



2024 Annual Groundwater Monitoring and Corrective Action Report

CCR Annual Monitoring Report

Fly Ash Area Landfill and Bottom Ash Area Landfill

*Bonanza Power Plant
Vernal, Utah*



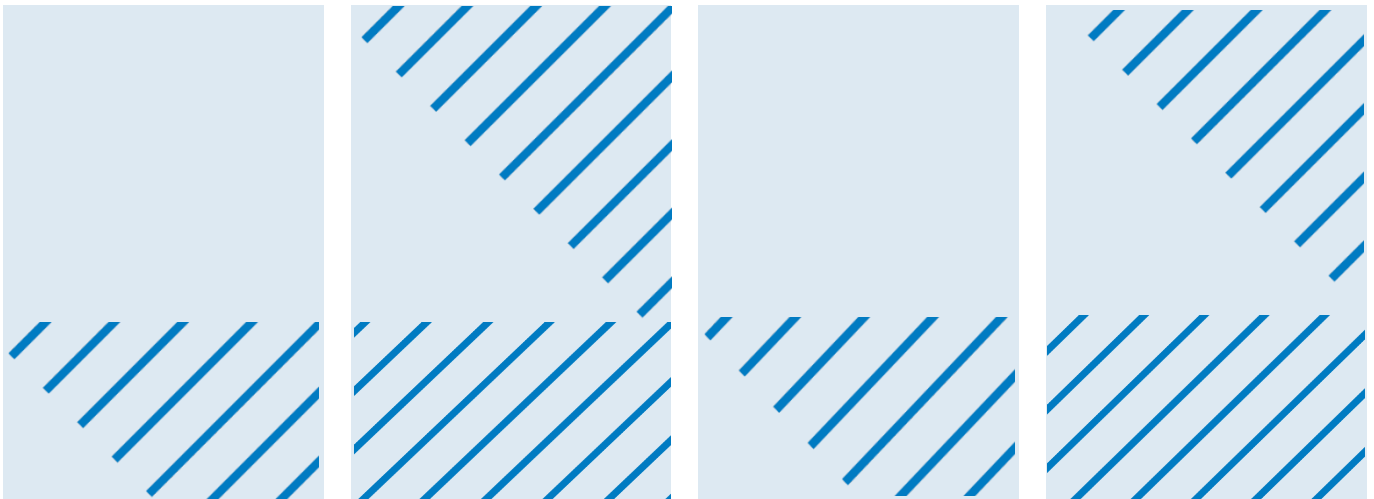
Prepared for
Deseret Power Electric Cooperative

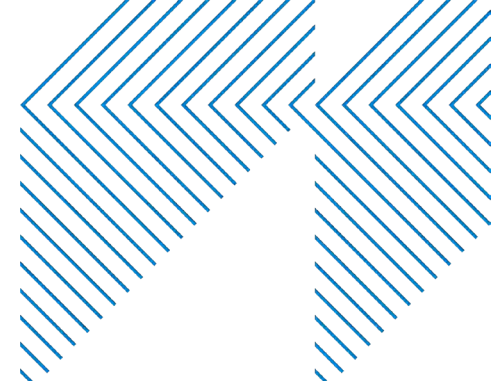
Prepared by
Barr Engineering Co.

January 2025

170 South Main Street, Suite 500
Salt Lake City, UT 84101
801.333.8400

barr.com





2024 Annual Groundwater Monitoring and Corrective Action Report

CCR Annual Monitoring Report Fly Ash Area Landfill and Bottom Ash Area Landfill Bonanza Power Plant Vernal, Utah

January 2025



Contents

Summary for CCR Units §257.90(e)(6).....	1
1 Introduction	2
1.1 Purpose	2
1.2 Status of the Groundwater Monitoring and Corrective Action Program	2
1.3 CCR Rule Requirements.....	2
2 Groundwater Monitoring and Corrective Action Program	4
2.1 Groundwater Monitoring System.....	4
2.1.1 Documentation	4
2.1.2 Changes to Monitoring System.....	4
2.2 Monitoring and Analytical Results.....	4
2.2.1 Existing Monitoring System Wells.....	4
2.3 Groundwater Flow Direction and Rates	6
2.4 Key Actions Completed/Problems Encountered	6
2.5 Key Activities for Upcoming Year	7
3 References.....	8

Tables

Table 1	Large Table 1, Water Quality Analytical Data Summary
Table 1-1	CCR Rule Requirements
Table 2-1	Semiannual Detection Monitoring Well Sample Events
Table 2-2	Verified SSIs for the Spring 2024 Event
Table 2-3	Preliminary SSI for the Fall 2023 Event

Figures

Figure 1	Site Location
Figure 2	Groundwater Elevation Contours, Fly Ash Area, May 2023
Figure 3	Groundwater Elevation Contours, Fly Ash Area, October 2023
Figure 4	Groundwater Elevation Contours, Bottom Ash Area, May 2023
Figure 5	Groundwater Elevation Contours, Bottom Ash Area, October 2023

Appendices

Appendix A	Lab Reports and Field Sheets
Appendix B	Alternative Source Demonstrations (ASDs)
Appendix C	2024 Gradients and Flowrates
Appendix D	2024 Baseline Analytical Data
Appendix E	2024 Prediction Limits
Appendix F	Monitoring System Elevations

Abbreviations

ASD	Alternative Source Demonstration
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
FGD	Flue Gas Desulfurization
MW	megawatt
SSI	Statistically Significant Increase

Summary for CCR Units §257.90(e)(6)

At the beginning, end, and throughout 2024, the CCR units were operating under a detection monitoring program as described in 40 CFR 257.94. Pursuant to §257.94, statistically significant increases (SSIs) were determined for pH at monitoring well BA-DG3 and fluoride at monitoring well FA-DG4 during the spring 2024 sampling event. One SSI was determined for fluoride at monitoring well FA-DG4 during the fall 2024 sampling event. The 2024 monitoring data are shown on the (oversized) Large Table 1.

An alternative source demonstration (ASD) has been completed for these well/parameter SSIs for the fall 2023 (discussed in the 2023 Annual Groundwater Monitoring and Corrective Action report) and spring 2024 events, as summarized in Appendix B of this report. The statistical results of the fall 2024 detection monitoring event have been evaluated, and an alternative source investigation is ongoing, with results, including an ASD if appropriate, anticipated in spring 2025. Therefore, no assessment monitoring program (§257.95), or related corrective or remedial measures (§§257.96, 257.97, and 257.98), were necessary for 2024.

1 Introduction

Deseret Power Electric Cooperative (Deseret) operates Bonanza Power Plant, a 500 megawatt (MW) coal-fired generation unit near Vernal, Utah. Coal combustion residuals (CCR) from the generating station are placed in two on-site CCR units: the Fly Ash Area Landfill and the Bottom Ash Landfill as shown on Figure 1.

These landfills are existing CCR landfills that are required to comply with the provisions of the US Environmental Protection Agency (EPA) CCR Rule (40 CFR Parts 257 and 261 Disposal of Coal Combustion Residuals from Electric Utilities). The Fly Ash Area landfill contains primarily fly ash and flue gas desulfurization (FGD) solids. The Bottom Ash Area landfill is used to manage bottom ash and boiler slag from the facility.

The location of each of the landfills and their associated groundwater monitoring systems are depicted in Figure 1. These systems are not considered Multiunit Groundwater Monitoring Systems.

1.1 Purpose

As stated in §257.90(e), the purpose of the Annual Groundwater Monitoring and Corrective Action Report (Annual Report) is to:

- Document the status of the monitoring and corrective action program for the CCR units
- Summarize key actions completed
- Describe any problems encountered
- Discuss actions to resolve the problems
- Highlight key activities for the upcoming year

1.2 Status of the Groundwater Monitoring and Corrective Action Program

- Both CCR units were in detection monitoring
- All wells in the CCR groundwater monitoring system were sampled and analyzed for Appendix III parameters

1.3 CCR Rule Requirements

This Annual Report has been prepared in accordance with the requirements of §257.90(e) of the CCR Rule, as outlined in the following Table 1-1.

Table 1-1 CCR Rule Requirements

CCR Rule Reference	Content Required in Report	Location
§257.90(e)(1)	Map showing the CCR unit and all monitoring wells that are part of the groundwater monitoring system	Section 2.1.1 Documentation; see Figure 1
§257.90(e)(2)	Discuss any new or decommissioned monitoring wells	Section 2.1.2 Changes to Monitoring System
§257.90(e)(3)	Provide the number and date groundwater samples were collected, and the monitoring (i.e., detection or assessment)	Section 2.2 Monitoring and Analytical Results
§257.90(e)(4)	Discuss any transition between monitoring programs	Not applicable- no transition between monitoring programs has occurred.
§257.90(e)(5)	Other information specified in §257.90 through §257.98	Section 2.4 Key Actions Completed/Problems Encountered
§257.90(e)(6)	Overview at beginning of annual report	Summary for CCR Units §257.90(e)(6)

2 Groundwater Monitoring and Corrective Action Program

This section documents the status of the groundwater monitoring and corrective action program for the CCR units for 2024. The groundwater monitoring system is described in Section 2.1, the monitoring and analytical results are described in Section 2.2, groundwater direction and flow rates in Section 2.3, key actions completed and problems encountered are described in Section 2.4, and key activities planned for 2025 are described in Section 2.5.

2.1 Groundwater Monitoring System

2.1.1 Documentation

Figure 1 shows an aerial image of the CCR units and all background (or upgradient) and downgradient monitoring wells, including the well identification numbers, that are part of the groundwater monitoring program, as required by §257.90(e)(1).

2.1.2 Changes to Monitoring System

In early 2023, downgradient well BA-DG4 was added to the well network for the Bottom Ash Area (Figure 1). A baseline sampling program has been initiated to collect eight independent samples per the CCR Rule. Baseline monitoring concluded in April 2024, and BA-DG4 was included in the SSI evaluation during the spring 2024 monitoring event.

The results of baseline sampling for BA-DG4 are included in Appendix D.

No monitoring wells were installed or decommissioned in 2024.

2.2 Monitoring and Analytical Results

2.2.1 Existing Monitoring System Wells

As shown in Table 2-1 below, a total of eleven detection monitoring groundwater samples were collected during the spring 2024 semiannual sampling event, and eleven samples were collected during the fall 2024 semiannual sampling event from the monitoring system wells. Results from the 2024 sampling events are included in Table 2-2, Table 2-3, Large Table 1, and Appendix A.

Table 2-1 Semiannual Detection Monitoring Well Sample Events

Well	Spring 2024 Semiannual Monitoring Date	Spring 2024 Resampling Date	Fall 2024 Semiannual Monitoring Date
FA-UG1	5/13/2024	--	10/14/2024
FA-UG2 (PZ-11)	5/13/2024	--	10/14/2024
FA-DG2	5/14/2024	--	10/14/2024
FA-DG3	5/14/2024	--	10/14/2024
FA-DG4	5/14/2024	--	10/14/2024
FA-DG5	5/13/2024	--	10/15/2024
BA-UG1	5/20/2024	--	10/22/2024
BA-DG1	5/20/2024	--	10/21/2024
BA-DG2	5/20/2024	8/18/2024	10/21/2024
BA-DG3	5/21/2024	--	10/21/2024
BA-DG4	5/21/2024	--	10/22/2024

Fall 2023 SSIs and Subsequent ASD

Sampling for the fall 2023 monitoring event was conducted on October 16-18 and 24, 2023. Results indicated two SSIs for the fall 2023 event: pH at BA-DG3 and fluoride at FA-DG4. This information was included in the 2023 Annual Report (Barr, 2024).

An Alternative Source Demonstration (ASD) memorandum regarding the fall 2023 SSIs was completed on May 3, 2024. The results of the ASD concluded that the SSIs were attributable to a source other than the CCR units listed in this report. The ASD is provided in Appendix B.

Spring 2024 SSIs and Subsequent ASD

Table 2-2 summarizes the verified SSIs determined from the spring 2024 event. During the May 13-14 and 20-21, 2024, sampling event, potential SSIs for calcium at BA-DG2, pH at BA-DG3, and fluoride at FA-DG4 and were identified. Verification resampling was conducted on August 18, 2024. The complete dataset for the detection monitoring event can be found in Large Table 1.

Table 2-2 Verified SSIs for the Spring 2024 Event

Well	Constituent/SSI
BA-DG3	pH
FA-DG4	Fluoride

An ASD was completed with regard to the SSIs for pH and fluoride identified in Table 2-2 on November 18, 2024. The ASD is included in Appendix B and concluded that the SSIs were attributable to a source other than the CCR unit.

Fall 2024 Sampling Event

Sampling for the fall 2024 monitoring event was conducted on October 14-15 and 21-22, 2024. Preliminary statistical assessment of the fall 2024 results indicated elevated fluoride at monitoring well FA-DG4 (Large Table 1).

Table 2-3 summarizes the preliminary SSI determined from the fall event. If verified, the fall 2024 SSI will be evaluated against previous ASDs, and a new ASD will be generated if appropriate.

Table 2-3 Preliminary SSI for the Fall 2024 Event

Well	Constituent/SSI
FA-DG4	Fluoride

2.3 Groundwater Flow Direction and Rates

Groundwater flow rates and gradients were calculated using the data collected from the 2024 water level measurements and from aquifer property data presented in the 2017 Groundwater Monitoring System Certification (Burns & McDonnell, 2017a). The calculation tables for groundwater flow rates, directions, and gradients are located in Appendix C. Groundwater elevation contours are shown for each semiannual sampling event on Figure 2 and Figure 3 for the Fly Ash Area and on Figure 4 and Figure 5 for the Bottom Ash Area.

The groundwater in the Fly Ash Landfill area generally flows in the southeast direction (Figure 2 and Figure 3) at rates ranging from a low of 0.002 ft/day to a high of 0.11 ft/day with an average horizontal gradient of 0.005. Groundwater in the Bottom Ash Landfill area generally flows southeast (Figure 4 and Figure 5) at rates ranging from 0.002 ft/day to 0.021 ft/day with an average horizontal gradient of 0.001 to 0.002 (Appendix C).

The flow direction in the northeast corner of the North Evaporation Pond is deflected to the east likely due to mounding of the water table under the pond. Groundwater flow upgradient of the Bottom Ash Landfill is partly influenced by the capture zone created by the Pumpback system, which creates an area of drawdown near the center of the plant site and creates a flow divide north of BA-UG1 so that groundwater flow is generally inward toward the main power block (Loughlin, 2017).

2.4 Key Actions Completed/Problems Encountered

The following key actions were completed for the groundwater monitoring program through 2024:

- Completed semiannual detection monitoring sampling for each background and downgradient well.
- Conducted statistical evaluation of the spring 2024 and fall 2024 groundwater detection monitoring data.
- Determined, pursuant to §257.93(h), that an SSI over background levels did not occur for any of the constituents listed in Appendix III at any downgradient monitoring well with the exception of fluoride at FA-DG4 during the spring and fall 2024 events and pH at BA-DG3 during the spring 2024 event, as shown in Table 2-2 and Table 2-3.

- Successful ASDs concluded that the source of the SSIs in fall 2023 and spring 2024 was not the CCR unit. The ASDs for fall 2023 and spring 2024 are provided in Appendix B.
- Conducted baseline sample collection at BA-DG4 and added BA-DG4 to the CCR monitoring network for the spring 2024 semiannual monitoring event.
- Updated background for all monitoring locations prior to the spring 2024 semiannual monitoring event. Prediction limits used for statistical evaluations in 2024 are included in Appendix E.
- All monitoring locations were resurveyed in fall 2023. Updated top of casing elevations are included in Appendix F.

No problems were encountered in 2024.

2.5 Key Activities for Upcoming Year

The following key groundwater monitoring program activities are planned for 2025:

- Continue semiannual detection monitoring according to the Sampling and Analysis Program (Deseret, 2016).
- Evaluate analytical results from two 2024 semiannual detection monitoring events for SSIs according to the CCR Selected Statistical Method Certification (Burns & McDonnell, 2017b).
- Review the conceptual site model and provide recommendations for improvements to the monitoring well network if needed.
- The fall 2024 SSIs will be evaluated against previous ASDs, and a new ASD will be generated for the fall 2024 results per the CCR rule and included in the 2025 Annual CCR Report if appropriate; the site will transition to assessment monitoring if no successful ASD is completed.

3 References

Barr, 2024, 2023 Annual Groundwater Monitoring and Corrective Action Report, Bonanza Power Plant. Prepared for Deseret Power Electric Cooperative. January 2024.

Burns & McDonnell, 2017a, Groundwater Monitoring System Certification – Bonanza Power Plant, Vernal, Utah. October 2017.

Burns & McDonnell, 2017b, Selected Statistical Method Certification, Deseret Generation and Transmission Cooperative – Bonanza Power Plant, Vernal, Utah. October 2017.

Deseret Power Electric Cooperative, 2016, Bonanza Power Plant CCR Groundwater Monitoring Wells Sampling and Analysis Program. May 2016.

Loughlin Water Associates, 2017. Bonanza Power Plant, Coal Combustion Residuals, Monitoring Well Installation Report. Pumpback Capture Zone shown on Drawing 6. January 2017.



Tables



**Table 1 Large Table 1, Water Quality
Analytical Data Summary**

Large Table 1
Water Quality Analytical Data Summary
2024 CCR Annual Report
Deseret Power Cooperative

Appendix III Parameters Analysis Location Units			Boron, total Lab mg/l	Calcium, total Lab mg/l	Chloride Lab mg/l	Fluoride Lab mg/l	pH ¹ Field pH units	Solids, total dissolved Lab mg/l	Sulfate, as SO4 Lab mg/l	Water Level Elevation Field ft asml
Location	Date	Sample Type								
Bottom Ash Landfill										
BA - DG1	5/20/2024	N	14.9	253	775	4.34	7.3	10800	5780	4991.19
BA - DG1	10/21/2024	N	11.9	185	618	3.71	7.2	9900	4290	4990.76
BA - DG2	5/20/2024	N	42.2	527	713	5.32	7.2	12600	7610	4991.16
BA - DG2	8/18/2024	R	--	391	--	--	--	--	--	--
BA - DG2	10/21/2024	N	32.3	395	644	2.54	7.1	12700	6420	4990.89
BA - DG3	5/21/2024	N	9.04	30.3	416	10.6	8.3	5130	2510	4989.63
BA - DG3	10/21/2024	N	7.50	21.8	396	9.56	8.0	5140	2120	4989.19
BA - DG4	5/21/2024	N	29.3	286	619	2.40	7.4	12000	6680	4987.93
BA - DG4	10/22/2024	N	25.4	275	525	2.96	7.3	11600	4860	4987.52
BA - UG1	5/20/2024	N	202	582	1060	< 10.0 U	7.1	19800	8800	4993.92
BA - UG1	10/22/2024	N	118	361	1060	5.25	7.1	17900	7940	4993.62
Fly Ash Landfill										
FA - DG2	5/14/2024	N	8.69	1.3	650	42.0	9.1	14400	5310	5029.32
FA - DG2	10/14/2024	N	7.13	2.0	735	39.8	9.0	13600	5750	5028.94
FA - DG3	5/14/2024	N	0.45	0.6	205	5.90	8.8	3620	1560	5029.28
FA - DG3	10/14/2024	N	2.26	2.4	241	8.50	8.7	3620	1660	5028.90
FA - DG4	5/14/2024	N	2.21	9.9	787	5.87	7.7	8680	3980	5028.79
FA - DG4	10/14/2024	N	10.1	45.1	954	7.62	7.6	8300	4300	5028.59
FA - DG4	10/14/2024	FD	11.5	52.3	879	7.67	--	8400	4370	--
FA - DG5	5/13/2024	N	56.7	471	1910	0.689	7.3	17700	9500	5029.74
FA - DG5	10/15/2024	N	56.4	517	1930	0.574	7.0	16400	9590	5029.18
FA - UG1	5/13/2024	N	0.15	1.6	33.7	1.96	8.2	1150	349	5048.88
FA - UG1	10/14/2024	N	0.78	7.5	36.5	1.62	8.1	1090	366	5048.69
FA - UG2	5/13/2024	N	52.9	525	2030	0.494	7.0	16600	8820	5044.14
FA - UG2	5/13/2024	FD	50.4	503	1810	0.469	--	16700	9720	--
FA - UG2	10/14/2024	N	50.3	536	1910	0.338	7.01	16400	8600	5047.39

Data Footnotes and Qualifiers

Barr Standard Footnotes and Qualifiers

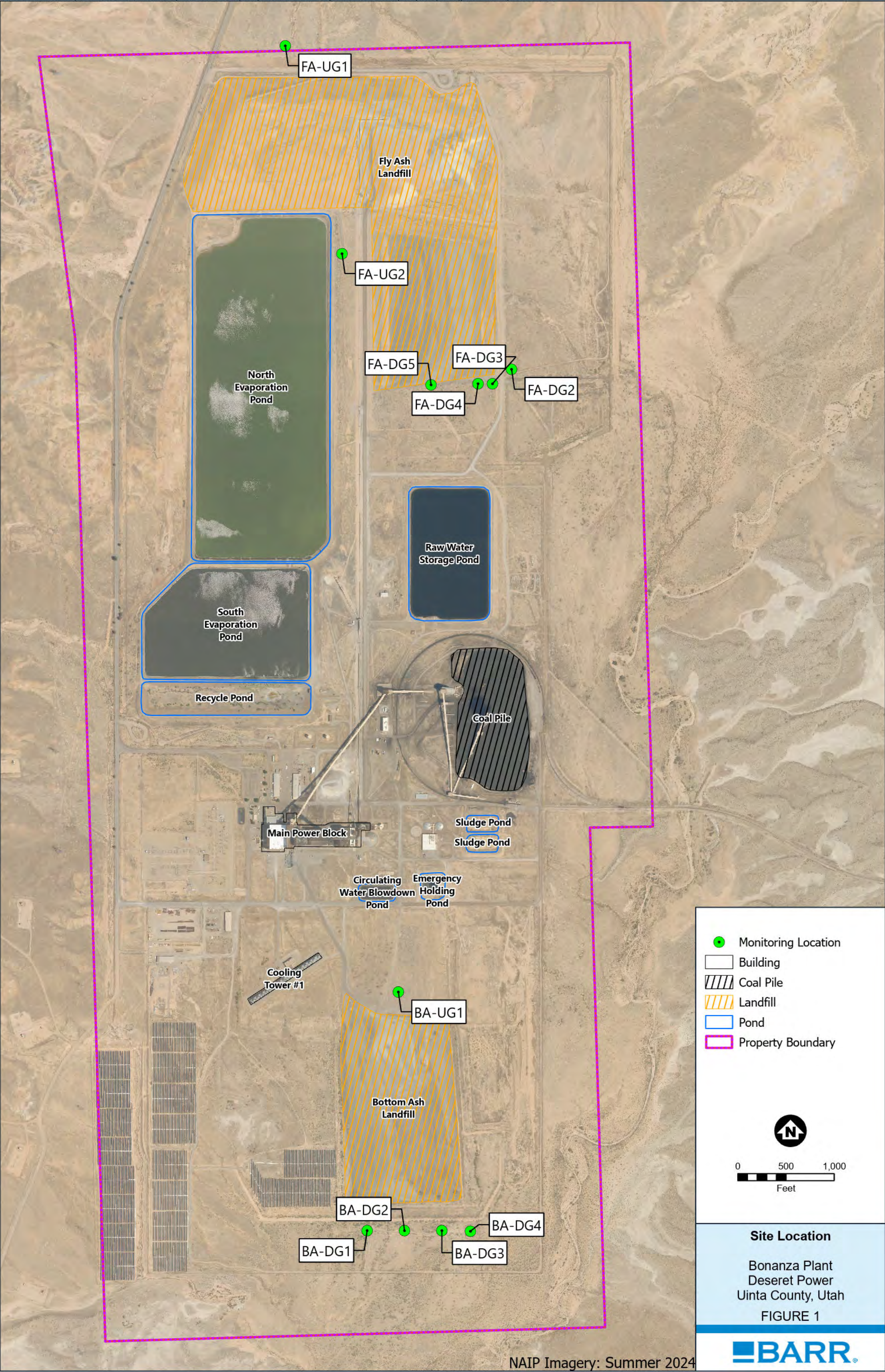
--	Not analyzed/Not available.
N	Sample Type: Normal
R	Sample Type: Resample
FD	Sample Type: Field Duplicate
U	The analyte was analyzed for, but was not detected.
1	pH was rounded to the nearest tenth for statistical analysis due to instrument precision



