparation of sample 1905234-14. Consequently, the requested MDC was not met for this sample. The reported activity exceeds the achieved MDC. This sample is identified with an "M3" qualifier on the final report.
- 7. No further anomalous situations were noted during the preparation and analysis of these samples. All quality control criteria were met.



The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

100 iner Pik Yee Yuen

Radiochemistry Primary Data Reviewer

M

Radiochemistry Final Data Reviewer

<u>6/6/19</u> Date

6/10/19

Date

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1905234 Client Name: American West Analytical Labs Client Project Name: Hunter CCR Groundwater Sampling Client Project Number: PERCM052 Client PO Number: 1905216

| Client Sample Number | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|-------------------------|----------------------|------------|--------|-------------------|-------------------|
| ELF-1D | 1905234-1 | | WATER | 08-May-19 | 16:35 |
| ELF-2 | 1905234-2 | | WATER | 08-May-19 | 17:30 |
| ELF-3 | 1905234-3 | | WATER | 08-May-19 | 14:30 |
| ELF-4 | 1905234-4 | | WATER | 08-May-19 | 13:30 |
| ELF-5 | 1905234-5 | | WATER | 08-May-19 | 12:45 |
| ELF-6 | 1905234-6 | | WATER | 08-May-19 | 12:30 |
| ELF-7 | 1905234-7 | | WATER | 08-May-19 | 14:00 |
| ELF-8 | 1905234-8 | | WATER | 08-May-19 | 11:45 |
| ELF-9 | 1905234-9 | | WATER | 08-May-19 | 16:30 |
| ELF-10 | 1905234-10 | | WATER | 08-May-19 | 15:00 |
| ELF-11 | 1905234-11 | | WATER | 08-May-19 | 11:15 |
| ELF-12 | 1905234-12 | | WATER | 08-May-19 | 10:45 |
| ELF-13 | 1905234-13 | | WATER | 08-May-19 | 10:00 |
| ELF-14 | 1905234-14 | | WATER | 08-May-19 | 9:15 |
| DUP | 1905234-15 | | WATER | 07-May-19 | 15:20 |
| FB | 1905234-16 | | WATER | 08-May-19 | 12:00 |

| American West | est | | | | | CHAIN | CHAIN OF CUSTODY | | Musay |
|---|-------------------------------------|---------------------------|-------------|---------------------|---|---|--|---|--|
| Analyucal Laboratories 3440.5.700 W. Salt Lake City. UT 84119 Phone # (801) 263-8585 Toil Free # (858) 253-8586 | atories r 84119 888) 263-8686 | | II | analysis y repoi | will be conducted using rting limits (PQL) unles | g NELAP accredited meth ss specifically requested of | ods and all data will herwise on this Cha | 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 # Pace 1 of 2 |
| Fax # (801) 263-8687 Email awal@awal-labs.com | awal-labs.com | | | ð | QC Level: | Tum Aro | Turn Around Time: | Unless other arrangements have been made, signed | Due Date: |
| www.awal-labs.com | в | | | | 2+ | Standard | lard | reports will be emailed by 5:00 ptm on the day they are due. | |
| Client: American West Analytical Laboratories | | | | ┝─ | | | | C Report down to the MDL | Laboratory Use Only |
| Address: 3440 S. 700 W. | | | | | | | | | CTOT Taxes West |
| City, State, Zip: Salt Lake City , UT 84119 | | | | | | | | Field Filtered For: | 1 Present on Outer Package |
| Contact: Elona Hayward | | | | | | | | | 2 Unhmken im Outer Parkase |
| Phone #: (801) 263-8686 Cell #: | | | | | | | | | A N NA |
| E-mail: elona@awal-labs.com; denise@awal-labs.com | | | | | pəui | | | | 3 Present on Sample |
| Project Name: Hunter CCR Groundwater Sampling | | | | | | | | | Turbutur an Court |
| Project #: PERCM052 | | | | 0 00 | 23.87 | | | D Non Compliance | |
| PO#: 1905216 | | | \$ | | 7 PUE | | | Cher: | Samples Were |
| Sampler Name: | | | tənistr | xinteN | : 526 | | | Known Hararde | 1 Shipped or hand delivered |
| | Date | Time | roD | | wnt | | | | 2 Ambient or Chilled |
| Sample ID: | Sampled | Sampled | 30 # | _ | D & M | | | Sample Comments | 103 Temperature |
| ELF-1D | 5/8/2019 | 16:35 | 1 | × M | × | | | | Preceived Inhact |
| ELF-2 | 5/8/2019 | 17:30 | 2 | M | × | | | | |
| 3 ELF-3 | 5/8/2019 | 14:30 | 2 | M | × | | | | |
| ▲ ELF-4 | 5/8/2019 | 13:30 | 2 | M | × | | | | 5 Property Preserved Y N Checked at bench |
| S ELF-5 | 5/8/2019 | 12:45 | 2 | M | × | | | | |
| © ELF-6 | 5/8/2019 | 12:30 | - | 3 | × | | | | |
| Z ELF-7 | 5/8/2019 | 14:00 | - | 3 | × | | | | 6 Received Within Holdine Times |
| S ELF-8 | 5/8/2019 | 11:45 | ы | 3 | × | | | | N N |
| ELF-9 | 5/8/2019 | 16:30 | 2 | 3 | × | | | | |
| ÉLF-10 | 5/8/2019 | 15:00 | 2 | 3 | × | | | | |
| n ELF-11 | 5/8/2019 | 11:15 | 2 | 3 | × | | | | Sample Labets and COC Record Match? |
| BLF-12 | 5/8/2019 | 10:45 | 2 | 3 | × | | | | × |
| J LF-13 | 5/8/2019 | 10:00 | 2 | 3 | × | | | | |
| jt.F-14 | 5/8/2019 | 9:15 | 2 | 3 | × | | | | |
| 13 Dur | 5/7/2019 | 15:20 | - | 3 | × | | | | |
| Retinguished by KUMAQAPAQA | | Received by: Signature | | NL | 2 | | 5-13-10 | Special Instructions: | |
| Print Name ILEMSE BOLUN | 06', pm | Print Name: | KEL | | - AFRI SHIT | | Time6850 | QC 2+ = Final Report, COC, surrogate, recoveries, MB, LCS, | gate, recoveries, MB, LCS, |
| celinquished by: signature | | Received by: Signature | | ľ | | | Date: | MS/MSD performed on customer sample | r sample |
| trint Name. | | Print Name. | | | | | Time: | | |
| telinquished by: Signature | Date: | Received by: Signature | | | | | Date: | Samples sent to ALS - Ft. Collins. | |
| Print Name. | Time: | Print Name: | | | · · | | Time: | | |

| American West Analytical Laboratories | est atories | | | | CHA] | CHAIN OF CUSTODY | CUST(| | 1905134 |
|--|---------------------------------------|---------------------------|-------------------|---|---|---------------------------------|-------------------------------------|---|--|
| 3440 S. 700 W. Salt Lake City, UT 84119 Phone # (801) 263-8686 Toll Free # (888) 263-8686 | T 84119 888) 26 3-8 686 | • | All analy r | sis will be conducted porting limits (PQL) | l using NELAP accredite unless specifically requ | d methods and sted otherwise | all data will be on this Chain e | 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 2 of 2 |
| Fax # (801) 263-8657 Email aval@awai-labs.com | awal-labs.com | | | QC Level: | Тип | Tum Around Time: | ime | Unless other arrangements have been made, signed reports will be emailed by | Due Da |
| www.awal-labs.com | E | | | 2+ | | Standard | | 5:00 pm on the day they are due. | |
| Client: American West Analytical Laboratories | | | | | | | | Report down to the MDL Include FDD. | Laboratory Use Only |
| Address: 3440 S. 700 W. | | | | | | | | □ Lab Filter for: | |
| City, State, Zip: Salt Lake City , UT 84119 | | | | | | | | Field Filtered For: | 1 Present on Outer Package |
| Contact: Elona Hayward | | | | | | | | | uter Packa |
| Phone #: (801) 263-8686 Cell #: | | | | | | | | For Compliance With: | |
| E-mail: elona@awal-labs.com; denise@awal-labs.com | | | | bəni | | | | | 3 Present on Sample Y |
| Project Name: Hunter CCR Groundwater Sampling | | | | qwo | | | | | 4 Unbroten on Samula |
| Project #. PERCM052 | | | | C) 827 | | | | | |
| PO.F. 1905216 | | | | Z PUR | | | | | Samiles Weere |
| Sampler Name: | | | rəninər XirteM | 977 1 | | | | Known Hazarde | 1 Shipped or hand delivered |
| | Date | Time | | muit | | | | | 2 Ambient or Chilled |
| Sample ID: | Sampled | Sampled | _ | Rad | | | | Sample Comments | 3 Temperature |
| 16)38 Honda 10 | ` | 14:00 | 2 W | x | | | | | 4 Received Intact |
| | 6/8/16 | 1200 | | | | | | | × |
| | | | | | | | _ | | |
| | | | | | | | | | 5 Properly Preserved Y N Checked at bench |
| - 8 | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | 6 Received Within Holding Times |
| | | | | | | | | | Ζ. |
| | | | | | | | | | |
| 0 | | | _ | | | | | | |
| | | | | | | | _ | | Sample Labels and COC Record Match? |
| | | | | | | | - | | - |
| | | | + | - | | | | | |
| | | | - | | | | | | |
| Retinguished by: XU MI A WY W | | Received by: Signature | | | 5 | Ň | S:R· 9 | Special Instructions: | |
| <u>ل</u> ل | | | KELI- | JEAN SHITH | 114 | T^{ime} | Time D 850 | QC 2+ = Final Report, COC, surrogate, recoveries, MB, LCS | ite, recoveries, MB, LCS, |
| Relinquished by: Berndure | | Received by: Signature | | | | Date: | | MS/MSD performed on customer sample | ample |
| Quit Name: | | Print Name: | | | | Time | | | |
| Scinquished by: Scrature | | Received by: Signature | | | | Date: | | | |
| Print Name: | Time. | Print Name: | | | | Time | | | |



ALS Environmental - Fort Collins CONDITION OF SAMPLE UPON RECEIPT FORM

| (ALS) | | | IALC | 171 | |
|---|---|---------------------------------------|--------------------|------------------|-------------------|
| Client: | AWAL | Workorder No: | 1905 | 134 | _ |
| Project Manager: | KMD | Initials: | Date: | \$13.19 | - |
| Are airbills / shipping | documents present and/or removable? | | DROP | OFF YES | NO |
| Are custody seals on sl | hipping containers intact? | · · · · · · · · · · · · · · · · · · · | NON | VE YES | NO * |
| Are custody seals on s | ample containers intact? | · · · | NON | VE YES | NO * |
| Is there a COC (chain- | of-custody) present? | · · · · · · · · · | | YES | NO * |
| Is the COC in agreeme matrix, requested analy | nt with samples received? (IDs, dates, t yses, etc.) | times, # of samples, # | of containers | YES | NO |
| Are short-hold samples | s present? | | | YES | NO |
| Are all samples within | holding times for the requested analys | es? | | TES | • NO * |
| Were all sample contai | iners received intact? (not broken or le | eaking) | | YES | NO * |
| Is there sufficient samp | ble for the requested analyses? | | | YES | NO * |
| 0. Are all samples in the | proper containers for the requested ana | lyses? | | (YES) | NO * |
| 11. Are all aqueous sample | es preserved correctly, if required? (exe | cluding volatiles) | N// | A YES | (M) |
| 2. Are all aqueous non-pr | eserved samples pH 4-9? | | N/2 | A YES | NO * |
| Are all samples requiri > 6 mm (1/4 inch) diam | ng no headspace (VOC, GRO, RSK/M neter? (i.e. size of green pea) | IEE, radon) free of bu | ibbles N/2 | yes | NO |
| 4. Were the samples ship | ped on ice? | | | YES (| NO |
| 5. Were cooler temperatu | res measured at 0.1-6.0°C? | #1 #3 | #4 ONL | | NO |
| | Cooler #: 2 | | | | |
| | Temperature (°C): TMB TMB | | | | |
| No. of custo | bdy seals on cooler: | | | | |
| DOT Survey | rnal μ R/hr reading: 10 10 | | | | |
| Information | bund μ R/hr reading: 1 | | | | |
| - | two times background and within DOT acceptance of | criteria? YES NO / NA | (If no. see Form (|)()8.) | |
| | e for NO responses to gray boxes above - fo | | | | gi n . |
| <) Samples | 1-14 both bothes in | sitten label | date | = 517 | F/19 |
|) 11 | 2C3 printed label de | te = 5 8 | 19 | Correct | |
| Sinde 1 | le written label time | date = 120 | 0 58 | | collet |
| <u> </u> | ac iprinted label - | fineldate= | MÓOI | 5/7/19 | |
| <u>\</u> | · · · · · · · · · · · · · · · · · · · | . (· | <i>l</i> | | |
| 1) initial pH. | 3 top: | initial ptt | 4 tre! | S | + |
| | stilled 2ml the 182345 | <u></u> 世10 | bottle | { Inl 1 | TNU3, |
| <u></u> | ml jof 19 dec | #15 | |) /ot 1 | 9734 |
| #12 bottle2 | / mu para | | | | ade |
| | \sim | ttle ID's vs ALS lab | ID's double | -checked by | ri KA |
| f applicable, was the client cor | ntacted? (ES) NO / NA Contact: | ma Itayward | Dat | e/Time: <u>}</u> | 19013 |
| Project Manager Signatur | e / Date: | - S/13/19 | | | |
| | | | | | |



•

Radium-228 Analysis by GFPC PAI 724 Rev 13 Method Blank Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234 Client Name: American West Analytical Labs ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190521-11MB

Sample Matrix: WATER Prep SOP: SOP749 Rev 5 Date Collected: 21-May-19 Date Prepared: 21-May-19 Date Analyzed: 28-May-19 Prep Batch: RA190521-11 QCBatchID: RA190521-11-1 Run ID: RA190521-11A Count Time: 150 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0528

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 15262-20-1 | Ra-228 | -0.02 +/- 0.34 | 0.78 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34150 | 31860 | ug | 93.3 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

 ${\sf U}~$ - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

DL - Decision Level

Radium-228 Analysis by GFPC PAI 724 Rev 13 Method Blank Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234 Client Name: American West Analytical Labs ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190522-5MB

Sample Matrix: WATER Prep SOP: SOP749 Rev 5 Date Collected: 22-May-19 Date Prepared: 22-May-19 Date Analyzed: 30-May-19 Prep Batch: RA190522-5 QCBatchID: RA190522-5-2 Run ID: RA190522-5A Count Time: 150 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0530

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 15262-20-1 | Ra-228 | 0.14 +/- 0.37 | 0.80 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32480 | 30470 | ug | 93.8 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

 ${\sf U}~$ - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

DL - Decision Level

PAI 724 Rev 13

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234 Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190521-11LCS

Sample Matrix: WATER Prep SOP: SOP749 Rev 5 Date Collected: 21-May-19 Date Prepared: 21-May-19 Date Analyzed: 28-May-19 Prep Batch: RA190521-11 QCBatchID: RA190521-11-1 Run ID: RA190521-11A Count Time: 60 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0528A

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-----|--------------------|------------------|
| 15262-20-1 | Ra-228 | 14.5 +/- 3.5 | 1.1 | 14.37 | 101 | 70 - 130 | P,M3 |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34150 | 33860 | ug | 99.2 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RA1905234-1

Abbreviations:

TPU - Total Propagated Uncertainty

PAI 724 Rev 13

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234 Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190521-11LCSD

Sample Matrix: WATER Prep SOP: SOP749 Rev 5 Date Collected: 21-May-19 Date Prepared: 21-May-19 Date Analyzed: 28-May-19 Prep Batch: RA190521-11 QCBatchID: RA190521-11-1 Run ID: RA190521-11A Count Time: 60 minutes

Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0528A

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-----|--------------------|------------------|
| 15262-20-1 | Ra-228 | 14.5 +/- 3.6 | 1.2 | 14.37 | 101 | 70 - 130 | P,M3 |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34150 | 31700 | ug | 92.8 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RA1905234-1

Abbreviations:

TPU - Total Propagated Uncertainty

PAI 724 Rev 13

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234 Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190522-5LCS

Sample Matrix: WATER Prep SOP: SOP749 Rev 5 Date Collected: 22-May-19 Date Prepared: 22-May-19 Date Analyzed: 30-May-19 Prep Batch: RA190522-5 QCBatchID: RA190522-5-2 Run ID: RA190522-5A Count Time: 150 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0530

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | % Rec | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-------|--------------------|------------------|
| 15262-20-1 | Ra-228 | 14.3 +/- 3.4 | 0.8 | 14.36 | 99.8 | 70 - 130 | Р |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32470 | 29650 | ug | 91.3 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RA1905234-1

Abbreviations:

TPU - Total Propagated Uncertainty

PAI 724 Rev 13

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234 Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190522-5LCSD

Sample Matrix: WATER Prep SOP: SOP749 Rev 5 Date Collected: 22-May-19 Date Prepared: 22-May-19 Date Analyzed: 03-Jun-19 Prep Batch: RA190522-5 QCBatchID: RA190522-5-2 Run ID: RA190522-5A Count Time: 150 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0603A

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-----|--------------------|------------------|
| 15262-20-1 | Ra-228 | 14.6 +/- 3.4 | 0.8 | 14.34 | 102 | 70 - 130 | Р |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32450 | 29890 | ug | 92.1 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RA1905234-1

Abbreviations:

TPU - Total Propagated Uncertainty

PAI 724 Rev 13 Duplicate Sample Results (DER)

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Ra-228

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

14.5 +/- 3.5

| Field ID: Lab ID: R/ | A190521-11LCSD | Sample Matrix: WATER Prep SOP: SOP749 Rev 5 Date Collected: 21-May-19 Date Prepared: 21-May-19 Date Analyzed: 28-May-19 | QCBa R | Batch: RA190521-11 atchID: RA190521-11-1 aun ID: RA190521-11A Time: 60 minutes | Final Aliquot: 997 ml Prep Basis: Unfiltered Moisture(%): NA Result Units: pCi/l File Name: RAC0528 | | | |
|-------------------------|----------------|---|-----------|---|---|-------|-----|------------|
| CASNO | Analyte | Sample Result +/- 2 s TPU MDC | Flags | Dup Result +/- 2 s TPU | licate J MDC | Flags | DER | DER Lim |

P,M3

14.5 +/- 3.6

1.1

Comments:

15262-20-1

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

- Y2 Chemical Yield outside default limits.
- W DER is greater than Warning Limit of 1.42
- D DER is greater than Control Limit of 2.13

LT - Result is less than Request MDC, greater than sample specific MDC

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported

activity is greater than the reported MDC. L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

11 - Loo Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

Data Package ID: RA1905234-1

Abbreviations:

TPU - Total Propagated Uncertainty

DER - Duplicate Error Ratio

1.2

P,M3

0.0106

2.13

BDL - Below Detection Limit

NR - Not Reported

Page 1 of 2

PAI 724 Rev 13 Duplicate Sample Results (DER)

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Ra-228

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

14.3 +/- 3.4

| Field ID: Lab ID: R | A190522-5LCSD | Sample Matrix: WATER Prep SOP: SOP749 Rev 5 Date Collected: 22-May-19 Date Prepared: 22-May-19 Date Analyzed: 03-Jun-19 | QCBat Rt | atch: RA190522-5 chID: RA190522-5-2 in ID: RA190522-5A Fime: 150 minutes | Moisture(% Result Unit | is: Unfiltered | | |
|------------------------|---------------|---|-------------|---|---------------------------|----------------|-----|------------|
| CASNO | Analyte | Sample Result +/- 2 s TPU MDC | Flags | Duplic Result +/- 2 s TPU | ate MDC | Flags | DER | DER Lim |

Ρ

14.6 +/- 3.4

0.8

Comments:

15262-20-1

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

- Y2 Chemical Yield outside default limits.
- W DER is greater than Warning Limit of 1.42
- D DER is greater than Control Limit of 2.13

LT - Result is less than Request MDC, greater than sample specific MDC

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

11 - Loo Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

Data Package ID: RA1905234-1

Abbreviations:

TPU - Total Propagated Uncertainty

DER - Duplicate Error Ratio

0.8

Ρ

0.0575

2.13

BDL - Below Detection Limit

NR - Not Reported

Page 2 of 2

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-1D | Sample Matrix: WATER | Prep Batch: RA190521-11 | Final Aliquot: 997 ml |
|-------------------|---------------------------|--------------------------|------------------------|
| | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190521-11-1 | Prep Basis: Unfiltered |
| Lab ID: 1905234-1 | Date Collected: 08-May-19 | Run ID: RA190521-11A | Moisture(%): NA |
| | Date Prepared: 21-May-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | Date Analyzed: 03-Jun-19 | Report Basis: Unfiltered | File Name: RAC0528 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 1.23 | 0.8 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.23 +/- 0.51 | 0.80 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34160 | 29030 | ug | 85.0 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-2 | Sample Matrix: WATER | Prep Batch: RA190522-5 | Final Aliquot: 997 ml |
|-------------------|---------------------------|-------------------------------------|------------------------|
| 1 -1 ID 4005004.0 | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190522-5-2 | Prep Basis: Unfiltered |
| Lab ID: 1905234-2 | Date Collected: 08-May-19 | Run ID: RA190522-5A Moisture(%): NA | |
| | Date Prepared: 22-May-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: RAC0530 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 0.82 | 0.76 | 1 | NA | |
| 15262-20-1 | Ra-228 | 0.82 +/- 0.43 | 0.76 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32470 | 29660 | ug | 91.4 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-3 | Sample Matrix: WATER | Prep Batch: RA190522-5 | Final Aliquot: 997 ml | |
|-------------------|---------------------------|--------------------------|------------------------|--|
| | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190522-5-2 | Prep Basis: Unfiltered | |
| Lab ID: 1905234-3 | Date Collected: 08-May-19 | Run ID: RA190522-5A | Moisture(%): NA | |
| | Date Prepared: 22-May-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: RAC0530 | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 3.61 | 0.84 | 1 | NA | |
| 15262-20-1 | Ra-228 | 3.61 +/- 0.99 | 0.84 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32500 | 28080 | ug | 86.4 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-4 | Sample Matrix: WATER | Prep Batch: RA190522-5 | Final Aliquot: 997 ml |
|-----------|---------------------|---------------------------|--------------------------|------------------------|
| | | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190522-5-2 | Prep Basis: Unfiltered |
| Lab ID: | D: 1905234-4 | Date Collected: 08-May-19 | Run ID: RA190522-5A | Moisture(%): NA |
| | | Date Prepared: 22-May-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: RAC0530 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 1.72 | 0.75 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.72 +/- 0.58 | 0.75 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32470 | 29910 | ug | 92.1 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: E | LF-5 | Sample Matrix: WATER | Prep Batch: RA190522-5 | Final Aliquot: 997 ml | |
|-------------|-----------|---------------------------|--------------------------|------------------------|--|
| | | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190522-5-2 | Prep Basis: Unfiltered | |
| | 1905234-5 | Date Collected: 08-May-19 | Run ID: RA190522-5A | Moisture(%): NA | |
| | | Date Prepared: 22-May-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: RAC0530 | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.85 | 0.79 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.99 +/- 0.64 | 0.79 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32470 | 29260 | ug | 90.1 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-6 | Sample Matrix: WATER | Prep Batch: RA190521-11 | Final Aliquot: 997 ml |
|-------------------|---------------------------|--------------------------|------------------------|
| | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190521-11-1 | Prep Basis: Unfiltered |
| Lab ID: 1905234-6 | Date Collected: 08-May-19 | Run ID: RA190521-11A | Moisture(%): NA |
| | Date Prepared: 21-May-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | Date Analyzed: 03-Jun-19 | Report Basis: Unfiltered | File Name: RAC0528 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|-----|------------------|----|------------------|
| | COMBINED RA (226+228) | 5.23 | 0.8 | 1 | NA | |
| 15262-20-1 | Ra-228 | 4.1 +/- 1.1 | 0.8 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34170 | 28270 | ug | 82.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-7 | Sample Matrix: WATER | Prep Batch: RA190521-11 | Final Aliquot: 997 ml |
|-------------------|---------------------------|--------------------------|------------------------|
| Lab ID: 1905234-7 | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190521-11-1 | Prep Basis: Unfiltered |
| | Date Collected: 08-May-19 | Run ID: RA190521-11A | Moisture(%): NA |
| | Date Prepared: 21-May-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | Date Analyzed: 03-Jun-19 | Report Basis: Unfiltered | File Name: RAC0528 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.26 | 0.81 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.39 +/- 0.54 | 0.81 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34160 | 28590 | ug | 83.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-8 | Sample Matrix: WATER | Prep Batch: RA190522-5 | Final Aliquot: 997 ml | |
|-------------------|---------------------------|--------------------------|------------------------|--|
| Lab ID: 1905234-8 | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190522-5-2 | Prep Basis: Unfiltered | |
| Lab ID: 1905234-8 | Date Collected: 08-May-19 | Run ID: RA190522-5A | Moisture(%): NA | |
| | Date Prepared: 22-May-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: RAC0530 | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.25 | 0.8 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.50 +/- 0.55 | 0.80 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32470 | 30100 | ug | 92.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-9 | Sample Matrix: WATER | Prep Batch: RA190522-5 | Final Aliquot: 997 ml | |
|-------------------|---------------------------|--------------------------|------------------------|--|
| Lab ID: 1905234-9 | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190522-5-2 | Prep Basis: Unfiltered | |
| Lab ID: 1903234-9 | Date Collected: 08-May-19 | Run ID: RA190522-5A | Moisture(%): NA | |
| | Date Prepared: 22-May-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: RAC0530 | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 1.34 | 0.87 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.05 +/- 0.50 | 0.87 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32470 | 28240 | ug | 87.0 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-10 | Sample Matrix: WATER | Prep Batch: RA190522-5 | Final Aliquot: 997 ml | |
|--------------------|---------------------------|--------------------------|------------------------|--|
| | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190522-5-2 | Prep Basis: Unfiltered | |
| Lab ID: 1905234-10 | Date Collected: 08-May-19 | Run ID: RA190522-5A | Moisture(%): NA | |
| | Date Prepared: 22-May-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: RAC0530 | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.47 | 0.83 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.98 +/- 0.65 | 0.83 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32510 | 27370 | ug | 84.2 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-11 | Sample Matrix: WATER | Prep Batch: RA190522-5 | Final Aliquot: 997 ml | |
|-----------|------------|---------------------------|--------------------------|------------------------|--|
| | | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190522-5-2 | Prep Basis: Unfiltered | |
| Lab ID: | 1905234-11 | Date Collected: 08-May-19 | Run ID: RA190522-5A | Moisture(%): NA | |
| | | Date Prepared: 22-May-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: RAC0530 | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 1.88 | 0.78 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.53 +/- 0.55 | 0.78 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32470 | 29950 | ug | 92.2 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-12 | Sample Matrix: WATER | Prep Batch: RA190522-5 | Final Aliquot: 997 ml | |
|--------------------|---------------------------|--------------------------|------------------------|--|
| | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190522-5-2 | Prep Basis: Unfiltered | |
| Lab ID: 1905234-12 | Date Collected: 08-May-19 | Run ID: RA190522-5A | Moisture(%): NA | |
| | Date Prepared: 22-May-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: RAC0530 | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.25 | 0.76 | 1 | NA | |
| 15262-20-1 | Ra-228 | 2.25 +/- 0.69 | 0.76 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32480 | 30630 | ug | 94.3 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF- | -13 | Sample Matrix: WATER | Prep Batch: RA190522-5 | Final Aliquot: 997 ml | |
|----------------|---------|---------------------------|--------------------------|---|--|
| | | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190522-5-2 | Prep Basis: Unfiltered Moisture(%): NA | |
| Lab ID: 1905 | 5234-13 | Date Collected: 08-May-19 | Run ID: RA190522-5A | | |
| | | Date Prepared: 22-May-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: RAC0530 | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 1.58 | 0.78 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.58 +/- 0.56 | 0.78 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32470 | 30110 | ug | 92.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF | -14 | Sample Matrix: WATER | Prep Batch: RA190522-5 | Final Aliquot: 499 ml | |
|---------------|------------|---------------------------|--------------------------|------------------------|--|
| | 1905234-14 | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190522-5-2 | Prep Basis: Unfiltered | |
| Lab ID: 1908 | | Date Collected: 08-May-19 | Run ID: RA190522-5A | Moisture(%): NA | |
| | | Date Prepared: 22-May-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | | Date Analyzed: 30-May-19 | Report Basis: Unfiltered | File Name: RAC0530 | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.58 | 1.55 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.57 +/- 0.85 | 1.55 | 1 | NA | M3 |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32470 | 29830 | ug | 91.9 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: DUP | Sample Matrix: WATER | Prep Batch: RA190521-11 | Final Aliquot: 997 ml | |
|--------------------|---------------------------|--------------------------|------------------------|--|
| Lab ID: 1005004.45 | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190521-11-1 | Prep Basis: Unfiltered | |
| Lab ID: 1905234-15 | Date Collected: 07-May-19 | Run ID: RA190521-11A | Moisture(%): NA | |
| | Date Prepared: 21-May-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | Date Analyzed: 03-Jun-19 | Report Basis: Unfiltered | File Name: RAC0528 | |

| CASNO | | | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|---------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 1.99 | 0.86 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.46 +/- 0.57 | 0.86 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34170 | 27360 | ug | 80.1 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1905234

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: FB | Sample Matrix: WATER | Prep Batch: RA190522-5 | Final Aliquot: 997 ml | |
|-------------------|---------------------------|--------------------------|------------------------|--|
| Lab ID: 1905234-1 | Prep SOP: SOP749 Rev 5 | QCBatchID: RA190522-5-2 | Prep Basis: Unfiltered | |
| | Date Collected: 08-May-19 | Run ID: RA190522-5A | Moisture(%): NA | |
| | Date Prepared: 22-May-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | Date Analyzed: 03-Jun-19 | Report Basis: Unfiltered | File Name: RAC0603A | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 0 | 0.72 | 1 | NA | U |
| 15262-20-1 | Ra-228 | 0.20 +/- 0.34 | 0.72 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 32460 | 30780 | ug | 94.8 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

| | | | | ALS | |
|--|--|---|---|---------------------------------------|-----------|
| QUAL | ITY ASSURANCE SI | J MMARY SI | HEET | | |
| | | | eric replanchet | ng 228 | |
| | ALS W.O. # | BATCH Non | - seguertals | ` | |
| | | TEST METHOD | | | |
| | SOP/R1 | EV (PREP) | 149 | ; | |
| | | V (ANAL) | · · · · · · · · · · · · · · · · · · · | / | |
| samples. Problems cou scheduling, equipment, | A or other problems or development of the solution of the solu | r, odor, dilution include docume | , consistency, entation of minor | | |
| | | | | | · |
| | | ····· | | , | |
| | | 19/18 | | | |
| or non-sequential Ra-er | n samples that are replanch | etted: | | | - |
| | | | | | |
| 1. Use the superna | tant fraction from SOP 749 | step 8.1.26. | | | |
| | tant fraction from SOP 749 that is in a cup, transfer to a 5 | • | ube and add 1ml | Yttrium carrier. | Der Mar |
| 2. If the supernatar 3. Shake for ~36 ุhc | nt is in a cup, transfer to a 5 ours and replan chett for Ra2 | 0mL centrifuge t 28 analysis per s | step 8.1.25. | | Kir South |
| If the supernatar Shake for ~36 ho 4. On the benchsha | nt is in a cup, transfer to a 5 ours and replan ch ett for Ra2 set, the previous planchette | OmL centrifuge t 28 analysis per s d decay date/tir | step 8.1.25. ne will become tl | he new ingrowth | |
| If the supernatar Shake for ~36 ho 4. On the benchsha | nt is in a cup, transfer to a 5 ours and replan ch ett for Ra2 set, the previous planchette new decay date/time will be | OmL centrifuge t 28 analysis per s d decay date/tir e the new replan | step 8.1.25. ne will become tl | he new ingrowth | |
| If the supernatar Shake for ~36 ho 4. On the benchsha | nt is in a cup, transfer to a 5 ours and replan ch ett for Ra2 set, the previous planchette new decay date/time will be | OmL centrifuge t 28 analysis per s d decay date/tir e the new replan | step 8.1.25. ne will become tl | he new ingrowth | |
| If the supernatar Shake for ~36 ho 4. On the benchsha | nt is in a cup, transfer to a 5 ours and replan ch ett for Ra2 set, the previous planchette | OmL centrifuge t 28 analysis per s d decay date/tir e the new replan | step 8.1.25. ne will become tl | he new ingrowth | |
| If the supernatar Shake for ~36 ho 4. On the benchsha | nt is in a cup, transfer to a 5 ours and replan ch ett for Ra2 set, the previous planchette new decay date/time will be | OmL centrifuge t 28 analysis per s d decay date/tir e the new replan | step 8.1.25. ne will become tl | he new ingrowth | |
| If the supernatar Shake for ~36 ho 4. On the benchsha | nt is in a cup, transfer to a 5 ours and replan ch ett for Ra2 set, the previous planchette new decay date/time will be | OmL centrifuge t 28 analysis per s d decay date/tir e the new replan | step 8.1.25. ne will become tl | he new ingrowth | |
| If the supernatar Shake for ~36 ho 4. On the benchsha | nt is in a cup, transfer to a 5 ours and replan ch ett for Ra2 set, the previous planchette new decay date/time will be | OmL centrifuge t 28 analysis per s d decay date/tir e the new replan | step 8.1.25. ne will become tl | he new ingrowth | |
| If the supernatar Shake for ~36 ho 4. On the benchsha | nt is in a cup, transfer to a 5 ours and replan ch ett for Ra2 set, the previous planchette new decay date/time will be | OmL centrifuge t 28 analysis per s d decay date/tir e the new replan | step 8.1.25. ne will become tl | he new ingrowth | |
| If the supernatar Shake for ~36 ho 4. On the benchsha | nt is in a cup, transfer to a 5 ours and replan ch ett for Ra2 set, the previous planchette new decay date/time will be | OmL centrifuge t 28 analysis per s d decay date/tir e the new replan | step 8.1.25. ne will become tl | he new ingrowth | |
| If the supernatar Shake for ~36 ho 4. On the benchsha | nt is in a cup, transfer to a 5 ours and replan ch ett for Ra2 set, the previous planchette new decay date/time will be | OmL centrifuge t 28 analysis per s d decay date/tir e the new replan | step 8.1.25. ne will become tl | he new ingrowth | |
| If the supernatar Shake for ~36 ho 4. On the benchsha | nt is in a cup, transfer to a 5 ours and replan ch ett for Ra2 set, the previous planchette new decay date/time will be | OmL centrifuge t 28 analysis per s d decay date/tir e the new replan | step 8.1.25. ne will become tl | he new ingrowth | |
| If the supernatar Shake for ~36 hc On the benchshadate/time. The | nt is in a cup, transfer to a 5 purs and replanchett for Ra2 set, the previous planchette new decay date/time will be RbS 9 | OmL centrifuge t 28 analysis per s d decay date/tir e the new replan | step 8.1.25. ne will become the solution of th | he new ingrowth ed in step 8.1,26. | |
| If the supernatar Shake for ~36 ho 4. On the benchsha | nt is in a cup, transfer to a 5 purs and replanchett for Ra2 set, the previous planchette new decay date/time will be RbS 9 | OmL centrifuge t 28 analysis per s d decay date/tir e the new replan | step 8.1.25. ne will become tl | he new ingrowth ed in step 8.1,26. | |

and the second second

Ĩ.



Jeff Tucker PacifiCorp 1407 West North Temple, # 280 Salt Lake City, UT 84116 TEL: (801) 220-2989

RE: Hunter CCR Groundwater Sampling / PERCM052 Dear Jeff Tucker: Lab Set ID: 1905215 3440 South 700 West Salt Lake City, UT 84119 American West Analytical Laboratories received sample(s) on 5/9/2019 for the analyses presented in the following report. American West Analytical Laboratories (AWAL) is accredited by The National Phone: (801) 263-8686 Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is Toll Free: (888) 263-8686 state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri. Fax: (801) 263-8687 All analyses were performed in accordance to the NELAP protocols unless noted e-mail: awal@awal-labs.com otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call. web: www.awal-labs.com 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 Kyle F. Gross purging efficiency. The "Reporting Limit" found on the report is equivalent to the Laboratory Director 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 Jose Rocha figures for quality control and calculation purposes. **QA** Officer

Thank You,

Approved by:

Laboratory Director or designee

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. Confidential Business Information: This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any processe will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and accordance to other.



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 1

 Lab Sample ID:
 1905215-001
 1

 Client Sample ID:
 ELF-1D
 1

 Collection Date:
 5/8/2019
 1635h

 Received Date:
 5/9/2019
 721h

Analytical Results

TOTAL METALS

| 3440 South 700 West |
|--------------------------|
| Salt Lake City, UT 84119 |

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Boron | mg/L | 5/13/2019 1648h | 5/22/2019 2038h | E200.7 | 0.500 | 2.23 | |
| Calcium | mg/L | 5/13/2019 1648h | 5/22/2019 1846h | E200.7 | 10.0 | 377 | 2 |

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

Phone: (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

Report Date: 5/23/2019 Page 2 of 45



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905215-002Client Sample ID:ELF-2Collection Date:5/8/20191730hReceived Date:5/9/2019721h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 10.0 | 3.77 430 | |

Phone: (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

> > Report Date: 5/23/2019 Page 3 of 45



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905215-003Client Sample ID:ELF-3Collection Date:5/8/20191430hReceived Date:5/9/2019721h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 10.0 | 1.51 465 | |

Phone: (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

Report Date: 5/23/2019 Page 4 of 45



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM0521905215-004Lab Sample ID:1905215-004ELF-4Client Sample ID:ELF-4Image: Collection Date:5/8/2019Received Date:5/9/2019721h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 10.0 | 5.00 515 | |

Phone: (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

Report Date: 5/23/2019 Page 5 of 45



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905215-005Client Sample ID:ELF-5Collection Date:5/8/20191245hReceived Date:5/9/2019721h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 10.0 | 6.06 489 | |

Phone: (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

Report Date: 5/23/2019 Page 6 of 45



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact Sample ID:
 1905215-006

 Client Sample ID:
 ELF-6
 Image: Contact Sample ID:
 1230h

 Received Date:
 5/9/2019
 721h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 10.0 | 12.4 539 | |

Phone: (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

> > Report Date: 5/23/2019 Page 7 of 45



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact Con

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 10.0 | 1.86 471 | |

Phone: (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

Report Date: 5/23/2019 Page 8 of 45



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact Sample ID:
 1905215-008

 Client Sample ID:
 ELF-8
 Image: Contact Sample ID:
 1145h

 Received Date:
 5/9/2019
 721h
 Image: Contact Sample ID:
 Image: Contact Sample ID:

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 5.00 10.0 | 29.8 606 | |

Phone: (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

> > Report Date: 5/23/2019 Page 9 of 45



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM0521905215-009Lab Sample ID:1905215-009ELF-9Collection Date:5/8/20191630hReceived Date:5/9/2019721h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 10.0 | 1.87 58.7 | |

Phone: (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

Report Date: 5/23/2019 Page 10 of 45



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 1005215-010

 Lab Sample ID:
 1905215-010
 1500h

 Collection Date:
 5/8/2019
 1500h

 Received Date:
 5/9/2019
 721h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 10.0 | 2.12 543 | |

Phone: (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

Report Date: 5/23/2019 Page 11 of 45



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact in the sample ID in the sam

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 10.0 | 17.8 436 | |

Phone: (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

Report Date: 5/23/2019 Page 12 of 45



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact in the sample ID in the sam

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 10.0 | 1.68 182 | |

Phone: (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

Report Date: 5/23/2019 Page 13 of 45



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact in the sample ID in the sam

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 10.0 | 0.703 481 | |

Phone: (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

Report Date: 5/23/2019 Page 14 of 45



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905215-014Client Sample ID:ELF-14Collection Date:5/8/2019915hReceived Date:5/9/2019721h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L | 5/13/2019 1648h | | E200.7 | 0.500 10.0 | 2.42 | |
| | | mg/L | 5/13/2019 1648h | 5/22/2019 192/h | E200.7 | 10.0 | 534 | |

Phone: (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

Report Date: 5/23/2019 Page 15 of 45



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact Sample ID:
 1905215-015

 Lab Sample ID:
 DUP
 DUP
 Image: Contact Sample ID:
 1520h

 Received Date:
 5/9/2019
 721h
 Image: Contact Sample ID:
 Image: Contact Sample ID:

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 10.0 | 1.65 425 | |

Phone: (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

Report Date: 5/23/2019 Page 16 of 45



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905215-016Client Sample ID:FBCollection Date:5/7/20191400hReceived Date:5/9/2019721h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------|--------------|------------------------------------|------------------|------------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Boron Calcium | mg/L mg/L | 5/13/2019 1648h 5/13/2019 1648h | | E200.7 E200.7 | 0.500 1.00 | < 0.500 < 1.00 | |

Phone: (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

Report Date: 5/23/2019 Page 17 of 45



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact in the sample ID in the sam

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| Chloride | mg/L | | 5/20/2019 1428h | E300.0 | 50.0 | 6,880 | |
| Fluoride | mg/L | | 5/17/2019 240h | E300.0 | 0.100 | < 0.100 | |
| рН @ 25° С | pH Units | | 5/9/2019 1412h | SM4500-H+B | 1.00 | 7.02 | Н |
| Sulfate | mg/L | | 5/17/2019 1205h | E300.0 | 375 | 7,730 | |
| Total Dissolved Solids | mg/L | | 5/9/2019 1350h | SM2540C | 500 | 26,800 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905215-002Client Sample ID:ELF-2Collection Date:5/8/20191730hReceived Date:5/9/2019721h

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| Vest | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| 119 | Chloride | mg/L | | 5/16/2019 2337h | E300.0 | 50.0 | 222 | |
| | Fluoride | mg/L | | 5/17/2019 257h | E300.0 | 0.100 | 0.310 | |
| | рН @ 25° С | pH Units | | 5/9/2019 1412h | SM4500-H+B | 1.00 | 7.17 | Н |
| 3686 | Sulfate | mg/L | | 5/16/2019 2337h | E300.0 | 375 | 6,950 | |
| 8686 | Total Dissolved Solids | mg/L | | 5/9/2019 1350h | SM2540C | 100 | 12,200 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM0521905215-003Lab Sample ID:1905215-003ELF-3Client Sample ID:ELF-3Ital Sample ID:5/8/2019Keceived Date:5/9/2019721h

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| Chloride | mg/L | | 5/20/2019 1444h | E300.0 | 10.0 | 768 | |
| Fluoride | mg/L | | 5/17/2019 314h | E300.0 | 0.100 | < 0.100 | |
| рН @ 25° С | pH Units | | 5/9/2019 1412h | SM4500-H+B | 1.00 | 7.52 | Н |
| Sulfate | mg/L | | 5/16/2019 2353h | E300.0 | 1,500 | 27,700 | |
| Total Dissolved Solids | mg/L | | 5/9/2019 1350h | SM2540C | 500 | 50,700 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM0521905215-004Lab Sample ID:1905215-004ELF-4Client Sample ID:ELF-4Image: Collection Date:5/8/2019Received Date:5/9/2019721h

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| Vest | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| 119 | Chloride | mg/L | | 5/17/2019 010h | E300.0 | 50.0 | 1,980 | |
| | Fluoride | mg/L | | 5/17/2019 330h | E300.0 | 0.100 | 0.187 | |
| | рН @ 25° С | pH Units | | 5/9/2019 1412h | SM4500-H+B | 1.00 | 7.06 | Н |
| (0) | Sulfate | mg/L | | 5/17/2019 010h | E300.0 | 375 | 4,800 | |
| 686 686 | Total Dissolved Solids | mg/L | | 5/9/2019 1350h | SM2540C | 100 | 11,800 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer





Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905215-005Client Sample ID:ELF-5Collection Date:5/8/20191245hReceived Date:5/9/2019721h

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| Vest | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| 119 | Chloride | mg/L | | 5/17/2019 100h | E300.0 | 100 | 3,180 | |
| | Fluoride | mg/L | | 5/17/2019 347h | E300.0 | 0.100 | 0.108 | |
| | pH @ 25° C | pH Units | | 5/9/2019 1412h | SM4500-H+B | 1.00 | 7.09 | Н |
| 3686 | Sulfate | mg/L | | 5/17/2019 100h | E300.0 | 750 | 8,640 | |
| 2686 | Total Dissolved Solids | mg/L | | 5/9/2019 1350h | SM2540C | 500 | 21,600 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905215-006Client Sample ID:ELF-6Collection Date:5/8/20191230hReceived Date:5/9/2019721h

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| Chloride | mg/L | | 5/17/2019 117h | E300.0 | 100 | 3,810 | |
| Fluoride | mg/L | | 5/17/2019 404h | E300.0 | 0.100 | 0.139 | |
| рН @ 25° С | pH Units | | 5/9/2019 1412h | SM4500-H+B | 1.00 | 7.06 | Н |
| Sulfate | mg/L | | 5/17/2019 117h | E300.0 | 750 | 7,840 | |
| Total Dissolved Solids | mg/L | | 5/9/2019 1350h | SM2540C | 500 | 23,700 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact Con

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| Vest | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| 119 | Chloride | mg/L | | 5/20/2019 1501h | E300.0 | 50.0 | 2,710 | |
| | Fluoride | mg/L | | 5/18/2019 205h | E300.0 | 0.100 | 0.132 | |
| | рН @ 25° С | pH Units | | 5/9/2019 1412h | SM4500-H+B | 1.00 | 7.03 | Н |
| 686 | Sulfate | mg/L | | 5/17/2019 1605h | E300.0 | 375 | 8,260 | |
| 080 686 | Total Dissolved Solids | mg/L | | 5/9/2019 1350h | SM2540C | 100 | 17,200 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905215-008Client Sample ID:ELF-8Collection Date:5/8/20191145hReceived Date:5/9/2019721h

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| Vest | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| 119 | Chloride | mg/L | | 5/21/2019 1013h | E300.0 | 50.0 | 2,100 | |
| | Fluoride | mg/L | | 5/18/2019 222h | E300.0 | 0.100 | 1.13 | |
| | рН @ 25° С | pH Units | | 5/9/2019 1412h | SM4500-H+B | 1.00 | 7.49 | Н |
| 3686 | Sulfate | mg/L | | 5/17/2019 1621h | E300.0 | 150 | 2,980 | |
| 8686 | Total Dissolved Solids | mg/L | | 5/9/2019 1350h | SM2540C | 100 | 9,400 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905215-009Client Sample ID:ELF-9Collection Date:5/8/20191630hReceived Date:5/9/2019721h

Analytical Results

3440 South 700 West Salt Lake City, UT 84119

Date Method Reporting Date Analytical Compound Units Prepared Analyzed Used Limit Result Oual Chloride mg/L 5/20/2019 1534h E300.0 10.0 527 Fluoride 0.100 mg/L 5/18/2019 239h E300.0 1.43 pH @ 25° C SM4500-H+B 1.00 7.95 Н pH Units 5/9/2019 1412h Sulfate mg/L 5/17/2019 1222h E300.0 375 5,750 Total Dissolved Solids mg/L 5/10/2019 1250h SM2540C 100 10,300

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. Confidential Business Information: This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report in connection many is in good faith and according to the rules of the trade and of science.



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 1

 Lab Sample ID:
 1905215-010
 1

 Client Sample ID:
 ELF-10
 1

 Collection Date:
 5/8/2019
 1500h

 Received Date:
 5/9/2019
 721h

Analytical Results

3440 South 700 West Salt Lake City, UT 84119

Date Method Reporting Date Analytical Compound Units Prepared Analyzed Used Limit Result Oual Chloride mg/L 5/17/2019 1239h E300.0 200 9,900 Fluoride 0.100 < 0.100mg/L 5/18/2019 255h E300.0 pH @ 25° C SM4500-H+B 1.00 6.88 pH Units 5/9/2019 1412h Η Sulfate mg/L 5/17/2019 1239h E300.0 1,500 10,300 Total Dissolved Solids mg/L 5/10/2019 1250h SM2540C 100 35,200

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. Confidential Business Information: This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report in connection manys in good faith and according to the rules of the trade and of science.



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905215-011Client Sample ID:ELF-11Collection Date:5/8/20191115hReceived Date:5/9/2019721h

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| Vest | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| 119 | Chloride | mg/L | | 5/17/2019 1406h | E300.0 | 100 | 1,100 | |
| | Fluoride | mg/L | | 5/18/2019 312h | E300.0 | 0.100 | 0.173 | |
| | рН @ 25° С | pH Units | | 5/9/2019 1412h | SM4500-H+B | 1.00 | 7.23 | Н |
| 8686 | Sulfate | mg/L | | 5/17/2019 1406h | E300.0 | 750 | 9,980 | |
| 686 | Total Dissolved Solids | mg/L | | 5/10/2019 1250h | SM2540C | 100 | 16,800 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact in the sample ID in the sam

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| 4119 | Chloride | mg/L | | 5/17/2019 1818h | E300.0 | 10.0 | 500 | |
| | Fluoride | mg/L | | 5/18/2019 329h | E300.0 | 0.100 | 0.341 | |
| | рН @ 25° С | pH Units | | 5/9/2019 1412h | SM4500-H+B | 1.00 | 7.55 | Н |
| 8686 | Sulfate | mg/L | | 5/17/2019 1548h | E300.0 | 750 | 12,200 | |
| 8686 | Total Dissolved Solids | mg/L | | 5/10/2019 1250h | SM2540C | 100 | 20,100 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact in the sample ID in the sam

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| Vest | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| 119 | Chloride | mg/L | | 5/17/2019 1422h | E300.0 | 100 | 2,730 | |
| | Fluoride | mg/L | | 5/18/2019 345h | E300.0 | 0.100 | < 0.100 | |
| | рН @ 25° С | pH Units | | 5/9/2019 1412h | SM4500-H+B | 1.00 | 7.03 | Н |
| 3686 | Sulfate | mg/L | | 5/17/2019 1422h | E300.0 | 750 | 7,730 | |
| 8686 | Total Dissolved Solids | mg/L | | 5/10/2019 1250h | SM2540C | 100 | 16,700 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905215-014Client Sample ID:ELF-14Collection Date:5/8/2019915hReceived Date:5/9/2019721h

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| Vest | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| 4119 | Chloride | mg/L | | 5/20/2019 1624h | E300.0 | 100 | 5,070 | |
| | Fluoride | mg/L | | 5/18/2019 402h | E300.0 | 0.100 | < 0.100 | |
| | pH @ 25° C | pH Units | | 5/9/2019 1412h | SM4500-H+B | 1.00 | 7.13 | Н |
| | Sulfate | mg/L | | 5/17/2019 1638h | E300.0 | 750 | 7,280 | |
| 8686 | Total Dissolved Solids | mg/L | | 5/10/2019 1250h | SM2540C | 100 | 19,700 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact in the sample ID in the sam

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| 4119 | Chloride | mg/L | | 5/17/2019 1728h | E300.0 | 50.0 | 9,610 | |
| | Fluoride | mg/L | | 5/18/2019 510h | E300.0 | 0.100 | < 0.100 | |
| | рН @ 25° С | pH Units | | 5/9/2019 1730h | SM4500-H+B | 1.00 | 7.02 | Н |
| 8686 | Sulfate | mg/L | | 5/17/2019 1728h | E300.0 | 375 | 9,910 | |
| 8686 | Total Dissolved Solids | mg/L | | 5/10/2019 1250h | SM2540C | 100 | 35,100 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact Con

Analytical Results

3440 South 700 Wes Salt Lake City, UT 84119

| West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| 4119 | Chloride | mg/L | | 5/17/2019 1745h | E300.0 | 0.100 | 0.147 | |
| | Fluoride | mg/L | | 5/17/2019 1745h | E300.0 | 0.100 | < 0.100 | |
| | рН @ 25° С | pH Units | | 5/9/2019 1730h | SM4500-H+B | 1.00 | 7.97 | Н |
| 8686 | Sulfate | mg/L | | 5/17/2019 1745h | E300.0 | 0.750 | < 0.750 | |
| 8686 | Total Dissolved Solids | mg/L | | 5/10/2019 1250h | SM2540C | 10.0 | 12.0 | |

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

H - Sample was received outside of the holding time.

web: www.awal-labs.com

Kyle F. Gross Laboratory Director

> Jose Rocha QA Officer



Calcium

9.95

mg/L

3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

QC SUMMARY REPORT

| Lab Set ID: 1 | acifiCorp 905215 Iunter CCR Ground | | 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: Test Code: | LCS-62590 200.7-W | Date Analyzed: Date Prepared: | 05/22/20 05/13/20 | | | | | | | | | | | |
| Boron | | 1.11 | mg/L | E200.7 | 0.0633 | 0.500 | 1.000 | 0 | 111 | 85 - 115 | | | | |

1.00

10.00

0

99.5

85 - 115

0.0937

E200.7

Report Date: 5/23/2019 Page 34 of 45



3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

American West
ANALYTICAL LABORATORIESQC SUMMARY REPORTClient:PacifiCorpContact:Jeff TuckerLab Set ID:1905215Dept:MEProject:Hunter CCR Groundwater Sampling / PERCM052QC 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-62590 | Date Analyzed: | 05/22/201 | 9 1842h | | | | | | | | | | |
| Test Code: | 200.7-W | Date Prepared: | 05/13/201 | 9 1648h | | | | | | | | | | |
| Boron | | < 0.500 | mg/L | E200.7 | 0.0633 | 0.500 | | | | | | | | |
| Calcium | | < 1.00 | mg/L | E200.7 | 0.0937 | 1.00 | | | | | | | | |

Report Date: 5/23/2019 Page 35 of 45



Boron

3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

QC SUMMARY REPORT

| Client: | PacifiCorp | | | | | | Contact: | Jeff Tuck | er | | | | | |
|---------------|--------------------|---------------------|-----------|----------|-------|--------------------|------------------|----------------------|-------|----------|-----------------|-------|--------------|------|
| Lab Set ID: | 1905215 | | | | | | Dept: | ME | | | | | | |
| Project: | Hunter CCR Groundw | rater Sampling / PI | ERCM052 | | | | QC Type | e: MS | | | | | | |
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample II | D: 1905215-001BMS | Date Analyzed: | 05/22/20 | 19 1849h | | | | | | | | | | |
| Test Code: | 200.7-W | Date Prepared: | 05/13/202 | 19 1648h | | | | | | | | | | |
| Calcium | | 377 | mg/L | E200.7 | 0.937 | 10.0 | 10.00 | 377 | -7.32 | 70 - 130 | | | | 2 |
| Lab Sample II | D: 1905215-001BMS | Date Analyzed: | 05/22/20 | 19 2045h | | | | | | | | | | |
| Test Code: | 200.7-W | Date Prepared: | 05/13/202 | 19 1648h | | | | | | | | | | |

0.500

0.0633

2.23

119

70 - 130

1.000

E200.7

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

3.42

mg/L

Report Date: 5/23/2019 Page 36 of 45



Boron

3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

2.52

20

3.42

QC SUMMARY REPORT

| Client: | PacifiCorp | | | | | | Contact: | Jeff Tuck | er | | | | | |
|-----------------------|---------------------|-----------------------|------------------|--------------------|-------|--------------------|------------------|----------------------|------|----------|-----------------|-------|--------------|------|
| Lab Set ID: | 1905215 | | | | | | Dept: | ME | | | | | | |
| Project: | Hunter CCR Groundwa | ter Sampling / PI | ERCM052 | | | | 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 II |): 1905215-001BMSD | Date Analyzed: | 05/22/20 | 19 1851h | | | | | | | | | | |
| Test Code: | 200.7-W | Date Prepared: | 05/13/20 | 19 1648h | | | | | | | | | | |
| Test Code: Calcium | 200.7-W | Date Prepared: 406 | 05/13/20 mg/L | 19 1648h E200.7 | 0.937 | 10.0 | 10.00 | 377 | 289 | 70 - 130 | 377 | 7.58 | 20 | 2 |

0.500

2.23

127

70 - 130

1.000

0.0633

E200.7

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

3.51

mg/L

Report Date: 5/23/2019 Page 37 of 45



pH @ 25° C

Test Code:

Test Code:

Test Code:

Test Code:

Test Code:

Total Dissolved Solids

Total Dissolved Solids

Total Dissolved Solids

pH @ 25° C

pH @ 25° C

Lab Sample ID: 1905215-010ADUP

Lab Sample ID: 1905215-015ADUP

Lab Sample ID: 1905215-001ADUP

Lab Sample ID: 1905215-009ADUP

Lab Sample ID: 1905217-001ADUP

PH-4500H+B

PH-4500H+B

TDS-W-2540C

TDS-W-2540C

TDS-W-2540C

3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha **OA** Officer

7.95

6.88

7.02

26800

10300

8980

0.377

0.290

0.426

0.743

1.54

0.666

5

5

5

5

5

5

Η

Η

Η

OC SUMMARY REPORT

| Client: Lab Set ID: | PacifiCorp : 1905215 | | | | | | Contact: Dept: | Jeff Tucko WC | er | | | | | |
|----------------------------|---|-------------------|-------------|------------|------|--------------------|-------------------|----------------------|------|--------|-----------------|-------|--------------|------|
| Project: | Hunter CCR Groundwa | ater Sampling / I | PERCM052 | | | | 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 I Test Code: | D: 1905215-001ADUP PH-4500H+B | Date Analyzed | 1: 05/09/20 | 19 1412h | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| pH @ 25° C | | 7.02 | pH Units | SM4500-H+B | 1.00 | 1.00 | | | | | 7.02 | 0 | 5 | Н |

1.00

1.00

1.00

500

100

100

1.00

1.00

1.00

400

80.0

80.0

SM4500-H+B

SM4500-H+B

SM4500-H+B

SM2540C

SM2540C

SM2540C

7.98

6.90

7.05

27,000

10,500

9,040

Date Analyzed:

pH Units

pH Units

pH Units

mg/L

mg/L Date Analyzed: 05/10/2019 1250h

mg/L

05/10/2019 1250h

Date Analyzed: 05/09/2019 1412h

Date Analyzed: 05/09/2019 1730h

Date Analyzed: 05/09/2019 1350h

H - Sample was received outside of the holding time.