Figures

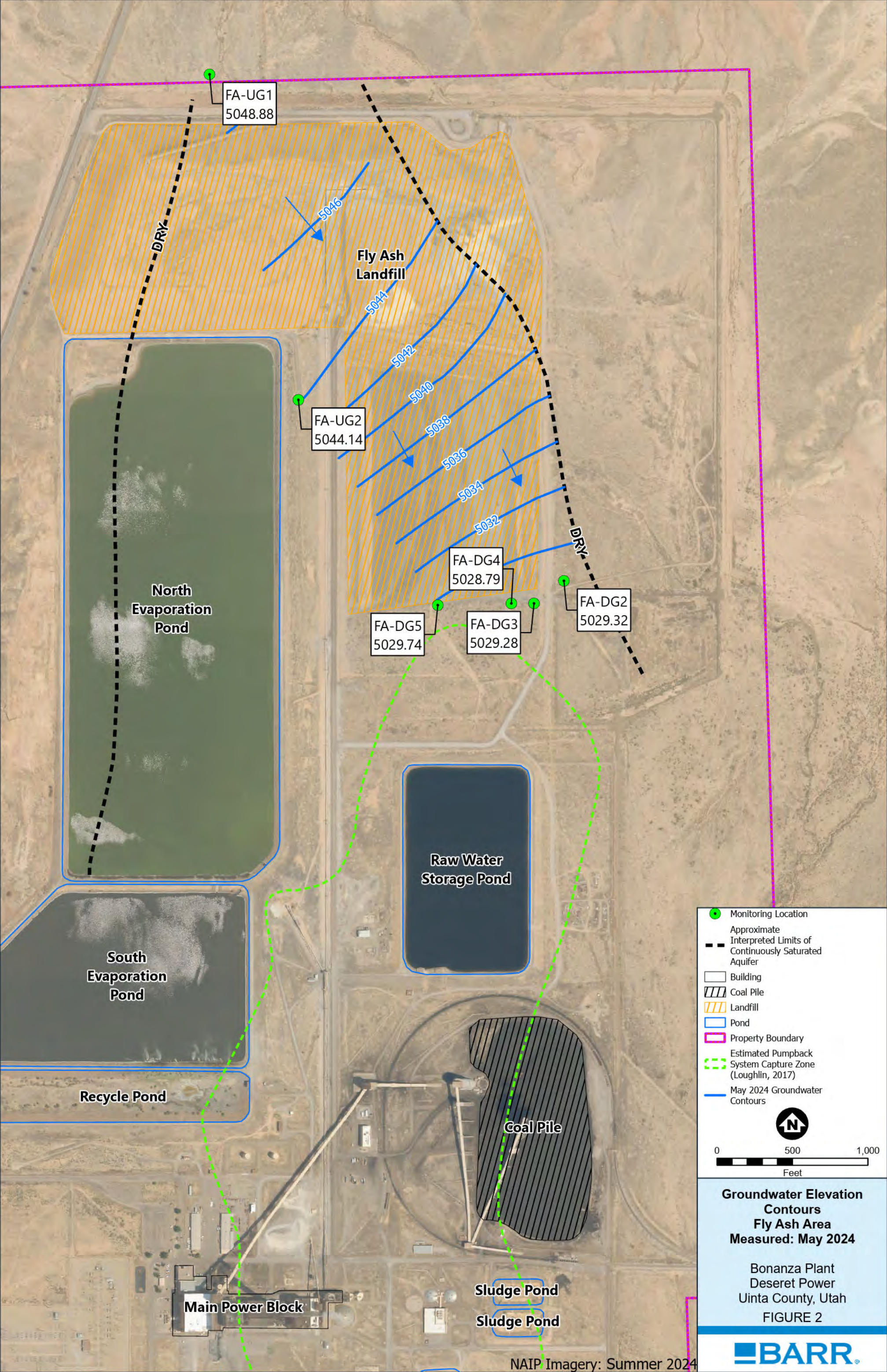


Figure 1 Site Location



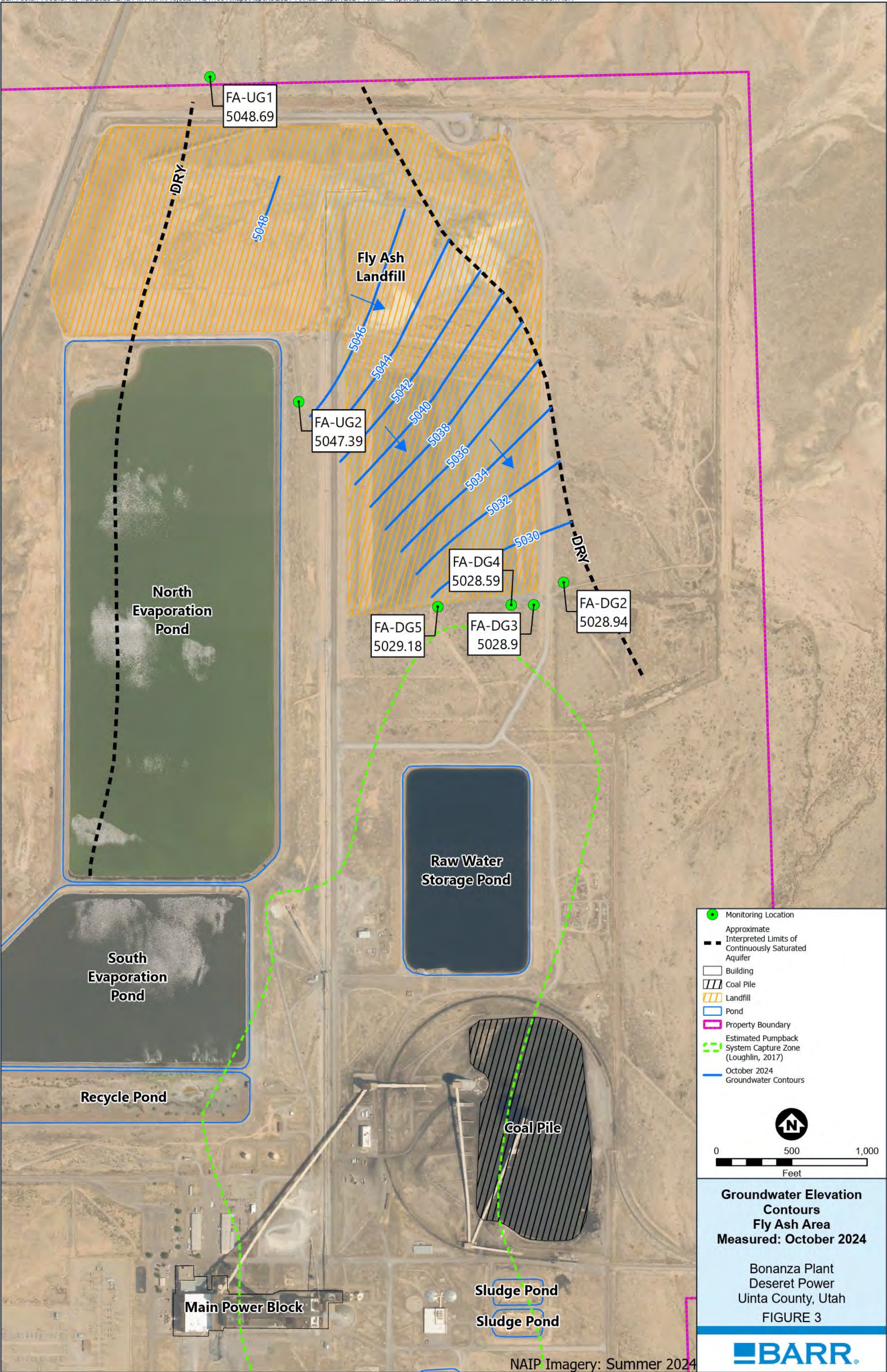


**Figure 2 Groundwater Elevation
Contours, Fly Ash Area, May
2024**



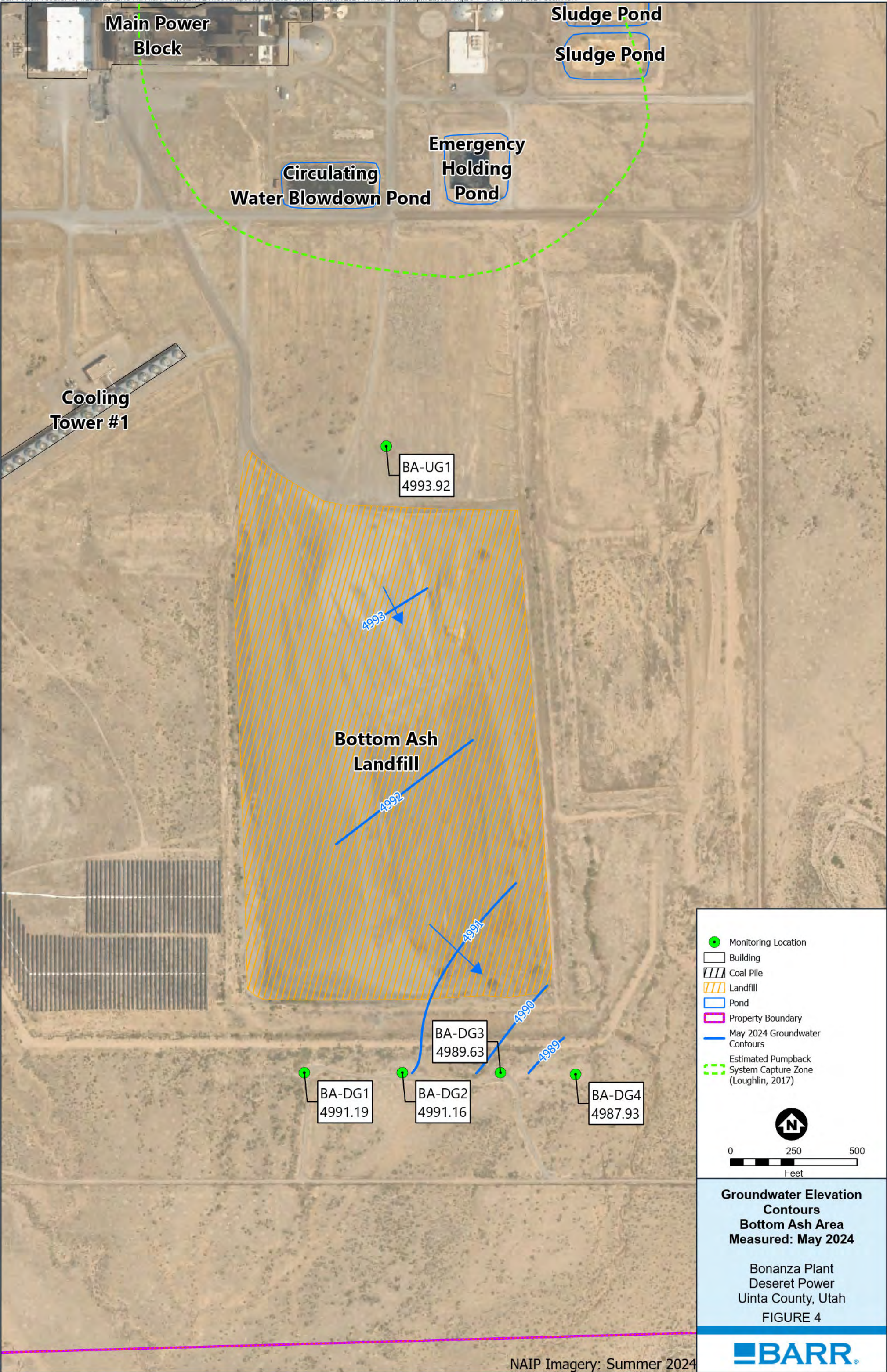


**Figure 3 Groundwater Elevation
Contours, Fly Ash Area,
October 2024**



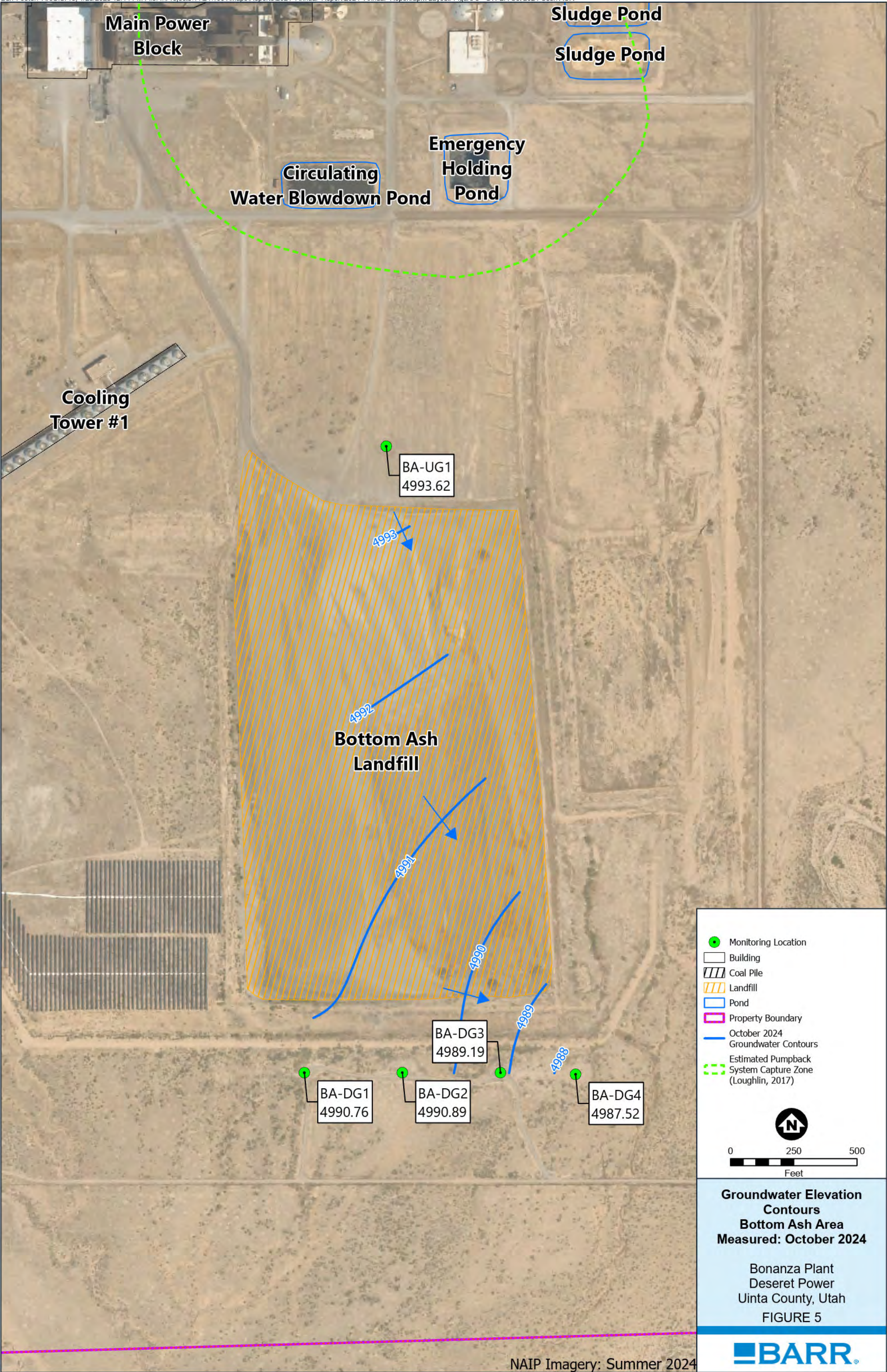


**Figure 4 Groundwater Elevation
Contours, Bottom Ash Area,
May 2024**





**Figure 5 Groundwater Elevation
Contours, Bottom Ash Area,
October 2024**





Appendices



Appendix A Lab Reports and Field Sheets



1/9/2024

Work Order: 23K2287
Project: BA-DG4-Round 5

Deseret Power Electric Cooperative
Attn: Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 185318
Receipt: 11/30/23 10:50 @ 1.1 °C
Date Reported: 1/9/2024
Project Name: BA-DG4-Round 5

Sample ID: BA-DG4

Matrix: Water

Date Sampled: 11/28/23 13:15

Sampled By: Trenton Keller

Lab ID: 23K2287-01

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Radiochemistry							
Radium-226	0.38	pCi/L	0.41	EPA 903.0	12/11/23	12/14/23	SL-62
Radium-228	0.37	pCi/L	0.57	EPA 904.0	12/18/23	12/29/23	SL-62



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 185318
Receipt: 11/30/23 10:50 @ 1.1 °C
Date Reported: 1/9/2024
Project Name: BA-DG4-Round 5

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

Flag Descriptions

SL-62 = Analysis performed by Pace Analytical National, Mount Juliet, TN 37122

CHAIN OF CUSTODY

BILLING ADDRESS: _____
BILLING CITY/STATE/ZIP: _____
PURCHASE ORDER #: 185318



CHEMTECH-FORD
LABORATORIES

* Expedited turnaround subject to additional charge

Sample Receipt Conditions:

☐ Custody Seals Present	☐ Correct Containers	☐ Headspace Present (VOC)
☒ Containers Intact	☒ COC Included	☐ Temperature Blank
☒ COC and Labels Match	☒ COC Complete	☒ Received within Hold
☒ Received on Ice	☒ Sufficient Sample Volume	Checked by: <u>AV</u>

Checked by: AV

[illegible]

Sampled by: (signature)

ON ICE NOT ON ICE Temp (C°):

Samples received outside the EPA recommended temperature range of 0-6 C* may be rejected.

Date/Time	11/29/23
-----------	----------

Date/Time 11/27/23 10:50

Date/Time

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees. AG(x2) 1298

fees. AG(x2) 1298

AQ 1272

M 1325



ANALYTICAL REPORT

January 04, 2024

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Chemtech-Ford Laboratories

Sample Delivery Group: L1685195
Samples Received: 12/06/2023
Project Number: 23L2200
Description:

Report To: Andrew Royer
9632 S 500 S
Sandy, UT 84070

Entire Report Reviewed By:

Donna Eidson
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	6
Sr: Sample Results	7
23K2200-01 L1685195-01	7
23K2200-02 L1685195-02	8
23K2200-03 L1685195-03	9
23K2341-01 L1685195-04	10
23K2341-02 L1685195-05	11
23K2341-03 L1685195-06	12
23K2341-04 L1685195-07	13
23K2341-05 L1685195-08	14
23K2341-06 L1685195-09	15
23K2341-07 L1685195-10	16
23K2341-08 L1685195-11	17
23K2241-01 L1685195-12	18
23K2287-01 L1685195-13	19
23L0155-01 L1685195-14	20
23L0155-02 L1685195-15	21
23L0155-03 L1685195-16	22
23L0050-01 L1685195-17	23
23L0050-02 L1685195-18	24
23L0032-01 L1685195-19	25
Qc: Quality Control Summary	26
Radiochemistry by Method 900	26
Radiochemistry by Method 903.0/9315	27
Radiochemistry by Method 904	28
Radiochemistry by Method 904/9320	30
Gl: Glossary of Terms	32
Al: Accreditations & Locations	33
Sc: Sample Chain of Custody	34

¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY

23K2200-01 L1685195-01 DW

				Collected by	Collected date/time	Received date/time
					11/28/23 14:30	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2191435	1	12/18/23 09:39	12/22/23 13:02	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2190774	1	12/18/23 15:12	12/22/23 14:53	DDD	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

23K2200-02 L1685195-02 DW

				Collected by	Collected date/time	Received date/time
					11/28/23 13:42	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2191435	1	12/18/23 09:39	12/22/23 13:02	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2190774	1	12/18/23 15:12	12/22/23 14:53	DDD	Mt. Juliet, TN

⁴ Cn

⁵ Sr

⁶ Qc

23K2200-03 L1685195-03 DW

				Collected by	Collected date/time	Received date/time
					11/28/23 15:10	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2191435	1	12/18/23 09:39	12/22/23 13:02	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2190774	1	12/18/23 15:12	12/22/23 14:53	DDD	Mt. Juliet, TN

⁷ Gl

⁸ Al

⁹ Sc

23K2341-01 L1685195-04 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					11/29/23 08:43	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2186884	1	12/11/23 12:28	12/14/23 17:07	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2190026	1	12/15/23 14:58	12/20/23 20:30	DDD	Mt. Juliet, TN

23K2341-02 L1685195-05 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					11/29/23 09:40	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2186884	1	12/11/23 12:28	12/14/23 17:07	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2190026	1	12/15/23 14:58	12/20/23 20:30	DDD	Mt. Juliet, TN

23K2341-03 L1685195-06 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					11/29/23 11:07	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2186884	1	12/11/23 12:28	12/14/23 17:07	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2190026	1	12/15/23 14:58	12/20/23 20:30	DDD	Mt. Juliet, TN

23K2341-04 L1685195-07 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					11/29/23 12:31	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2186884	1	12/11/23 12:28	12/14/23 18:07	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2190026	1	12/15/23 14:58	12/20/23 20:30	DDD	Mt. Juliet, TN

SAMPLE SUMMARY

23K2341-05 L1685195-08 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					11/29/23 12:31	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2186884	1	12/11/23 12:28	12/14/23 18:07	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2190026	1	12/15/23 14:58	12/20/23 20:30	DDD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

23K2341-06 L1685195-09 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					11/29/23 13:37	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2186884	1	12/11/23 12:28	12/14/23 18:07	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2190026	1	12/15/23 14:58	12/20/23 20:30	DDD	Mt. Juliet, TN

23K2341-07 L1685195-10 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					11/29/23 14:57	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2186884	1	12/11/23 12:28	12/14/23 18:07	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2190026	1	12/15/23 14:58	12/20/23 20:30	DDD	Mt. Juliet, TN

23K2341-08 L1685195-11 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					11/29/23 15:49	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2186884	1	12/11/23 12:28	12/14/23 19:07	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2190026	1	12/15/23 14:58	12/20/23 20:30	DDD	Mt. Juliet, TN

23K2241-01 L1685195-12 DW

				Collected by	Collected date/time	Received date/time
					11/29/23 12:41	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2191435	1	12/18/23 09:39	12/22/23 13:02	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2190774	1	12/18/23 15:12	12/22/23 14:53	DDD	Mt. Juliet, TN

23K2287-01 L1685195-13 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					11/28/23 13:15	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2186884	1	12/11/23 12:28	12/14/23 19:07	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2191630	1	12/18/23 17:30	12/29/23 14:49	DDD	Mt. Juliet, TN

23L0155-01 L1685195-14 DW

				Collected by	Collected date/time	Received date/time
					12/04/23 15:50	12/06/23 08:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2191435	1	12/18/23 09:39	12/22/23 13:02	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2190774	1	12/18/23 15:12	12/22/23 14:53	DDD	Mt. Juliet, TN

SAMPLE SUMMARY

23L0155-02 L1685195-15 DW

Collected by
Collected date/time
Received date/time

12/04/23 14:50 12/06/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2191435	1	12/18/23 09:39	12/22/23 13:02	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2190774	1	12/18/23 15:12	12/22/23 14:53	DDD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

23L0155-03 L1685195-16 DW

Collected by
Collected date/time
Received date/time

12/04/23 14:05 12/06/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2191435	1	12/18/23 09:39	12/22/23 13:02	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2190774	1	12/18/23 15:12	12/22/23 14:53	DDD	Mt. Juliet, TN

23L0050-01 L1685195-17 Non-Potable Water

Collected by
Collected date/time
Received date/time

11/30/23 14:00 12/06/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2186884	1	12/11/23 12:28	12/14/23 19:07	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2191630	1	12/18/23 17:30	12/29/23 14:49	DDD	Mt. Juliet, TN

23L0050-02 L1685195-18 Non-Potable Water

Collected by
Collected date/time
Received date/time

11/30/23 14:00 12/06/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2186884	1	12/11/23 12:28	12/14/23 19:07	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2191630	1	12/18/23 17:30	12/29/23 14:49	DDD	Mt. Juliet, TN

23L0032-01 L1685195-19 DW

Collected by
Collected date/time
Received date/time

11/30/23 12:05 12/06/23 08:30

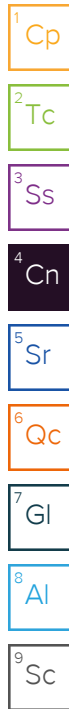
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2191435	1	12/18/23 09:39	12/22/23 13:02	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2190774	1	12/18/23 15:12	12/22/23 14:53	DDD	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Donna Eidson
Project Manager



Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	5.39		2.15	1.32	1.37	1.30	12/22/2023 13:02	WG2191435
GROSS BETA	1.39		1.59	0.548	1.21	1.07	12/22/2023 13:02	WG2191435

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.194	U	0.288		0.517		12/22/2023 14:53	WG2190774
(T) Barium	113					25.0-150	12/22/2023 14:53	WG2190774
(T) Yttrium	104					25.0-150	12/22/2023 14:53	WG2190774

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	0.807	J	1.13	0.679	0.982	0.949	12/22/2023 13:02	WG2191435
GROSS BETA	0.950	J	1.41	0.696	1.11	0.973	12/22/2023 13:02	WG2191435

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.377	J	0.261		0.459		12/22/2023 14:53	WG2190774
(T) Barium	111					25.0-150	12/22/2023 14:53	WG2190774
(T) Yttrium	115					25.0-150	12/22/2023 14:53	WG2190774

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	-0.0416	U	1.36	-0.848	1.33	1.28	12/22/2023 13:02	WG2191435
GROSS BETA	2.12		1.95	1.08	1.52	1.34	12/22/2023 13:02	WG2191435

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.456		0.214		0.374		12/22/2023 14:53	WG2190774
(T) Barium	108					25.0-150	12/22/2023 14:53	WG2190774
(T) Yttrium	98.1					25.0-150	12/22/2023 14:53	WG2190774

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	1.27		0.513		0.440		12/14/2023 17:07	WG2186884
(T) Barium	101					30.0-143	12/14/2023 17:07	WG2186884

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	2.15		0.291		0.489		12/20/2023 20:30	WG2190026
(T) Barium	115					30.0-143	12/20/2023 20:30	WG2190026
(T) Yttrium	124					30.0-136	12/20/2023 20:30	WG2190026

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	1.33		0.528		0.482		12/14/2023 17:07	WG2186884
(T) Barium	99.7					30.0-143	12/14/2023 17:07	WG2186884

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	3.09		0.329		0.514		12/20/2023 20:30	WG2190026
(T) Barium	109					30.0-143	12/20/2023 20:30	WG2190026
(T) Yttrium	108					30.0-136	12/20/2023 20:30	WG2190026

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	1.08		0.460		0.382		12/14/2023 17:07	WG2186884
(T) Barium	101					30.0-143	12/14/2023 17:07	WG2186884

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	3.69		0.388		0.621		12/20/2023 20:30	WG2190026
(T) Barium	114					30.0-143	12/20/2023 20:30	WG2190026
(T) Yttrium	107					30.0-136	12/20/2023 20:30	WG2190026

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.334	J	0.383		0.563		12/14/2023 18:07	WG2186884
(T) Barium	98.4					30.0-143	12/14/2023 18:07	WG2186884

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.72		0.351		0.607		12/20/2023 20:30	WG2190026
(T) Barium	113					30.0-143	12/20/2023 20:30	WG2190026
(T) Yttrium	117					30.0-136	12/20/2023 20:30	WG2190026

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	1.31		0.515		0.432		12/14/2023 18:07	WG2186884
(T) Barium	102					30.0-143	12/14/2023 18:07	WG2186884

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	2.31		0.365		0.617		12/20/2023 20:30	WG2190026
(T) Barium	111					30.0-143	12/20/2023 20:30	WG2190026
(T) Yttrium	111					30.0-136	12/20/2023 20:30	WG2190026

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.494		0.378		0.477		12/14/2023 18:07	WG2186884
(T) Barium	100					30.0-143	12/14/2023 18:07	WG2186884

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.63		0.323		0.555		12/20/2023 20:30	WG2190026
(T) Barium	109					30.0-143	12/20/2023 20:30	WG2190026
(T) Yttrium	107					30.0-136	12/20/2023 20:30	WG2190026

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.598		0.375		0.394		12/14/2023 18:07	WG2186884
(T) Barium	96.2					30.0-143	12/14/2023 18:07	WG2186884

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.40		0.338		0.593		12/20/2023 20:30	WG2190026
(T) Barium	112					30.0-143	12/20/2023 20:30	WG2190026
(T) Yttrium	112					30.0-136	12/20/2023 20:30	WG2190026

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	1.29		0.548		0.563		12/14/2023 19:07	WG2186884
(T) Barium	97.6					30.0-143	12/14/2023 19:07	WG2186884

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	2.15		0.232		0.361		12/20/2023 20:30	WG2190026
(T) Barium	118					30.0-143	12/20/2023 20:30	WG2190026
(T) Yttrium	113					30.0-136	12/20/2023 20:30	WG2190026

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	4.34		1.90	1.14	1.21	1.17	12/22/2023 13:02	WG2191435
GROSS BETA	2.98		1.23	0.696	0.892	0.782	12/22/2023 13:02	WG2191435

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.108	U	0.249		0.446		12/22/2023 14:53	WG2190774
(T) Barium	103					25.0-150	12/22/2023 14:53	WG2190774
(T) Yttrium	108					25.0-150	12/22/2023 14:53	WG2190774

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.376	J	0.337		0.408		12/14/2023 19:07	WG2186884
(T) Barium	108					30.0-143	12/14/2023 19:07	WG2186884

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.369	J	0.313		0.569		12/29/2023 14:49	WG2191630
(T) Barium	89.1					30.0-143	12/29/2023 14:49	WG2191630
(T) Yttrium	115					30.0-136	12/29/2023 14:49	WG2191630

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	3.44		1.78	1.06	1.21	1.18	12/22/2023 13:02	WG2191435
GROSS BETA	2.26		1.36	0.706	1.02	0.895	12/22/2023 13:02	WG2191435

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.0878	U	0.245		0.441		12/22/2023 14:53	WG2190774
(T) Barium	119					25.0-150	12/22/2023 14:53	WG2190774
(T) Yttrium	101					25.0-150	12/22/2023 14:53	WG2190774

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	3.25		2.46	1.46	1.89	1.85	12/22/2023 13:02	WG2191435
GROSS BETA	2.15		2.46	1.15	1.92	1.69	12/22/2023 13:02	WG2191435

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.675		0.262		0.453		12/22/2023 14:53	WG2190774
(T) Barium	109					25.0-150	12/22/2023 14:53	WG2190774
(T) Yttrium	122					25.0-150	12/22/2023 14:53	WG2190774

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	3.48		2.43	1.47	1.84	1.73	12/22/2023 13:02	WG2191435
GROSS BETA	0.711	J	1.22	0.370	0.948	0.837	12/22/2023 13:02	WG2191435

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.26		0.237		0.389		12/22/2023 14:53	WG2190774
(T) Barium	117					25.0-150	12/22/2023 14:53	WG2190774
(T) Yttrium	126					25.0-150	12/22/2023 14:53	WG2190774

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.979		0.466		0.458		12/14/2023 19:07	WG2186884
(T) Barium	104					30.0-143	12/14/2023 19:07	WG2186884

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	2.36		0.393		0.665		12/29/2023 14:49	WG2191630
(T) Barium	74.9					30.0-143	12/29/2023 14:49	WG2191630
(T) Yttrium	116					30.0-136	12/29/2023 14:49	WG2191630

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	1.02		0.445		0.366		12/14/2023 19:07	WG2186884
(T) Barium	104					30.0-143	12/14/2023 19:07	WG2186884

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	2.27		0.323		0.536		12/29/2023 14:49	WG2191630
(T) Barium	89.5					30.0-143	12/29/2023 14:49	WG2191630
(T) Yttrium	103					30.0-136	12/29/2023 14:49	WG2191630

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	1.40		0.735	0.436	0.499	0.487	12/22/2023 13:02	WG2191435
GROSS BETA	2.59		1.11	0.641	0.807	0.713	12/22/2023 13:02	WG2191435

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.327	J	0.233		0.411		12/22/2023 14:53	WG2190774
(T) Barium	108					25.0-150	12/22/2023 14:53	WG2190774
(T) Yttrium	102					25.0-150	12/22/2023 14:53	WG2190774

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4018586-1 12/22/23 13:02

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
GROSS ALPHA	-0.318	U	0.437	0.457	0.432
GROSS BETA	0.767	U	1.18	0.937	0.821

L1686283-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1686283-08 12/22/23 17:24 • (DUP) R4018586-5 12/22/23 13:02

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
GROSS ALPHA	3.28	1.63	1.08	1.06	2.80	1.45	0.991	0.956	15.6	0.218		20	2
GROSS BETA	1.01	1.13	0.873	0.771	1.47	1.14	0.860	0.759	36.6	0.283		20	2

Laboratory Control Sample (LCS)

(LCS) R4018586-2 12/22/23 13:02

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
GROSS ALPHA	15.0	14.3	95.3	80.0-120	
GROSS BETA	40.7	41.3	101	80.0-120	

L1685195-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1685195-01 12/22/23 13:02 • (MS) R4018586-3 12/22/23 13:02 • (MSD) R4018586-4 12/22/23 13:02

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
GROSS ALPHA	20.0	5.39	24.0	27.7	93.1	112	1	70.0-130			14.4		20
GROSS BETA	54.3	1.39	53.8	53.9	96.5	96.6	1	70.0-130			0.149		20

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4013088-1 12/14/23 15:06

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0631	<u>U</u>	0.170	0.300	
(T) Barium	103		103		

L1681246-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1681246-01 12/14/23 16:06 • (DUP) R4013088-5 12/14/23 16:06

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	1.09	0.492	0.468		1.64	0.973	1.11		40.7	0.510		20	3
(T) Barium	104				96.5	96.5							

Laboratory Control Sample (LCS)

(LCS) R4013088-2 12/14/23 15:06

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.37	107	80.0-120	
(T) Barium			105		

L1685195-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1685195-06 12/14/23 17:07 • (MS) R4013088-3 12/14/23 15:06 • (MSD) R4013088-4 12/14/23 15:06

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	1.08	21.8	22.6	104	108	1	75.0-125			3.47		20
(T) Barium		101			104	103							

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4017348-1 12/22/23 14:53

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.000	<u>U</u>	0.141	0.259	
(T) Barium	108		108		
(T) Yttrium	101		101		

L1686153-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1686153-01 12/22/23 14:53 • (DUP) R4017348-5 12/22/23 14:53

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.869	0.293	0.492		0.137	0.384	0.671		146	1.52	<u>U</u>	20	2
(T) Barium	113				112	112							
(T) Yttrium	116				120	120							

Laboratory Control Sample (LCS)

(LCS) R4017348-2 12/22/23 14:53

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.43	109	80.0-120	
(T) Barium			120		
(T) Yttrium			120		

L1685195-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1685195-01 12/22/23 14:53 • (MS) R4017348-3 12/22/23 14:53 • (MSD) R4017348-4 12/22/23 14:53

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.194	17.0	15.1	101	89.1	1	70.0-130			12.2		20
(T) Barium		113			110	107							
(T) Yttrium		104			103	104							

Method Blank (MB)

(MB) R4017348-1 12/22/23 14:53

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.000	<u>U</u>	0.141	0.259	
(T) Barium	108		108		

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4017348-1 12/22/23 14:53

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
(T) Yttrium	101		101		

L1686153-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1686153-01 12/22/23 14:53 • (DUP) R4017348-5 12/22/23 14:53

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.869	0.293	0.492		0.137	0.384	0.671		146	1.52	U	20	2
(T) Barium	113				112	112							
(T) Yttrium	116				120	120							

Laboratory Control Sample (LCS)

(LCS) R4017348-2 12/22/23 14:53

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.43	109	80.0-120	
(T) Barium			120		
(T) Yttrium			120		

L1685195-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1685195-01 12/22/23 14:53 • (MS) R4017348-3 12/22/23 14:53 • (MSD) R4017348-4 12/22/23 14:53

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.194	17.0	15.1	101	89.1	1	70.0-130			12.2		20
(T) Barium		113			110	107							
(T) Yttrium		104			103	104							

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Method Blank (MB)

(MB) R4017345-1 12/20/23 20:30

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.814		0.154	0.264	
(T) Barium	113		113		
(T) Yttrium	101		101		

L1685195-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1685195-10 12/20/23 20:30 • (DUP) R4017345-5 12/20/23 20:30

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.40	0.338	0.593		2.19	0.393	0.677		44.1	1.52		20	3
(T) Barium	112				122	122							
(T) Yttrium	112				99.8	99.8							

Laboratory Control Sample (LCS)

(LCS) R4017345-2 12/20/23 20:30

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.37	107	80.0-120	
(T) Barium			115		
(T) Yttrium			103		

L1685195-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1685195-06 12/20/23 20:30 • (MS) R4017345-3 12/20/23 20:30 • (MSD) R4017345-4 12/20/23 20:30

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	3.69	19.0	19.2	91.8	92.9	1	70.0-130			0.942		20
(T) Barium		114			113	110							
(T) Yttrium		107			102	126							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4019442-1 12/29/23 14:49

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.126	<u>U</u>	0.191	0.362	
(T) Barium	76.8		76.8		
(T) Yttrium	113		113		

L1686001-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1686001-01 12/29/23 14:49 • (DUP) R4019442-5 12/29/23 14:49

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.234	0.245	0.450		0.139	0.404	0.744		50.7	0.200	<u>U</u>	20	3
(T) Barium	90.5				96.3	96.3							
(T) Yttrium	103				114	114							

Laboratory Control Sample (LCS)

(LCS) R4019442-2 12/29/23 14:49

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.34	107	80.0-120	
(T) Barium			82.6		
(T) Yttrium			110		

L1685195-17 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1685195-17 12/29/23 14:49 • (MS) R4019442-3 12/29/23 14:49 • (MSD) R4019442-4 12/29/23 14:49

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	10.0	2.36	9.94	11.4	75.8	90.8	1	70.0-130			14.0		20
(T) Barium		74.9			93.6	84.0							
(T) Yttrium		116			115	112							

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

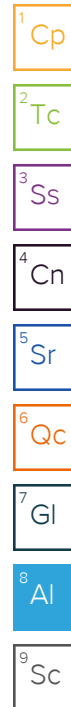
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.





SUBCONTRACT ORDER
Chemtech-Ford, Inc

C065
Work Order Number
23K2200

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order If gross alpha is > 5 run radium 226 (DW)
Comments:

Laboratory ID: 23K2200-01	Matrix: Water	Client Matrix: Water Drinking Water
Requested Test	Suggested Analytical Method *	Sampled: 11/28/2023 14:30
Gross Alpha LLD	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Beta	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Gross Beta Variance	EPA 900.0	
Radium-228	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228 Variance	EPA 904.0	
Gross Alpha	EPA 900.0	

Laboratory ID: 23K2200-02	Matrix: Water	Client Matrix: Water Drinking Water
Requested Test	Suggested Analytical Method *	Sampled: 11/28/2023 13:42
Gross Beta Variance	EPA 900.0	
Gross Alpha	EPA 900.0	
Gross Alpha LLD	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Radium-228	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228 Variance	EPA 904.0	
Gross Beta	EPA 900.0	

6 total
Sample Receipt Checklist
DSC Seal Present/Intact: ☒ Y ☐ N If Applicable
DSC Signed/Accurate: ☒ Y ☐ N VOA Zero Headspace: ☒ Y ☐ N
Bottles arrive intact: ☒ Y ☐ N Pres. Correct/Check: ☒ Y ☐ N
Correct bottles used: ☒ Y ☐ N
Sufficient volume sent: ☒ Y ☐ N
RA Screen <0.5 mR/hr: ☒ Y ☐ N

Released By: Date: 11/29/23 Received By: Date: 12/5/23
Released By: Date: 12/15/23 Received By: Date: 12-16-23 0830



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
23K2200

Laboratory ID: 23K2200-03		Matrix: Water		Client Matrix: <i>Drinking Water</i>	
Requested Test		Suggested Analytical Method *		Sampled: 11/28/2023 15:10	
Radium-228 Variance		EPA 904.0			
Gross Alpha		EPA 900.0			
Gross Alpha LLD		EPA 900.0			
Gross Alpha Variance		EPA 900.0			
Gross Beta		EPA 900.0			
Gross Beta LLD		EPA 900.0			
Gross Beta Variance		EPA 900.0			
Radium-228		EPA 904.0			
Radium-228 LLD		EPA 904.0			

U685195-03

<i>[Signature]</i>	11/29/23	<i>[Signature]</i>	8:48	12/5/23
Released By	Date	Received By		Date
<i>[Signature]</i>	1700 12/5/23			
Released By	Date	Received By		Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order QC 4 Report to MDL. Run QC on Sample #03

Comments:

Laboratory ID: 23K2341-01	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 11/29/2023 08:43

Radium-226 LLD	EPA 903.0
Radium-226 Variance	EPA 903.0
Radium-228	EPA 904.0
Radium-228 LLD	EPA 904.0
Radium-228 Variance	EPA 904.0
Radium-226	EPA 903.0

11685195-01

Laboratory ID: 23K2341-02	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 11/29/2023 09:40

Radium-228 Variance	EPA 904.0
Radium-226	EPA 903.0
Radium-226 LLD	EPA 903.0
Radium-226 Variance	EPA 903.0
Radium-228	EPA 904.0
Radium-228 LLD	EPA 904.0

65

Laboratory ID: 23K2341-03	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 11/29/2023 11:07

Radium-228 Variance	EPA 904.0
Radium-228 LLD	EPA 904.0
Radium-228	EPA 904.0
Radium-226 Variance	EPA 903.0
Radium-226	EPA 903.0
Radium-226 LLD	EPA 903.0

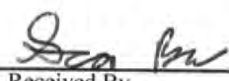
06

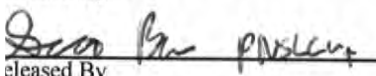
16 total

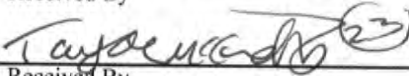
Sample Receipt Checklist	
CCC Seal Present/Intact:	☒ Y ☐ N
CCC Signed/Accurate:	☒ Y ☐ N
Bottles arrive intact:	☒ Y ☐ N
Correct bottles used:	☒ Y ☐ N
Sufficient volume sent:	☒ Y ☐ N
RA Screen <0.5 mR/hr:	☒ Y ☐ N

If Applicable
VOA Zero Headspace: ☒ Y ☐ N
Pres. Correct/Check: ☒ Y ☐ N

Released By:  Date: 11/30/23

Received By:  8:48 12/5/23 Date

Released By:  1700 12/5/23 Date

Received By:  12:6:23 Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.

Laboratory ID: 23K2341-04	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 11/29/2023 12:31

Radium-228 LLD	EPA 904.0
Radium-226	EPA 903.0
Radium-226 LLD	EPA 903.0
Radium-226 Variance	EPA 903.0
Radium-228	EPA 904.0
Radium-228 Variance	EPA 904.0

L168545-07

Laboratory ID: 23K2341-05	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 11/29/2023 12:31

Radium-226 LLD	EPA 903.0
Radium-226 Variance	EPA 903.0
Radium-228	EPA 904.0
Radium-228 LLD	EPA 904.0
Radium-228 Variance	EPA 904.0
Radium-226	EPA 903.0

68

Laboratory ID: 23K2341-06	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 11/29/2023 13:37

Radium-228 Variance	EPA 904.0
Radium-226	EPA 903.0
Radium-226 LLD	EPA 903.0
Radium-226 Variance	EPA 903.0
Radium-228	EPA 904.0
Radium-228 LLD	EPA 904.0

09

Laboratory ID: 23K2341-07	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 11/29/2023 14:57

Radium-228 Variance	EPA 904.0
Radium-228 LLD	EPA 904.0
Radium-228	EPA 904.0
Radium-226 Variance	EPA 903.0
Radium-226	EPA 903.0
Radium-226 LLD	EPA 903.0

10

Released By

Date

Received By

Date

Released By

Date

Received By

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.