Report Date: 5/23/2019 Page 38 of 45



Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

QC SUMMARY REPORT

| | | Reporting | Amount | Snike Ref. | RPD Ref. | RPD |
|-----------------|--|-----------|----------|-------------|----------|-----|
| Project: | Hunter CCR Groundwater Sampling / PERCM052 | | QC Type: | LCS | | |
| Lab Set ID: | : 1905215 | | Dept: | WC | | |
| Client: | PacifiCorp | | Contact: | Jeff Tucker | | |
| | | | | | | |

| Lab Sample ID: LCS-R125986 300.0-W Date Analyzed: 05/16/2019 23/03h Chioride Fluoride Suffate 4.96 5.07 mg/L mg/L E300.0 0.0386 0.0240 0.100 5.000 5.000 0 99.2 90 - 110 Suffate 5.07 mg/L E300.0 0.0386 0.100 5.000 0 95.3 90 - 110 Suffate 4.76 mg/L E300.0 0.0240 0.100 5.000 0 95.3 90 - 110 Lab Sample ID: LCS-R125988 Test Code: 300.0-W E300.0 0.0240 0.100 5.000 0 104 90 - 110 Suffate 5.02 mg/L E300.0 0.0240 0.100 5.000 0 104 90 - 110 Suffate 5.02 mg/L E300.0 0.0240 0.100 5.000 0 103 90 - 110 Suffate 5.16 mg/L E300.0 0.0386 0.100 5.000 0 102 90 - 110 Suffate 5.12 mg/L E300.0 | yte | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
|--|---------|----------------|----------|------------|--------|--------------------|------------------|----------------------|------|----------|-----------------|-------|--------------|------|
| Fluoride Sulfate 5.07 4.76 mg/L mg/L E300.0 E300.0 0.0240 0.0557 0.750 5.000 0 101 90 - 110 Los Sample Di Sulfate LCS-R125998 300.0-W Date Analyzed 05/17/2019 1148h $=$ </td <td>-</td> <td>Date Analyzed:</td> <td>05/16/20</td> <td>019 2303h</td> <td></td> | - | Date Analyzed: | 05/16/20 | 019 2303h | | | | | | | | | | |
| Autor Autor <th< td=""><td>ide</td><td>4.96</td><td>mg/L</td><td>E300.0</td><td>0.0386</td><td>0.100</td><td>5.000</td><td>0</td><td>99.2</td><td>90 - 110</td><td></td><td></td><td></td><td></td></th<> | ide | 4.96 | mg/L | E300.0 | 0.0386 | 0.100 | 5.000 | 0 | 99.2 | 90 - 110 | | | | |
| Lab Sample ID: Test Code: LCS-R12598 300.0-W Date Analyzed: 05/17/2019 1148h Fluoride Sulfate 5.22 mg/L E300.0 0.0240 0.100 5.000 0 104 90 - 110 Lab Sample ID: Sulfate 5.22 mg/L E300.0 0.0240 0.100 5.000 0 104 90 - 110 Lab Sample ID: Sulfate LCS-R125990 Date Analyzed: 05/17/2019 1925h U U U U U 90 - 110 Lab Sample ID: Fluoride LCS-R125990 Date Analyzed: 05/17/2019 1925h U U S.10 mg/L E300.0 0.0386 0.100 5.000 0 103 90 - 110 Lab Sample ID: Fluoride LCS-R126074 300.0-W Date Analyzed: 05/20/2019 1411h U 100 5.000 0 101 90 - 110 Lab Sample ID: Fest Code: LCS-R126673 300.0-W Date Analyzed: 05/20/2019 1412h E U E U U 90 - 110 Lab Sample ID: PH @ 25° C LCS-R125660 Pld Sinther Pld I | ide | 5.07 | mg/L | E300.0 | 0.0240 | 0.100 | 5.000 | 0 | 101 | 90 - 110 | | | | |
| Test Code 30.0-W Fluoride Sulfate 5.22 5.02 mg/L mg/L E30.0 E30.0 0.0240 0.0557 0.100 0.750 5.000 0 104 90 - 110 Lab Sample Di Sulfate CS-R125990 30.0-W Date Analyzet 0/17/2019 US-N Sulfate 0.0100 5.000 0 103 90 - 110 Choride Fluoride S.16 mg/L E30.0 0.0386 0.100 5.000 0 103 90 - 110 Choride Fluoride S.16 mg/L E30.0 0.0386 0.100 5.000 0 103 90 - 110 Sulfate S.16 mg/L E30.0 0.0386 0.100 5.000 0 103 90 - 110 Sulfate S.12 mg/L E30.0 0.0240 0.100 5.000 0 102 90 - 110 Sulfate S.12 mg/L E30.0 0.0240 0.100 5.000 0 102 90 - 110 Sulfate S.12 mg/L E30.0 0.0386 0.100 5.000 0 101 90 - 110 Sulfate S.05 </td <td>te</td> <td>4.76</td> <td>mg/L</td> <td>E300.0</td> <td>0.0557</td> <td>0.750</td> <td>5.000</td> <td>0</td> <td>95.3</td> <td>90 - 110</td> <td></td> <td></td> <td></td> <td></td> | te | 4.76 | mg/L | E300.0 | 0.0557 | 0.750 | 5.000 | 0 | 95.3 | 90 - 110 | | | | |
| Inflit Ing Ing Ing Inflit Inflit <thinflit< th=""> Inflit Inflit</thinflit<> | - | Date Analyzed: | 05/17/20 |)19 1148h | | | | | | | | | | |
| Lab Los Los <thlos< th=""> <thlos< th=""> <thlos< th=""></thlos<></thlos<></thlos<> | ide | 5.22 | mg/L | E300.0 | 0.0240 | 0.100 | 5.000 | 0 | 104 | 90 - 110 | | | | |
| Test Code: 300.0-W Chloride 5.16 mg/L E300.0 0.0386 0.100 5.000 0 103 90 - 110 Fluoride 5.12 mg/L E300.0 0.0240 0.100 5.000 0 102 90 - 110 Sulfate 5.12 mg/L E300.0 0.0557 0.750 5.000 0 102 90 - 110 Lab Sample ID: LCS-R126074 Date Analyzed: 05/20/2019 1411h E E E E E Chloride 5.05 mg/L E300.0 0.0386 0.100 5.000 0 102 90 - 110 Lab Sample ID: LCS-R126074 Date Analyzed: 05/20/2019 1411h E E E E E Chloride 5.05 mg/L E300.0 0.0386 0.100 5.000 0 101 90 - 110 Lab Sample ID: LCS-R125653 Date Analyzed: 05/09/2019 1412h E E E E E E pH @ 25° C 9.05 pH Units SM4500-H+B 1.00 1 | te | 5.02 | mg/L | E300.0 | 0.0557 | 0.750 | 5.000 | 0 | 100 | 90 - 110 | | | | |
| Fluoride 5.12 mg/L E30.0 0.0240 0.100 5.000 0 102 90 - 110 Sulfate 5.12 mg/L E30.0 0.0557 0.750 5.000 0 102 90 - 110 Lab Sample ID: LCS-R126074 Date Analyzed: 05/20/2019 1411h E30.0 0.0386 0.100 5.000 0 101 90 - 110 Lab Sample ID: LCS-R126637 Date Analyzed: 05/20/2019 1411h E30.0 0.0386 0.100 5.000 0 101 90 - 110 Lab Sample ID: LCS-R125653 Date Analyzed: 05/20/2019 1412h E | - | Date Analyzed: | 05/17/20 |)19 1925h | | | | | | | | | | |
| Sulfate 5.12 mg/L E300.0 0.0557 0.750 5.000 0 102 90 - 110 Lab Sample ID: Test Code: LCS-R126074 300.0-W Date Analyzed: 05/20/2019 1411h E | ide | 5.16 | mg/L | E300.0 | 0.0386 | 0.100 | 5.000 | 0 | 103 | 90 - 110 | | | | |
| Loss Sample ID: LCSs-R126074 300.0-W Date Analyzed: 05/20/2019 1411h Test Code: 300.0-W 5.05 mg/L E300.0 0.0386 0.100 5.000 0 101 90 - 110 Lob Sample ID: LCS-R125653 PH-4500H+B Date Analyzed: 05/09/2019 1412h E300.0 0.0386 0.100 5.000 0 101 90 - 110 pH @ 25° C PH -4500H+B 9.05 pH Units SM4500-H+B 1.00 1.00 9.000 0 101 98 - 102 Lab Sample ID: LCS-R125660 PH -4500H+B Date Analyzed: 05/09/2019 1730h EXERCISE EXERCISE <td>ide</td> <td>5.12</td> <td>mg/L</td> <td>E300.0</td> <td>0.0240</td> <td>0.100</td> <td>5.000</td> <td>0</td> <td>102</td> <td>90 - 110</td> <td></td> <td></td> <td></td> <td></td> | ide | 5.12 | mg/L | E300.0 | 0.0240 | 0.100 | 5.000 | 0 | 102 | 90 - 110 | | | | |
| Test Code: 300.0-W Chloride 5.05 mg/L E300.0 0.0386 0.100 5.000 0 101 90 - 110 Lab Sample ID: Test Code: LCS-R125653 PH-4500H+B Date Analyzet 05/09/2019 1412h | te | 5.12 | mg/L | E300.0 | 0.0557 | 0.750 | 5.000 | 0 | 102 | 90 - 110 | | | | |
| Lab Sample ID: LCS-R125653 Date Analyzed: 05/09/2019 1412h Test Code: PH-4500H+B 9.05 pH Units SM4500-H+B 1.00 1.00 9.000 0 101 98 - 102 Lab Sample ID: LCS-R125660 Date Analyzed: 05/09/2019 1730h I.00 1.00 9.000 0 101 98 - 102 Lab Sample ID: PH-4500H+B Date Analyzed: 05/09/2019 1730h I.00 I.00 <t< td=""><td>-</td><td>Date Analyzed:</td><td>05/20/20</td><td>)19 1411h</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<> | - | Date Analyzed: | 05/20/20 |)19 1411h | | | | | | | | | | |
| Test Code: PH-4500H+B pH @ 25° C 9.05 pH Units SM4500-H+B 1.00 1.00 9.000 0 101 98 - 102 Lab Sample ID: LCS-R125660 Date Analyzed: 05/09/2019 1730h V | ride | 5.05 | mg/L | E300.0 | 0.0386 | 0.100 | 5.000 | 0 | 101 | 90 - 110 | | | | |
| Lab Sample ID: LCS-R125660 Date Analyzed: 05/09/2019 1730h Test Code: PH-4500H+B | • | Date Analyzed: | 05/09/20 |)19 1412h | | | | | | | | | | |
| Test Code: PH-4500H+B |) 25° C | 9.05 | pH Units | SM4500-H+B | 1.00 | 1.00 | 9.000 | 0 | 101 | 98 - 102 | | | | |
| | • | Date Analyzed: | 05/09/20 |)19 1730h | | | | | | | | | | |
| pH@25°C 9.09 pH Units SM4500-H+B 1.00 1.00 9.000 0 101 98 - 102 |) 25° C | 9.09 | pH Units | SM4500-H+B | 1.00 | 1.00 | 9.000 | 0 | 101 | 98 - 102 | | | | |

Report Date: 5/23/2019 Page 39 of 45



Total Dissolved Solids

3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

QC SUMMARY REPORT

| Lab Set ID: | PacifiCorp 1905215 Hunter CCR Groundy | votor Sompling / DI | PCM05 | , | | | Contact Dept: QC Typ | WC | er | | | | | |
|-----------------------------|---|---------------------|----------|----------|------|--------------------|----------------------------|----------------------|------|----------|-----------------|-------|--------------|------|
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample II Test Code: | D: LCS-R125700 TDS-W-2540C | Date Analyzed: | 05/09/20 | 19 1350h | | | | | | | | | | |
| Total Dissolve | ed Solids | 182 | mg/L | SM2540C | 8.00 | 10.0 | 205.0 | 0 | 88.8 | 80 - 120 | | | | |
| Lab Sample II Test Code: | D: LCS-R125749 TDS-W-2540C | Date Analyzed: | 05/10/20 | 19 1250h | | | | | | | | | | |

10.0

205.0

0

93.7

80 - 120

SM2540C

8.00

192

mg/L

Report Date: 5/23/2019 Page 40 of 45



Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

QC SUMMARY REPORT

Jose Rocha QA Officer

Client: PacifiCorp Contact: Jeff Tucker Lab Set ID: 1905215 Dept: WC Project: Hunter CCR Groundwater Sampling / PERCM052 QC Type: MBLK

| Analyte | | Result | Units | Method | MDL | Limit | Spiked | Amount | %REC | Limits | Amt | % RPD | Limit | Qual |
|------------------------------|----------------------------------|----------------|-----------|----------|--------|-------|--------|--------|------|--------|-----|-------|-------|------|
| Lab Sample ID: Test Code: | MB-R125986 300.0-W | Date Analyzed: | 05/16/201 | 19 2247h | | | | | | | | | | |
| Chloride | | < 0.100 | mg/L | E300.0 | 0.0386 | 0.100 | | | | | | | | |
| Fluoride | | < 0.100 | mg/L | E300.0 | 0.0240 | 0.100 | | | | | | | | |
| Sulfate | | < 0.750 | mg/L | E300.0 | 0.0557 | 0.750 | | | | | | | | |
| Lab Sample ID: Test Code: | MB-R125988 300.0-W | Date Analyzed: | 05/17/201 | 19 1132h | | | | | | | | | | |
| Fluoride | | < 0.100 | mg/L | E300.0 | 0.0240 | 0.100 | | | | | | | | |
| Sulfate | | < 0.750 | mg/L | E300.0 | 0.0557 | 0.750 | | | | | | | | |
| Lab Sample ID: Test Code: | MB-R125990 300.0-W | Date Analyzed: | 05/17/201 | 19 1908h | | | | | | | | | | |
| Chloride | | < 0.100 | mg/L | E300.0 | 0.0386 | 0.100 | | | | | | | | |
| Fluoride | | < 0.100 | mg/L | E300.0 | 0.0240 | 0.100 | | | | | | | | |
| Sulfate | | < 0.750 | mg/L | E300.0 | 0.0557 | 0.750 | | | | | | | | |
| Lab Sample ID: Test Code: | MB-R126074 300.0-W | Date Analyzed: | 05/20/201 | 19 1354h | | | | | | | | | | |
| Chloride | | < 0.100 | mg/L | E300.0 | 0.0386 | 0.100 | | | | | | | | |
| Lab Sample ID: Test Code: | MB-R125700 TDS-W-2540C | Date Analyzed: | 05/09/201 | 19 1350h | | | | | | | | | | |
| Total Dissolved | Solids | < 10.0 | mg/L | SM2540C | 8.00 | 10.0 | | | | | | | | |
| Lab Sample ID: Test Code: | MB-R125749 TDS-W-2540C | Date Analyzed: | 05/10/201 | 19 1250h | | | | | | | | | | |
| Total Dissolved | Solids | < 10.0 | mg/L | SM2540C | 8.00 | 10.0 | | | | | | | | |
| | | | | | | | | | | | | | | |

Report Date: 5/23/2019 Page 41 of 45



Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

QC SUMMARY REPORT

| | | Reporting Amount | Spike Ref. | RPD Ref. | RPD |
|-----------------|--|------------------|-------------|----------|-----|
| Project: | Hunter CCR Groundwater Sampling / PERCM052 | QC Type | : MS | | |
| Lab Set ID: | 1905215 | Dept: | WC | | |
| Client: | PacifiCorp | Contact: | Jeff Tucker | | |
| | | | | | |

| Analyte | | Result | Units | Method | MDL | Limit | Spiked | Amount | %REC | Limits | Amt | % RPD | Limit | Qual |
|------------------------------|----------------------------------|----------------|----------|----------|------|-------|--------|--------|------|----------|-----|-------|-------|------|
| Lab Sample ID: Test Code: | 1905215-004AMS 300.0-W | Date Analyzed: | 05/17/20 | 19 027h | | | | | | | | | | |
| Chloride | | 4,480 | mg/L | E300.0 | 19.3 | 50.0 | 2,500 | 1980 | 99.7 | 90 - 110 | | | | |
| Fluoride | | 2,510 | mg/L | E300.0 | 12.0 | 50.0 | 2,500 | 0 | 101 | 90 - 110 | | | | |
| Sulfate | | 7,190 | mg/L | E300.0 | 27.8 | 375 | 2,500 | 4800 | 95.8 | 90 - 110 | | | | |
| Lab Sample ID: Test Code: | 1905215-014AMS 300.0-W | Date Analyzed: | 05/17/20 | 19 1655h | | | | | | | | | | |
| Fluoride | | 5,000 | mg/L | E300.0 | 24.0 | 100 | 5,000 | 0 | 100 | 90 - 110 | | | | |
| Sulfate | | 12,400 | mg/L | E300.0 | 55.7 | 750 | 5,000 | 7280 | 102 | 90 - 110 | | | | |
| Lab Sample ID: Test Code: | 1905217-003AMS 300.0-W | Date Analyzed: | 05/17/20 | 19 2032h | | | | | | | | | | |
| Chloride | | 2,620 | mg/L | E300.0 | 7.72 | 20.0 | 1,000 | 1610 | 101 | 90 - 110 | | | | |
| Fluoride | | 1,020 | mg/L | E300.0 | 4.80 | 20.0 | 1,000 | 2.91 | 102 | 90 - 110 | | | | |
| Sulfate | | 1,570 | mg/L | E300.0 | 11.1 | 150 | 1,000 | 565 | 100 | 90 - 110 | | | | |
| Lab Sample ID: Test Code: | 1905217-007AMS 300.0-W | Date Analyzed: | 05/17/20 | 19 2245h | | | | | | | | | | |
| Fluoride | | 524 | mg/L | E300.0 | 2.40 | 10.0 | 500.0 | 0 | 105 | 90 - 110 | | | | |
| Sulfate | | 1,340 | mg/L | E300.0 | 5.57 | 75.0 | 500.0 | 821 | 103 | 90 - 110 | | | | |
| Lab Sample ID: Test Code: | 1905215-013AMS 300.0-W | Date Analyzed: | 05/17/20 | 19 1439h | | | | | | | | | | |
| Chloride | | 7,920 | mg/L | E300.0 | 38.6 | 100 | 5,000 | 2730 | 104 | 90 - 110 | | | | |
| Fluoride | | 5,230 | mg/L | E300.0 | 24.0 | 100 | 5,000 | 0 | 105 | 90 - 110 | | | | |
| Sulfate | | 12,900 | mg/L | E300.0 | 55.7 | 750 | 5,000 | 7730 | 103 | 90 - 110 | | | | |

Report Date: 5/23/2019 Page 42 of 45



Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha **QA** Officer

QC SUMMARY REPORT

| Lab Set ID: | PacifiCorp 1905215 Hunter CCR Groundw | ater Sampling / Pl | ERCM052 | 2 | | | Contact Dept: QC Typ | WC | ter | | | | | |
|-----------------------------|---|--------------------|----------|----------|------|--------------------|----------------------------|----------------------|------|----------|-----------------|-------|--------------|------|
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample ID Test Code: | 1905215-009AMS 300.0-W | Date Analyzed: | 05/20/20 | 19 1551h | | | | | | | | | | |
| Chloride | | 1,560 | mg/L | E300.0 | 7.72 | 20.0 | 1,000 | 527 | 103 | 90 - 110 | | | | |
| Lab Sample ID Test Code: | 1905217-007AMS 300.0-W | Date Analyzed: | 05/20/20 | 19 1731h | | | | | | | | | | |
| Chloride | | 756 | mg/L | E300.0 | 3.86 | 10.0 | 500.0 | 253 | 101 | 90 - 110 | | | | |



Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

QC SUMMARY REPORT

| | | Reporting | Amount | Spike Ref. | RPD Ref. | RPD |
|-------------|--|-----------|----------|-------------|----------|-----|
| Project: | Hunter CCR Groundwater Sampling / PERCM052 | | QC Type: | MSD | | |
| Lab Set ID: | 1905215 | | Dept: | WC | | |
| Client: | PacifiCorp | | Contact: | Jeff Tucker | | |
| | | | | | | |

| Analyte | | Result | Units | Method | MDL | Limit | Spiked | Amount | %REC | Limits | Amt | % RPD | Limit | Qual |
|------------------------------|-----------------------------------|----------------|----------|----------|------|-------|--------|--------|------|----------|-------|-------|-------|------|
| Lab Sample ID: Test Code: | 1905215-004AMSD 300.0-W | Date Analyzed: | 05/17/20 | 19 043h | | | | | | | | | | |
| Chloride | | 4,430 | mg/L | E300.0 | 19.3 | 50.0 | 2,500 | 1980 | 97.9 | 90 - 110 | 4480 | 1.03 | 20 | |
| Fluoride | | 2,490 | mg/L | E300.0 | 12.0 | 50.0 | 2,500 | 0 | 99.7 | 90 - 110 | 2510 | 0.845 | 20 | |
| Sulfate | | 7,200 | mg/L | E300.0 | 27.8 | 375 | 2,500 | 4800 | 96.3 | 90 - 110 | 7190 | 0.193 | 20 | |
| Lab Sample ID: Test Code: | 1905215-014AMSD 300.0-W | Date Analyzed: | 05/17/20 | 19 1711h | | | | | | | | | | |
| Fluoride | | 5,180 | mg/L | E300.0 | 24.0 | 100 | 5,000 | 0 | 104 | 90 - 110 | 5000 | 3.44 | 20 | |
| Sulfate | | 12,700 | mg/L | E300.0 | 55.7 | 750 | 5,000 | 7280 | 109 | 90 - 110 | 12400 | 2.57 | 20 | |
| Lab Sample ID: Test Code: | 1905217-003AMSD 300.0-W | Date Analyzed: | 05/17/20 | 19 2048h | | | | | | | | | | |
| Chloride | | 2,660 | mg/L | E300.0 | 7.72 | 20.0 | 1,000 | 1610 | 105 | 90 - 110 | 2620 | 1.42 | 20 | |
| Fluoride | | 1,030 | mg/L | E300.0 | 4.80 | 20.0 | 1,000 | 2.91 | 103 | 90 - 110 | 1020 | 0.829 | 20 | |
| Sulfate | | 1,540 | mg/L | E300.0 | 11.1 | 150 | 1,000 | 565 | 97.4 | 90 - 110 | 1570 | 1.76 | 20 | |
| Lab Sample ID: Test Code: | 1905217-007AMSD 300.0-W | Date Analyzed: | 05/17/20 | 19 2302h | | | | | | | | | | |
| Fluoride | | 515 | mg/L | E300.0 | 2.40 | 10.0 | 500.0 | 0 | 103 | 90 - 110 | 524 | 1.66 | 20 | |
| Sulfate | | 1,320 | mg/L | E300.0 | 5.57 | 75.0 | 500.0 | 821 | 99.7 | 90 - 110 | 1340 | 1.31 | 20 | |
| Lab Sample ID: Test Code: | 1905215-013AMSD 300.0-W | Date Analyzed: | 05/17/20 | 19 1455h | | | | | | | | | | |
| Chloride | | 8,000 | mg/L | E300.0 | 38.6 | 100 | 5,000 | 2730 | 105 | 90 - 110 | 7920 | 1.10 | 20 | |
| Fluoride | | 5,240 | mg/L | E300.0 | 24.0 | 100 | 5,000 | 0 | 105 | 90 - 110 | 5230 | 0.245 | 20 | |
| Sulfate | | 12,600 | mg/L | E300.0 | 55.7 | 750 | 5,000 | 7730 | 98.1 | 90 - 110 | 12900 | 1.96 | 20 | |
| | | | | | | | | | | | | | | |

Report Date: 5/23/2019 Page 44 of 45



Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

QC SUMMARY REPORT Jeff Tucker **Client:** PacifiCorp **Contact:** Lab Set ID: 1905215 Dept: WC Hunter CCR Groundwater Sampling / PERCM052 QC Type: MSD **Project:** Reporting Spike Ref. **RPD Ref.** RPD Amount Method MDL %REC % RPD Limit Qual Result Units Limit Spiked Limits Analyte Amount Amt Lab Sample ID: 1905215-009AMSD 05/20/2019 1608h Date Analyzed: Test Code: 300.0-W Chloride 1,570 E300.0 7.72 20.0 1,000 527 104 90 - 110 1560 0.431 20 mg/L

| | | <u>)</u> | 0 | | | | | | | | | | - |
|----------------|-----------------|----------------|-----------|---------|------|------|-------|-----|-----|----------|-----|-------|----|
| Lab Sample ID: | 1905217-007AMSD | Date Analyzed: | 05/20/201 | 9 1748h | | | | | | | | | |
| Test Code: | 300.0-W | | | | | | | | | | | | |
| Chloride | | 762 | mg/L | E300.0 | 3.86 | 10.0 | 500.0 | 253 | 102 | 90 - 110 | 756 | 0.731 | 20 |

Report Date: 5/23/2019 Page 45 of 45

| America | n West Analytical Lab | oratories | | | Rpt Emai | | HC icEDD QC |
|--------------|---|--|--------------------|--|----------|-------------------------|----------------|
| | RDER Summary | · . | | | Wor | k Order: 1905215 | Page 1 of 4 |
| Client: | PacifiCorp | | | | D | ue Date: 5/23/2019 | |
| Client ID: | PAC900 | | Contact | Jeff Tucker | | | |
| Project: | Hunter CCR Groundwater Sam | pling / PERCM052 | QC Leve | el: II+ | v | VO Type: Project | |
| Comments: | QC2+. Include EDD. Cc: mhollar received outside of hold.; | nd@waterenvtech.com. R | eport Fluoride res | sults on set 1905216 also. N | | | ort, pH |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | |
| 1905215-001A | ELF-1D | 5/8/2019 1635h | 5/9/2019 0721h | 300.0-W 3 SEL Analytes: CL F SO4 | Aqueous | DF-WC | 1 |
| | | | | PH-4500H+B | | DF-WC | |
| 1005015 0040 | | •••••••••••••••••••••••••••••••••••••• | | TDS-W-2540C | | DF-WC | |
| 1905215-001B | | | | 200.7-W | | DF-Metals | |
| | | a | | 2 SEL Analytes: B CA | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| 905215-002A | ELF-2 | 5/8/2019 1730h | 5/9/2019 0721h | 300.0-W 3 SEL Analytes: CL F SO4 | Aqueous | DF-WC | 1 |
| | | | | PH-4500H+B | | DF-WC | |
| | | | | TDS-W-2540C | | DF-WC | |
| 1905215-002B | | | | 200.7-W | | DF-Metals | |
| | · · · · · · · · · · · · · · · · · · · | | | 2 SEL Analytes: B CA | | | |
| N | | | | 200.7-W-PR | | DF-Metals | |
| 1905215-003A | ELF-3 | 5/8/2019 1430h | 5/9/2019 0721h | 300.0-W | Aqueous | DF-WC | 1 |
| | | | - | 3 SEL Analytes: CL F SO4 | | | |
| | | | | PH-4500H+B | | DF-WC | |
| 1005015 0000 | | | | TDS-W-2540C | | DF-WC | |
| 1905215-003B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| 1905215-004A | ELF-4 | 5/8/2019 1330h | 5/9/2019 0721h | 300.0-W 3 SEL Analytes: CL F SO4 | Aqueous | DF-WC | : |
| | | | | PH-4500H+B | | DF-WC | · |
| | | | | TDS-W-2540C | | DF-WC | |
| 1905215-004B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA | | | |
| | | | | 200.7-W-PR | | DF-Metals | |

1

COC Emailed

| WORK OR | DER Sumn | nary | | | | | Work Order: 1905215 | Page 2 of 4 |
|-------------------------|-----------------|---------------------------------------|----------------|---|---------------------------------|--|---------------------|---------------------------------------|
| Client: | PacifiCorp | | | | | | Due Date: 5/23/2019 | |
| Sample ID | Client Sample I | D | Collected Date | Received Date | Test Code | Matrix | Sel Storage | <u>11960</u> - |
| 905215-005A | ELF-5 | | 5/8/2019 1245h | 5/9/2019 0721h | 300.0-W | Aqueous | DF-WC |] |
| | | | | | 3 SEL Analytes: CL F SO4 | | DF-WC | |
| | | | | | PH-4500H+B TDS-W-2540C | | DF-WC | |
| 1905215-005B | | | | | 200.7-W | | DF-WC DF-Metals | ····· |
| 1905215-005B | | | | | 200.7-W 2 SEL Analytes: B CA | | Dr-metais | |
| | | | | | 200.7-W-PR | | DF-Metals | |
| 1905215-006A | ELF-6 | | 5/8/2019 1230h | 5/9/2019 0721h | 300.0-W | Aqueous | DF-WC | 1 |
| | | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | | | | PH-4500H+B | | DF-WC | · · · · · · · · · · · · · · · · · · · |
| | | | | | TDS-W-2540C | | DF-WC | |
| 1905215-006B | | | | | 200.7-W | | DF-Metals | |
| | | | | | 2 SEL Analytes: B CA | | | |
| | | | | | 200.7-W-PR | | DF-Metals | |
| 1905215-007A | ELF-7 | | 5/8/2019 1400h | 5/9/2019 0721h | 300.0-W | Aqueous | DF-WC |] |
| | | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | | | | PH-4500H+B | | DF-WC | |
| | | · · · · · · · · · · · · · · · · · · · | | | TDS-W-2540C | | DF-WC | |
| 1905215-007B | | | | | 200.7-W | | DF-Metals | |
| | | | | | 2 SEL Analytes: B CA | | | |
| | | | | | 200.7-W-PR | | DF-Metals | |
| 1905215-008A | ELF-8 | | 5/8/2019 1145h | 5/9/2019 0721h | 300.0-W | Aqueous | DF-WC | : |
| | | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | ···· | | | PH-4500H+B | | DF-WC | |
| 1905215-008B | . <u>.</u> | | | | TDS-W-2540C | · · · · · / IA 1999 (PAL) · · · | DF-WC | |
| 1905215-008B | | | | | 200.7-W 2 SEL Analytes: B CA | | DF-Metals | |
| | | | | = · · · · · · · · · · · · · · · · · · · | 200.7-W-PR | ··· ··· ··· ··· ··· ··· ··· ··· ··· ·· | DF-Metals | |
| 1905215-009A | ELF-9 | | 5/8/2019 1630h | 5/9/2019 0721h | 300.0-W | Aqueous | DF-WC | |
| | | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | • • • • • • • • • • • • • • • • • • • | | | PH-4500H+B | | DF-WC | 1-72000-00-0 |
| | | | ····· | | TDS-W-2540C | | DF-WC | |
| 1905215-009B | | | | | 200.7-W | | DF-Metals | |
| | | | | | 2 SEL Analytes: B CA | | | |
| | | | | | 200.7-W-PR | | DF-Metals | |
| | | | | | | | | |
| Printed: 05/09/19 12:55 | L | ABORATORY CHECK: %M | RT 🖸 CN 🗌 | TAT 🗌 🛛 QC 🗌 | | HOK | HOK COC Emailed | |

| WORK OR Client: | RDER Summary PacifiCorp | , *** | | | | Work Order: 1905215 Due Date: 5/23/2019 | Page 3 of 4 |
|--------------------|---------------------------------------|---------------------------------------|---------------------------------------|---|---------|---|-------------|
| Sample ID | Client Sample ID | Collected Da | nte Received Da | e Test Code | Matrix | Sel Storage | |
| 1905215-010A | ELF-10 | 5/8/2019 1500 | h 5/9/2019 0721 | n 300.0-W 3 SEL Analytes: CL F SC | Aqueous | DF-WC |] |
| | | | | PH-4500H+B | | DF-WC | |
| | •• | | | TDS-W-2540C | | DF-WC | ······ |
| 1905215-010B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| 1905215-011A | ELF-11 | 5/8/2019 1115 | 5h 5/9/2019 0721 | | Aqueous | DF-WC |] |
| | | | | 3 SEL Analytes: CL F SC |)4 | | |
| | | | | PH-4500H+B | | DF-WC | |
| 1905215-011B | | | | TDS-W-2540C 200.7-W | | DF-WC | |
| 1905215-0115 | | | | 200.7-W 2 SEL Analytes: B CA | | DF-Metals | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | | | | |
| 1905215-012A | ELF-12 | 5/8/2019 1045 | 5h 5/9/2019 0721 | | Aqueous | DF-WC | |
| | | | | 3 SEL Analytes: CL F So PH-4500H+B | 04 | DF-WC | |
| | · · · · · · · · · · · · · · · · · · · | N | | TDS-W-2540C | | DF-WC | |
| 1905215-012B | | | | 200.7-W | | DF-We DF-Metals | |
| 1,00210 0120 | | | | 2 SEL Analytes: B CA | | Di -iviciais | |
| | | | | 200.7-W-PR | | DF-Metals | |
| 1905215-013A | ELF-13 | 5/8/2019 100 | 0h 5/9/2019 072 | h 300.0-W | Aqueous | DF-WC | |
| | | | | 3 SEL Analytes: CL F S | 04 | | |
| | | | · · · · · · · · · · · · · · · · · · · | PH-4500H+B | | DF-WC | |
| | | · · · · · · · · · · · · · · · · · · · | | TDS-W-2540C | | DF-WC | |
| 1905215-013B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA | | DEM | |
| | N | | | 200.7-W-PR | | DF-Metals | |
| 1905215-014A | ELF-14 | 5/8/2019 091 | 5h 5/9/2019 072 | h 300.0-W 3 SEL Analytes: CL F S | Aqueous | DF-WC | |
| | | | | PH-4500H+B | 04 | DF-WC | |
| | APRIL 2 (0.2.1) | | | TDS-W-2540C | | DF-WC | |
| 1905215-014B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | | | | |
| | | | | | | | |

| WORK O Client: | RDER Summary PacifiCorp | | | | | Work Order: 1905215 Due Date: 5/23/2019 | Page 4 of 4 |
|-------------------|----------------------------|----------------|----------------|--------------------------|---------|---|-----------------------|
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | |
| 1905215-015A | DUP | 5/7/2019 1520h | 5/9/2019 0721h | 300.0-W | Aqueous | DF-WC | 1 |
| | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | | | PH-4500H+B | | DF-WC | |
| | | | | TDS-W-2540C | | DF-WC | |
| 1905215-015B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| 1905215-016A | FB | 5/7/2019 1400h | 5/9/2019 0721h | 300.0-W | Aqueous | DF-WC | 1 |
| | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | | | PH-4500H+B | | DF-WC | |
| | | | | TDS-W-2540C | | DF-WC | |
| 1905215-016B | | | | 200.7-W | | DF-Metals | and denote a strange. |
| | | | | 2 SEL Analytes: B CA | | | |
| | | | | 200.7-W-PR | | DF-Metals | |

AWAL Use Only - One or more samples expired upon receipt:

Test Code PH-4500H+B

| | American We Analytical Labora 3440 S. 700 W. Salt Lake City, U Phone # (801) 263-8686 Toll Free # 0 | | All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reportin limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation. | | | | | | | | | | vorted using AWAL's standard analyte lists and reporting | Page 1 of 2 | | |
|---|--|---|--|--|--|---------------------------------------|-------|-----|---|-----|--|--|--|--------------|---|--|
| | Fax = (801) 263-8687 Email awaler www.awal-labs.com | | | | 1 | $\langle \rangle$ | evel: | | | | | | und Ti 5 (St | 2 | Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due. | Due Date: 5 · 23 |
| Address: City, State, Zip: Contact: Phone #: E-mail: Project Name: | PACIFICORP-UT | | Time Sampled 16:35 17:30 14:30 13:30 12:45 12:30 14:00 11:45 16:30 15:00 11:15 | 4 4 4 7 4 7 8 6 Containers | 1 M <t< td=""><td>2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2</td><td>+) 3</td><td>3+</td><td></td><td></td><td></td><td></td><td></td><td></td><td>5:00 pm on the day they are due. Report down to the MDL Include EDD: Lab Filter for: For Compliance With: NELAP CWA SDWA ELAP/A2LA CWA SDWA ELAP/A2LA Other: Known Hazards & Sample Comments</td><td>Laboratory Use Only CCC Tape Was: 1 Present on Outer Package Y N 2 Unbroken on Outer Package Y N 3 Present on Sample Y N 4 Unbroken on Sample Y N Samples Were: 1 Shipped or hand telivored 2 Ambient or Chilled 3 Temperature 2 Ambient or Chilled 3 Temperature C Y N Checked at bench 6 Received Within Holding Times Y N Checked at bench 6 Received Within Holding Times Y N Checked at bench C Ambient of C Ambi</td></t<> | 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | +) 3 | 3+ | | | | | | | 5:00 pm on the day they are due. Report down to the MDL Include EDD: Lab Filter for: For Compliance With: NELAP CWA SDWA ELAP/A2LA CWA SDWA ELAP/A2LA Other: Known Hazards & Sample Comments | Laboratory Use Only CCC Tape Was: 1 Present on Outer Package Y N 2 Unbroken on Outer Package Y N 3 Present on Sample Y N 4 Unbroken on Sample Y N Samples Were: 1 Shipped or hand telivored 2 Ambient or Chilled 3 Temperature 2 Ambient or Chilled 3 Temperature C Y N Checked at bench 6 Received Within Holding Times Y N Checked at bench 6 Received Within Holding Times Y N Checked at bench C Ambient of C Ambi |
| 12 ELF-12 | | 5/8/2019 | 10:45 | 4 | w | x | | | | | | | | | | Sample Labels and COC Record Match? |
| 13 ELF-13 14 ELF-14 | | 5/8/2019 5/8/2019 | 10:00 9:15 | 4 | w w | x x | | | | | | | | | | - |
| | | | ļ, | | | | | | | | | | | | | |
| Relinquished pr Signature Print Name: Relinquished by: Signature Print Name: Signature Print Name: | Jea ne Shirley | Date: Time: Date: Time: Date: Time: Time: | Received by: Signature Print Name: Received by: Signature Print Name: Received by: Signature Print Name: Print Name: | At | - 1 n | | | nee | M | γių | | | an1 - | 0979 7:21 | Special Instructions: PLEASE SEND A COPY OF THE ANAL TO MARCUS HOLLAND AT: MHOLLAND@WATERENVTEC PLEASE RUN AT LEAST ONE LA THIS SAMPLE SET. | H.COM |

By signing this Chain of Custody you are agreeing to permit AWAL to subcontract any analyses not normally performed at AWAL.

| | | American Wo Analytical Labor 3440 S. 700 W. Salt Lake City, U Phone # (801) 263-8686 Toll Free # 0 | atories | | All an | alysis w | | | | NELAP | occredite | d meth | ods and a | ll data will | be repo | ODY orted using AWAL's standard analyte lists and reporting ustody and/or attached documentation. | AWAL Lab Sample Set # |
|---|--|---|----------------|--|-----------------|---------------------------|-------------|----------|----|-------|-----------|--------|------------------------|--------------|---------|--|--|
| | | Fax # (801) 263-8687 Email awal www.awal-labs.co | | | | | - (| evel: | 3+ | | | | Around 3 4 5 | Stng | | Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due. | Due Date: 5 - 23 |
| 15 16 7 8 9 11 12 13 14 15 14 15 16 1 1 16 1 16 1 16 1 16 1 16 1 16 16 | Address: City, State, Zip: Contact: Phone #: E-mail: Project Name: Project #: PO #: Sampler Name: DUP FB | JEFF TUCKER Cell #: JEFF.TUCKER@PACIFICORP.COM HUNTER CCR GROUNDWATER SAMPLI PERCM052 | | Time Sampled 15:20 14:00 | + + + + | ≤ ≤ Sample Matrix | | | | | | | | | | Report down to the MDL Include EDD: Lab Filter for: Field Filtered For: NELAP NELAP RCRA CWA ELAP / A2LA NULAP Non-Compliance Other: Sample Comments | Laboratory Use Only COC Tapo Was: 1 Present on Outer Package Y N 2 Unbroken on Outer Package Y N 3 Present on Sample Y N 4 Unbroken on Sample Y N 5 Molecular of chilles 3 Temperature 4 Preserved Y N 5 Molecular of Checked at bench 6 Received Within Halding Times Y N Checked at bench 7 N 1 Sampler babels and COC Record Match? N |
| 1. | Relinquished | | Date: 75 6019 | Received by: K Signature | <u> </u> | | 6 | <u>u</u> | h | ,Y | | | | 5-09 | | Special Instructions: | J |
| | Relinquished by: | 2 Shir ley | Time Date: | Print Name: Received by: Signature | <u>) (</u> | yr | <u>مر '</u> | 6. | L- | -h | l/ | | Tim Dat | " " " | 4 | PLEASE SEND A COPY OF THE ANAY MARCUS HOLLAND AT: | LITCAL REPORT TO |
| | Signature Print Name: Relinquished by: | | Time: Date: | Signature Print Name: Received by: | | | | | | | | | Tim Dat | | | MHOLLAND@WATERENVTEC | |
| | Reimquished by: Signature Print Name: | · · · · · · · · · · · · · · · · · · · | Date: Time: | Received by: Signature Print Name: | | | | | | | | | L)ar Tim | | | PLEASE RUN AT LEAST ONE LA THIS SAMPLE SET | BORATORY SPIKE FOR |

By signing this Chain of Custody you are agreeing to permit AWAL to subcontract any analyses not normally performed at AWAL.

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

Fluoride is included in both Appendix III and Appendix IV analyte lists. All wells have undergone analysis for both analyte lists for each event. Fluoride was not analyzed twice. The results are reported once under Appendix III constituents for each sample / each event.

| Lab Set ID: | 1905215 |
|-------------|---------|
| pH Lot #: | 5912 |

Preservation Check Sheet

Sample Set Extension and pH

| Analysis | Preservative | -001 - | -00Z | -003 | -004 | -005 | -006 | -007 | -005 | -009 | -010 | -011 - | OIZ | -013 | -014 | -015 | -016 | |
|---------------------------------------|---------------------------------------|--------|------|------|------|------|------|------|------|------|------|--------|-----|------|------|---------------------------------------|------|------|
| Ammonia | $pH < 2H_2SO_4$ | | | | | | | | | | | | | | | | | |
| COD | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | | |
| Cyanide | pH>12 NaOH | | | | | | | | | | | | | | | | | |
| Metals | pH <2 HNO ₃ | ves | Ves | Ves | Ves | Ves | Jes | VPS | Ves | Ves | Ves | ves | ves | Ves | ves | Ves | res | |
| NO ₂ & NO ₃ | pH <2 H ₂ SO ₄ | l | ı | 1 | / | 1 | / | , | 1 | 1 | 1 | 7-2- | 7 | 1 | 1-3 | 7-0 | 7-5 | |
| O&G | pH <2 HCL | | | | | | | | | | | | | | | | - | |
| Phenols | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | | |
| Sulfide | pH >9 NaOH, Zn Acetate | | | | | | | | | | | | | | | | | |
| TKN | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | | |
| T PO ₄ | $pH < 2H_2SO_4$ | | | | | | | | | | | | | | | · · · · · · · · · · · · · · · · · · · | | |
| | | | | | | | | | | | | | | | | | | |
| | · · · · · · · · · · · · · · · · · · · | | | | | | | | | | | | | | | | | |
| · · · · · · · · · · · · · · · · · · · | | | | | | | | | | | | | | | | | 1 | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

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.



Jeff Tucker PacifiCorp 1407 West North Temple, # 280 Salt Lake City, UT 84116 TEL: (801) 220-2989

RE: Hunter CCR Groundwater Sampling / PERCM052 Dear Jeff Tucker: Lab Set ID: 1905216 3440 South 700 West Salt Lake City, UT 84119 American West Analytical Laboratories received sample(s) on 5/9/2019 for the analyses presented in the following report. American West Analytical Laboratories (AWAL) is accredited by The National Phone: (801) 263-8686 Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is Toll Free: (888) 263-8686 state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri. Fax: (801) 263-8687 All analyses were performed in accordance to the NELAP protocols unless noted e-mail: awal@awal-labs.com otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call. web: www.awal-labs.com 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 Kyle F. Gross purging efficiency. The "Reporting Limit" found on the report is equivalent to the Laboratory Director 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 Jose Rocha figures for quality control and calculation purposes. **QA** Officer

Thank You,

Approved by:

Laboratory Director or designee

Sample(s) were subcontracted for the following analyses:

Radiological Testing



Client: PacifiCorp Contact: Jeff Tucker **Project:** Hunter CCR Groundwater Sampling / PERCM052 Lab Sample ID: 1905216-001 Client Sample ID: ELF-1D **Collection Date:** 5/8/2019 1635h **Received Date:** 5/9/2019 722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1644h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 826h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 826h | E200.8 | 0.00200 | 0.00846 | |
| Dhomes (901) 262 9696 | Beryllium | mg/L | 5/13/2019 1648h | 5/14/2019 826h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 826h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/14/2019 826h | E200.8 | 0.00200 | 0.00234 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 826h | E200.8 | 0.00400 | < 0.00400 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 826h | E200.8 | 0.00200 | < 0.00200 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1846h | E200.7 | 1.00 | 2.20 | 1 |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 801h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 826h | E200.8 | 0.00200 | 0.0207 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 826h | E200.8 | 0.00200 | < 0.00200 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 826h | E200.8 | 0.00200 | < 0.00200 | |
| Laboration D'action | | | · | | | | | |

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

Jose Rocha

QA Officer



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-002Client Sample ID:ELF-2Collection Date:5/8/20191730hReceived Date:5/9/2019722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1653h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 841h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 841h | E200.8 | 0.00200 | 0.00989 | |
| D1 | Beryllium | mg/L | 5/13/2019 1648h | 5/14/2019 841h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 841h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/14/2019 841h | E200.8 | 0.00200 | 0.00238 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 841h | E200.8 | 0.00400 | < 0.00400 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 841h | E200.8 | 0.00200 | < 0.00200 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1853h | E200.7 | 1.00 | 1.76 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 811h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 841h | E200.8 | 0.00200 | 0.00314 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 841h | E200.8 | 0.00200 | 0.0319 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 841h | E200.8 | 0.00200 | < 0.00200 | |
| | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 3 of 41



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-003Client Sample ID:ELF-3Collection Date:5/8/20191430hReceived Date:5/9/2019722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/20/2019 1548h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 844h | E200.8 | 0.00200 | 0.00205 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 844h | E200.8 | 0.00200 | 0.0391 | |
| Dhamas (001) 2(2,000) | Beryllium | mg/L | 5/13/2019 1648h | 5/14/2019 844h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 844h | E200.8 | 0.000500 | 0.000779 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/14/2019 844h | E200.8 | 0.00200 | 0.00422 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 844h | E200.8 | 0.00400 | 0.0214 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 844h | E200.8 | 0.00200 | 0.00605 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1855h | E200.7 | 1.00 | 3.26 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 813h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 844h | E200.8 | 0.00200 | 0.0209 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 844h | E200.8 | 0.00200 | 0.502 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 844h | E200.8 | 0.00200 | < 0.00200 | |
| | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 4 of 41



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-004Client Sample ID:ELF-4Collection Date:5/8/20191330hReceived Date:5/9/2019722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1700h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 847h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 847h | E200.8 | 0.00200 | 0.0118 | |
| DL | Beryllium | mg/L | 5/13/2019 1648h | 5/14/2019 847h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 847h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/14/2019 847h | E200.8 | 0.00200 | < 0.00200 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 847h | E200.8 | 0.00400 | 0.00593 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 847h | E200.8 | 0.00200 | < 0.00200 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1858h | E200.7 | 1.00 | 1.82 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 815h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 847h | E200.8 | 0.00200 | 0.00272 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 847h | E200.8 | 0.00200 | < 0.00200 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 847h | E200.8 | 0.00200 | < 0.00200 | |
| | | | | | | | | - |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 5 of 41



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-005Client Sample ID:ELF-5Collection Date:5/8/20191245hReceived Date:5/9/2019722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1703h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 1059h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 1059h | E200.8 | 0.00200 | 0.0138 | |
| DI | Beryllium | mg/L | 5/13/2019 1648h | 5/14/2019 1059h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 1059h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/14/2019 1059h | E200.8 | 0.00200 | < 0.00200 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 1059h | E200.8 | 0.00400 | 0.0102 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 1059h | E200.8 | 0.00200 | < 0.00200 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1900h | E200.7 | 1.00 | 4.29 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 817h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 1059h | E200.8 | 0.00200 | 0.00486 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 1059h | E200.8 | 0.00200 | 0.00913 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 1059h | E200.8 | 0.00200 | < 0.00200 | |
| | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 6 of 41



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 1905216-006

 Lab Sample ID:
 1905216-006
 1905216-006

 Client Sample ID:
 ELF-6
 1230h

 Received Date:
 5/9/2019
 722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1706h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 1102h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 1102h | E200.8 | 0.00200 | 0.0159 | |
| D1 | Beryllium | mg/L | 5/13/2019 1648h | 5/14/2019 1102h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 1102h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/14/2019 1102h | E200.8 | 0.00200 | < 0.00200 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 1102h | E200.8 | 0.00400 | 0.0358 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 1102h | E200.8 | 0.00200 | < 0.00200 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1902h | E200.7 | 1.00 | 5.56 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 819h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 1102h | E200.8 | 0.00200 | < 0.00200 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 1102h | E200.8 | 0.00200 | 0.00795 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 1102h | E200.8 | 0.00200 | < 0.00200 | |
| | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 7 of 41



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-007Client Sample ID:ELF-7Collection Date:5/8/20191400hReceived Date:5/9/2019722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1718h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 1105h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 1105h | E200.8 | 0.00200 | 0.00947 | |
| DI | Beryllium | mg/L | 5/13/2019 1648h | 5/14/2019 1105h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 1105h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/14/2019 1105h | E200.8 | 0.00200 | < 0.00200 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 1105h | E200.8 | 0.00400 | 0.00530 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 1105h | E200.8 | 0.00200 | < 0.00200 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1911h | E200.7 | 1.00 | 2.23 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 821h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 1105h | E200.8 | 0.00200 | 0.00228 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 1105h | E200.8 | 0.00200 | 0.0662 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 1105h | E200.8 | 0.00200 | < 0.00200 | |
| | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 8 of 41



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-008Client Sample ID:ELF-8Collection Date:5/8/20191145hReceived Date:5/9/2019722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1721h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 1147h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 1147h | E200.8 | 0.00200 | 0.0110 | |
| DL | Beryllium | mg/L | 5/13/2019 1648h | 5/14/2019 1147h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 1147h | E200.8 | 0.000500 | 0.00195 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/20/2019 1551h | E200.8 | 0.00200 | < 0.00200 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 1147h | E200.8 | 0.00400 | 0.201 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 1147h | E200.8 | 0.00200 | 0.00643 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1913h | E200.7 | 1.00 | 4.03 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 828h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 1147h | E200.8 | 0.00200 | 0.399 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 1147h | E200.8 | 0.00200 | < 0.00200 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 1147h | E200.8 | 0.00200 | < 0.00200 | |
| Lalandan Diada | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 9 of 41



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-009Client Sample ID:ELF-9Collection Date:5/8/20191630hReceived Date:5/9/2019722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1724h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 1150h | E200.8 | 0.00200 | 0.00960 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 1150h | E200.8 | 0.00200 | 0.0126 | |
| Dhamar (901) 262 9696 | Beryllium | mg/L | 5/13/2019 1648h | 5/14/2019 1150h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 1150h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/20/2019 1554h | E200.8 | 0.00200 | < 0.00200 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 1150h | E200.8 | 0.00400 | < 0.00400 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 1150h | E200.8 | 0.00200 | < 0.00200 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/23/2019 1125h | E200.7 | 0.100 | 0.759 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 830h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 1150h | E200.8 | 0.00200 | 0.113 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 1150h | E200.8 | 0.00200 | < 0.00200 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 1150h | E200.8 | 0.00200 | < 0.00200 | |
| | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 10 of 41



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-010Client Sample ID:ELF-10Collection Date:5/8/20191500hReceived Date:5/9/2019722h

Analytical Results

TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------------|---|---|--|---|--|---|---|
| Antimony | mg/L | 5/13/2019 1648h | 5/20/2019 1557h | E200.8 | 0.00400 | < 0.00400 | |
| Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 1153h | E200.8 | 0.00200 | < 0.00200 | |
| Barium | mg/L | 5/13/2019 1648h | 5/14/2019 1153h | E200.8 | 0.00200 | 0.0184 | |
| Beryllium | mg/L | 5/13/2019 1648h | 5/14/2019 1153h | E200.8 | 0.00200 | < 0.00200 | |
| Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 1153h | E200.8 | 0.000500 | < 0.000500 | |
| Chromium | mg/L | 5/13/2019 1648h | 5/20/2019 1557h | E200.8 | 0.00200 | < 0.00200 | |
| Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 1153h | E200.8 | 0.00400 | 0.00558 | |
| Lead | mg/L | 5/13/2019 1648h | 5/14/2019 1153h | E200.8 | 0.00200 | < 0.00200 | |
| Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1918h | E200.7 | 1.00 | 1.76 | |
| Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 832h | E245.1 | 0.0000900 | < 0.0000900 | |
| Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 1153h | E200.8 | 0.00200 | 0.0516 | |
| Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 1153h | E200.8 | 0.00200 | < 0.00200 | |
| Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 1153h | E200.8 | 0.00200 | < 0.00200 | |
| | Antimony Arsenic Barium Beryllium Cadmium Chromium Cobalt Lead Lithium Mercury Molybdenum Selenium | Antimonymg/LArsenicmg/LBariummg/LBerylliummg/LCadmiummg/LChromiummg/LCobaltmg/LLeadmg/LLithiummg/LMercurymg/LMolybdenummg/LSeleniummg/L | Compound Units Prepared Antimony mg/L 5/13/2019 1648h Arsenic mg/L 5/13/2019 1648h Barium mg/L 5/13/2019 1648h Beryllium mg/L 5/13/2019 1648h Cadmium mg/L 5/13/2019 1648h Chromium mg/L 5/13/2019 1648h Lead mg/L 5/13/2019 1648h Lithium mg/L 5/13/2019 1648h Mercury mg/L 5/13/2019 1648h Molybdenum mg/L 5/13/2019 1648h | CompoundUnitsPreparedAnalyzedAntimonymg/L5/13/20191648h5/20/20191557hArsenicmg/L5/13/20191648h5/14/20191153hBariummg/L5/13/20191648h5/14/20191153hBerylliummg/L5/13/20191648h5/14/20191153hCadmiummg/L5/13/20191648h5/14/20191153hCadmiummg/L5/13/20191648h5/14/20191153hChromiummg/L5/13/20191648h5/14/20191153hLeadmg/L5/13/20191648h5/14/20191153hLithiummg/L5/13/20191648h5/14/20191153hMercurymg/L5/13/20191648h5/14/20191153hMolybdenummg/L5/13/20191648h5/14/20191153hSeleniummg/L5/13/20191648h5/14/20191153h | CompoundUnitsPreparedAnalyzedUsedAntimonymg/L5/13/20191648h5/20/20191557hE200.8Arsenicmg/L5/13/20191648h5/14/20191153hE200.8Bariummg/L5/13/20191648h5/14/20191153hE200.8Berylliummg/L5/13/20191648h5/14/20191153hE200.8Cadmiummg/L5/13/20191648h5/14/20191153hE200.8Chromiummg/L5/13/20191648h5/14/20191153hE200.8Cobaltmg/L5/13/20191648h5/14/20191153hE200.8Leadmg/L5/13/20191648h5/14/20191153hE200.8Lithiummg/L5/13/20191648h5/14/20191153hE200.8Leadmg/L5/13/20191648h5/14/20191153hE200.8Lithiummg/L5/13/20191648h5/14/20191153hE200.8Lithiummg/L5/13/20191648h5/14/20191153hE200.8Seleniummg/L5/13/20191648h5/14/2019822hE245.1 | CompoundUnitsPreparedAnalyzedUsedLimitAntimonymg/L5/13/20191648h5/20/20191557hE200.80.00400Arsenicmg/L5/13/20191648h5/14/20191153hE200.80.00200Bariummg/L5/13/20191648h5/14/20191153hE200.80.00200Berylliummg/L5/13/20191648h5/14/20191153hE200.80.00200Cadmiummg/L5/13/20191648h5/14/20191153hE200.80.00200Cadmiummg/L5/13/20191648h5/14/20191153hE200.80.00200Cobaltmg/L5/13/20191648h5/14/20191153hE200.80.00200Leadmg/L5/13/20191648h5/14/20191153hE200.80.00200Lithiummg/L5/13/20191648h5/14/20191153hE200.80.00200Mercurymg/L5/13/20191648h5/14/20191153hE200.80.00200Molybdenummg/L5/13/20191648h5/14/20191153hE200.71.00Mercurymg/L5/13/20191648h5/14/2019821h0.0000000Molybdenummg/L5/13/20191648h5/14/2019820h0.00200Molybdenummg/L5/13/20191648h5/14/2019820h0.00200 | CompoundUnitsPreparedAnalyzedUsedLimitResultAntimony mg/L $5/13/2019$ 1648h $5/20/2019$ 1557hE200.8 0.00400 < 0.00400 Arsenic mg/L $5/13/2019$ 1648h $5/14/2019$ 1153hE200.8 0.00200 < 0.00200 Barium mg/L $5/13/2019$ 1648h $5/14/2019$ 1153hE200.8 0.00200 < 0.0184 Beryllium mg/L $5/13/2019$ 1648h $5/14/2019$ 1153hE200.8 0.00200 < 0.00200 Cadmium mg/L $5/13/2019$ 1648h $5/14/2019$ 1153hE200.8 0.00200 < 0.00200 Cadmium mg/L $5/13/2019$ 1648h $5/14/2019$ 1153hE200.8 0.00200 < 0.00200 Cobalt mg/L $5/13/2019$ 1648h $5/14/2019$ 1153hE200.8 0.00200 < 0.00200 Cobalt mg/L $5/13/2019$ 1648h $5/14/2019$ 1153hE200.8 0.00200 < 0.00200 Lead mg/L $5/13/2019$ 1648h $5/14/2019$ 1153hE200.8 0.00200 < 0.00200 Lithium mg/L $5/13/2019$ 1648h $5/14/2019$ 1153hE200.8 0.00200 < 0.00200 Lead mg/L $5/13/2019$ 1648h $5/14/2019$ 1153hE200.8 0.00200 < 0.000200 Lithium mg/L $5/13/2019$ 1648h $5/14/2019$ 1153hE200.8 0.00200 < 0.0000900 |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 11 of 41



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-011Client Sample ID:ELF-11Collection Date:5/8/20191115hReceived Date:5/9/2019722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1731h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 1156h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 1156h | E200.8 | 0.00200 | 0.0142 | |
| DL | Beryllium | mg/L | 5/13/2019 1648h | 5/20/2019 1516h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 1156h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/20/2019 1516h | E200.8 | 0.00200 | < 0.00200 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 1156h | E200.8 | 0.00400 | 0.0146 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 1156h | E200.8 | 0.00200 | < 0.00200 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1920h | E200.7 | 1.00 | 3.49 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 834h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 1156h | E200.8 | 0.00200 | 0.0183 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 1156h | E200.8 | 0.00200 | 0.0649 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 1156h | E200.8 | 0.00200 | < 0.00200 | |
| | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 12 of 41



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-012Client Sample ID:ELF-12Collection Date:5/8/20191045hReceived Date:5/9/2019722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1734h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 1159h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 1159h | E200.8 | 0.00200 | 0.0192 | |
| DI | Beryllium | mg/L | 5/13/2019 1648h | 5/20/2019 1527h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 1159h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/20/2019 1527h | E200.8 | 0.00200 | < 0.00200 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 1159h | E200.8 | 0.00400 | < 0.00400 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 1159h | E200.8 | 0.00200 | < 0.00200 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/23/2019 1127h | E200.7 | 0.100 | 0.839 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 836h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 1159h | E200.8 | 0.00200 | < 0.00200 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 1159h | E200.8 | 0.00200 | < 0.00200 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 1159h | E200.8 | 0.00200 | < 0.00200 | |
| | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 13 of 41



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-013Client Sample ID:ELF-13Collection Date:5/8/20191000hReceived Date:5/9/2019722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1737h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 1202h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 1202h | E200.8 | 0.00200 | 0.0111 | |
| DI | Beryllium | mg/L | 5/13/2019 1648h | 5/20/2019 1530h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 1202h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/20/2019 1530h | E200.8 | 0.00200 | < 0.00200 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 1202h | E200.8 | 0.00400 | < 0.00400 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 1202h | E200.8 | 0.00200 | < 0.00200 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1925h | E200.7 | 1.00 | 2.06 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 838h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 1202h | E200.8 | 0.00200 | < 0.00200 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 1202h | E200.8 | 0.00200 | < 0.00200 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 1202h | E200.8 | 0.00200 | < 0.00200 | |
| | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 14 of 41



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-014Client Sample ID:ELF-14Collection Date:5/8/2019915hReceived Date:5/9/2019722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1740h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 1205h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 1205h | E200.8 | 0.00200 | 0.0327 | |
| DI | Beryllium | mg/L | 5/13/2019 1648h | 5/20/2019 1533h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 1205h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/20/2019 1533h | E200.8 | 0.00200 | 0.00888 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 1205h | E200.8 | 0.00400 | 0.00976 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 1205h | E200.8 | 0.00200 | 0.00241 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1927h | E200.7 | 1.00 | 4.79 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 840h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 1205h | E200.8 | 0.00200 | 0.00387 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 1205h | E200.8 | 0.00200 | 0.00512 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 1205h | E200.8 | 0.00200 | < 0.00200 | |
| | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 15 of 41



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 1

 Lab Sample ID:
 1905216-015
 1

 Client Sample ID:
 DUP
 1

 Collection Date:
 5/7/2019
 1520h

 Received Date:
 5/9/2019
 722h

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1743h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 905h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 905h | E200.8 | 0.00200 | 0.0215 | |
| D hama $(901) 262,9696$ | Beryllium | mg/L | 5/13/2019 1648h | 5/14/2019 905h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 905h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/14/2019 905h | E200.8 | 0.00200 | < 0.00200 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 905h | E200.8 | 0.00400 | 0.00451 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 905h | E200.8 | 0.00200 | < 0.00200 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/22/2019 1929h | E200.7 | 1.00 | 1.37 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 842h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 905h | E200.8 | 0.00200 | 0.0389 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 905h | E200.8 | 0.00200 | < 0.00200 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 905h | E200.8 | 0.00200 | < 0.00200 | |
| T I DI | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 16 of 41



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact Con

Analytical Results

TOTAL METALS

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Antimony | mg/L | 5/13/2019 1648h | 5/17/2019 1746h | E200.8 | 0.00400 | < 0.00400 | |
| | Arsenic | mg/L | 5/13/2019 1648h | 5/14/2019 909h | E200.8 | 0.00200 | < 0.00200 | |
| | Barium | mg/L | 5/13/2019 1648h | 5/14/2019 909h | E200.8 | 0.00200 | < 0.00200 | |
| D1 | Beryllium | mg/L | 5/13/2019 1648h | 5/20/2019 1536h | E200.8 | 0.00200 | < 0.00200 | |
| Phone: (801) 263-8686 | Cadmium | mg/L | 5/13/2019 1648h | 5/14/2019 909h | E200.8 | 0.000500 | < 0.000500 | |
| Toll Free: (888) 263-8686 | Chromium | mg/L | 5/13/2019 1648h | 5/14/2019 909h | E200.8 | 0.00200 | < 0.00200 | |
| Fax: (801) 263-8687 | Cobalt | mg/L | 5/13/2019 1648h | 5/14/2019 909h | E200.8 | 0.00400 | < 0.00400 | |
| e-mail: awal@awal-labs.com | Lead | mg/L | 5/13/2019 1648h | 5/14/2019 909h | E200.8 | 0.00200 | < 0.00200 | |
| | Lithium | mg/L | 5/13/2019 1648h | 5/23/2019 1130h | E200.7 | 0.100 | < 0.100 | |
| web: www.awal-labs.com | Mercury | mg/L | 5/13/2019 1430h | 5/14/2019 848h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 5/13/2019 1648h | 5/14/2019 909h | E200.8 | 0.00200 | < 0.00200 | |
| | Selenium | mg/L | 5/13/2019 1648h | 5/14/2019 909h | E200.8 | 0.00200 | < 0.00200 | |
| Kyle F. Gross | Thallium | mg/L | 5/13/2019 1648h | 5/14/2019 909h | E200.8 | 0.00200 | < 0.00200 | |
| | | | | | | | | |

Laboratory Director

Jose Rocha QA Officer

Report Date: 5/23/2019 Page 17 of 41

American West

INORGANIC ANALYTICAL REPORT

Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM0521905216-001Lab Sample ID:1905216-001ELF-1DClient Sample ID:ELF-1D5/8/2019Collection Date:5/8/20191635hReceived Date:5/9/2019722h

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/17/2019 240h | E300.0 | 0.100 | < 0.100 | |

Phone: (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



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact in the sample ID in the sam

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/17/2019 257h | E300.0 | 0.100 | 0.310 | |

Phone: (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

American West

INORGANIC ANALYTICAL REPORT

Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM0521Lab Sample ID:1905216-0031Client Sample ID:ELF-3Collection Date:5/8/20191430hReceived Date:5/9/2019722h

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/17/2019 314h | E300.0 | 0.100 | < 0.100 | |

Phone: (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



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-004Client Sample ID:ELF-4Collection Date:5/8/20191330hReceived Date:5/9/2019722h

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/17/2019 330h | E300.0 | 0.100 | 0.187 | |

Phone: (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

MERICAN VVES

INORGANIC ANALYTICAL REPORT

Client: PacifiCorp Contact: Jeff Tucker **Project:** Hunter CCR Groundwater Sampling / PERCM052 Lab Sample ID: 1905216-005 **Client Sample ID:** ELF-5 **Collection Date:** 5/8/2019 1245h **Received Date:** 5/9/2019 722h

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/17/2019 347h | E300.0 | 0.100 | 0.108 | |

Phone: (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



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact Sample ID:
 1905216-006

 Client Sample ID:
 ELF-6
 Image: Contact Sample ID:
 S/8/2019
 1230h

 Received Date:
 5/9/2019
 722h
 Image: Contact Sample ID:
 Image: Contact Sample ID:

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/17/2019 404h | E300.0 | 0.100 | 0.139 | |

Phone: (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

American West

INORGANIC ANALYTICAL REPORT

Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM0521Lab Sample ID:1905216-0071Client Sample ID:ELF-7Collection Date:5/8/20191400hReceived Date:5/9/2019722h

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/18/2019 205h | E300.0 | 0.100 | 0.132 | |

Phone: (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

American West

INORGANIC ANALYTICAL REPORT

 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact Sample ID:
 1905216-008

 Client Sample ID:
 ELF-8
 Image: Contact Sample ID:
 S/8/2019
 1145h

 Received Date:
 5/9/2019
 722h
 Image: Contact Sample ID:
 Image: Contact Sample ID:

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/18/2019 222h | E300.0 | 0.100 | 1.13 | |

Phone: (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



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM0521905216-009Lab Sample ID:1905216-009ELF-9Collection Date:5/8/20191630hReceived Date:5/9/2019722h

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/18/2019 239h | E300.0 | 0.100 | 1.43 | |

Phone: (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

American West

INORGANIC ANALYTICAL REPORT

Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM0521905216-010Lab Sample ID:1905216-010ELF-10Client Sample ID:5/8/20191500hReceived Date:5/9/2019722h

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/18/2019 255h | E300.0 | 0.100 | < 0.100 | |

Phone: (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



Client: PacifiCorp Contact: Jeff Tucker **Project:** Hunter CCR Groundwater Sampling / PERCM052 Lab Sample ID: 1905216-011 Client Sample ID: ELF-11 **Collection Date:** 5/8/2019 1115h **Received Date:** 5/9/2019 722h

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | 5 | 5/18/2019 312h | E300.0 | 0.100 | 0.173 | |

Phone: (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

American West

INORGANIC ANALYTICAL REPORT

Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM0521005216-012Lab Sample ID:1905216-012Image: Contact in the second se

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | : | 5/18/2019 329h | E300.0 | 0.100 | 0.341 | |

Phone: (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



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1905216-013Client Sample ID:ELF-13Collection Date:5/8/20191000hReceived Date:5/9/2019722h