Laboratory ID: 23K2341-08		Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 11/29/2023 15:49	
Radium-228 Variance	EPA 904.0	4685195-11	
Radium-226	EPA 903.0		
Radium-226 LLD	EPA 903.0		
Radium-226 Variance	EPA 903.0		
Radium-228	EPA 904.0		
Radium-228 LLD	EPA 904.0		

	11/30/23		8:48 12/5/23
Released By	Date	Received By	Date
	1700 12/5/23		
Released By	Date	Received By	Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER

Chemtech-Ford, Inc

C064

Work Order Number

23K2241

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order ~~Copy from 23K2240~~ If gross alpha is ⁷⁵5, run radium 226
Comments:

Laboratory ID: 23K2241-01	Matrix: Water	Client Matrix: Drinking Water
Requested Test	Suggested Analytical Method *	Sampled: 11/29/2023 12:41
Radium-228 Variance	EPA 904.0	4685195-12
Radium-228 LLD	EPA 904.0	
Radium-228	EPA 904.0	
Gross Beta Variance	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Gross Beta	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Alpha LLD	EPA 900.0	
Gross Alpha	EPA 900.0	

2 total
Sample Receipt Checklist
COC Real Present/Intact: ☒ Y ☐ N If Applicable
COC Signed/Accurate: ☒ Y ☐ N VOA Zero Headspace: ☒ Y ☐ N
Bottles arrive intact: ☒ Y ☐ N Pres. Correct/Check: ☒ Y ☐ N
Correct bottles used: ☒ Y ☐ N
Sufficient volume sent: ☒ Y ☐ N
RA Screen <0.5 mR/hr: ☒ Y ☐ N

Released By

Date

Received By

Date

Released By

Date

Received By

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

C069
Work Order Number
23K2287

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order
Comments:

Laboratory ID: 23K2287-01	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 11/28/2023 13:15
Radium-228 Variance	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228	EPA 904.0	
Radium-226 Variance	SM 7500 Ra B	
Radium-226 LLD	SM 7500 Ra B	
Radium-226	SM 7500 Ra B	

NPW
Method 903

4685195-13

2 total
Sample Receipt Checklist
DOC Seal Present/Intact: ☒ Y ☐ N If Applicable
DOC Signed Accurate: ☒ Y ☐ N VCA Zero Headspace: ☒ Y ☐ N
Bottles arrive intact: ☒ Y ☐ N PCB, Correct/Check: ☒ Y ☐ N
Correct bottles used: ☒ Y ☐ N
Sufficient volume sent: ☒ Y ☐ N
RA Screen 40.5 mR/hr: ☒ Y ☐ N

Released By: <i>[Signature]</i>	Date: 11/30/23	Received By: <i>[Signature]</i>	Date: 8:48 12/5/23
Released By: <i>[Signature]</i>	Date: 1700 12/5/23	Received By: <i>[Signature]</i>	Date: 17:06:23 0800



SUBCONTRACT ORDER
Chemtech-Ford, Inc

C067
Work Order Number
23L0155

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order If gross alpha is >5 run radium 226
Comments:

Laboratory ID: 23L0155-01	Matrix: Water	Client Matrix: Drinking Water
Requested Test	Suggested Analytical Method *	Sampled: 12/04/2023 15:50
Gross Alpha LLD	EPA 900.0	11685195-14
Gross Alpha Variance	EPA 900.0	
Gross Beta	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Gross Beta Variance	EPA 900.0	
Radium-228	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228 Variance	EPA 904.0	
Gross Alpha	EPA 900.0	

Laboratory ID: 23L0155-02	Matrix: Water	Client Matrix: Drinking Water
Requested Test	Suggested Analytical Method *	Sampled: 12/04/2023 14:50
Gross Beta Variance	EPA 900.0	15
Gross Alpha	EPA 900.0	
Gross Alpha LLD	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Radium-228	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228 Variance	EPA 904.0	
Gross Beta	EPA 900.0	

6 total
Sample Receipt Checklist
COC Seal Present/Intact: ☒ Y ☐ N If Applicable
COC Signed/Accurate: ☒ Y ☐ N VOA Zero Headspace: ☒ Y ☐ N
Bottles arrive intact: ☒ Y ☐ N Pres. Correct/Check: ☒ Y ☐ N
Correct bottles used: ☒ Y ☐ N
Sufficient volume sent: ☒ Y ☐ N
RA Screen <0.5 mR/hr: ☒ Y ☐ N

Released By	Date	Received By	Date
<i>[Signature]</i>	12/4/23	<i>[Signature]</i>	8:48 12/5/23
Released By	Date	Received By	Date
<i>[Signature]</i>	12/5/23	<i>[Signature]</i>	12-6-23 0800

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
23L0155

Laboratory ID: 23L0155-03	Matrix: Water	Client Matrix: Drinking Water
Requested Test	Suggested Analytical Method *	Sampled: 12/04/2023 14:05
Radium-228 Variance	EPA 904.0	
Gross Alpha	EPA 900.0	
Gross Alpha LLD	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Beta	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Gross Beta Variance	EPA 900.0	
Radium-228	EPA 904.0	
Radium-228 LLD	EPA 904.0	

23L0155-16

Released By	Date	Received By	Date
	12/4/23		8:48 12/5/23
Released By	Date	Received By	Date
	PNVLCVT 1700 12/5/23		

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

C066
Work Order Number
23L0050

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order QC 4 Report to MDL
Comments:

Laboratory ID: 23L0050-01	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 11/30/2023 14:00
Radium-228 Variance	EPA 904.0	QC4 needed on 23L0050-01 Needs QC 4 11625155-17
Radium-228 LLD	EPA 904.0	
Radium-228	EPA 904.0	
Radium-226 Variance	EPA 903.0	
Radium-226 LLD	EPA 903.0	
Radium-226	EPA 903.0	

Laboratory ID: 23L0050-02	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 11/30/2023 14:00
Radium-228 Variance	EPA 904.0	18
Radium-228 LLD	EPA 904.0	
Radium-228	EPA 904.0	
Radium-226 Variance	EPA 903.0	
Radium-226 LLD	EPA 903.0	
Radium-226	EPA 903.0	

4 total
Sample Receipt Checklist
COC Seal Present/Intact: ☒ Y ☐ N
COC Signed/Accurate: ☒ Y ☐ N
Bottles arrive intact: ☒ Y ☐ N
Correct bottles used: ☒ Y ☐ N
Sufficient volume sent: ☒ Y ☐ N
RA Screen <0.5 mR/hr: ☒ Y ☐ N
If Applicable
VDA Zero Headspace: ☒ Y ☐ N
Pres. Correct/Check: ☒ Y ☐ N

Released By: [Signature] Date: 12/1/23
Received By: [Signature] Date: 12/5/23
Released By: [Signature] Date: 12/5/23
Received By: [Signature] Date: 12-6-23



SUBCONTRACT ORDER

Chemtech-Ford, Inc

Work Order Number

23L0032

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order If gross alpha is > 5, run radium 226 DW

Comments:

Laboratory ID: 23L0032-01	Matrix: Water	Client Matrix: Drinking Water
Requested Test	Suggested Analytical Method *	Sampled: 11/30/2023 12:05
Radium-228 Variance	EPA 904.0	4685145-19
Radium-228 LLD	EPA 904.0	
Radium-228	EPA 904.0	
Gross Beta Variance	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Gross Beta	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Alpha LLD	EPA 900.0	
Gross Alpha	EPA 900.0	

2 total sample Receipt Checklist

CCC Seal Present/Intact:	☒ Y ☐ N	If Applicable	☐ Y ☐ N
CCC Signed/Accurate:	☒ Y ☐ N	VGA Zero Headspace:	☒ Y ☐ N
Bottles arrive intact:	☒ Y ☐ N	Pres. Correct/Check:	☒ Y ☐ N
Correct bottles used:	☒ Y ☐ N		
Sufficient volume sent:	☒ Y ☐ N		
RA Screen <0.5 mR/hr:	☒ Y ☐ N		

Released By <i>[Signature]</i>	Date 12/1/23	Received By <i>[Signature]</i>	Date 12/5/23 8:48
Released By <i>[Signature]</i> PWSLUT	Date 1700 12/5/23	Received By <i>[Signature]</i> (3)	Date 12-6-23 0800

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



12/11/2023

Work Order: 23K2289
Project: BA-DG4 - Round 5

Deseret Power Electric Cooperative
Attn: Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Dave Gayer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O: (801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 185318
Receipt: 11/30/23 10:50 @ 1.1 °C
Date Reported: 12/11/2023
Project Name: BA-DG4 - Round 5

Sample ID: BA-DG4

Matrix: Water

Date Sampled: 11/28/23 13:15

Sampled By: Trenton Keller

Lab ID: 23K2289-01

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	678	mg/L	10.0	EPA 300.0	12/1/23	12/1/23	
Fluoride	1.22	mg/L	0.100	EPA 300.0	12/4/23	12/5/23	
Sulfate	6830	mg/L	100	EPA 300.0	12/1/23	12/1/23	
Total Dissolved Solids (TDS)	10600	mg/L	1000	SM 2540 C	11/30/23	11/30/23	
Metals							
Antimony, Total	ND	mg/L	0.0005	EPA 200.8/200.2	12/1/23	12/1/23	
Arsenic, Total	0.0113	mg/L	0.0005	EPA 200.8/200.2	12/1/23	12/1/23	
Barium, Total	0.016	mg/L	0.005	EPA 200.7/200.2	12/5/23	12/5/23	
Beryllium, Total	ND	mg/L	0.0005	EPA 200.8/200.2	12/1/23	12/1/23	
Boron, Total	30.2	mg/L	0.05	EPA 200.7/200.2	12/5/23	12/5/23	
Cadmium, Total	ND	mg/L	0.0002	EPA 200.8/200.2	12/1/23	12/1/23	
Calcium, Total	237	mg/L	0.2	EPA 200.7/200.2	12/5/23	12/5/23	
Chromium, Total	0.0044	mg/L	0.0005	EPA 200.8/200.2	12/1/23	12/1/23	
Cobalt, Total	0.0025	mg/L	0.0005	EPA 200.8/200.2	12/1/23	12/1/23	
Lead, Total	ND	mg/L	0.0005	EPA 200.8/200.2	12/1/23	12/1/23	
Lithium, Total	0.169	mg/L	0.005	EPA 200.7/200.2	12/5/23	12/5/23	
Mercury, Total	ND	mg/L	0.00015	EPA 245.1	12/4/23	12/5/23	
Molybdenum, Total	0.06	mg/L	0.01	EPA 200.7/200.2	12/5/23	12/5/23	
Selenium, Total	0.0434	mg/L	0.0005	EPA 200.8/200.2	12/1/23	12/1/23	
Thallium, Total	ND	mg/L	0.0002	EPA 200.8/200.2	12/1/23	12/1/23	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 185318
Receipt: 11/30/23 10:50 @ 1.1 °C
Date Reported: 12/11/2023
Project Name: BA-DG4 - Round 5

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

CHAIN OF CUSTODY

COMPANY:	Deseret Power Electric Cooperative		
ADDRESS:	12500 East 25500 South		
CITY/STATE/ZIP:	Vernal, UT 84078-8525		
PHONE #:	435-781-5706	FAX	
CONTACT:	Tyler Esplin	PROJECT:	BA-DG4 - Round 5
EMAIL:	tesplin@deseretpower.com		

BILLING ADDRESS: _____
BILLING CITY/STATE/ZIP: _____
PURCHASE ORDER #: 185318



TURNAROUND REQUIRED:*

* Expedited turnaround subject to additional charge

Sample Receipt Conditions:

- ☐ Custody Seals Present ☒ Correct Containers ☐ Headspace Present (VOC)
☒ Containers Intact ☒ COC Included ☐ Temperature Blank
☒ COC and Labels Match ☒ COC Complete ☒ Received within Hold
☒ Received on Ice ☒ Sufficient Sample Volume **Checked by:** AV

Checked by: AV

Lab Use Only	CLIENT SAMPLE INFORMATION				
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX	Field: Residual Chlorine
01	1. BA-DG4	11-28-23	13:15	Water	
	2.				
	3.				
	4.				
	5.				
	6.				
	7.				
	8.				
	9.				
	10.				

Sampled by: [print] Trenton Keller

Sampled by: [signature]

Special Instructions: * Ba,B,Ca,Li,Mo ** Sb,As,Be,Cd,Cr,Co,Pb,Se,Tl

ON ICE NOT ON ICE Temp (C°):

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Relinquished by: (signature)

Date/Time

11-29-23 09:03

Received by: [signature]

Date/Time	
-----------	--

11/29/23

Relinquished by: [signature]

	Date/Time
--	-----------

Received by: [signature]

	Date/Time
--	-----------

Relinquished by: [signature]

Date/Time	
-----------	--

Received by: [signature]

Date/Time

CHEMTECH-FORD
9632 South 500 West
Sandy, UT 84070

801.262.7299 PHONE
866.792.0093 FAX
www.chemtechford.com

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees. AL-123 1308

fees. AG(X2) 1298
AQ 1272
M 1325

QC Report for Work Order (WO) - 23K2289

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.7

QC Sample ID: BXL0124-BLK1		Batch: BXL0124							
Date Prepared: 12/05/2023		Date Analyzed: 12/05/2023							
Barium, Total					ND			0.005	1.00
Boron, Total					ND			0.05	1.00
Calcium, Total					ND			0.2	1.00
Lithium, Total					0.012			0.005	1.00
QB-01 - The method blank contains analyte at a concentration above the MRL; however, concentration is less than 10% of the sample result, which is negligible according to method criteria.									
Molybdenum, Total					ND			0.01	1.00

LCS - EPA 200.7

QC Sample ID: BXL0124-BS1		Batch: BXL0124							
Date Prepared: 12/05/2023		Date Analyzed: 12/05/2023							
Barium, Total	114	85 - 115			0.285	0.250		0.005	1.00
Boron, Total	110	85 - 115			0.55	0.500		0.05	1.00
Calcium, Total	110	85 - 115			11.2	10.2		0.2	1.00
Lithium, Total	117	85 - 115			0.233	0.200		0.005	1.00
QM-11 - The Laboratory Control Sample recovery was outside acceptance limits. The analytical batch was accepted based on the recovery of the Method Spike.									
Molybdenum, Total	114	85 - 115			0.23	0.200		0.01	1.00

Matrix Spike - EPA 200.7

QC Sample ID: BXL0124-MS1	Batch: BXL0124	QC Source Sample: XXXXXXXX-XX					
Date Prepared: 12/05/2023	Date Analyzed: 12/05/2023						
Barium, Total	108	70 - 130	0.481	0.210	0.250	0.005	1.00
Boron, Total	108	70 - 130	0.58	0.04	0.500	0.05	1.00
Calcium, Total	83.5	70 - 130	89.3	80.7	10.2	0.2	1.00
Lithium, Total	109	70 - 130	0.231	0.014	0.200	0.005	1.00
Molybdenum, Total	111	70 - 130	0.22	ND	0.200	0.01	1.00

Matrix Spike Dup - EPA 200.7

QC Sample ID: BXL0124-MSD1	Batch: BXL0124		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 12/05/2023	Date Analyzed: 12/05/2023								
Barium, Total	111	1.32	70 - 130	20	0.488	0.210	0.250	0.005	1.00
Boron, Total	109	0.772	70 - 130	20	0.58	0.04	0.500	0.05	1.00
Calcium, Total	99.6	1.83	70 - 130	20	90.9	80.7	10.2	0.2	1.00
Lithium, Total	109	0.0865	70 - 130	20	0.231	0.014	0.200	0.005	1.00
Molybdenum, Total	112	0.493	70 - 130	20	0.22	ND	0.200	0.01	1.00

QC Report for Work Order (WO) - 23K2289

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.8

QC Sample ID: BXL0002-BLK1		Batch: BXL0002							
Date Prepared: 12/01/2023		Date Analyzed: 12/01/2023							
Antimony, Total					ND		0.0005	1.00	
Arsenic, Total					ND		0.0005	1.00	
Beryllium, Total					ND		0.0005	1.00	
Cadmium, Total					ND		0.0002	1.00	
Chromium, Total					ND		0.0005	1.00	
Cobalt, Total					ND		0.0005	1.00	
Lead, Total					ND		0.0005	1.00	
Selenium, Total					ND		0.0005	1.00	
Thallium, Total					ND		0.0002	1.00	

LCS - EPA 200.8

QC Sample ID: BXL0002-BS1		Batch: BXL0002							
Date Prepared: 12/01/2023		Date Analyzed: 12/01/2023							
Antimony, Total	102	85 - 115		0.041		0.0400	0.0005	1.00	
Arsenic, Total	98.4	85 - 115		0.039		0.0400	0.0005	1.00	
Beryllium, Total	98.2	85 - 115		0.039		0.0400	0.0005	1.00	
Cadmium, Total	100	85 - 115		0.040		0.0400	0.0002	1.00	
Chromium, Total	100	85 - 115		0.040		0.0400	0.0005	1.00	
Cobalt, Total	100	85 - 115		0.040		0.0400	0.0005	1.00	
Lead, Total	98.3	85 - 115		0.039		0.0400	0.0005	1.00	
Selenium, Total	100	85 - 115		0.040		0.0400	0.0005	1.00	
Thallium, Total	102	85 - 115		0.041		0.0400	0.0002	1.00	

Matrix Spike - EPA 200.8

QC Sample ID: BXL0002-MS1	Batch: BXL0002	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 12/01/2023	Date Analyzed: 12/01/2023							
Antimony, Total	108	70 - 130	0.043	0.0002	0.0400	0.0005	1.00	
Arsenic, Total	104	70 - 130	0.042	0.0004	0.0400	0.0005	1.00	
Beryllium, Total	104	70 - 130	0.041	ND	0.0400	0.0005	1.00	
Cadmium, Total	103	70 - 130	0.041	0.00003	0.0400	0.0002	1.00	
Chromium, Total	102	70 - 130	0.043	0.002	0.0400	0.0005	1.00	
Cobalt, Total	99.2	70 - 130	0.040	0.00008	0.0400	0.0005	1.00	
Lead, Total	98.5	70 - 130	0.039	ND	0.0400	0.0005	1.00	
Selenium, Total	108	70 - 130	0.044	0.0009	0.0400	0.0005	1.00	
Thallium, Total	104	70 - 130	0.042	0.00003	0.0400	0.0002	1.00	

QC Sample ID: BXL0002-MS2	Batch: BXL0002	QC Source Sample: XXXXXXXX-XX					
Date Prepared: 12/01/2023	Date Analyzed: 12/01/2023						
Antimony, Total	105	70 - 130	0.042	0.0001	0.0400	0.0005	1.00
Arsenic, Total	105	70 - 130	0.043	0.001	0.0400	0.0005	1.00
Beryllium, Total	104	70 - 130	0.042	ND	0.0400	0.0005	1.00
Cadmium, Total	102	70 - 130	0.041	ND	0.0400	0.0002	1.00
Chromium, Total	103	70 - 130	0.043	0.002	0.0400	0.0005	1.00
Cobalt, Total	97.8	70 - 130	0.039	0.00009	0.0400	0.0005	1.00
Lead, Total	102	70 - 130	0.041	0.0003	0.0400	0.0005	1.00
Selenium, Total	107	70 - 130	0.044	0.0008	0.0400	0.0005	1.00
Thallium, Total	106	70 - 130	0.042	ND	0.0400	0.0002	1.00

QC Report for Work Order (WO) - 23K2289

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Blank - EPA 245.1									
QC Sample ID: BXL0090-BLK1	Batch: BXL0090								
Date Prepared: 12/04/2023	Date Analyzed: 12/05/2023								
Mercury, Total					ND			0.00015	1.00
LCS - EPA 245.1									
QC Sample ID: BXL0090-BS1	Batch: BXL0090								
Date Prepared: 12/04/2023	Date Analyzed: 12/05/2023								
Mercury, Total	99.1		85 - 115		0.00495		0.00500	0.00015	1.00
Matrix Spike - EPA 245.1									
QC Sample ID: BXL0090-MS1	Batch: BXL0090		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 12/04/2023	Date Analyzed: 12/05/2023								
Mercury, Total	99.0		75 - 125		0.00495	ND	0.00500	0.00015	1.00
Matrix Spike Dup - EPA 245.1									
QC Sample ID: BXL0090-MSD1	Batch: BXL0090		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 12/04/2023	Date Analyzed: 12/05/2023								
Mercury, Total	101	1.57	75 - 125	20	0.00503	ND	0.00500	0.00015	1.00

QC Report for Work Order (WO) - 23K2289

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 300.0

QC Sample ID: BXL0024-BLK1	Batch: BXL0024								
Date Prepared: 12/01/2023	Date Analyzed: 12/01/2023								
Chloride					ND			1.00	1.00
Sulfate					ND			1.00	1.00

QC Sample ID: BXL0101-BLK1	Batch: BXL0101								
Date Prepared: 12/04/2023	Date Analyzed: 12/05/2023								
Fluoride					ND			0.100	1.00

LCS - EPA 300.0

QC Sample ID: BXL0024-BS1	Batch: BXL0024								
Date Prepared: 12/01/2023	Date Analyzed: 12/01/2023								
Chloride	103	90 - 110			51.6		50.0	1.00	1.00
Sulfate	105	90 - 110			52.7		50.0	1.00	1.00

QC Sample ID: BXL0101-BS1	Batch: BXL0101								
Date Prepared: 12/04/2023	Date Analyzed: 12/04/2023								
Fluoride	93.1	90 - 110			4.65		5.00	0.100	1.00

Matrix Spike - EPA 300.0

QC Sample ID: BXL0024-MS1	Batch: BXL0024	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 12/01/2023	Date Analyzed: 12/01/2023								
Chloride	106	80 - 120			103	90.9	11.1	1.11	1.00
Sulfate	110	80 - 120			40.0	27.9	11.1	1.11	1.00

QC Sample ID: BXL0024-MS2	Batch: BXL0024	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 12/01/2023	Date Analyzed: 12/01/2023								
Chloride	106	80 - 120			103	91.3	11.1	1.11	1.00
Sulfate	110	80 - 120			40.1	27.9	11.1	1.11	1.00

QC Sample ID: BXL0101-MS1	Batch: BXL0101	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 12/04/2023	Date Analyzed: 12/05/2023								
Fluoride	41.9	80 - 120			0.465	ND	1.11	0.111	1.00

QM-RPD - The recovery was outside acceptance limits for the MS and/or MSD. The RPD between the MS and MSD was acceptable and indicates the recovery is due to matrix interference. The batch was accepted based on the acceptable recovery of the LCS and the RPD.

QC Sample ID: BXL0101-MS2	Batch: BXL0101	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 12/04/2023	Date Analyzed: 12/05/2023								
Fluoride	85.6	80 - 120			1.23	0.278	1.11	0.111	1.00

Matrix Spike Dup - EPA 300.0

QC Sample ID: BXL0024-MSD1	Batch: BXL0024	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 12/01/2023	Date Analyzed: 12/01/2023								
Chloride	106	0.000394	80 - 120	20	103	90.9	11.1	1.11	1.00
Sulfate	111	0.259	80 - 120	20	40.1	27.9	11.1	1.11	1.00

QC Sample ID: BXL0024-MSD2	Batch: BXL0024	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 12/01/2023	Date Analyzed: 12/01/2023								
Chloride	105	0.0450	80 - 120	20	103	91.3	11.1	1.11	1.00
Sulfate	110	0.0432	80 - 120	20	40.1	27.9	11.1	1.11	1.00

QC Sample ID: BXL0101-MSD1	Batch: BXL0101	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 12/04/2023	Date Analyzed: 12/05/2023								
Fluoride	46.4	10.2	80 - 120	20	0.515	ND	1.11	0.111	1.00

QM-RPD - The recovery was outside acceptance limits for the MS and/or MSD. The RPD between the MS and MSD was acceptable and indicates the recovery is due to matrix interference. The batch was accepted based on the acceptable recovery of the LCS and the RPD.

QC Report for Work Order (WO) - 23K2289

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Matrix Spike Dup - EPA 300.0 (cont.)

QC Sample ID: BXL0101-MSD2

Batch: BXL0101

QC Source Sample: XXXXXXXX-XX

Date Prepared: 12/04/2023

Date Analyzed: 12/05/2023

Fluoride	90.7	4.44	80 - 120	20	1.29	0.278	1.11	0.111	1.00
----------	------	------	----------	----	------	-------	------	-------	------

QC Report for Work Order (WO) - 23K2289

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Blank - SM 2540 C									
QC Sample ID: BXX1388-BLK1	Batch: BXX1388								
Date Prepared: 11/30/2023	Date Analyzed: 11/30/2023								
Total Dissolved Solids (TDS)					ND			10	1.00
Duplicate - SM 2540 C									
QC Sample ID: BXX1388-DUP1	Batch: BXX1388		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 11/30/2023	Date Analyzed: 11/30/2023								
Total Dissolved Solids (TDS)	0.3			10	1540	1530		20	1.00
QC Sample ID: BXX1388-DUP2	Batch: BXX1388		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 11/30/2023	Date Analyzed: 11/30/2023								
Total Dissolved Solids (TDS)	0.7			10	29800	29600		1000	1.00
LCS - SM 2540 C									
QC Sample ID: BXX1388-BS1	Batch: BXX1388								
Date Prepared: 11/30/2023	Date Analyzed: 11/30/2023								
Total Dissolved Solids (TDS)	104		90 - 110		416		400	20	1.00



**BONANZA POWER PLANT
CCR GROUNDWATER MONITORING WELLS
SAMPLING & ANALYSIS PROGRAM**

Well number: BA-DG4
Field Personnel: TK, JB
Sampling date: 11-28-23
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): N/A
Water level, post-pump installation (ft): N/A
Rate & direction of groundwater flow: N/A
Total volume of water pumped (Liters): 1.15
Clock time of sample: 13:15
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic
Sample bottle(s) identification number used: BA-DG4
Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

Additional Notes: _____

[illegible]



Amended

1/30/2024

**Work Order: 24A1094
Project: BA-DG4 - Round 6**

**Deseret Power Electric Cooperative
Attn: Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525**

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Deseret Power Electric Cooperative
12500 East 25500 South
Vernal, UT 84078-8525

Project: BA-DG4 - Round 6
Project Manager: Tyler Esplin

<u>Laboratory ID</u>	<u>Sample Name</u>
24A1094-01	BA-DG4

Amended Report Narrative

Report Changes:

QC level II added to report.