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/18/2019 345h | E300.0 | 0.100 | < 0.100 | |

Phone: (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

American West

INORGANIC ANALYTICAL REPORT

Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM0521905216-014Lab Sample ID:1905216-014ELF-14Client Sample ID:ELF-141905216-014Collection Date:5/8/2019915hReceived Date:5/9/2019722h

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/18/2019 402h | E300.0 | 0.100 | < 0.100 | |

Phone: (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



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact Con

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | | 5/18/2019 510h | E300.0 | 0.100 | < 0.100 | |

Phone: (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



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 Image: Contact in the sample ID in the sam

Analytical Results

| 3440 South 700 West | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Salt Lake City, UT 84119 | Fluoride | mg/L | 5 | 5/17/2019 1745h | E300.0 | 0.100 | < 0.100 | |

Phone: (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

Report Date: 5/23/2019 Page 33 of 41



3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

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

QC SUMMARY REPORT

| Lab Set ID: 1905216 | Dent: ME |
|---|--------------|
| | Dept: ME |
| Project: Hunter CCR Groundwater Sampling / PERCM052 | 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-62582 | Date Analyzed: | 05/22/201 | 9 1844h | | | | | | | | | | |
| Test Code: | 200.7-W | Date Prepared: | 05/13/201 | 9 1648h | | | | | | | | | | |
| Lithium | | 1.13 | mg/L | E200.7 | 0.0140 | 0.100 | 1.000 | 0 | 113 | 80 - 120 | | | | |
| Lab Sample ID: | LCS-62588 | Date Analyzed: | 05/14/201 | 9 823h | | | | | | | | | | |
| Test Code: | 200.8-W | Date Prepared: | 05/13/201 | 9 1648h | | | | | | | | | | |
| Arsenic | | 0.189 | mg/L | E200.8 | 0.000298 | 0.00200 | 0.2000 | 0 | 94.6 | 85 - 115 | | | | |
| Barium | | 0.191 | mg/L | E200.8 | 0.000688 | 0.00200 | 0.2000 | 0 | 95.5 | 85 - 115 | | | | |
| Beryllium | | 0.192 | mg/L | E200.8 | 0.000198 | 0.00200 | 0.2000 | 0 | 96.0 | 85 - 115 | | | | |
| Cadmium | | 0.186 | mg/L | E200.8 | 0.0000858 | 0.000500 | 0.2000 | 0 | 93.0 | 85 - 115 | | | | |
| Chromium | | 0.190 | mg/L | E200.8 | 0.00191 | 0.00200 | 0.2000 | 0 | 95.0 | 85 - 115 | | | | |
| Cobalt | | 0.189 | mg/L | E200.8 | 0.000300 | 0.00400 | 0.2000 | 0 | 94.7 | 85 - 115 | | | | |
| Lead | | 0.188 | mg/L | E200.8 | 0.000448 | 0.00200 | 0.2000 | 0 | 93.9 | 85 - 115 | | | | |
| Molybdenum | | 0.193 | mg/L | E200.8 | 0.000652 | 0.00200 | 0.2000 | 0 | 96.5 | 85 - 115 | | | | |
| Selenium | | 0.192 | mg/L | E200.8 | 0.000574 | 0.00200 | 0.2000 | 0 | 95.8 | 85 - 115 | | | | |
| Thallium | | 0.189 | mg/L | E200.8 | 0.000154 | 0.00200 | 0.2000 | 0 | 94.4 | 85 - 115 | | | | |
| Lab Sample ID: | LCS-62588 | Date Analyzed: | 05/17/201 | 9 1641h | | | | | | | | | | |
| Test Code: | 200.8-W | Date Prepared: | 05/13/201 | 9 1648h | | | | | | | | | | |
| Antimony | | 0.189 | mg/L | E200.8 | 0.000668 | 0.00400 | 0.2000 | 0 | 94.4 | 85 - 115 | | | | |
| Lab Sample ID: | LCS-62587 | Date Analyzed: | 05/14/201 | 9 747h | | | | | | | | | | |
| Test Code: | HG-DW-245.1 | Date Prepared: | 05/13/201 | 9 1430h | | | | | | | | | | |
| Mercury | | 0.00350 | mg/L | E245.1 | 0.0000396 | 0.0000900 | 0.003330 | 0 | 105 | 85 - 115 | | | | |

Report Date: 5/23/2019 Page 34 of 41



Mercury

< 0.0000900

mg/L

E245.1

0.0000396

3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

QC SUMMARY REPORT

| ANALYTICAL LABO | DRATORIES | | | <u>v</u> | SUMMA | ANINC | | | | | | | | |
|-----------------|-------------------|---------------------|-----------|----------|-----------|--------------------|------------------|----------------------|------|--------|-----------------|-------|--------------|------|
| Client: P | acifiCorp | | | | | | Contact: | Jeff Tuck | er | | | | | |
| Lab Set ID: 1 | 905216 | | | | | | Dept: | ME | | | | | | |
| Project: H | Iunter CCR Ground | water Sampling / PE | ERCM052 | | | | 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-62582 | Date Analyzed: | 05/22/201 | 19 1842h | | | | | | | | | | |
| Test Code: | 200.7-W | Date Prepared: | 05/13/201 | 9 1648h | | | | | | | | | | |
| Lithium | | < 0.100 | mg/L | E200.7 | 0.0140 | 0.100 | | | | | | | | |
| Lab Sample ID: | MB-62588 | Date Analyzed: | 05/14/201 | 19 820h | | | | | | | | | | |
| Test Code: | 200.8-W | Date Prepared: | 05/13/201 | 9 1648h | | | | | | | | | | |
| Arsenic | | < 0.00200 | mg/L | E200.8 | 0.000298 | 0.00200 | | | | | | | | |
| Barium | | < 0.00200 | mg/L | E200.8 | 0.000688 | 0.00200 | | | | | | | | |
| Beryllium | | < 0.00200 | mg/L | E200.8 | 0.000198 | 0.00200 | | | | | | | | |
| Cadmium | | < 0.000500 | mg/L | E200.8 | 0.0000858 | 0.000500 | | | | | | | | |
| Chromium | | < 0.00200 | mg/L | E200.8 | 0.00191 | 0.00200 | | | | | | | | |
| Cobalt | | < 0.00400 | mg/L | E200.8 | 0.000300 | 0.00400 | | | | | | | | |
| Lead | | < 0.00200 | mg/L | E200.8 | 0.000448 | 0.00200 | | | | | | | | |
| Molybdenum | | < 0.00200 | mg/L | E200.8 | 0.000652 | 0.00200 | | | | | | | | |
| Selenium | | < 0.00200 | mg/L | E200.8 | 0.000574 | 0.00200 | | | | | | | | |
| Thallium | | < 0.00200 | mg/L | E200.8 | 0.000154 | 0.00200 | | | | | | | | |
| Lab Sample ID: | MB-62588 | Date Analyzed: | 05/17/201 | 19 1638h | | | | | | | | | | |
| Test Code: | 200.8-W | Date Prepared: | 05/13/201 | 9 1648h | | | | | | | | | | |
| Antimony | | < 0.00400 | mg/L | E200.8 | 0.000668 | 0.00400 | | | | | | | | |
| Lab Sample ID: | MB-62587 | Date Analyzed: | 05/14/201 | 19 745h | | | | | | | | | | |
| Test Code: | HG-DW-245.1 | Date Prepared: | 05/13/201 | 9 1430h | | | | | | | | | | |

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. Confidential Business Information: This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

0.0000900



3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

QC SUMMARY REPORT

| NALYTICAL LAG | BORATORIES | | | χv | | | | | | | | | | |
|---------------|--------------------|--------------------|-----------|----------|-----------|--------------------|------------------|----------------------|------|----------|-----------------|-------|--------------|------|
| Client: | PacifiCorp | | | | | | Contact: | Jeff Tuck | er | | | | | |
| Lab Set ID: | 1905216 | | | | | | Dept: | ME | | | | | | |
| Project: | Hunter CCR Groundw | ater Sampling / Pl | ERCM052 | | | | 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 | D: 1905216-001BMS | Date Analyzed: | 05/22/20 | 19 1849h | | | | | | | | | | |
| Test Code: | 200.7-W | Date Prepared: | 05/13/202 | 19 1648h | | | | | | | | | | |
| Lithium | | 3.29 | mg/L | E200.7 | 0.140 | 1.00 | 1.000 | 2.2 | 109 | 75 - 125 | | | | |
| Lab Sample ID | D: 1905216-001BMS | Date Analyzed: | 05/14/20 | 19 835h | | | | | | | | | | |
| Test Code: | 200.8-W | Date Prepared: | 05/13/202 | 19 1648h | | | | | | | | | | |
| Arsenic | | 0.216 | mg/L | E200.8 | 0.000298 | 0.00200 | 0.2000 | 0.00112 | 107 | 75 - 125 | | | | |
| Barium | | 0.195 | mg/L | E200.8 | 0.000688 | 0.00200 | 0.2000 | 0.00846 | 93.1 | 75 - 125 | | | | |
| Beryllium | | 0.193 | mg/L | E200.8 | 0.000198 | 0.00200 | 0.2000 | 0 | 96.5 | 75 - 125 | | | | |
| Cadmium | | 0.191 | mg/L | E200.8 | 0.0000858 | 0.000500 | 0.2000 | 0.000141 | 95.5 | 75 - 125 | | | | |
| Chromium | | 0.189 | mg/L | E200.8 | 0.00191 | 0.00200 | 0.2000 | 0.00234 | 93.6 | 75 - 125 | | | | |
| Cobalt | | 0.182 | mg/L | E200.8 | 0.000300 | 0.00400 | 0.2000 | 0.00284 | 89.8 | 75 - 125 | | | | |
| Lead | | 0.174 | mg/L | E200.8 | 0.000448 | 0.00200 | 0.2000 | 0 | 87.1 | 75 - 125 | | | | |
| Molybdenum | | 0.232 | mg/L | E200.8 | 0.000652 | 0.00200 | 0.2000 | 0.0207 | 106 | 75 - 125 | | | | |
| Selenium | | 0.210 | mg/L | E200.8 | 0.000574 | 0.00200 | 0.2000 | 0.000762 | 105 | 75 - 125 | | | | |
| Thallium | | 0.176 | mg/L | E200.8 | 0.000154 | 0.00200 | 0.2000 | 0 | 87.9 | 75 - 125 | | | | |

| Lab Sample ID: | 1905216-001BMS | Date Analyzed: | 05/17/2019 | 1647h | | | | | | | |
|----------------|----------------|----------------|------------|--------|-----------|-----------|----------|----------|------|----------|------|
| Test Code: | 200.8-W | Date Prepared: | 05/13/2019 | 1648h | | | | | | | |
| Antimony | | 0.208 | mg/L | E200.8 | 0.000668 | 0.00400 | 0.2000 | 0.00112 | 103 | 75 - 125 | |
| Lab Sample ID: | 1905216-001BMS | Date Analyzed: | 05/14/2019 | 807h | | | | | | | |
| Test Code: | HG-DW-245.1 | Date Prepared: | 05/13/2019 | 1430h | | | | | | | |
| | | 0.00287 | mg/L | E245.1 | 0.0000396 | 0.0000900 | 0.003330 | <u>,</u> | 86.3 | 80 - 120 | |

Report Date: 5/23/2019 Page 36 of 41



3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

RPD

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

Jose Rocha QA Officer

| Analyte | Res | ılt Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RP |
|-----------------|-----------------------------|----------------|--------|-----|--------------------|------------------|----------------------|------|--------|-----------------|------|
| Project: | Hunter CCR Groundwater Samp | ling / PERCM05 | 52 | | | QC Тур | e: MSD | | | | |
| Lab Set ID: | 1905216 | | | | | Dept: | ME | | | | |
| Client: | PacifiCorp | | | | | Contact | : Jeff Tuck | er | | | |
| | | | | | | | | | | | |

| Analyte | | Result | Units | Method | MDL | Limit | Spiked | Amount | %REC | Limits | Amt | % RPD | Limit | Qual |
|------------------------------|---------------------------------------|----------------------------------|------------------------|--------|-----------|-----------|----------|----------|------|----------|---------|--------|-------|------|
| Lab Sample ID: Test Code: | 1905216-001BMSD 200.7-W | Date Analyzed: Date Prepared: | 05/22/201 05/13/201 | | | | | | | | | | | |
| Lithium | | 3.52 | mg/L | E200.7 | 0.140 | 1.00 | 1.000 | 2.2 | 131 | 75 - 125 | 3.29 | 6.55 | 20 | 1 |
| Lab Sample ID: Test Code: | 1905216-001BMSD 200.8-W | Date Analyzed: Date Prepared: | 05/14/201 05/13/201 | | | | | | | | | | | |
| Arsenic | | 0.215 | mg/L | E200.8 | 0.000298 | 0.00200 | 0.2000 | 0.00112 | 107 | 75 - 125 | 0.216 | 0.371 | 20 | |
| Barium | | 0.196 | mg/L | E200.8 | 0.000688 | 0.00200 | 0.2000 | 0.00846 | 93.8 | 75 - 125 | 0.195 | 0.688 | 20 | |
| Beryllium | | 0.193 | mg/L | E200.8 | 0.000198 | 0.00200 | 0.2000 | 0 | 96.5 | 75 - 125 | 0.193 | 0.0425 | 20 | |
| Cadmium | | 0.192 | mg/L | E200.8 | 0.0000858 | 0.000500 | 0.2000 | 0.000141 | 95.9 | 75 - 125 | 0.191 | 0.348 | 20 | |
| Chromium | | 0.188 | mg/L | E200.8 | 0.00191 | 0.00200 | 0.2000 | 0.00234 | 92.9 | 75 - 125 | 0.189 | 0.739 | 20 | |
| Cobalt | | 0.180 | mg/L | E200.8 | 0.000300 | 0.00400 | 0.2000 | 0.00284 | 88.6 | 75 - 125 | 0.182 | 1.25 | 20 | |
| Lead | | 0.174 | mg/L | E200.8 | 0.000448 | 0.00200 | 0.2000 | 0 | 86.8 | 75 - 125 | 0.174 | 0.359 | 20 | |
| Molybdenum | | 0.232 | mg/L | E200.8 | 0.000652 | 0.00200 | 0.2000 | 0.0207 | 105 | 75 - 125 | 0.232 | 0.0773 | 20 | |
| Selenium | | 0.209 | mg/L | E200.8 | 0.000574 | 0.00200 | 0.2000 | 0.000762 | 104 | 75 - 125 | 0.21 | 0.497 | 20 | |
| Thallium | | 0.176 | mg/L | E200.8 | 0.000154 | 0.00200 | 0.2000 | 0 | 88.2 | 75 - 125 | 0.176 | 0.298 | 20 | |
| Lab Sample ID: Test Code: | 1905216-001BMSD 200.8-W | Date Analyzed: Date Prepared: | 05/17/201 05/13/201 | | | | | | | | | | | |
| Antimony | | 0.207 | mg/L | E200.8 | 0.000668 | 0.00400 | 0.2000 | 0.00112 | 103 | 75 - 125 | 0.208 | 0.362 | 20 | |
| Lab Sample ID: Test Code: | 1905216-001BMSD HG-DW-245.1 | Date Analyzed: Date Prepared: | 05/14/201 05/13/201 | | | | | | | | | | | |
| Mercury | | 0.00279 | mg/L | E245.1 | 0.0000396 | 0.0000900 | 0.003330 | 0 | 83.8 | 80 - 120 | 0.00287 | 2.88 | 20 | |

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

Report Date: 5/23/2019 Page 37 of 41



Fluoride

3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

QC SUMMARY REPORT

| Lab Set ID: 1 | PacifiCorp 1905216 Hunter CCR Ground | water Sampling / PI | ERCM052 | | | | Contact Dept: QC Typ | : Jeff Tuck WC pe: LCS | er | | | | | |
|------------------------------|--|---------------------|----------|----------|--------|--------------------|----------------------------|------------------------------|------|----------|-----------------|-------|--------------|------|
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample ID: Test Code: | LCS-R125987 300.0-W | Date Analyzed: | 05/16/20 | 19 2303h | | | | | | | | | | |
| Fluoride | | 5.07 | mg/L | E300.0 | 0.0240 | 0.100 | 5.000 | 0 | 101 | 90 - 110 | | | | |
| Lab Sample ID: Test Code: | LCS-R125989 300.0-W | Date Analyzed: | 05/17/20 | 19 1148h | | | | | | | | | | |
| Fluoride | | 5.22 | mg/L | E300.0 | 0.0240 | 0.100 | 5.000 | 0 | 104 | 90 - 110 | | | | |
| Lab Sample ID: Test Code: | LCS-R125991 300.0-W | Date Analyzed: | 05/17/20 | 19 1925h | | | | | | | | | | |

0.100

5.000

0

102

90 - 110

E300.0

0.0240

5.12

mg/L



3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

QC SUMMARY REPORT

| INALYTICAL LAB | ORATORIES | | | | | | | | | | | | | |
|-----------------------------|-------------------------|---------------------|-----------|----------|--------|--------------------|------------------|----------------------|------|--------|-----------------|-------|--------------|------|
| Client: | PacifiCorp | | | | | | Contact: | Jeff Tuck | er | | | | | |
| Lab Set ID: | 1905216 | | | | | | Dept: | WC | | | | | | |
| Project: | Hunter CCR Ground | water Sampling / PI | ERCM052 | | | | 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 Test Code: | : MB-R125987 300.0-W | Date Analyzed: | 05/16/202 | 19 2247h | | | | | | | | | | |
| Fluoride | | < 0.100 | mg/L | E300.0 | 0.0240 | 0.100 | | | | | | | | |
| Lab Sample ID Test Code: | : MB-R125989 300.0-W | Date Analyzed: | 05/17/203 | 19 1132h | | | | | | | | | | |
| Fluoride | | < 0.100 | mg/L | E300.0 | 0.0240 | 0.100 | | | | | | | | |
| Lab Sample ID Test Code: | : MB-R125991 300.0-W | Date Analyzed: | 05/17/203 | 19 1908h | | | | | | | | | | |
| Fluoride | | < 0.100 | mg/L | E300.0 | 0.0240 | 0.100 | | | | | | | | |



3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

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

Jose Rocha QA Officer

QC SUMMARY REPORT

| Client: P | acifiCorp | | | | | | Contact | : Jeff Tuck | ter | | | | | |
|------------------------------|----------------------------------|--------------------|----------|-----------|------|--------------------|------------------|----------------------|------|----------|-----------------|-------|--------------|-----|
| Lab Set ID: 1 | 905216 | | | | | | Dept: | WC | | | | | | |
| Project: H | Iunter CCR Groundwa | ater Sampling / PI | ERCM052 | 2 | | | QC Тур | e: MS | | | | | | |
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qua |
| Lab Sample ID: Test Code: | 1905216-004AMS 300.0-W | Date Analyzed: | 05/17/20 | 19 027h | | | | | | | | | | |
| Fluoride | | 2,510 | mg/L | E300.0 | 12.0 | 50.0 | 2,500 | 0.187 | 101 | 90 - 110 | | | | |
| Lab Sample ID: Test Code: | 1905216-014AMS 300.0-W | Date Analyzed: | 05/17/20 | 19 1655h | | | | | | | | | | |
| Fluoride | | 5,000 | mg/L | E300.0 | 24.0 | 100 | 5,000 | 0.0971 | 100 | 90 - 110 | | | | |
| | 1005216 0124346 | Dete Aveland | 05/17/20 | 10 1 4201 | | | | | | | | | | |

| Lab Sample ID: | 1905216-013AMS | Date Analyzed: | 05/1//201 | 9 1439h | | | | | | | |
|------------------------------|----------------------------------|----------------|-----------|---------|------|------|-------|--------|-----|----------|------|
| Test Code: | 300.0-W | | | | | | | | | | |
| Fluoride | | 5,230 | mg/L | E300.0 | 24.0 | 100 | 5,000 | 0.0471 | 105 | 90 - 110 | |
| Lab Sample ID: Test Code: | 1905219-003AMS 300.0-W | Date Analyzed: | 05/17/201 | 9 2032h | | | | | | | |
| Fluoride | | 1,020 | mg/L | E300.0 | 4.80 | 20.0 | 1,000 | 2.91 | 102 | 90 - 110 | |
| Lab Sample ID: Test Code: | 1905219-007AMS 300.0-W | Date Analyzed: | 05/17/201 | 9 2245h | | | | | | | |
| Fluoride | | 524 | mg/L | E300.0 | 2.40 | 10.0 | 500.0 | 0.144 | 105 | 90 - 110 | |
| | | | | | | | | | | | |

Report Date: 5/23/2019 Page 40 of 41



Fluoride

Test Code:

Fluoride

Test Code:

Fluoride

Test Code:

Fluoride

Lab Sample ID: 1905216-013AMSD

Lab Sample ID: 1905219-003AMSD

Lab Sample ID: 1905219-007AMSD

300.0-W

300.0-W

300.0-W

3440 South 700 West

Salt Lake City, UT 84119

Phone: (801) 263-8686, Toll Free: (888) 263-8686, Fax: (801) 263-8687

Kyle F. Gross Laboratory Director

Qual

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

Jose Rocha QA Officer

3.44

0.245

0.829

1.66

5000

5230

1020

524

20

20

20

20

QC SUMMARY REPORT

| Client: | PacifiCorp | | | | | | Contact: | Jeff Tuck | er | | | | |
|-----------------------------|--------------------------------------|------------------|----------|----------|------|--------------------|------------------|----------------------|------|----------|-----------------|-------|--------------|
| Lab Set ID: | 1905216 | | | | | | Dept: | WC | | | | | |
| Project: | Hunter CCR Groundwa | ter Sampling / P | ERCM052 | 2 | | | QC Туре | : MSD | | | | | |
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit |
| Lab Sample II Test Code: | D: 1905216-004AMSD 300.0-W | Date Analyzed: | 05/17/20 | 19 043h | | | | | | | | | |
| Fluoride | | 2,490 | mg/L | E300.0 | 12.0 | 50.0 | 2,500 | 0.187 | 99.7 | 90 - 110 | 2510 | 0.845 | 20 |
| Lab Sample II Test Code: | D: 1905216-014AMSD 300.0-W | Date Analyzed: | 05/17/20 | 19 1711h | | | | | | | | | |

24.0

24.0

4.80

2.40

100

100

20.0

10.0

5,000

5,000

1,000

500.0

0.0971

0.0471

2.91

0.144

104

105

103

103

90 - 110

90 - 110

90 - 110

90 - 110

E300.0

E300.0

E300.0

E300.0

5,180

5,240

1,030

515

Date Analyzed:

Date Analyzed:

Date Analyzed:

mg/L

mg/L

mg/L

mg/L

05/17/2019 1455h

05/17/2019 2048h

05/17/2019 2302h

Report Date: 5/23/2019 Page 41 of 41

| American | West Analytical Laborat | ories | | | Rpt Emailed: OL: | Gener | HC ricEDD QC |
|------------------------|---------------------------------------|---------------------------------------|-------------------|-------------------------------------|---|------------------------|-----------------|
| WORK OF | RDER Summary | | | | Work Order: | 1905216 | Page 1 of 6 |
| Client: | PacifiCorp | | | | | 5/23/2019 | U |
| Client ID: | PAC900 | | Contact | Jeff Tucker | | 0,20,2019 | |
| Project: | Hunter CCR Groundwater Sampling /] | PFRCM052 | QC Leve | | WO Type | · Project | |
| Comments: | QC2+. Include EDD. RADS sent to ALS- | | - | | | • | |
| comments. | mholland@waterenvtech.com.; | Treomis. Rep | on Phonice result | s also oli set 1905215. iv | iciais share with set 1903213. | | D |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | |
| 1905216-001A | ELF-1D | 5/8/2019 1635h | 5/9/2019 0722h | 300.0-W | Aqueous | DF-WC | 1 |
| | | | | 1 SEL Analytes: F | | | - |
| 1905216-001B | | · · · · · · · · · · · · · · · · · · · | | 200.7-W | | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | | | | BA BE CD CR CO PB MO SE TL | | |
| | | · · · · · · · · · · · · · · · · · · · | | 200.8-W-PR | | DF-Metals | |
| | | | | HG-DW-245.1 | | DF-Metals DF-Metals | |
| 1905216-001C | · · · · · · · · · · · · · · · · · · · | | | HG-DW-PR OUTSIDE LAB | | ALS | 2 |
| | ELE A | 5/0/2010 17201 | 5/0/2010 07221 | | Second 1 | | _ |
| 1905216-002A | ELF-2 | 5/8/2019 1730h | 5/9/2019 0722h | 300.0-W 1 SEL Analytes: F | Aqueous | DF-WC | 1 |
| 1905216-002B | | | | 200.7-W | | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | |
| | | | | 200.7-W-PR | n <u>n n n n n n n n n n n n n n n n n n </u> | 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 | |
| 100501(0000 | | | | HG-DW-PR | | DF-Metals | |
| 1905216-002C | | | | OUTSIDE LAB | | ALS | 2 |
| 1905216-003A | ELF-3 | 5/8/2019 1430h | 5/9/2019 0722h | 300.0-W | Aqueous | DF-WC | 1 |
| | | | | 1 SEL Analytes: F | | | |
| 1905216-003B | | | | 200.7-W | | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | |
| | ····· | AF 94 E POSIDA E | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W 11 SEL Analytes: SR AS | BA BE CD CR CO PB MO SE TL | DF-Metals | |
| | | | | 200.8-W-PR | | DF-Metals | |
| | | | | | | | |
| Printed: 05/09/19 13:0 | 5 LABORATORY CHECK: %M | | TAT 🗌 QC 🗌 | | НОК НОК | COC Emailed_ | |

| WORK O | RDER Summary | | | | | Work Order: | 1905216 | Page 2 of |
|--------------|------------------|---------------------------------------|----------------------|-------------------------------------|----------------|---------------|------------------------|-----------------------------|
| Client: | PacifiCorp | | | | | Due Date: | 5/23/2019 | |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | | Sel Storage | |
| 1905216-003B | ELF-3 | 5/8/2019 1430h | 5/9/2019 0722h | HG-DW-245.1 | Aqueous | | DF-Metals | |
| | | | | HG-DW-PR | | | DF-Metals | |
| 1905216-003C | | | | OUTSIDE LAB | | | ALS | |
| 1905216-004A | ELF-4 | 5/8/2019 1330h | 5/9/2019 0722h | 300.0-W 1 SEL Analytes: F | Aqueous | | DF-WC | |
| 1905216-004B | | | | 200.7-W | | | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | | |
| | | | | 200.7-W-PR | | | DF-Metals | |
| | | | | 200.8-W | | | DF-Metals | |
| | | | | 11 SEL Analytes: SB AS I | 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 | |
| 905216-004C | | | | OUTSIDE LAB | | | ALS | dan kiringan di kala mangan |
| 905216-005A | ELF-5 | 5/8/2019 1245h | 5/9/2019 0722h | 300.0-W 1 SEL Analytes: F | Aqueous | | DF-WC | |
| 1905216-005B | | | | 200.7-W | | | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | | |
| | | | | 200.7-W-PR | | | DF-Metals | |
| | | | | 200.8-W | | | DF-Metals | |
| | | | , | 11 SEL Analytes: SB AS | BA BE CD CR CC | PB MO SE TL | | |
| | | · · · · · · · · · · · · · · · · · · · | | 200.8-W-PR | | | DF-Metals | |
| | | | | HG-DW-245.1 | | | DF-Metals DF-Metals | |
| 1005216 0050 | | | | HG-DW-PR | | | ALS | |
| 1905216-005C | | | | OUTSIDE LAB | | | ALS | |
| 1905216-006A | ELF-6 | 5/8/2019 1230h | 5/9/2019 0722h | 300.0-W | Aqueous | | DF-WC | |
| | | | | 1 SEL Analytes: F | | | DELCO | |
| 1905216-006B | | | | 200.7-W | | | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | DF-Metals | |
| | | | | 200.7-W-PR | | | DF-Metals | |
| | | | | 200.8-W 11 SEL Analytes: SB AS | RA RE CD CR C | O PR MO SE TI | Dr-Metais | |
| | | | | 200.8-W-PR | | | DF-Metals | |
| | | | | HG-DW-245.1 | | | DF-Metals | |
| | | | | HG-DW-245.1 HG-DW-PR | | | DF-Metals | |
| 1905216-006C | | ····· | | OUTSIDE LAB | | | ALS | |

| WORK O | RDER Summary | | | | Work | Order: 1905216 | Page 3 of |
|--------------|---------------------|----------------|----------------|--------------------------------------|------------------------|-------------------|-----------|
| Client: | PacifiCorp | | | | Du | e Date: 5/23/2019 | |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | |
| 905216-007A | ELF-7 | 5/8/2019 1400h | 5/9/2019 0722h | 300.0-W 1 SEL Analytes: F | Aqueous | DF-WC | |
| 905216-007B | | | | 200.7-W 1 SEL Analytes: LI | | DF-Metals | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | · |
| | | | | | 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 | |
| 1905216-007C | | | | OUTSIDE LAB | | ALS | |
| 1905216-008A | ELF-8 | 5/8/2019 1145h | 5/9/2019 0722h | 300.0-W | Aqueous | DF-WC | |
| | | | | 1 SEL Analytes: F | | | |
| .905216-008B | | | | 200.7-W 1 SEL Analytes: LI | | DF-Metals | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | | | 11 SEL Analytes: SB AS | BA BE CD CR CO PB MC | SE TL | |
| | | | | 200.8-W-PR | | DF-Metals | |
| | | | | HG-DW-245.1 | | DF-Metals | |
| | | | | HG-DW-PR | | DF-Metals | |
| 1905216-008C | | | | OUTSIDE LAB | | ALS | |
| 1905216-009A | ELF-9 | 5/8/2019 1630h | 5/9/2019 0722h | 300.0-W | Aqueous | DF-WC | |
| | | | | 1 SEL Analytes: F | | | |
| 1905216-009B | | | | 200.7-W | | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | | | | S BA BE CD CR CO PB MC | DF-Metals | |
| | | | | 200.8-W-PR | | DF-Metals | |
| | | | | HG-DW-245.1 HG-DW-PR | | DF-Metals | |
| 1905216-009C | ······ | | | OUTSIDE LAB | | ALS | |
| 1905216-010A | ELF-10 | 5/8/2019 1500h | 5/9/2019 0722h | 300.0-W 1 SEL Analytes: F | Aqueous | DF-WC | |

нок_____

COC Emailed

| WORK O | RDER Summary | | | | Work | Order: 1905216 | Page 4 of 6 |
|--------------|------------------|--|----------------|-------------------------------------|----------------------|-------------------|-------------|
| Client: | PacifiCorp | | | | Du | e Date: 5/23/2019 | 1 |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | |
| 1905216-010B | ELF-10 | 5/8/2019 1500h | 5/9/2019 0722h | 200.7-W | Aqueous | DF-Metals | |
| | | | | 1 SEL Analytes: LI 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 | |
| | | | NEW-1-1 | 200.8-W-PR | | DF-Metals | |
| | | | | HG-DW-245.1 | | DF-Metals | |
| | | ALIVE TO THE ALIVE ALIVE THE ALIVE ALIVE ALIVE ALIVE ALIVE ALIVE ALIVE ALIVE | | HG-DW-PR | | DF-Metals | S |
| 1905216-010C | | | | OUTSIDE LAB | | ALS | |
| 1905216-011A | ELF-11 | 5/8/2019 1115h | 5/9/2019 0722h | 300.0-W | Aqueous | DF-WC | |
| 1905216-011B | | | | 1 SEL Analytes: F | | DEMAN | |
| 1903210-011B | | | | 200.7-W 1 SEL Analytes: LI | | DF-Metals | |
| | · | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | | | | BA BE CD CR CO PB MC | | |
| | | | · | 200.8-W-PR | | DF-Metals | |
| | | ······································ | | HG-DW-245.1 | | DF-Metals | |
| | | | | HG-DW-PR | | DF-Metals | |
| 1905216-011C | | - | | OUTSIDE LAB | | ALS | |
| 1905216-012A | ELF-12 | 5/8/2019 1045h | 5/9/2019 0722h | 300.0-W 1 SEL Analytes: F | Aqueous | DF-WC | |
| 1905216-012B | | | | 200.7-W | | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | | | 11 SEL Analytes: SB AS | BA BE CD CR CO PB MC | O SE TL | |
| | | | _ | 200.8-W-PR | | DF-Metals | |
| | | | | HG-DW-245.1 | | DF-Metals | |
| | | | | HG-DW-PR | | DF-Metals | |
| 1905216-012C | | | | OUTSIDE LAB | | ALS | |
| 1905216-013A | ELF-13 | 5/8/2019 1000h | 5/9/2019 0722h | 300.0-W 1 SEL Analytes: F | Aqueous | DF-WC | |
| 1905216-013B | | | | 200.7-W 1 SEL Analytes: LI | | DF-Metals | ¥. |
| | | | | 200.7-W-PR | | DF-Metals | |

| WORK OR | DER Summary | | | | v | Work Order: | 1905216 | Page 5 of 6 |
|-------------------------|---------------------------------------|--|--|-----------------------------------|------------------|-------------|-------------|-------------|
| Client: | PacifiCorp | | | | | Due Date: | 5/23/2019 | |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | | Sel Storage | |
| 1905216-013B | ELF-13 | 5/8/2019 1000h | 5/9/2019 0722h | 200.8-W | Aqueous | | DF-Metals |] |
| | | | | 11 SEL Analytes: SB AS | BA BE CD CR CO P | PB MO SE TL | | |
| | | | | 200.8-W-PR | | | DF-Metals | |
| | | | | HG-DW-245.1 | | | DF-Metals | |
| | | | | HG-DW-PR | | | DF-Metals | |
| 1905216-013C | | | | OUTSIDE LAB | | | ALS | |
| 1905216-014A | ELF-14 | 5/8/2019 0915h | 5/9/2019 0722h | 300.0-W | Aqueous | | DF-WC | |
| | | | | 1 SEL Analytes: F | | | | |
| 1905216-014B | | | | 200.7-W | | | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | | |
| | | | | 200.7-W-PR | | | DF-Metals | |
| | | | | 200.8-W | | | DF-Metals | |
| | | | | 11 SEL Analytes: SB AS | BA BE CD CR CO I | PB MO SE TL | | |
| | | | | 200.8-W-PR | | | DF-Metals | |
| | | | 11-11-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 | HG-DW-245.1 | | | DF-Metals | |
| | · · · · · · · · · · · · · · · · · · · | | | HG-DW-PR | | | DF-Metals | |
| 1905216-014C | | | | OUTSIDE LAB | | | ALS | |
| 1905216-015A | DUP | 5/7/2019 1520h | 5/9/2019 0722h | 300.0-W | Aqueous | | DF-WC | |
| | | | | 1 SEL Analytes: F | | | | |
| 1905216-015B | | | | 200.7-W | | | DF-Metals | |
| | | | | I SEL Analytes: LI | | 12 | | |
| | | 1 | | 200.7-W-PR | | | DF-Metals | |
| | | | | 200.8-W 11 SEL Analytes: SB AS | RA BE CD CR CO | PR MO SE TL | DF-Metals | |
| | | | | 200.8-W-PR | | | DF-Metals | |
| | | | | HG-DW-245.1 | | | DF-Metals | |
| | | | | HG-DW-PR | | | DF-Metals | |
| 1905216-015C | | · · · · · · · · · · · · · · · · · · · | | OUTSIDE LAB | | ······· | ALS | |
| 1905216-016A | FB | 5/7/2019 1400h | 5/9/2019 0722h | 300.0-W | Aqueous | | DF-WC | |
| | | | | 1 SEL Analytes: F | 1 | | | |
| 1905216-016B | | | | 200.7-W | | | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | | |
| | | | | 200.7-W-PR | | | DF-Metals | |
| | | | | 200.8-W | | | DF-Metals | |
| | | 8483-315 · · · · · · · · · · · · · · · · · · · | | 11 SEL Analytes: SB AS | S BA BE CD CR CO | PB MO SE TL | | |
| | | | | 200.8-W-PR | | | DF-Metals | |
| | | | | | | | | |
| Printed: 05/09/19 13:05 | | | | | HOK | HOK | COC Emailed | |

LABORATORY CHECK: %M 🗌 RT 🗌 CN 🗌 TAT 🗌 QC 🗌 LUO 🗌 HOK_____ HOK_____ HOK_____ HOK_____ COC Emailed_

| WORK O | RDER Summary | | | | Worl | Order: 1905216 | Page 6 of 6 |
|--------------|------------------|----------------|----------------------|-------------|---------|--------------------|-------------|
| Client: | PacifiCorp | | | | Di | ue Date: 5/23/2019 | |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | |
| 1905216-016B | FB | 5/7/2019 1400h | 5/9/2019 0722h | HG-DW-245.1 | Aqueous | DF-Metals | 1 |
| | | | | HG-DW-PR | | DF-Metals | |
| 1905216-016C | | | | OUTSIDE LAB | | ALS | 2 |

____ COC Emailed_

| | American W Analytical Labor 3440 S. 700 W. Salt Lake City, U Phone # (801) 263-S656 Toll Free # | 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 2 | | | |
|--|--|---|--|--|--|---------------------|-----|--|------|----------------|----|-----------------------------|---|----|---|--|
| | Fax # (801) 263-8687 Email awale | eawal-labs.com | | | | QC L | - | | | | | | und Time: Unless other arrangements have been made, signed reports will be emailed by | | | Due Date: |
| | www.awal-labs.co | om | | | 1 | 2 6 | +)3 | 3+ | | | 12 | 34 | 5 gind |) | 5:00 pm on the day they are due. | 5.25 |
| Address City, State, Zig Contact Phone # E-mail Project Name Project # PO # Sampler Name 1 ELF-1D 2 ELF-2 3 ELF-3 4 ELF-4 5 ELF-5 | JEFF TUCKER | Date Sampled 5/8/2019 5/8/2019 5/8/2019 5/8/2019 5/8/2019 | Time Sampled 16:35 17:30 14:30 13:30 12:45 | $\begin{array}{c} 1 \\ 2 \\ 1 \\ 2 \\ 1 \\ 2 \\ 1 \\ 1 \\ 2 \\ 1 \\ $ | <td< td=""><td>× × × × APPENDIX IV</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Report down to the MDL Include EDD: Lab Filter for: Field Filtered For: For Compliance With: NELAP CWA CWA SDWA CWA SDWA ELAP/A2LA NLLAP Non-Compliance Other: Known Hazards & Sample Comments Conly I bottle for RADS</td><td>Laboratory Use Only COC Tape Was: 1 Present on Outer Package Y N 2 Unbroken on Outer Package Y N 3 Present on Sample Y N 4 Unbroken on Sample Y N 5 Samples Were: 1 Shipped or hand delivered 2 Ambient or Chillid 3 TemperatureC 4 Creceived Intact Y N Set Property Preserved Y N Checked at bench</td></td<> | × × × × APPENDIX IV | | | | | | | | | Report down to the MDL Include EDD: Lab Filter for: Field Filtered For: For Compliance With: NELAP CWA CWA SDWA CWA SDWA ELAP/A2LA NLLAP Non-Compliance Other: Known Hazards & Sample Comments Conly I bottle for RADS | Laboratory Use Only COC Tape Was: 1 Present on Outer Package Y N 2 Unbroken on Outer Package Y N 3 Present on Sample Y N 4 Unbroken on Sample Y N 5 Samples Were: 1 Shipped or hand delivered 2 Ambient or Chillid 3 TemperatureC 4 Creceived Intact Y N Set Property Preserved Y N Checked at bench |
| 6 ELF-6 | | 5/8/2019 5/8/2019 | 12:30 14:00 | 31 | w | x x | | | | | | | | | only lost for RADS | 6 Received Within |
| 7 ELF-7 8 ELF-8 | | 5/8/2019 | 14:00 | 3 4 | w | x | | | | | | | | | Only 1 bottle For PNDS | Y Times |
| 9 ELF-9 | | 5/8/2019 | 16:30 | 4 | w | x | | | | | | | | | | pHoutot |
| 10 ELF-10 | | 5/8/2019 | 15:00 | 4 | w | x | | | | | | | | | | held - Biall |
| 11 ELF-11 | · | 5/8/2019 | 11:15 | 4 | w | х | | | | | | | | - | · · · · · · · · · · · · · · · · · · · | Sample Labels and COC Record Match? |
| 12 ELF-12 | | 5/8/2019 | 10:45 | 4 | w | х | | | | | | | | | | N Y N |
| 13 ELF-13 | | 5/8/2019 | 10:00 | 4 | w | х | | | | | | | | | | |
| 14 ELF-14 | | 5/8/2019 | 9:15 | 4 | w | х | | | | | | | | | | |
| 1× | | 1 | | | | | | | | | | | | | | |
| Relinquished by: Signature | | 579/2019 | Received by: Signature | hz | n | _ | Gr | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | hi | 11 | | | Date: | 19 | Special Instructions: | |
| Print Name: | ce shirle y | 0722 | Print Name: | 1h) | 4 | | | | er / | (⁻ | 1 | | Time: | n | PLEASE SEND A COPY OF THE ANALY | YTICAL REPORT |
| Relinquished by: Date: Received by: I Signature Signature | | | | | | | | | | 1 | | Date: TO MARCUS HOLLAND AT: | | | - | |
| Print Name: | | | | | | | | | | | | | Time: MHOLLAND@WATERENVTECH | | | |
| Relinquished by: Signature | Relinquished by: Date: Received by: Signature Signature | | | | | | | | | | | | Date: PLEASE RUN AT LEAST ONE LABORATORY SPIKE | | | SORATORY SPIKE FOR |
| | | Time: | | | | | | | | | | | Time: | | THIS SAMPLE SET. | |

By signing this Chain of Custody you are agreeing to permit AWAL to subcontract any analyses not normally performed at AWAL.

| | | American We Analytical Labora 3440 S. 700 W. Sali Lake City, U Phone # (801) 263-8686 Toll Free # 0 | | 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. | | | | | | | | | | | 19052fLp AWAL Lab Sample Set # Page 2 of 2 | |
|-----|------------------------------------|--|---------------|---|-----------|-----------------|-------------|------------------|----|----|----------|----------|-------|---|--|--|
| | | Fax # (801) 263-8687 Email awale | awal-labs.com | | | | | evel: | | | Т | urn A | round | nd Time: Unless other arrangements have been made, signe reports will be emailed by | | Due Dote: |
| | | www.awal-labs.com | m | | | 1 | 2 (2 | +)3 : | 3+ | | 1 | 23 | 45 | Stnd | 5:00 pm on the day they are due. | 5-23 |
| | Client: | PACIFICORP-UT | | | | | | | | | | | | | Report down to the MDL Include EDD: | Laboratory Use Only |
| | Address: | | | | | | | | | | | Ì | | | Lab Filter for: | COC Tape Was: |
| | City, State, Zip: | | | | | | | | | | | | | | Field Filtered For: | 1 Present on Outer Package Y N NA |
| | Contact: | JEFF TUCKER | | | | | | | | | | | | | For Compliance With: | 2 Unbroken on Outer Package Y N NA |
| | Phone #: | Cell #: | | | | | | | | | | | | | □ NELAP □ RCRA | 3 Present on Sample |
| | E-mail: | JEFF.TUCKER@PACIFICORP.COM | | | | | | | | | | | | | CWA SDWA | YNA |
| | , | HUNTER CCR GROUNDWATER SAMPLIN | NG | | | | | | | | | | | | ELAP / A2LA NLLAP | 4 Unbroken on Sample Y N NA |
| | | PERCM052 | | | | | | | | | | | | | Non-Compliance Other: | |
| | PO #: Sampler Name: | | | | iners | atrix | APPENDIX IV | | | | | | | | | Samples Were: 1 Shippod or hand delivered |
| | Sampler Name: | | Date | Time | Container | Sample Matrix | END | | | | | | | | Known Hazards & | 2 Ambient or Chilled |
| | | Sample ID: | Sampled | Sampled | # of | Sam | APP | | | | | | | | Sample Comments | 3 Temperature |
| 15 | DUP | | 5/7/2019 | 15:20 | 34 | w | x | | | | | _ | | | only I bottle for RADS | 4 Received Intact |
| 16 | FB | | 5/7/2019 | 14:00 | 4 | w | X | | | | | | | | | |
| l | | | | | | | <u> </u> | | | | | | _ | +-+ | | 5 Property Preserved |
| 4 | | | | | | | | | | | | + | | + | | Y N Checked at bench |
| 6 | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | $\left \right $ | | | | | | | | 6 Received Within |
| . 8 | | | | | | | | | | | | | | | - | N N |
| 9 | | | | | | | | | | | | | | | | |
| 1 |) | | | | | | | | | | | | | | | |
| 1 | 1 | | | | | | | | | | | | | | | Sample sabels and COC Record Match? |
| 1 | 2 | | | | | | | | | | | | | | | Y N |
| 1 | 3 | | | | | | _ | | | | | | | | | |
| ŀ | 4 | | | | | | <u> </u> | | | | | | | | | 4 |
| 1 | 5 | | | | | | | | | | | | Date | | | |
| | Relinquished by: Signature | <u>laes</u> | 5 (9 Dais | Received by: Signature | m | i – | (a | d- | 1 | ul | <u>(</u> | : 1 | Date | 5-09 | Special Instructions: | |
| | Print Name: Mi Relinquished by: | Nike Shirley Date: Received by: | | | | I lynn Green WU | | | | | | <u>V</u> | Date | 7:22 | PLEASE SEND A COPY OF THE ANAY | LITCAL REPORT TO |
| | Signature | Signature Time: | | | | | | | | | | | Time | | MARCUS HOLLAND AT: MHOLLAND@WATERENVTEC | НСОМ |
| | Print Name: Relinquished by: | H by: Date: Received by: | | | | | | | | | | | Date | ; | BORATORY SPIKE FOR | |
| | Signature | Time: | | | | | | | | | | | Tim | . | THIS SAMPLE SET. | |

By signing this Chain of Custody you are agreeing to permit AWAL to subcontract any analyses not normally performed at AWAL.

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

Fluoride is included in both Appendix III and Appendix IV analyte lists. All wells have undergone analysis for both analyte lists for each event. Fluoride was not analyzed twide. The results are reported once under Appendix III constituents for each sample / each event.

| Lab Set ID: | 1905216 |
|-------------|---------|
| pH Lot #: | 5912 |

Preservation Check Sheet

Sample Set Extension and pH

| Analysis | Preservative | -001 - | -002 | -003 | -004 | -005 | -006 | -007 | -005 | -009 | -010 | -011 | -012 | -013 | -014 | -015 | -016 | | |
|--------------------------------------|--------------------------------------|--------|------|------|------|------|------|------|--|------|------|------|------|------|---------|------|------|-------|---------------------------------------|
| Ammonia | $pH < 2H_2SO_4$ | | | | | | | | a the fighter of the state of the second | | | | | | | | | | |
| COD | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | | | |
| Cyanide | pH>12 NaOH | | | | | | | | | | | | | | | | | | · · · · · · · · · · · · · · · · · · · |
| Metals | pH <2 HNO ₃ | 1125 | ves | Ves | ves | NRS | Ves | Ves | ves | VRS | Ves | ves | ves | Ves | ves | VPS | Ves | | |
| NO ₂ & NO ₃ | рН <2 Н ₂ SO ₄ | Y | 1 | 1 | 1 | 7 | 7 | 1 | / | 1-2 | 100 | 1 | 1 | 7-2 | 7-5 | 100 | 75 | | |
| 0 & G | pH <2 HCL | | | | | | | | | | | | | | | | | | |
| Phenols | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | | | |
| Sulfide | pH >9 NaOH, Zn Acetate | | | | | | | | | | | | | | | | | | |
| TKN | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | | | |
| T PO ₄ | $pH < 2H_2SO_4$ | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | · · · · | | | | |
| | | | | | | | | | | | | | | | | 1 | | | |
| | | | | | | | | | | | | | | | | 1 | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | · · · · · · · · · · · · · · · · · · · |
| | | | | | | | | | | | | | | | | | | · · · | |
| | | | | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the sample lid

Pour sample from lid gently over wide range pH paper 2) 3)

Do Not dip the pH paper in the sample bottle or lid

If sample is not preserved, properly list its extension and receiving pH in the appropriate column above 4)

5) Flag COC, notify client if requested

6) Place client conversation on COC

Samples may be adjusted 7)

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. .



ATTACHMENT B:

Field Summary Report – August Event



| Facility Name: | Hunter Power Plant – CCR Landfill |
|--------------------|--------------------------------------|
| Event Description: | Assessment Monitoring |
| Event Dates: | August 20, 2019 |
| Field Personnel: | Mike Shirley, Christina Eggensperger |

ACTIVITY SUMMARY. WET personnel arrived onsite August 20, 2019 and performed groundwater sampling at Hunter CCR Landfill. Prior to collecting samples, field instruments were calibrated, followed by the collection of water levels in the CCR monitoring wells. After recording water levels, the wells were purged in accordance with the EPA low-flow method. Field parameters were monitored during well purging in accordance with the site-specific sampling and analysis plan (SAP). Once field parameters met the SAP stabilization requirements, groundwater samples were collected for Appendix III and Appendix IV constituents. All calibration data and field measurements were recorded on the WET electronic field form. The wells that underwent sampling during this sampling event included:

| ٠ | ELF-1D | ٠ | ELF-6 |
|---|--------|---|--------|
| ٠ | ELF-2 | ٠ | ELF-7 |
| • | ELF-9 | • | ELF-8 |
| • | ELF-10 | • | ELF-11 |
| • | ELF-3 | • | ELF-12 |
| • | ELF-4 | ٠ | ELF-13 |
| • | ELF-5 | ٠ | ELF-14 |
| | | | |

The following details dates for conducting field work and post-field work data processing:

- Date fieldwork completed: 8/20/2019
- Dates unvalidated lab data received: 9/23/2019
- Data validation completion date: 10/24/2019

After collection, the samples were preserved in accordance with the SAP, placed on ice, chain of custody forms were completed, and the samples were transported to American West Analytical Laboratories (AWAL) in Salt Lake City, Utah for analysis. Samples arrived at AWAL on 8/21/2019. AWAL subcontracted Radium analyses to ALS Global in Fort Collins, Colorado. Samples arrived at ALS on 8/26/2019. The following information is attached to this summary as a supplement:

- Attachment A: Groundwater Contour Map
- Attachment B: Data Validation Summary
- Attachment C: Statistical Analysis
- Attachment D: Field Data Sheets
- Attachment E: Laboratory Analytical Reports

SAP DEVIATIONS. Wells ELF-6 and ELF-10 did not produce enough water to take full sample sets.

Wells ELF-1D, ELF-3, and ELF-5 are known to be poor producers and had sample bottles filled before attempting to take parameters.

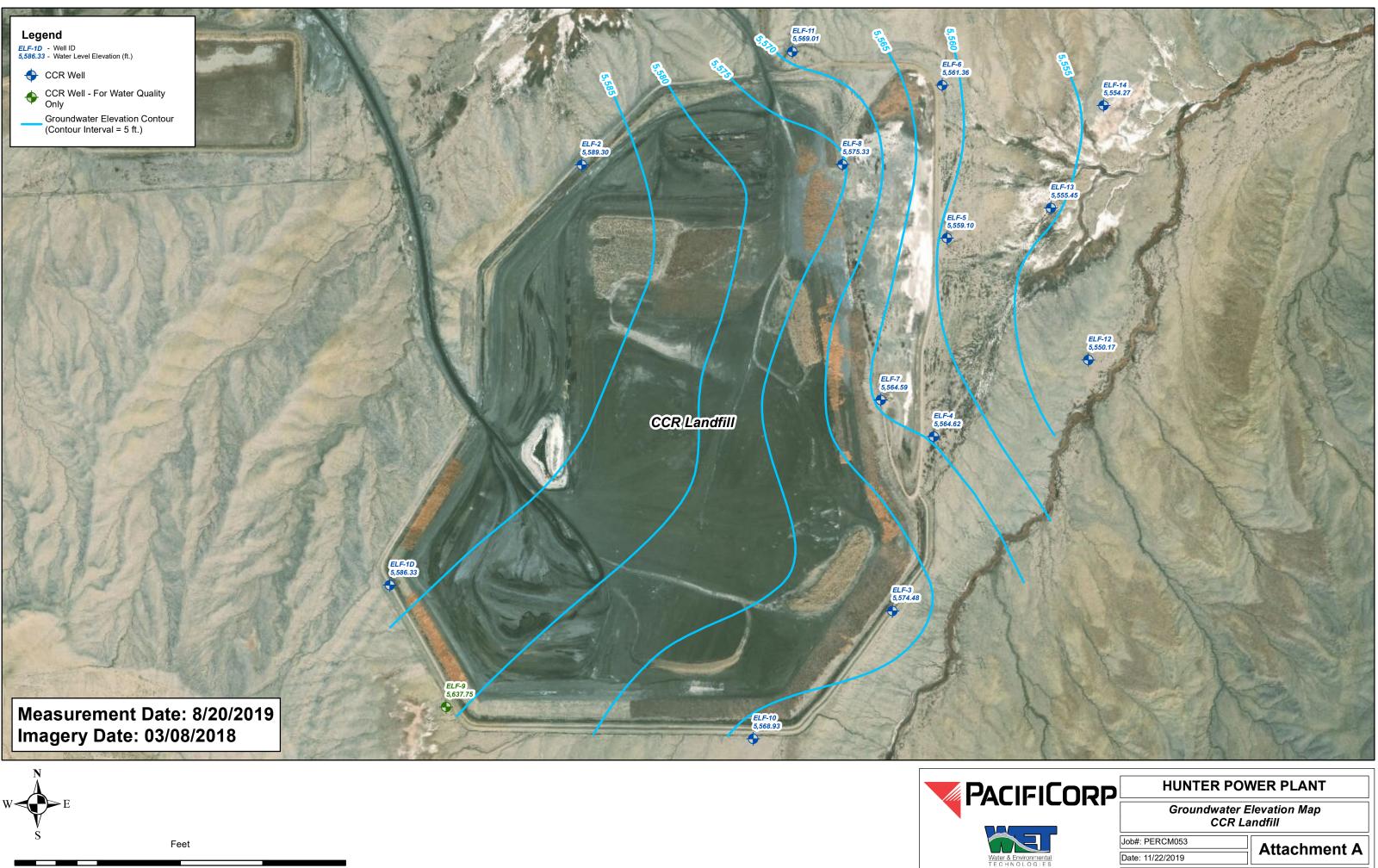


Wells ELF-11, ELF-12, ELF-13, and ELF-14 were added to the sampling network for the purpose of Nature and Extent Investigations.



Attachment A:

Groundwater Contour Map



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

Path: M:\PERC_CCR\2019_CCR_Sampling\2019_CCR_GW_Contour Maps.mxd, Author: brutherford



Attachment B:

Data Validation Summary

| Facility Name: | Hunter Landfill 08/20/2019 | | | | | | |
|---|---|---------------------------|--|--|--|--|--|
| Validator: | Tim Driscoll 1 | Tim Driscoll 10/25/2019 | | | | | |
| Reviewer: | Janelle Garza 1 | 0/30/2019 | | | | | |
| Laboratory: | American Wes | t Analytical Laboratories | | | | | |
| Laboratory Work Order#: | 1908532 | | | | | | |
| Sample Media: | Groundwater | | | | | | |
| Analytical Parameters: | Appendix IV: | Ra ²²⁶ | | | | | |
| Review Element: | Complete / Criteria Met? If no, describe: (Yes/No) | | | | | | |
| Chain of Custody: | Yes | | | | | | |
| Field Documentation: | Yes | | | | | | |
| Holding Times & Sample Preservation: | Yes | | | | | | |
| Calibrations: | Yes | | | | | | |
| Blanks: | Yes | | | | | | |
| Laboratory Control Sample: | Yes | | | | | | |
| Laboratory Duplicate: | Yes | | | | | | |
| Matrix Spike: | Yes | | | | | | |
| Overall Assessment: | | | | | | | |
| No qualifications were required. | | | | | | | |

| Facility Name: | Hunter Landfill 08/20/2019 | | | | | |
|---|--|-------------------------|--|--|--|--|
| Validator: | Tim Driscoll 1 | 0/25/2019 | | | | |
| Reviewer: | Janelle Garza 1 | 0/30/2019 | | | | |
| Laboratory: | American Wes | t Analytical Laboratory | | | | |
| Laboratory Work Order#: | 1908622 | | | | | |
| Sample Media: | Groundwater | | | | | |
| Analytical Parameters: | Appendix IV: | Ra ²²⁸ | | | | |
| Review Element: | Complete / Criteria Met? (Yes/No) | | | | | |
| Chain of Custody: | Yes | | | | | |
| Field Documentation: | Yes | | | | | |
| Holding Times & Sample Preservation: | Yes | | | | | |
| Calibrations: | Yes | | | | | |
| Blanks: | Yes | | | | | |
| Laboratory Control Sample: | Yes | | | | | |
| Laboratory Duplicate: | Yes | | | | | |
| Matrix Spike: | Yes | | | | | |
| Overall Assessment: | | | | | | |
| No qualifications were required. | | | | | | |

| Facility Name: | Hunter Landfil | Hunter Landfill 08/20/2019 | | | | | |
|--|--|---|--|--|--|--|--|
| Validator: | Tim Driscoll 1 | Tim Driscoll 10/24/2019 | | | | | |
| Reviewer: | Janelle Garza 1 | 0/30/2019 | | | | | |
| Laboratory: | American Wes | t Analytical Laboratories | | | | | |
| Laboratory Work Order#: | 1908531 | | | | | | |
| Sample Media: | Groundwater | | | | | | |
| Analytical Parameters: | Appendix III: | B, Ca, Cl, ¹ F, pH, S0 ₄ , TDS | | | | | |
| Review Element: | Complete / Criteria Met? If no, describe: (Yes/No) | | | | | | |
| Chain of Custody: | Yes | | | | | | |
| Field Documentation: | Yes | | | | | | |
| Holding Times & Sample Preservation: | Yes | | | | | | |
| Calibrations: | Yes | | | | | | |
| Blanks: | Yes | | | | | | |
| Laboratory Control Sample: | Yes | | | | | | |
| Laboratory Duplicate: | Yes | | | | | | |
| Matrix Spike: | Yes | Yes There was a high recovery of calcium in a laboratory matrix spike, resulting in J+ qualifications detailed below. | | | | | |
| Overall Assessment: | Overall Assessment: | | | | | | |
| Calcium was qualified J+ in sa ELF-11, ELF-12, ELF-13, EL | • | ELF-2, ELF-3, ELF-4, ELF-5, ELF-7, ELF-8, ELF-9, | | | | | |

| Facility Name: | Hunter Landfil | 1 08/20/2019 | | | | | |
|---|---|---|--|--|--|--|--|
| Validator: | Tim Driscoll 10/25/2019 | | | | | | |
| Reviewer: | Janelle Garza 1 | | | | | | |
| Laboratory: | | t Analytical Laboratories | | | | | |
| Laboratory Work Order#: | 1908532 | | | | | | |
| Sample Media: | Groundwater | | | | | | |
| Analytical Parameters: | Appendix IV: | Appendix IV: Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl, Ra ²²⁶ + Ra ²²⁸ | | | | | |
| Review Element: | Complete / Criteria Met? If no, describe: (Yes/No) | | | | | | |
| Chain of Custody: | Yes | | | | | | |
| Field Documentation: | Yes | | | | | | |
| Holding Times & Sample Preservation: | Yes | | | | | | |
| Calibrations: | Yes | | | | | | |
| Blanks: | Yes | | | | | | |
| Laboratory Control Sample: | Yes | | | | | | |
| Laboratory Duplicate: | Yes | | | | | | |
| Matrix Spike: | Yes | There was a low recovery of mercury in a laboratory | | | | | |
| Overall Assessment: | | | | | | | |
| Mercury was qualified UJ in s ELF-11, ELF-12, ELF-13, EL | 1 | , ELF-2, ELF-3, ELF-4, ELF-5, ELF-7, ELF-8, ELF-9, | | | | | |



Attachment C:

Statistical Analysis

| 1.0 | INTE | RODUC | TION | |
|-----|------|---------|--|----|
| 2.0 | PRE | LIMINA | RY DATA ANALYSIS | 1 |
| | 2.1 | Data A | nalysis Techniques | 1 |
| | | 2.1.1 | Mean | |
| | | 2.1.2 | Standard Deviation | 2 |
| | | 2.1.3 | Coefficient of Variance | 2 |
| | | 2.1.4 | Quartiles and the Five Number Summary | 2 |
| | 2.2 | Visual | Tools | |
| | | 2.2.1 | Histograms | |
| | | 2.2.2 | Normal-Quantile Plots | |
| | | 2.2.3 | Outliers | |
| | | 2.2.4 | Treatment of Non-Detects | |
| | 2.3 | Summa | ary Results | 5 |
| 3.0 | UPG | RADIEN | NT AND DOWNGRADIENT WELL COMPARISON | |
| | 3.1 | Ground | dwater Protection Standards | |
| | | 3.1.1 | Normal Distribution | |
| | | 3.1.2 | Upper Tolerance Limits and Groundwater Protection Standard | |
| 4.0 | CON | ICLUSIC | DNS | 14 |
| 5.0 | REF | ERENCI | ES | |

LIST OF FIGURES

- Figure C.1. Histogram of fluoride data from the CCR Landfill upgradient wells
- Figure C.2. Normal quantile plot of fluoride data the CCR Landfill upgradient wells
- Figure C.3. Summary statistics plots for the CCR Landfill
- Figure C.4. Groundwater Protection Standard plots for the CCR Landfill

LIST OF TABLES

- Table C.1. Summary statistics for the CCR Landfill upgradient wells
- Table C.2. Five-number summary for the CCR Landfill upgradient wells
- Table C.3. Shapiro-Wilk Test for the CCR Landfill upgradient wells
- Table C.4. Comparison of downgradient wells to the Groundwater Protection Standard

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 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 aids 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):

$$\overline{x} = \frac{\sum_{i=1}^{n} x_{i}}{n}$$
(1)

Where:

 \overline{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):

$$s = \sqrt{\frac{\sum_{i=1}^{n} (x_i - \bar{x})^2}{n-1}}$$
(2)

Where:

- s =standard deviation
- n = number of observations

 $x_i = i^{th}$ observation

 \overline{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):

$$CV = \frac{s}{\overline{X}} \times 100\% \tag{3}$$

Where:

s = standard deviation

 \overline{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

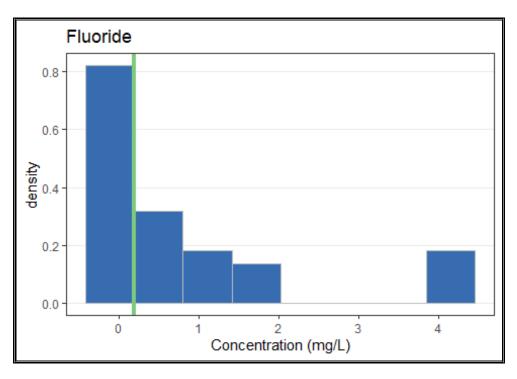
number such that 25% of the data are less than that number and 75% of the data are above the 25th percentile. The median and third quartiles are found in a similar manner.

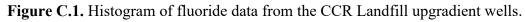
2.2 Visual Tools

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 one detectable observation. All graphs were developed using the R Statistical Package (R Core Team 2018).

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 largest method detection limit (MDL) is plotted on the histogram for non-detect observations. 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 at the end of this appendix in Figure C.3.





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.

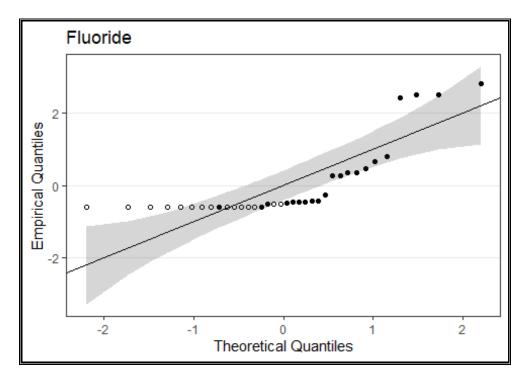


Figure C.2. Normal quantile plot of fluoride data the CCR Landfill upgradient wells

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. Outliers were detected in the cadmium, cobalt, lead, and radium data CCR Landfill data. However, none of the outliers are extreme enough to warrant removal from the dataset.

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 nondetects, 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. The arsenic, cadmium, chromium, cobalt, and lead data have more than 50% non-detects. Antimony, beryllium, mercury, and thallium were not detected in any of the samples. Thus, statistical analysis cannot be done for those analytes. The barium, boron, fluoride, and selenium data have more than 15% non-detects, but more than half of the data are detected. As a result, Kaplan-Meier was used to compute means, standard deviations, and statistical limits used to compare the upgradient downgradient water quality for barium, boron, fluoride, and selenium.

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. Analytes that were not detected in any upgradient well samples are not listed in Table C.1.

| Analyte | Well | Number of Samples | Samples Detected | Median (mg/L) | Mean (mg/L) | Standard Deviation (mg/L) | Coefficient of Variation (%) |
|---------|--------|-------------------------|---------------------|------------------|----------------|---------------------------------|---------------------------------------|
| Arsenic | ELF-10 | 11 | 3 | < 0.002 | NA | NA | NA |
| Arsenic | ELF-1D | 3 | 0 | < 0.002 | NA | NA | NA |
| Arsenic | ELF-2 | 14 | 0 | < 0.002 | NA | NA | NA |
| Arsenic | ELF-9 | 12 | 12 | 0.007 | 0.008 | 0.002 | 30% |

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 (%) |
|----------|--------|-------------------------|---------------------|------------------|----------------|---------------------------------|---------------------------------------|
| Arsenic | Pooled | 40 | 15 | < 0.002 | NA | NA | NA |
| Barium | ELF-10 | 11 | 11 | 0.0391 | 0.0448 | 0.0208 | 46% |
| Barium | ELF-1D | 3 | 3 | 0.0085 | 0.0091 | 0.0011 | 12% |
| Barium | ELF-2 | 14 | 13 | < 0.0106 | 0.0113 | 0.0034 | 30% |
| Barium | ELF-9 | 12 | 12 | 0.0335 | 0.0447 | 0.0340 | 76% |
| Barium | Pooled | 40 | 39 | < 0.0186 | 0.0305 | 0.0270 | 88% |
| Boron | ELF-10 | 10 | 10 | 1.63 | 1.68 | 0.18 | 11% |
| Boron | ELF-1D | 2 | 2 | 2.21 | 2.21 | 0.03 | 1% |
| Boron | ELF-2 | 13 | 13 | 3.33 | 3.38 | 0.19 | 6% |
| Boron | ELF-9 | 11 | 10 | <1.50 | 1.52 | 0.23 | 15% |
| Boron | Pooled | 36 | 35 | <1.89 | 2.29 | 0.89 | 39% |
| Cadmium | ELF-10 | 11 | 6 | 0.0005 | NA | NA | NA |
| Cadmium | ELF-1D | 3 | 0 | < 0.0005 | NA | NA | NA |
| Cadmium | ELF-2 | 14 | 0 | < 0.0005 | NA | NA | NA |
| Cadmium | ELF-9 | 12 | 1 | < 0.0005 | NA | NA | NA |
| Cadmium | Pooled | 40 | 7 | < 0.0005 | NA | NA | NA |
| Calcium | ELF-10 | 10 | 10 | 475 | 480 | 31 | 6% |
| Calcium | ELF-1D | 2 | 2 | 372 | 372 | 7.8 | 2% |
| Calcium | ELF-2 | 13 | 13 | 410 | 404 | 22 | 5% |
| Calcium | ELF-9 | 11 | 11 | 60 | 78 | 35 | 44% |
| Calcium | Pooled | 36 | 36 | 400 | 324 | 171 | 53% |
| Chloride | ELF-10 | 10 | 10 | 7340 | 7515 | 1141 | 15% |
| Chloride | ELF-1D | 2 | 2 | 6655 | 6655 | 318 | 5% |
| Chloride | ELF-2 | 13 | 13 | 444 | 395 | 99 | 25% |
| Chloride | ELF-9 | 11 | 11 | 371 | 383 | 77 | 20% |
| Chloride | Pooled | 36 | 36 | 459 | 2717 | 3394 | 125% |
| Chromium | ELF-10 | 11 | 8 | 0.005 | 0.005 | 0.004 | 84% |
| Chromium | ELF-1D | 3 | 1 | < 0.002 | NA | NA | NA |
| Chromium | ELF-2 | 14 | 2 | < 0.002 | NA | NA | NA |
| Chromium | ELF-9 | 12 | 7 | 0.004 | NA | NA | NA |
| Chromium | Pooled | 40 | 18 | < 0.002 | NA | NA | NA |
| Cobalt | ELF-10 | 11 | 8 | 0.004 | 0.005 | 0.001 | 29% |
| Cobalt | ELF-1D | 3 | 1 | < 0.004 | NA | NA | NA |
| Cobalt | ELF-2 | 14 | 7 | 0.005 | NA | NA | NA |
| Cobalt | ELF-9 | 12 | 2 | < 0.004 | NA | NA | NA |

| Analyte | Well | Number of Samples | Samples Detected | Median (mg/L) | Mean (mg/L) | Standard Deviation (mg/L) | Coefficient of Variation (%) |
|------------|--------|-------------------------|---------------------|------------------|----------------|---------------------------------|---------------------------------------|
| Cobalt | Pooled | 40 | 18 | < 0.004 | NA | NA | NA |
| Fluoride | ELF-10 | 10 | 5 | 0.2 | NA | NA | NA |
| Fluoride | ELF-1D | 2 | 0 | < 0.2 | NA | NA | NA |
| Fluoride | ELF-2 | 13 | 7 | < 0.1 | NA | NA | NA |
| Fluoride | ELF-9 | 11 | 9 | 1.2 | 1.0 | 0.6 | 62% |
| Fluoride | Pooled | 36 | 21 | 0.2 | 0.8 | 1.3 | 152% |
| Lead | ELF-10 | 11 | 6 | 0.002 | NA | NA | NA |
| Lead | ELF-1D | 3 | 0 | < 0.002 | NA | NA | NA |
| Lead | ELF-2 | 14 | 1 | < 0.002 | NA | NA | NA |
| Lead | ELF-9 | 12 | 4 | < 0.002 | NA | NA | NA |
| Lead | Pooled | 40 | 11 | < 0.002 | NA | NA | NA |
| Lithium | ELF-10 | 11 | 11 | 2.09 | 2.30 | 1.14 | 50% |
| Lithium | ELF-1D | 3 | 3 | 2.19 | 2.17 | 0.04 | 2% |
| Lithium | ELF-2 | 14 | 14 | 1.76 | 2.50 | 1.27 | 51% |
| Lithium | ELF-9 | 12 | 12 | 0.84 | 1.06 | 0.51 | 48% |
| Lithium | Pooled | 40 | 40 | 1.68 | 1.99 | 1.16 | 58% |
| Molybdenum | ELF-10 | 11 | 11 | 0.0871 | 0.0916 | 0.0276 | 30% |
| Molybdenum | ELF-1D | 3 | 3 | 0.0165 | 0.0178 | 0.0025 | 14% |
| Molybdenum | ELF-2 | 14 | 14 | 0.0031 | 0.0034 | 0.0007 | 21% |
| Molybdenum | ELF-9 | 12 | 12 | 0.1195 | 0.1176 | 0.0224 | 19% |
| Molybdenum | Pooled | 40 | 40 | 0.0648 | 0.0630 | 0.0540 | 86% |
| pН | ELF-10 | 10 | 10 | 7.18 | 7.26 | 0.42 | 6% |
| pН | ELF-1D | 2 | 2 | 7.15 | 7.15 | 0.18 | 2% |
| pН | ELF-2 | 13 | 13 | 7.22 | 7.28 | 0.17 | 2% |
| pН | ELF-9 | 11 | 11 | 7.94 | 7.89 | 0.16 | 2% |
| pН | Pooled | 36 | 36 | 7.29 | 7.46 | 0.39 | 5% |
| Radium | ELF-10 | 11 | 11 | 2.47 | 3.29 | 3.76 | 114% |
| Radium | ELF-1D | 3 | 3 | 1.23 | 1.65 | 0.85 | 52% |
| Radium | ELF-2 | 14 | 14 | 1.31 | 1.91 | 1.91 | 100% |
| Radium | ELF-9 | 12 | 12 | 1.36 | 1.43 | 0.63 | 44% |
| Radium | Pooled | 40 | 40 | 1.44 | 2.12 | 2.36 | 111% |
| Selenium | ELF-10 | 11 | 8 | 0.011 | 0.105 | 0.139 | 132% |
| Selenium | ELF-1D | 3 | 0 | < 0.002 | NA | NA | NA |
| Selenium | ELF-2 | 14 | 14 | 0.424 | 0.339 | 0.208 | 61% |
| Selenium | ELF-9 | 12 | 1 | < 0.002 | NA | NA | NA |

| Analyte | Well | Number of Samples | Samples Detected | Median (mg/L) | Mean (mg/L) | Standard Deviation (mg/L) | Coefficient of Variation (%) |
|----------|--------|-------------------------|---------------------|------------------|----------------|---------------------------------|---------------------------------------|
| Selenium | Pooled | 40 | 23 | 0.010 | 0.149 | 0.204 | 137% |
| Sulfate | ELF-10 | 10 | 10 | 18300 | 16730 | 4128 | 25% |
| Sulfate | ELF-1D | 2 | 2 | 8185 | 8185 | 643 | 8% |
| Sulfate | ELF-2 | 13 | 13 | 7950 | 7625 | 710 | 9% |
| Sulfate | ELF-9 | 11 | 11 | 6470 | 6423 | 786 | 12% |
| Sulfate | Pooled | 36 | 36 | 7950 | 9818 | 4894 | 50% |
| TDS | ELF-10 | 10 | 10 | 38300 | 38070 | 1782 | 5% |
| TDS | ELF-1D | 2 | 2 | 26900 | 26900 | 141 | 1% |
| TDS | ELF-2 | 13 | 13 | 12000 | 11900 | 440 | 4% |
| TDS | ELF-9 | 11 | 11 | 10600 | 10820 | 834 | 8% |
| TDS | Pooled | 36 | 36 | 12000 | 19673 | 12159 | 62% |

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 were not detected in any of the upgradient well samples are not listed in Table C.2.

| Analyte | Well | Minimum (mg/L) | First Quartile (mg/L) | Median (mg/L) | Third Quartile (mg/L) | Maximum (mg/L) |
|---------|--------|-------------------|-----------------------------|------------------|-----------------------------|-------------------|
| Arsenic | ELF-10 | < 0.002 | < 0.002 | < 0.002 | 0.003 | 0.0093 |
| Arsenic | ELF-1D | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Arsenic | ELF-2 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Arsenic | ELF-9 | 0.005 | 0.0058 | 0.0068 | 0.0089 | 0.0117 |
| Arsenic | Pooled | < 0.001 | < 0.002 | < 0.002 | 0.0058 | 0.0117 |
| Barium | ELF-10 | 0.0184 | 0.0316 | 0.0391 | 0.0560 | 0.0863 |
| Barium | ELF-1D | 0.0084 | 0.0084 | 0.0085 | 0.0094 | 0.0103 |
| Barium | ELF-2 | < 0.0084 | < 0.0092 | < 0.0106 | < 0.0128 | < 0.0500 |
| Barium | ELF-9 | 0.0126 | 0.0151 | 0.0335 | 0.0781 | 0.1020 |
| Barium | Pooled | < 0.0084 | < 0.0108 | < 0.0186 | < 0.0456 | 0.1020 |
| Boron | ELF-10 | 1.48 | 1.56 | 1.63 | 1.73 | 2.12 |
| Boron | ELF-1D | 2.19 | 2.19 | 2.21 | 2.23 | 2.23 |
| Boron | ELF-2 | 3.11 | 3.25 | 3.33 | 3.50 | 3.77 |
| Boron | ELF-9 | <1.30 | <1.355 | <1.50 | <1.74 | <5.00 |

 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 | Pooled | <1.30 | <1.565 | <1.89 | <3.29 | <5.00 |
| Cadmium | ELF-10 | < 0.0005 | < 0.0005 | 0.0005 | 0.0006 | 0.0011 |
| Cadmium | ELF-1D | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 |
| Cadmium | ELF-2 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0010 |
| Cadmium | ELF-9 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | 0.0005 |
| Cadmium | Pooled | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | 0.0011 |
| Calcium | ELF-10 | 445 | 457 | 475 | 500 | 543 |
| Calcium | ELF-1D | 366 | 366 | 372 | 377 | 377 |
| Calcium | ELF-2 | 364 | 392 | 410 | 419 | 430 |
| Calcium | ELF-9 | 52.7 | 57.5 | 60.3 | 88.1 | 166 |
| Calcium | Pooled | 52.7 | 102 | 400 | 446 | 543 |
| Chloride | ELF-10 | 5710 | 6960 | 7340 | 7670 | 9900 |
| Chloride | ELF-1D | 6430 | 6430 | 6655 | 6880 | 6880 |
| Chloride | ELF-2 | 218 | 363 | 444 | 461 | 473 |
| Chloride | ELF-9 | 282 | 334 | 371 | 431 | 527 |
| Chloride | Pooled | 218 | 367 | 459 | 6835 | 9900 |
| Chromium | ELF-10 | < 0.002 | 0.002 | 0.005 | 0.0061 | 0.0164 |
| Chromium | ELF-1D | < 0.002 | < 0.002 | < 0.002 | 0.0022 | 0.0023 |
| Chromium | ELF-2 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | 0.0110 |
| Chromium | ELF-9 | < 0.002 | < 0.002 | 0.0044 | 0.0147 | 0.0201 |
| Chromium | Pooled | < 0.001 | < 0.002 | < 0.002 | 0.0054 | 0.0201 |
| Cobalt | ELF-10 | < 0.004 | 0.0041 | 0.0044 | 0.0055 | 0.0079 |
| Cobalt | ELF-1D | < 0.004 | < 0.004 | < 0.004 | 0.0047 | 0.0054 |
| Cobalt | ELF-2 | < 0.004 | < 0.004 | 0.005 | 0.0060 | 0.0114 |
| Cobalt | ELF-9 | < 0.004 | < 0.004 | < 0.004 | < 0.004 | 0.0052 |
| Cobalt | Pooled | < 0.004 | < 0.004 | < 0.004 | 0.0055 | 0.0114 |
| Fluoride | ELF-10 | < 0.1 | < 0.1 | 0.17 | 3.97 | 4.36 |
| Fluoride | ELF-1D | < 0.1 | <0.1 | < 0.15 | < 0.2 | <0.2 |
| Fluoride | ELF-2 | < 0.1 | < 0.1 | < 0.1 | 0.28 | 0.50 |
| Fluoride | ELF-9 | < 0.1 | 0.27 | 1.19 | 1.36 | 1.84 |
| Fluoride | Pooled | <0.1 | <0.1 | 0.22 | 1.23 | 4.36 |
| Lead | ELF-10 | < 0.002 | < 0.002 | 0.0022 | 0.0031 | 0.0120 |
| Lead | ELF-1D | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Lead | ELF-2 | < 0.001 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Lead | ELF-9 | < 0.002 | < 0.002 | < 0.002 | 0.0046 | 0.0077 |
| Lead | Pooled | < 0.001 | < 0.002 | < 0.002 | 0.0021 | 0.0120 |

| Analyte | Well | Minimum (mg/L) | First Quartile (mg/L) | Median (mg/L) | Third Quartile (mg/L) | Maximum (mg/L) |
|------------|--------|-------------------|-----------------------------|------------------|-----------------------------|-------------------|
| Lithium | ELF-10 | 0.841 | 1.65 | 2.09 | 2.85 | 4.59 |
| Lithium | ELF-1D | 2.12 | 2.16 | 2.19 | 2.20 | 2.20 |
| Lithium | ELF-2 | 1.34 | 1.52 | 1.76 | 3.93 | 4.93 |
| Lithium | ELF-9 | 0.724 | 0.754 | 0.845 | 1.08 | 2.48 |
| Lithium | Pooled | 0.724 | 1.08 | 1.68 | 2.20 | 4.93 |
| Molybdenum | ELF-10 | 0.0516 | 0.0706 | 0.0871 | 0.1165 | 0.1240 |
| Molybdenum | ELF-1D | 0.0161 | 0.0163 | 0.0165 | 0.0186 | 0.0207 |
| Molybdenum | ELF-2 | 0.0026 | 0.0030 | 0.0031 | 0.0038 | 0.0050 |
| Molybdenum | ELF-9 | 0.0679 | 0.1075 | 0.1195 | 0.1280 | 0.1580 |
| Molybdenum | Pooled | 0.0026 | 0.0036 | 0.0648 | 0.1160 | 0.1580 |
| pН | ELF-10 | 6.88 | 7.00 | 7.18 | 7.28 | 8.37 |
| pН | ELF-1D | 7.02 | 7.02 | 7.15 | 7.27 | 7.27 |
| pН | ELF-2 | 7.12 | 7.17 | 7.22 | 7.30 | 7.76 |
| pН | ELF-9 | 7.51 | 7.86 | 7.94 | 7.99 | 8.06 |
| pН | Pooled | 6.88 | 7.17 | 7.29 | 7.86 | 8.37 |
| Radium | ELF-10 | 0.46 | 1.67 | 2.47 | 3.26 | 14.2 |
| Radium | ELF-1D | 1.09 | 1.16 | 1.23 | 1.93 | 2.63 |
| Radium | ELF-2 | 0.61 | 0.85 | 1.31 | 2.29 | 8.10 |
| Radium | ELF-9 | 0.64 | 0.92 | 1.36 | 1.88 | 2.60 |
| Radium | Pooled | 0.46 | 0.97 | 1.44 | 2.39 | 14.2 |
| Selenium | ELF-10 | < 0.002 | 0.0051 | 0.0105 | 0.1515 | 0.410 |
| Selenium | ELF-1D | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Selenium | ELF-2 | 0.0319 | 0.0879 | 0.424 | 0.499 | 0.608 |
| Selenium | ELF-9 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | 0.0042 |
| Selenium | Pooled | < 0.002 | < 0.002 | 0.0098 | 0.328 | 0.608 |
| Sulfate | ELF-10 | 10000 | 13100 | 18300 | 19900 | 20700 |
| Sulfate | ELF-1D | 7730 | 7730 | 8185 | 8640 | 8640 |
| Sulfate | ELF-2 | 6030 | 7190 | 7950 | 8150 | 8370 |
| Sulfate | ELF-9 | 5460 | 5790 | 6470 | 6875 | 8030 |
| Sulfate | Pooled | 5460 | 6815 | 7950 | 10150 | 20700 |
| TDS | ELF-10 | 35200 | 37200 | 38300 | 39600 | 40300 |
| TDS | ELF-1D | 26800 | 26800 | 26900 | 27000 | 27000 |
| TDS | ELF-2 | 11300 | 11500 | 12000 | 12300 | 12600 |
| TDS | ELF-9 | 9420 | 10350 | 10600 | 11550 | 12000 |
| TDS | Pooled | 9420 | 11350 | 12000 | 35250 | 40300 |

3.0 UPGRADIENT AND DOWNGRADIENT WELL COMPARISON

Groundwater quality was assessed using upper tolerance limits (UTLs) and the Maximum Contaminant Levels (MCL) for each of the Appendix III and IV analytes. The data measured from the upgradient/background wells, was used to compute a UTL, which serves as the background value. The larger of the UTL and MCL was used as the Groundwater Protection Standard (GWPS). Data obtained from the downgradient wells were compared point-by-point to the GWPSs to determine if the site complies with the *Final Rule*. The software package Sanitas© v.2016, was used to compute the UTLs. 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 Groundwater Protection Standards

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:

- \overline{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 outliers are present in the cadmium, cobalt, lead, and radium data. 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 detected 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 IV analytes where at least 50% of the measurements were detects. An appropriate transformation was found for lithium and radium. Non-parametric UTLs were computed for all of the analytes except for lithium and radium.

| Analyte | Well | W-Statistic | P-Value | Normal |
|----------------------|--------|-------------|----------------|------------|
| Barium | Pooled | 0.8082 | < 0.0001 | Not Normal |
| Boron | Pooled | 0.8517 | 0.0002 | Not Normal |
| Calcium | Pooled | 0.7948 | < 0.0001 | Not Normal |
| Chloride | Pooled | 0.6789 | < 0.0001 | Not Normal |
| Fluoride | Pooled | 0.635 | < 0.0001 | Not Normal |
| Lithium | Pooled | 0.8703 | 0.0003 | Not Normal |
| Cube Root of Lithium | Pooled | 0.9488 | 0.0688 | Normal |
| Molybdenum | Pooled | 0.8383 | < 0.0001 | Not Normal |
| pН | Pooled | 0.901 | 0.0036 | Not Normal |
| Radium | Pooled | 0.5471 | < 0.0001 | Not Normal |
| LN of Radium | Pooled | 0.9482 | 0.0658 | Normal |
| Selenium | Pooled | 0.7286 | < 0.0001 | Not Normal |
| Sulfate | Pooled | 0.7296 | < 0.0001 | Not Normal |
| TDS | Pooled | 0.691 | < 0.0001 | Not Normal |

Table C.3. Shapiro-Wilk Test for the CCR Landfill upgradient wells.

3.1.2 Upper Tolerance Limits and Groundwater Protection Standard

This section contains the GWPS computed for each analyte. Table C.4 lists the UTL, MCL, and GWPS for each of the analytes detected in the upgradient wells. The following criteria was used for determining each GWPS:

• 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 nondetects, the greater of the largest MDL and maximum detected value was used as the UTL.
- If all of the upgradient samples were non-detects, the largest MDL was used as the UTL.
- The larger of the MCL and the UTL was used as the GWPS.
- Fluoride is compared to both the MCL and the UTL if the MCL exceeds the UTL, to meet the criteria for Appendix III constituents.

Figure C.4 shows graphs that were constructed for each of the analytes that had at least one detectable measurement in the downgradient wells. The graphs illustrate the GWPS as a horizontal line with the measurements from each of the downgradient wells plotted on the same graph. Non-detects are represented by hollow gray circles on the graphs. These graphs clearly depict how the downgradient measurements compare to the GWPS. Results above the GWPS line represent values exceeding the GWPS. As the graphs illustrate, boron, calcium, cobalt, lithium, molybdenum, selenium, sulfate, and total dissolved solids exceed the GWPS. Table C.4 list the GWPSs and the wells that exceed the GWPS for each analyte (Figure C.4). GWPS plots are not provided for analytes that were not detected in any downgradient samples.

| Analyte | Upper Tolerance Limit (mg/L) | Maximum Contaminant Level (mg/L) | Groundwater Protection Standard (mg/L) | Downgradient Wells that Exceed Groundwater Protection Standard |
|-------------------------|---------------------------------------|--|---|--|
| Antimony | 0.004 | 0.006 | 0.006 | Within Limit |
| Arsenic | 0.0117 | 0.01 | 0.0117 | Within Limit |
| Barium | 0.10 | 2.00 | 2.00 | Within Limit |
| Beryllium | 0.002 | 0.004 | 0.004 | Within Limit |
| Boron | 5.0 | NA | 5.0 | ELF-11, ELF-5, ELF-8 |
| Cadmium | 0.0011 | 0.005 | 0.005 | Within Limit |
| Calcium | 543 | NA | 543 | ELF-8 |
| Chloride | 9900 | NA | 9900 | Within Limit |
| Chromium | 0.0201 | 0.1 | 0.1 | Within Limit |
| Cobalt | 0.0114 | 0.006 | 0.0114 | ELF-11, ELF-8 |
| Fluoride (App III & IV) | 4.36 | 4.0 | 4.36 | Within Limit |
| Lead | 0.012 | 0.015 | 0.015 | Within Limit |
| Lithium | 4.957 | 0.04 | 4.957 | ELF-5 |
| Mercury | 0.00015 | 0.002 | 0.002 | Within Limit |
| Molybdenum | 0.158 | 0.1 | 0.158 | ELF-8 |
| pH Acidic Range | 6.88 | NA | 6.88 | Within Limit |

| Table C 4 | Commonian | of down and i | ant malla to th | Crown drugton | Protection Standard |
|-------------|------------|----------------|-----------------|----------------|---------------------|
| 1 able C.4. | Comparison | l of downgradi | | le Gloundwaler | FIGLECTION Standard |

| Analyte | Upper Tolerance Limit (mg/L) | Maximum Contaminant Level (mg/L) | Groundwater Protection Standard (mg/L) | Downgradient Wells that Exceed Groundwater Protection Standard |
|----------------|---------------------------------------|--|---|--|
| pH Basic Range | 8.37 | NA | 8.37 | Within Limit |
| Radium | 7.00 | 5.0 | 7.00 | Within Limit |
| Selenium | 0.608 | 0.05 | 0.608 | ELF-3 |
| Sulfate | 20700 | NA | 20700 | ELF-3 |
| TDS | 40300 | NA | 40300 | ELF-3 |
| Thallium | 0.002 | 0.002 | 0.002 | Within Limit |

4.0 CONCLUSIONS

Data were collected from the CCR Landfill monitoring wells at the Hunter Power Plant. A comprehensive data analysis was compelted on the upgradient wells to ensure comparisons between upgradient and downgradient wells were performed correctly. Boron, calcium, cobalt, lithium, molybdenum, selenium, sulfate, and total dissolved solids exhibited statistically significant increases above background or their groundwater protection standards in the wells downgradient of the CCR Landfill.

5.0 **REFERENCES**

- EPA, 2009, "Statistical Analysis Of Groundwater Monitoring Data At RCRA Facilities Unified Guidance," EPA 530/R-09-007, U.S. Environmental Protection Agency, March 2009.
- Helsel, Dennis, 2004, Nondetects and Data Analysis: Statistic for Censored Environmental Data, New York: Wiley Interscience.
- R Core Team, 2018, *R: A Language and Environment for Statistical Computing*, <u>https://www.R-project.org</u>, R Foundation for Statistical Computing, Vienna, Austria.

Sanitas Technologies, 2016, Sanitas, www.sanitastech.com, Shawnee, Kansas.

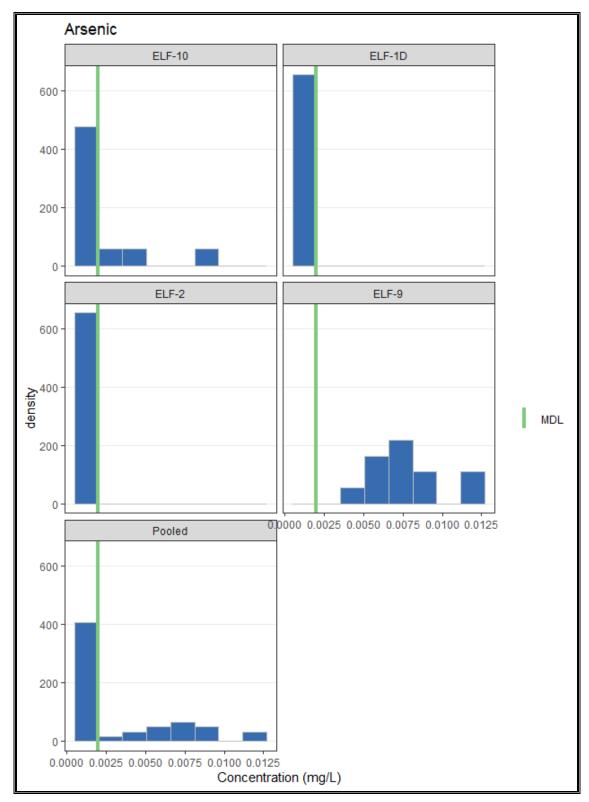


Figure C.3. Summary statistics plots for the CCR Landfill.