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Amended

Certificate of Analysis

Amended

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 185318
Receipt: 1/17/24 11:32 @ -0.4 °C
Date Reported: 1/30/2024
Project Name: BA-DG4 - Round 6

Sample ID: BA-DG4

Matrix: Water

Lab ID: 24A1094-01

Date Sampled: 1/15/24 13:25

Sampled By: Trenton Keller

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Inorganic							
Chloride	578	mg/L	10.0	EPA 300.0	1/17/24	1/17/24	
Fluoride	2.21	mg/L	1.00	EPA 300.0	1/17/24	1/17/24	
Sulfate	6480	mg/L	100	EPA 300.0	1/19/24	1/19/24	
Total Dissolved Solids (TDS)	11400	mg/L	1000	SM 2540 C	1/17/24	1/17/24	
Metals							
Antimony, Total	ND	mg/L	0.0025	EPA 200.8/200.8	1/18/24	1/18/24	
Arsenic, Total	0.0076	mg/L	0.0025	EPA 200.8/200.8	1/18/24	1/18/24	
Barium, Total	0.015	mg/L	0.005	EPA 200.7/200.2	1/18/24	1/18/24	
Beryllium, Total	ND	mg/L	0.0025	EPA 200.8/200.8	1/18/24	1/18/24	
Boron, Total	28.1	mg/L	0.05	EPA 200.7/200.2	1/18/24	1/18/24	
Cadmium, Total	ND	mg/L	0.0010	EPA 200.8/200.8	1/18/24	1/18/24	
Calcium, Total	224	mg/L	0.2	EPA 200.7/200.2	1/18/24	1/18/24	
Chromium, Total	0.0033	mg/L	0.0025	EPA 200.8/200.8	1/18/24	1/18/24	
Cobalt, Total	ND	mg/L	0.0025	EPA 200.8/200.8	1/18/24	1/18/24	
Lead, Total	ND	mg/L	0.0025	EPA 200.8/200.8	1/18/24	1/18/24	
Lithium, Total	0.184	mg/L	0.005	EPA 200.7/200.2	1/18/24	1/18/24	
Mercury, Total	ND	mg/L	0.00015	EPA 245.1	1/22/24	1/22/24	
Molybdenum, Total	0.06	mg/L	0.01	EPA 200.7/200.2	1/18/24	1/18/24	
Selenium, Total	0.0277	mg/L	0.0025	EPA 200.8/200.8	1/18/24	1/18/24	
Thallium, Total	ND	mg/L	0.0010	EPA 200.8/200.8	1/18/24	1/18/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Amended

Certificate of Analysis

Amended

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 185318
Receipt: 1/17/24 11:32 @ -0.4 °C
Date Reported: 1/30/2024
Project Name: BA-DG4 - Round 6

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

CHAIN OF CUSTODY

BILLING ADDRESS: _____
BILLING CITY/STATE/ZIP: _____
PURCHASE ORDER #: **185318**



* Expedited turnaround subject to additional charge

Please fill out the fields highlighted in light blue.

29A1094

UPS
1Z8497470163018376

[illegible]

Ag 1348

M 1325

- ☐ Custody Seals Present
- ☒ Containers Intact
- ☒ COC and Labels Match
- ☒ Received on Ice

✓ Sufficient Sample Volume

Checked by: lw

Checked by: *lw*

ON ICE NOT ON ICE Temp (C°): -0.4

Special Instructions: * Ba,B,Ca,Li,Mo ** Sb,As,Be,Cd,Cr,Co,Pb,Se,Tl

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Received by: [signature]	Date/Time 11/16/24 11:05
--------------------------	-----------------------------

Received by: [signature]	Date/Time
--------------------------	-----------

Received by: [signature]	Date/Time
--------------------------	-----------

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

QC Report for Work Order (WO) - 24A1094

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.7

QC Sample ID: BYA0719-BLK1	Batch: BYA0719								
Date Prepared: 01/18/2024	Date Analyzed: 01/18/2024								
Barium, Total					ND		0.005	1.00	
Boron, Total					ND		0.05	1.00	
Calcium, Total					ND		0.2	1.00	
Lithium, Total					ND		0.005	1.00	
Molybdenum, Total					ND		0.01	1.00	

LCS - EPA 200.7

QC Sample ID: BYA0719-BS1	Batch: BYA0719								
Date Prepared: 01/18/2024	Date Analyzed: 01/18/2024								
Barium, Total	90.1	85 - 115			0.225	0.250	0.005	1.00	
Boron, Total	90.7	85 - 115			0.45	0.500	0.05	1.00	
Calcium, Total	87.8	85 - 115			9.0	10.2	0.2	1.00	
Lithium, Total	94.9	85 - 115			0.190	0.200	0.005	1.00	
Molybdenum, Total	94.2	85 - 115			0.19	0.200	0.01	1.00	

Matrix Spike - EPA 200.7

QC Sample ID: BYA0719-MS1	Batch: BYA0719		QC Source Sample: XXXXXXXX-XX				
Date Prepared: 01/18/2024	Date Analyzed: 01/18/2024						
Barium, Total	93.0	70 - 130	0.240	0.008	0.250	0.005	1.00
Boron, Total	94.7	70 - 130	0.52	0.05	0.500	0.05	1.00
Calcium, Total	87.7	70 - 130	36.0	27.1	10.2	0.2	1.00
Lithium, Total	98.0	70 - 130	0.203	0.007	0.200	0.005	1.00
Molybdenum, Total	98.8	70 - 130	0.20	ND	0.200	0.01	1.00

QC Sample ID: BYA0719-MS2	Batch: BYA0719		QC Source Sample: 24A1094-01				
Date Prepared: 01/18/2024	Date Analyzed: 01/18/2024						
Barium, Total	94.0	70 - 130	0.250	0.015	0.250	0.005	1.00
Boron, Total	11.0	70 - 130	28.1	28.1	0.500	0.05	1.00

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Calcium, Total	56.5	70 - 130			230	224	10.2	0.2	1.00
----------------	------	----------	--	--	-----	-----	------	-----	------

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Lithium, Total	101	70 - 130			0.386	0.184	0.200	0.005	1.00
Molybdenum, Total	98.1	70 - 130			0.26	0.06	0.200	0.01	1.00

Matrix Spike Dup - EPA 200.7

QC Sample ID: BYA0719-MSD1	Batch: BYA0719		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 01/18/2024	Date Analyzed: 01/18/2024								
Barium, Total	91.7	1.30	70 - 130	20	0.237	0.008	0.250	0.005	1.00
Boron, Total	93.4	1.31	70 - 130	20	0.52	0.05	0.500	0.05	1.00
Calcium, Total	86.9	0.240	70 - 130	20	35.9	27.1	10.2	0.2	1.00
Lithium, Total	95.6	2.29	70 - 130	20	0.198	0.007	0.200	0.005	1.00
Molybdenum, Total	97.2	1.73	70 - 130	20	0.19	ND	0.200	0.01	1.00

QC Sample ID: BYA0719-MSD2	Batch: BYA0719		QC Source Sample: 24A1094-01						
Date Prepared: 01/18/2024	Date Analyzed: 01/18/2024								
Barium, Total	98.5	4.46	70 - 130	20	0.262	0.015	0.250	0.005	1.00
Boron, Total	-3.70	0.261	70 - 130	20	28.0	28.1	0.500	0.05	1.00

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

QC Report for Work Order (WO) - 24A1094

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Matrix Spike Dup - EPA 200.7 (cont.)

QC Sample ID: BYA0719-MSD2

Batch: BYA0719

QC Source Sample: 24A1094-01

Date Prepared: 01/18/2024

Date Analyzed: 01/18/2024

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Calcium, Total	61.3	0.212	70 - 130	20	231	224	10.2	0.2	1.00
QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.									
Lithium, Total	105	1.90	70 - 130	20	0.394	0.184	0.200	0.005	1.00
Molybdenum, Total	101	2.02	70 - 130	20	0.26	0.06	0.200	0.01	1.00

QC Report for Work Order (WO) - 24A1094

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.8

QC Sample ID: BYA0717-BLK1		Batch: BYA0717							
Date Prepared: 01/18/2024		Date Analyzed: 01/18/2024							
Antimony, Total					ND		0.0005	1.00	
Arsenic, Total					ND		0.0005	1.00	
Beryllium, Total					ND		0.0005	1.00	
Cadmium, Total					ND		0.0002	1.00	
Chromium, Total					ND		0.0005	1.00	
Cobalt, Total					ND		0.0005	1.00	
Lead, Total					ND		0.0005	1.00	
Selenium, Total					ND		0.0005	1.00	
Thallium, Total					ND		0.0002	1.00	

LCS - EPA 200.8

QC Sample ID: BYA0717-BS1		Batch: BYA0717							
Date Prepared: 01/18/2024		Date Analyzed: 01/18/2024							
Antimony, Total	103	85 - 115		0.041		0.0400	0.0005	1.00	
Arsenic, Total	103	85 - 115		0.041		0.0400	0.0005	1.00	
Beryllium, Total	106	85 - 115		0.042		0.0400	0.0005	1.00	
Cadmium, Total	100	85 - 115		0.040		0.0400	0.0002	1.00	
Chromium, Total	107	85 - 115		0.043		0.0400	0.0005	1.00	
Cobalt, Total	104	85 - 115		0.041		0.0400	0.0005	1.00	
Lead, Total	103	85 - 115		0.041		0.0400	0.0005	1.00	
Selenium, Total	104	85 - 115		0.042		0.0400	0.0005	1.00	
Thallium, Total	106	85 - 115		0.042		0.0400	0.0002	1.00	

QC Sample ID: BYA0717-BS2		Batch: BYA0717							
Date Prepared: 01/18/2024		Date Analyzed: 01/18/2024							
Cobalt, Total		85 - 115		ND			0.0005	1.00	

Matrix Spike - EPA 200.8

QC Sample ID: BYA0717-MS1	Batch: BYA0717	QC Source Sample: XXXXXXXX-XX					
Date Prepared: 01/18/2024	Date Analyzed: 01/18/2024						
Antimony, Total	97.8	70 - 130	0.040	0.0004	0.0400	0.0005	1.00
Arsenic, Total	99.6	70 - 130	0.053	0.013	0.0400	0.0005	1.00
Beryllium, Total	101	70 - 130	0.041	ND	0.0400	0.0005	1.00
Cadmium, Total	86.3	70 - 130	0.035	0.00005	0.0400	0.0002	1.00
Chromium, Total	85.2	70 - 130	0.053	0.019	0.0400	0.0005	1.00
Cobalt, Total	84.1	70 - 130	0.034	0.0005	0.0400	0.0005	1.00
Lead, Total	85.1	70 - 130	0.034	0.0003	0.0400	0.0005	1.00
Selenium, Total	104	70 - 130	0.069	0.027	0.0400	0.0005	1.00
Thallium, Total	89.4	70 - 130	0.036	0.0002	0.0400	0.0002	1.00

QC Sample ID: BYA0717-MS2	Batch: BYA0717	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 01/18/2024	Date Analyzed: 01/18/2024							
Antimony, Total	103	70 - 130	0.041	0.0001	0.0400	0.0005	1.00	
Arsenic, Total	107	70 - 130	0.046	0.004	0.0400	0.0005	1.00	
Beryllium, Total	107	70 - 130	0.043	ND	0.0400	0.0005	1.00	
Cadmium, Total	94.6	70 - 130	0.038	ND	0.0400	0.0002	1.00	
Chromium, Total	100	70 - 130	0.050	0.010	0.0400	0.0005	1.00	
Cobalt, Total	94.5	70 - 130	0.038	0.0002	0.0400	0.0005	1.00	
Lead, Total	95.9	70 - 130	0.039	0.0002	0.0400	0.0005	1.00	
Selenium, Total	108	70 - 130	0.051	0.007	0.0400	0.0005	1.00	
Thallium, Total	101	70 - 130	0.040	0.00006	0.0400	0.0002	1.00	

QC Report for Work Order (WO) - 24A1094

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Blank - EPA 245.1

QC Sample ID: BYA0847-BLK1

Batch: BYA0847

Date Prepared: 01/22/2024

Date Analyzed: 01/22/2024

Mercury, Total

ND

0.00015

1.00

LCS - EPA 245.1

QC Sample ID: BYA0847-BS1

Batch: BYA0847

Date Prepared: 01/22/2024

Date Analyzed: 01/22/2024

Mercury, Total

98.6

85 - 115

0.00493

0.00500

0.00015

1.00

Matrix Spike - EPA 245.1

QC Sample ID: BYA0847-MS1

Batch: BYA0847

QC Source Sample: XXXXXXXX-XX

Date Prepared: 01/22/2024

Date Analyzed: 01/22/2024

Mercury, Total

96.8

75 - 125

0.00484

ND

0.00500

0.00015

1.00

QC Sample ID: BYA0847-MS2

Batch: BYA0847

QC Source Sample: XXXXXXXX-XX

Date Prepared: 01/22/2024

Date Analyzed: 01/22/2024

Mercury, Total

111

75 - 125

0.00556

ND

0.00500

0.00015

1.00

Matrix Spike Dup - EPA 245.1

QC Sample ID: BYA0847-MSD1

Batch: BYA0847

QC Source Sample: XXXXXXXX-XX

Date Prepared: 01/22/2024

Date Analyzed: 01/22/2024

Mercury, Total

95.7

1.17

75 - 125

20

0.00478

ND

0.00500

0.00015

1.00

QC Sample ID: BYA0847-MSD2

Batch: BYA0847

QC Source Sample: XXXXXXXX-XX

Date Prepared: 01/22/2024

Date Analyzed: 01/22/2024

Mercury, Total

113

1.89

75 - 125

20

0.00567

ND

0.00500

0.00015

1.00

QC Report for Work Order (WO) - 24A1094

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Blank - EPA 300.0

QC Sample ID: BYA0643-BLK1	Batch: BYA0643							
Date Prepared: 01/17/2024	Date Analyzed: 01/17/2024							
Chloride				ND		1.00	1.00	
Fluoride				ND		0.100	1.00	

QC Sample ID: BYA0810-BLK1	Batch: BYA0810							
Date Prepared: 01/19/2024	Date Analyzed: 01/19/2024							
Sulfate				ND		1.00	1.00	

LCS - EPA 300.0

QC Sample ID: BYA0643-BS1	Batch: BYA0643							
Date Prepared: 01/17/2024	Date Analyzed: 01/17/2024							
Chloride	99.6	90 - 110		49.8		50.0	1.00	1.00
Fluoride	103	90 - 110		5.17		5.00	0.100	1.00

QC Sample ID: BYA0810-BS1	Batch: BYA0810							
Date Prepared: 01/19/2024	Date Analyzed: 01/19/2024							
Sulfate	99.0	90 - 110		49.5		50.0	1.00	1.00

Matrix Spike - EPA 300.0

QC Sample ID: BYA0643-MS1	Batch: BYA0643	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 01/17/2024	Date Analyzed: 01/17/2024							
Chloride	110	80 - 120		483	372	100	11.0	1.00
Fluoride	92.8	80 - 120		9.28	ND	10.0	1.10	1.00

QC Sample ID: BYA0643-MS2	Batch: BYA0643	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 01/17/2024	Date Analyzed: 01/17/2024							
Chloride	97.6	80 - 120		19.0	8.12	11.1	1.11	1.00
Fluoride	98.5	80 - 120		1.58	0.488	1.11	0.111	1.00

QC Sample ID: BYA0810-MS1	Batch: BYA0810	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 01/19/2024	Date Analyzed: 01/19/2024							
Sulfate	31.0	80 - 120		20.5	17.06	11.1	1.11	1.00

QM-RPD - The recovery was outside acceptance limits for the MS and/or MSD. The RPD between the MS and MSD was acceptable and indicates the recovery is due to matrix interference. The batch was accepted based on the acceptable recovery of the LCS and the RPD.

QC Sample ID: BYA0810-MS2	Batch: BYA0810	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 01/19/2024	Date Analyzed: 01/19/2024							
Sulfate	95.2	80 - 120		20.5	9.92	11.1	1.11	1.00

Matrix Spike Dup - EPA 300.0

QC Sample ID: BYA0643-MSD1	Batch: BYA0643	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 01/17/2024	Date Analyzed: 01/17/2024							
Chloride	102	1.74	80 - 120	20	474	372	100	11.0
Fluoride	93.7	0.991	80 - 120	20	9.37	ND	10.0	1.10

QC Sample ID: BYA0643-MSD2	Batch: BYA0643	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 01/17/2024	Date Analyzed: 01/17/2024							
Chloride	99.5	1.11	80 - 120	20	19.2	8.12	11.1	1.11
Fluoride	101	1.39	80 - 120	20	1.61	0.488	1.11	0.111

QC Sample ID: BYA0810-MSD1	Batch: BYA0810	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 01/19/2024	Date Analyzed: 01/19/2024							
Sulfate	32.3	0.673	80 - 120	20	20.6	17.06	11.1	1.11

QM-RPD - The recovery was outside acceptance limits for the MS and/or MSD. The RPD between the MS and MSD was acceptable and indicates the recovery is due to matrix interference. The batch was accepted based on the acceptable recovery of the LCS and the RPD.

QC Report for Work Order (WO) - 24A1094

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Matrix Spike Dup - EPA 300.0 (cont.)

QC Sample ID: BYA0810-MSD2

Batch: BYA0810

QC Source Sample: XXXXXXXX-XX

Date Prepared: 01/19/2024

Date Analyzed: 01/19/2024

Sulfate

96.9

0.912

80 - 120

20

20.7

9.92

11.1

1.11

1.00

QC Report for Work Order (WO) - 24A1094

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Blank - SM 2540 C

QC Sample ID: BYA0698-BLK1

Batch: BYA0698

Date Prepared: 01/17/2024

Date Analyzed: 01/17/2024

Total Dissolved Solids (TDS)

ND

10

1.00

Duplicate - SM 2540 C

QC Sample ID: BYA0698-DUP1

Batch: BYA0698

QC Source Sample: XXXXXXXX-XX

Date Prepared: 01/17/2024

Date Analyzed: 01/17/2024

Total Dissolved Solids (TDS)

3

10

1550

1590

20

1.00

QC Sample ID: BYA0698-DUP2

Batch: BYA0698

QC Source Sample: XXXXXXXX-XX

Date Prepared: 01/17/2024

Date Analyzed: 01/17/2024

Total Dissolved Solids (TDS)

2

10

1260

1230

20

1.00

LCS - SM 2540 C

QC Sample ID: BYA0698-BS1

Batch: BYA0698

Date Prepared: 01/17/2024

Date Analyzed: 01/17/2024

Total Dissolved Solids (TDS)

102

90 - 110

408

400

20

1.00



2/22/2024

Work Order: 24A1096
Project: BA-DG4 - Round 6

Deseret Power Electric Cooperative
Attn: Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 185318
Receipt: 1/17/24 11:32 @ -0.4 °C
Date Reported: 2/22/2024
Project Name: BA-DG4 - Round 6

Sample ID: BA-DG4

Matrix: Water

Date Sampled: 1/15/24 13:25

Sampled By: Trenton Keller

Lab ID: 24A1096-01

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Radiochemistry							
Radium-226	0.23	pCi/L	0.37	EPA 903.0	1/30/24	2/2/24	SL-62
Radium-228	1.7	pCi/L	0.44	EPA 904.0	1/24/24	1/29/24	SL-62



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 185318
Receipt: 1/17/24 11:32 @ -0.4 °C
Date Reported: 2/22/2024
Project Name: BA-DG4 - Round 6

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

Flag Descriptions

SL-62 = Analysis performed by Pace Analytical National, Mount Juliet, TN 37122

CHAIN OF CUSTODY

BILLING ADDRESS: _____
BILLING CITY/STATE/ZIP: _____
PURCHASE ORDER #: **185318**



* Expedited turnaround subject to additional charge

24A1096

UPS
1Z8497470163018376

TESTS REQUESTED										Bacteria
										Total Coliform + E. coli (Present/Absent)
										Total Coliform + E. coli (Enumerated)
										HPC (plate Count)
										E. Coli Only

Ag(2) 1347 Pres in rec

Sample Receipt Conditions:

- () Custody Seals Present
- X Containers Intact
- X COC and Labels Match
- X Received on Ice

- X Correct Containers
- X COC Included
- X COC Complete
- X Sufficient Sample Volume

- () Headspace Present (VOC)
- () Temperature Blank
- X Received within Hold

Checked by: LD

☐ Custody Seals Present
☒ Containers Intact
☒ COC and Labels Match
☒ Received on Ice

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1

Checked by: W

Group	Condition 1	Condition 2	Condition 3	Condition 4
Control	65	75	80	85
Low	65	80	75	60
High	65	85	75	60
Very High	65	85	75	60

Special Instructions: * Ba,B,Ca,Li,Mo ** Sb,As,Be,Cd,Cr,Co,Pb,Se,Tl

Samples received outside the EPA recommended temperature range of 0-6 C* may be rejected.

Received by: [signature]	Date/Time
Received by: [signature]	Date/Time
Received by: [signature]	Date/Time

801.262.7299 PHONE
866.792.0093 FAX
www.chemtechford.com

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.