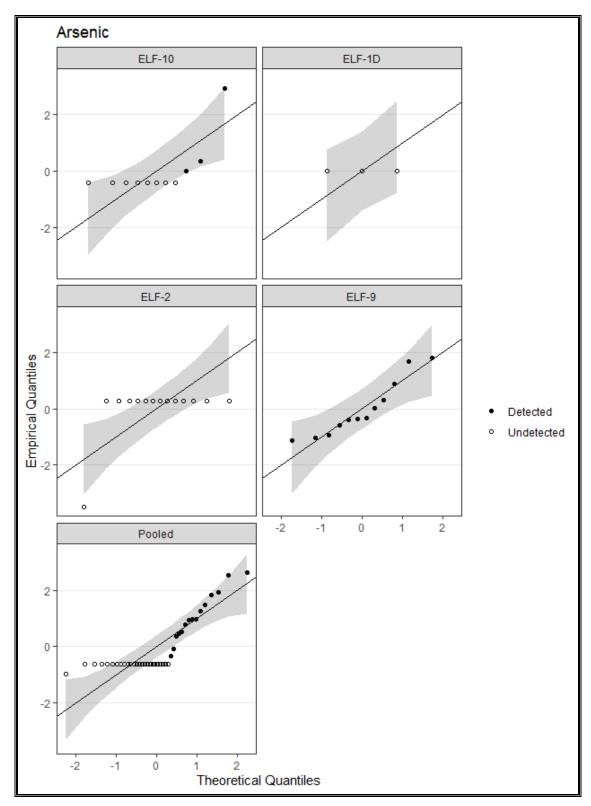


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

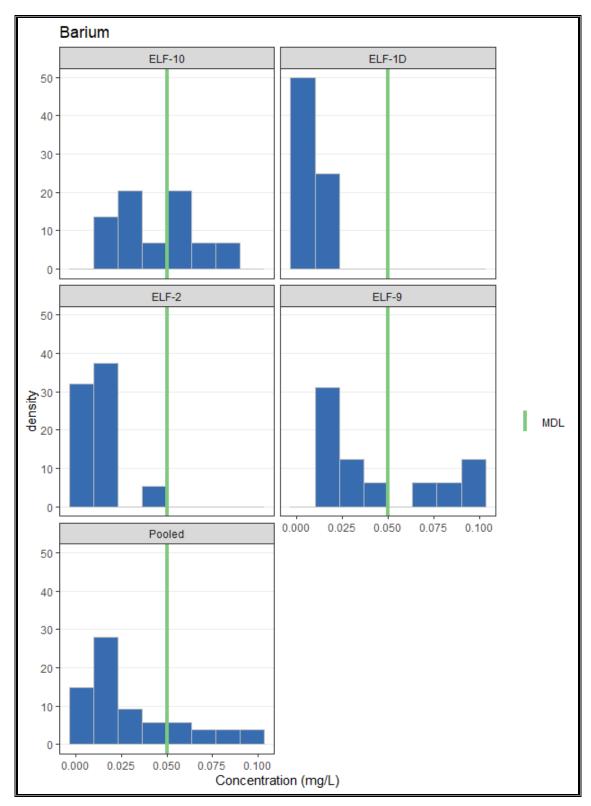


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

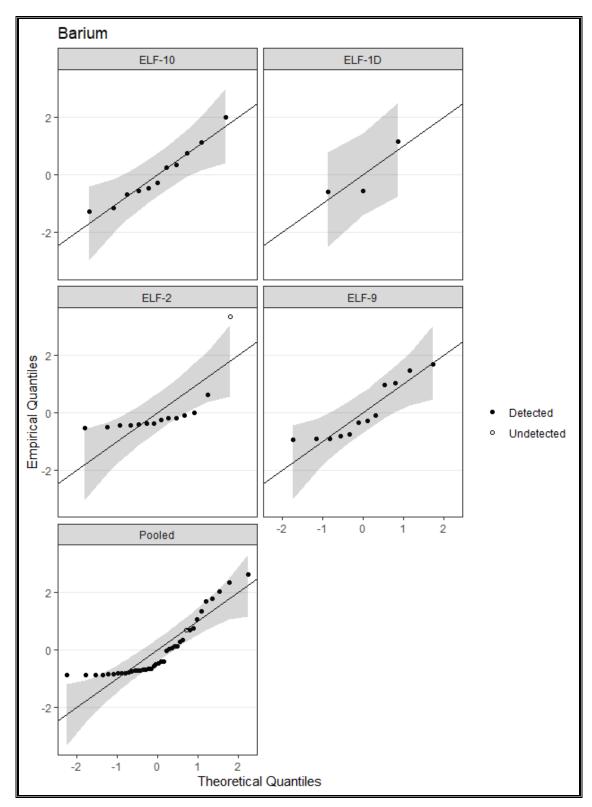


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

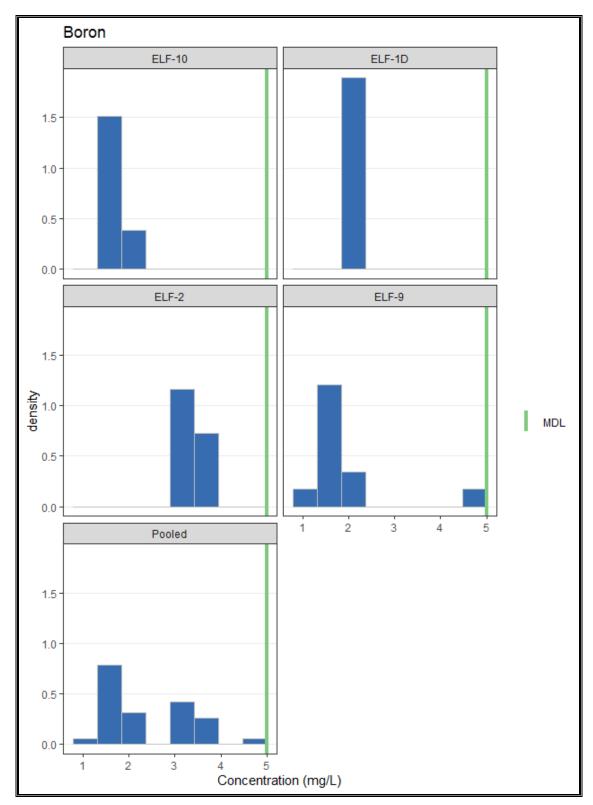


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

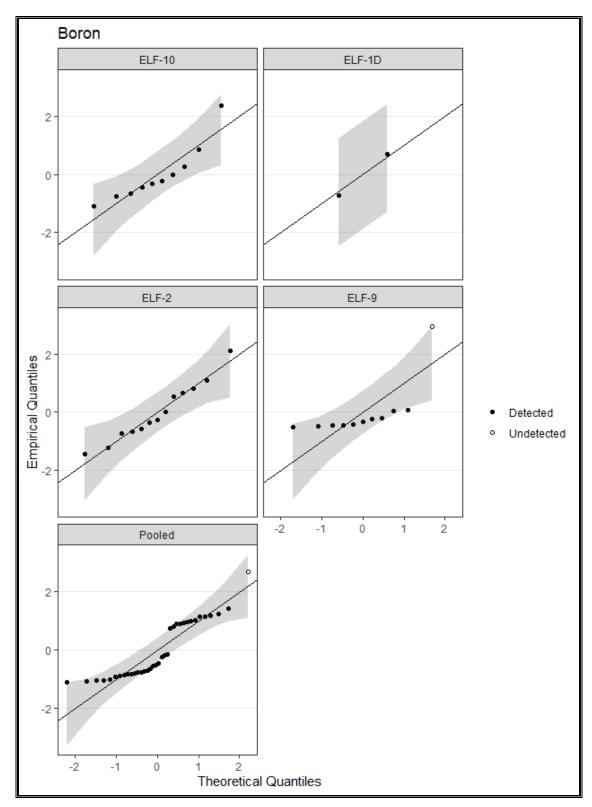


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

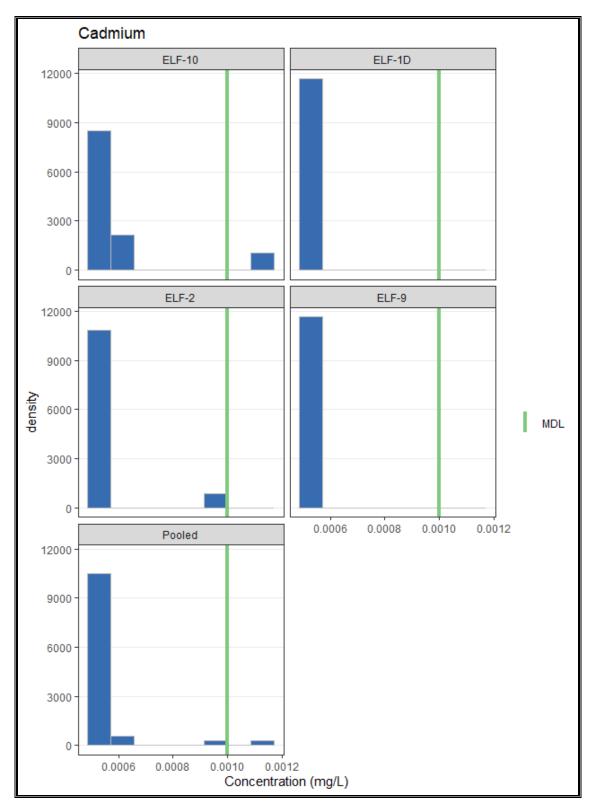


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

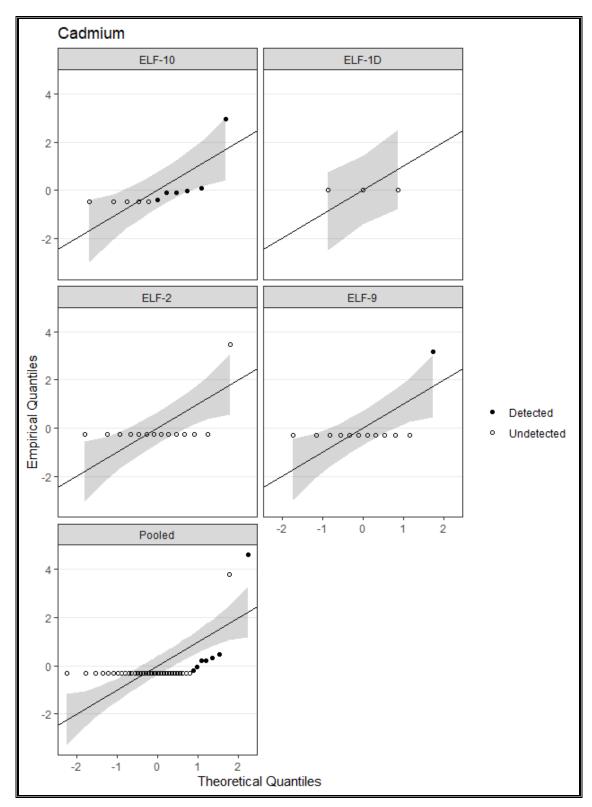


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

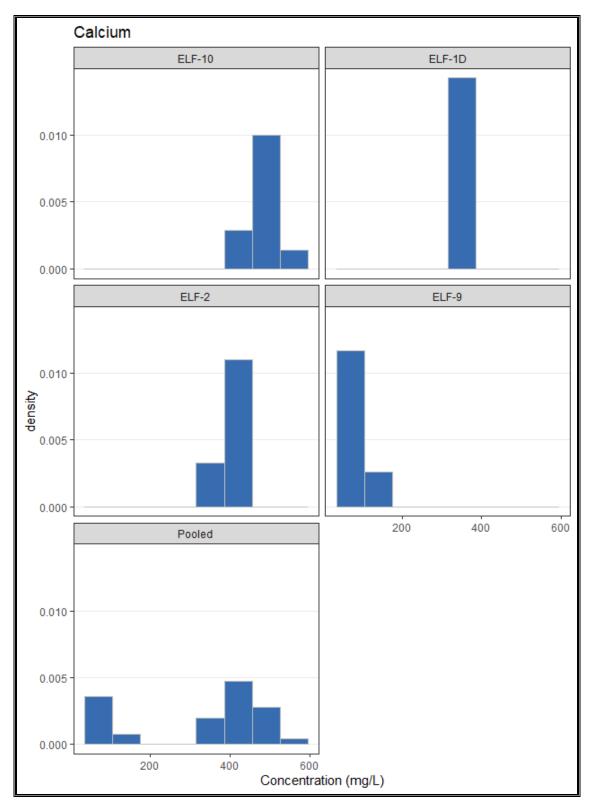


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

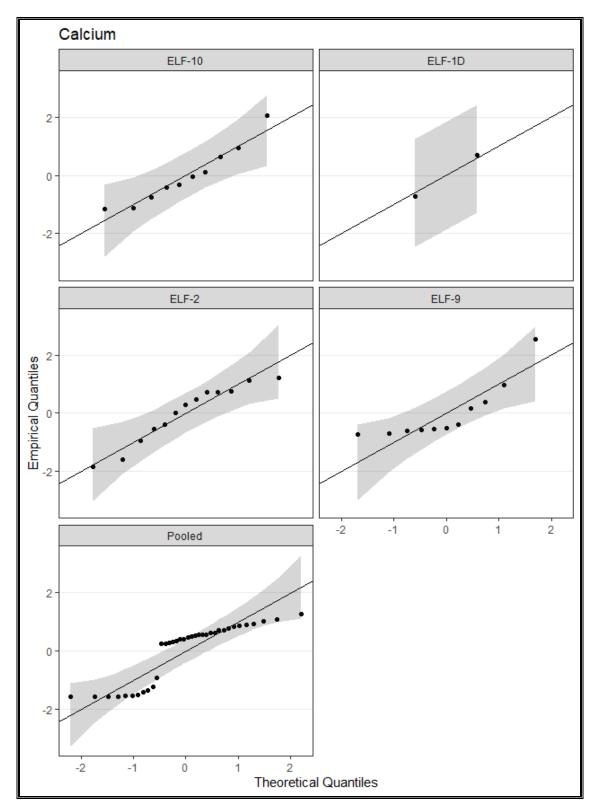


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

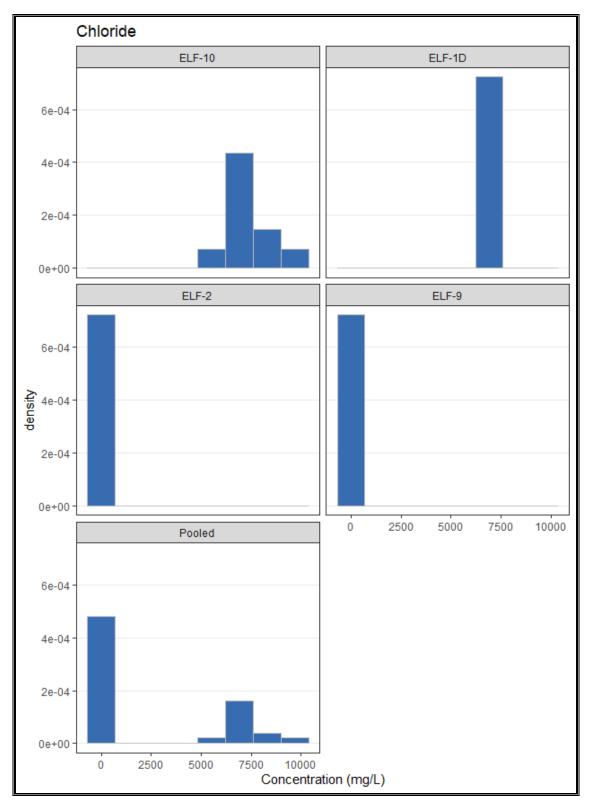


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

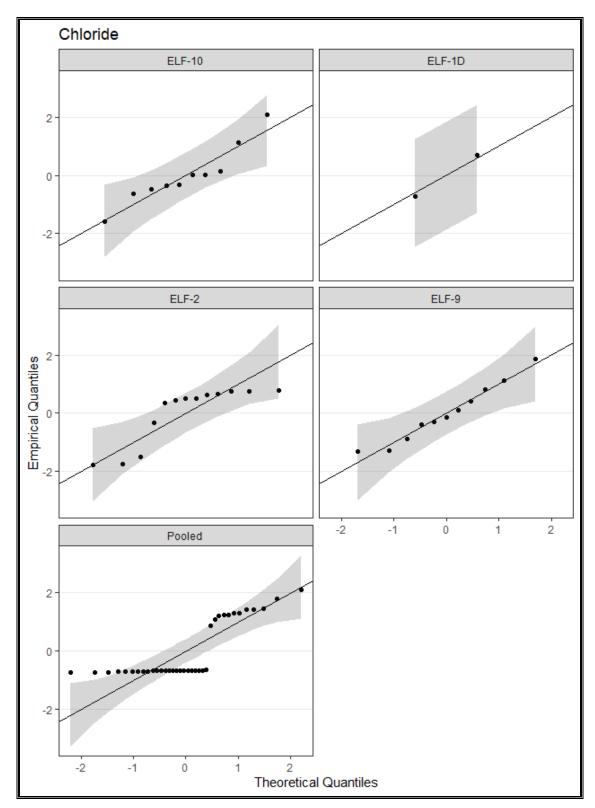


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

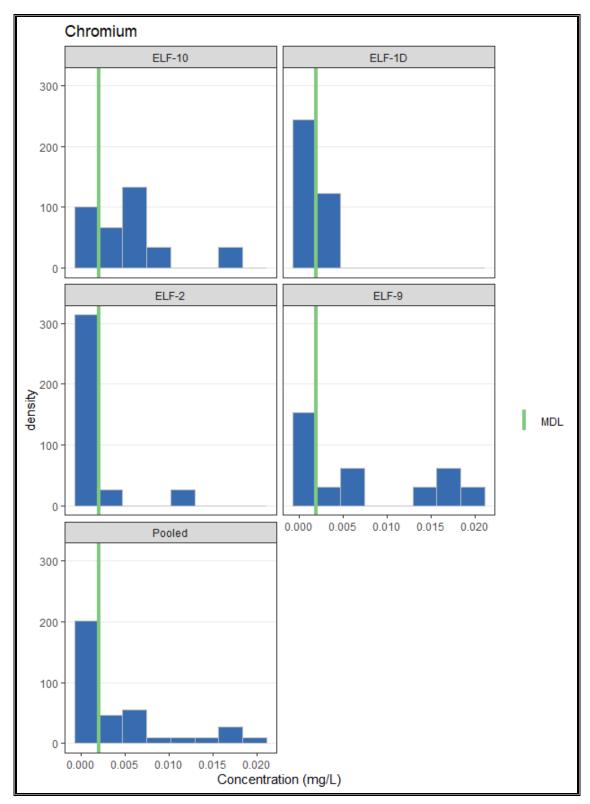


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

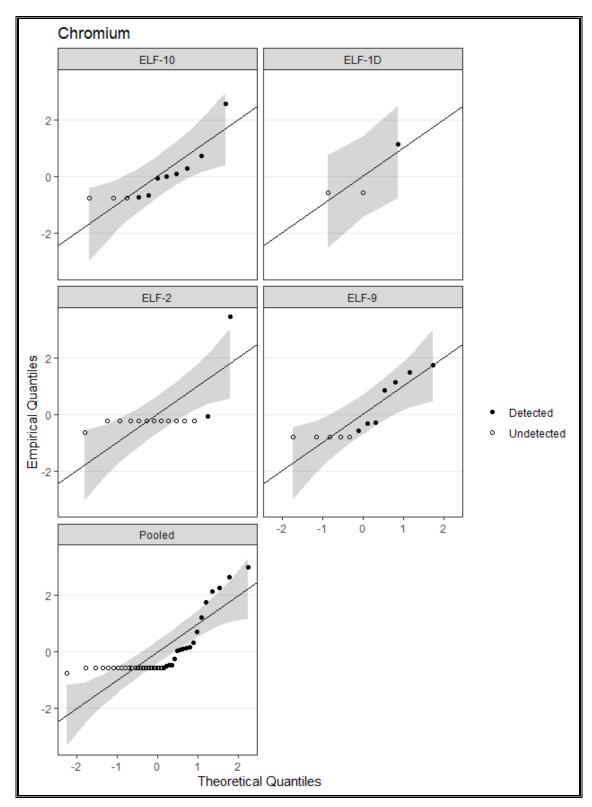


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

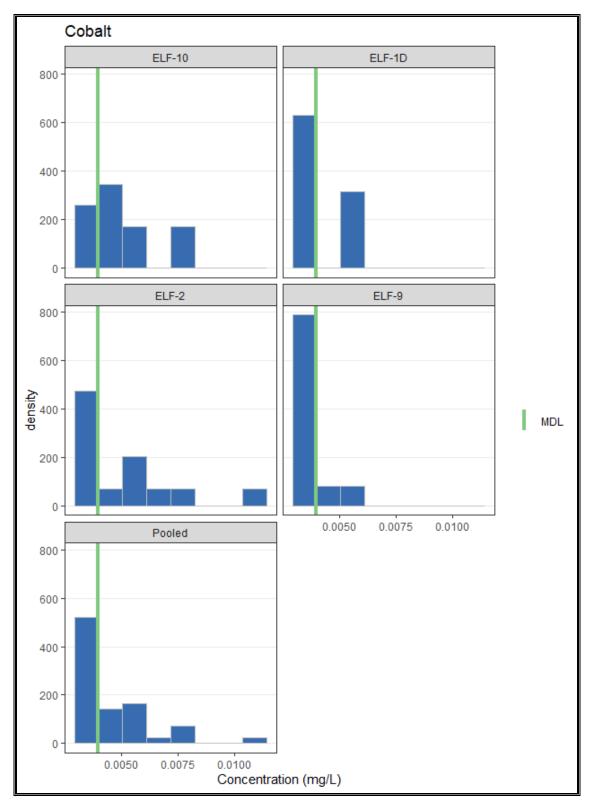


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

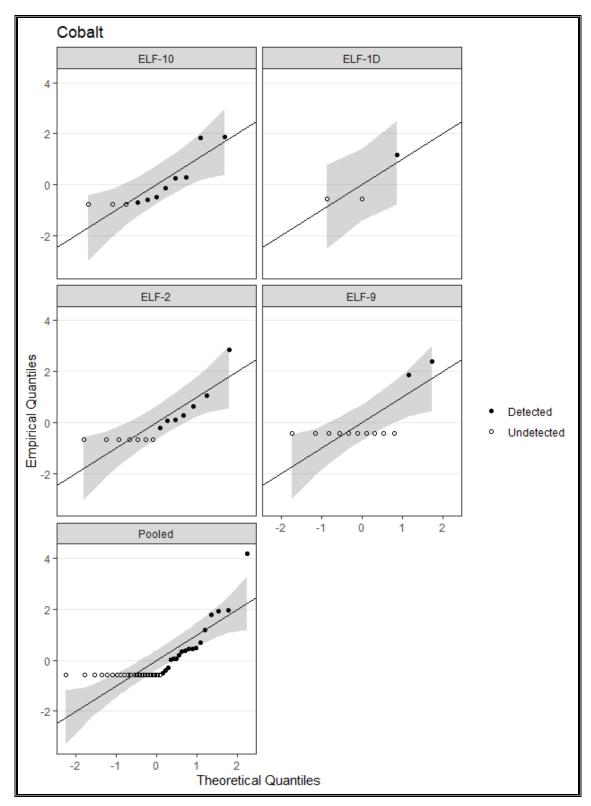


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

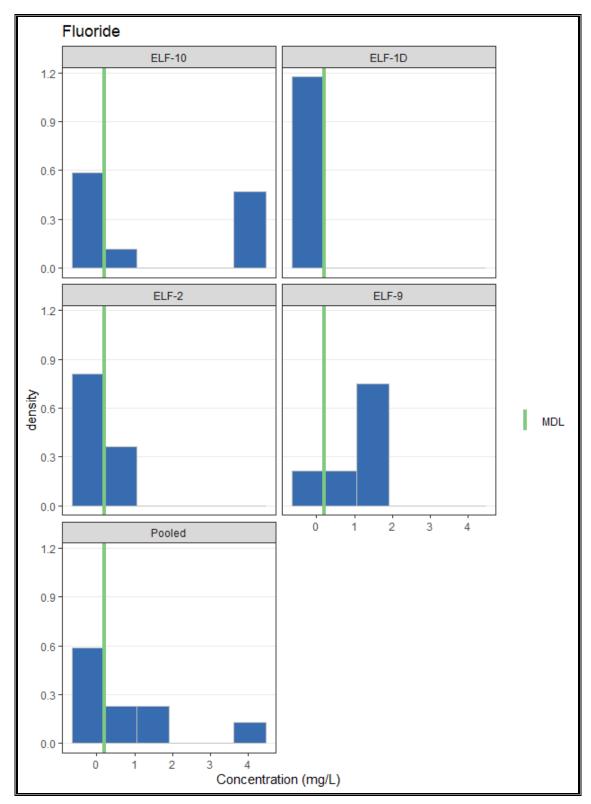


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

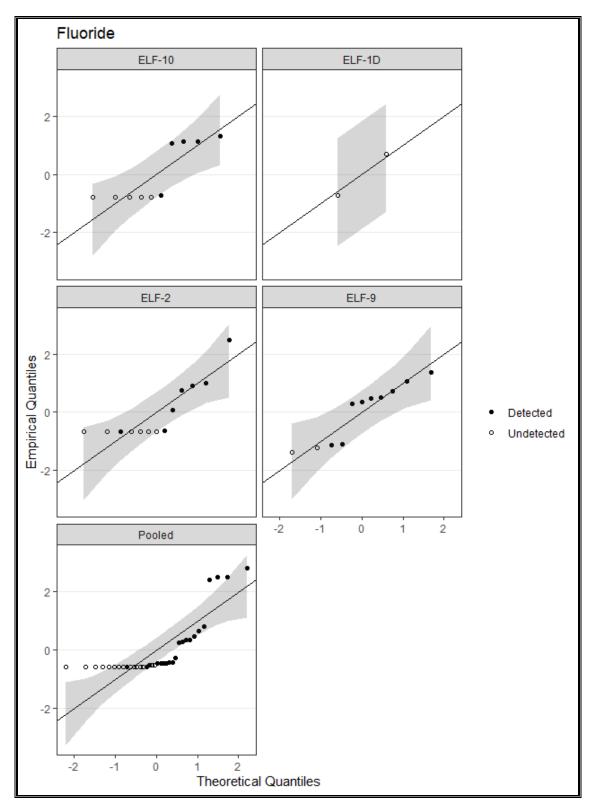


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

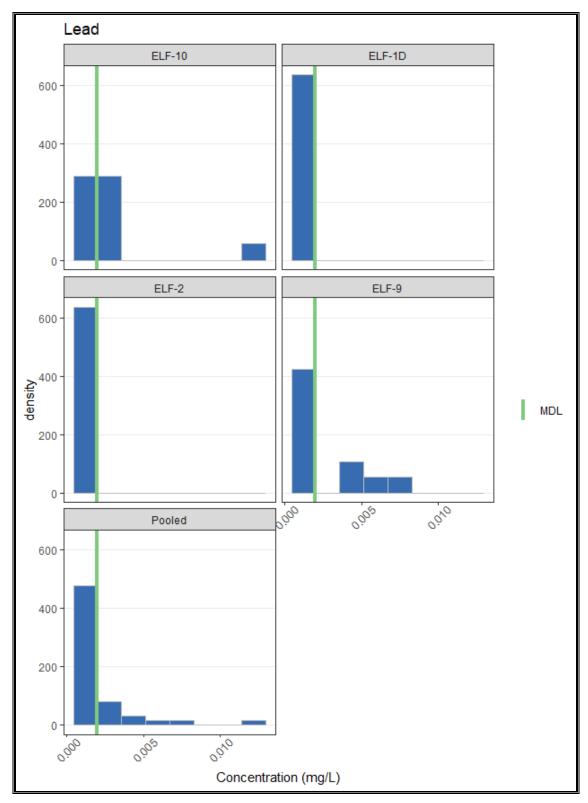


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

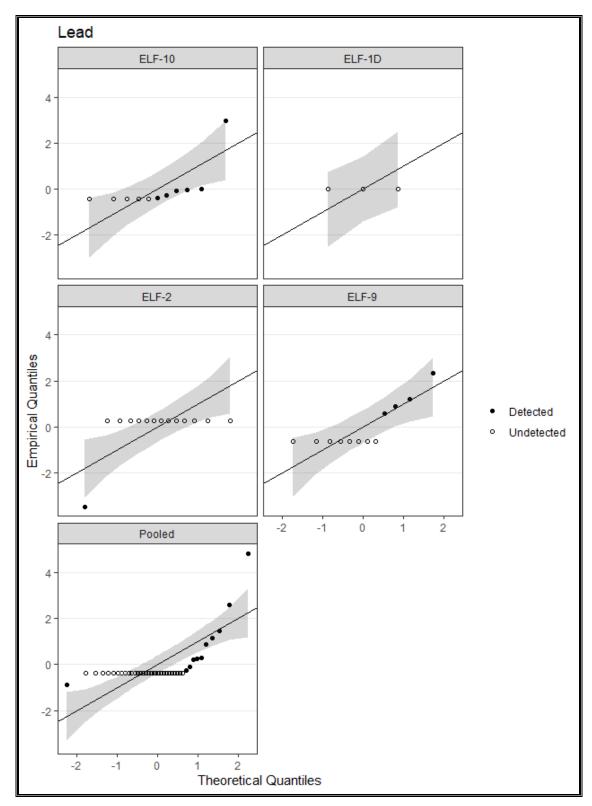


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

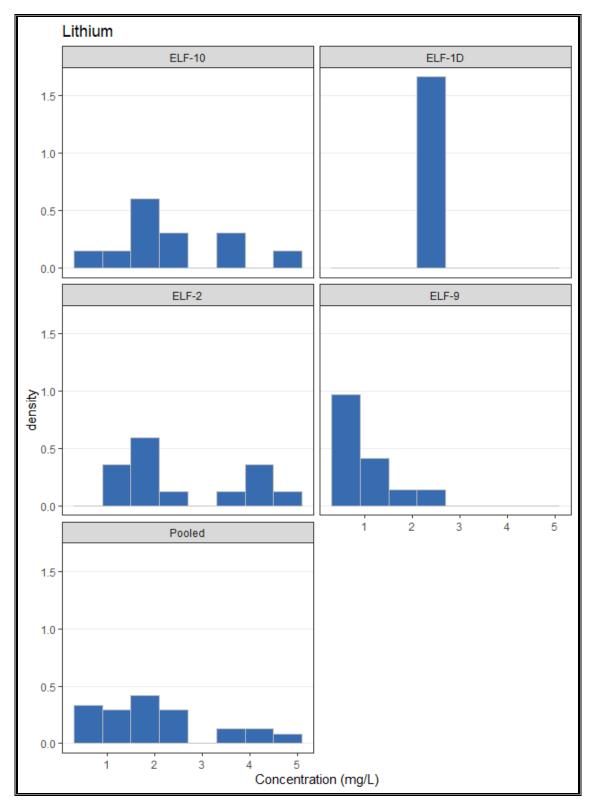


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

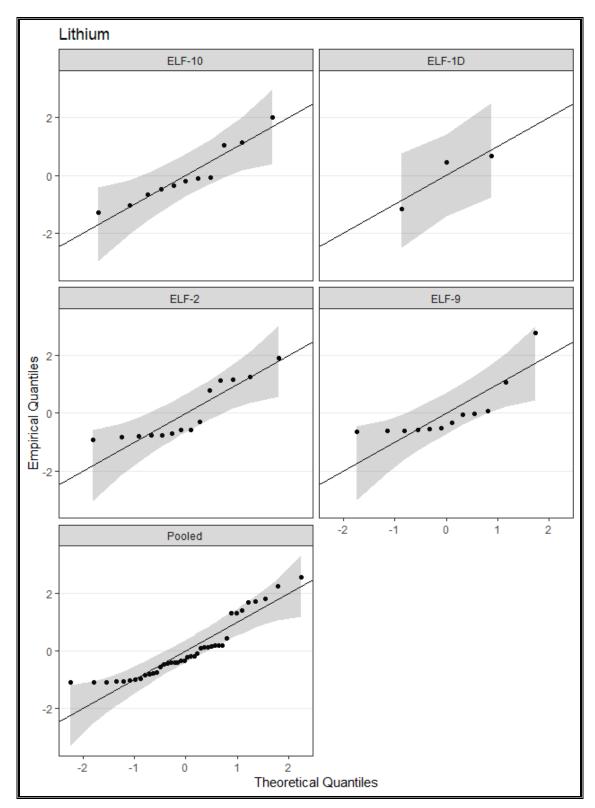


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

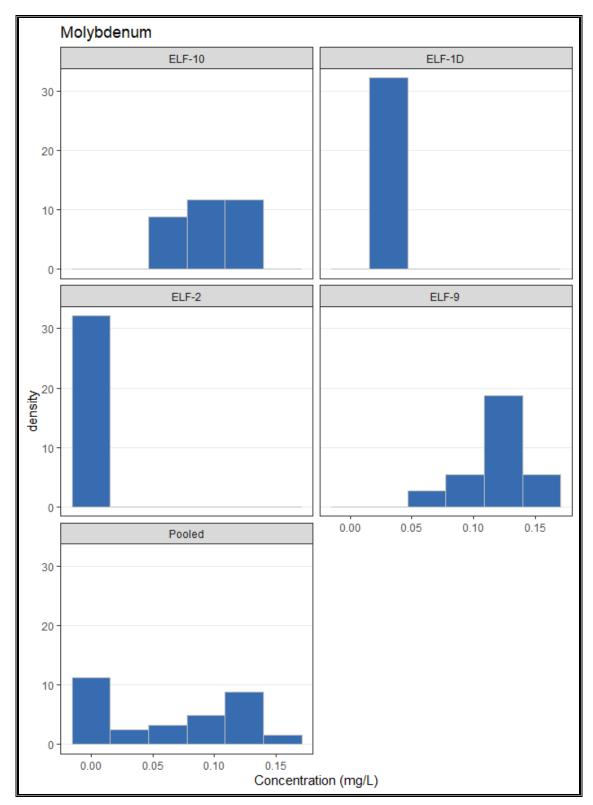


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

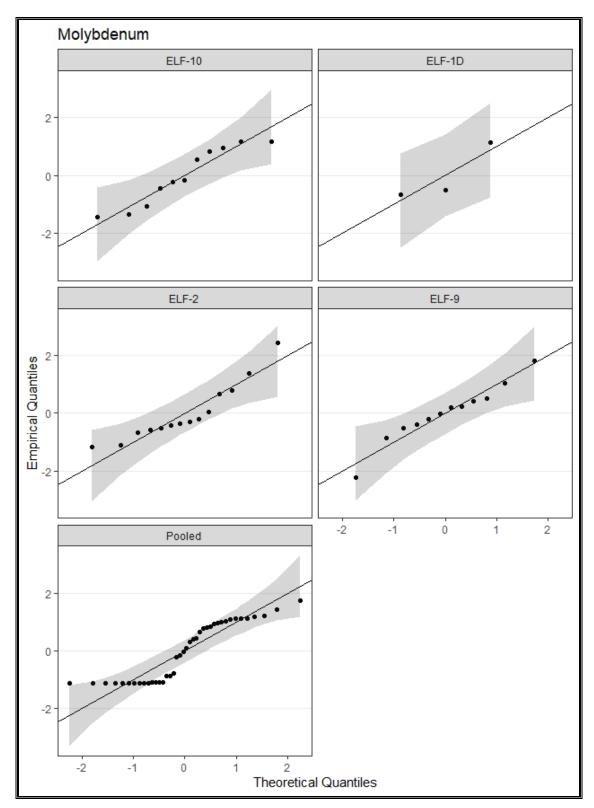


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

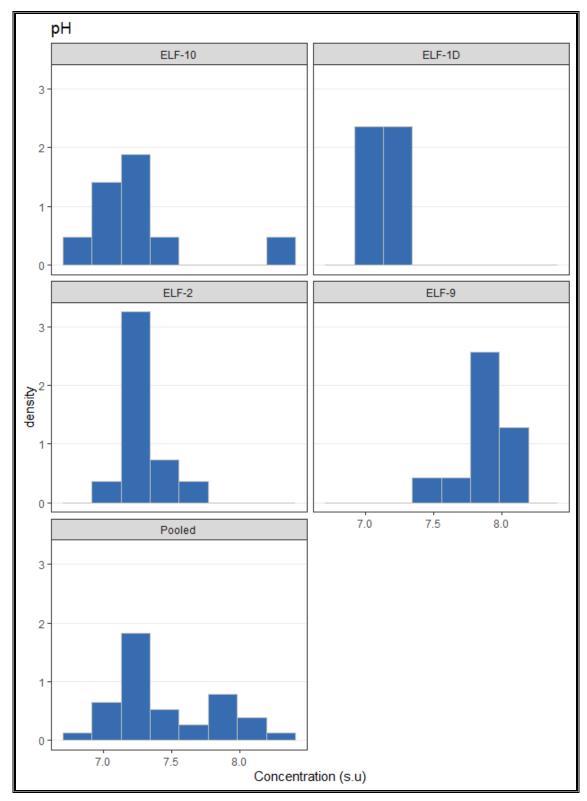


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

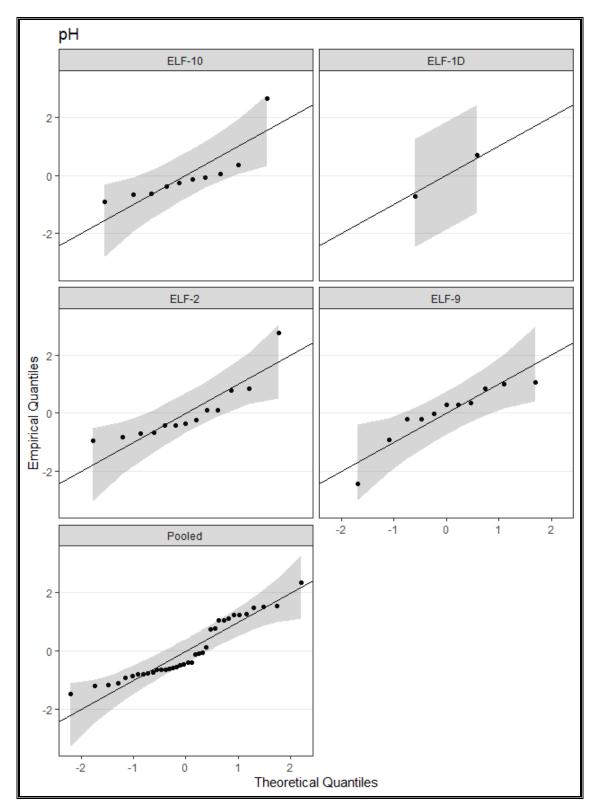


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

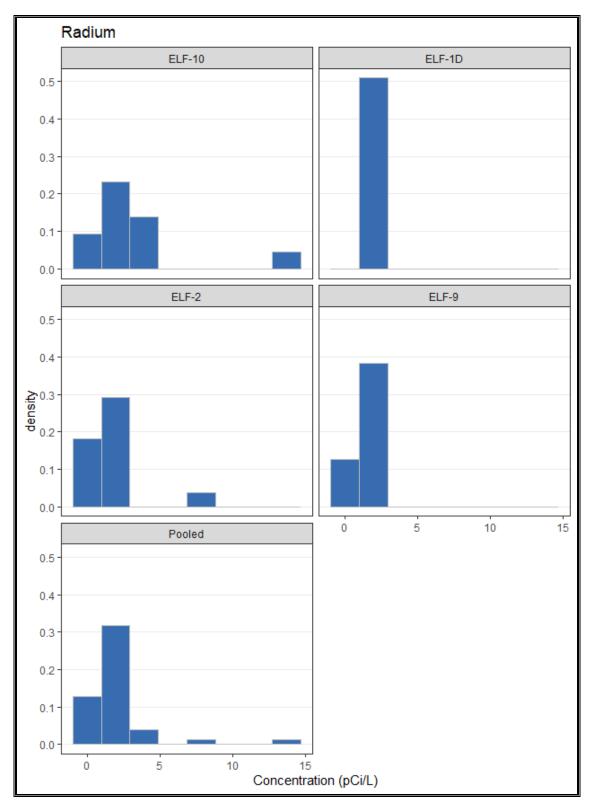


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

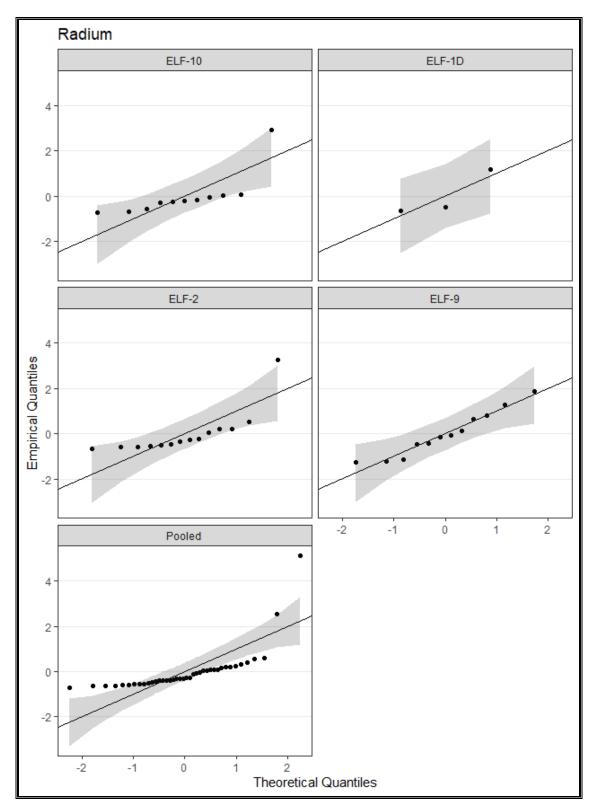


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

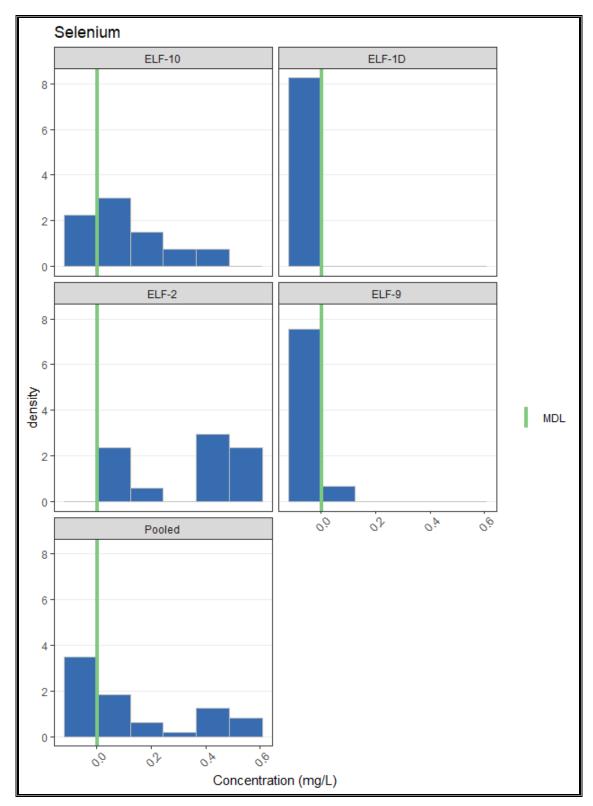


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

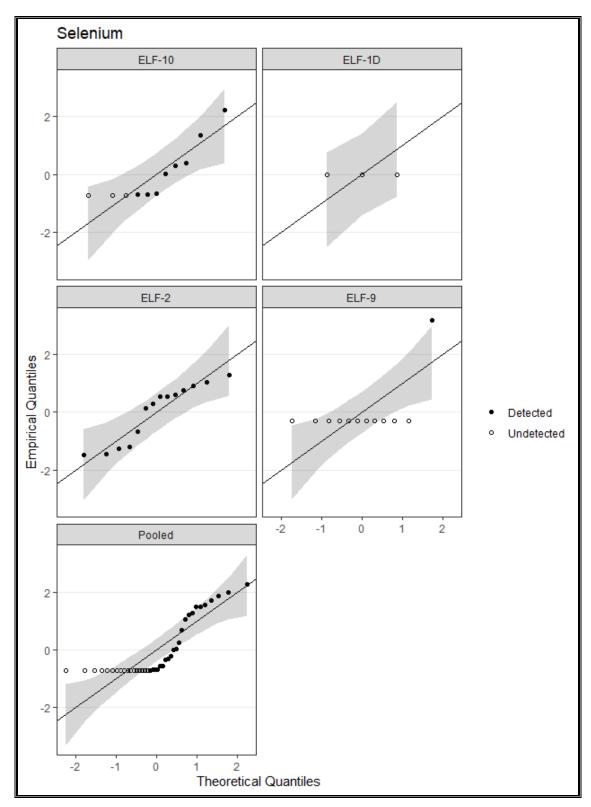


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

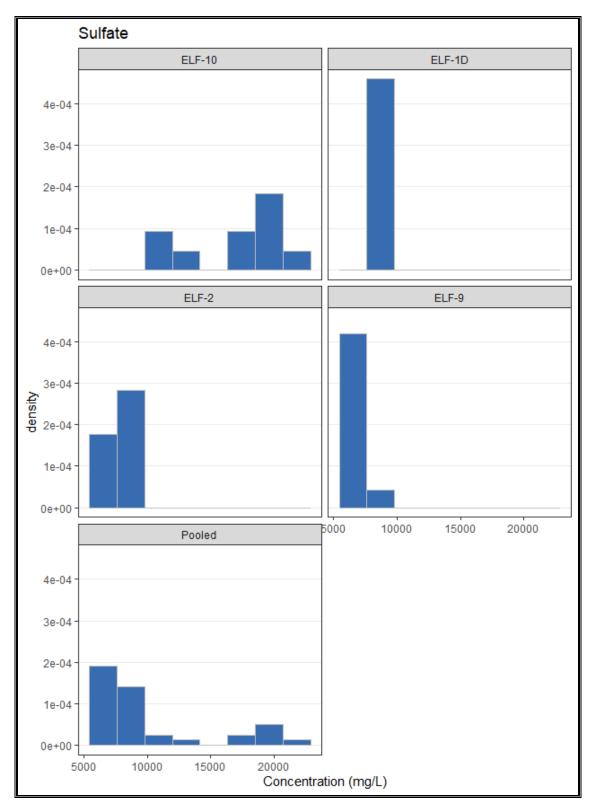


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

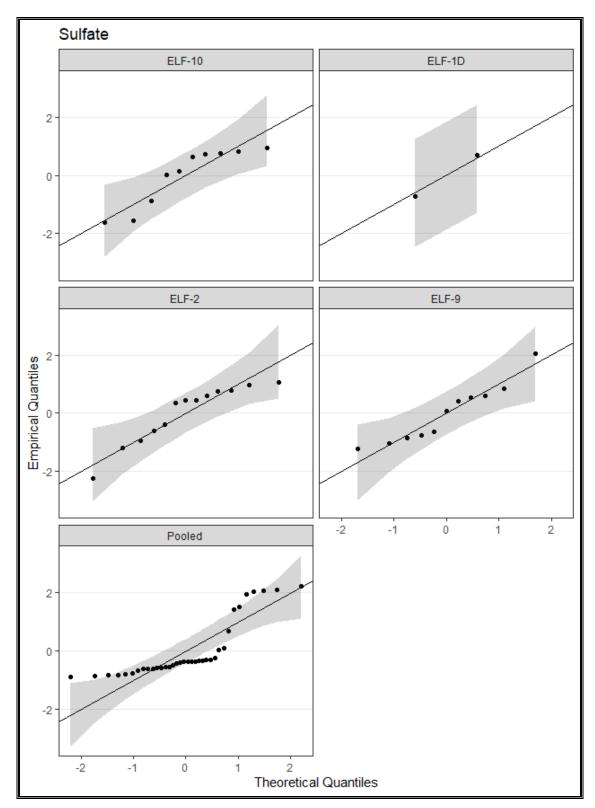


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

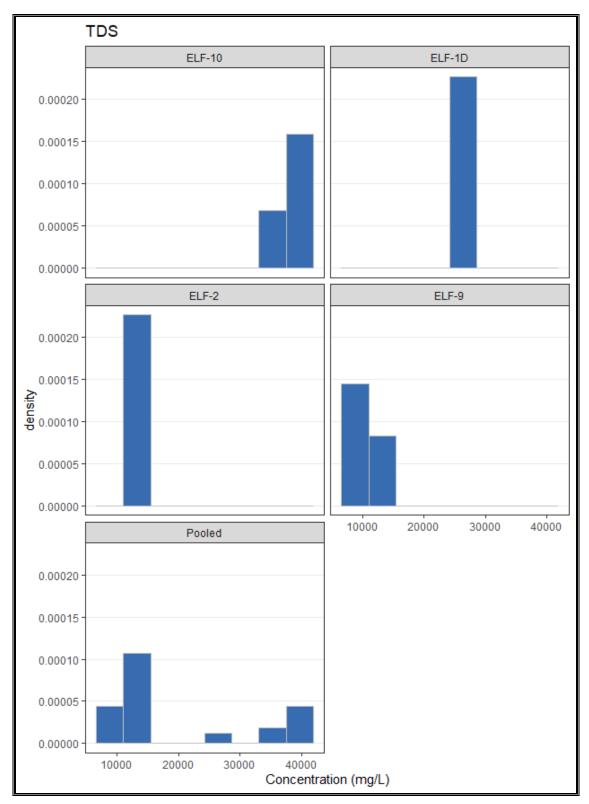


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

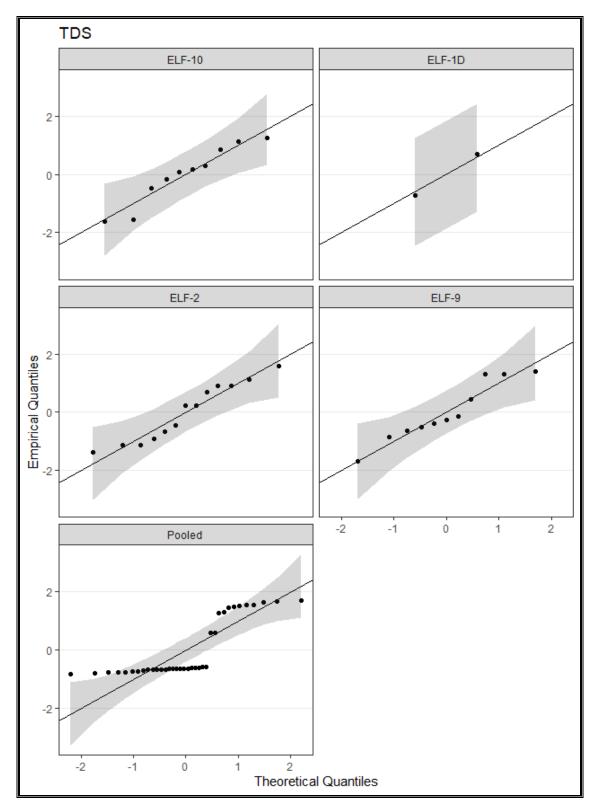


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

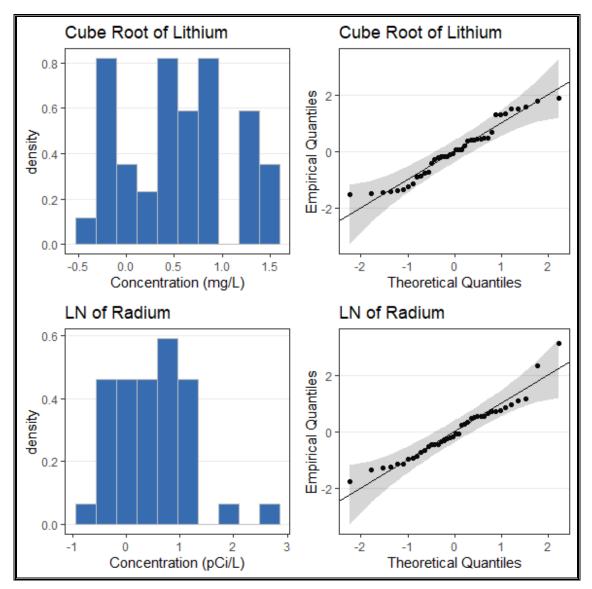


Figure C.3 (cont). Summary statistics plots for the CCR Landfill.

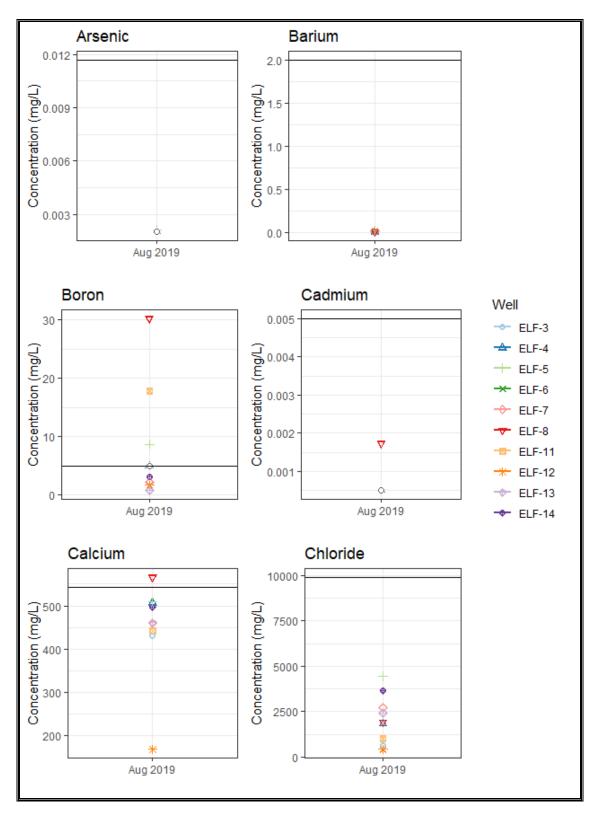


Figure C.4. Groundwater Protection Standard plots for the CCR Landfill.

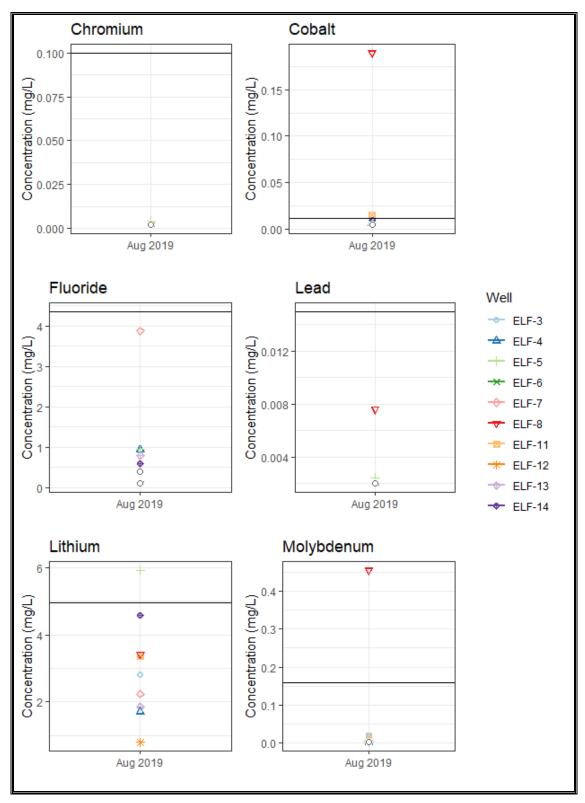


Figure C.4 (cont.). Groundwater Protection Standard plots for the CCR Landfill.

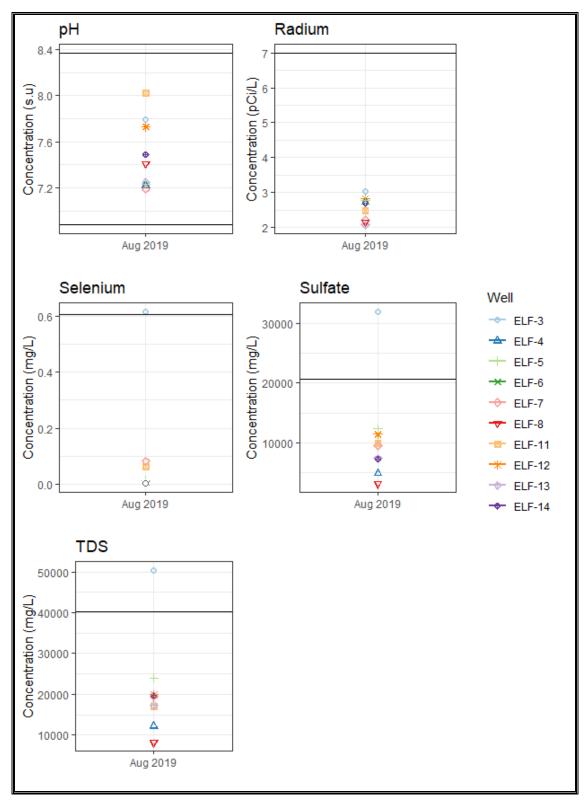


Figure C.4 (cont.). Groundwater Protection Standard plots for the CCR Landfill.



Attachment D:

Field Data Sheets



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | MLS | Project Number: | PERCM052 | | |
| Sample ID: | ELF-13 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | SUNNY, CLEAR | | | | |
| Depth to Water (ft): | 3.98 | | | | |

| FIELD PARAMETERS | | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|--|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) | |
| 0 | 11.90 | 19,552 | 0.13 | 6.75 | 287.40 | 7.57 | |
| 2 | 11.80 | 19,551 | 0.10 | 6.77 | 286.80 | 3.88 | |
| 4 | 11.80 | 19,480 | 0.08 | 6.77 | 284.30 | 6.39 | |
| 6 | 11.80 | 19,435 | 0.06 | 6.76 | 281.30 | 12.50 | |
| | | | | | | | |

| SAMPLE COLLECTION | | | | | | | |
|--------------------|--|---------------|-------|---------------------------------------|---|--|--|
| Appendix: 3_4 Samp | | Sample Time: | 11:30 | | | | |
| 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 | | Nitrate + Nitrite | | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | | |



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | MLS | Project Number: | PERCM052 | | |
| Sample ID: | ELF-12 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | SUNNY, CLEAR | | | | |
| Depth to Water (ft): | 19.82 | | | | |

| FIELD PARAMETERS | | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|--|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) | |
| 0 | 12.90 | 21,329 | 0.06 | 7.26 | 105.70 | 397.00 | |
| 2 | 13.00 | 21,321 | 0.06 | 7.25 | 103.90 | 109.00 | |
| 4 | 13.30 | 21,259 | 0.07 | 7.24 | 100.20 | 69.60 | |
| 6 | 13.10 | 21,334 | 0.45 | 7.23 | 90.80 | 62.20 | |
| | | | | | | | |

| SAMPLE COLLECTION | | | | | | | |
|---------------------------|--|---------------|--------------|---------------------------------------|--|--|--|
| ppendix: 3_4 Sample Time: | | | Sample Time: | 12:15 | | | |
| 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 | | Nitrate + Nitrite | | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | | |



| Project Name: | Hunter Power Plant CCR Monitoring | | | | |
|----------------------|-----------------------------------|-------------------|---------------------|--|--|
| Sampler Initials: | MLS | Project Number: | PERCM052 | | |
| Sample ID: | ELF-14 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | SUNNY, CLEAR | | | | |
| Depth to Water (ft): | 6.64 | | | | |

| FIELD PARAMETERS | | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|--|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) | |
| 0 | 14.40 | 23,053 | 0.34 | 6.94 | 222.20 | 78.90 | |
| 2 | 14.70 | 23,039 | 0.31 | 6.94 | 230.10 | 33.50 | |
| 4 | 14.90 | 23,065 | 0.15 | 6.94 | 243.10 | 18.80 | |
| 6 | 15.00 | 23,068 | 0.11 | 6.94 | 249.00 | 15.30 | |
| | | | | | | | |

| SAMPLE COLLECTION | | | | | | | |
|---------------------------|---|---------------|--------------|---------------------------------------|---|--|--|
| ppendix: 3_4 Sample Time: | | | Sample Time: | 10:45 | | | |
| 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 | | Nitrate + Nitrite |] | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | 7 | | |



| Project Name: | Hunter | | | | | |
|----------------------|-----------------------|-------------------|---------------------|--|--|--|
| Sampler Initials: | CE | Project Number: | PERCM052 | | | |
| Sample ID: | ELF-1D | Project Location: | Castle Dale UT | | | |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 | | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | | |
| Field Conditions: | Sunny 80s | | | | | |
| Depth to Water (ft): | 83.22 | | | | | |

| FIELD PARAMETERS | | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|--|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| SAMPLE COLLECTION | | | | | | | |
|---------------------------|--|---------------|-------|---------------------------------------|--|--|--|
| ppendix: 3_4 Sample Time: | | Sample Time: | 13:30 | | | | |
| 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 | | Nitrate + Nitrite | | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | | |

Comments/Observations:

Poor producer, filled sample bottles first, MS came and could not get parameters through flow through cell, no parameters



| Project Name: | Hunter | | |
|----------------------|-----------------------|-------------------|---------------------|
| Sampler Initials: | MLS | Project Number: | PERCM052 |
| Sample ID: | ELF-2 | Project Location: | Castle Dale UT |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment |
| Field Conditions: | SUNNY, CLEAR | - | |
| Depth to Water (ft): | 22.72 | | |

| | | | FIELD PARAME | ETERS | | |
|---------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 14.40 | 13,033 | 1.03 | 6.85 | 187.40 | 10.10 |
| 2 | 14.40 | 13,025 | 0.94 | 6.83 | 187.00 | 5.18 |
| 4 | 14.00 | 13,030 | 0.83 | 6.82 | 185.60 | 0.69 |
| 6 | 14.30 | 13,020 | 0.70 | 6.83 | 184.30 | 0.65 |
| | | | | | | |

| | SAMPLE COLLECTION | | | | | | |
|------------------|-------------------|---------------|--------------|---------------------------------------|--|--|--|
| Appendix: | 3_4 | | Sample Time: | 14:30 | | | |
| 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 | | Nitrate + Nitrite | | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | | |

Comments/Observations:

FIELD BLANK TAKEN AT 1445



| Project Name: | Hunter | | |
|----------------------|-----------------------|-------------------|---------------------|
| Sampler Initials: | MLS | Project Number: | PERCM052 |
| Sample ID: | ELF-3 | Project Location: | Castle Dale UT |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment |
| Field Conditions: | SUNNY, CLEAR | - | |
| Depth to Water (ft): | 30.30 | | |

| | | | FIELD PARAMI | ETERS | | |
|---------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 15.30 | 42,966 | 3.69 | 7.19 | 238.80 | 12.40 |
| 2 | 15.00 | 42,960 | 3.32 | 7.16 | 237.10 | 22.90 |
| 4 | 15.00 | 43,389 | 3.24 | 7.13 | 234.30 | 30.50 |
| 6 | 14.90 | 43,356 | 3.22 | 7.12 | 232.50 | 31.50 |
| | | | | | | |

| | | | SAMPI | E COLLECTION | |
|------------------|-----|---------------|--------------|---------------------------------------|---|
| Appendix: | 3_4 | | Sample Time: | 13:15 | |
| 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 | | Nitrate + Nitrite | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | 7 |

Comments/Observations:

WELL HAS HISTORICALLY GONE DRY DURING SAMPLING. SAMPLE TAKEN FIRST, THEN PARAMETERS MEASURED



| Project Name: | Hunter | | |
|----------------------|-----------------------|-------------------|---------------------|
| Sampler Initials: | CE | Project Number: | PERCM052 |
| Sample ID: | ELF-4 | Project Location: | Castle Dale UT |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment |
| Field Conditions: | Sunny 81 degrees | | |
| Depth to Water (ft): | 16.88 | | |

| | | | FIELD PARAMETERS | | | |
|---------------|-------------|------------|------------------|--------------|-------------|----------------|
| TIME (min) | ТЕМР (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 1205 | 13.20 | 14,706 | 5.85 | 11.28 | 180.40 | 73.30 |
| 1207 | 13.20 | 14,677 | 5.22 | 11.94 | 178.90 | 23.50 |
| 1209 | 13.20 | 14,690 | 4.83 | 12.16 | 177.50 | 14.50 |
| 1211 | 13.20 | 14,690 | 3.87 | 12.20 | 176.70 | 13.60 |
| 1213 | 13.40 | 14,690 | 3.16 | 12.10 | 175.70 | 10.90 |

| | | | SAMPI | E COLLECTION | |
|------------------|-----|---------------|--------------|---------------------------------------|---|
| Appendix: | 3_4 | | Sample Time: | 12:15 | |
| 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 | | Nitrate + Nitrite |] |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | 7 |



| Project Name: | Hunter | | |
|----------------------|-----------------------|-------------------|---------------------|
| Sampler Initials: | CE | Project Number: | PERCM052 |
| Sample ID: | ELF-5 | Project Location: | Castle Dale UT |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment |
| Field Conditions: | SUNNY 81 degrees | | - |
| Depth to Water (ft): | 18.69 | | |

| | | | FIELD PARAMI | ETERS | | |
|---------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 1144 | 18.30 | 25,960 | 6.01 | 9.03 | 219.40 | 83.10 |
| 1046 | 16.20 | 25,791 | 5.40 | 9.61 | 218.10 | 46.10 |
| 1048 | 15.90 | 25,625 | 4.85 | 9.87 | 215.30 | 29.70 |
| 1150 | 15.70 | 24,591 | 4.38 | 9.97 | 212.30 | 20.10 |
| | | | | | | |

| SAMPLE COLLECTION | | | | | | |
|-------------------|-----|---------------|--------------|---------------------------------------|--|--|
| Appendix: | 3_4 | | Sample Time: | 11:30 | | |
| 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 | | Nitrate + Nitrite | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | |

Comments/Observations:

Not enough water- filled bottles first then took parameters



| Project Name: | Hunter | | | | |
|----------------------|-----------------------|-------------------|---------------------|--|--|
| Sampler Initials: | CE | Project Number: | PERCM052 | | |
| Sample ID: | ELF-6 | Project Location: | Castle Dale UT | | |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 | | |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment | | |
| Field Conditions: | Sunny 73 degrees | - | | | |
| Depth to Water (ft): | 18.25 | | | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| Appendix: | 3_4 | | Sample Time: | : 11:14 | | |
|------------------|-----|---------------|--------------|---------------------------------------|---|--|
| Containers | - | Preservatives | | Analytes/Comments |] | |
| (1) 1/2 gal poly | 1 | HNO3 | | Radium 226 + 228 | | |
| (1) 250 mL poly | / | HNO3 | | Total metals, Total mercury | | |
| (1) 250 mL poly | / | H2SO4 | | Nitrate + Nitrite | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | 7 | |

Comments/Observations:

Could not sample due to low water level



| Project Name: | Hunter | | |
|----------------------|-----------------------|-------------------|---------------------|
| Sampler Initials: | MLS | Project Number: | PERCM052 |
| Sample ID: | ELF-7 | Project Location: | Castle Dale UT |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment |
| Field Conditions: | SUNNY, CLEAR | | |
| Depth to Water (ft): | 15.22 | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 15.30 | 22,381 | 0.50 | 6.77 | 223.90 | 102.00 |
| 2 | 15.00 | 22,383 | 0.42 | 6.76 | 223.10 | 48.50 |
| 4 | 15.00 | 22,300 | 0.36 | 6.75 | 222.60 | 29.10 |
| 6 | 1.60 | 22,210 | 0.45 | 6.75 | 221.90 | 22.30 |
| | | | | | | |

| SAMPLE COLLECTION | | | | | | |
|-------------------|-----|---------------|--------------|---------------------------------------|---|--|
| Appendix: | 3_4 | | Sample Time: | 12:45 | | |
| 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 | | Nitrate + Nitrite |] | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity |] | |



| Project Name: | Hunter | | |
|----------------------|-----------------------|-------------------|---------------------|
| Sampler Initials: | MLS | Project Number: | PERCM052 |
| Sample ID: | ELF-9 | Project Location: | Castle Dale UT |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment |
| Field Conditions: | SUNNY, CLEAR | | |
| Depth to Water (ft): | 23.25 | | |

| FIELD PARAMETERS | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) |
| 0 | 13.20 | 14,377 | 0.06 | 7.44 | 89.80 | 16.20 |
| 2 | 14.20 | 13,672 | 0.02 | 7.44 | 120.70 | 12.10 |
| 4 | 13.20 | 13,576 | 0.02 | 7.49 | 87.70 | 8.00 |
| 6 | 13.10 | 13,261 | 0.02 | 7.48 | 81.10 | 3.17 |
| | | | | | | |

| SAMPLE COLLECTION | | | | | | |
|--|--|---------------|--|---------------------------------------|---|--|
| Appendix: 3_4 Sample Time: 13:45 | | | | | | |
| 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 | | Nitrate + Nitrite | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | |



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

| Project Name: | Hunter | | |
|----------------------|-----------------------|-------------------|---------------------|
| Sampler Initials: | CE | Project Number: | PERCM052 |
| Sample ID: | ELF-8 | Project Location: | Castle Dale UT |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment |
| Field Conditions: | Sunny 73 degrees | - | - |
| Depth to Water (ft): | 9.17 | | |

| FIELD PARAMETERS | | | | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|--|--|--|
| TIME (min) | TEMP (C) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) | | | |
| 1022 | 15.50 | 11,171 | 2.01 | 10.77 | 185.70 | OOR | | | |
| 1024 | 15.40 | 11,109 | 1.01 | 11.18 | 185.10 | 88.50 | | | |
| 1026 | 15.40 | 11,101 | 0.73 | 11.33 | 184.70 | 34.50 | | | |
| 1028 | 15.30 | 11,076 | 0.49 | 11.49 | 183.70 | 24.00 | | | |
| 1030 | 15.30 | 11,070 | 0.40 | 11.53 | 183.10 | 18.60 | | | |

| SAMPLE COLLECTION | | | | | | | | |
|---------------------------------|--|---------------|--|---------------------------------------|---|--|--|--|
| ppendix: 3_4 Sample Time: 10:32 | | | | | | | | |
| 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 | | Nitrate + Nitrite |] | | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | | | |

Comments/Observations:

1st turbidity reading over range



| Project Name: | Hunter | | |
|----------------------|-----------------------|-------------------|---------------------|
| Sampler Initials: | CE | Project Number: | PERCM052 |
| Sample ID: | ELF-10 | Project Location: | Castle Dale UT |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment |
| Field Conditions: | SUNNY 80s | | |
| Depth to Water (ft): | 51.64 | | |

| FIELD PARAMETERS | | | | | | | | |
|------------------|---|--|--|--|--|--|--|--|
| TIME (min) | TEMP (C)SC (uS)DO (mg/l)pH | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| | SAMPLE COLLECTION | | | | | | | | |
|------------------|-------------------|---------------|--------------|---------------------------------------|---|--|--|--|--|
| Appendix: | 3_4 | | Sample Time: | 13:15 | | | | | |
| 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 | | Nitrate + Nitrite | | | | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | | | | |

Comments/Observations:

Poor producer, filled two bottles then well went dry, no sample, no parameters



| Project Name: | Hunter | | |
|----------------------|-----------------------|-------------------|---------------------|
| Sampler Initials: | CE/MS | Project Number: | PERCM052 |
| Sample ID: | ELF-11 | Project Location: | Castle Dale UT |
| Water Disposal: | Ground | Sample Date: | 8/20/2019 |
| Sample Method: | Low Flow Bladder Pump | Decon Method: | Dedicated Equipment |
| Field Conditions: | Sunny clear high 60s | | |
| Depth to Water (ft): | 28.31 | | |

| FIELD PARAMETERS | | | | | | | | | |
|------------------|-------------|------------|--------------|--------------|-------------|----------------|--|--|--|
| TIME (min) | ТЕМР (С) | SC (uS) | DO (mg/l) | рН (s.u.) | ORP (mv) | Turb. (NTU) | | | |
| 919 | 14.80 | 18,664 | 0.97 | 10.26 | 210.70 | 33.70 | | | |
| 921 | 14.80 | 18,601 | 0.73 | 10.74 | 209.10 | 32.50 | | | |
| 923 | 14.80 | 18,464 | 0.82 | 10.85 | 208.50 | 38.20 | | | |
| 925 | 14.80 | 18,287 | 0.91 | 11.17 | 207.50 | 40.60 | | | |
| | | | | | | | | | |

| SAMPLE COLLECTION | | | | | | | | | |
|-------------------|--------------------------------|---------------|--|---------------------------------------|---|--|--|--|--|
| Appendix: | pendix: 3_4 Sample Time: 09:26 | | | | | | | | |
| 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 | | Nitrate + Nitrite | | | | | |
| (1) 1-L poly | | None | | TDS, pH, anions, fluoride, alkalinity | | | | | |

Comments/Observations:

Dup-08-20-19 @ 0940



Attachment E:

Laboratory Analytical Reports

Jeff Tucker PacifiCorp 1407 West North Temple, #280

AMERICAN Salt Lake City, UT 84116

WEST TEL: (801) 220-2989

ANALYTICAL

LABORATORIES RE: Hunter CCR Groundwater Sampling / PERCM052

Dear Jeff Tucker:

Lab Set ID: 1908532

Kyle F. Gross Laboratory Director

> American West Analytical Laboratories received sample(s) on 8/21/2019 for the analyses Jose Rocha presented in the following report.

QA Officer

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas: and is 3440 South 700 West state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri. Salt Lake City, Utah

84119

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any (801) 263-8686 questions or concerns regarding this report please feel free to call.

Toll Free (888) 263-8686

Fax (801) 263-8687 The abbreviation "Surr" found in organic reports indicates a surrogate compound that is awal@awal-labs.com 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

Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1908532-001Client Sample ID:ELF-1DCollection Date:8/20/2019ANALYTICAL8/21/2019

LABORATORIES Analytical Results

TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------------|---|---|--|--|--|---|--|
| Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1141h | E200.8 | 0.00400 | < 0.00400 | |
| Arsenic | mg/L | 8/30/2019 1331h | 9/3/2019 1141h | E200.8 | 0.00200 | < 0.00200 | |
| Barium | mg/L | 8/30/2019 1331h | 9/3/2019 1141h | E200.8 | 0.00200 | 0.00842 | |
| Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1141h | E200.8 | 0.00200 | < 0.00200 | |
| Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1141h | E200.8 | 0.000500 | < 0.000500 | |
| Chromium | mg/L | 8/30/2019 1331h | 9/3/2019 1141h | E200.8 | 0.00200 | < 0.00200 | |
| Cobalt | mg/L | 8/30/2019 1331h | 9/3/2019 1141h | E200.8 | 0.00400 | < 0.00400 | |
| Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1141h | E200.8 | 0.00200 | < 0.00200 | |
| Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1505h | E200.7 | 0.100 | 2.19 | |
| Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1054h | E245.1 | 0.0000900 | < 0.0000900 | 1 |
| Molybdenum | mg/L | 8/30/2019 1331h | 9/3/2019 1551h | E200.8 | 0.00200 | 0.0161 | |
| Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1141h | E200.8 | 0.00200 | < 0.00200 | |
| Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1141h | E200.8 | 0.00200 | < 0.00200 | |
| | Antimony Arsenic Barium Beryllium Cadmium Chromium Chromium Cobalt Lead Lithium Mercury Molybdenum Selenium | Antimonymg/LArsenicmg/LBariummg/LBerylliummg/LCadmiummg/LChromiummg/LCobaltmg/LLeadmg/LLithiummg/LMercurymg/LMolybdenummg/LSeleniummg/L | Compound Units Prepared Antimony mg/L \$/30/2019 1331h Arsenic mg/L \$/30/2019 1331h Barium mg/L \$/30/2019 1331h Barium mg/L \$/30/2019 1331h Beryllium mg/L \$/30/2019 1331h Cadmium mg/L \$/30/2019 1331h Chromium mg/L \$/30/2019 1331h Cobalt mg/L \$/30/2019 1331h Lead mg/L \$/30/2019 1331h Lithium mg/L \$/30/2019 1331h Mercury mg/L \$/30/2019 1331h Molybdenum mg/L \$/30/2019 1331h | Compound Units Prepared Analyzed Antimony mg/L 8/30/2019 1331h 9/3/2019 1141h Arsenic mg/L 8/30/2019 1331h 9/3/2019 1141h Barium mg/L 8/30/2019 1331h 9/3/2019 1141h Beryllium mg/L 8/30/2019 1331h 9/3/2019 1141h Cadmium mg/L 8/30/2019 1331h 9/3/2019 1141h Chromium mg/L 8/30/2019 1331h 9/3/2019 1141h Chromium mg/L 8/30/2019 1331h 9/3/2019 1141h Cobalt mg/L 8/30/2019 1331h 9/3/2019 1141h Lead mg/L 8/30/2019 1331h 9/3/2019 1141h Lithium mg/L 8/30/2019 1331h 9/3/2019 1141h Lead mg/L 8/30/2019 1331h 9/3/2019 1141h Mercury mg/L 8/20/2019 1838h | Compound Units Prepared Analyzed Used Antimony mg/L \$/30/2019 1331h 9/3/2019 1141h E200.8 Arsenic mg/L \$/30/2019 1331h 9/3/2019 1141h E200.8 Barium mg/L \$/30/2019 1331h 9/3/2019 1141h E200.8 Beryllium mg/L \$/30/2019 1331h 9/3/2019 1141h E200.8 Cadmium mg/L \$/30/2019 1331h 9/3/2019 1141h E200.8 Chromium mg/L \$/30/2019 1331h 9/3/2019 1141h E200.8 Cobalt mg/L \$/30/2019 1331h 9/3/2019 1141h E200.8 Lead mg/L \$/30/2019 1331h 9/3/2019 1141h E200.8 Lithium mg/L \$/30/2019 1331h 9/3/2019 1141h E200.8 Lithium mg/L \$/30/2019 1331h 9/3/2019 1141h E200.7 | CompoundUnitsPreparedAnalyzedUsedLimitAntimonymg/L8/30/2019 1331h9/3/2019 1141hE200.80.00400Arsenicmg/L8/30/2019 1331h9/3/2019 1141hE200.80.00200Bariummg/L8/30/2019 1331h9/3/2019 1141hE200.80.00200Berylliummg/L8/30/2019 1331h9/3/2019 1141hE200.80.00200Cadmiummg/L8/30/2019 1331h9/3/2019 1141hE200.80.00200Cadmiummg/L8/30/2019 1331h9/3/2019 1141hE200.80.00200Chromiummg/L8/30/2019 1331h9/3/2019 1141hE200.80.00200Cobaltmg/L8/30/2019 1331h9/3/2019 1141hE200.80.00200Lithiummg/L8/30/2019 1331h9/3/2019 1141hE200.80.00200Mercurymg/L8/22/2019 750h8/30/2019 1505hE200.70.100Mercurymg/L8/26/2019 1838h8/27/2019 1054hE245.10.0000900Molybdenummg/L8/30/2019 1331h9/3/2019 1551hE200.80.002200 | CompoundUnitsPreparedAnalyzedUsedLimitResultAntimony mg/L $8/30/2019 1331h$ $9/3/2019 1141h$ $E200.8$ 0.00400 < 0.00400 Arsenic mg/L $8/30/2019 1331h$ $9/3/2019 1141h$ $E200.8$ 0.00200 < 0.00200 Barium mg/L $8/30/2019 1331h$ $9/3/2019 1141h$ $E200.8$ 0.00200 < 0.00200 Barium mg/L $8/30/2019 1331h$ $9/3/2019 1141h$ $E200.8$ 0.00200 < 0.00200 Cadmium mg/L $8/30/2019 1331h$ $9/3/2019 1141h$ $E200.8$ 0.00200 < 0.00200 Cadmium mg/L $8/30/2019 1331h$ $9/3/2019 1141h$ $E200.8$ 0.00200 < 0.00200 Chromium mg/L $8/30/2019 1331h$ $9/3/2019 1141h$ $E200.8$ 0.00200 < 0.00200 Cobalt mg/L $8/30/2019 1331h$ $9/3/2019 1141h$ $E200.8$ 0.00200 < 0.00200 Lead mg/L $8/30/2019 1331h$ $9/3/2019 1141h$ $E200.8$ 0.00200 < 0.00200 Lithium mg/L $8/22/2019 750h$ $8/30/2019 1141h$ $E200.7$ 0.100 2.19 Mercury mg/L $8/26/2019 138h$ $8/27/2019 155h$ $E200.7$ 0.00200 < 0.0000900 Molybdenum mg/L $8/30/2019 1331h$ $9/3/2019 155h$ $E200.8$ 0.00200 < 0.0000900 Molybdenum mg/L $8/30/2019 1331h$ $9/3/2019 155h$ $E200.8$ 0.00200 < 0.00200 |

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

Report Date: 9/5/2019 Page 2 of 39

Client: PacifiCorp Contact: Jeff Tucker **Project:** Hunter CCR Groundwater Sampling / PERCM052 Lab Sample ID: 1908532-002 AMERICAN WEST ANALYTICAL ABOR ATOPHEC 8/20/2019 1430h 8/21/2019 1445h

LABORATORIES Analytical Results

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1445h | E200.8 | 0.00400 | < 0.00400 | |
| Jose Rocha | Arsenic | mg/L | 8/30/2019 1331h | 9/3/2019 1445h | E200.8 | 0.00200 | < 0.00200 | |
| QA Officer | Barium | mg/L | 8/30/2019 1331h | 9/3/2019 1445h | E200.8 | 0.00200 | 0.00835 | |
| | Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1445h | E200.8 | 0.00200 | < 0.00200 | |
| 3440 South 700 West | Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1445h | E200.8 | 0.000500 | < 0.000500 | |
| Salt Lake City, Utah | Chromium | mg/L | 8/30/2019 1331h | 9/3/2019 1445h | E200.8 | 0.00200 | < 0.00200 | |
| | Cobalt | mg/L | 8/30/2019 1331h | 9/3/2019 1445h | E200.8 | 0.00400 | < 0.00400 | |
| | Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1445h | E200.8 | 0.00200 | < 0.00200 | |
| (801) 263-8686 | Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1507h | E200.7 | 0.100 | 1.52 | |
| Toll Free (888) 263-8686 Fax (801) 263-8687 | Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1104h | E245.1 | 0.0000900 | < 0.0000900 | |
| | Molybdenum | mg/L | 8/30/2019_1331h | 9/3/2019 1600h | E200.8 | 0.00200 | 0.00259 | |
| | Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1445h | E200.8 | 0.00200 | 0.0340 | |
| awal@awal-labs.com | Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1445h | E200.8 | 0.00200 | < 0.00200 | |

Report Date: 9/5/2019 Page 3 of 39

Client: Project:

INORGANIC ANALYTICAL REPORT

Contact: Jeff Tucker PacifiCorp Hunter CCR Groundwater Sampling / PERCM052 Lab Sample ID: 1908532-003 AMERICAN Collection Collection 8/20/2019 1315h 8/21/2019 1445h

AIVIENICATN WEST ANALYTICAL LABORATORIES Analytical Results **Collection Date:**

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1448h | E200.8 | 0.00400 | < 0.00400 | |
| Jose Rocha | Arsenic | mg/L | 8/30/2019 1331h | 9/3/2019 1448h | E200.8 | 0.00200 | < 0.00200 | |
| QA Officer | | mg/L | 8/30/2019 1331h | 9/3/2019 1448h | E200.8 | 0.00200 | 0.0111 | • |
| | Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1448h | E200.8 | 0.00200 | < 0.00200 | |
| 3440 South 700 West | Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1448h | E200.8 | 0.000500 | < 0.000500 | |
| Salt Lake City, Utah | | mg/L | 8/30/2019 1331h | 9/3/2019 1448h | E200.8 | 0.00200 | 0.00253 | |
| 84119 | Cobalt | mg/L | 8/30/2019 1331h | 9/3/2019 1448h | E200.8 | 0.00400 | < 0.00400 | |
| | Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1448h | E200.8 | 0.00200 | < 0.00200 | |
| (801) 263-8686 | Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1651h | E200.7 | 1.00 | 2.81 | |
| Toll Free (888) 263-8686 | Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1106h | E245.1 | 0.0000900 | < 0.0000900 | |
| Fax (801) 263-8687 | Molybdenum | mg/L | 8/30/2019 1331h | 9/3/2019 1603h | E200.8 | 0.00200 | 0.0187 | |
| | Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1603h | E200.8 | 0.00200 | 0.617 | |
| awal@awal-labs.com | Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1448h | E200.8 | 0.00200 | < 0.00200 | |

Report Date: 9/5/2019 Page 4 of 39

Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1908532-004Client Sample ID:ELF-4Collection Date:8/20/2019ANALYTICAL8/21/2019

LABORATORIES Analytical Results

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1451h | E200.8 | 0.00400 | < 0.00400 | |
| Jose Rocha | Arsenic | mg/L | 8/30/2019 1331h | 9/3/2019 1451h | E200.8 | 0.00200 | < 0.00200 | |
| QA Officer | Barium | mg/L | 8/30/2019 1331h | 9/3/2019 1451h | E200.8 | 0.00200 | 0.0103 | |
| | Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1451h | E200.8 | 0.00200 | < 0.00200 | |
| 3440 South 700 West | Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1451h | E200.8 | 0.000500 | < 0.000500 | |
| Salt Lake City, Utah | Chromium | mg/L | 8/30/2019 1331h | 9/3/2019 1451h | E200.8 | 0.00200 | < 0.00200 | |
| | Cobalt | mg/L | 8/30/2019 1331h | 9/3/2019 1451h | E200.8 | 0.00400 | 0.00637 | |
| | Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1451h | E200.8 | 0.00200 | < 0.00200 | |
| (801) 263-8686 | Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1512h | E200.7 | 0.100 | 1.71 | |
| Toll Free (888) 263-8686 | Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1108h | E245.1 | 0.0000900 | < 0.0000900 | |
| Fax (801) 263-8686 | Molybdenum | mg/L | 8/30/2019 1331h | 9/3/2019 1606h | E200.8 | 0.00200 | 0.00240 | |
| awal@awal-labe.com | Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1451h | E200.8 | 0.00200 | < 0.00200 | |
| | Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1451h | E200.8 | 0.00200 | < 0.00200 | |

Report Date: 9/5/2019 Page 5 of 39

Client: PacifiCorp Contact: Jeff Tucker **Project:** Hunter CCR Groundwater Sampling / PERCM052 Lab Sample ID: 1908532-005 AMERICAN WEST ANALYTICAL LABORATORIES Analytical Results 8/20/2019 1130h 8/21/2019 1445h

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1454h | E200.8 | 0.00400 | < 0.00400 | |
| Jose Rocha | Arsenic | mg/L | 8/30/2019 1331h | 9/3/2019 1454h | E200.8 | 0.00200 | 0.00212 | |
| QA Officer | Barium | mg/L | 8/30/2019 1331h | 9/3/2019 1454h | E200.8 | 0.00200 | 0.0267 | |
| | Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1454h | E200.8 | 0.00200 | < 0.00200 | |
| 3440 South 700 West | Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1454h | E200.8 | 0.000500 | < 0.000500 | |
| Salt Lake City, Utah | Chromium | mg/L | 8/30/2019 1331h | 9/3/2019 1454h | E200.8 | 0.00200 | 0.00436 | |
| | Cobalt | mg/L | 8/30/2019 1331h | 9/3/2019 1454h | E200.8 | 0.00400 | 0.00618 | |
| | Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1454h | E200.8 | 0.00200 | 0.00246 | |
| (801) 263-8686 | Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1514h | E200.7 | 0.100 | 5.93 | |
| Toll Free (888) 263-8686 | Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1114h | E245.1 | 0.0000900 | < 0.0000900 | |
| Fax (801) 263-8687 M | Molybdenum | mg/L | 8/30/2019 1331h | 9/3/2019 1609h | E200.8 | 0.00200 | 0.00716 | |
| | Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1454h | E200.8 | 0.00200 | 0.0127 | |
| | Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1454h | E200.8 | 0.00200 | < 0.00200 | |

Report Date: 9/5/2019 Page 6 of 39

Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1908532-006Client Sample ID:ELF-7Collection Date:8/20/2019ANALYTICAL8/21/2019

LABORATORIES Analytical Results

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1457h | E200.8 | 0.00400 | < 0.00400 | - |
| Jose Rocha | Arsenic | mg/L | 8/30/2019 1331h | 9/3/2019 1457h | E200.8 | 0.00200 | < 0.00200 | |
| QA Officer | Barium | mg/L | 8/30/2019 1331h | 9/3/2019 1457h | E200.8 | 0.00200 | 0.0119 | |
| | Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1457h | E200.8 | 0.00200 | < 0.00200 | |
| 3440 South 700 West | Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1457h | E200.8 | 0.000500 | < 0.000500 | |
| Salt Lake City, Utah | Chromium | mg/L | 8/30/2019 1331h | 9/3/2019 1457h | E200.8 | 0.00200 | < 0.00200 | |
| | Cobalt | mg/L | 8/30/2019 1331h | 9/3/2019 1457h | E200.8 | 0.00400 | < 0.00400 | |
| | Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1457h | E200.8 | 0.00200 | < 0.00200 | |
| (801) 263-8686 | Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1516h | E200.7 | 0.100 | 2.23 | |
| Toll Free (888) 263-8686 | Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1116h | E245.1 | 0.0000900 | < 0.0000900 | |
| Fax (801) 263-8687 | Molybdenum | mg/L | 8/30/2019 1331h | 9/3/2019 1612h | E200.8 | 0.00200 | 0.00272 | |
| | Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1457h | E200.8 | 0.00200 | 0.0819 | |
| | Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1457h | E200.8 | 0.00200 | < 0.00200 | |

Report Date: 9/5/2019 Page 7 of 39

Client: Project

INORGANIC ANALYTICAL REPORT

Contact: Jeff Tucker

 Client:
 PacifiCorp
 Control of the c

WEST Collection Date: ANALYTICAL LABORATORIES Analytical Results

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1501h | E200.8 | 0.00400 | < 0.00400 | |
| Jose Rocha | Arsenic | mg/L | 8/30/2019 1331h | 9/3/2019 1501h | E200.8 | 0.00200 | < 0.00200 | |
| QA Officer | | mg/L | 8/30/2019 1331h | 9/3/2019 1501h | E200.8 | 0.00200 | 0.0124 | |
| | Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1501h | E200,8 | 0.00200 | < 0.00200 | |
| 3440 South 700 West | Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1501h | E200.8 | 0.000500 | 0.00174 | |
| Salt Lake City, Utah | Chromium | mg/L | 8/30/2019 1331h | 9/3/2019 1501h | E200.8 | 0.00200 | < 0.00200 | |
| - | Cobalt | mg/L | 8/30/2019 1331h | 9/3/2019 1501h | E200.8 | 0.00400 | 0.190 | |
| | Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1501h | E200.8 | 0.00200 | 0.00762 | |
| (801) 263-8686 | Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1519h | E200.7 | 0.100 | 3.42 | |
| Toll Free (888) 263-8686 | Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1118h | E245.1 | 0.0000900 | < 0.0000900 | |
| Fax (801) 263-8687 ^M S | Molybdenum | mg/L | 8/30/2019 1331h | 9/3/2019 1626h | E200.8 | 0.00200 | 0.455 | |
| | Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1501h | E200.8 | 0.00200 | < 0.00200 | |
| awal@awal-labs.com | Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1501h | E200.8 | 0.00200 | < 0.00200 | |

Report Date: 9/5/2019 Page 8 of 39



AMERICAN

ANALYTICAL

INORGANIC ANALYTICAL REPORT

 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 1

 Lab Sample ID:
 1908532-008
 1

 Client Sample ID:
 ELF-9
 1

 Collection Date:
 8/20/2019
 1345h

 Received Date:
 8/21/2019
 1445h

LABORATORIES Analytical Results

WEST

TOTAL METALS

| 0.4.00 |
|--------|
| 0400 |
| 663 |
| 134 |
| 0200 |
| 00500 |
| 0200 |
| 0400 |
| 0200 |
| 88 |
| 00900 |
| 679 |
| 0200 |
| 0200 |
| |

Report Date: 9/5/2019 Page 9 of 39



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052

 Lab Sample ID:
 1908532-009

 Client Sample ID:
 ELF-11

 Collection Date:
 8/20/2019
 926h

 Received Date:
 8/21/2019
 1445h

AMERICAN WEST ANALYTICAL LABORATORIES Analytical Results

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------|--------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1507h | E200.8 | 0.00400 | < 0.00400 | |
| Jose Rocha | Arsenic | mg/L | 8/30/2019 1331h | 9/3/2019 1507h | E200.8 | 0.00200 | < 0.00200 | |
| QA Officer | | mg/L | 8/30/2019 1331h | 9/3/2019 1507h | E200.8 | 0.00200 | 0.0151 | |
| | Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1507h | E200.8 | 0.00200 | < 0.00200 | |
| 3440 South 700 West | Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1507h | E200.8 | 0.000500 | < 0.000500 | |
| Salt Lake City, Utah | Chromium | mg/L | 8/30/2019 1331h | 9/3/2019 1507h | E200.8 | 0.00200 | < 0.00200 | |
| - | Cobalt | . mg/L | 8/30/2019 1331h | 9/3/2019 1507h | E200.8 | 0.00400 | 0.0151 | |
| | Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1507h | E200.8 | 0.00200 | < 0.00200 | |
| (801) 263-8686 | Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1530h | E200.7 | 0.100 | 3.36 | |
| Toll Free (888) 263-8686 | Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1122h | E245.1 | 0.0000900 | < 0.0000900 | |
| Fax (801) 263-8687 | Molybdenum | mg/L | 8/30/2019 1331h | 9/3/2019 1632h | E200.8 | 0.00200 | 0.0186 | |
| S Sawal@awal-labs.com | Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1507h | E200.8 | 0.00200 | 0.0627 | |
| | Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1507h | E200.8 | 0.00200 | < 0.00200 | |

Report Date: 9/5/2019 Page 10 of 39

 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052

 Lab Sample ID:
 1908532-010

 Client Sample ID:
 ELF-12

 Collection Date:
 8/20/2019
 1215h

 Received Date:
 8/21/2019
 1445h

LABORATORIES Analytical Results

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1510h | E200.8 | 0.00400 | < 0.00400 | |
| Jose Rocha | Arsenic | mg/L | 8/30/2019 1331h | 9/3/2019 1510h | E200.8 | 0.00200 | < 0.00200 | |
| QA Officer | Barium | mg/L | 8/30/2019 1331h | 9/3/2019 1510h | E200.8 | 0.00200 | 0.0165 | |
| ۰. ۱۹۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ | Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1510h | E200.8 | 0.00200 | < 0.00200 | |
| 3440 South 700 West | Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1510h | E200.8 | 0.000500 | < 0.000500 | |
| Salt Lake City, Utah | Chromium | mg/L | 8/30/2019 1331h | 9/3/2019 1510h | E200.8 | 0.00200 | < 0.00200 | |
| | Cobalt | mg/L | 8/30/2019 1331h | 9/3/2019 1510h | E200.8 | 0.00400 | < 0.00400 | |
| | Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1510h | E200.8 | 0.00200 | < 0.00200 | |
| (801) 263-8686 | Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1533h | E200.7 | 0.100 | 0.792 | |
| Toll Free (888) 263-8686 | Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1124h | E245.1 | 0.0000900 | < 0.0000900 | |
| Fax (801) 263-8687 ^M S | Molybdenum | mg/L | 8/30/2019 1331h | 9/3/2019 1635h | E200.8 | 0.00200 | < 0.00200 | |
| | Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1510h | E200.8 | 0.00200 | < 0.00200 | |
| | Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1510h | E200.8 | 0.00200 | < 0.00200 | |

Report Date: 9/5/2019 Page 11 of 39



Contact: Jeff Tucker

Client: PacifiCorp **Project:** Hunter CCR Groundwater Sampling / PERCM052 Lab Sample ID: 1908532-011 AMERICAN Client Sample ID: ELF-13 **Collection Date:** 8/20/2019 1130h **Received Date:** 8/21/2019 1445h

ANALYTICAL LABORATORIES Analytical Results

WEST

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1524h | E200.8 | 0.00400 | < 0.00400 | |
| Jose Rocha | Arsenic | mg/L | 8/30/2019 1331h | 9/3/2019 1524h | E200.8 | 0.00200 | < 0.00200 | |
| QA Officer | Barium | mg/L | 8/30/2019 1331h | 9/3/2019 1524h | E200.8 | 0.00200 | 0.0110 | |
| | Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1524h | E200.8 | 0.00200 | < 0.00200 | |
| 3440 South 700 West | Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1524h | E200.8 | 0.000500 | < 0.000500 | |
| Salt Lake City, Utah | Chromium | mg/L | 8/30/2019 1331h | 9/3/2019 1524h | E200.8 | 0.00200 | < 0.00200 | |
| | Cobalt | mg/L | 8/30/2019 1331h | 9/3/2019 1524h | E200.8 | 0.00400 | 0.00407 | |
| | Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1524h | E200.8 | 0.00200 | < 0.00200 | |
| (801) 263-8686 | Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1535h | E200.7 | 0.100 | 1.86 | |
| Toll Free (888) 263-8686 | Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1126h | E245.1 | 0.0000900 | < 0.0000900 | |
| Fax (801) 263-8687 ^N S | Molybdenum | mg/L | 8/30/2019 1331h | 9/3/2019 1638h | E200,8 | 0.00200 | < 0.00200 | |
| | Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1524h | E200.8 | 0.00200 | < 0.00200 | |
| | Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1524h | E200.8 | 0.00200 | < 0.00200 | |

Report Date: 9/5/2019 Page 12 of 39



Contact: Jeff Tucker

Client: PacifiCorp Hunter CCR Groundwater Sampling / PERCM052 **Project:** Lab Sample ID: 1908532-012 AMERICAN Client Sample ID: ELF-14 **Collection Date:** 8/20/2019 1045h **Received Date:** 8/21/2019 1445h

ANALYTICAL LABORATORIES Analytical Results

WEST

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1527h | E200.8 | 0.00400 | < 0.00400 | |
| Jose Rocha | Arsenic | mg/L | 8/30/2019 1331h | 9/3/2019 1527h | E200.8 | 0.00200 | < 0.00200 | |
| QA Officer | Barium | mg/L | 8/30/2019 1331h | 9/3/2019 1527h | E200.8 | 0.00200 | 0.0137 | |
| | Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1527h | E200.8 | 0.00200 | < 0.00200 | |
| 3440 South 700 West | Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1527h | E200.8 | 0.000500 | < 0.000500 | |
| Salt Lake City, Utah | Chromium | mg/L | 8/30/2019 1331h | 9/3/2019 1527h | E200.8 | 0.00200 | < 0.00200 | |
| 2 | Cobalt | mg/L | 8/30/2019 1331h | 9/3/2019 1527h | E200.8 | 0.00400 | 0.00912 | |
| | Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1527h | E200.8 | 0.00200 | < 0.00200 | |
| (801) 263-8686 | Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1537h | E200.7 | 0.100 | 4.58 | |
| Toll Free (888) 263-8686 | Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1128h | E245.1 | 0.0000900 | < 0.0000900 | |
| 10111100 (000) 200-0000 | Molybdenum | mg/L | 8/30/2019 1331h | 9/3/2019 1641h | E200,8 | 0.00200 | 0.00431 | |
| awal@awal-labs.com | Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1527h | E200.8 | 0.00200 | 0.00664 | |
| | Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1527h | E200.8 | 0.00200 | < 0.00200 | |



 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052

 Lab Sample ID:
 1908532-013

 Client Sample ID:
 DUP

 Collection Date:
 8/20/2019
 920h

 Received Date:
 8/21/2019
 1445h

WEST Received Date: ANALYTICAL LABORATORIES Analytical Results

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------|------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1531h | E200.8 | 0.00400 | < 0.00400 | |
| Jose Rocha | Arsenic | mg/L | 8/30/2019 1331h | 9/3/2019 1531h | E200.8 | 0.00200 | < 0.00200 | |
| QA Officer | Barium | mg/L | 8/30/2019 1331h | 9/3/2019 1531h | E200.8 | 0.00200 | 0.0151 | |
| | Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1531h | E200.8 | 0.00200 | < 0.00200 | |
| 3440 South 700 West | Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1531h | E200.8 | 0.000500 | < 0.000500 | |
| Salt Lake City, Utah | Chromium | mg/L | 8/30/2019 1331h | 9/3/2019 1531h | E200.8 | 0.00200 | < 0.00200 | |
| 84119 | Cobalt | mg/L | 8/30/2019 1331h | 9/3/2019 1531h | E200.8 | 0.00400 | 0.0167 | |
| | Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1531h | E200.8 | 0.00200 | < 0.00200 | |
| (801) 263-8686 | Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1540h | E200.7 | 0.100 | 3.48 | |
| | Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1130h | E245.1 | 0.0000900 | < 0.0000900 | |
| Fax (801) 263-8687 | Molybdenum | mg/L | 8/30/2019 1331h | 9/3/2019 1644h | E200.8 | 0.00200 | 0.0176 | |
| awal@awal-labs.com | Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1531h | E200.8 | 0.00200 | 0.0648 | 1 |
| | Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1531h | E200.8 | 0.00200 | < 0.00200 | |

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

Report Date: 9/5/2019 Page 14 of 39



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1908532-014Client Sample ID:FBCollection Date:8/20/2019ANALYTICAL8/21/2019

LABORATORIES Analytical Results

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------------------|------------|-------|------------------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Antimony | mg/L | 8/30/2019 1331h | 9/3/2019 1540h | E200.8 | 0.00400 | < 0.00400 | |
| Jose Rocha | Arsenic | mg/L | 8/30/2019 ⁻ 1331h | 9/3/2019 1540h | E200.8 | 0.00200 | < 0.00200 | |
| • QA Officer | Barium | mg/L | 8/30/2019 1331h | 9/3/2019 1540h | E200.8 | 0.00200 | < 0.00200 | |
| | Beryllium | mg/L | 8/30/2019 1331h | 9/3/2019 1540h | E200.8 | 0.00200 | < 0.00200 | |
| 3440 South 700 West | Cadmium | mg/L | 8/30/2019 1331h | 9/3/2019 1540h | E200.8 | 0.000500 | < 0.000500 | |
| Salt Lake City, Utah | Chromium | mg/L | 8/30/2019 1331h | 9/3/2019 1540h | E200.8 | 0.00200 | < 0.00200 | |
| 84119 | Cobalt | mg/L | 8/30/2019 1331h | 9/3/2019 1540h | E200.8 | 0.00400 | < 0.00400 | |
| | Lead | mg/L | 8/30/2019 1331h | 9/3/2019 1540h | E200.8 | 0.00200 | < 0.00200 | |
| (801) 263-8686 | Lithium | mg/L | 8/22/2019 750h | 8/30/2019 1542h | E200.7 | 0.100 | < 0.100 | |
| Toll Free (888) 263-8686 | Mercury | mg/L | 8/26/2019 1838h | 8/27/2019 1132h | E245.1 | 0.0000900 | < 0.0000900 | |
| Fax (801) 263-8687 ^M S | Molybdenum | mg/L | 8/30/2019 1331h | 9/3/2019 1653h | E200.8 | 0.00200 | < 0.00200 | |
| | Selenium | mg/L | 8/30/2019 1331h | 9/3/2019 1540h | E200.8 | 0.00200 | < 0.00200 | |
| | Thallium | mg/L | 8/30/2019 1331h | 9/3/2019 1540h | E200.8 | 0.00200 | < 0.00200 | |

Report Date: 9/5/2019 Page 15 of 39

Client: PacifiCorp Contact: Jeff Tucker **Project:** Hunter CCR Groundwater Sampling / PERCM052 1908532-001 Lab Sample ID: AMERICAN Client Sample ID: ELF-1D **Collection Date:** 8/20/2019 1330h WEST ANALYTICAL Received Date: LABORATORIES Analytical Results **Received Date:** 8/21/2019 1445h

| Kyle F. Gross Laboratory Director | | Units mg/L | Date Prepared | Date Analyzed | Method Used E300.0 | Reporting Limit | Analytical Result | Qual |
|--|--------------------------|---------------|-------------------|------------------|--------------------------|--------------------|----------------------|------|
| Jose Rocha QA Officer | * - The reporting limits | | ample matrix inte | | | 0.200 | < 0.200 | |
| 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 | | | | | | | | |



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1908532-002Client Sample ID:ELF-2Collection Date:8/20/2019ANALYTICAL8/21/2019ARCENTICAL8/21/2019

LABORATORIES Analytical Results

| Kyla H ("roce | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Fluoride | mg/L | | 8/31/2019 403h | E300.0 | 0.100 | < 0.100 | |
| 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

| | Lab Sample ID: | 1908532-00 | Groundwater Sampling / PERCM 3 | Contact: 1052 | Jeff Tucker |
|------------------|-------------------------|------------|-----------------------------------|----------------------|-------------|
| AMEDICANI | Client Sample ID: | ELF-3 | | | |
| AMERICAN WEST | Collection Date: | 8/20/2019 | 1315h | | |
| ANALYTICAL | | | 1445h | | |
| LABORATORIES | Analytical Results | | | | • |

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|----------|----------------------|-------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Fluoride | mg/L | | 9/3/2019 2031h | E300.0 | 0.400 | < 0.400 | * |
| Jose Rocha QA Officer | | were raised due to s | ample matrix inte | erferences. | | | | |
| 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 | | | | ş. | | | | |

| Λ | | <u>INO</u> | RGANI | C ANALYT | ICAL R | REPORT |
|--------------|--------------------------|------------|--------------|--------------------|----------|-------------|
| | Client: | PacifiCorp | | | Contact: | Jeff Tucker |
| | Project: | Hunter CCH | R Groundwate | r Sampling / PERCN | /1052 | |
| | Lab Sample ID: | 1908532-00 |)4 | | | |
| | Client Sample ID: | ELF-4 | | | | |
| AMERICAN | Collection Date: | 8/20/2019 | 1215h | | | |
| ANALYTICAL | Received Date: | 8/21/2019 | 1445h | | | |
| LABORATORIES | Analytical Results | | | | | |

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---------------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Fluoride | mg/L | | 8/31/2019 437h | E300.0 | 0.100 | 0.941 | |
| 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

Report Date: 9/5/2019 Page 19 of 39

Client: PacifiCorp Contact: Jeff Tucker **Project:** Hunter CCR Groundwater Sampling / PERCM052 1908532-005 Lab Sample ID: AMERICAN Client Sample ID: ELF-5 **Collection Date:** WEST ANALYTICAL LABORATORIES Analytical Results 8/20/2019 1130h 8/21/2019 1445h

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Fluoride | mg/L | | 8/31/2019 454h | E300.0 | 0.100 | 0.962 | |
| 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 | | | | | | | | |

Report Date: 9/5/2019 Page 20 of 39

Independence Independence Image: Stress of the s

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Fluoride | mg/L | | 8/31/2019 510h | E300.0 | 0.100 | 3.88 | |
| Jose Rocha QA Officer | | | | | | | | |
| 3440 South 700 West Salt Lake City, Utah 84119 | L | | | | | | | |
| (801) 263-8686 | | | | | | | | |

Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 21 of 39



| | Client: | PacifiCorp | | Contact: | Jeff Tucker |
|--|--------------------------|------------|--------------------------------|-----------------|-------------|
| the second second | Project: | Hunter CCR | R Groundwater Sampling / PERCM | 1052 | |
| | Lab Sample ID: | 1908532-00 | 17 | | |
| | Client Sample ID: | ELF-8 | | | |
| ANIENICAN | Collection Date: | 8/20/2019 | 1032h | | |
| AMERICAN WEST ANALYTICAL LABORATORIES | Received Date: | 8/21/2019 | 1445h | | |
| | Analytical Results | | | | |

| | | | | | | | | · · · · · · · · · · · · · · · · · · · | | |
|--|----------|----|-------|------------------|------------------|----------------|--------------------|---------------------------------------|------|--|
| Kyle F. Gross | | | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual | |
| Laboratory Director | Fluoride | .* | mg/L | - | 8/31/2019 527h | E300.0 | 0.100 | < 0.100 | | |
| 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 | | | | | | | | | | |

| | Client: | PacifiCorp | | Contact: | Jeff Tucker | |
|--------------------------------|---------------------------------------|------------|--------------------------------|----------|-------------|--|
| | Project: | Hunter CCR | R Groundwater Sampling / PERCM | 1052 | | |
| | · · · · · · · · · · · · · · · · · · · | 1908532-00 | | | | |
| | Client Sample ID: | ELF-9 | | | | |
| AWERICAN | Collection Date: | 8/20/2019 | 1345h | | | |
| AMERICAN WEST ANALYTICAL | Received Date: | 8/21/2019 | 1445h | | | |
| A NALI HCAL | | | | | | |
| | | | | | | |

LABORATORIES Analytical Results

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|----------|----------------------|-------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Fluoride | mg/L | | 9/3/2019 2048h | E300.0 | 0.200 | < 0.200 | * |
| Jose Rocha QA Officer | | vere raised due to s | ample matrix inte | erferences. | | | | |
| 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 | | | | | | | | |
| | | | | | | | | |

Report Date: 9/5/2019 Page 23 of 39

INORGANIC ANALYTICAL REPORT Client: PacifiCorp Contact: Jeff Tucker **Project:** Hunter CCR Groundwater Sampling / PERCM052 Lab Sample ID: 1908532-009 AMERICAN Client Sample ID: ELF-11 **Collection Date:** 8/20/2019 926h WEST **Received Date:** 8/21/2019 1445h ANALYTICAL LABORATORIES Analytical Results

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Fluoride | mg/L | | 8/31/2019 600h | E300.0 | 0.100 | < 0.100 | |
| 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

Report Date: 9/5/2019 Page 24 of 39

Reporting

Analytical

Client: PacifiCorp Contact: Jeff Tucker **Project:** Hunter CCR Groundwater Sampling / PERCM052 Lab Sample ID: 1908532-010 Client Sample ID: ELF-12 AMERICAN **Collection Date:** 8/20/2019 1215h WEST **Received Date:** 8/21/2019 1445h ANALYTICAL LABORATORIES Analytical Results

Date Date Method Kyle F. Gross

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

Report Date: 9/5/2019 Page 25 of 39

| | Client: | PacifiCorp | | Contact: | Jeff Tucker |
|--------------------------------|-------------------------|------------|------------------------------|----------|-------------|
| | Project: | Hunter CCR | Groundwater Sampling / PERCM | 052 | |
| | Lab Sample ID: | 1908532-01 | 1 | | |
| | Client Sample ID: | ELF-13 | | | |
| AMENICAN | Collection Date: | 8/20/2019 | 1130h | | |
| AMERICAN WEST ANALYTICAL | Received Date: | 8/21/2019 | 1445h | | |
| LABORATORIES | Analytical Results | | | | |
| | | | | | |

| Kyle F. Gross | | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Fluoride | mg/L | | 8/31/2019 707h | E300.0 | 0.100 | 0.798 | |
| 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

Report Date: 9/5/2019 Page 26 of 39

Image: Description of the section o

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Fluoride | mg/L | | 8/31/2019 724h | E300.0 | 0.100 | 0.589 | |
| 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 | | | | | | | | |

PacifiCorp **Client:** Contact: Jeff Tucker Hunter CCR Groundwater Sampling / PERCM052 **Project:** Lab Sample ID: 1908532-013 Client Sample ID: DUP AMERICAN **Collection Date:** 8/20/2019 920h WEST ANALYTICAL Received Date: LABORATORIES Analytical Results **Received Date:** 8/21/2019 1445h

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Fluoride | mg/L | | 8/31/2019 741h | E300.0 | 0.100 | < 0.100 | |
| 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 | | | | | | | | |

Report Date: 9/5/2019 Page 28 of 39

| | Client: | PacifiCorp | | Contact: | Jeff Tucker |
|--------------------------------|--------------------------|------------|------------------------------|----------|-------------|
| | Project: | Hunter CCR | Groundwater Sampling / PERCM | 1052 | |
| | Lab Sample ID: | | | | |
| | Client Sample ID: | FB | | | |
| AMERICAN | Collection Date: | 8/20/2019 | 1445h | | |
| AMERICAN WEST ANALYTICAL | Received Date: | 8/21/2019 | 1445h | | |
| ABORATORIES | | | | | |

LABORATORIES Analytical Results

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Fluoride | mg/L | | 8/30/2019 1819h | E300.0 | 0.100 | < 0.100 | |
| 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 | | | | | | | | |
| | | | | | | | | |

A

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

awal@awal-labs com

Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| Lab Set ID: 1 | | water Sampling / PE | ERCM052 | | | | Contact: Dept: QC Type | Jeff Tuck ME : LCS | er | | | | | |
|---|--|---|--|--|--|---|--|---|--|--|-----------------|----------|--------------|------|
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample ID: Test Code: | LCS-64600 200.7-W | Date Analyzed: Date Prepared: | 08/30/201 08/22/201 | | | | | | | | | | | |
| Lithium | | 1.02 | mg/L | E200.7 | 0.0114 | 0.100 | 1.000 | 0 | 102 | 80 - 120 | | | | |
| Lab Sample ID: Test Code: | LCS-64783 200.8-W | Date Analyzed: Date Prepared: | 09/03/201 08/30/201 | | | | | | | | | <u> </u> | | |
| Antimony Arsenic Barium Beryllium Cadmium Chromium Cobalt Lead Selenium Thallium | | 0.191 0.188 0.188 0.192 0.190 0.192 0.194 0.194 0.187 0.188 0.187 | mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L | E200.8 E200.8 E200.8 E200.8 E200.8 E200.8 E200.8 E200.8 E200.8 E200.8 E200.8 E200.8 | 0.000668 0.000298 0.000688 0.000198 0.0000858 0.00191 0.000300 0.000448 0.000574 0.000154 | 0.00400 0.00200 0.00200 0.00200 0.000500 0.00200 0.00400 0.00200 0.00200 0.00200 | 0.2000 0.2000 0.2000 0.2000 0.2000 0.2000 0.2000 0.2000 0.2000 0.2000 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 95.6 94.1 93.9 95.9 95.2 96.1 96.8 93.5 94.1 93.3 | 85 - 115 85 - 115 | | | | |
| Lab Sample ID: Test Code: Molybdenum | LCS-64783 200.8-W | Date Analyzed: Date Prepared: 0.195 | 09/03/201 08/30/201 mg/L | | 0.000652 | 0.00200 | 0.2000 | 0 | 97.3 | 85 - 115 | | | | |
| Lab Sample ID: Test Code: | LCS-64690 HG - DW-245.1 | Date Analyzed: Date Prepared: | 08/27/201 08/26/201 | 9 1052h | | | | ~ | | | | | | |
| Mercury | | 0.00353 | mg/L | E245.1 | 0.0000396 | 0.0000900 | 0.003330 | 0 | 106 | 85 - 115 | | | | |

Report Date: 9/5/2019 Page 30 of 39



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

awal@awal-labs com

Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| Analyte Lab Sample ID: | Result Date Analyzed | Units | Method 19 1454h | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
|---------------------------|-----------------------------|-------|---------------------------|-----|--------------------|------------------|----------------------|------|--------|-----------------|-------|--------------|------|
| | Result | Units | Method | MDL | Limit | Spiked | Amount | %REC | Limits | Amt | % RPD | Limit | Qual |

| Lithium | | < 0.100 | mg/L | E200.7 | 0.0114 | 0.100 | | | |
|----------------|-------------|----------------|-----------|---------|-----------|-----------|---|------|--|
| Lab Sample ID: | MB-64783 | Date Analyzed: | 09/03/201 | 9 1132h | | | | | |
| Test Code: | 200.8-W | Date Prepared: | 08/30/201 | 9 1331h | | | | | |
| Antimony | | < 0.00400 | mg/L | E200.8 | 0.000668 | 0.00400 | | | |
| Arsenic | | < 0.00200 | mg/L | E200.8 | 0.000298 | 0.00200 | | | |
| Barium | | < 0.00200 | mg/L | E200.8 | 0.000688 | 0.00200 | | | |
| Beryllium | | < 0.00200 | mg/L | E200.8 | 0.000198 | 0.00200 | | | |
| Cadmium | | < 0.000500 | mg/L | E200.8 | 0.0000858 | 0.000500 | | | |
| Chromium | | < 0.00200 | mg/L | E200.8 | 0.00191 | 0.00200 | • | | |
| Cobalt | | < 0.00400 | mg/L | E200.8 | 0.000300 | 0.00400 | | | |
| Lead | | < 0.00200 | mg/L | E200.8 | 0.000448 | 0.00200 | | | |
| Selenium | | < 0.00200 | mg/L | E200.8 | 0.000574 | 0.00200 | | | |
| Thallium | | < 0.00200 | mg/L | E200.8 | 0.000154 | 0.00200 | | | |
| Lab Sample ID: | MB-64783 | Date Analyzed: | 09/03/201 | 9 1544h | | | | | |
| Test Code: | 200.8-W | Date Prepared: | 08/30/201 | 9 1331h | | | | | |
| Molybdenum | | < 0.00200 | mg/L | E200.8 | 0.000652 | 0.00200 | | | |
| Lab Sample ID: | MB-64690 | Date Analyzed: | 08/27/201 | 9 1050h | | | | | |
| Test Code: | HG-DW-245.1 | Date Prepared: | 08/26/201 | 9 1838h | | | | | |
| Mercury | | < 0.0000900 | mg/L | E245.1 | 0.0000396 | 0.0000900 | | | |

Report Date: 9/5/2019 Page 31 of 39

A

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

awal@awal-labs com

Jose Rocha QA Officer

QC SUMMARY REPORT

| Lab Set ID: 19 | acifiCorp 908532 unter CCR Groundwa | ter Sampling / PE | ERCM052 | | | | Contact: Dept: QC Type: | Jeff Tuck ME : MS | er | | | | | |
|--------------------------------|---|----------------------------------|------------------------|----------------------------|---------------------------------------|-----------------------------|-------------------------------|--------------------------|----------------------|----------------------------------|-----------------|-------|--------------|------|
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample ID: Test Code: | 1908532-014AMS 200. 7- W | Date Analyzed: Date Prepared: | 08/30/201 08/22/201 | | · · · · · · · · · · · · · · · · · · · | | | | | | | | | |
| Lithium | | 1.02 | mg/L | E200.7 | 0.0114 | 0.100 | 1.000 | 0 | 102 | 75 - 125 | | | | |
| Lab Sample ID: Test Code: | 1908532-001AMS 200.8-W | Date Analyzed: Date Prepared: | 09/03/201 08/30/201 | | | | | | | | | | | |
| Antimony Arsenic | | 1.86 1.97 | mg/L mg/L | E200.8 E200.8 | 0.00668 0.00298 | 0.0400 0.0200 | 2.000 2.000 | 0.00114 0.00108 | .93.0 98.2 | 75 - 125 75 - 125 | | | | |
| Barium Beryllium Cadmium | | 1.83 1.80 | mg/L mg/L | E200.8 E200.8 | 0.00688 | 0.0200 | 2.000 2.000 | 0.00842 | 91.1 89.9 | 75 - 125 75 - 125 | | | | - |
| Chromium Cobalt | | 1.84 1.82 1.82 | mg/L mg/L mg/L | E200.8 E200.8 E200.8 | 0.000858 0.0191 0.00300 | 0.00500 0.0200 0.0400 | 2.000 2.000 2.000 | 0.000113 0 0.00291 | 92.2 90.8 90.7 | 75 - 125 75 - 125 75 - 125 | | | | |
| Lead Selenium | | 1.79 | mg/L mg/L | E200.8 E200.8 | 0.00448 0.00574 | 0.0200 | 2.000 2.000 | 0.000891 | 89.3 94.8 | 75 - 125 75 - 125 75 - 125 | | | | |
| Thallium | | 1.77 | mg/L | E200.8 | 0.00154 | 0.0200 | 2.000 | 0 | 88.5 | 75 - 125 | | | | |
| Lab Sample ID: Test Code: | 1908532-0013AMS 200.8-W | Date Analyzed: Date Prepared: | 09/03/201 08/30/201 | | | | | | ÷ | | | | | |
| Antimony Arsenic | | 0.194 0.216 | mg/L mg/L | E200.8 E200.8 | 0.000668 0.000298 | 0.00400 0.00200 | 0.2000 0.2000 | 0 0 | 97.1 108 | 75 - 125 75 - 125 | | | | |
| Barium Beryllium | | 0.200 0.176 | mg/L mg/L | E200.8 E200.8 | 0.000688 0.000198 | 0.00200 0.00200 | 0.2000 0.2000 | 0 0 | 100 87.8 | 75 - 125 75 - 125 | | | | |
| Cadmium Chromium | | 0.192 0.193 | mg/L mg/L | E200.8 E200.8 | 0.0000858 0.00191 | 0.000500 0.00200 | 0.2000 0.2000 | 0 0 | 95.9 96.5 | 75 - 125 75 - 125 | | | | |
| Cobalt Lead | · | 0.207 0.179 0.284 | mg/L mg/L | E200.8 E200.8 | 0.000300 0.000448 | 0.00400 | 0.2000 | · 0 0 | 103 89.7 | 75 - 125 75 - 125 | | | | 1 |
| Selenium Thallium | | 0.284 0.179 | mg/L mg/L | E200.8 E200.8 | 0.000574 0.000154 | 0.00200 0.00200 | 0.2000 0.2000 | 0 0 | 142 89.6 | 75 - 125 75 - 125 | | | | I |

Report Date: 9/5/2019 Page 32 of 39

| [- | • |
|------------|---|

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

Jose Rocha QA Officer

QC SUMMARY REPORT

| Lab Set ID: 1 | acifiCorp 908532 Junter CCR Groundwa | ter Sampling / PI | ERCM052 | | | | Contact: Dept: QC Type | Jeff Tuck ME : 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: Test Code: | 1908532-001AMS 200.8-W | Date Analyzed: Date Prepared: | 09/03/201 08/30/201 | | | | | <u></u> | | | | | | |
| Molybdenum | | 2.03 | mg/L | E200.8 | 0.00652 | 0.0200 | 2.000 | 0.0161 | 101 | 75 - 125 | | | | |
| Lab Sample ID: Test Code: | 1908532-0013AMS 200.8-W | Date Analyzed: Date Prepared: | 09/03/201 08/30/201 | | | | | | | | | | - | |
| Molybdenum | | 0.210 | mg/L | E200.8 | 0.000652 | 0.00200 | 0.2000 | 0.0176 | 96.2 | 75 - 125 | | | | |
| Lab Sample ID: Test Code: | 1908532-001AMS HG-DW-245.1 | Date Analyzed: Date Prepared: | 08/27/201 08/26/201 | | | · · · · | | | | | | | | |
| Mercury | | 0.00276 | mg/L | E245.1 | 0.0000396 | 0.0000900 | 0.003330 | 0 | 83.0 | 80 - 120 | | | | |

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

1908532-001AMS: Insufficient sample amount was provided to allow for a full amount analysis of the MS/MSD. Reduced sample volume for the MS/MSD was used as a result.

Report Date: 9/5/2019 Page 33 of 39

A

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

awal@awal-labs com

Kyle F. Gross Laboratory Director

Jose Rocha OA Officer

QC SUMMARY REPORT

| Client: Lab Set ID: | PacifiCorp 1908532 | | | | | | Contact: Dept: | Jeff Tuck ME | er | | | | | |
|-----------------------------|-----------------------------------|----------------------------------|------------------------|------------------|----------------------|-----------------------------|-------------------|----------------------|--------------|----------------------|-----------------|----------------|--------------|------|
| Project: | Hunter CCR Groundwa | ter Sampling / PF | ERCM052 | | | | 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 Test Code: | 1908532-014AMSD 200.7-W | Date Analyzed: Date Prepared: | 08/30/201 08/22/201 | | | | | | | | | | | |
| Lithium | | 1.01 | mg/L | E200.7 | 0.0114 | 0.100 | 1.000 | 0 | 101 | 75 - 125 | 1.02 | 1.03 | 20 | |
| Lab Sample ID Test Code: | 1908532-001AMSD 200.8-W | Date Analyzed: Date Prepared: | 09/03/201 08/30/201 | | | | | | | | | ··· | | |
| Antimony Arsenic | | 1.88 1.97 | mg/L mg/L | E200.8 E200.8 | 0.00668 | 0.0400 0.0200 | 2.000 2.000 | 0.00114 0.00108 | 93.9 98.6 | 75 - 125 75 - 125 | 1.86 1.97 | 0.927 0.390 | 20 20 | |
| Barium Beryllium | | 1.85 1.85 | mg/L mg/L | E200.8 E200.8 | 0.00688 0.00198 | 0.0200 0.0200 | 2.000 2.000 | 0.00842 0 | 91.9 92.4 | 75 - 125 75 - 125 | 1.83 1.8 | 0.885 2.80 | 20 20 | |
| Cadmium Chromium | | 1.85 1.80 | mg/L mg/L | E200.8 E200.8 | 0.000858 0.0191 | 0.00500 0.0200 | 2.000 2.000 | 0.000113 | 92.3 90.2 | 75 - 125 75 - 125 | 1.84 1.82 | 0.130 0.599 | 20 20 | |
| Cobalt Lead | | 1.81 1.81 | mg/L mg/L | E200.8 E200.8 | 0.00300 0.00448 | 0.0400 0.0200 | 2.000 2.000 | 0.00291 0 | 90.5 90.3 | 75 - 125 75 - 125 | 1.82 1.79 | 0.238 1.16 | 20 20 | |
| Selenium Thallium | | 1.89 1.79 | mg/L mg/L | E200.8 E200.8 | 0.00574 0.00154 | 0.0200 0.0200 | 2.000 2.000 | 0.000891 0 | 94.6 89.5 | 75 - 125 75 - 125 | 1.9 1.77 | 0.226 1.15 | 20 20 | |
| Lab Sample ID Test Code: | : 1908532-0013AMSD 200.8-W | Date Analyzed: Date Prepared: | 09/03/201 08/30/201 | | | | | | | | | | | |
| Antimony Arsenic | | 0.201 0.214 | mg/L mg/L | E200.8 E200.8 | 0.000668 0.000298 | 0.00400 0.00200 | 0.2000 0.2000 | 0.000784 0.00102 | 100 107 | 75 - 125 75 - 125 | 0.194 0.216 | 3.29 0.610 | 20 20 | |
| Barium Beryllium | | 0.206 0.180 | mg/L mg/L | E200.8 E200.8 | 0.000688 0.000198 | 0.00200 0.00200 | 0.2000 | 0.0151 0 | 95.4 90.2 | 75 - 125 75 - 125 | 0.2 0.176 | 2.84 2.69 | 20 20 | |
| Cadmium Chromium | | 0.197 | mg/L mg/L | E200.8 E200.8 | 0.0000858 | 0.000500 | 0.2000 | 0.000164 0 | 98.4 96.5 | 75 - 125 75 - 125 | 0.192 0.193 | 2.71 0.0299 | 20 20 | |
| Cobalt | | 0.207 | mg/L mg/L | E200.8 E200.8 | 0.000300 0.000448 | 0.00400 | 0.2000 | 0.0167 0.000694 | 95.1 92.4 | 75 - 125 75 - 125 | 0.207 0.179 | 0.0293 | · 20 20 | |
| Selenium Thallium | | 0.273 0.184 | mg/L mg/L | E200.8 E200.8 | 0.000574 0.000154 | 0.00200 0.00 2 00 | 0.2000 0.2000 | 0.0648 0 | 104 91.9 | 75 - 125 75 - 125 | 0.284 0.179 | 3.93 2.52 | 20 20 | |

Report Date: 9/5/2019 Page 34 of 39



3440 South 700 West

Kyle F. Gross . Laboratory Director

Salt Lake City, Utah 84119 (801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687 awal@awal-labs.com

Jose Rocha QA Officer

QC SUMMARY REPORT

| Lab Set ID: 19 | acifiCorp 908532 unter CCR Groundwa | ter Sampling / Pl | ERCM052 | | | | Contact: Dept: QC Type | ME | er | | | | | |
|------------------------------|---|----------------------------------|------------------------|--------|-----------|--------------------|------------------------------|----------------------|------|----------|-----------------|--------------|--------------|---------------|
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample ID: Test Code: | 1908532-001AMSD 200.8-W | Date Analyzed: Date Prepared: | 09/03/201 08/30/201 | | | | | | | | | 7. in . in . | | |
| Molybdenum | | 1.99 | mg/L | E200.8 | 0.00652 | 0.0200 | 2.000 | 0.0161 | 98.7 | 75 - 125 | 2.03 | 1.92 | 20 | |
| Lab Sample ID: Test Code: | 1908532-0013AMSD 200.8-W | Date Analyzed: Date Prepared: | 09/03/201 08/30/201 | | | | | | | | | | | n |
| Molybdenum | | 0.232 | mg/L | E200.8 | 0.000652 | 0.00200 | 0.2000 | 0.0176 | 107 | 75 - 125 | 0.21 | 10.0 | 20 | |
| Lab Sample ID: Test Code: | 1908532-001AMSD HG-DW-245.1 | Date Analyzed: Date Prepared: | 08/27/201 08/26/201 | | | | | | | | | | | |
| Mercury | | 0.00264 | mg/L | E245.1 | 0.0000396 | 0.0000900 | 0.003330 | 0 | 79.2 | 80 - 120 | 0.00277 | 4.75 | 20 | 1 |

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

1908532-001AMSD: Insufficient sample amount was provided to allow for a full amount analysis of the MS/MSD. Reduced sample volume for the MS/MSD was used as a result.

Report Date: 9/5/2019 Page 35 of 39



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 Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| Lab Set ID: | PacifiCorp 1908532 Hunter CCR Ground | water Sampling / PI | ERCM052 | ! | | | Contact: Dept: QC Typ | WC | er | | | | | |
|-----------------------------|--|---------------------|----------|----------|--------|--------------------|-----------------------------|----------------------|------|----------|-----------------|-------|--------------|------|
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample ID Test Code: | D: LCS-R129816 300.0-W | Date Analyzed: | 08/30/20 | 19 1606h | | | | | | | | | | |
| Fluoride | | 5.15 | mg/L | E300.0 | 0.0240 | 0.100 | 5.000 | 0 | 103 | 90 - 110 | | | | |
| Lab Sample ID Test Code: | D: LCS-R129822 300.0-W | Date Analyzed: | 09/03/20 | 19 1123h | | | | | | | | | | |
| Fluoride | | 5.01 | mg/L | E300.0 | 0.0240 | 0.100 | 5.000 | 0 | 100 | 90 - 110 | | | | |

Report Date: 9/5/2019 Page 36 of 39

| [- | |
|----|--|

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

Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| Lab Set ID: 1 | | water Sampling / PF | ERCM052 | 2 | | | Contact Dept: QC Typ | : Jeff Tuck WC e: MBLK | cer | | | | |
|------------------------------|------------------------------|---------------------|----------|----------|--------|--------------------|----------------------------|------------------------------|------|--------|-----------------|-------|-------------------|
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit Qual |
| Lab Sample ID: Test Code: | MB-R129816 300.0-W | Date Analyzed: | 08/30/20 | 19 1549h | | | | | | | | | |
| Fluoride | | < 0.100 | mg/L | E300.0 | 0.0240 | 0.100 | | | | | | | |
| Lab Sample ID: Test Code: | MB-R129822 300.0-W | Date Analyzed: | 09/03/20 | 19 1106h | | | | | | | | | |
| Fluoride | | < 0.100 | mg/L | E300.0 | 0.0240 | 0.100 | | | | | | | |

Report Date: 9/5/2019 Page 37 of 39

| - | |
|---|--|
| | |

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

Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| Client: P | PacifiCorp | | | | | | Contact: | Jeff Tuck | er | | | | | |
|------------------------------|----------------------------------|-------------------|-----------|---------|------|--------------------|------------------|----------------------|------|----------|-----------------|-------|--------------|------|
| Lab Set ID: 1 | .908532 | | | | | | Dept: | WC | | | | | | |
| Project: H | Iunter CCR Groundwa | ter Sampling / PI | ERCM052 | | | | 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: Test Code: | 1908532-002CMS 300.0-W | Date Analyzed: | 08/30/201 | 9 1943h | | | | | | | | | | |
| Fluoride | | 10,200 | mg/L | E300.0 | 48.0 | 200 | 10,000 | 0 | 102 | 90 - 110 | | | | |
| Lab Sample ID: Test Code: | 1908532-003CMS 300.0-W | Date Analyzed: | 08/30/201 | 9 2033h | | | | , | | | | | | |
| Fluoride | | 10,300 | mg/L | E300.0 | 48.0 | 200 | 10,000 | 0 | 103 | 90 - 110 | | | | |
| Lab Sample ID: Test Code: | 1908534-001CMS 300.0-W | Date Analyzed: | 09/03/201 | 9 1323h | | | | | | | | | | |
| Fluoride | | 10,100 | mg/L | E300.0 | 48.0 | 200 | 10,000 | 0 | 101 | 90 - 110 | | | | |
| Lab Sample ID: Test Code: | 1908534-005CMS 300.0-W | Date Analyzed: | 09/03/201 | 9 1541h | | | | | | | | | | |
| Fluoride | | 10,400 | mg/L | E300.0 | 48.0 | 200 | 10,000 | 1.52 | 104 | 90 - 110 | | | | |

A

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

awal@awal-labs com

Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| Lab Set ID: 190 | ifiCorp 8532 nter CCR Groundwat | er Sampling / PI | ERCM052 | | | | Contact: Dept: QC Type | Jeff Tuck WC : MSD | er | | | | | |
|-----------------|---------------------------------------|------------------|------------|--------|------|--------------------|------------------------------|--------------------------|------|----------|-----------------|-------|--------------|------|
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| • | 1908532-002CMSD 300.0-W | Date Analyzed: | 08/30/2019 | 1959h | | | | | | | | | | |
| Fluoride | | 10,200 | mg/L | E300.0 | 48.0 | 200 | 10,000 | 0 | 102 | 90 - 110 | 10200 | 0.363 | 20 | |
| • | 1908532-003CMSD 300.0-W | Date Analyzed: | 08/30/2019 | 2049h | | | | | | | | | | |
| Fluoride | | 10,400 | mg/L | E300.0 | 48.0 | 200 | 10,000 | 0 | 104 | 90 - 110 | 10300 | 0.809 | 20 | |
| - | 908534-001CMSD | Date Analyzed: | 09/03/2019 | 1341h | | | | | | | | | | |
| Fluoride | | 10,200 | mg/L | E300.0 | 48.0 | 200 | 10,000 | 0 | 102 | 90 - 110 | 10100 | 0.694 | 20 | |
| | 908534-005CMSD 00.0-W | Date Analyzed: | 09/03/2019 | 1558h | | | | • | , | | • • • | | | |
| Fluoride | | 10,300 | mg/L | E300.0 | 48.0 | 200 | 10,000 | 1.52 | 103 | 90 - 110 | 10400 | 1.05 | 20 | |

Report Date: 9/5/2019 Page 39 of 39

| Americal | n West Analytical La | Doratories | | | Rpt Emaile OL: | | HC icEDD QC |
|---------------|---|---|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------|----------------|
| WORK O | RDER Summary | | | | Work | Order: 1908532 | Page 1 of 5 |
| Client: | PacifiCorp | | | | | Date: 9/5/2019 | 1450101 |
| Client ID: | PAC900 | | Contact | Jeff Tucker | Duc | Date. 9/3/2019 | |
| | | | Contact: | | | | |
| Project: | Hunter CCR Groundwater Sa | | QC Leve | | |) Type: Project | |
| Comments: | QC2+. Include EDD. Report Flu Report to derickson@waterenvte | uoride from set 1908531; it ech.com and mholland@wat | is the same sampl terenvtech.com; | e. Metals share with 1 | 908531. Sample for RAI | DS sent to ALS-Ft Collin | is. cc: |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | U |
| 908532-001A | ELF-1D | 8/20/2019 1330h | 8/21/2019 1445h | 200.7-W | Aqueous | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | NW12 | | | AS BA BE CD CR CO PB MO | | |
| | | | | 200.8-W-PR | | DF-Metals | |
| | | | | HG-DW-245.1 HG-DW-PR | | DF-Metals | |
| 908532-001B | | | | OUTSIDE LAB | | DF-Metals ALS | |
| 908532-001C | | | | 300.0-W | | df - wc | |
| | | | | 1 SEL Analytes: F | | ui - wc | |
| 908532-002A | ELF-2 | 8/20/2019 1430h | 8/21/2019 1445h | 200.7-W | Aqueous | DF-Metals | |
| | | | | 1 SEL Analytes: LI | · · · · · · · · · · · · · · · · · · · | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | | | | AS BA BE CD CR CO PB MO | | |
| | | | | 200.8-W-PR HG-DW-245.1 | | DF-Metals DF-Metals | |
| | | | | HG-DW-245.1 HG-DW-PR | | DF-Metals | |
| 908532-002B | | | | OUTSIDE LAB | | ALS | |
| 1908532-002C | | | | 300.0-W | | df - wc | |
| | | | | 1 SEL Analytes: F | | | |
| 908532-003A | ELF-3 | 8/20/2019 1315h | 8/21/2019 1445h | 200.7-W I SEL Analytes: LI | Aqueous | DF-Metals | |
| | | | | 200.7-W-PR | 2002-1-1-1-) | 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 | |

| | RDER Summary | | | | | Order: 1908532 | Page 2 of 5 |
|---------------|------------------|------------------|----------------------|------------------------|----------------------|------------------|-------------|
| Client: | PacifiCorp | | | | Due | e Date: 9/5/2019 | |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | |
| 1908532-003B | ELF-3 | 8/20/2019 1315h | 8/21/2019 1445h | OUTSIDE LAB | Aqueous | ALS | |
| 1908532-003C | | | | 300.0-W | | df - wc | |
| | | | | 1 SEL Analytes: F | | | |
| 1908532-004A | ELF-4 | 8/20/2019 1215h | 8/21/2019 1445h | 200.7-W | Aqueous | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | | | 200.8-W-PR | BA BE CD CR CO PB MO | DF-Metals | |
| | | 1 | | HG-DW-245.1 | ana | DF-Metals | |
| | | | | HG-DW-PR | | DF-Metals | |
| 1908532-004B | | | | OUTSIDE LAB | | ALS | |
| 1908532-004C | | | | 300.0-W | | df - wc | |
| | | | | 1 SEL Analytes: F | | | |
| 1908532-005A | ELF-5 | 8/20/2019 1130h | 8/21/2019 1445h | 200.7-W | Aqueous | DF-Metals | |
| | | · | | 1 SEL Analytes: LI | - | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | | | | BA BE CD CR CO PB MO | 1 | |
| | | | | 200.8-W-PR | | DF-Metals | |
| | | | | HG-DW-245.1 | | DF-Metals | |
| 1908532-005B | | | | HG-DW-PR | | DF-Metals | |
| 1908532-005E | | | | OUTSIDE LAB 300.0-W | | ALS df - wc | |
| 1908932-0090 | | | | I SEL Analytes: F | | ai - wc | |
| 1908532-006A | ELF-7 | 8/20/2019 1245h | 8/21/2019 1445h | 200.7-W | Aguaous | DF-Metals | _ |
| 1900332 00011 | | 0/20/2019 124511 | 6/21/2017 144511 | 1 SEL Analytes: LI | Aqueous | Di-Miciais | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | | | | BA BE CD CR CO PB MO | | |
| | | | | 200.8-W-PR | | DF-Metals | |
| | | | | HG-DW-245.1 | | DF-Metals | |
| | | | | HG-DW-PR | | DF-Metals | |
| 1908532-006B | | | | OUTSIDE LAB | | ALS | |
| 1908532-006C | | | | 300.0-W | | df - wc | |
| | | | | 1 SEL Analytes: F | | | |

| WORK OI | RDER Summary | | | | Work | Order: 1908532 | Page 3 of 5 |
|--------------|--|---------------------------------------|-----------------|-------------------------------------|---------------------------------------|------------------|-------------|
| Client: | PacifiCorp | | | | Du | e Date: 9/5/2019 | |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | |
| 1908532-007A | ELF-8 | 8/20/2019 1032h | 8/21/2019 1445h | 200.7-W I SEL Analytes: LI | Aqueous | DF-Metals | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | · · · · · · · · · · · · · · · · · · · | | | 200.8-W | · · · · · · · · · · · · · · · · · · · | DF-Metals | |
| | | | | 11 SEL Analytes: SB A. | S BA BE CD CR CO PB MO | SE TL | |
| | N.E | | | 200.8-W-PR | | DF-Metals | |
| | <u> </u> | | | HG-DW-245.1 | | DF-Metals | |
| | | | | HG-DW-PR | | DF-Metals | |
| 1908532-007B | | | | OUTSIDE LAB | | ALS | |
| 1908532-007C | | | | 300.0-W | | df - wc | |
| | | | | 1 SEL Analytes: F | | | |
| 1908532-008A | ELF-9 | 8/20/2019 1345h | 8/21/2019 1445h | 200.7-W | Aqueous | DF-Metals | |
| | | | | 1 SEL Analytes: LI | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | | | | S BA BE CD CR CO PB MC | | |
| | | | | 200.8-W-PR | | DF-Metals | |
| | | | | HG-DW-245.1 | | DF-Metals | |
| 1000500 0000 | | | | HG-DW-PR | | DF-Metals | |
| 1908532-008B | | | | OUTSIDE LAB | | ALS | |
| 1908532-008C | | | | 300.0-W 1 SEL Analytes: F | | df - wc | |
| 1908532-009A | ELF-11 | 8/20/2019 0926h | 8/21/2019 1445h | 200.7-W | A queque | DF-Metals | |
| 1908332-009A | | 8/20/2019 09201 | 8/21/2019 14431 | 1 SEL Analytes: LI | Aqueous | Dr-Metais | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | | | | IS BA BE CD CR CO PB MO | | |
| | - Tayle (Baskada) | | | 200.8-W-PR | | DF-Metals | |
| | | | | HG-DW-245.1 | | DF-Metals | |
| | | | | HG-DW-PR | | DF-Metals | |
| 1908532-009B | · | | | OUTSIDE LAB | | ALS | |
| 1908532-009C | an a | · · · · · · · · · · · · · · · · · · · | | 300.0-W | | df - wc | |
| | | | | 1 SEL Analytes: F | · · · · · · · · · · · · · · · · · · · | | |
| 1908532-010A | ELF-12 | 8/20/2019 1215h | 8/21/2019 1445h | 200.7-W 1 SEL Analytes: LI | Aqueous | DF-Metals | |
| | ····· | | | 200.7-W-PR | | DF-Metals | |
| | 6 LABORATOR | ?Y CHECK: %M □ RT □ CN □ | | | | | |

| | | | | | rder: 1908532 | Page 4 of 5 |
|---------------------------------------|---------------------------------|--|--|--|--|--|
| PacifiCorp | | | | | Date: 9/5/2019 | - |
| Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | |
| ELF-12 | 8/20/2019 1215h | 8/21/2019 1445h | 200.8-W | Aqueous | DF-Metals | |
| | | | 200.8-W-PR | JAS DA DE CD CK CO I D MO SE | DF-Metals | |
| <u></u> | | *** | HG-DW-245.1 | | DF-Metals | |
| | | | HG-DW-PR | | DF-Metals | |
| | | , | OUTSIDE LAB | | ALS | |
| | | | 300.0-W | | df - wc | |
| | | | 1 SEL Analytes: F | | | |
| ELF-13 | 8/20/2019 1130h | 8/21/2019 1445h | 200.7-W | Aqueous | DF-Metals | 1 |
| | | | | | DEMati | |
| | | | | | terror terror | |
| | | | | R 4S R4 RE CD CR CO PR MO SH | | |
| | | | | D ND DN DE CE CI CO I D MO DE | | |
| | | | HG-DW-245.1 | | DF-Metals | |
| | | | HG-DW-PR | | DF-Metals | |
| | | | OUTSIDE LAB | | ALS | |
| | | | 300.0-W 1 SEL Analytes: F | | df - wc | |
| ELF-14 | 8/20/2019 1045h | 8/21/2019 1445h | 200.7-W | Aqueous | DF-Metals | ······································ |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | D AS DA DE CD CK CO FB MO SI | | |
| | | | | | | |
| | | <u> </u> | | | | |
| | | | | | ALS | |
| | | | 300.0-W | | df - wc | |
| · · · · · · · · · · · · · · · · · · · | | | 1 SEL Analytes: F | | | |
| DUP | 8/20/2019 0920h | 8/21/2019 1445h | 200.7-W | Aqueous | DF-Metals | |
| | | | | | DF-Metals | |
| | | | 200.8-W | | DF-Metals | |
| | | | | SB AS BA BE CD CR CO PB MO SI | | |
| | | | 200.8-W-PR | | DF-Metals | |
| | Client Sample ID ELF-12 | Client Sample ID Collected Date ELF-12 8/20/2019 1215h | Client Sample ID Collected Date Received Date ELF-12 \$/20/2019 1215h \$/21/2019 1445h | Client Sample ID Collected Date Received Date Test Code ELF-12 8/20/2019 1215h 8/21/2019 1445h 200.8-W II SEL Analytes: S 200.8-W-PR HG-DW-245.1 HG-DW-245.1 HG-DW-245.1 300.0-W ISEL Analytes: F 300.0-W 1 SEL Analytes: F ELF-13 8/20/2019 1130h 8/21/2019 1445h 200.7-W 200.8-W-PR 200.7-W-PR 200.7-W-PR 200.8-W-PR 1 SEL Analytes: I 200.7-W-PR 200.8-W-PR 11 SEL Analytes: S 200.8-W-PR 200.8-W-PR 200.8-W-PR 11 SEL Analytes: S 200.8-W 11 SEL Analytes: S 200.8-W-PR 200.8-W-PR 11 SEL Analytes: S 200.8-W-PR 300.0-W 1 SEL Analytes: S 200.8-W-PR 200.8-W-PR 11 SEL Analytes: S 200.8-W-PR 11 SEL Analytes: S 200.8-W-PR 11 SEL Analytes: S 200.7-W-PR 200.8-W-PR 11 SEL Analytes: S 200.7-W-PR 200.8-W-PR 11 SEL Analytes: S 200.8-W-PR 11 SEL Analytes: S 200.7-W- | Client Sample ID Collected Date Received Date Test Code Matrix ELF-12 8/20/2019 1215h 8/21/2019 1445h 200.8-W Aqueous 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE 200.8-W Received Date 11 SEL Analytes: SB AS BA BE CD CR CO PB MO SE 200.8-W-PR | Client Sample ID Collected Date Received Date Test Code Matrix Sel Storage ELF-12 8/20/2019 1215h 8/21/2019 1445h 200.8-W Aqueous DF-Media 1/1 SEL Analytes: SB AS BA DE CD CR CO PB MO SE TL 200.8-W Aqueous DF-Media 1/1 G-DW-245.1 DF-Media DF-Media DF-Media 1/1 G-DW-245.1 DF-Media AAS DF-Media 2/00.7W-PR DF-Media AAS AAS 3/00.0-W df-we 1 SEL Analytes: F df-we ELF-13 8/20/2019 1130h 8/21/2019 1445h 200.7.W Aqueous DF-Media 2/00.7.W-PR DF-Media 1 SEL Analytes: SF AS BA DE CD CR CO PB MO SE TL DF-Media 2/00.7.W-PR DF-Media DF-Media DF-Media DF-Media 2/00.7.W-PR DF-Media DF-Media DF-Media DF-Media 2/00.7.W-PR DF-Media DF-Media Advecus DF-Media 2/00.7.W-PR DF-Media Advecus DF-Media Advecus < |

~

| WORK O | RDER Summary | | | | Work | Order: 1908532 | Page 5 of 5 |
|--------------|---------------------|-----------------|----------------------|------------------------|---------------------------------------|-------------------|-------------|
| Client: | PacifiCorp | | | | | le Date: 9/5/2019 | Ū. |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | |
| 1908532-013A | DUP | 8/20/2019 0920h | 8/21/2019 1445h | HG-DW-245.1 | Aqueous | DF-Metals | 1 |
| | | | | HG-DW-PR | | DF-Metals | |
| 1908532-013B | | | | OUTSIDE LAB | | ALS | 2 |
| 1908532-013C | | | | 300.0-W | | df - wc | 1 |
| | | | | 1 SEL Analytes: F | | | |
| 1908532-014A | FB | 8/20/2019 1445h | 8/21/2019 1445h | 200.7-W | Aqueous | DF-Metals | 1 |
| | | | | 1 SEL Analytes: LI | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| | | | | 200.8-W | | DF-Metals | |
| | | | | 11 SEL Analytes: SB AS | BA BE CD CR CO PB MC | O SE TL | |
| | | | | 200.8-W-PR | | DF-Metals | |
| | | | | HG-DW-245.1 | | DF-Metals | |
| | | | | HG-DW-PR | | DF-Metals | |
| 1908532-014B | | | | OUTSIDE LAB | | ALS | 2 |
| 1908532-014C | | | | 300.0-W | · · · · · · · · · · · · · · · · · · · | df - wc | 1 |
| | | | | 1 SEL Analytes: F | | | |

| Analytical Labora 3440 S. 700 W. Salt Lake City, U | American West Analytical Laboratories 3440 S. 700 W. Sait Lake City, UT 84119 Phone # (801) 263-8686 Toll Free # (888) 263-8686 | | | | | | sing NELA | P accredited | | all data will t | ODY pe reported using AWAL's standard analyte lists and n of Custody and/or attached documentation. | AWAL Lab Sample Set # Page / of / |
|---|--|---|-----------------|-----|-------------|------|-----------|--------------|--|-----------------|---|--|
| Fax # (801) 263-8687 Email awal@ | Pawal-labs.com | | | Q | C Leve | el: | | Turn | Around T | ime: | Unless other arrangements have been made, signed | Due Date: |
| www.awal-labs.co | m | | | 1 2 | 2+ 3 | 3 3+ | | 12 | 3 4 5 S | tnd | reports will be emailed by 5:00 pm on the day they are due. | 9/5/19 |
| Client: Pacificorp Address: City, State, Zip: Contact: Jeff Tucker Phone #: Cell #: E-mail: jeff. tucker @ paci Project Name: Hunter CCP GW Project #: Perc.M ϕ 52 PO #: Sampler Name: MLS & CE Sample ID: 1 ELF - 1D 2 ELF - 2 3 ELF - 3 | h. Ti cove | Time Sampled 1330 1430 1315 | # of Containers | | Appendix IV | | | | | | 5:00 pm on the day they are due. Report down to the MDL Include EDD: Lab Filter for: Field Filtered For: RCRA CWA SDWA ELAP / A2LA NILLAP Non-Compliance Other: Known Hazards & Sample Comments | Laboratory Use Only 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 5 Amples Were: 1 Shipped rhand delivered 3 Temperature 4 Received Intact Y N N |
| $ \begin{array}{c} 4 \\ ELF-4 \\ 5 \\ ELF-5 \\ 6 \\ ELF-7 \\ 7 \\ ELF-8 \\ 8 \\ 10 \\ ELF-11 \\ 10 \\ ELF-12 \\ 10 \\ 10 \\ ELF-12 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10$ | | 1215 1130 1245 1032 1345 0926 1215 | | | | | | | | | | 5 Y N Checked at bench 6 Received Within Y N Y N 100ting Times Y N |
| $ \begin{array}{c} 11 \\ ELF - 13 \\ FLF - 14 \\ DUP \\ FB \\ Is \\ FB \\ FB \\ $ | | 1130 1045 0920 1445 | | | | 0 | | | | | *bottles read 9:40 | Sample Labels and COC Record Match? N |
| Relinquished by Signature Print Name: Micke Shift leff Relinquished by: Signature Print Name: Signature Print Name: Print Name: | B ^{ee} /21/21 ^e Time:U5 2 Date: Time: Date: Time: | Received by: Signature Print Name: Received by: Signature Print Name: Received by: Signature Print Name: Print Name: | | | se | B | ru ru |) in | Date: Time: Date: Time: Date: Time: | | report to | CC analytical waterenvtech.com |

By signing this Chain of Custody you are agreeing to permit AWAL to subcontract any analyses not normally performed at AWAL.

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

Fluoride is included in both Appendix III and Appendix IV analyte lists. All wells have undergone analysis for both analyte lists for each event. Fluoride was not analyzed twice. The results are reported once under Appendix III constituents for each sample / each event.

| Lab Set ID: | 908532 | |
|-------------|--------|--|
| pH Lot #: | 6085 | |

Preservation Check Sheet

Sample Set Extension and pH

| | T | 1 | | | | | * | | | · · · · | | | T | | | | _ |
|----------------------------------|--|------|------|------|------|------|------|------|------|---------|------|------|------|-------|------|------|-------|
| Analysis | Preservative | -001 | -002 | -003 | -004 | -005 | -006 | -007 | -008 | -009 | -010 | -011 | -012 | -013 | ~014 | | |
| Ammonia | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | • | | |
| COD | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | |
| Cyanide | pH>12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 HNO ₃ | Ves | res | Ves | VPS | Yes | Yes | | |
| NO ₂ /NO ₃ | pH <2 H ₂ SO ₄ | 1 | | 1 | l | 1 | 1 | 1 | 1 | 7 | 7 | 1 | | l | ŀ | | |
| 0&G | pH <2 HCL | | | | | | | | | | | | | | | | |
| Phenols | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | |
| Sulfide | pH >9 NaOH, | | | | , | | | | | | | | | | | | |
| Sunde | Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | |
| T PO ₄ | $pH < 2 H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cr VI+ | pH >9 (NH ₄) ₂ SO ₄ | | | | | | | | | | | | | | | | |
| | (| | | | | | | | | | | | | · · · | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 1 | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 1 | | |
| L | L | E | 1 | | | | | L | | | | | | L | 1 | | |

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.

Elona Hayward

| From: | Marcus Holland [mholland@waterenvtech.com] |
|--------------|---|
| Sent: | Monday, August 12, 2019 4:18 PM |
| То: | Elona Hayward |
| Subject: | Appendix III and IV constituents |
| Attachments: | CCR - Appendix III & Appendix IV Constituents.pdf |

Hi Elona,

Attached is a list of constituents we will need bottles and analyses for.

I forgot to mention this on the phone, but can we have the reports for these split by Appendices? So two reports for PERCM052 (one Appendix III constituents, one Appendix IV constituents) and two reports for PERCM053 (one Appendix III, one Appendix IV).

Let me know if you have any questions.

Thank you,



Marcus Holland, EI

Staff Engineer P: (406) 723-1533 C: (406) 498-5402 waterenvtech.com





Radium-226

Case Narrative

American West Analytical Labs

Hunter CCR Groundwater Sampling - PERCM052

Work Order Number: 1908622

- 1. This report consists of the analytical results for 14 water samples received by ALS on 08/26/2019.
- 2. These samples were prepared and analyzed according to the current revisions of SOP 783 and SOP 736. The analyses were completed on 09/18/2019.
- 3. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.
- 4. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate.
- ALS uses the following convention for reporting significant digits in the TPU and MDC results. The TPU value is rounded to two significant digits. The MDC value is rounded to the same decimal place as the TPU value. In practice, this could result in an MDC reported value of zero for samples with significant activity, including the batch laboratory control sample.
- 6. No anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.



The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

nderon Jeah Anderson

Radiochemistry Primary Data Reviewer

M . W-

Radiochemistry Final Data Reviewer

<u>9/20/19</u> Date

<u>9/22/19</u> Date

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1908622 Client Name: American West Analytical Labs Client Project Name: Hunter CCR Groundwater Sampling Client Project Number: PERCM052 Client PO Number: 1908532

| Client Sample Number | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|-------------------------|----------------------|------------|--------|-------------------|-------------------|
| ELF-1D | 1908622-1 | | WATER | 20-Aug-19 | 13:30 |
| ELF-2 | 1908622-2 | | WATER | 20-Aug-19 | 14:30 |
| ELF-3 | 1908622-3 | | WATER | 20-Aug-19 | 13:15 |
| ELF-4 | 1908622-4 | | WATER | 20-Aug-19 | 12:15 |
| ELF-5 | 1908622-5 | | WATER | 20-Aug-19 | 11:30 |
| ELF-7 | 1908622-6 | | WATER | 20-Aug-19 | 12:45 |
| ELF-8 | 1908622-7 | | WATER | 20-Aug-19 | 10:32 |
| ELF-9 | 1908622-8 | | WATER | 20-Aug-19 | 13:45 |
| ELF-11 | 1908622-9 | | WATER | 20-Aug-19 | 9:26 |
| ELF-12 | 1908622-10 | | WATER | 20-Aug-19 | 12:15 |
| ELF-13 | 1908622-11 | | WATER | 20-Aug-19 | 11:30 |
| ELF-14 | 1908622-12 | | WATER | 20-Aug-19 | 10:45 |
| DUP | 1908622-13 | | WATER | 20-Aug-19 | 9:20 |
| FB | 1908622-14 | | WATER | 20-Aug-19 | 14:45 |

| - | American West Analytical Laboratories 3440 S. 700 W. Salt Lake City, UT 84119 Phone # (801) 263-8686 Toll Free # (868) 263-8686 Fax # (801) 263-8687 Email awal@awal-labs.com www.awal-labs.com | | | | | | All analysis will be conducted using NELAP accredited methor | | | | | | reports will be emailed by | | | AWAL Lab Sample Set # Page 1 of 1 | |
|---|--|--|--|-----------------------|---------------------------------|------------------------|--|----------|------------|---|--|--|----------------------------|--|---|---|--|
| • | 3440 S. 700 W. Salt Lake City , UT 84119 | | | Containers | Matrix | 1 226 and 228 Combined | | | | | | | | | Report down to the MDL Include EDD: Lab Filter for: Field Filtered For: For Compliance With: RCRA CWA SDWA ELAP / A2LA NLLAP NLLAP Non-Compliance Other: Known Hazards | Laboratory Use Only 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 4 Unbroken on Sample Y N NA 5 Samples Were: 1 Shipped or hand delivered | |
| 1 ELF-1D 2 ELF-2 3 ELF-3 | Sample ID: | Date Sampled 8/20/2019 8/20/2019 8/20/2019 | Time Sampled 13:30 14:30 13:15 | 0) jo # 02 2 2 | E 🛛 E Sample Matrix | × × × Radium | | | | | | | | | & Sample Comments | 2 Ambient or Chilled 3 Temperature^C 4 Received Intact Y N | |
| 4 ELF-4 5 ELF-5 6 ELF-7 7 ELF-8 | | 8/20/2019 8/20/2019 8/20/2019 8/20/2019 | 12:15 11:30 12:45 10:32 | 2 2 2 2 2 | : > > > > > > | x x x x | | | | | | | | | | 5 Property Preserved Y N Checked at bench 6 Received Within | |
| * ELF-9 9 ELF-11 10 ELF-12 11 ELF-13 | | 8/20/2019 8/20/2019 8/20/2019 8/20/2019 | 13:45 9:26 12:15 11:30 | 2 2 2 2 2 | w | x x x | | | | | | | | | | Holding Times Y N | |
| 12 ELF-14 13 DUP 14 FB | | 8/20/2019 8/20/2019 8/20/2019 8/20/2019 | 10:45 9:20 14:45 | 2 2 2 2 2 | * * * | x x x x | | | | | | | | | | Sample Labels and COC Record Match? Y N | |
| | ense Brun Denise Brunn | 8 22 19 Time Date: Time Date: Time: | Received by: Signature Print Name: Received by: Signature Print Name: Received by: Signature Print Name: | | | | 2 | <u> </u> | - 5 < (| ~ | | Dai Tin Dai Tin Dai Tin | ne: 16: ne: te: | | | | |



ALS Environmental - Fort Collins CONDITION OF SAMPLE UPON RECEIPT FORM

| (ALS) Client: An west Analytica Workorder No: (| 10062 | 2 | - |
|---|----------------|----------------|----------------|
| Project Manager: KMD Initials: TEM | Date: 08/2 | <u>eli</u> | <u>~</u> |
| Are airbills / shipping documents present and/or removable? | DROP OFF | (YES) | NO |
| Are custody seals on shipping containers intact? | NONE | YES | NO * |
| Are custody seals on sample containers intact? | NONE | YES | NO * |
| Is there a COC (chain-of-custody) present? | | YES | NO * |
| Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # matrix, requested analyses, etc.) | of containers, | YES | |
| Are short-hold samples present? | | YES | NO |
| Are all samples within holding times for the requested analyses? | | YES | NO * |
| Were all sample containers received intact? (not broken or leaking) | c | YES | NO * |
| Is there sufficient sample for the requested analyses? | | YES | NO * |
| Are all samples in the proper containers for the requested analyses? | | YES | NO * |
| Are all aqueous samples preserved correctly, if required? (excluding volatiles) | N/A | YES 🖌 | NO * |
| Are all aqueous non-preserved samples pH 4-9? | N/A | YES | NO * |
| Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bu > 6 mm (1/4 inch) diameter? (i.e. size of green pea) | ubbles N/A | YES | NO |
| Were the samples shipped on ice? | | YES | NO |
| Were cooler temperatures measured at 0.1-6.0°C? | #4 RAD | YES | (NO |
| | #4 | | $\underline{}$ |
| | | | |
| Temperature (°C): $\underline{aub} \underline{aub} \underline{aub}$ | | | |
| | | | |
| Acceptance External µR/hr reading: 12 12 | | | |
| Background μR/hr reading: <u>3</u> | | | |
| Were external μ R/hr readings \leq two times background and within DOT acceptance criteria ² /TES NO / NA | | | |
| Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, | Ţ | - | çin. |
| 5.) sample from for DUP 182 | State " | l'i uo | ~ |
| better and A:20 on LOC | | | |
| | | | T |
| 11.) 22 of 28 bother mergunel | pht a | 5 ~ 1 | 2-5 |
| HNO, meder to be added in | , vare | L v | |
| amounts are continued liet | 400 | am 7 | ~ |
| addeed and group + both | re un | ~ ~~ | ~ |
| | | | |
| HNUZ Lot 197345 2 | | | |
| All client bottle ID's vs ALS lab | | A* | |
| applicable, was the client contacted? (ESDNO NA Contact: Elma Hoy MA | Date/Tin | ne: 8 2 | YM() |
| | | | |

Page 1 of $\frac{2}{5}$ of 25

| ALS | ALS Environments CONDITION OF SAMPLE | | |
|------------------|---|------------------|-------------------------|
| (ALS) Client: | Am. west. Analy | Achworkorder No: | 203622 |
| Project Manager: | кмо | Initials: TE | M Date: <u>Rlzul</u> (a |

Additional Information:

Sur of HNO 2: added added Imb of HNDZ: 1-2, 2-2, 5-1, 5-2, 6-2, 9-2, 10-2, 11-1, 11-2, 13-2 ald. - of 4ND3; 1.5. · Le-1, Z-1, B-2, Rol, 10-1, 1-1, 2-1, 3-1, 3-12-1 If applicable, was the client contacted? YES / NO / NA, Contact: Date/Time: 1.1 27/19 0 Project Manager Signature / Date: _

Page $\frac{1}{2}$ of $\frac{1}{6}$ of 25

Iedal Internet Shipping: View/Print Label

print the label. print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to 1. Ensure there are no other shipping or tracking labels attached to your package. Select the Print button on the

affix the folded label using clear plastic shipping tape over the entire label. 2. Fold the printed label at the solid line below. Place the label in a UPS Shipping Pouch. If you do not have a pouch,

3. GETTING YOUR SHIPMENT TO UPS

Customers with a Daily Pickup

Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Locations' Quick link at ups.com. (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS

Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages.