ANALYTICAL REPORT

February 22, 2024

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Chemtech-Ford Laboratories

Sample Delivery Group: L1697157
Samples Received: 01/19/2024
Project Number:
Description:

Report To: Andrew Royer
9632 S 500 S
Sandy, UT 84070

Entire Report Reviewed By:

Haley Torrence

Haley Torrence
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
24A1096-01 L1697157-01	5	
24A1012-01 L1697157-02	6	⁴ Cn
24A1032-01 L1697157-03	7	⁵ Sr
24A1032-02 L1697157-04	8	
24A1032-03 L1697157-05	9	⁶ Qc
24A0705-01 L1697157-06	10	⁷ Gl
24A0881-01 L1697157-07	11	
Qc: Quality Control Summary	12	⁸ Al
Radiochemistry by Method 900	12	
Radiochemistry by Method 903.0/9315	14	⁹ Sc
Radiochemistry by Method 904	15	
Radiochemistry by Method 904/9320	17	
Gl: Glossary of Terms	18	
Al: Accreditations & Locations	19	
Sc: Sample Chain of Custody	20	

SAMPLE SUMMARY

24A1096-01 L1697157-01 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					01/15/24 13:25	01/19/24 10:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2215849	1	01/30/24 12:09	02/02/24 17:07	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2211485	1	01/24/24 14:59	01/29/24 18:01	ALG	Mt. Juliet, TN

¹Cp

²Tc

³Ss

24A1012-01 L1697157-02 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					01/16/24 11:00	01/19/24 10:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2210472	1	01/22/24 08:54	01/29/24 13:12	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2211485	1	01/24/24 14:59	01/29/24 18:01	ALG	Mt. Juliet, TN

⁴Cn

⁵Sr

⁶Qc

24A1032-01 L1697157-03 DW

				Collected by	Collected date/time	Received date/time
					01/16/24 10:30	01/19/24 10:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2212213	1	01/24/24 12:01	02/06/24 13:04	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2212504	1	01/24/24 17:46	01/30/24 17:31	DDD	Mt. Juliet, TN

⁷Gl

⁸Al

⁹Sc

24A1032-02 L1697157-04 DW

				Collected by	Collected date/time	Received date/time
					01/16/24 11:30	01/19/24 10:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2212213	1	01/24/24 12:01	02/06/24 13:04	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2212504	1	01/24/24 17:46	01/30/24 17:31	DDD	Mt. Juliet, TN

24A1032-03 L1697157-05 DW

				Collected by	Collected date/time	Received date/time
					01/16/24 12:35	01/19/24 10:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2212213	1	01/24/24 12:01	02/06/24 13:04	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2212504	1	01/24/24 17:46	01/30/24 17:31	DDD	Mt. Juliet, TN

24A0705-01 L1697157-06 DW

				Collected by	Collected date/time	Received date/time
					01/10/24 08:25	01/19/24 10:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2212213	1	01/24/24 12:01	02/06/24 13:04	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2212504	1	01/24/24 17:46	01/30/24 17:31	DDD	Mt. Juliet, TN

24A0881-01 L1697157-07 DW

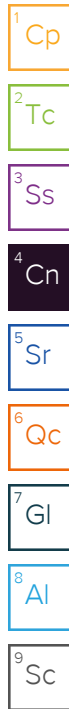
				Collected by	Collected date/time	Received date/time
					01/12/24 07:20	01/19/24 10:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2212213	1	01/24/24 12:01	02/06/24 13:04	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2212504	1	01/24/24 17:46	01/30/24 17:31	DDD	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Haley Torrence
Project Manager



Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.226	J	0.276		0.370		02/02/2024 17:07	WG2215849
(T) Barium	109					30.0-143	02/02/2024 17:07	WG2215849

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.71		0.271	0.694	0.442	0.231	01/29/2024 18:01	WG2211485
(T) Barium	117					30.0-143	01/29/2024 18:01	WG2211485
(T) Yttrium	98.8					30.0-136	01/29/2024 18:01	WG2211485

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	27.6		4.85	3.76	2.98	1.78	01/29/2024 13:12	WG2210472
GROSS BETA	30.4		3.18	3.42	2.70	1.43	01/29/2024 13:12	WG2210472

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.08		0.321	1.18	0.550	0.291	01/29/2024 18:01	WG2211485
(T) Barium	132					30.0-143	01/29/2024 18:01	WG2211485
(T) Yttrium	89.0					30.0-136	01/29/2024 18:01	WG2211485

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	0.945	J	1.17	0.715	0.972	0.912	02/06/2024 13:04	WG2212213
GROSS BETA	-0.341	U	1.32	20.1	1.07	0.934	02/06/2024 13:04	WG2212213

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.0332	U	0.241	4.74	0.444	0.233	01/30/2024 17:31	WG2212504
(T) Barium	117					25.0-150	01/30/2024 17:31	WG2212504
(T) Yttrium	105					25.0-150	01/30/2024 17:31	WG2212504

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result pCi/l	Qualifier <u>U</u>	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch WG2212213
GROSS ALPHA	-0.0792	<u>U</u>	0.997	-0.626	1.03	0.996	02/06/2024 13:04	WG2212213
GROSS BETA	1.72		1.18	0.621	0.907	0.789	02/06/2024 13:04	WG2212213

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch WG2212504
RADIUM-228	0.553		0.199	1.04	0.348	0.185	01/30/2024 17:31	WG2212504
(T) Barium	102					25.0-150	01/30/2024 17:31	WG2212504
(T) Yttrium	104					25.0-150	01/30/2024 17:31	WG2212504

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	1.47		1.68	1.02	1.37	1.29	02/06/2024 13:04	WG2212213
GROSS BETA	2.30		1.52	0.669	1.15	1.01	02/06/2024 13:04	WG2212213

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.573		0.212	1.07	0.372	0.196	01/30/2024 17:31	WG2212504
(T) Barium	138					25.0-150	01/30/2024 17:31	WG2212504
(T) Yttrium	103					25.0-150	01/30/2024 17:31	WG2212504

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	2.68		2.54	1.54	2.03	1.91	02/06/2024 13:04	WG2212213
GROSS BETA	0.329	J	1.56	1.98	1.23	1.08	02/06/2024 13:04	WG2212213

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.987		0.267	0.906	0.460	0.240	01/30/2024 17:31	WG2212504
(T) Barium	110					25.0-150	01/30/2024 17:31	WG2212504
(T) Yttrium	108					25.0-150	01/30/2024 17:31	WG2212504

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	2.30		2.71	1.65	2.23	2.09	02/06/2024 13:04	WG2212213
GROSS BETA	4.23		2.47	0.993	1.86	1.63	02/06/2024 13:04	WG2212213

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.919		0.223	0.855	0.379	0.200	01/30/2024 17:31	WG2212504
(T) Barium	115					25.0-150	01/30/2024 17:31	WG2212504
(T) Yttrium	124					25.0-150	01/30/2024 17:31	WG2212504

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4027307-1 01/29/24 13:12

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
GROSS ALPHA	-0.301	U	0.506	0.845	0.487
GROSS BETA	0.314	U	1.16	1.56	0.817

L1697157-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1697157-02 01/29/24 13:12 • (DUP) R4027307-4 01/29/24 13:12

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
GROSS ALPHA	27.6	4.85	2.98	1.78	25.8	4.75	3.03	1.81	6.68	0.262		20	3
GROSS BETA	30.4	3.18	2.70	1.43	38.0	3.54	3.01	1.58	22.2	1.60		20	3

Laboratory Control Sample (LCS)

(LCS) R4027307-2 01/29/24 13:12

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
GROSS ALPHA	15.0	12.9	85.9	80.0-120	
GROSS BETA	40.6	39.7	97.9	80.0-120	

L1697021-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1697021-02 01/29/24 13:12 • (MS) R4027307-3 01/29/24 13:12

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
GROSS ALPHA	15.0	0.285	13.1	85.4	1	70.0-130	
GROSS BETA	40.6	1.77	41.6	98.2	1	70.0-130	

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4035339-1 02/06/24 13:04

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
GROSS ALPHA	0.118	U	0.694	0.607	0.559
GROSS BETA	0.750	U	0.996	0.778	0.685

L1698168-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1698168-03 02/06/24 13:04 • (DUP) R4035339-3 02/06/24 13:04

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
GROSS ALPHA	3.94	1.54	0.956	0.918	4.55	1.96	1.32	1.24	14.5	0.247		20	2
GROSS BETA	1.97	1.36	1.02	0.896	1.72	1.47	1.12	0.976	13.3	0.122		20	2

Laboratory Control Sample (LCS)

(LCS) R4035339-2 02/06/24 13:04

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
GROSS ALPHA	15.0	14.7	97.7	80.0-120	
GROSS BETA	40.6	34.5	85.0	80.0-120	

L1695855-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1695855-03 02/13/24 15:02 • (MS) R4035339-10 02/14/24 13:41 • (MSD) R4035339-8 02/13/24 15:02

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
GROSS ALPHA	30.0	2.53	41.0	37.5	128	116	1	70.0-130			9.07		20
GROSS BETA	81.3	-1.25	73.6	80.0	90.5	98.4	1	70.0-130			8.38		20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4030203-1 02/02/24 16:07

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.361		0.186	0.199	
(T) Barium	103		103		

L1698168-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1698168-04 02/02/24 18:08 • (DUP) R4030203-4 02/02/24 16:07

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.524	0.328	0.332		0.532	0.577	0.727		1.50	0.0119	J	20	3
(T) Barium	107				104	104							

Laboratory Control Sample (LCS)

(LCS) R4030203-2 02/02/24 16:07

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.23	105	80.0-120	
(T) Barium			102		

L1642538-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1642538-03 02/02/24 17:07 • (MS) R4030203-3 02/02/24 16:07

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Radium-226	20.0	1.81	21.3	97.4	1	75.0-125	
(T) Barium		103		104			

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4028458-1 01/30/24 17:31

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.421		0.147	0.256	0.135
(T) Barium	139		139		
(T) Yttrium	112		112		

L1695855-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1695855-01 01/30/24 17:31 • (DUP) R4028458-5 01/30/24 17:31

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.0628	0.346	0.634	0.332	-0.135	0.369	0.679	0.354	200	0.392	U	20	2
(T) Barium	121				124	124							
(T) Yttrium	109				99.2	99.2							

Laboratory Control Sample (LCS)

(LCS) R4028458-2 01/30/24 17:31

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.98	120	80.0-120	
(T) Barium			136		
(T) Yttrium			113		

L1693851-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1693851-01 01/30/24 17:31 • (MS) R4028458-3 01/30/24 17:31 • (MSD) R4028458-4 01/30/24 17:31

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.643	19.5	17.8	113	103	1	70.0-130			8.94		20
(T) Barium		109			131	136							
(T) Yttrium		104			108	100							

Method Blank (MB)

(MB) R4028458-1 01/30/24 17:31

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.421		0.147	0.256	0.135
(T) Barium	139		139		

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4028458-1 01/30/24 17:31

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
(T) Yttrium	112		112		

L1695855-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1695855-01 01/30/24 17:31 • (DUP) R4028458-5 01/30/24 17:31

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.0628	0.346	0.634	0.332	-0.135	0.369	0.679	0.354	200	0.392	U	20	2
(T) Barium	121				124	124							
(T) Yttrium	109				99.2	99.2							

Laboratory Control Sample (LCS)

(LCS) R4028458-2 01/30/24 17:31

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.98	120	80.0-120	
(T) Barium			136		
(T) Yttrium			113		

L1693851-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1693851-01 01/30/24 17:31 • (MS) R4028458-3 01/30/24 17:31 • (MSD) R4028458-4 01/30/24 17:31

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.643	19.5	17.8	113	103	1	70.0-130			8.94		20
(T) Barium		109			131	136							
(T) Yttrium		104			108	100							

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Method Blank (MB)

(MB) R4027417-1 01/27/24 13:35

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.135	<u>U</u>	0.165	0.324	0.169
(T) Barium	111		111		
(T) Yttrium	118		118		

L1697021-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1697021-02 01/27/24 13:35 • (DUP) R4027417-5 01/27/24 13:35

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.41	0.321	0.571	0.301	1.06	0.270	0.483	0.256	28.4	0.834		20	3
(T) Barium	115				114	114							
(T) Yttrium	118				108	108							

Laboratory Control Sample (LCS)

(LCS) R4027417-2 01/27/24 13:35

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.67	113	80.0-120	
(T) Barium			120		
(T) Yttrium			110		

L1697028-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1697028-10 01/27/24 13:35 • (MS) R4027417-3 01/27/24 13:35 • (MSD) R4027417-4 01/27/24 13:35

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.361	19.3	16.9	113	98.7	1	70.0-130			13.6		20
(T) Barium		119			112	117							
(T) Yttrium		122			106	116							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

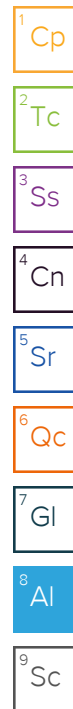
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.





SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24A1096

Page 24 of 30

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

L1697157
A187

Work Order
Comments:

Laboratory ID: 24A1096-01	Matrix: Water	Client Matrix: Water -01
Requested Test	Suggested Analytical Method *	Sampled: 01/15/2024 13:25
Radium-228 Variance	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228	EPA 904.0	
Radium-226 Variance	EPA 903.0	
Radium-226 LLD	EPA 903.0	
Radium-226	EPA 903.0	

Released By

1-17-24
Date

Received By

Date

Released By

Date

Received By

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24A1012

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order If Gross Alpha >5, run Radium-226
Comments:

41697157

Laboratory ID: 24A1012-01	Matrix: Water	Client Matrix: Water -02
Requested Test	Suggested Analytical Method *	Sampled: 01/16/2024 11:00
Radium-228 Variance	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228	EPA 904.0	
Gross Beta Variance	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Gross Beta	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Alpha LLD	EPA 900.0	
Gross Alpha	EPA 900.0	

Released By

Date

Received By

Date

Released By

Date

Received By

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24A1032

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order If Gross Alpha is >5, run Radium 226
Comments:

41697157

Laboratory ID: 24A1032-01	Matrix: Water	Client Matrix: Drinking Water-03
Requested Test	Suggested Analytical Method *	Sampled: 01/16/2024 10:30
Gross Alpha LLD	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Beta	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Gross Beta Variance	EPA 900.0	
Radium-228	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228 Variance	EPA 904.0	
Gross Alpha	EPA 900.0	

Laboratory ID: 24A1032-02	Matrix: Water	Client Matrix: Drinking Water-04
Requested Test	Suggested Analytical Method *	Sampled: 01/16/2024 11:30
Gross Beta Variance	EPA 900.0	
Gross Alpha	EPA 900.0	
Gross Alpha LLD	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Radium-228	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228 Variance	EPA 904.0	
Gross Beta	EPA 900.0	

Released By

Date

1/16/24

Received By

Date

8:34 1/18/24

Released By

Date

PN SLWT 1700 1/18/24

Received By

Date

1/19/24 1000

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER

Chemtech-Ford, Inc

Work Order Number

24A1032

11697157

Laboratory ID: 24A1032-03		Matrix: Water	Client Matrix: Drinking Water -05
Requested Test		Suggested Analytical Method *	Sampled: 01/16/2024 12:35
Radium-228 Variance		EPA 904.0	
Gross Alpha		EPA 900.0	
Gross Alpha LLD		EPA 900.0	
Gross Alpha Variance		EPA 900.0	
Gross Beta		EPA 900.0	
Gross Beta LLD		EPA 900.0	
Gross Beta Variance		EPA 900.0	
Radium-228		EPA 904.0	
Radium-228 LLD		EPA 904.0	

Released By

Date

Received By

Date

Released By

Date

Received By

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24A0705

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order If Gross Alpha >5, run Radium-226
Comments:

Laboratory ID: 24A0705-01	Matrix: Water	Client Matrix: Drinking Water - <i>da</i>
Requested Test	Suggested Analytical Method *	Sampled: 01/10/2024 08:25
Radium-228 Variance	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228	EPA 904.0	
Gross Beta Variance	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Gross Beta	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Alpha LLD	EPA 900.0	
Gross Alpha	EPA 900.0	

Released By

Date

Received By

Date

Released By

Date

Received By

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24A0881

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order If Gross Alpha is >5 Run Radium - 226
Comments:

4697157

Laboratory ID: 24A0881-01	Matrix: Water	Client Matrix: Drinking Water - 07
Requested Test	Suggested Analytical Method *	Sampled: 01/12/2024 07:20
Radium-228 Variance	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228	EPA 904.0	
Gross Beta Variance	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Gross Beta	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Alpha LLD	EPA 900.0	
Gross Alpha	EPA 900.0	

Sample Receipt Checklist

COC Seal Present/Intact:	☒ Y ☐ N	If Applicable	☒ Y ☐ N
COC Signed/Accurate:	☒ Y ☐ N	VOA Zero Headspace:	☒ Y ☐ N
Bottles arrive intact:	☒ Y ☐ N	Pres. Correct/Check:	☒ Y ☐ N
Correct bottles used:	☒ Y ☐ N		
Sufficient volume sent:	☒ Y ☐ N		
RA Screen <0.5 mR/hr:	☒ Y ☐ N		

Released By	Date	Received By	Date
Alvone Tecu	1/12/24	Seo K	8:34 1/18/24
Released By	Date	Received By	Date
Seo K PMSLCUT	1700 1/18/24	M. J. J. J.	1/18/24

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.

4697157

[illegible]

Name

Date _____

[illegible]

CHAIN OF CUSTODY

BILLING ADDRESS: _____
BILLING CITY/STATE/ZIP: _____
PURCHASE ORDER #: 185318



* Expedited turnaround subject to additional charge

Please fill out the fields highlighted in light blue.

24A1094

UPS
1Z8497470163018376

TESTS REQUESTED										Bacteria
										Total Coliform + E. coli (Present/Absent)
										Total Coliform + E. coli (Enumerated)
										HPC (Plate Count)
										E. Coli Only

Aq 134B

Sample Receipt Conditions:

- () Custody Seals Present
- ☒ Containers Intact
- ☒ COC and Labels Match
- ☒ Received on Ice

M 1325

- ☒ Correct Containers
- ☒ COC Included
- ☒ COC Complete
- ☒ Sufficient Sample Volume

() Headspace Present (VOC)
 () Temperature Blank
☒ Received within Hold

Checked by: LW

Ag 1348

M 1325

- ☐ Custody Seals Present
- ☒ Containers Intact
- ☒ COC and Labels Match
- ☒ Received on Ice

✓ Sufficient Sample Volume

Checked by: lw

Checked by: W

ON ICE NOT ON ICE Temp (C°): -0.4

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Received by: [signature]	Date/Time 11/16/24 11:05
--------------------------	-----------------------------

Received by: [signature]	Date/Time
--------------------------	-----------

Received by: [signature]	Date/Time
--------------------------	-----------

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

CHEMTECH - FORD ANALYTICAL LABORATORY

CHAIN OF CUSTODY

COMPANY: Deseret Power Electric Cooperative
 ADDRESS: 12500 East 25500 South
 CITY/STATE/ZIP: Vernal, UT 84078-8525
 PHONE #: 435-781-5706 FAX _____
 CONTACT: Tyler Esplin PROJECT: BA-DG4 - Round 6
 EMAIL: tesplin@deseretpower.com

BILLING ADDRESS: _____
 BILLING CITY/STATE/ZIP: _____
 PURCHASE ORDER #: 185318



TURNAROUND REQUIRED:*

* Expedited turnaround subject to additional charge

Please fill out the fields highlighted in light blue.

24A1096

UPS
 1Z8497470163018376

Lab Use Only	CLIENT SAMPLE INFORMATION				
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX	Field: Residual Chlorine
1	BA-DG4	1-16-24	13:25	Water	
2					
3					
4					
5					
6					
7					
8					
9					
10					

TESTS REQUESTED														Bacteria			
Chloride	Fluoride	Sulfate	TDS	Mercury	Metals by EPA 200.7 *	Metals by EPA 200.8 **	Radium-226	Radium-228						Total Coliform + E. coli (Present/Absent)	Total Coliform + E. coli (Enumerated)	HPC (Plate Count)	E. Coli Only
X	X	X	X	X	X	X	X	X									

Sample Receipt Conditions:

- () Custody Seals Present
 (X) Containers Intact
 (X) COC and Labels Match
 (X) Received on Ice

(X) Correct Containers

(X) COC Included

(X) COC Complete

(X) Sufficient Sample Volume

() Headspace Present (VOC)

() Temperature Blank

(X) Received within Hold

Checked by: LO

ON ICE

NOT ON ICE

Temp (C°): -0.4

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Sampled by: (print) Trenton Keller Sampled by: (signature) Trenton Keller

Special Instructions: * Ba,B,Ca,Li,Mo ** Sb,As,Be,Cd,Cr,Co,Pb,Se,Tl

Relinquished by: (signature)

Trenton Keller

Relinquished by: (signature)

Relinquished by: (signature)

Date/Time

1-16-24 11:10

Date/Time

Date/Time

Received by: (signature)

Tyler Esplin

Received by: (signature)

Received by: (signature)

Date/Time

1-16-24 11:10

Date/Time

Date/Time

CHEMTECH-FORD
 9632 South 500 West
 Sandy, UT 84070

801.262.7299 PHONE
 866.792.0093 FAX
 www.chemtechford.com

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.



Amended

3/4/2024

**Work Order: 24B1729
Project: BA-DG4 (round 7)**

**Deseret Power Electric Cooperative
Attn: Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525**

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Deseret Power Electric Cooperative

Tyler Esplin

REPORT NARRATIVE

Sample Group

<u>Laboratory ID</u>	<u>Sample Name</u>
24B1729-01	BA-DG4

Initial reporting did not take dilution factor into account for sulfate analysis.
This amended report has been corrected.

Balance calculation for TDS yielded a theoretical concentration of 10,162.
This along with conductivity testing show a result consistent with the reported result.



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Amended

Certificate of Analysis

Amended

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 185318
Receipt: 2/23/24 10:30 @ 2.4 °C
Date Reported: 3/4/2024
Project Name: BA-DG4 (round 7)

Sample ID: BA-DG4

Matrix: Water

Lab ID: 24B1729-01

Date Sampled: 2/21/24 11:03

Sampled By: Trenton Keller

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	572	mg/L	100	EPA 300.0	2/26/24	2/26/24	
Fluoride	2.53	mg/L	0.100	EPA 300.0	2/26/24	2/26/24	
Sulfate	6290	mg/L	100	EPA 300.0	2/26/24	2/26/24	
Total Dissolved Solids (TDS)	9400	mg/L	1000	SM 2540 C	2/23/24	2/23/24	
Metals							
Antimony, Total	ND	mg/L	0.0005	EPA 200.8/200.8	2/27/24	2/27/24	
Arsenic, Total	0.0059	mg/L	0.0005	EPA 200.8/200.8	2/27/24	2/27/24	
Barium, Total	0.015	mg/L	0.005	EPA 200.7/200.2	2/26/24	2/26/24	
Beryllium, Total	ND	mg/L	0.0005	EPA 200.8/200.8	2/27/24	2/27/24	
Boron, Total	29.2	mg/L	0.05	EPA 200.7/200.2	2/26/24	2/26/24	
Cadmium, Total	ND	mg/L	0.0002	EPA 200.8/200.8	2/27/24	2/27/24	
Calcium, Total	237	mg/L	0.2	EPA 200.7/200.2	2/26/24	2/26/24	
Chromium, Total	0.0029	mg/L	0.0005	EPA 200.8/200.8	2/27/24	2/27/24	
Cobalt, Total	0.0016	mg/L	0.0005	EPA 200.8/200.8	2/27/24	2/27/24	
Lead, Total	ND	mg/L	0.0005	EPA 200.8/200.8	2/27/24	2/27/24	
Lithium, Total	0.184	mg/L	0.005	EPA 200.7/200.2	2/26/24	2/26/24	
Mercury, Total	ND	mg/L	0.00015	EPA 245.1	2/29/24	3/1/24	
Molybdenum, Total	0.06	mg/L	0.01	EPA 200.7/200.2	2/26/24	2/26/24	
Selenium, Total	0.0198	mg/L	0.0005	EPA 200.8/200.8	2/27/24	2/27/24	
Thallium, Total	ND	mg/L	0.0002	EPA 200.8/200.8	2/27/24	2/27/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Amended

Certificate of Analysis

Amended

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 185318
Receipt: 2/23/24 10:30 @ 2.4 °C
Date Reported: 3/4/2024
Project Name: BA-DG4 (round 7)

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

CHEMTECH - FORD ANALYTICAL LABORATORY

CHAIN OF CUSTODY

COMPANY: Deseret Power Electric Cooperative
 ADDRESS: 12500 East 25500 South
 CITY/STATE/ZIP: Vernal, UT 84078-8525
 PHONE #: 435-781-5706 FAX _____
 CONTACT: Tyler Esplin PROJECT: BA-DG4 (round 7)
 EMAIL: tesplin@deseretpower.com

BILLING ADDRESS: _____
 BILLING CITY/STATE/ZIP: _____
 PURCHASE ORDER #: 185318



TURNAROUND REQUIRED:*

* Expedited turnaround subject to additional charge

Please fill out the fields highlighted in light blue.