Hand the package to any UPS driver in your area.

S 0097 3 698 **THE UPS STORE** MT Prcess Point

UPS Access PointTM

SALT LAKE CITY, UT 84107

SALT LAKE CITY, UT 84106 2223 S HIGHLAND DR **EXAMPLE SHORE** FOLD HERE

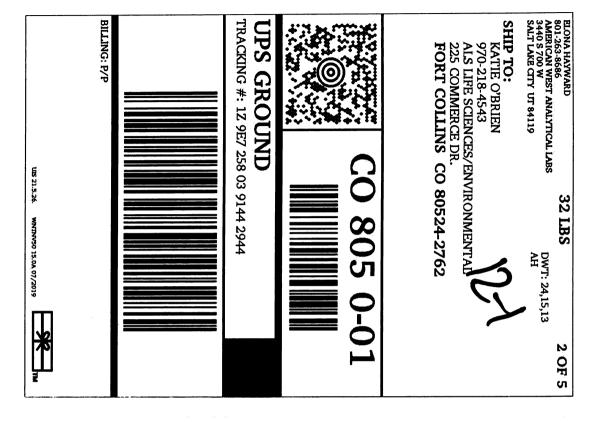
TAYLORSVILLE, UT 84129

S 0027 M 9061

THE UPS STORE

UPS Access Point^{MT}

1900022



Radium-226 by Radon Emanation - Method 903.1 PAI 783 Rev 14 Method Blank Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RE190906-1MB

Sample Matrix: WATER Prep SOP: PAI 783 Rev 14 Date Collected: 06-Sep-19 Date Prepared: 06-Sep-19 Date Analyzed: 18-Sep-19 Prep Batch: RE190906-1 QCBatchID: RE190906-1-1 Run ID: RE190906-1A Count Time: 30 minutes Final Aliquot: 995 ml Result Units: pCi/l File Name: Manual Entry

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.10 +/- 0.11 | 0.16 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16440 | 16060 | ug | 97.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

 ${\sf U}~$ - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

DL - Decision Level

Radium-226 by Radon Emanation - Method 903.1 PAI 783 Rev 14

PAI / 63 Rev 14

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RE190906-1LCS

Sample Matrix: WATER Prep SOP: PAI 783 Rev 14 Date Collected: 06-Sep-19 Date Prepared: 06-Sep-19 Date Analyzed: 18-Sep-19 Prep Batch: RE190906-1 QCBatchID: RE190906-1-1 Run ID: RE190906-1A Count Time: 15 minutes Final Aliquot: 995 ml Result Units: pCi/l File Name: Manual Entry

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|------|--------------------|------------------|
| 13982-63-3 | Ra-226 | 38.7 +/- 9.8 | 0.5 | 46.48 | 83.3 | 67 - 120 | Р |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16440 | 15740 | ug | 95.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RE1908622-1

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

Radium-226 by Radon Emanation - Method 903.1 PAI 783 Rev 14

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RE190906-1LCSD

Sample Matrix: WATER Prep SOP: PAI 783 Rev 14 Date Collected: 06-Sep-19 Date Prepared: 06-Sep-19 Date Analyzed: 18-Sep-19 Prep Batch: RE190906-1 QCBatchID: RE190906-1-1 Run ID: RE190906-1A Count Time: 15 minutes Final Aliquot: 995 ml Result Units: pCi/l File Name: Manual Entry

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-----|--------------------|------------------|
| 13982-63-3 | Ra-226 | 47 +/- 12 | 0 | 46.48 | 100 | 67 - 120 | Р |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16440 | 15770 | ug | 95.9 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RE1908622-1

Abbreviations: TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 14

Duplicate Sample Results (DER)

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Ra-226

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

38.7 +/- 9.8

| Field ID: Lab ID: R | E190906-1LCSD | Sample Matrix: WATER Prep SOP: PAI 783 Rev 14 Date Collected: 06-Sep-19 Date Prepared: 06-Sep-19 Date Analyzed: 18-Sep-19 | QCBa R | Batch: RE190906-1 ttchID: RE190906-1-1 un ID: RE190906-1A Time: 15 minutes | Moisture(% Result Uni | is: Unfiltered %): NA | | |
|------------------------|---------------|---|-----------|---|--------------------------|--------------------------|-----|------------|
| CASNO | Analyte | Sample Result +/- 2 s TPU MDC | Flags | Dupl Result +/- 2 s TPU | icate MDC | Flags | DER | DER Lim |

Ρ

47 +/- 12

0.5

Comments:

13982-63-3

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

- Y2 Chemical Yield outside default limits.
- W DER is greater than Warning Limit of 1.42
- D DER is greater than Control Limit of 2.13

LT - Result is less than Request MDC, greater than sample specific MDC

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported

activity is greater than the reported MDC. L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

11 - Loo Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

Data Package ID: RE1908622-1

Abbreviations:

TPU - Total Propagated Uncertainty

DER - Duplicate Error Ratio

0

Ρ

0.518

2.13

BDL - Below Detection Limit

NR - Not Reported

Page 1 of 1

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-1D | Sample Matrix: WATER Prep SOP: PAI 783 Rev 14 | Prep Batch: RE190906-1 | Final Aliquot: 995 ml |
|-----------|-----------|--|--|---|
| Lab ID: | 1908622-1 | Date Collected: 20-Aug-19 | QCBatchID: RE190906-1-1 Run ID: RE190906-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.15 +/- 0.16 | 0.23 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16450 | 15750 | ug | 95.8 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-2 | Sample Matrix: WATER | Prep Batch: RE190906-1 | Final Aliquot: 995 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1908622-2 | Prep SOP: PAI 783 Rev 14 Date Collected: 20-Aug-19 | QCBatchID: RE190906-1-1 Run ID: RE190906-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.32 +/- 0.23 | 0.27 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16450 | 15790 | ug | 96.0 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-3 | Sample Matrix: WATER | Prep Batch: RE190906-1 | Final Aliquot: 995 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1908622-3 | Prep SOP: PAI 783 Rev 14 Date Collected: 20-Aug-19 | QCBatchID: RE190906-1-1 Run ID: RE190906-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.23 +/- 0.25 | 0.38 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16450 | 15810 | ug | 96.1 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-4 | Sample Matrix: WATER | Prep Batch: RE190906-1 | Final Aliquot: 995 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1908622-4 | Prep SOP: PAI 783 Rev 14 Date Collected: 20-Aug-19 | QCBatchID: RE190906-1-1 Run ID: RE190906-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.34 +/- 0.25 | 0.30 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16450 | 15890 | ug | 96.6 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-5 | Sample Matrix: WATER | Prep Batch: RE190906-1 | Final Aliquot: 955 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1908622-5 | Prep SOP: PAI 783 Rev 14 Date Collected: 20-Aug-19 | QCBatchID: RE190906-1-1 Run ID: RE190906-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.76 +/- 0.34 | 0.19 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16460 | 15800 | ug | 96.0 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-7 | Sample Matrix: WATER | Prep Batch: RE190906-1 | Final Aliquot: 995 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1908622-6 | Prep SOP: PAI 783 Rev 14 Date Collected: 20-Aug-19 | QCBatchID: RE190906-1-1 Run ID: RE190906-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.55 +/- 0.29 | 0.27 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16450 | 15730 | ug | 95.6 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-8 | Sample Matrix: WATER | Prep Batch: RE190906-1 | Final Aliquot: 995 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1908622-7 | Prep SOP: PAI 783 Rev 14 Date Collected: 20-Aug-19 | QCBatchID: RE190906-1-1 Run ID: RE190906-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.64 +/- 0.33 | 0.30 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16470 | 16230 | ug | 98.6 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-9 | Sample Matrix: WATER | Prep Batch: RE190906-1 | Final Aliquot: 955 ml |
|-----------|-----------|---|--|---|
| Lab ID: | 1908622-8 | Prep SOP: PAI 783 Rev 14 Date Collected: 20-Aug-19 | QCBatchID: RE190906-1-1 Run ID: RE190906-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.31 +/- 0.23 | 0.27 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16460 | 16230 | ug | 98.6 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-11 | Sample Matrix: WATER | Prep Batch: RE190906-1 | Final Aliquot: 995 ml |
|-------------------|---------------------------|--------------------------|-------------------------|
| Lab ID: 1908622-9 | Prep SOP: PAI 783 Rev 14 | QCBatchID: RE190906-1-1 | Prep Basis: Unfiltered |
| | Date Collected: 20-Aug-19 | Run ID: RE190906-1A | Moisture(%): NA |
| | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.12 +/- 0.15 | 0.22 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16460 | 15540 | ug | 94.4 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-12 | Sample Matrix: WATER Prep SOP: PAI 783 Rev 14 | Prep Batch: RE190906-1 QCBatchID: RE190906-1-1 | Final Aliquot: 995 ml Prep Basis: Unfiltered |
|--------------------|--|---|---|
| Lab ID: 1908622-10 | Date Collected: 20-Aug-19 | Run ID: RE190906-1A | Moisture(%): NA |
| | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.25 +/- 0.21 | 0.27 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16460 | 15950 | ug | 96.9 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-13 | Sample Matrix: WATER | Prep Batch: RE190906-1 | Final Aliquot: 995 ml |
|-----------|------------|---|--|---|
| Lab ID: | 1908622-11 | Prep SOP: PAI 783 Rev 14 Date Collected: 20-Aug-19 | QCBatchID: RE190906-1-1 Run ID: RE190906-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| _ | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.41 +/- 0.28 | 0.32 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16450 | 15790 | ug | 96.0 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-14 | Sample Matrix: WATER | Prep Batch: RE190906-1 | Final Aliquot: 995 ml |
|-----------|------------|---|--|---|
| Lab ID: | 1908622-12 | Prep SOP: PAI 783 Rev 14 Date Collected: 20-Aug-19 | QCBatchID: RE190906-1-1 Run ID: RE190906-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.40 +/- 0.27 | 0.28 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16460 | 15820 | ug | 96.1 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | DUP | Sample Matrix: WATER | Prep Batch: RE190906-1 | Final Aliquot: 995 ml |
|-----------|------------|---|--|---|
| Lab ID: | 1908622-13 | Prep SOP: PAI 783 Rev 14 Date Collected: 20-Aug-19 | QCBatchID: RE190906-1-1 Run ID: RE190906-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.19 +/- 0.23 | 0.36 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16460 | 15840 | ug | 96.3 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: FB | Sample Matrix: WATER | Prep Batch: RE190906-1 | Final Aliquot: 955 ml |
|--------------------|---|--|---|
| Lab ID: 1908622-14 | Prep SOP: PAI 783 Rev 14 Date Collected: 20-Aug-19 | QCBatchID: RE190906-1-1 Run ID: RE190906-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | Date Prepared: 06-Sep-19 | Count Time: 15 minutes | Result Units: pCi/l |
| | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: Manual Entry |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 13982-63-3 | Ra-226 | 0.47 +/- 0.25 | 0.17 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 16440 | 15480 | ug | 94.2 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level



Radium-228

Case Narrative

American West Analytical Labs

Hunter CCR Groundwater Sampling - PERCM052

Work Order Number: 1908622

- 1. This report consists of the analytical results for 14 water samples received by ALS on 08/26/2019.
- 2. These samples were prepared according to the current revision of SOP 749.
- 3. The samples were analyzed for the presence of ²²⁸Ra by low background gas flow proportional counting of ²²⁸Ac, which is the ingrown progeny of ²²⁸Ra, according to the current revision of SOP 724. The analyses were completed on09/17/2019.
- 4. The analysis results for these samples are reported in units of pCi/L. The samples were not filtered prior to analysis.
- 5. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate for all three batches.
- 6. No anomalous situations were noted during the preparation and analysis of these samples. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

dewon

Jean Anderson Radiochemistry Primary Data Reviewer

Radiochemistry Final Data Reviewer

<u>9/20/19</u> Date

9/22/19

Date

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1908622 Client Name: American West Analytical Labs Client Project Name: Hunter CCR Groundwater Sampling Client Project Number: PERCM052 Client PO Number: 1908532

| Client Sample Number | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|-------------------------|----------------------|------------|--------|-------------------|-------------------|
| ELF-1D | 1908622-1 | | WATER | 20-Aug-19 | 13:30 |
| ELF-2 | 1908622-2 | | WATER | 20-Aug-19 | 14:30 |
| ELF-3 | 1908622-3 | | WATER | 20-Aug-19 | 13:15 |
| ELF-4 | 1908622-4 | | WATER | 20-Aug-19 | 12:15 |
| ELF-5 | 1908622-5 | | WATER | 20-Aug-19 | 11:30 |
| ELF-7 | 1908622-6 | | WATER | 20-Aug-19 | 12:45 |
| ELF-8 | 1908622-7 | | WATER | 20-Aug-19 | 10:32 |
| ELF-9 | 1908622-8 | | WATER | 20-Aug-19 | 13:45 |
| ELF-11 | 1908622-9 | | WATER | 20-Aug-19 | 9:26 |
| ELF-12 | 1908622-10 | | WATER | 20-Aug-19 | 12:15 |
| ELF-13 | 1908622-11 | | WATER | 20-Aug-19 | 11:30 |
| ELF-14 | 1908622-12 | | WATER | 20-Aug-19 | 10:45 |
| DUP | 1908622-13 | | WATER | 20-Aug-19 | 9:20 |
| FB | 1908622-14 | | WATER | 20-Aug-19 | 14:45 |

| Contact Elba Hayward Elba | NA |
|--|--|
| Address 3440 5.700 W. Context Bina Hayward Context Elona Hayward Context Context Elona Hayward Context Context Mathematication Context Context Elona Hayward For Compliance With: 2 Unbroken on Outer Packar Propert Name Hunter CCR Groundwater Sampling | •••••••••••••••••••••••••••••••••••••• |
| City, State, Zip Sain Lake City, UT 84119 I I I I Present Value I I Present Value I I Present Value I </td <td>30 NA</td> | 30 NA |
| Contact Elona Hayward | 30 NA |
| Phone #: 601/203-8080 | NA |
| $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$ | |
| Sampler Name: Date Time Nampled Sampled | NA |
| Sampler Name: Date Time Nampled Sampled | NA |
| Sampler Name: Date Time Sampled | |
| Sampler Name: Date Time Nampled Sampled | |
| Sample ID: Sampled | |
| 1 ELF-1D 8/20/2019 13:30 2 W X V V X V V X V V X V V V X V | |
| 1 ELF-1D 8/20/2019 13:30 2 W X I | ~ |
| 2 ELF-2 8/20/2019 14:30 2 W X I | — ` |
| 4 ELF-4 8/20/2019 12:15 2 W X I I I I I I S Property Preserved S Property Preserved Y N Check Check S Property Preserved Y N Check S | |
| Image: Second | |
| S ELF-3 8/20/2019 11:30 2 W X I | ed at bench |
| Production Received Within Holding Times * ELF-9 * B/20/2019 13:45 2 W X * V * V * V * V * V * V * V * V * V * V * V * V * V * V * V * V * V | a al bench |
| * ELF-9 8/20/2019 13:45 2 W X Image: Constraint of the second seco | |
| 8 ELF-9 8/20/2019 13:45 2 W X Y N | |
| | |
| | |
| 10 ELF-12 8/20/2019 12:15 2 W X | |
| 11 ELF-13 8/20/2019 11:30 2 W X Sample Labels and COC Record | Match? |
| 12 ELF-14 8/20/2019 10:45 2 W X | MatCitt |
| 13 DUP 8/20/2019 9:20 2 W X | |
| 14 FB 8/20/2019 14:45 2 W X 9 | |
| | - |
| Relinquished by: Date: Burn Brund B 22 19 Received by: Signature Burn Burn Special Instructions: | |
| Print Name: Denie Brunn Time: 45 Print Name The Low Moscor Time: 47 - QC 2+ = Final Report, COC, surrogate, recoveries, MB, LCS | |
| Relinquished by: Signature Signature Signatur | |
| Paint Name: Time: Time: | · |
| Belinquished by: Signature Date: Received by: Signature Signature Date: Signature Date: Samples sent to ALS - Ft. Collins. | , |
| Print Name: Time: , , , , , , , , , , , , , , , , , , , | , |



ALS Environmental - Fort Collins CONDITION OF SAMPLE UPON RECEIPT FORM

| Are all samples within holding times for the requested analyses? YES Were all sample containers received intact? (not broken or leaking) YES Is there sufficient sample for the requested analyses? YES Are all samples in the proper containers for the requested analyses? YES Are all aqueous samples preserved correctly, if required? (excluding volatiles) N/A YES Are all aqueous non-preserved samples pH 4-9? N/A YES Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles N/A YES > 6 mm (1/4 inch) diameter? (i.e. size of green pea) N/A YES Were the samples shipped on ice? YES YES Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4 YES No. of custody seals on cooler: \lambda lambda lam | <u> </u> |
|---|-----------------------------|
| Are custody seals on shipping containers intact? NONE Are custody seals on sample containers intact? NONE YES Is there a COC (chain-of-custody) present? YES Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.) YES Are short-hold samples present? YES Are all sample containers received intact? (not broken or leaking) YES Were all sample containers received intact? (not broken or leaking) YES Are all samples in the proper containers for the requested analyses? YES Are all aqueous samples preserved correctly, if required? (excluding volatiles) N/A YES Are all aqueous non-preserved samples pH 4-9? YES Are all aqueous non-preserved samples pH 4-9? YES Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles N/A YES YES Were cooler temperature? (i.e. size of green pea) YES No. of custody seals on cooler: 1 YES Are all samples shipped on ice? YES No. of custody seals on cooler: 1 YES No. of custody seals on cooler: 1 YES No. of custody seals on co | Y NO |
| Are custody seals on sample containers intact? NOTS YES Is there a COC (chain-of-custody) present? YES Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.) YES Are short-hold samples present? YES Are all sample containers received intact? (not broken or leaking) YES Were all sample containers received intact? (not broken or leaking) YES Are all aqueous samples preserved correctly, if required? (excluding volatiles) N/A YES Are all aqueous non-preserved samples pt 4-9? YES Are all aqueous non-preserved samples pt 4-9? N/A YES > Are all aqueous non-preserved samples pt 4-9? N/A YES > 6 mm (1/4 inch) diameter? (i.e. size of green pea) N/A YES Were the samples shipped on ice? YES YES Cooler #: 2 3 YES No. of custody seals on cooler: 1 1 YES No. of custody seals on cooler: 1 1 YES No. of custody seals on cooler: 1 1 YES No. of custody seals on cooler: 1 1 YES | NO · |
| Is there a COC (chain-of-custody) present? YES Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.) YES Are short-hold samples present? YES Are all samples within holding times for the requested analyses? YES Were all sample containers received intact? (not broken or leaking) YES Are all samples in the proper containers for the requested analyses? YES Are all aqueous samples preserved correctly, if required? (excluding volatiles) N/A Are all aqueous non-preserved samples pH 4-9? N/A Are all aqueous non-preserved samples pH 4-9? N/A Are all samples one headspace (VOC, GRO, RSK/MEE, radon) free of bubbles N/A YES Were the samples shipped on ice? YES Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4 #A YES Cooler #: 3 Temperature (°C): XES No. of custody seals on cooler: \lambda analyses Amage YES No. of custody seals on cooler: \lambda analyses XES Amage No. of custody seals on cooler: \lambda analyses XES Amage Were external µR/hr reading: | NO * |
| Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.) YES Are short-hold samples present? YES Are all samples within holding times for the requested analyses? YES Were all sample containers received intact? (not broken or leaking) YES Is there sufficient sample for the requested analyses? YES Are all agroups preserved correctly, if required? (excluding volatiles) N/A YES Are all aqueous samples preserved correctly, if required? (excluding volatiles) N/A YES Are all aqueous non-preserved samples pH 4-9? N/A Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles N/A YES Are all samples shipped on ice? YES Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4 #A Were cooler temperature (°C): Area Area YES No. of custody seals on cooler: \lambda area \lambda area Area Mere external µR/hr reading: \lambda area \lambda area Area No. of custody seals on cooler: \lambda area \lambda area Area Were external µR/hr reading: \lambda area \lambd |) NO * |
| matrix, requested analyses, etc.) YES Are short-hold samples present? YES Are all samples within holding times for the requested analyses? YES Were all sample containers received intact? (not broken or leaking) YES Is there sufficient sample for the requested analyses? YES Are all samples in the proper containers for the requested analyses? YES Are all aqueous samples preserved correctly, if required? (excluding volatiles) N/A YES Are all aqueous non-preserved samples pH 4-9? YES Are all aqueous non-preserved samples pH 4-9? YES Are all aqueous non-preserved samples pH 4-9? YES Are all aqueous non-preserved samples pH 4-9? YES Are all aqueous non-preserved samples pH 4-9? YES Are all aqueous non-preserved samples pH 4-9? YES Are all aqueous non-preserved samples pH 4-9? YES Are all samples shipped on ice? YES Were the samples shipped on ice? YES Were cooler temperatures measured at 0.1-6.0°C? IR gun used** #1 #3 #4 War No. of custody seals on cooler: \lambda and within DOT acceptance criteria NO / NA (If no, see Form 008.) Ploor Survey External µR/hr readi | |
| Are all samples within holding times for the requested analyses? YES Were all sample containers received intact? (not broken or leaking) YES Is there sufficient sample for the requested analyses? YES • Are all samples in the proper containers for the requested analyses? YES • Are all aqueous samples preserved correctly, if required? (excluding volatiles) N/A • Are all aqueous non-preserved samples pH 4-9? N/A • Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles N/A • Are all samples shipped on ice? YES • Were the samples shipped on ice? YES • Were cooler temperatures measured at 0.1-6.0°C? IR gun used #1 #3 #4 • Were YES • Cooler #: 2 | CNO * |
| Were all sample containers received intact? (not broken or leaking)YESIs there sufficient sample for the requested analyses?YESAre all samples in the proper containers for the requested analyses?YESAre all aqueous samples preserved correctly, if required? (excluding volatiles)N/AYESAre all aqueous non-preserved samples pH 4-9?N/AAre all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubblesN/AYESAre all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubblesN/AYES6 mm (1/4 inch) diameter? (i.e. size of green pea)YESWere the samples shipped on ice?YESWere cooler temperatures measured at 0.1-6.0°C?IR gun used*: #1#3Were cooler temperatures measured at 0.1-6.0°C?IR gun used*: #1#4Cooler #:73Temperature (°C):73No. of custody seals on cooler:11No. of custody seals on cooler:11Mere external µR/hr reading:71Background µR/hr reading:31Were external µR/hr reading:33< | |
| Is there sufficient sample for the requested analyses? Are all samples in the proper containers for the requested analyses? Are all aqueous samples preserved correctly, if required? (excluding volatiles) Are all aqueous non-preserved samples pH 4-9? Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles Are all samples samples samples are an an are all samples and an all samples are all samp | > NO * |
| P. Are all samples in the proper containers for the requested analyses? YES P. Are all aqueous samples preserved correctly, if required? (excluding volatiles) N/A YES P. Are all aqueous non-preserved samples pH 4-9? TVD YES Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles N/A YES Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles N/A YES Are the samples shipped on ice? YES YES Were the samples shipped on ice? YES YES S. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4 RAD YES Cooler #: 7 3 Temperature (°C): 2 2 2 No. of custody seals on cooler: 1 1 1 No. of custody seals on cooler: 1 1 1 Were external µR/hr reading: 2 2 2 2 Mere external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES NO / NA (If no, see Form 008.) Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ I S. Sample Sample Sample Sample |) NO * |
| Image: Are all aqueous samples preserved correctly, if required? (excluding volatiles) N/A YES Image: Are all aqueous non-preserved samples pH 4-9? Image: Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles YES Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles N/A YES > 6 mm (1/4 inch) diameter? (i.e. size of green pea) YES 4 Were the samples shipped on ice? YES 5 Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4 Image: YES Cooler #: 2 3 Temperature (°C): Image: Analysis YES No. of custody seals on cooler: 1 1 X YES Mere external µR/hr reading: 2 1 X YES Were external µR/hr reading: 3 1 X YES Mere external µR/hr reading: 3 1 1 X YES Were external µR/hr reading: 3 1 1 X YES Mere external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES NO / NA (If no, see Form 008.) Please provide details here for NO responses to gray boxes above - fo | > NO * |
| 2. Are all aqueous non-preserved samples pH 4-9? Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea) 4. Were the samples shipped on ice? 5. Were cooler temperatures measured at 0.1-6.0°C? $IR gun_{used^*: \#1 \#3 \#4}$ Cooler #: Temperature (°C): No. of custody seals on cooler: No. of custody seals on cooler: No. of custody seals on cooler: I = I = I = I = I = I = I = I = I = I = | > NO+ |
| Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles N/A YES > 6 mm (1/4 inch) diameter? (i.e. size of green pea) YES Were the samples shipped on ice? YES * Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4 RAD OVA YES * Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4 OVA YES Cooler #: 2 3 | NO. |
| $\frac{N/A}{V} = \frac{1}{V}$ Were the samples shipped on ice? Were cooler temperatures measured at 0.1-6.0°C? Were cooler temperatures measured at 0.1-6.0°C? $\frac{IR gun}{used*} = \frac{1}{43} = \frac{1}{43}$ $\frac{RAD}{VES} = \frac{VES}{VES}$ $\frac{VES}{VES} = \frac{1}{2} = \frac{3}{2}$ Temperature (°C): No. of custody seals on cooler: No. of custody seals on cooler: External μR/hr reading: $\frac{1}{2} = \frac{1}{2} = \frac{1}{2}$ Were external μR/hr reading: $\frac{1}{3} = \frac{1}{2}$ Were external μR/hr reading: $\frac{1}{3} = \frac{1}{2}$ Were external μR/hr reading: $\frac{1}{3} = \frac{1}{2} = \frac{1}{2} = \frac{1}{2}$ Were external μR/hr reading: $\frac{1}{3} = \frac{1}{2} =$ | NO * |
| Se Were cooler temperatures measured at 0.1-6.0°C? $\begin{array}{c c} IR gun\\ used*: #1 #3 #4 \\ \hline OM \end{array} YES \\ \hline Cooler #: Temperature (°C): No. of custody seals on cooler: No. of custody seals on cooler: No. of custody seals on cooler: External μR/hr reading: Mere external μR/hr reading: Were external μR/hr reading: Were external μR/hr reading: Sector acceptance criteria? TES NO / NA (If no, see Form 008.) Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thru 12, notify PM & continue w/ 1 Sector acceptance for 2 thru 5 & 7 thr$ | NO |
| Were cooler temperatures measured at 0.1-6.0°C? $\begin{array}{c c} IR gun \\ used*: #1 #3 #4 \\ \hline \end{tabular} YES \\ \hline \end{tabular} Cooler #: Temperature (°C): No. of custody seals on cooler: No. of custody seals on cooler: No. of custody seals on cooler: External µR/hr reading: Background µR/hr reading: Were external µR/hr reading: Were external µR/hr reading: Solution: Hease provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/l Solution: Solut$ | NO |
| Temperature (°C): No. of custody seals on cooler: No. of custody seals on cooler: I DOT Survey/ Acceptance Information External μ R/hr reading: IZ IZ Background μ R/hr reading: IZ IZ IZ Were external μ R/hr readings \leq two times background and within DOT acceptance criteria? TESP NO / NA (If no, see Form 008.) Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/I S.) Sample for DUP 12, as the set of thru 12 | (NO |
| No. of custody seals on cooler: $ \begin{array}{c c} $ | |
| No. of custody seals on cooler: $ \begin{array}{c c} $ | |
| DOT Survey Acceptance Information Background μ R/hr reading: <u>2</u> Were external μ R/hr readings \leq two times background and within DOT acceptance criteria? TES NO/NA (If no, see Form 008.) Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ \leq .) \leq ample for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ \leq .) \leq ample for AC = \int | _ |
| $\begin{array}{c c} \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $ | |
| Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? TES NO / NA (If no, see Form 008.) Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ S.) Sample from for DOP 182 Shale a: ~ Settice and 6:20 on COC | |
| Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ S.) sample free for DUP 1RZ state a: ~ Sette and A:20 on COC | |
| 5.) sample times for DUP 182 state ain better and 6:20 on COC | login. |
| | |
| 11.) 22 of 23 bother merguneel ptt of - HNO, meded to be added in varial | |
| 11.) 22 of 23 bother mergunel pt of - HNO, merled to be added in varial | |
| laver in lables to be added in varial | 2.3 |
| | |
| amounts; see continued list for an | $\mathbf{\dot{\mathbf{x}}}$ |
| lileel and anon + by the num's | en |
| | u |
| HNU3 Lot 197345 2 | |
| All client bottle ID's vs ALS lab ID's double-checked b | oy: Y |
| | 27/19/ |
| | t |
| roject Manager Signature / Date: | |

| ALS | ALS Environments CONDITION OF SAMPLE | | |
|------------------|---|------------------|-------------------------|
| (ALS) Client: | Am. west. Analy | Achworkorder No: | 203622 |
| Project Manager: | кмо | Initials: TE | M Date: <u>Rlzul</u> (a |

Additional Information:

Sur of HNO 2: added added Imb of HNDZ: 1-2, 2-2, 5-1, 5-2, 6-2, 9-2, 10-2, 11-1, 11-2, 13-2 ald. - of 4ND3; 1.5. . Le-1, Z-1, B-2, Rol, 10-1, 1-1, 2-1, 3-1, 3-12-1 If applicable, was the client contacted? YES / NO / NA, Contact: Date/Time: 1.1 27/19 Project Manager Signature / Date: _ 0

Page $\frac{1}{2}$ of $\frac{1}{5}$ of 32

Ieda Internet Shipping: View/Print Label

print the label. print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to 1. Ensure there are no other shipping or tracking labels attached to your package. Select the Print button on the

affix the folded label using clear plastic shipping tape over the entire label. 2. Fold the printed label at the solid line below. Place the label in a UPS Shipping Pouch. If you do not have a pouch,

3. GETTING YOUR SHIPMENT TO UPS

Customers with a Daily Pickup

Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Locations' Quick link at ups.com. (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS

Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages.

Hand the package to any UPS driver in your area.

SALT LAKE CITY, UT 84107 S 0097 3 698 **THE UPS STORE** MT Prcess Point

SALT LAKE CITY, UT 84106 UPS Access PointTM

2223 S HIGHLAND DR **EXAMPLE SHORE** FOLD HERE

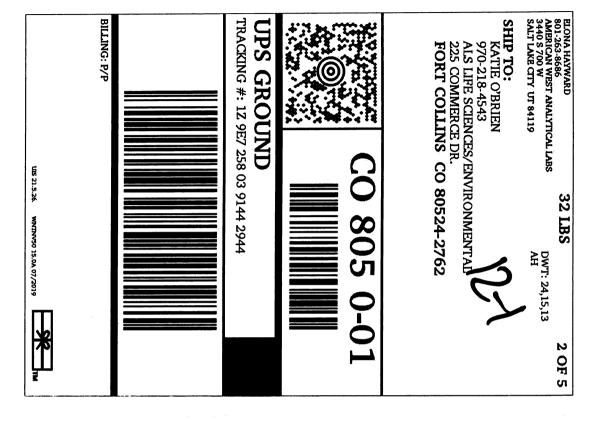
TAYLORSVILLE, UT 84129

S 0027 M 9061

THE UPS STORE

UPS Access Point^{MT}

1900022



Radium-228 Analysis by GFPC PAI 724 Rev 13 Method Blank Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622 Client Name: American West Analytical Labs ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190906-1MB

Sample Matrix: WATER Prep SOP: SOP749 Rev 6 Date Collected: 06-Sep-19 Date Prepared: 06-Sep-19 Date Analyzed: 13-Sep-19 Prep Batch: RA190906-1 QCBatchID: RA190906-1-2 Run ID: RA190906-1A Count Time: 150 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0913

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 15262-20-1 | Ra-228 | 0.29 +/- 0.37 | 0.78 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34200 | 31630 | ug | 92.5 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

 ${\sf U}~$ - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

DL - Decision Level

Radium-228 Analysis by GFPC PAI 724 Rev 13 Method Blank Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622 Client Name: American West Analytical Labs ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190911-1MB

Sample Matrix: WATER Prep SOP: SOP749 Rev 6 Date Collected: 11-Sep-19 Date Prepared: 11-Sep-19 Date Analyzed: 16-Sep-19 Prep Batch: RA190911-1 QCBatchID: RA190911-1-2 Run ID: RA190911-1A Count Time: 150 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0916

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 15262-20-1 | Ra-228 | 0.34 +/- 0.35 | 0.73 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34550 | 33450 | ug | 96.8 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

 ${\sf U}~$ - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

DL - Decision Level

Radium-228 Analysis by GFPC PAI 724 Rev 13 Method Blank Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622 Client Name: American West Analytical Labs ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190912-1MB

Sample Matrix: WATER Prep SOP: SOP749 Rev 6 Date Collected: 12-Sep-19 Date Prepared: 12-Sep-19 Date Analyzed: 17-Sep-19 Prep Batch: RA190912-1 QCBatchID: RA190912-1-1 Run ID: RA190912-1A Count Time: 150 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0917

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|----------------|--------------------|------|------------------|----|------------------|
| 15262-20-1 | Ra-228 | 0.42 +/- 0.37 | 0.75 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34210 | 31150 | ug | 91.1 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

 ${\sf U}~$ - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

DL - Decision Level

PAI 724 Rev 13

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622 Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190906-1LCS

Sample Matrix: WATER Prep SOP: SOP749 Rev 6 Date Collected: 06-Sep-19 Date Prepared: 06-Sep-19 Date Analyzed: 13-Sep-19 Prep Batch: RA190906-1 QCBatchID: RA190906-1-2 Run ID: RA190906-1A Count Time: 30 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0913A

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-----|--------------------|------------------|
| 15262-20-1 | Ra-228 | 15.2 +/- 3.9 | 1.5 | 13.86 | 109 | 70 - 130 | P,M3 |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34200 | 31630 | ug | 92.5 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RA1908622-1

Abbreviations: TPU - Total Propagated Uncertainty

PAI 724 Rev 13

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622 Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190906-1LCSD

Sample Matrix: WATER Prep SOP: SOP749 Rev 6 Date Collected: 06-Sep-19 Date Prepared: 06-Sep-19 Date Analyzed: 13-Sep-19 Prep Batch: RA190906-1 QCBatchID: RA190906-1-2 Run ID: RA190906-1A Count Time: 30 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0913A

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-----|--------------------|------------------|
| 15262-20-1 | Ra-228 | 14.2 +/- 3.7 | 1.6 | 13.86 | 103 | 70 - 130 | P,M3 |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34200 | 31290 | ug | 91.5 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RA1908622-1

TPU - Total Propagated Uncertainty

Abbreviations:

PAI 724 Rev 13

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622 Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190911-1LCS

Sample Matrix: WATER Prep SOP: SOP749 Rev 6 Date Collected: 11-Sep-19 Date Prepared: 11-Sep-19 Date Analyzed: 16-Sep-19 Prep Batch: RA190911-1 QCBatchID: RA190911-1-2 Run ID: RA190911-1A Count Time: 150 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0916

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | % Rec | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-------|--------------------|------------------|
| 15262-20-1 | Ra-228 | 15.5 +/- 3.7 | 0.7 | 13.85 | 112 | 70 - 130 | Р |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34550 | 33430 | ug | 96.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RA1908622-1

Abbreviations:

TPU - Total Propagated Uncertainty

PAI 724 Rev 13

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622 Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190911-1LCSD

Sample Matrix: WATER Prep SOP: SOP749 Rev 6 Date Collected: 11-Sep-19 Date Prepared: 11-Sep-19 Date Analyzed: 16-Sep-19 Prep Batch: RA190911-1 QCBatchID: RA190911-1-2 Run ID: RA190911-1A Count Time: 150 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0916

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | % Rec | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-------|--------------------|------------------|
| 15262-20-1 | Ra-228 | 15.4 +/- 3.6 | 0.7 | 13.85 | 111 | 70 - 130 | Р |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34550 | 32940 | ug | 95.3 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

- Y1 Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.
- H LCS Recovery above upper control limit.
- P LCS Recovery within control limits.
- M The requested MDC was not met.
- M3 The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RA1908622-1

Abbreviations:

TPU - Total Propagated Uncertainty

PAI 724 Rev 13

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622 Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190912-1LCS

Sample Matrix: WATER Prep SOP: SOP749 Rev 6 Date Collected: 12-Sep-19 Date Prepared: 12-Sep-19 Date Analyzed: 17-Sep-19 Prep Batch: RA190912-1 QCBatchID: RA190912-1-1 Run ID: RA190912-1A Count Time: 150 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0917

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | % Rec | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-------|--------------------|------------------|
| 15262-20-1 | Ra-228 | 15.3 +/- 3.6 | 0.7 | 13.85 | 111 | 70 - 130 | Р |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34210 | 33100 | ug | 96.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RA1908622-1

Abbreviations:

TPU - Total Propagated Uncertainty

PAI 724 Rev 13

Laboratory Control Sample(s)

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622 Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

Lab ID: RA190912-1LCSD

Sample Matrix: WATER Prep SOP: SOP749 Rev 6 Date Collected: 12-Sep-19 Date Prepared: 12-Sep-19 Date Analyzed: 17-Sep-19 Prep Batch: RA190912-1 QCBatchID: RA190912-1-1 Run ID: RA190912-1A Count Time: 150 minutes Final Aliquot: 997 ml Result Units: pCi/l File Name: RAC0917

| CASNO | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | % Rec | Contro I Limits | Lab Qualifier |
|------------|-------------------|--------------------|-----|-------------|-------|--------------------|------------------|
| 15262-20-1 | Ra-228 | 14.5 +/- 3.4 | 0.7 | 13.85 | 105 | 70 - 130 | Р |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34220 | 33520 | ug | 98.0 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

- Y1 Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 Chemical Yield outside default limits.
- L LCS Recovery below lower control limit.
- H LCS Recovery above upper control limit.
- P LCS Recovery within control limits.
- M The requested MDC was not met.
- M3 The requested MDC was not met, but thereported activity is greater than the reported MDC.

Data Package ID: RA1908622-1

Abbreviations:

TPU - Total Propagated Uncertainty

PAI 724 Rev 13 Duplicate Sample Results (DER)

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Ra-228

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

15.2 +/- 3.9

| Field ID: Lab ID: R. | A190906-1LCSD | Sample Matrix: WATER Prep SOP: SOP749 Rev 6 Date Collected: 06-Sep-19 Date Prepared: 06-Sep-19 Date Analyzed: 13-Sep-19 | Prep Batch: RA190906-1 QCBatchID: RA190906-1-2 Run ID: RA190906-1A Count Time: 30 minutes | | Final Aliquot: 997 ml Prep Basis: Unfiltered Moisture(%): NA Result Units: pCi/l File Name: RAC0913A | | | |
|-------------------------|---------------|---|--|-----------------------------|--|-------|-----|------------|
| CASNO | Analyte | Sample Result +/- 2 s TPU MDC | Flags | Dupli Result +/- 2 s TPU | cate MDC | Flags | DER | DER Lim |

P,M3

14.2 +/- 3.7

1.5

Comments:

15262-20-1

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

- Y2 Chemical Yield outside default limits.
- W DER is greater than Warning Limit of 1.42
- D DER is greater than Control Limit of 2.13

 $\ensuremath{\mathsf{LT}}\xspace$ - Result is less than Request MDC, greater than sample specific MDC

M - Requested MDC not met.

- M3 The requested MDC was not met, but the reported
- activity is greater than the reported MDC. L - LCS Recovery below lower control limit.
- H LCS Recovery above upper control limit.

- P LCS, Matrix Spike Recovery within control limits.
- N Matrix Spike Recovery outside control limits

Data Package ID: RA1908622-1

Abbreviations:

TPU - Total Propagated Uncertainty

P,M3

1.6

0.18

2.13

DER - Duplicate Error Ratio

BDL - Below Detection Limit

NR - Not Reported

Page 1 of 3

PAI 724 Rev 13 Duplicate Sample Results (DER)

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Ra-228

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

15.5 +/- 3.7

| CASNO | | Date Collected: 11-Sep-19 Date Prepared: 11-Sep-19 Date Analyzed: 16-Sep-19 | ID: RA190911-1A me: 150 minutes | | | DED |
|-------|---------|---|--|------|-----|-----|
| CASNO | Analyte | Sample | Dupl | cate | DER | DER |

Ρ

15.4 +/- 3.6

0.7

Comments:

15262-20-1

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

- Y2 Chemical Yield outside default limits.
- W DER is greater than Warning Limit of 1.42
- D DER is greater than Control Limit of 2.13

LT - Result is less than Request MDC, greater than sample specific MDC

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

Data Package ID: RA1908622-1

Abbreviations:

TPU - Total Propagated Uncertainty

Ρ

0.7

0.0177

2.13

DER - Duplicate Error Ratio

BDL - Below Detection Limit

NR - Not Reported

Page 2 of 3

PAI 724 Rev 13 Duplicate Sample Results (DER)

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Ra-228

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

15.3 +/- 3.6

| Field ID: Lab ID: R | A190912-1LCSD | Sample Matrix: WATER Prep SOP: SOP749 Rev 6 Date Collected: 12-Sep-19 Date Prepared: 12-Sep-19 Date Analyzed: 17-Sep-19 | Prep Batch: RA190912-1 QCBatchID: RA190912-1-1 Run ID: RA190912-1A Count Time: 150 minutes | | hID: RA190912-1-1 Prep Basis: Unf n ID: RA190912-1A Moisture(%): NA | | | |
|------------------------|---------------|---|---|------------------------------|---|-------|-----|------------|
| CASNO | Analyte | Sample Result +/- 2 s TPU MDC | Flags | Duplic Result +/- 2 s TPU | cate | Flags | DER | DER Lim |

Ρ

14.5 +/- 3.4

0.7

Comments:

15262-20-1

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

- Y2 Chemical Yield outside default limits.
- W DER is greater than Warning Limit of 1.42

D - DER is greater than Control Limit of 2.13

LT - Result is less than Request MDC, greater than sample specific MDC

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

Data Package ID: RA1908622-1

Abbreviations:

TPU - Total Propagated Uncertainty

DER - Duplicate Error Ratio

0.7

Ρ

0.157

2.13

BDL - Below Detection Limit

NR - Not Reported

Page 3 of 3

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: E | LF-1D | Sample Matrix: WATER | Prep Batch: RA190906-1 | Final Aliquot: 997 ml |
|-------------------|----------|---------------------------|--------------------------|------------------------|
| | | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190906-1-2 | Prep Basis: Unfiltered |
| Lab ID: 1908622-1 | 908622-1 | Date Collected: 20-Aug-19 | Run ID: RA190906-1A | Moisture(%): NA |
| | | Date Prepared: 06-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0913 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 1.09 | 0.75 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.09 +/- 0.46 | 0.75 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34200 | 32030 | ug | 93.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-2 | Sample Matrix: WATER | Prep Batch: RA190906-1 | Final Aliquot: 997 ml |
|-------------------|---------------------------|--------------------------|------------------------|
| | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190906-1-2 | Prep Basis: Unfiltered |
| Lab ID: 1908622-2 | Date Collected: 20-Aug-19 | Run ID: RA190906-1A | Moisture(%): NA |
| | Date Prepared: 06-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0913 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 1.49 | 0.76 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.17 +/- 0.48 | 0.76 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34200 | 31880 | ug | 93.2 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-3 | Sample Matrix: WATER | Prep Batch: RA190906-1 | Final Aliquot: 997 ml | |
|-------------------|---------------------------|--------------------------|------------------------|--|
| | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190906-1-2 | Prep Basis: Unfiltered | |
| Lab ID: 1908622-3 | Date Collected: 20-Aug-19 | Run ID: RA190906-1A | Moisture(%): NA | |
| | Date Prepared: 06-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0913 | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 3.04 | 0.77 | 1 | NA | |
| 15262-20-1 | Ra-228 | 3.04 +/- 0.85 | 0.77 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34200 | 30880 | ug | 90.3 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-4 | Sample Matrix: WATER | Prep Batch: RA190906-1 | Final Aliquot: 997 ml | |
|-----------|-----------|---------------------------|--------------------------|------------------------|--|
| | 1008622 / | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190906-1-2 | Prep Basis: Unfiltered | |
| Lab ID: | 1908622-4 | Date Collected: 20-Aug-19 | Run ID: RA190906-1A | Moisture(%): NA | |
| | | Date Prepared: 06-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0913 | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.73 | 0.81 | 1 | NA | |
| 15262-20-1 | Ra-228 | 2.39 +/- 0.73 | 0.81 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34890 | 32040 | ug | 91.8 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-5 | Sample Matrix: WATER | Prep Batch: RA190906-1 | Final Aliquot: 997 ml | |
|-----------|-----------|---------------------------|--------------------------|------------------------|--|
| | 1908622-5 | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190906-1-2 | Prep Basis: Unfiltered | |
| Lab ID: | 1908622-5 | Date Collected: 20-Aug-19 | Run ID: RA190906-1A | Moisture(%): NA | |
| | | Date Prepared: 06-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0913 | |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.77 | 0.92 | 1 | NA | |
| 15262-20-1 | Ra-228 | 2.01 +/- 0.69 | 0.92 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34480 | 27040 | ug | 78.4 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-7 | Sample Matrix: WATER | Prep Batch: RA190911-1 | Final Aliquot: 997 ml |
|-------------------|---|--|---|
| Lab ID: 1908622-6 | Prep SOP: SOP749 Rev 6 Date Collected: 20-Aug-19 | QCBatchID: RA190911-1-2 Run ID: RA190911-1A | Prep Basis: Unfiltered Moisture(%): NA |
| | Date Prepared: 11-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0916 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.22 | 0.7 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.67 +/- 0.55 | 0.70 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34550 | 33660 | ug | 97.4 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF- | -8 | Sample Matrix: WATER | Prep Batch: RA190911-1 | Final Aliquot: 997 ml |
|----------------|-----------|---------------------------|--------------------------|------------------------|
| | | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190911-1-2 | Prep Basis: Unfiltered |
| Lab ID: 1908 | 1908622-7 | Date Collected: 20-Aug-19 | Run ID: RA190911-1A | Moisture(%): NA |
| | | Date Prepared: 11-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0916 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.15 | 0.76 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.51 +/- 0.54 | 0.76 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34550 | 33170 | ug | 96.0 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: | ELF-9 | Sample Matrix: WATER | Prep Batch: RA190911-1 | Final Aliquot: 997 ml |
|-----------|-----------|---------------------------|--------------------------|------------------------|
| | | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190911-1-2 | Prep Basis: Unfiltered |
| Lab ID: | 1908622-8 | Date Collected: 20-Aug-19 | Run ID: RA190911-1A | Moisture(%): NA |
| | | Date Prepared: 11-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0916 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 1.5 | 0.74 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.19 +/- 0.48 | 0.74 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34560 | 33150 | ug | 95.9 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-11 | Sample Matrix: WATER | Prep Batch: RA190912-1 | Final Aliquot: 997 ml |
|-------------------|---------------------------|--------------------------|------------------------|
| Lab ID: 1908622-9 | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190912-1-1 | Prep Basis: Unfiltered |
| Lab ID: 1908622-9 | Date Collected: 20-Aug-19 | Run ID: RA190912-1A | Moisture(%): NA |
| | Date Prepared: 12-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0917 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.48 | 0.72 | 1 | NA | |
| 15262-20-1 | Ra-228 | 2.48 +/- 0.72 | 0.72 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34240 | 32480 | ug | 94.9 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-12 | Sample Matrix: WATER | Prep Batch: RA190912-1 | Final Aliquot: 997 ml |
|--------------------|---------------------------|--------------------------|------------------------|
| Lab ID: 1908622-10 | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190912-1-1 | Prep Basis: Unfiltered |
| Lab ID: 1908622-10 | Date Collected: 20-Aug-19 | Run ID: RA190912-1A | Moisture(%): NA |
| | Date Prepared: 12-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0917 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.83 | 0.86 | 1 | NA | |
| 15262-20-1 | Ra-228 | 2.83 +/- 0.83 | 0.86 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34210 | 29040 | ug | 84.9 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-13 | Sample Matrix: WATER | Prep Batch: RA190912-1 | Final Aliquot: 997 ml |
|--------------------|---------------------------|--------------------------|------------------------|
| Lab ID: 1908622-11 | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190912-1-1 | Prep Basis: Unfiltered |
| Lab ID: 1908622-11 | Date Collected: 20-Aug-19 | Run ID: RA190912-1A | Moisture(%): NA |
| | Date Prepared: 12-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0917 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.07 | 0.75 | 1 | NA | |
| 15262-20-1 | Ra-228 | 1.66 +/- 0.57 | 0.75 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34210 | 32790 | ug | 95.8 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: ELF-14 | Sample Matrix: WATER | Prep Batch: RA190912-1 | Final Aliquot: 997 ml | |
|--------------------|---------------------------|--------------------------|------------------------|--|
| Lab ID: 1009000 10 | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190912-1-1 | Prep Basis: Unfiltered | |
| Lab ID: 1908622-12 | Date Collected: 20-Aug-19 | Run ID: RA190912-1A | Moisture(%): NA | |
| | Date Prepared: 12-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0917 | |

| CASNO Target Nuclide | | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|----------------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.69 | 0.83 | 1 | NA | |
| 15262-20-1 | Ra-228 | 2.29 +/- 0.71 | 0.83 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34220 | 30700 | ug | 89.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: DUP | Sample Matrix: WATER | Prep Batch: RA190912-1 | Final Aliquot: 997 ml | |
|--------------------|---------------------------|--------------------------|------------------------|--|
| | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190912-1-1 | Prep Basis: Unfiltered | |
| Lab ID: 1908622-13 | Date Collected: 20-Aug-19 | Run ID: RA190912-1A | Moisture(%): NA | |
| | Date Prepared: 12-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l | |
| | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0917 | |

| CASNO Target Nuclide | | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|----------------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 2.86 | 0.82 | 1 | NA | |
| 15262-20-1 | Ra-228 | 2.86 +/- 0.83 | 0.82 | 1 | NA | |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34210 | 28870 | ug | 84.4 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Radium-228 Analysis by GFPC PAI 724 Rev 13 Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1908622

Client Name: American West Analytical Labs

ClientProject ID: Hunter CCR Groundwater Sampling PERCM052

| Field ID: FB | Sample Matrix: WATER | Prep Batch: RA190912-1 | Final Aliquot: 997 ml |
|--------------------|---------------------------|--------------------------|------------------------|
| Lab ID: 1008622.14 | Prep SOP: SOP749 Rev 6 | QCBatchID: RA190912-1-1 | Prep Basis: Unfiltered |
| Lab ID: 1908622-14 | Date Collected: 20-Aug-19 | Run ID: RA190912-1A | Moisture(%): NA |
| | Date Prepared: 12-Sep-19 | Count Time: 150 minutes | Result Units: pCi/l |
| | Date Analyzed: 18-Sep-19 | Report Basis: Unfiltered | File Name: RAC0917 |

| CASNO | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | DL | Lab Qualifier |
|------------|-----------------------|--------------------|------|------------------|----|------------------|
| | COMBINED RA (226+228) | 0 | 0.73 | 1 | NA | U |
| 15262-20-1 | Ra-228 | 0.64 +/- 0.39 | 0.73 | 1 | NA | U |

Chemical Yield Summary

| Carrier/Tracer | Amount Added | Result | Units | Yield | Control Limits | Flag |
|----------------|--------------|--------|-------|-------|-------------------|------|
| BARIUM | 34210 | 33080 | ug | 96.7 | 40 - 110 % | |

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Sample specific Minimum Detectable Concentration

BDL - Below Detection Limit

DL - Decision Level

Data Package ID: RA1908622-1



PacifiCorp 1407 West North Temple, #280

AMERICAN Salt Lake City, UT 84116

Jeff Tucker

WEST TEL: (801) 220-2989

ANALYTICAL

LABORATORIES RE: Hunter CCR Groundwater Sampling / PERCM052

Dear Jeff Tucker:

Lab Set ID: 1908531

Kyle F. Gross Laboratory Director

American West Analytical Laboratories received sample(s) on 8/21/2019 for the analyses **Jose Rocha** presented in the following report.

QA Officer

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is 3440 South 700 West state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

84119

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any

(801) 263-8686 questions or concerns regarding this report please feel free to call. Toll Free (888) 263-8686

Fax (801) 263-8687 The abbreviation "Surr" found in organic reports indicates a surrogate compound that is awal@awal-labs.com 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 b boratory Director or designee

INORGANIC ANALYTICAL REPORT Client: PacifiCorp Contact: Jeff Tucker Hunter CCR Groundwater Sampling / PERCM052 **Project:** Lab Sample ID: 1908531-001 Client Sample ID: ELF-1D **AMERICAN Collection Date:** 8/20/2019 1330h WEST **Received Date:** 8/21/2019 1445h ANALYTICAL LABORATORIES Analytical Results TOTAL METALS

| | T kinaly treat ites and | | | | | | | |
|--------------------------|-------------------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
| Laboratory Director | Boron | mg/L | 8/22/2019 1045h | 9/3/2019 1237h | E200.7 | 0.500 | 2.19 | |
| Jose Rocha OA Officer | Calcium | mg/L | 8/22/2019 1045h | 8/30/2019 1256h | E200.7 | 10.0 | 366 | |
| | | | | | | | | |

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

Report Date: 9/5/2019 Page 2 of 38

INORGANIC ANALYTICAL REPORT Client: PacifiCorp Contact: Jeff Tucker **Project:** Hunter CCR Groundwater Sampling / PERCM052 1908531-002 Lab Sample ID: Client Sample ID: ELF-2 8/20/2019 1430h WEST **Received Date:** 8/21/2019 1445h ANALYTICAL LABORATORIES Analytical Results TOTAL METALS

| K WIG H (LTOSS | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---------------------|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Boron | mg/L | 8/22/2019 1045h | 9/3/2019 1249h | E200.7 | 0.500 | 3,53 | |
| Jose Rocha | Calcium | mg/L | 8/22/2019 1045h | 8/30/2019 1303h | E200.7 | 10.0 | 414 | |
| QA Officer | | | · . | | | | : | |
| 3440 South 700 West | | | | | · | | | |

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

Salt Lake City, Utah

84119

awal@awal-labs.com

Report Date: 9/5/2019 Page 3 of 38



ANALYTICAL

INORGANIC ANALYTICAL REPORT

Client: PacifiCorp Contact: Jeff Tucker Hunter CCR Groundwater Sampling / PERCM052 **Project:** Lab Sample ID: 1908531-003 AMERICAN Collection Date: 8/20/2019 1315h **Received Date:** 8/21/2019 1445h

LABORATORIES Analytical Results

WEST

TOTAL METALS

| Kyle H (Linge | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|-------------------|-------|------------------|---|----------------|--------------------|----------------------|------|
| Laboratory Director | Boron | mg/L | 8/22/2019 1045h | 9/3/2019 1559h | E200.7 | 5.00 | < 5.00 | |
| Jose Rocha | Calcium | mg/L | 8/22/2019 1045h | 8/30/2019 1305h | E200.7 | 10.0 | 431 | |
| QA Officer | | | | | | ••. | | |
| | | · | | | | | | |
| 3440 South 700 West | | | | | | | | |
| Salt Lake City, Utah 84119 | | | | | | | | |
| | | • | • | | | | | |
| (801) 263-8686 | | | | | | | | |
| Toll Free (888) 263-8686 Fax (801) 263-8687 | | | • | A second sec second second sec | | | | |
| awal@awal-labs.com | • | • | | | | | | |
| | | | | | | | | |
| | • • • • • • • • • | | ••• | | | | | |

Report Date: 9/5/2019 Page 4 of 38

| 0 |
|---|
| ł |

 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052

 Lab Sample ID:
 1908531-004

 Client Sample ID:
 ELF-4

 Collection Date:
 8/20/2019
 1215h

 ANALYTICAL
 8/21/2019
 1445h

LABORATORIES Analytical Results

TOTAL METALS

| Kyle F. Gross | | | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|------------------------------|---------|-------|--------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Boron | | mg/L | 8/22/2019 1045h | 9/3/2019 1301h | E200.7 | 0.500 | 4.98 | |
| Jose Rocha | Calcium | | mg/L | 8/22/2019 1045h | 8/30/2019 1308h | E200.7 | 10.0 | 507 | |
| QA Officer | | | | | | • • | | | |
| | | | | | | | | | |
| 3440 South 700 West | | | | | | | | | |
| Salt Lake City, Utah | | | | | | | | | |
| San Lake City, Utan 84119 | | | | | | | | | |
| 04117 | | | | . | | | | | |
| | | | 1. | · · · · | | • | | | |
| (801) 263-8686 | | | | | | | | | |
| Toll Free (888) 263-8686 | | | 1 | | | | | | |
| Fax (801) 263-8687 | · | · · · | | · • • • | • | | | | · · |
| | | | | | | | | | |
| awal@awal-labs.com | | | | | | | | | |
| | | | · · · | | | | | | |
| | | | | | | | | | |
| ч | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| · . | | | | | | | · | | |
| | | | | | | | | | |

Report Date: 9/5/2019 Page 5 of 38

| | | INORGANIC ANALYTICAL REPORT | |
|--------------------|--------------------------|--|-----|
| | Client: | PacifiCorp Contact: Jeff Tucker | |
| | Project: | Hunter CCR Groundwater Sampling / PERCM052 | |
| | Lab Sample ID: | 1908531-005 | |
| | Client Sample ID: | : ELF-5 | |
| AMERICAN | | 8/20/2019 1130h | |
| WEST ANALYTICAL | Received Date: | 8/21/2019 1445h | |
| LABORATORIES | Analytical Results | s T | ΌΤΑ |

Analytical Results TOTAL METALS

 Date
 Date
 Method
 Reporting
 Analytical

 Compound
 Units
 Prepared
 Analyzed
 Used
 Limit
 Result
 Qua

| Kyle F. Gross | Compound | | Units | Prepared | Analyzed | Used | Limit | Result | Qual |
|---------------------|----------|---------|-------|-----------------|-----------------|--------|-------|--------|------|
| Laboratory Director | Boron | | mg/L | 8/22/2019 1045h | 9/3/2019 1303h | E200.7 | 0.500 | 8.70 | |
| Jose Rocha | Calcium | · · · · | mg/L | 8/22/2019 1045h | 8/30/2019 1310h | E200.7 | 10.0 | 510 | |
| OA 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

Report Date: 9/5/2019 Page 6 of 38

INORGANIC ANALYTICAL REPORT

 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052

 Lab Sample ID:
 1908531-006

 Client Sample ID:
 ELF-7

 Collection Date:
 8/20/2019
 1245h

 ANALLYTICAL
 8/21/2019
 1445h

LABORATORIES Analytical Results

TOTAL METALS

| Kyle F. Gross | Compound | | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---------------------------------|----------|-------------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Boron | an An An | mg/L | 8/22/2019 1045h | 9/3/2019 1306h | E200.7 | 0,500 | 2,24 | |
| Jose Rocha OA Officer | Calcium | · · · | mg/L | 8/22/2019 1045h | 8/30/2019 1318h | E200.7 | 10.0 | 459 | ·· |

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

Report Date: 9/5/2019 Page 7 of 38



ANALYTICAL

INORGANIC ANALYTICAL REPORT

Client: PacifiCorp Contact: Jeff Tucker **Project:** Hunter CCR Groundwater Sampling / PERCM052 1908531-007 Lab Sample ID: AMERICAN Collect 8/20/2019 1032h **Received Date:** 8/21/2019 1445h

LABORATORIES Analytical Results

WEST

TOTAL METALS

| Kyle F. Gross | Compound | | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---------------------|----------|------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Boron | | mg/L | 8/22/2019 1045h | 9/3/2019 1601h | E200.7 | 5.00 | 30.2 | |
| Jose Rocha | Calcium | ···· | mg/L | 8/22/2019 1045h | 8/30/2019 1321h | E200.7 | 10.0 | 566 | |
| 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

Report Date: 9/5/2019 Page 8 of 38

| - | Client: |
|---|----------|
| | Project: |

AMERICAN

ANALYTICAL

INORGANIC ANALYTICAL REPORT

Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1908531-008Client Sample ID:ELF-9Collection Date:8/20/20198/21/20191345h

LABORATORIES Analytical Results

WEST

TOTAL METALS

| Kyle F. Gross | | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|---------|-----------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Boron | mg/L | 8/22/2019 1045h | 9/3/2019 1311h | E200.7 | 0.500 | 1.91 | |
| Jose Rocha | Calcium | mg/L | 8/22/2019 1045h | 8/30/2019 1323h | E200.7 | 10.0 | 57.7 | |
| 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 | * e | · · · | | | | | | |

INORGANIC ANALYTICAL REPORT Client: PacifiCorp Contact: Jeff Tucker Hunter CCR Groundwater Sampling / PERCM052 **Project:** Lab Sample ID: 1908531-009 AMERICAN Collection 8/20/2019 926h WEST **Received Date:** 8/21/2019 1445h ANALYTICAL LABORATORIES Analytical Results TOTAL METALS

| Kyle F. Gross | Compound Units Prepa | | Date Date Prepared Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------|------------------------------|---------------------------------|--|----------------|--------------------|----------------------|------|
| Laboratory Director | Boron | mg/L | 8/22/2019 1045h 9/3/2019 1313h | E200.7 | 0.500 | 17.8 | |
| Jose Rocha | Calcium mg/L 8/22/2019 10451 | 8/22/2019 1045h 8/30/2019 1325h | E200.7 | 10.0 | 442 | | |
| QA Officer | | | ······································ | ······ | | | |
| | | | | | | | |
| 3440 South 700 West | : | | | | • | | |
| Salt Lake City, Utah | L | | | | | | |
| 84119 | 1 | | | | | | |

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 10 of 38

| | Client: | PacifiCorp | | | | Contact: | Jeff Tucker | |
|-------------|-------------------------|------------|-----------|---------------|-------|----------|-------------|--|
| | Project: | Hunter CCI | R Groundw | ater Sampling | PERCM | [052 | | |
| | Lab Sample ID: | 1908531-01 | 10 | | | | | |
| | Client Sample ID: | ELF-12 | | | | | | |
| AIVIEKICAIN | Collection Date: | 8/20/2019 | 1215h | | | | | |
| ANALYTICAL | Received Date: | 8/21/2019 | 1445h | | | | | |
| PODATODICC | | | | | | | | |

LABORATORIES Analytical Results

TOTAL METALS

| Kyle F. Gross | | | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---------------------|---------|---|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Boron | ¢ | mg/L | 8/22/2019 1045h | 9/3/2019 1316h | E200.7 | 0.500 | 1.68 | |
| Jose Rocha | Calcium | | mg/L | 8/22/2019 1045h | 8/30/2019 1327h | E200.7 | 10.0 | 169 | |
| 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

Report Date: 9/5/2019 Page 11 of 38



PacifiCorp Contact: Jeff Tucker Hunter CCR Groundwater Sampling / PERCM052 Lab Sample ID: 1908531-011 AMERICAN Client Sample ID: ELF-13 8/20/2019 1130h **Received Date:** 8/21/2019 1445h

ANALYTICAL LABORATORIES Analytical Results

WEST

TOTAL METALS

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|----------|-------|---|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Boron | mg/L | 8/22/2019 1045h | 9/3/2019 1318h | E200.7 | 0.500 | 0.732 | |
| Jose Rocha | Calcium | mg/L | 8/22/2019 1045h | 8/30/2019 1330h | E200.7 | 10.0 | 461 | |
| QA Officer | | | | | | · · · · · · | | |
| | | | | | | | | |
| 3440 South 700 West | | | | | | | | |
| Salt Lake City, Utah | | | | | | | | |
| 84119 | | | | | | | | |
| | | | | | | | | |
| (801) 263-8686 | | | | | | | | |
| Toll Free (888) 263-8686 | | | e National de la companya de la company | · | | | | |

Fax (801) 263-8687

awal@awal-labs.com

INORGANIC ANALYTICAL REPORT Client: PacifiCorp Contact: Jeff Tucker Hunter CCR Groundwater Sampling / PERCM052 **Project:** Lab Sample ID: 1908531-012 Client Sample ID: ELF-14 AMERICAN **Collection Date:** 8/20/2019 1045h WEST **Received Date:** 8/21/2019 1445h ANALYTICAL LABORATORIES Analytical Results

TOTAL METALS

| Kyle F. Gross | Compound | - | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---------------------------------|----------|---|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Boron | | mg/L | 8/22/2019 1045h | 9/3/2019 1320h | E200.7 | 0.500 | 3.09 | |
| Jose Rocha OA Officer | Calcium | | mg/L | 8/22/2019 1045h | 8/30/2019 1332h | E200.7 | 10.0 | 496 | • |

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

Report Date: 9/5/2019 Page 13 of 38

| | | INORGANIC ANALY | TICAL F | <u>REPORT</u> |
|--------------|--------------------------|--------------------------------------|----------|---------------|
| | Client: | PacifiCorp | Contact: | Jeff Tucker |
| | Project: | Hunter CCR Groundwater Sampling / PE | RCM052 | |
| | Lab Sample ID: | 1908531-013 | | |
| | Client Sample ID: | DUP | | |
| AMERICAN | Collection Date: | 8/20/2019 920h | | |
| WEST | Received Date: | 8/21/2019 1445h | | |
| LABORATORIES | Analytical Results | | | TOTAL METALS. |

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--|----------|-------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Boron | mg/L | 8/22/2019 1045h | 9/3/2019 1323h | E200.7 | 0.500 | 18.5 | |
| Jose Rocha | Calcium | mg/L | 8/22/2019 1045h | 8/30/2019 1334h | E200.7 | 10.0 | 449 | |
| 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

Inorganic analytical REPort Client: PacifiCorp Contact: Jeff Tucker Project: Hunter CCR Groundwater Sampling / PERCM052 Lab Sample ID: 1908531-014 Client Sample ID: FB Collection Date: 8/20/2019 1445h

WEST Received Date: 8/21/2019 1445h ANALYTICAL

LABORATORIES Analytical Results

84119

TOTAL METALS

| Kyle F. Gross | Compound | | Date Units Prepared | | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|----------|-----------|------------------------|------------------|------------------|----------------|--------------------|----------------------|-----------|
| Laboratory Director | Boron | · · · · · | mg/L | -8/22/2019 1045h | 9/3/2019 1338h | E200.7 | 0.500 | < 0.500 | |
| Jose Rocha QA Officer | Calcium | | mg/L | 8/22/2019 1045h | 9/3/2019 1338h | E200.7 | 1.00 | < 1.00 | . <u></u> |
| 3440 South 700 West Salt Lake City, Utah | | | | | | | | | |

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 15 of 38

Client: Project:

INORGANIC ANALYTICAL REPORT

PacifiCorp Contact: Jeff Tucker Hunter CCR Groundwater Sampling / PERCM052 1908531-001 Lab Sample ID: Client Sample ID: ELF-1D AMERICAN Collection Date: 8/20/2019 1330h 8/21/2019 1445h

ANALYTICAL LABORATORIES Analytical Results

WEST

Received Date:

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---------------------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Chloride | mg/L | | 8/30/2019 1909h | E300,0 | 100 | 6,430 | |
| Jose Rocha | Fluoride | mg/L | | 9/3/2019 2014h | E300.0 | 0.200 | < 0.200 | * |
| | рН @ 25° С | pH Units | | 8/21/2019 1832h | SM4500-H+B | 1.00 | 7.27 | Н |
| | Sulfate | mg/L | | 8/30/2019 1909h | E300.0 | 750 | 8,640 | |
| 3440 South 700 West | Total Dissolved Solids | mg/L | | 8/22/2019 1120h | SM2540C | 100 | 27,000 | |

Salt Lake City, Utah * - The reporting limits were raised due to sample matrix interferences.

84119 H - Sample was received outside of the holding time.

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 16 of 38



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1908531-002Client Sample ID:ELF-2Collection Date:8/20/2019ANALYTICAL8/21/2019

LABORATORIES Analytical Results

| Kyle F. Gross | Compound | | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----------------------|-----------------|--------|-------------------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Chloride | | mg/L | | 8/31/2019 150h | E300.0 | 10.0 | 218 | |
| Jose Rocha | Fluoride | | mg/L · | | 8/31/2019 403h | E300.0 | 0.100 | < 0.100 | |
| | рН @ 25° С | | pH Units | | 8/21/2019 1832h | SM4500-H+B | 1.00 | 7.43 | Η |
| ·*** | Sulfate | | mg/L | · · · · · · · | 8/30/2019 1926h | E300.0 | 750 | 6,780 | ÷., |
| 3440 South 700 West | Total Dissolved | Solids | mg/L | | 8/22/2019 1120h | SM2540C | 100 | 12,600 | ÷ . |
| Calt Lake City Hitch | | | de of the holding | na timo | | | | | |

Salt Lake City, Utah H - Sample was received outside of the holding time. 84119

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 17 of 38

Client: PacifiCorp Contact: Jeff Tucker Hunter CCR Groundwater Sampling / PERCM052 **Project:** Lab Sample ID: 1908531-003 AMERICAN Collection Date: Client Sample ID: ELF-3 8/20/2019 1315h **Received Date:** 8/21/2019 1445h

ANALYTICAL LABORATORIES Analytical Results

WEST

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---------------------|------------------------|----------|-------------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Chloride | mg/L | · · · | 8/31/2019 207h | E300.0 | 10.0 | 642 | |
| Jose Rocha | Fluoride | mg/L | | 9/3/2019 2031h | E300.0 | 0.400 | < 0.400 | * |
| | рН @ 25° С | pH Units | | 8/21/2019 1832h | SM4500-H+B | 1.00 | 7.79 | Н |
| - 1 26 - 1 | Sulfate | mg/L | | 9/3/2019 1140h | E300.0 | 3,750 | 32,000 | |
| 3440 South 700 West | Total Dissolved Solids | mg/L | · · · · · · · · · · · · | 8/22/2019 1120h | SM2540C | 500 | 50,400 | î |

Salt Lake City, Utah * - The reporting limits were raised due to sample matrix interferences.

84119 H - Sample was received outside of the holding time.

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com



AMERICAN

INORGANIC ANALYTICAL REPORT

Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1908531-004Client Sample ID:ELF-4Collection Date:8/20/20191215hReceived Date:8/21/20191445h

ANALYTICAL Received Date: LABORATORIES Analytical Results

WEST

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|-------------------------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Chloride | mg/L | | 8/30/2019 2230h | E300.0 | 100 | 1,840 | |
| Jose Rocha | Fluoride | mg/L | | 8/31/2019 437h | E300.0 | 0.100 | 0.941 | |
| QA Officer | pH @ 25° C | pH Units | | 8/21/2019 1832h | SM4500-H+B | 1.00 | 7.22 | H |
| | Sulfate | mg/L | | 8/30/2019 2230h | E300.0 | 750 | 4,890 | |
| 3440 South 700 West | Total Dissolved Solids | mg/L | · •. | 8/22/2019 1120h | SM2540C | 100 | 12,200 | |

Salt Lake City, Utah H - Sample was received outside of the holding time. 84119

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 19 of 38

AMERICAN

INORGANIC ANALYTICAL REPORT

 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052
 1908531-005

 Lab Sample ID:
 1908531-005
 1908531-005

 Client Sample ID:
 ELF-5
 1908531-005

 Collection Date:
 8/20/2019
 1130h

 Received Date:
 8/21/2019
 1445h

ANALYTICAL Received Date: LABORATORIES Analytical Results

WEST

| | Kyle F. Gross | | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|----|---------------------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|-------|
| | Laboratory Director | Chloride | mg/L | • | 8/30/2019 2246h | E300.0 | 200 | 4,440 | |
| | Jose Rocha | Fluoride | mg/L | | 8/31/2019 454h | E300.0 | 0.100 | 0.962 | |
| | QA Officer | рН @ 25° С | pH Units | | 8/21/2019 1832h | SM4500-H+B | 1.00 | 7.23 | Н |
| | r = 1 + 1 | Sulfate | mg/L, | · . | 8/30/2019 2246h | E300.0 | 1,500 | 12,300 | |
| È. | 3440 South 700 West | Total Dissolved Solids | mg/L | | 8/22/2019 1120h | SM2540C | 500 | 24,000 | . · · |

Salt Lake City, Utah H - Sample was received outside of the holding time. 84119

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 20 of 38



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1908531-006Client Sample ID:ELF-7Collection Date:8/20/20198/21/20191245h

AMERICAN WEST ANALYTICAL LABORATORIES Analytical Results

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---------------------|------------------------|----------|---|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | | mg/L | | 8/30/2019 2303h | E300.0 | 100 | 2,720 | |
| Jose Rocha | Fluoride | mg/L | | 8/31/2019 510h | E300.0 | 0.100 | 3.88 | |
| QA Officer | pH @ 25° C | pH Units | | 8/21/2019 1832h | SM4500-H+B | 1.00 | 7.19 | н |
| | Sulfate | mg/L | • | 8/30/2019 2303h | E300.0 | 750 | 9,480 | |
| 3440 South 700 West | Total Dissolved Solids | mg/L | - · · · · · · · · · · · · · · · · · · · | 8/22/2019 1120h | SM2540C | 100 | 19,500 | |

Salt Lake City, Utah H - Sample was received outside of the holding time. 84119

041

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 21 of 38



PacifiCorp Contact: Jeff Tucker Hunter CCR Groundwater Sampling / PERCM052 1908531-007 Client Sample ID: ELF-8 8/20/2019 1032h 8/21/2019 1445h

Received Date: ANALYTICAL

AMERICAN

LABORATORIES Analytical Results

WEST

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---------------------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Chloride | mg/L | | 8/30/2019 2320h | E300.0 | 100 | 1,920 | |
| Jose Rocha | Fluoride | mg/L | | 8/31/2019 527h | E300.0 | 0.100 | < 0.100 | |
| QA Officer | pH @ 25° C | pH Units | | 8/21/2019 1832h | SM4500-H+B | 1.00 | 7.41 | н |
| | Sulfate | mg/L | | 8/30/2019 2320h | E300.0 | 750 | 3,130 | |
| 3440 South 700 West | Total Dissolved Solids | mg/L | · · · . · | 8/22/2019 1120h | SM2540C | 100 | 8,240 | |
| | | | | | | | | |

Salt Lake City, Utah H - Sample was received outside of the holding time.

Collection Date:

84119

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 22 of 38

INORGANIC ANALYTICAL REPORT

 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052

 Lab Sample ID:
 1908531-008

 Client Sample ID:
 ELF-9

 Collection Date:
 8/20/2019
 1345h

 Received Date:
 8/21/2019
 1445h

LABORATORIES Analytical Results

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Chloride | mg/L | | 8/31/2019 223h | E300.0 | 10.0 | 371 | |
| Jose Rocha | Fluoride | mg/L | | 9/3/2019 2048h | E300.0 | 0.200 | < 0.200 | * |
| QA Officer | pH @ 25° C | pH Units | | 8/21/2019 1832h | SM4500-H+B | 1.00 | 7.51 | H |
| ugen in de la companya de la company | Sulfate | mg/L | | 8/30/2019 2336h | E300.0 | 750 | 5,930 | • |
| 3440 South 700 West | Total Dissolved Solids | mg/L | • • • | 8/22/2019 1120h | SM2540C | 100 | 10,700 | |

Salt Lake City, Utah * - The reporting limits were raised due to sample matrix interferences.

84119 H - Sample was received outside of the holding time.

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 23 of 38



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1908531-009Client Sample ID:ELF-11Collection Date:8/20/2019926hReceived Date:8/21/20191445h

AMERICAN WEST ANALYTICAL LABORATORIES Analytical Results

| | Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---------------------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| | Laboratory Director | Chloride | mg/L | | 9/3/2019 1231h | E300.0 | 100 | 1,010 | |
| | Jose Rocha | Fluoride | mg/L . | | 8/31/2019 600h | E300.0 | 0.100 | < 0.100 | |
| | QA Officer | рН @ 25° С | pH Units | | 8/21/2019 1832h | SM4500-H+B | 1.00 | 8.02 | н |
| Ş | | Sulfate | mg/L | · · · | 9/3/2019 1231h | E300.0 | 750 | 9,910 | |
| | 3440 South 700 West | Total Dissolved Solids | mg/L | | 8/22/2019 1120h | SM2540C | 100 | 17,000 | |

Salt Lake City, Utah H - Sample was received outside of the holding time.

84119

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 24 of 38



Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1908531-010Client Sample ID:ELF-12Collection Date:8/20/20191215hReceived Date:8/21/20191445h

AMERICAN WEST ANALYTICAL LABORATORIES Analytical Results

Date Date Method Reporting Analytical Compound Units Prepared Analyzed Used Limit Result Qual **Kyle F. Gross** Laboratory Director Chloride 8/31/2019 240h E300.0 10.0 428 mg/L Jose Rocha Fluoride mg/L 8/31/2019 617h E300.0 0.100 < 0.100 QA Officer pH @ 25° C pH Units 1.00 8/21/2019 1832h SM4500-H+B 7.73 Η Sulfate mg/L 1,500 8/31/2019 010h E300.0 11,400 3440 South 700 West Total Dissolved Solids mg/L 8/22/2019 1120h SM2540C 100 19,900

Salt Lake City, Utah H - Sample was received outside of the holding time. 84119

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 25 of 38

 Client:
 PacifiCorp
 Contact:
 Jeff Tucker

 Project:
 Hunter CCR Groundwater Sampling / PERCM052

 Lab Sample ID:
 1908531-011

 Client Sample ID:
 ELF-13

 Collection Date:
 8/20/2019
 1130h

 ANALYTICAL
 8/21/2019
 1445h

LABORATORIES Analytical Results

| Kyle F. Gross | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---------------------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Chloride | mg/L | • . • | 8/31/2019 026h | E300.0 | 100 | 2,420 | |
| Jose Rocha | Fluoride | mg/L | | 8/31/2019 707h | E300.0 | 0.100 | 0.798 | |
| QA Officer | рН @ 25° С | pH Units | | 8/21/2019 1832h | SM4500-H+B | 1.00 | 7.25 | н |
| | Sulfate | mg/L | | 8/31/2019 026h | E300.0 | 750 | 7,370 | |
| 3440 South 700 West | Total Dissolved Solids | mg/L | n etti si ta | 8/22/2019 1120h | SM2540C | 100 | 17,300 | |

Salt Lake City, Utah H - Sample was received outside of the holding time.

84119

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 26 of 38

LABORATORIES Analytical Results

| Kyle F. Gross | | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|--------------------------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Chloride | mg/L | | 8/31/2019 043h | E300.0 | 100 | 3,640 | · |
| Jose Rocha | Fluoride | mg/L | | 8/31/2019 724h | E300.0 | 0.100 | 0.589 | |
| QA Officer | рН @ 25° С | pH Units | | 8/21/2019 2005h | SM4500-H+B | 1.00 | 7.49 | н |
| | Sulfate | mg/L | · | 8/31/2019 043h | E300.0 | 750 | 7,280 | 4 |
| , 3440 South 700 West | Total Dissolved Solids | mg/L | | 8/22/2019 1120h | SM2540C | 100 | 19,800 | • |

Salt Lake City, Utah H - Sample was received outside of the holding time.

84119

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 27 of 38



AMERICAN

ANALYTICAL

INORGANIC ANALYTICAL REPORT

Client:PacifiCorpContact:Jeff TuckerProject:Hunter CCR Groundwater Sampling / PERCM052Lab Sample ID:1908531-013Client Sample ID:DUPCollection Date:8/20/20198/21/20191445h

LABORATORIES Analytical Results

WEST

| | Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Oual |
|--------------------------------------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| Kyle F. Gross Laboratory Director | | mg/L | · • | 9/3/2019 1248h | E300.0 | 100 | 1,010 | |
| Jose Rocha | | mg/L | | 8/31/2019 741h | E300.0 | 0.100 | < 0.100 | • |
| QA Officer | рН @ 25° С | pH Units | | 8/21/2019 2005h | SM4500-H+B | 1.00 | 7.47 | н |
| | Sulfate | mg/L | | 9/3/2019 1248h | E300.0 | 750 | 9,900 | |
| 3440 South 700 West | Total Dissolved Solids | mg/L | | 8/22/2019 1120h | SM2540C | 100 | 18,000 | · |

Salt Lake City, Utah H - Sample was received outside of the holding time.

84119

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

Report Date: 9/5/2019 Page 28 of 38



Client: PacifiCorp Contact: Jeff Tucker **Project:** Hunter CCR Groundwater Sampling / PERCM052 1908531-014 Lab Sample ID: AMERICAN Client Sample ID: FB **Collection Date:** 8/20/2019 1445h **Received Date:** 8/21/2019 1445h

ANALYTICAL LABORATORIES Analytical Results

WEST

| Kyle F. Gross | | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|-------------------------|------------------------|----------|------------------|------------------|----------------|--------------------|----------------------|------|
| Laboratory Director | Chloride | mg/L | | 8/30/2019 1819h | E300.0 | 0.100 | < 0.100 | |
| Jose Rocha | Fluoride | mg/L | | 8/30/2019 1819h | E300.0 | 0.100 | < 0.100 | |
| QA Officer | рН @ 25° С | pH Units | | 8/21/2019 2005h | SM4500-H+B | 1.00 | 8.20 | н |
| | Sulfate | mg/L | | 8/30/2019 1819h | E300.0 | 0.750 | < 0.750 | |
| 3440 South 700 West | Total Dissolved Solids | mg/L | | 8/22/2019 1120h | SM2540C | 10.0 | < 10.0 | |

Salt Lake City, Utah H - Sample was received outside of the holding time.

84119

(801) 263-8686 Toll Free (888) 263-8686 Fax (801) 263-8687

awal@awal-labs.com

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

awal@awal-labs com

Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| Lab Set ID: | | dwater Sampling / PP | ERCM052 | | | | Contact:Jeff TuckerDept:MEQC 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 Test Code: | EXECS-64604 200.7-W | Date Analyzed: Date Prepared: | 08/30/20 08/22/20 | | , | | | | | | | | | |
| Calcium | | 9.81 | mg/L | E200.7 | 0.102 | 1.00 | 10.00 | 0 | 98.1 | 85 - 115 | | | | |
| Lab Sample ID Test Code: | EXECS-64604 200.7-W | Date Analyzed: Date Prepared: | 09/03/20 08/22/20 | | | | | | | | | | | |
| Boron | | 1.08 | mg/L | E200.7 | 0.114 | 0.500 | 1.000 | 0 | 108 | 85 - 115 | | | | |

Report Date: 9/5/2019 Page 30 of 38

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 awal@awal-labs.com

Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| Client: Lab Set ID: Project: | PacifiCorp 1908531 Hunter CCR Ground | iwater Sampling / Pl | ERCM052 | 2 | | | Contact Dept: QC Typ | : Jeff Tuck ME e: MBLK | er | | | | | |
|------------------------------------|--|----------------------------------|---------|----------------------|-------|--------------------|----------------------------|------------------------------|------|--------|-----------------|-------|--------------|------|
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample I Test Code: | D: MB-64604 200.7-W | Date Analyzed: Date Prepared: | | 19 1252h 19 1045h | | <u> </u> | | | - | | | | | |
| Calcium | | < 1.00 | mg/L | E200.7 | 0.102 | 1.00 | | | | | | | | |
| Lab Sample I Test Code: | D: MB-64604 200.7-W | Date Analyzed: Date Prepared: | | 19 1232h 19 1045h | | | | | | | | | | |
| Boron | • | < 0.500 | mg/L | E200.7 | 0.114 | 0.500 | | | | • | | | | |

Report Date: 9/5/2019 Page 31 of 38

| [- | |
|------------|--|

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 awal@awal-labs.com Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| Client: | PacifiCorp | | | Contact: | Jeff Tucker | | |
|------------|--|---|-----------|-----------------|-------------|----------|-----|
| Lab Set ID | : 1908531 | | | Dept: | ME | | |
| Project: | Hunter CCR Groundwater Sampling / PERCM052 | • | | QC Type: | MS | | |
| · | · · · | | Reporting | Amount | Snike Ref. | RPD Ref. | RPD |

| | Result | Units | Method | MDL | Limit | Spiked | Amount | %REC | Limits | Amt | % RPD | Limit | Qual |
|----------------------------------|--|--|---|---|---|--|--|--|--|---|--|--|---|
| 1908531-001BMS 200.7-W | Date Analyzed: Date Prepared: | | | | | | | | | | · · · · · · · · · · · · · · · · · · · | | |
| | 390 | mg/L | E200.7 | 1.02 | 10.0 | 10.00 | 366 | 244 | 70 - 130 | | | | 1 |
| 1908531-001BMS 200.7-W | Date Prepared: | 08/22/201 | 9 1045h | 0.114 | 0.500 | 1.000 | 2.10 | 100 | | ····· | · · · · · · · | · · · · · | |
| 1000521 01 (D) // | | | | 0.114 | 0.500 | 1.000 | 2.19 | 120 | 70 - 130 | | | | |
| 200.7-W | Date Analyzed: Date Prepared: | | | | | <u>.</u> | | | | | | | |
| | 1.12 10.3 | mg/L mg/L | E200.7 E200.7 | 0.114 0.102 | 0.500 1.00 | 1.000 | 0 • 0 | 112 103 | 70 - 130 70 - 130 | | | | |
| | 200.7-W 1908531-001BMS 200.7-W 1908531-014BMS | 1908531-001BMS Date Analyzed: 200.7-W Date Prepared: 390 390 1908531-001BMS Date Analyzed: 200.7-W Date Prepared: 390 390 1908531-001BMS Date Analyzed: 200.7-W Date Prepared: 3.39 390 1908531-014BMS Date Analyzed: 200.7-W Date Prepared: 1.12 1.12 | 1908531-001BMS Date Analyzed: 08/30/201 200.7-W Date Prepared: 08/22/201 390 mg/L 1908531-001BMS Date Analyzed: 09/03/201 200.7-W Date Prepared: 08/22/201 1908531-001BMS Date Analyzed: 09/03/201 200.7-W Date Prepared: 08/22/201 3.39 mg/L 1908531-014BMS Date Analyzed: 09/03/201 200.7-W Date Prepared: 08/22/201 08/22/201 1908531-014BMS Date Analyzed: 09/03/201 200.7-W 112 mg/L | 1908531-001BMS Date Analyzed: 08/30/2019 1258h 200.7-W Date Prepared: 08/22/2019 1045h 390 mg/L E200.7 1908531-001BMS Date Analyzed: 09/03/2019 1244h 200.7-W Date Prepared: 08/22/2019 1045h 1908531-001BMS Date Analyzed: 09/03/2019 1244h 200.7-W Date Prepared: 08/22/2019 1045h 1908531-014BMS Date Analyzed: 09/03/2019 1340h 200.7-W Date Prepared: 08/22/2019 1045h 112 mg/L E200.7 | 1908531-001BMS Date Analyzed: 08/30/2019 1258h 200.7-W Date Prepared: 08/22/2019 1045h 390 mg/L E200.7 1908531-001BMS Date Analyzed: 09/03/2019 1244h 200.7-W Date Analyzed: 09/03/2019 1244h 200.7-W Date Prepared: 08/22/2019 1045h 3.39 mg/L E200.7 0.114 09/03/2019 1340h 200.7-W Date Analyzed: 09/03/2019 1340h 200.7-W Date Prepared: 08/22/2019 1045h 1.102 mg/L E200.7 0.114 | Result Units Method MDL Limit 1908531-001BMS Date Analyzed: 08/30/2019 1258h | Result Units Method MDL Limit Spiked 1908531-001BMS Date Analyzed: 08/30/2019 1258h <td>Result Units Method MDL Limit Spiked Amount 1908531-001BMS Date Analyzed: 08/30/2019 1258h 08/22/2019 1045h <td< td=""><td>Result Units Method MDL Limit Spiked Amount %REC 1908531-001BMS Date Analyzed: 08/30/2019 1258h 08/22/2019 1045h</td><td>Result Units Method MDL Limit Spiked Amount %REC Limits 1908531-001BMS Date Analyzed: 08/30/2019 1258h 08/22/2019 1045h</td><td>1908531-001BMS Date Analyzed: 08/30/2019 1258h 200.7-W Date Prepared: 08/22/2019 1045h 390 mg/L E200.7 1.02 10.0 10.00 366 244 70 - 130 1908531-001BMS Date Analyzed: 09/03/2019 1244h E200.7 1.02 10.00 10.00 366 244 70 - 130 1908531-001BMS Date Analyzed: 09/03/2019 1244h E200.7 0.114 0.500 1.000 2.19 120 70 - 130 1908531-014BMS Date Analyzed: 09/03/2019 1340h 0.500 1.000 2.19 120 70 - 130 1908531-014BMS Date Prepared: 08/22/2019 1340h 0.500 1.000 0 112 70 - 130</td><td>Result Units Method MDL Limit Spiked Amount %REC Limits Amt % RPD 1908531-001BMS 200.7-W Date Analyzed: 08/30/2019 1258h 08/22/2019 1045h 08/30/2019 1258h </td><td>Result Units Method MDL Limit Spiked Amount %REC Limits Amt % RPD Limit 1908531-001BMS Date Analyzed: 08/30/2019 1258h 08/30/2019 1045h -</td></td<></td> | Result Units Method MDL Limit Spiked Amount 1908531-001BMS Date Analyzed: 08/30/2019 1258h 08/22/2019 1045h <td< td=""><td>Result Units Method MDL Limit Spiked Amount %REC 1908531-001BMS Date Analyzed: 08/30/2019 1258h 08/22/2019 1045h</td><td>Result Units Method MDL Limit Spiked Amount %REC Limits 1908531-001BMS Date Analyzed: 08/30/2019 1258h 08/22/2019 1045h</td><td>1908531-001BMS Date Analyzed: 08/30/2019 1258h 200.7-W Date Prepared: 08/22/2019 1045h 390 mg/L E200.7 1.02 10.0 10.00 366 244 70 - 130 1908531-001BMS Date Analyzed: 09/03/2019 1244h E200.7 1.02 10.00 10.00 366 244 70 - 130 1908531-001BMS Date Analyzed: 09/03/2019 1244h E200.7 0.114 0.500 1.000 2.19 120 70 - 130 1908531-014BMS Date Analyzed: 09/03/2019 1340h 0.500 1.000 2.19 120 70 - 130 1908531-014BMS Date Prepared: 08/22/2019 1340h 0.500 1.000 0 112 70 - 130</td><td>Result Units Method MDL Limit Spiked Amount %REC Limits Amt % RPD 1908531-001BMS 200.7-W Date Analyzed: 08/30/2019 1258h 08/22/2019 1045h 08/30/2019 1258h </td><td>Result Units Method MDL Limit Spiked Amount %REC Limits Amt % RPD Limit 1908531-001BMS Date Analyzed: 08/30/2019 1258h 08/30/2019 1045h -</td></td<> | Result Units Method MDL Limit Spiked Amount %REC 1908531-001BMS Date Analyzed: 08/30/2019 1258h 08/22/2019 1045h | Result Units Method MDL Limit Spiked Amount %REC Limits 1908531-001BMS Date Analyzed: 08/30/2019 1258h 08/22/2019 1045h | 1908531-001BMS Date Analyzed: 08/30/2019 1258h 200.7-W Date Prepared: 08/22/2019 1045h 390 mg/L E200.7 1.02 10.0 10.00 366 244 70 - 130 1908531-001BMS Date Analyzed: 09/03/2019 1244h E200.7 1.02 10.00 10.00 366 244 70 - 130 1908531-001BMS Date Analyzed: 09/03/2019 1244h E200.7 0.114 0.500 1.000 2.19 120 70 - 130 1908531-014BMS Date Analyzed: 09/03/2019 1340h 0.500 1.000 2.19 120 70 - 130 1908531-014BMS Date Prepared: 08/22/2019 1340h 0.500 1.000 0 112 70 - 130 | Result Units Method MDL Limit Spiked Amount %REC Limits Amt % RPD 1908531-001BMS 200.7-W Date Analyzed: 08/30/2019 1258h 08/22/2019 1045h 08/30/2019 1258h | Result Units Method MDL Limit Spiked Amount %REC Limits Amt % RPD Limit 1908531-001BMS Date Analyzed: 08/30/2019 1258h 08/30/2019 1045h - |

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

Report Date: 9/5/2019 Page 32 of 38

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

awal@awal-labs com

Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

Client:PacifiCorpContact:Jeff TuckerLab Set ID:1908531Dept:MEProject:Hunter CCR Groundwater Sampling / PERCM052QC 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: Test Code: | 1908531-001BMSD 200.7-W | Date Analyzed: Date Prepared: | 08/30/201 08/22/201 | | | | | ÷ | | | | | | |
| Calcium | | 377 | mg/L | E200.7 | 1.02 | 10.0 | 10.00 | 366 | 108 | 70 - 130 | 390 | 3.56 | 20 | |
| Lab Sample ID: Test Code: | 1908531-001BMSD 200.7-W | Date Analyzed: Date Prepared: | 09/03/201 08/22/201 | | | | | - | | | | | | |
| Boron | | 3.40 | mg/L | E200.7 | 0.114 | 0.500 | 1.000 | 2.19 | 121 | 70 - 130 | 3.39 | 0.495 | .20 | |
| Lab Sample ID: Test Code: | 1908531-014BMSD 200.7-W | Date Analyzed: Date Prepared: | 09/03/201 08/22/201 | | | | | | | | | | • | |
| Boron Calcium | | 1.10 10.2 | mg/L mg/L | E200.7 E200.7 | 0.114 0.102 | 0.500 1.00 | 1.000 10.00 | 0 • 0 | 110 102 | 70 - 130 70 - 130 | 1.12 10.3 | 1.52 1.40 | 20 20 | |

Report Date: 9/5/2019 Page 33 of 38

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

awal@awal-labs com

Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| Client: P Lab Set ID: 1 | PacifiCorp 908531 | | | | | | Contact: Dept: | Jeff Tucker WC | | | | | · |
|------------------------------|---------------------------------------|----------------|------------|------------|--------|--------------------|---------------------------------------|---------------------------------------|------------|-----------------|-------|--------------|------|
| | Hunter CCR Groundwater | Sampling / PF | ERCM052 | | | | QC Type: | | | | | | |
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount % | REC Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample ID: Test Code: | 1908531-002ADUP PH-4500H+B | Date Analyzed: | 08/21/201 | 9 1832h | | | | | 1 | | | | |
| pH @ 25° C | | 7.40 | pH Units | SM4500-H+B | 1.00 | 1.00 | - | | | 7.43 | 0.405 | 5 | Н |
| Lab Sample ID: Test Code: | 1908531-003ADUP PH-4500H+B | Date Analyzed: | 08/21/201 | 9 1832h | | | | | | | | | |
| pH @ 25° C | | 7.75 | pH Units | SM4500-H+B | . 1.00 | 1.00 | | | · | 7.79 | 0.515 | 5 . | Н |
| Lab Sample ID: Test Code: | 1908531-012ADUP PH-4500H+B | Date Analyzed: | 08/21/201 | 9 2005h | | · • • • • • | · · · · · · · · · · · · · · · · · · · | | | · · | | | |
| pH @ 25° C | | 7.44 | pH Units | SM4500-H+B | 1.00 | 1.00 | | · · · · · · · · · · · · · · · · · · · | | 7.49 | 0.670 | 5 | н |
| Lab Sample ID: Test Code: | 1908533-007ADUP PH-4500H+B | Date Analyzed: | 08/21/2019 | 9 2005h | | | | • | | - | | | |
| pH @ 25° C | | 7.15 | pH Units | SM4500-H+B | 1.00 | 1.00 | | | | 7.16 | 0.140 | 5 | |
| Lab Sample ID: Test Code: | 1908531-001ADUP TDS-W-2540C | Date Analyzed: | 08/22/2019 | 9 1120h | | • | | | | | | | |
| Total Dissolved | Solids | 26,800 | mg/L | SM2540C | 80.0 | 100 | | | · · · · | 27000 | 0.446 | 5 | |

H - Sample was received outside of the holding time.

Report Date: 9/5/2019 Page 34 of 38

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

awal@awal-labs com

Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| Client: | PacifiCorp | | | | | | Contact: | Jeff Tuck | er | | | | | |
|----------------------------|---------------------------|---------------------|----------|----------|--------|--------------------|------------------|----------------------|------|----------|-----------------|-------------|--------------|------|
| Lab Set ID: | 1908531 | | | | | | Dept: | WC | | | | | | |
| Project: | Hunter CCR Groundw | vater Sampling / Pl | ERCM052 | i an ta | | | QC Type | e: LCS | | | | | | |
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample I Test Code: | D: LCS-R129815 300.0-W | Date Analyzed: | 08/30/20 | 19 1606h | | | | | | | | | | |
| Chloride | | 5.01 | mg/L | E300.0 | 0.0386 | 0.100 | 5.000 | 0 : | 100 | 90 - 110 | | | | |
| Fluoride | | 5.15 | mg/L | E300.0 | 0.0240 | 0.100 | 5.000 | 0 | 103 | 90 - 110 | | | | |
| Sulfate | • | 5.07 | mg/L | E300.0 | 0.174 | 0.750 | 5.000 | 0 | 101 | 90 - 110 | • | | | |
| Lab Sample I Test Code: | D: LCS-R129821 300.0-W | Date Analyzed: | 09/03/20 | 19 1123h | | | | · · · | | | | · · · · · · | • | |
| Chloride | | 4.89 | mg/L | E300.0 | 0.0386 | 0.100 | 5.000 | 0 | 97.9 | 90 - 110 | | | | |

| Test Code: | 300.0-W | | | · · · | | • | | | | · · • · • • • | • . • . • . • . • . • . • . |
|-------------------|-------------|---------------------------------------|------------|------------|--------|-----------|-------|----|-------|--------------------------|--|
| Chloride | | 4.89 | mg/L | E300.0 | 0.0386 | 0.100 | 5.000 | 0 | 97.9 | 90 - 110 | |
| Fluoride | | 5.01 | mg/L | E300.0 | 0.0240 | 0.100 · | 5.000 | 0 | 100 | 90 - 110 | the second s |
| Sulfate | | 5.10 | mg/L | E300.0 | 0.174 | 0.750 | 5.000 | 0 | 102 | 90 - 110 | |
| Lab Sample ID: | LCS-R129400 | Date Analyzed: | 08/21/2019 | 1832h | | | | | | | · · · |
| Test Code: | PH-4500H+B | · · · · · · · · · · · · · · · · · · · | | | | | - | | • | | |
| pH @ 25° C. | | 9.10 | pH Units | SM4500-H+B | 1.00 | 1.00 | 9.000 | Ó | _ 101 | 98 - 102 | |
| Lab Sample ID: | LCS-R129401 | Date Analyzed: | 08/21/2019 | 2005h | | | | | | | · · |
| Test Code: | PH-4500H+B | | | 1 | | | | | • | · · · · | |
| pH @ 25° C | | 9.07 | pH Units | SM4500-H+B | 1.00 | 1.00 | 9.000 | 0 | 101 | 98 - 102 | |
| Lab Sample ID: | LCS-R129478 | Date Analyzed: | 08/22/2019 | 1120h | | | | .1 | | والارتدارة بالوبعا الهجر | |
| Test Code: | TDS-W-2540C | | | | | · · · · · | | | | · | |
| Total Dissolved S | olids | 206 | mg/L | SM2540C | 8.00 | 10.0 | 205.0 | 0 | 100 | 80 - 120 | · |
| | | | | | | | | | | | |

Report Date: 9/5/2019 Page 35 of 38

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

awal@awal-labs com

Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| alvte | | Result | Units | Method | MDI | Reporting | Amount Sniked | Spike Ref. | %REC | Limits | RPD Ref. | % RPD | RPD Limit | Onal |
|---------|--------------------|-----------------|----------|--------|-----|-----------|------------------|------------|------|--------|----------|-------|--------------|------|
| ect: | Hunter CCR Groundw | ater Sampling / | PERCM052 | | - | | QC Type: | : MBLK | | | | | | |
| Set ID: | 1908531 | | | | | | Dept: | WC | | | | | | |
| nt: 🔅 | PacifiCorp | | | | | | Contact: | Jeff Tucke | r . | | | | | |
| | | | | | | | | | | | | | | |

| Analyte | | Result | Units | Method | MDL | Limit | Spiked | Amount | %REC | Limits | Amt | % RPD Li | mit Qual |
|------------------------------|------------------------------|----------------|-----------|----------|---------------------------------------|---|--------|--------|------|--------|-----|----------|----------|
| Lab Sample ID: Test Code: | MB-R129815 300.0-W | Date Analyzed: | 08/30/201 | 19 1549h | | | • | ····· | | - | | | |
| Chloride | | < 0.100 | mg/L | E300.0 | 0.0386 | 0.100 | | | | | | | |
| Fluoride | | < 0.100 | mg/L | E300.0 | 0.0240 | 0.100 | | - | | | | | |
| Sulfate | | < 0.750 | mg/L | E300.0 | 0.174 | 0.750 | | | | | | · . | |
| Lab Sample ID: | MB-R129821 | Date Analyzed: | 09/03/201 | 19 1106h | · · · · · · · · · · · · · · · · · · · | | | | | | | | |
| Test Code: | 300.0-W | | | | | | | | | • | | | |
| Chloride | | < 0.100 | mg/L | E300.0 | 0.0386 | 0.100 | | | | | | | |
| Fluoride | | < 0.100 | mg/L | E300.0 | 0.0240 | 0.100 | | | | | | | |
| Sulfate | | < 0.750 | mg/L | E300.0 | 0.174 | 0.750 | | | •• | | | | |
| Lab Sample ID: | MB-R129478 | Date Analyzed: | 08/22/201 | 19 1120h | | and the second secon | • | | • | | | | |
| Test Code: | TDS-W-2540C | | • | | | | | | | • | | | |
| Total Dissolved S | olids | < 10.0 | mg/L | SM2540C | 8.00 | 10.0 | | | | | | | |

Report Date: 9/5/2019 Page 36 of 38

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

awal@awal-labs com

QC SUMMARY REPORT

| Client: Lab Set ID: Project: | PacifiCorp 1908531 Hunter CCR Ground | water Sampling / PE | RCM052 | | | | Contact: Dept: QC Type: | Jeff Tuck WC MS | er | | | · | • | |
|------------------------------------|--|----------------------------|----------------------|----------------------------|---------------------|-----------------------------|-------------------------------|-----------------------|--------------------|----------------------------------|-----------------|--------|--------------|---------|
| Analyte | | Result | Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample II Test Code: | D: 1908531-002AMS 300.0-W | Date Analyzed: | 08/30/2019 | 9 1943h | | | | | | - | | ler. | | |
| Chloride Fluoride Sulfate | | 10,200 10,200 17,100 | mg/L mg/L mg/L | E300.0 E300.0 E300.0 | 77.2 48.0 348 | 200 200 1,500 | 10,000 10,000 10,000 | 218 0 6780 | 99.6 102 103 | 90 - 110 90 - 110 90 - 110 | | - - | | |
| Lab Sample II Test Code: | D: 1908531-003AMS 300.0-W | Date Analyzed: | 08/30/2019 | 9 2033h | | | | | | | | | jan M | · · · · |
| Chloride Fluoride | | 10,600 10,300 | mg/L mg/L | E300.0 E300.0 | 77.2 48.0 | 200 200 | 10,000 10,000 | 642 0 | 99.9 103 | 90 - 110 90 - 110 | | | ; | |
| Lab Sample II Test Code: | D: 1908531-003AMS 300.0-W | Date Analyzed: | 09/03/2019 | 9 1157h | | | | • | • | · · · · · · | | | ••• | |
| Chloride Sulfate | | 25,400 57,700 | mg/L mg/L | E300.0 E300.0 | 193 870 | 500 3,750 | 25,000 25,000 | 876 32000 | 97.9 102 | 90 - 110 90 - 110 | ; | | | |
| Lab Sample II Test Code: | D: 1908533-001AMS 300.0-W | Date Analyzed: | 09/03/2019 | 9 1323h | | • • • • • • • • • • • • • • | | | | - - | | | | |
| Chloride Fluoride Sulfate | | 18,600 10,100 10,600 | mg/L mg/L mg/L | E300.0 E300.0 E300.0 | 77.2 48.0 348 | 200 200 1,500 | 10,000 10,000 10,000 | 8290 0 496 | 103 101 101 | 90 - 110 90 - 110 90 - 110 | | | · | |
| Lab Sample II Test Code: | D: 1908533-005AMS 300.0-W | Date Analyzed: | 09/03/2019 | 9 1541h | | | | | | • | • . | | | |
| Chloride Fluoride Sulfate | | 11,800 10,400 14,500 | mg/L mg/L mg/L | E300.0 E300.0 E300.0 | 77.2 48.0 348 | 200 200 1,500 | 10,000 10,000 10,000 | 1630 69.3 4360 | 101 103 102 | 90 - 110 90 - 110 90 - 110 | | | | |

Report Date: 9/5/2019 Page 37 of 38

All analysis applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. CONFIDENTIAL BUSINESS INFORMATION: This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement. Promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

Jose Rocha QA Officer

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 awal@awal-labs.com Kyle F. Gross Laboratory Director

Jose Rocha QA Officer

QC SUMMARY REPORT

| Client: Lab Set ID: Project: | | water Sampling / PERCM | 052 | | | Contact: Dept: QC Type: | Jeff Tucke WC MSD | r | | | | | ; <u>;</u> , |
|------------------------------------|-------------------------------|---|--------------|---------------------|----------------------|-------------------------------|-------------------------|--------------------|----------------------------------|-------------------------|---------------------------|----------------|--------------|
| Analyte | · · · · · | Result Units | Method | MDL | Reporting Limit | Amount Spiked | Spike Ref. Amount | %REC | Limits | RPD Ref. Amt | % RPD | RPD Limit | Qual |
| Lab Sample II Test Code: | D: 1908531-002AMSD 300.0-W | Date Analyzed: 08/3 | 0/2019 1959h | - - - | | • • | e galeri | | · • | - ** | | | 1 |
| Chloride Fluoride Sulfate | | 10,200 mg/I 10,200 mg/I 17,100 mg/I | E300.0 | 77.2 48.0 348 | 200 200 1,500 | 10,000 10,000 10,000 | 218 0 6780 | 99.6 102 103 | 90 - 110 90 - 110 90 - 110 | 10200 10200 17100 | 0.00462 0.363 0.331 | 20 20 20 | |
| Lab Sample II Test Code: | D: 1908531-003AMSD 300.0-W | Date Analyzed: 08/3 | 0/2019 2049h | | t a construction and | | | | | | | | · · · · · · |
| Chloride Fluoride | | 10,600 mg/L 10,400 mg/L | 1 | 77.2 48.0 | 200 200 | 10,000 10,000 | 642 0 | 99.5 104 | 90 - 110 90 - 110 | 10600 10300 | 0.361 0.809 | 20 20 | |
| Lab Sample II Test Code: | D: 1908531-003AMSD 300.0-W | Date Analyzed: 09/0 | 3/2019 1214h | | | | | | | | | | |
| Chloride Sulfate | | 25,500 mg/L 57,500 mg/L | | 193 870 | 500 3,750 | 25,000 25,000 | 876 32000 | 98.3 102 | 90 - 110 90 - 110 | 25400 57700 | 0.389 0.290 | 20 20 | |
| Lab Sample II Test Code: | D: 1908533-001AMSD 300.0-W | Date Analyzed: 09/0 | 3/2019 1341h | | | | | | | | | <u></u> | |
| Chloride Fluoride Sulfate | | 18,600 mg/L 10,200 mg/L 10,700 mg/L | E300.0 | 77.2 48.0 348 | 200 200 1,500 | 10,000 10,000 10,000 | 8290 0 496 | 103 102 102 | 90 - 110 90 - 110 90 - 110 | 18600 10100 10600 | 0.289 0.694 0.621 | 20 20 20 | |
| Lab Sample II Test Code: | D: 1908533-005AMSD 300.0-W | Date Analyzed: 09/0 | 3/2019 1558h | | | | | | | | | | |
| Chloride Fluoride Sulfate | | 11,700 mg/L 10,300 mg/L 14,300 mg/L | E300.0 | 77.2 48.0 348 | 200 200 1,500 | 10,000 10,000 10,000 | 1630 69.3 4360 | 101 102 99.4 | 90 - 110 90 - 110 90 - 110 | 11800 10400 14500 | | 20 20 20 | |

Report Date: 9/5/2019 Page 38 of 38

| | RDER Summary | | | | | 1908531 | Page 1 of 4 |
|--------------|---|------------------------------|--------------------|------------------------------------|--------------------------|------------------|---------------------------------------|
| Client: | PacifiCorp | | | | Due Date: | 9/5/2019 | |
| Client ID: | PAC900 | | Contact: | Jeff Tucker | | | |
| Project: | Hunter CCR Groundwater Sa | | l: II+ | WO Type | • | | |
| Comments: | QC2+. Include EDD. Metals sh mholland@waterenvtech.com; | nare with set 1908532. Footi | note report, pH re | ceived outside of hold. cc: l | Report to derickson@wate | renvtech.com and | A |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | |
| 908531-001A | ELF-1D | 8/20/2019 1330h | 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | - Teli |
| | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | | ~ | PH-4500H+B | | DF-WC | |
| | | | | TDS-W-2540C | | DF-WC | |
| 1908531-001B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA | | | · · · · · · · · · · · · · · · · · · · |
| | | | | 200.7-W-PR | | DF-Metals | |
| 908531-002A | ELF-2 | 8/20/2019 1430h | 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | |
| | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | | | PH-4500H+B | | DF-WC | |
| | | | | TDS-W-2540C | | DF-WC | |
| 1908531-002B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA 200.7-W-PR | | DF-Metals | |
| | | | | 200./-₩-FK | | Dr-Metals | |
| 1908531-003A | ELF-3 | 8/20/2019 1315h | 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | |
| | | ····· | | 3 SEL Analytes: CL F SO4 | | | |
| | | | | PH-4500H+B | | DF-WC | |
| | | | | TDS-W-2540C | | DF-WC | |
| 1908531-003B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA 200.7-W-PR | | DF-Metals | |
| | | | | 200./-W-IK | | Dr-Metals | |
| 1908531-004A | ELF-4 | 8/20/2019 1215h | 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | |
| | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | | | PH-4500H+B | <u> </u> | DF-WC | ···- |
| | | | | TDS-W-2540C | | DF-WC | |
| 1908531-004B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA 200.7-W-PR | | DF-Metals | |
| | | | | 200.7-W-PK | | DF-Metals | |
| | | | | , | | | |

e î

| WORK O | RDER Summary | | | | | Work Order: 1908531 | Page 2 of 4 |
|--------------|------------------|--|---------------------------------------|--------------------------|---------|----------------------------|-------------|
| Client: | PacifiCorp | | | | | Due Date: 9/5/2019 | |
| Sample ID | Client Sample ID | Collected Date | Received Date | Test Code | Matrix | Sel Storage | |
| 908531-005A | ELF-5 | 8/20/2019 1130h | 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | 1 |
| | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | | · · · · · · · · · · · · · · · · · · · | PH-4500H+B | | DF-WC | |
| | | | | TDS-W-2540C | | DF-WC | |
| 908531-005B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| 908531-006A | ELF-7 | 8/20/2019 1245h | 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | 1 |
| | | a and a second sec | | 3 SEL Analytes: CL F SO4 | | | |
| | | | | PH-4500H+B | | DF-WC | - 69 |
| | | | | TDS-W-2540C | | DF-WC | 100 |
| 1908531-006B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| 908531-007A | ELF-8 | 8/20/2019 1032h | 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC |] |
| | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | | | PH-4500H+B | | DF-WC | |
| | - | · | | TDS-W-2540C | | DF-WC | |
| 1908531-007B | | | | 200.7-W | | DF-Metals | |
| | | AL | | 2 SEL Analytes: B CA | | | |
| | | | | 200.7-W-PR | | DF-Metals | |
| 1908531-008A | ELF-9 | 8/20/2019 1345h | 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | 1 |
| | | | | 3 SEL Analytes: CL F SO4 | - | | |
| | | | | PH-4500H+B | | DF-WC | |
| | | | | TDS-W-2540C | | DF-WC | |
| 1908531-008B | | | | 200.7-W | | DF-Metals | |
| | • 10 5 (0) 7 | | | 2 SEL Analytes: B CA | | | |
| | | • | | 200.7-W-PR | | DF-Metals | |
| 1908531-009A | ELF-11 | 8/20/2019 0926h | 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | |
| | | | | 3 SEL Analytes: CL F SO4 | • | - | |
| | | | | PH-4500H+B | 18 | DF-WC | |
| | | | | TDS-W-2540C | | DF-WC | |
| 1908531-009B | | | | 200.7-W | | DF-Metals | |
| | | | | 2 SEL Analytes: B CA | | | |
| | | · · · · · · · · · · · · · · · · · · · | | 200.7-W-PR | | DF-Metals | |

| WORK OF | RDER Summ | ary | | | | | Work Order: 1908531 | Page 3 of 4 |
|------------------------|---|---|----------------|-------------------|--|----------|----------------------------|-------------|
| Client: | PacifiCorp | | | | | | Due Date: 9/5/2019 | |
| Sample ID | Client Sample ID | | Collected Date | e Received Date | Test Code | Matrix | Sel Storage | |
| 1908531-010A | ELF-12 | | 8/20/2019 1215 | a 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | |
| | | | | | 3 SEL Analytes: CL F SO4 PH-4500H+B | | DF-WC | |
| | | ······································ | ····· , | | TDS-W-2540C | | DF-WC | |
| 1908531-010B | | | | | 200.7-W | | DF-Metals | |
| | | | | | 2 SEL Analytes: B CA | | | |
| | | | | | 200.7-W-PR | | DF-Metals | |
| 1908531-011A | ELF-13 | | 8/20/2019 1130 | n 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | |
| | 480 YEAR / / / | . Martin and the state of the second state of | | | 3 SEL Analytes: CL F SO4 | | | |
| | | | | | PH-4500H+B | | DF-WC | |
| 1000001 0115 | | | | | TDS-W-2540C | | DF-WC | |
| 1908531-011B | | | | | 200.7-W 2 SEL Analytes: B CA | | DF-Metals | |
| | what share a significant in the second se | | | | 2 SEL Analytes: B CA 200.7-W-PR | | DF-Metals | |
| | | | | | 200.7-11-11 | | DI-Michais | |
| 1908531-012A | ELF-14 | | 8/20/2019 1045 | h 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | |
| | | | | | 3 SEL Analytes: CL F SO4 PH-4500H+B | | DF-WC | |
| | | | | 200 T.S. | TDS-W-2540C | - 1914 I | DF-WC DF-WC | |
| 1908531-012B | | ······ | | | 200.7-W | | DF-Metals | |
| | | | | | 2 SEL Analytes: B CA | | | |
| | | | | | 200.7-W-PR | | DF-Metals | |
| 1908531-013A | DUP | | 8/20/2019 0920 | h 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | |
| | | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | | | | PH-4500H+B | | DF-WC | |
| 1000521 0125 | | | | | TDS-W-2540C | | DF-WC | |
| 1908531-013B | | | | | 200.7-W 2 SEL Analytes: B CA | | DF-Metals | |
| | | | | | 2 SEL Analyles: B CA 200.7-W-PR | | DF-Metals | |
| 1908531-014A | FB | | 8/20/2019 1445 | h 8/21/2019 1445h | 300.0-W | Aqueous | DF-WC | |
| | | | | | 3 SEL Analytes: CL F SO4 | | | |
| | | | | | PH-4500H+B | | DF-WC | |
| | | | | | TDS-W-2540C | | DF-WC | |
| 1908531-014B | | | | | 200.7-W | | DF-Metals | |
| | | | | | 2 SEL Analytes: B CA | | | |
| | | | | | 200.7-W-PR | | DF-Metals | |
| Dint 1 00/01/10 10 0 | | | | | | | | |
| Printed: 08/21/19 19:2 | lo LAE | BORATORY CHECK: %M | | | | HOK | HOK COC Emailed | |

WORK ORDER Summary

Client: PacifiCorp

AWAL Use Only - One or more samples expired upon receipt: Test Code PH-4500H+B Work Order: **1908531** Page 4 of 4

Due Date: 9/5/2019

| American We Analytical Labora 3440 S. 700 W. Salt Lake City, UT Phone # (801) 263-8686 Toll Free # (8 | 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 of | | | | | | |
|---|---|-----------------------------|-----------------|---------------------|----------|----------------------------|--------|---------|-----|---|----------------------------------|---------|--|---|--|--|--|
| Fax # (801) 263-8687 Email awal@ | QC Level: Turn Arou | | | | | Turi | 1 Arot | ınd Ti | me: | Unless other arrangements have been made, signe reports will be emailed by | Due Date, | | | | | | |
| www.awal-labs.com | | | | 1 2 2+ 3 3+ 1 2 3 4 | | | | | 12 | 34 | 5(St | nd | 5:00 pm on the day they are due. | 9/5/19 | | | |
| Client: Recification Address: | | | | | | | | | | | | | Report down to the MDL Include EDD: Lab Filter for: Field Filtered For: | Laboratory Use Only COC Tape Was: 1 Present on Outer Package Y N NA | | | |
| Contact: Deff Tullier Phone #: E-mail: Deff, Tucker@PacificerP.Com Project Name: Hunter CCR Groundwater Sampling Project #: PERCIMO52 | | | | | /// | - - - - - - | | | | | | | For Compliance With: NELAP RCRA CWA SDWA ELAP/A2LA NLLAP NOn-Compliance Other: | 2 Unbroken on Outer Package Y N NA 3 Present on Sample Y N A 4 Unbroken on Sample Y NA | | | |
| PO #: Sampler Name: MLS & CE Sample ID: | Date Sampled | Time Sampled | # of Containers | Sample Matrix | Appendix | - | | | | | | | Known Hazards & Sample Comments | Samples Were: 1 Shipped or nand delivered 2 Ambient r Chilled | | | |
| | B/2012019 | 1330 | 5 | Ĵ | X | | | | | | | | cumple comments | 3 Temperature °C 4 Received Intact | | | |
| $^{2}ELF-A$ | 1 | 1430 | F | 7 | 1 | | | | | | | | | Y N | | | |
| 3 ELF-3 | | (315 | | | | | | | | | | | | | | | |
| 4 <u>FLF-4</u> | | 1215 | \square | | | | | | | | | | | 5 Peoperly Preserved Y N Checked at bench | | | |
| ^s ELY-S | | 1130 | \square | | | | | | _ | | | | | | | | |
| | | 1245 | | \square | | | | | | | | | | 6 Received Within | | | |
| 7 E L F - 8 | | 1032 | \square | \square | | | | | _ | | | | | Holding Times | | | |
| * <u>E4-7</u> | | 1345 | | \square | | | | _ | _ | | | | | - These pulling the | | | |
| · E27-11 | | 0926 | \square | | | | | | | | | | | Some ph out | | | |
| 10 ELF-12 | | 1215 | Ш | | | | | | | | | | | of hold | | | |
| II F-LF-43 | | 1130 | Ц | | | | | | | | | | | Sample Labels and COC Record Match? | | | |
| 12 ELF-14 | | 1045 | Ш | | Ľ | | | | | | | | | $\left(\begin{array}{c} Y \end{array} \right) $ N | | | |
| ¹³ DUP | | 0920* | 1, | | | | | | | | | | Bottles read 9:40 | | | | |
| 14 FB | V | 1445 | \mathbb{V} | 12 | 1 | | | | | | | | | | | | |
| 15 | | | | | | h | | | | | | | | | | | |
| Relinquished in the second signature | Date 8/21/2019 | Received by: Signature | D | 11 | N | ak | 171 | n | | | Dag | 21/19 | Special Instructions: Please CC | Anglytical Appart to | | | |
| Print Name: Mille ShirleN | Time HS_ | Print Name: |)P | | | 2F | | | | | Time: | :45 | DErickson @weteren | vtech, com and | | | |
| Relinquished by: | Date: | Received by: | | <u>* v</u> | | <u> </u> | 4 | <u></u> | ~ | | Date: | | MHolland Queteron | stech (DM | | | |
| Signature Print Name: | Time: | Signature | | | | | | | | | Time: | | I TO THE CARACTER OF | - CONILON X | | | |
| Relinquished by: | Date: | Print Name: Received by: | | | | | | | | | Date: | artha a | · | | | | |
| Signature Print Name: | Time: | Signature Print Name: | | | | ···· | | | | | Time: | | | | | | |

| Constituents Analyzed | | | | | | | | | |
|------------------------------|--------------------|--|--|--|--|--|--|--|--|
| Appendix III | Appendix IV | | | | | | | | |
| Boron | Antimony | | | | | | | | |
| Calcium | Arsenic | | | | | | | | |
| Chloride | Barium | | | | | | | | |
| Fluoride | Beryllium | | | | | | | | |
| рН | Cadmium | | | | | | | | |
| Sulfate | Chromium | | | | | | | | |
| Total Dissolved Solids (TDS) | Cobalt | | | | | | | | |
| | Fluoride | | | | | | | | |
| | Lead | | | | | | | | |
| ۵ ا | Lithium | | | | | | | | |
| | Mercury | | | | | | | | |
| | Molybdenum | | | | | | | | |
| | Selenium | | | | | | | | |
| | Thallium | | | | | | | | |
| · · · · | Radium 226 and 228 | | | | | | | | |
| | Combined | | | | | | | | |

Fluoride is included in both Appendix III and Appendix IV analyte lists. All wells have undergone analysis for both analyte lists for each event. Fluoride was not analyzed twice. The results are reported once under Appendix III constituents for each sample / each event.

| Lab Set ID: | 1908531 |
|-------------|---------|
| pH Lot #: | 6085 |

Preservation Check Sheet

Sample Set Extension and pH

| Analysis | Preservative | -001 | -002 | -003 | -004 | | | -007 | | | -010 | -011 | -012 | -013 | -014 | | |
|----------------------------------|--------------------------------------|------|------|------|------|-----|-----|------|-----|-----|------|------|------|------|------|------|------|
| Ammonia | pH <2 H ₂ SO ₄ | [| | | | | | | | | | | | | | | |
| COD | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | |
| Cyanide | pH>12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 HNO ₃ | Ves | ves | ves | ves | Ves | Ves | Ves | Ves | ves | VPS | ves | Ves | Ves | Ves | | |
| NO ₂ /NO ₃ | pH <2 H ₂ SO ₄ | 17 | 1 | 7 | 7 | 1 | 1 | 1 | 1 | 7 | 1 | 1 | 1 | 1 | 1 | | |
| O&G | pH <2 HCL | | | | | | | | | | | | | | | | |
| Phenols | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | |
| Sulfide | pH >9 NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | |
| T PO ₄ | pH <2 H ₂ SO ₄ | | | | | | | | | | | | | | | | |
| Cr VI+ | pH >9 (NH4)2SO4 | | | | | | | | | | | | | | | | |
| | - | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | ļ | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | - | | | | | ļ | ļ | | | | |
| | | | | | | | | | | | | | | | | | |
| | | 1 | | | | | | | | | | | | | | | |

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.

Elona Hayward

From: Sent: To: Subject: Attachments: Marcus Holland [mholland@waterenvtech.com] Monday, August 12, 2019 4:18 PM Elona Hayward Appendix III and IV constituents CCR - Appendix III & Appendix IV Constituents.pdf

Hi Elona,

Attached is a list of constituents we will need bottles and analyses for.

I forgot to mention this on the phone, but can we have the reports for these split by Appendices? So two reports for PERCM052 (one Appendix III constituents, one Appendix IV constituents) and two reports for PERCM053 (one Appendix III, one Appendix IV).

Let me know if you have any questions.

Thank you,



Marcus Holland, EI Staff Engineer P: (406) 723-1533 C: (406) 498-5402

waterenvtech.com



•à ,