WS 178497470165591887

24B1729

Rads on 24B1733

Lab Use Only		CLIENT SAMPLE INFORMATION						TESTS REQUESTED										Bacteria							
		LOCATION / IDENTIFICATION	DATE	TIME	MATRIX	Field: Residual Chlorine	Chloride	Fluoride	Sulfate	TDS	Mercury	Metals by EPA 200.7 *	Metals by EPA 200.8 **	Radium-226	Radium-228							Total Coliform + E. coli (Present/Absent)	Total Coliform + E. coli (Enumerated)	HPC (Plate Count)	E. coli Only
-01	1	BA-DG4	2-21-24	11:03	Water		X	X	X	X	X	X	X	X	X										
	2																								
	3																								
	4																								
	5																								
	6																								
	7																								
	8																								
	9																								
	10																								

Sampled by: [print] Tyler Keller Sampled by: [signature] Tyler Keller
 Special Instructions: * Ba,B,Ca,Li,Mo ** Sb,As,Be,Cd,Cr,Co,Pb,Se,Tl
 Relinquished by: [signature] Tyler Keller Date/Time 2-22-24 12:00
 Relinquished by: [signature] _____ Date/Time _____
 Relinquished by: [signature] _____ Date/Time _____

Received by: [signature] Moore Tea Date/Time 2/23/24 1030
 Received by: [signature] _____ Date/Time _____
 Received by: [signature] _____ Date/Time _____

ON ICE NOT ON ICE Temp (C): 2.4
 Samples received outside the EPA recommended temperature range of 0-6 C* may be rejected.

AQ 1354 M 1356
 Sample Receipt Conditions:
 () Custody Seals Present
 () Containers Intact
 () COC and Labels Match
 () Received on Ice
 () Correct Containers
 () COC Included
 () COC Complete
 () Sufficient Sample Volume
 () Headspace Present (VOC)
 () Temperature Blank
 () Received within Hold
 Checked by: _____

CHEMTECH-FORD
 9632 South 500 West
 Sandy, UT 84070

801.262.7299 PHONE
 866.792.0093 FAX
 www.chemtechford.com

collection costs and attorney's



3/28/2024

Work Order: 24B1733
Project: BA-DG4 (round 7)

Deseret Power Electric Cooperative
Attn: Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 2/23/24 10:30 @ 2.4 °C
Date Reported: 3/28/2024
Project Name: BA-DG4 (round 7)

Sample ID: BA-DG4

Matrix: Water

Date Sampled: 2/21/24 11:03

Sampled By: Trenton Keller

Lab ID: 24B1733-01

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Radiochemistry							
Radium-226	0.22	pCi/L	0.53	EPA 903.0	3/8/24	3/15/24	SL-62
Radium-228	0.42	pCi/L	0.48	EPA 904.0	3/13/24	3/18/24	SL-62



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 2/23/24 10:30 @ 2.4 °C
Date Reported: 3/28/2024
Project Name: BA-DG4 (round 7)

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

Flag Descriptions

SL-62 = Analysis performed by Pace Analytical National, Mount Juliet, TN 37122

CHEMTECH - FORD ANALYTICAL LABORATORY

CHAIN OF CUSTODY

COMPANY: Deseret Power Electric Cooperative
 ADDRESS: 12500 East 25500 South
 CITY/STATE/ZIP: Vernal, UT 84078-8525
 PHONE #: 435-781-5706 FAX _____
 CONTACT: Tyler Esplin PROJECT: BA-DG4 (round 7)
 EMAIL: tesplin@deseretpower.com

BILLING ADDRESS: _____
 BILLING CITY/STATE/ZIP: _____
 PURCHASE ORDER #: 185318



TURNAROUND REQUIRED:*

* Expedited turnaround subject to additional charge

Please fill out the fields highlighted in light blue.

UPS 1Z8497470165591887

24B1733

Lab Use Only	CLIENT SAMPLE INFORMATION						TESTS REQUESTED										Bacteria							
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX	Field: Residual Chlorine	Chloride	Fluoride	Sulfate	TDS	Mercury	Metals by EPA 200.7 *	Metals by EPA 200.8 **	Radium-226	Radium-228							Total Coliform + E. coli (Present/Absent)	Total Coliform + E. coli (Enumerated)	HPC (Plate Count)	E. Coli Only
- 01	1. BA-DG4	2-21-24	11:03	Water		X	X	X	X	X	X	X	X	X										
	2.																							
	3.																							
	4.																							
	5.																							
	6.																							
	7.																							
	8.																							
	9.																							
	10.																							

Sample Receipt Conditions:

() Custody Seals Present	() Correct Containers	() Headspace Present (VOC)
() Containers Intact	() COC Included	() Temperature Blank
() COC and Labels Match	() COC Complete	() Received within Hold
() Received on Ice	() Sufficient Sample Volume	Checked by: _____

Special Instructions: * Ba,B,Ca,Li,Mo ** Sb,As,Be,Cd,Cr,Co,Pb,Se,Tl

Relinquished by: [signature] Trenton Keller Date/Time: 2-22-24 12:00

Relinquished by: [signature] Avone Tea Date/Time: 2/23/24 1030

Relinquished by: [signature] _____ Date/Time: _____

Relinquished by: [signature] _____ Date/Time: _____

ON ICE NOT ON ICE Temp (C°): 2.4

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

AG 1354 M 1356 Ag(2)-1347

CHEMTECH-FORD
 9632 South 500 West
 Sandy, UT 84070

801.262.7299 PHONE
 866.792.0093 FAX
 www.chemtechford.com

Sample Receipt Conditions:

() Custody Seals Present
 () Containers Intact
 () COC and Labels Match
 () Received on Ice

() Correct Containers

() COC Included

() COC Complete

() Sufficient Sample Volume

() Headspace Present (VOC)

() Temperature Blank

() Received within Hold

Checked by: _____

collection costs and attorney's

Chemtech-Ford Laboratories

Sample Delivery Group: L1710323
Samples Received: 02/29/2024
Project Number:
Description:

Report To: Andrew Royer
9632 S 500 S
Sandy, UT 84070

Entire Report Reviewed By:



Donna Eidson
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
24B1733-01 L1710323-01	5	
24B1703-01 L1710323-02	6	⁴ Cn
24B1846-01 L1710323-03	7	⁵ Sr
24B1860-01 L1710323-04	8	
Qc: Quality Control Summary	9	⁶ Qc
Radiochemistry by Method 900	9	
Radiochemistry by Method 903.0/9315	11	⁷ Gl
Radiochemistry by Method 904	12	⁸ Al
Radiochemistry by Method 904/9320	14	
Radiochemistry by Method LANL ER200M	16	⁹ Sc
Gl: Glossary of Terms	17	
Al: Accreditations & Locations	18	
Sc: Sample Chain of Custody	19	

SAMPLE SUMMARY

24B1733-01 L1710323-01 Non-Potable Water

Collected by
Collected date/time
Received date/time

02/23/24 10:30 02/29/24 12:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2241526	1	03/08/24 15:05	03/15/24 00:14	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2242279	1	03/13/24 11:38	03/18/24 20:16	DDD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

24B1703-01 L1710323-02 DW

Collected by
Collected date/time
Received date/time

02/23/24 08:17 02/29/24 12:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2238916	1	03/04/24 09:00	03/11/24 20:03	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2240338	1	03/06/24 23:01	03/20/24 17:57	DDD	Mt. Juliet, TN

24B1846-01 L1710323-03 Non-Potable Water

Collected by
Collected date/time
Received date/time

02/17/24 17:05 02/29/24 12:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2240573	1	03/06/24 09:26	03/25/24 13:39	SNR	Mt. Juliet, TN
Radiochemistry by Method 903.0/9315	WG2241526	1	03/08/24 15:05	03/15/24 00:14	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2242277	1	03/08/24 23:18	03/15/24 15:41	DDD	Mt. Juliet, TN
Radiochemistry by Method LANL ER200M	WG2240237	1	03/11/24 21:08	03/12/24 23:29	RGT	Mt. Juliet, TN

24B1860-01 L1710323-04 DW

Collected by
Collected date/time
Received date/time

02/27/24 08:00 02/29/24 12:00

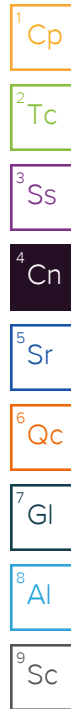
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2238916	1	03/04/24 09:00	03/11/24 20:03	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2240338	1	03/06/24 23:01	03/20/24 17:57	DDD	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Donna Eidson
Project Manager



Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.224	J	0.366		0.527		03/15/2024 00:14	WG2241526
(T) Barium	110					30.0-143	03/15/2024 00:14	WG2241526

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.423	J	0.274	1.41	0.475	0.248	03/18/2024 20:16	WG2242279
(T) Barium	136					30.0-143	03/18/2024 20:16	WG2242279
(T) Yttrium	127					30.0-136	03/18/2024 20:16	WG2242279

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	2.58	J	3.25	1.99	2.65	2.44	03/11/2024 20:03	WG2238916
GROSS BETA	-0.181	U	1.98	3.31	1.59	1.40	03/11/2024 20:03	WG2238916

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.753		0.235	0.979	0.398	0.210	03/20/2024 17:57	WG2240338
(T) Barium	122					25.0-150	03/20/2024 17:57	WG2240338
(T) Yttrium	107					25.0-150	03/20/2024 17:57	WG2240338

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	23.9		3.22	2.91	1.29	0.806	03/25/2024 13:39	WG2240573
GROSS BETA	8.68		1.59	0.204	1.60	0.842	03/25/2024 13:39	WG2240573

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	2.79		0.848		0.444		03/15/2024 00:14	WG2241526
(T) Barium	104					30.0-143	03/15/2024 00:14	WG2241526

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.64		0.347	0.926	0.597	0.313	03/15/2024 15:41	WG2242277
(T) Barium	133					30.0-143	03/15/2024 15:41	WG2242277
(T) Yttrium	122					30.0-136	03/15/2024 15:41	WG2242277

Radiochemistry by Method LANL ER200M

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
THORIUM-228	0.467		0.211	0.0875	0.268	0.158	03/12/2024 23:29	WG2240237
THORIUM-230	-0.136	U	0.208	0.0917	0.427	0.238	03/12/2024 23:29	WG2240237
THORIUM-232	0.0712	U	0.0727	0.0303	0.174	0.111	03/12/2024 23:29	WG2240237
(T) THORIUM-229	83.4					30.0-110	03/12/2024 23:29	WG2240237

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	7.68		3.50	2.14	2.37	2.24	03/11/2024 20:03	WG2238916
GROSS BETA	0.352	J	1.86	1.89	1.47	1.28	03/11/2024 20:03	WG2238916

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.13		0.285	0.901	0.478	0.250	03/20/2024 17:57	WG2240338
(T) Barium	120					25.0-150	03/20/2024 17:57	WG2240338
(T) Yttrium	105					25.0-150	03/20/2024 17:57	WG2240338

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4044626-1 03/11/24 16:23

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
GROSS ALPHA	-0.266	U	0.349	0.403	0.389
GROSS BETA	-0.189	U	1.16	0.946	0.826

L1710943-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1710943-01 03/11/24 20:03 • (DUP) R4044626-3 03/11/24 16:23

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
GROSS ALPHA	2.22	1.13	0.740	0.730	1.73	0.980	0.692	0.668	24.7	0.326		20	2
GROSS BETA	2.94	1.27	0.931	0.817	2.16	1.28	0.971	0.845	30.4	0.430		20	2

Laboratory Control Sample (LCS)

(LCS) R4044626-2 03/11/24 16:23

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
GROSS ALPHA	15.0	13.9	92.9	80.0-120	
GROSS BETA	40.5	39.7	98.0	80.0-120	

L1705745-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1705745-01 03/11/24 16:24 • (MS) R4044626-6 03/12/24 14:25 • (MSD) R4044626-7 03/12/24 14:25

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
GROSS ALPHA	15.0	-0.0522	13.7	15.0	91.4	100	1	70.0-130			8.99		20
GROSS BETA	40.5	-0.106	38.0	38.1	93.8	94.1	1	70.0-130			0.315		20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4049963-1 03/20/24 12:57

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
GROSS ALPHA	0.105	U	0.398	0.611	0.367
GROSS BETA	-0.447	U	1.31	1.78	0.927

L1711656-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1711656-01 03/20/24 16:21 • (DUP) R4049963-3 03/20/24 12:57

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
GROSS ALPHA	3.37	1.54	1.73	0.989	5.24	1.61	1.46	0.860	43.5	0.842		20	3
GROSS BETA	9.96	1.73	1.90	0.990	9.30	1.52	1.58	0.832	6.86	0.287		20	3

Laboratory Control Sample (LCS)

(LCS) R4049963-2 03/20/24 12:57

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
GROSS ALPHA	15.0	13.9	92.6	80.0-120	
GROSS BETA	40.5	37.1	91.5	80.0-120	

L1710323-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1710323-03 03/25/24 13:39 • (MS) R4049963-6 03/25/24 13:39 • (MSD) R4049963-7 03/25/24 13:39

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
GROSS ALPHA	15.4	23.9	34.8	40.8	71.1	110	1	70.0-130			15.9		20
GROSS BETA	41.6	8.68	42.0	46.9	80.2	92.0	1	70.0-130			11.0		20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gf

8Al

9Sc

Method Blank (MB)

(MB) R4046228-1 03/14/24 22:43

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.143	⬇	0.170	0.274	
(T) Barium	104		104		

Laboratory Control Sample (LCS)

(LCS) R4046228-2 03/14/24 23:14

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.87	117	80.0-120	
(T) Barium			103		

L1710452-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1710452-01 03/15/24 00:14 • (MS) R4046228-3 03/14/24 23:14 • (MSD) R4046228-5 03/14/24 23:14

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.409	21.8	23.3	107	115	1	75.0-125			6.78		20
(T) Barium		101			102	100							

L1710811-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1710811-03 03/15/24 01:45 • (MS) R4046228-4 03/14/24 23:14 • (MSD) R4046228-6 03/14/24 23:44

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	1.28	21.0	20.5	98.6	96.1	1	75.0-125			2.36		20
(T) Barium		107			104	105							

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R4048610-1 03/20/24 17:57

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.0709	U	0.189	0.337	0.176
(T) Barium	121		121		
(T) Yttrium	126		126		

L1710871-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1710871-01 03/20/24 17:57 • (DUP) R4048610-5 03/20/24 17:57

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.35	0.400	0.678	0.354	0.660	0.364	0.634	0.331	68.7	1.28		20	2
(T) Barium	123				117	117							
(T) Yttrium	118				117	117							

Laboratory Control Sample (LCS)

(LCS) R4048610-2 03/20/24 17:57

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.57	91.3	80.0-120	
(T) Barium			104		
(T) Yttrium			106		

L1708549-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1708549-01 03/20/24 17:57 • (MS) R4048610-3 03/20/24 17:57 • (MSD) R4048610-4 03/20/24 17:57

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	2.21	16.3	17.4	84.3	90.9	1	70.0-130			6.59		20
(T) Barium		113			112	114							
(T) Yttrium		121			111	102							

Method Blank (MB)

(MB) R4048610-1 03/20/24 17:57

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.0709	U	0.189	0.337	0.176
(T) Barium	121		121		



Method Blank (MB)

(MB) R4048610-1 03/20/24 17:57

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
(T) Yttrium	126		126		

L1710871-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1710871-01 03/20/24 17:57 • (DUP) R4048610-5 03/20/24 17:57

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.35	0.400	0.678	0.354	0.660	0.364	0.634	0.331	68.7	1.28		20	2
(T) Barium	123				117	117							
(T) Yttrium	118				117	117							

Laboratory Control Sample (LCS)

(LCS) R4048610-2 03/20/24 17:57

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.57	91.3	80.0-120	
(T) Barium			104		
(T) Yttrium			106		

L1708549-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1708549-01 03/20/24 17:57 • (MS) R4048610-3 03/20/24 17:57 • (MSD) R4048610-4 03/20/24 17:57

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	2.21	16.3	17.4	84.3	90.9	1	70.0-130			6.59		20
(T) Barium		113			112	114							
(T) Yttrium		121			111	102							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4047105-1 03/15/24 15:41

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.0551	<u>U</u>	0.166	0.310	0.163
(T) Barium	135		135		
(T) Yttrium	103		103		

L1710316-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1710316-01 03/15/24 15:41 • (DUP) R4047105-5 03/15/24 15:41

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.21	0.275	0.470	0.250	0.811	0.258	0.455	0.242	39.5	1.06		20	3
(T) Barium	136				143	143							
(T) Yttrium	108				111	111							

Laboratory Control Sample (LCS)

(LCS) R4047105-2 03/15/24 15:41

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.07	101	80.0-120	
(T) Barium			118		
(T) Yttrium			115		

L1710323-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1710323-03 03/15/24 15:41 • (MS) R4047105-3 03/15/24 15:41 • (MSD) R4047105-4 03/15/24 15:41

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	1.64	19.8	21.2	109	117	1	70.0-130			4.02		20
(T) Barium		133			140	122							
(T) Yttrium		122			104	115							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4047490-1 03/18/24 20:16

	MB Result	MB Qualifier	MB 2 sigma CE	MB MDA	MB Lc
Analyte	pCi/l		+ / -	pCi/l	pCi/l
Radium-228	0.433		0.153	0.260	0.137
(T) Barium	108		108		
(T) Yttrium	107		107		

L1711686-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1711686-01 03/20/24 17:57 • (DUP) R4047490-7 03/20/24 17:57

	Original Result	Original 2 sigma CE	Original MDA	Original Lc	DUP Result	DUP 2 sigma CE	DUP MDA	DUP Lc	DUP RPD	DUP RER	DUP Qualifier	DUP RPD Limits	DUP RER Limit
Analyte	pCi/l	+ / -	pCi/l	pCi/l	pCi/l	+ / -	pCi/l	pCi/l	%			%	
Radium-228	1.78	0.248	0.385	0.204	1.92	0.372	0.608	0.320	7.48	0.309		20	3
(T) Barium	92.5				92.5	92.5							
(T) Yttrium	112				114	114							

Laboratory Control Sample (LCS)

(LCS) R4047490-2 03/18/24 20:16

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	pCi/l	pCi/l	%	%	
Radium-228	5.00	5.66	113	80.0-120	
(T) Barium			115		
(T) Yttrium			100		

L1710875-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1710875-01 03/18/24 20:16 • (MS) R4047490-3 03/18/24 20:16 • (MSD) R4047490-4 03/18/24 20:16

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	MS RER	RPD Limits
Analyte	pCi/l	pCi/l	pCi/l	pCi/l	%	%		%			%		%
Radium-228	10.0	0.658	11.3	10.2	106	95.3	1	70.0-130			9.98		20
(T) Barium		130			119	121							
(T) Yttrium		95.4			121	108							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4045240-1 03/12/24 23:29

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
THORIUM-228	0.113		0.0512	0.0644	0.0383
THORIUM-230	-0.0548	u	0.0493	0.108	0.0601
THORIUM-232	0.0181	u	0.0244	0.0515	0.0318
(T) THORIUM-229	84.2		84.2		

L1712736-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1712736-04 03/12/24 23:29 • (DUP) R4045240-5 03/12/24 23:29

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
THORIUM-228	0.314	0.220	0.323	0.190	0.509	0.236	0.292	0.176	47.4	0.604		20	3
THORIUM-230	-0.198	0.219	0.469	0.263	0.290	0.291	0.478	0.269	200	1.34	u	20	3
THORIUM-232	0.166	0.120	0.203	0.130	0.0489	0.0899	0.222	0.141	109	0.782	u	20	3
(T) THORIUM-229	78.6				73.4	73.4							

Laboratory Control Sample (LCS)

(LCS) R4045240-2 03/12/24 23:29

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
THORIUM-228	2.01	2.36	117	80.0-120	
THORIUM-230	1.99	2.36	119	80.0-120	
THORIUM-232	2.01	2.28	113	80.0-120	
(T) THORIUM-229			73.6		

L1709859-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1709859-01 03/12/24 23:29 • (MS) R4045240-3 03/12/24 23:29 • (MSD) R4045240-4 03/12/24 23:29

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
THORIUM-228	8.03	0.179	7.96	8.32	96.8	101	1	75.0-125			4.49		20
THORIUM-230	7.96	-0.0261	8.81	8.28	111	104	1	75.0-125			6.27		20
THORIUM-232	8.03	0.106	7.56	8.18	92.8	101	1	75.0-125			7.93		20
(T) THORIUM-229		79.2			101	93.6							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

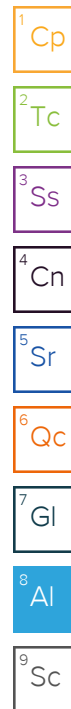
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



1710323



CHEMTECH-FORD
LABORATORIES

SUBCONTRACT ORDER

Chemtech-Ford, Inc

A056

Work Order Number

24B1733

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order
Comments:

1710323

Laboratory ID: 24B1733-01	Matrix: Water	Client Matrix: Water -01
Requested Test	Suggested Analytical Method *	Sampled: 02/23/2024 10:30
Radium-226	EPA 903.0	
Radium-226 LLD	EPA 903.0	
Radium-226 Variance	EPA 903.0	
Radium-228	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228 Variance	EPA 904.0	

PH-10BDH5021 TRC-2352362
CR6-20221V

Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ N If Applicable
COC Signed/Accurate: ☒ Y ☐ N VOA Zero Headspace: ☐ Y ☒ N
Bottles arrive intact: ☒ Y ☐ N Pres. Correct/Check: ☒ Y ☐ N
Correct bottles used: ☒ Y ☐ N
Sufficient volume sent: ☒ Y ☐ N
RA Screen <0.5 mR/hr: ☒ Y ☐ N

Released By	Date	Received By	Date
Denise Ben	2/23/24	Scott	2/28/24
Released By	Date	Received By	Date
Scott PMSUT 1700	2/28/24	Paul Burchfield	2/29/24 12:00

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.

1710323



SUBCONTRACT ORDER

Chemtech-Ford, Inc

Work Order Number

24B1703

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order If gross alpha is >5 run radium 226

Comments:

1710323

Laboratory ID: 24B1703-01	Matrix: Water	Client Matrix: Drinking Water -02
Requested Test	Suggested Analytical Method *	Sampled: 02/23/2024 08:17
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Alpha LLD	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Alpha Variance	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta LLD	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta Variance	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228 LLD	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228 Variance	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

Released By

Date

2/13/24

Received By

Date

10:12 2/28/24

Released By

Date

2/28/24

Received By

Date

2/29/24 12:00

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.

1710323



CHEMTECH-FORD
LABORATORIES

SUBCONTRACT ORDER

Chemtech-Ford, Inc

Work Order Number

24B1846

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order
Comments:

4710323

Laboratory ID: 24B1846-01	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 02/17/2024 17:05
Thorium-230	D3972-90M	
Thorium-230 LLD	D3972-90M	
Thorium-230 Variance	D3972-90M	
Thorium-232	D3972-90M	
Thorium-232 LLD	D3972-90M	
Thorium-232 Variance	D3972-90M	
Gross Alpha	EPA 900.0	
Gross Alpha LLD	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Beta	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Gross Beta Variance	EPA 900.0	
Radium-228	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228 Variance	EPA 904.0	
Radium-226	SM 7500 Ra B	
Radium-226 LLD	SM 7500 Ra B	
Radium-226 Variance	SM 7500 Ra B	

Released By	Date	Received By	Date
<i>Denise Brann</i>	2/26/24	<i>Scott R</i>	10:12 2/28/24
Released By	Date	Received By	Date
<i>Paul Bunchfield</i>	2/28/24	<i>Paul Bunchfield</i>	2/29/24 12:00

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.

1710323

CHEMTECH-FORD
LABORATORIES

SUBCONTRACT ORDER

Chemtech-Ford, Inc

Work Order Number

24B1860

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order If Gross Alpha is >5, fun Radium 226.
Comments:

1710323

Laboratory ID: 24B1860-01	Matrix: Water	Client Matrix: Drinking Water-04
Requested Test	Suggested Analytical Method *	Sampled: 02/27/2024 08:00
Gross Alpha	EPA 900.0	
Gross Alpha LLD	EPA 900.0	
Gross Alpha Variance	EPA 900.0	
Gross Beta	EPA 900.0	
Gross Beta LLD	EPA 900.0	
Gross Beta Variance	EPA 900.0	
Radium-228	EPA 904.0	
Radium-228 LLD	EPA 904.0	
Radium-228 Variance	EPA 904.0	

Released By	Date	Received By	Date
Denise Brun	2/27/24	Scott R	10:12 2/28/24
Released By	Date	Received By	Date
Scott R	2/28/24	Carol Burchfield	12:00 2/29/24

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.

[illegible]

Date _____



Well number: BA-DG4
Field Personnel: Tk
Sampling date: 2-21-24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): N/A
Water level, post-pump installation (ft): N/A
Rate & direction of groundwater flow: N/A
Total volume of water pumped (Liters): 1.75
Clock time of sample: 11:03
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: plastic
Sample bottle(s) identification number used: BA-DG4
Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

[illegible]

CHEMTECH - FORD ANALYTICAL LABORATORY

CHAIN OF CUSTODY

COMPANY: Deseret Power Electric Cooperative
 ADDRESS: 12500 East 25500 South
 CITY/STATE/ZIP: Vernal, UT 84078-8525
 PHONE #: 435-781-5706 FAX _____
 CONTACT: Tyler Esplin PROJECT: BA-DG4 (round 7)
 EMAIL: tesplin@deseretpower.com

BILLING ADDRESS: _____
 BILLING CITY/STATE/ZIP: _____
 PURCHASE ORDER #: 185318



TURNAROUND REQUIRED:*

* Expedited turnaround subject to additional charge

Please fill out the fields highlighted in light blue.

WS 178497470165591887

24B1729

Rads on 24B1733

Lab Use Only		CLIENT SAMPLE INFORMATION						TESTS REQUESTED										Bacteria							
		LOCATION / IDENTIFICATION	DATE	TIME	MATRIX	Field: Residual Chlorine	Chloride	Fluoride	Sulfate	TDS	Mercury	Metals by EPA 200.7 *	Metals by EPA 200.8 **	Radium-226	Radium-228							Total Coliform + E. coli (Present/Absent)	Total Coliform + E. coli (Enumerated)	HPC (Plate Count)	E. coli Only
-01	1	BA-DG4	2-21-24	11:03	Water		X	X	X	X	X	X	X	X	X										
	2																								
	3																								
	4																								
	5																								
	6																								
	7																								
	8																								
	9																								
	10																								

Sampled by: [print] Tyler Keller Sampled by: [signature] Tyler Keller
 Special Instructions: * Ba,B,Ca,Li,Mo ** Sb,As,Be,Cd,Cr,Co,Pb,Se,Tl
 Relinquished by: [signature] Tyler Keller Date/Time 2-22-24 12:00
 Relinquished by: [signature] _____ Date/Time _____
 Relinquished by: [signature] _____ Date/Time _____

Received by: [signature] Moore Tea Date/Time 2/23/24 1030
 Received by: [signature] _____ Date/Time _____
 Received by: [signature] _____ Date/Time _____

ON ICE NOT ON ICE Temp (C): 2.4
 Samples received outside the EPA recommended temperature range of 0-6 C* may be rejected.

AQ 1354 M 1356
 Sample Receipt Conditions:
 () Custody Seals Present
 () Containers Intact
 () COC and Labels Match
 () Received on Ice
 () Correct Containers
 () COC Included
 () COC Complete
 () Sufficient Sample Volume
 () Headspace Present (VOC)
 () Temperature Blank
 () Received within Hold
 Checked by: _____

CHEMTECH-FORD
 9632 South 500 West
 Sandy, UT 84070

801.262.7299 PHONE
 866.792.0093 FAX
 www.chemtechford.com

collection costs and attorney's

CHEMTECH - FORD ANALYTICAL LABORATORY

CHAIN OF CUSTODY

COMPANY: Deseret Power Electric Cooperative
 ADDRESS: 12500 East 25500 South
 CITY/STATE/ZIP: Vernal, UT 84078-8525
 PHONE #: 435-781-5706 FAX _____
 CONTACT: Tyler Esplin PROJECT: BA-DG4 (round 7)
 EMAIL: tesplin@deseretpower.com

BILLING ADDRESS: _____
 BILLING CITY/STATE/ZIP: _____
 PURCHASE ORDER #: 185318



TURNAROUND REQUIRED:*

* Expedited turnaround subject to additional charge

Please fill out the fields highlighted in light blue.

WS 178497470165591887

24B1729

Rads on 24B1733

Lab Use Only		CLIENT SAMPLE INFORMATION						TESTS REQUESTED										Bacteria							
		LOCATION / IDENTIFICATION	DATE	TIME	MATRIX	Field: Residual Chlorine	Chloride	Fluoride	Sulfate	TDS	Mercury	Metals by EPA 200.7 *	Metals by EPA 200.8 **	Radium-226	Radium-228							Total Coliform + E. coli (Present/Absent)	Total Coliform + E. coli (Enumerated)	HPC (Plate Count)	E. Coli Only
-01	1	BA-DG4	2-21-24	11:03	Water		X	X	X	X	X	X	X	X	X										
	2																								
	3																								
	4																								
	5																								
	6																								
	7																								
	8																								
	9																								
	10																								

Sampled by: [print] Trenton Keller Sampled by: [signature] Trenton Keller
 Special Instructions: * Ba,B,Ca,Li,Mo ** Sb,As,Be,Cd,Cr,Co,Pb,Se,Tl
 Relinquished by: [signature] Trenton Keller Date/Time 2-22-24 12:00
 Relinquished by: [signature] _____ Date/Time _____
 Relinquished by: [signature] _____ Date/Time _____

Received by: [signature] Moore Tea Date/Time 2/23/24 1030
 Received by: [signature] _____ Date/Time _____
 Received by: [signature] _____ Date/Time _____

ON ICE NOT ON ICE Temp (C): 2.4
 Samples received outside the EPA recommended temperature range of 0-6 C* may be rejected.

AQ 1354 M 1356
 Sample Receipt Conditions:
 () Custody Seals Present ☒ Correct Containers () Headspace Present (VOC)
 () Containers Intact ☒ COC Included () Temperature Blank
 () COC and Labels Match ☒ COC Complete ☒ Received within Hold
 () Received on Ice ☒ Sufficient Sample Volume Checked by: _____

CHEMTECH-FORD
 9632 South 500 West
 Sandy, UT 84070

801.262.7299 PHONE
 866.792.0093 FAX
 www.chemtechford.com

collection costs and attorney's



4/16/2024

Work Order: 24D0399
Project: BA-DG4 (round 8)

Deseret Power Electric Cooperative
Attn: Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 4/4/24 11:00 @ 5.6 °C
Date Reported: 4/16/2024
Project Name: BA-DG4 (round 8)

Sample ID: BA-DG4

Matrix: Water

Date Sampled: 4/2/24 14:27

Sampled By: Trenton Keller

Lab ID: 24D0399-01

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	614	mg/L	20.0	EPA 300.0	4/5/24	4/5/24	
Fluoride	2.25	mg/L	2.00	EPA 300.0	4/5/24	4/5/24	
Sulfate	6530	mg/L	20.0	EPA 300.0	4/5/24	4/5/24	
Total Dissolved Solids (TDS)	11200	mg/L	500	SM 2540 C	4/5/24	4/5/24	
Metals							
Antimony, Total	ND	mg/L	0.0005	EPA 200.8/200.2	4/4/24	4/5/24	
Arsenic, Total	0.0058	mg/L	0.0005	EPA 200.8/200.2	4/4/24	4/5/24	
Barium, Total	0.014	mg/L	0.005	EPA 200.7/200.7	4/4/24	4/5/24	
Beryllium, Total	ND	mg/L	0.0005	EPA 200.8/200.2	4/4/24	4/5/24	
Boron, Total	33.2	mg/L	0.50	EPA 200.7/200.7	4/4/24	4/8/24	
Cadmium, Total	ND	mg/L	0.0002	EPA 200.8/200.2	4/4/24	4/5/24	
Calcium, Total	236	mg/L	0.2	EPA 200.7/200.7	4/4/24	4/5/24	
Chromium, Total	0.0007	mg/L	0.0005	EPA 200.8/200.2	4/4/24	4/5/24	
Cobalt, Total	0.0017	mg/L	0.0005	EPA 200.8/200.2	4/4/24	4/5/24	
Lead, Total	ND	mg/L	0.0005	EPA 200.8/200.2	4/4/24	4/5/24	
Lithium, Total	0.190	mg/L	0.005	EPA 200.7/200.7	4/4/24	4/5/24	
Mercury, Total	ND	mg/L	0.00015	EPA 245.1	4/8/24	4/8/24	
Molybdenum, Total	0.06	mg/L	0.01	EPA 200.7/200.7	4/4/24	4/5/24	
Selenium, Total	0.0309	mg/L	0.0005	EPA 200.8/200.2	4/4/24	4/5/24	
Thallium, Total	ND	mg/L	0.0002	EPA 200.8/200.2	4/4/24	4/5/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 4/4/24 11:00 @ 5.6 °C
Date Reported: 4/16/2024
Project Name: BA-DG4 (round 8)

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

CHAIN OF CUSTODY

BILLING ADDRESS: _____
BILLING CITY/STATE/ZIP: _____
PURCHASE ORDER #: 187398



1Z 849 747 01 6311 1032

☐ Custody Seals Present
☒ Containers Intact
☐ COC and Labels Match
☒ Received on Ice
☒ Correct Containers
☒ COC Included
☒ COC Complete
☒ Sufficient Sample Volume
☐ Headspace Present (VOC)
☐ Temperature Blank
☒ Received within Hold
 Checked by:

Checked by:

[illegible]

ON ICE NOT ON ICE Temp (C°): 5.6

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Received by: (signature)	Date/Time
<i>[Signature]</i>	4/4/24 1100
Received by: (signature)	Date/Time

Received by: [signature]	Date/Time
Received by: [signature]	Date/Time

Received by: [signature]	Date/Time
--------------------------	-----------

801.262.7299 PHONE
866.792.0093 FAX
www.chemtechford.com

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

QC Report for Work Order (WO) - 24D0399

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.7

QC Sample ID: BYD0242-BLK1		Batch: BYD0242							
Date Prepared: 04/04/2024		Date Analyzed: 04/05/2024							
Barium, Total					ND		0.005	1.00	
Boron, Total					ND		0.05	1.00	
Calcium, Total					ND		0.2	1.00	
Lithium, Total					ND		0.005	1.00	
Molybdenum, Total					ND		0.01	1.00	

LCS - EPA 200.7

QC Sample ID: BYD0242-BS1		Batch: BYD0242							
Date Prepared: 04/04/2024		Date Analyzed: 04/05/2024							
Barium, Total	95.7	85 - 115		0.239		0.250	0.005	1.00	
Boron, Total	95.6	85 - 115		0.48		0.500	0.05	1.00	
Calcium, Total	93.9	85 - 115		9.6		10.2	0.2	1.00	
Lithium, Total	99.4	85 - 115		0.199		0.200	0.005	1.00	
Molybdenum, Total	97.0	85 - 115		0.19		0.200	0.01	1.00	

Matrix Spike - EPA 200.7

QC Sample ID: BYD0242-MS1	Batch: BYD0242	QC Source Sample: XXXXXXXX-XX					
Date Prepared: 04/04/2024	Date Analyzed: 04/05/2024						
Barium, Total	95.2	70 - 130	0.303	0.065	0.250	0.005	1.00
Boron, Total	99.5	70 - 130	0.75	0.26	0.500	0.05	1.00
Calcium, Total	104	70 - 130	85.1	74.5	10.2	0.2	1.00
Lithium, Total	118	70 - 130	0.281	0.046	0.200	0.005	1.00
Molybdenum, Total	118	70 - 130	0.24	0.005	0.200	0.01	1.00

QC Sample ID: BYD0242-MS2	Batch: BYD0242	QC Source Sample: XXXXXXXX-XX					
Date Prepared: 04/04/2024	Date Analyzed: 04/05/2024						
Barium, Total	95.0	70 - 130	0.328	0.090	0.250	0.005	1.00
Boron, Total	99.1	70 - 130	0.74	0.24	0.500	0.05	1.00
Calcium, Total	87.9	70 - 130	89.4	80.5	10.2	0.2	1.00
Lithium, Total	99.7	70 - 130	0.245	0.045	0.200	0.005	1.00
Molybdenum, Total	98.0	70 - 130	0.20	0.007	0.200	0.01	1.00

Matrix Spike Dup - EPA 200.7

QC Sample ID: BYD0242-MSD1		Batch: BYD0242		QC Source Sample: XXXXXXXX-XX					
Date Prepared: 04/04/2024		Date Analyzed: 04/05/2024							
Barium, Total	93.9	1.13	70 - 130	20	0.300	0.065	0.250	0.005	1.00
Boron, Total	98.7	0.519	70 - 130	20	0.75	0.26	0.500	0.05	1.00
Calcium, Total	86.6	2.17	70 - 130	20	83.3	74.5	10.2	0.2	1.00
Lithium, Total	96.8	16.1	70 - 130	20	0.239	0.046	0.200	0.005	1.00
Molybdenum, Total	98.8	17.7	70 - 130	20	0.20	0.005	0.200	0.01	1.00

QC Sample ID: BYD0242-MSD2	Batch: BYD0242		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 04/04/2024	Date Analyzed: 04/05/2024								
Barium, Total	96.0	0.729	70 - 130	20	0.330	0.090	0.250	0.005	1.00
Boron, Total	100	0.942	70 - 130	20	0.75	0.24	0.500	0.05	1.00
Calcium, Total	102	1.60	70 - 130	20	90.9	80.5	10.2	0.2	1.00
Lithium, Total	101	0.855	70 - 130	20	0.247	0.045	0.200	0.005	1.00
Molybdenum, Total	98.6	0.589	70 - 130	20	0.20	0.007	0.200	0.01	1.00

QC Report for Work Order (WO) - 24D0399

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.8

QC Sample ID: BYD0234-BLK1		Batch: BYD0234							
Date Prepared: 04/04/2024		Date Analyzed: 04/05/2024							
Antimony, Total					ND		0.0005	1.00	
Arsenic, Total					ND		0.0005	1.00	
Beryllium, Total					ND		0.0005	1.00	
Cadmium, Total					ND		0.0002	1.00	
Chromium, Total					ND		0.0005	1.00	
Cobalt, Total					ND		0.0005	1.00	
Lead, Total					ND		0.0005	1.00	
Selenium, Total					ND		0.0005	1.00	
Thallium, Total					ND		0.0002	1.00	

LCS - EPA 200.8

QC Sample ID: BYD0234-BS1		Batch: BYD0234							
Date Prepared: 04/04/2024		Date Analyzed: 04/05/2024							
Antimony, Total	96.1	85 - 115		0.038		0.0400	0.0005	1.00	
Arsenic, Total	98.0	85 - 115		0.039		0.0400	0.0005	1.00	
Beryllium, Total	97.4	85 - 115		0.039		0.0400	0.0005	1.00	
Cadmium, Total	98.2	85 - 115		0.039		0.0400	0.0002	1.00	
Chromium, Total	95.8	85 - 115		0.038		0.0400	0.0005	1.00	
Cobalt, Total	97.7	85 - 115		0.039		0.0400	0.0005	1.00	
Lead, Total	96.7	85 - 115		0.039		0.0400	0.0005	1.00	
Selenium, Total	102	85 - 115		0.041		0.0400	0.0005	1.00	
Thallium, Total	97.5	85 - 115		0.039		0.0400	0.0002	1.00	

Matrix Spike - EPA 200.8

QC Sample ID: BYD0234-MS1	Batch: BYD0234	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 04/04/2024	Date Analyzed: 04/05/2024							
Antimony, Total	91.0	70 - 130	0.037	0.0002	0.0400	0.0005	1.00	
Arsenic, Total	98.5	70 - 130	0.046	0.006	0.0400	0.0005	1.00	
Beryllium, Total	101	70 - 130	0.040	ND	0.0400	0.0005	1.00	
Cadmium, Total	97.4	70 - 130	0.039	ND	0.0400	0.0002	1.00	
Chromium, Total	95.0	70 - 130	0.039	0.001	0.0400	0.0005	1.00	
Cobalt, Total	94.6	70 - 130	0.038	0.0002	0.0400	0.0005	1.00	
Lead, Total	97.9	70 - 130	0.039	0.0001	0.0400	0.0005	1.00	
Selenium, Total	96.8	70 - 130	0.040	0.001	0.0400	0.0005	1.00	
Thallium, Total	98.2	70 - 130	0.039	ND	0.0400	0.0002	1.00	

QC Sample ID: BYD0234-MS2	Batch: BYD0234	QC Source Sample: XXXXXXXX-XX					
Date Prepared: 04/04/2024	Date Analyzed: 04/05/2024						
Antimony, Total	76.7	70 - 130	0.031	0.0003	0.0400	0.0005	1.00
Arsenic, Total	91.0	70 - 130	0.037	0.0003	0.0400	0.0005	1.00
Beryllium, Total	100	70 - 130	0.040	ND	0.0400	0.0005	1.00
Cadmium, Total	99.2	70 - 130	0.040	ND	0.0400	0.0002	1.00
Chromium, Total	96.3	70 - 130	0.039	0.0002	0.0400	0.0005	1.00
Cobalt, Total	136	70 - 130	6.78	6.73	0.0400	0.0050	10.00

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Lead, Total	94.5	70 - 130		0.038	ND	0.0400	0.0005	1.00	
Selenium, Total	95.0	70 - 130		0.041	0.003	0.0400	0.0005	1.00	
Thallium, Total	90.7	70 - 130		0.036	ND	0.0400	0.0002	1.00	

QC Report for Work Order (WO) - 24D0399

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Blank - EPA 245.1									
QC Sample ID: BYD0357-BLK1	Batch: BYD0357								
Date Prepared: 04/08/2024	Date Analyzed: 04/08/2024								
Mercury, Total					ND			0.00015	1.00
LCS - EPA 245.1									
QC Sample ID: BYD0357-BS1	Batch: BYD0357								
Date Prepared: 04/08/2024	Date Analyzed: 04/08/2024								
Mercury, Total	109		85 - 115		0.00547		0.00500	0.00015	1.00
Matrix Spike - EPA 245.1									
QC Sample ID: BYD0357-MS1	Batch: BYD0357		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 04/08/2024	Date Analyzed: 04/08/2024								
Mercury, Total	109		75 - 125		0.00543	ND	0.00500	0.00015	1.00
QC Sample ID: BYD0357-MS2	Batch: BYD0357		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 04/08/2024	Date Analyzed: 04/08/2024								
Mercury, Total	103		75 - 125		0.00514	ND	0.00500	0.00015	1.00
Matrix Spike Dup - EPA 245.1									
QC Sample ID: BYD0357-MSD1	Batch: BYD0357		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 04/08/2024	Date Analyzed: 04/08/2024								
Mercury, Total	111	2.21	75 - 125	20	0.00556	ND	0.00500	0.00015	1.00
QC Sample ID: BYD0357-MSD2	Batch: BYD0357		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 04/08/2024	Date Analyzed: 04/08/2024								
Mercury, Total	107	3.94	75 - 125	20	0.00535	ND	0.00500	0.00015	1.00

QC Report for Work Order (WO) - 24D0399

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Blank - EPA 300.0

QC Sample ID: BYD0307-BLK1

Batch: BYD0307

Date Prepared: 04/05/2024

Date Analyzed: 04/05/2024

Chloride				ND		1.00	1.00
Fluoride				ND		0.100	1.00
Sulfate				ND		1.00	1.00

LCS - EPA 300.0

QC Sample ID: BYD0307-BS1

Batch: BYD0307

Date Prepared: 04/05/2024

Date Analyzed: 04/05/2024

Chloride	99.5	90 - 110		199		200	1.00	1.00
Fluoride	100	90 - 110		20.0		20.0	0.100	1.00
Sulfate	100	90 - 110		200		200	1.00	1.00

Matrix Spike - EPA 300.0

QC Sample ID: BYD0307-MS1

Batch: BYD0307

QC Source Sample: XXXXXXXX-XX

Date Prepared: 04/05/2024

Date Analyzed: 04/05/2024

Chloride	195	80 - 120		27600	23700	2000	110	1.00
----------	-----	----------	--	-------	-------	------	-----	------

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Fluoride	92.6	80 - 120		185	ND	200	11.0	1.00
Sulfate	116	80 - 120		5810	3490	2000	110	1.00

QC Sample ID: BYD0307-MS2

Batch: BYD0307

QC Source Sample: XXXXXXXX-XX

Date Prepared: 04/05/2024

Date Analyzed: 04/05/2024

Chloride	101	80 - 120		75.4	53.0	22.2	1.11	1.00
Fluoride	102	80 - 120		2.77	0.504	2.22	0.111	1.00
Sulfate	101	80 - 120		64.1	41.7	22.2	1.11	1.00

Matrix Spike Dup - EPA 300.0

QC Sample ID: BYD0307-MSD1

Batch: BYD0307

QC Source Sample: XXXXXXXX-XX

Date Prepared: 04/05/2024

Date Analyzed: 04/05/2024

Chloride	199	0.321	80 - 120	20	27600	23700	2000	110	1.00
----------	-----	-------	----------	----	-------	-------	------	-----	------

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Fluoride	90.7	2.11	80 - 120	20	181	ND	200	11.0	1.00
Sulfate	118	0.865	80 - 120	20	5860	3490	2000	110	1.00

QC Sample ID: BYD0307-MSD2

Batch: BYD0307

QC Source Sample: XXXXXXXX-XX

Date Prepared: 04/05/2024

Date Analyzed: 04/05/2024

Chloride	103	0.623	80 - 120	20	75.9	53.0	22.2	1.11	1.00
Fluoride	104	1.64	80 - 120	20	2.81	0.504	2.22	0.111	1.00
Sulfate	102	0.559	80 - 120	20	64.4	41.7	22.2	1.11	1.00

QC Report for Work Order (WO) - 24D0399

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Blank - SM 2540 C									
QC Sample ID: BYD0304-BLK1	Batch: BYD0304								
Date Prepared: 04/05/2024	Date Analyzed: 04/05/2024								
Total Dissolved Solids (TDS)					ND			10	1.00
Duplicate - SM 2540 C									
QC Sample ID: BYD0304-DUP1	Batch: BYD0304		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 04/05/2024	Date Analyzed: 04/05/2024								
Total Dissolved Solids (TDS)	0.3			10	1380	1380		20	1.00
QC Sample ID: BYD0304-DUP2	Batch: BYD0304		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 04/05/2024	Date Analyzed: 04/05/2024								
Total Dissolved Solids (TDS)	0.9			10	45900	46300		500	1.00
LCS - SM 2540 C									
QC Sample ID: BYD0304-BS1	Batch: BYD0304								
Date Prepared: 04/05/2024	Date Analyzed: 04/05/2024								
Total Dissolved Solids (TDS)	90		90 - 110		360		400	20	1.00



5/13/2024

Work Order: 24D0413
Project: BA-DG4 (round 8)

Deseret Power Electric Cooperative
Attn: Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 4/4/24 11:00 @ 5.6 °C
Date Reported: 5/13/2024
Project Name: BA-DG4 (round 8)

Sample ID: BA-DG4

Matrix: Water

Date Sampled: 4/2/24 14:27

Sampled By: Trenton Keller

Lab ID: 24D0413-01

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Radiochemistry							
Radium-226	0.0	pCi/L	0.33	EPA 903.0	4/24/24	4/28/24	SL-62
Radium-228	0.09	pCi/L	0.48	EPA 904.0	4/29/24	5/6/24	SL-62



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 4/4/24 11:00 @ 5.6 °C
Date Reported: 5/13/2024
Project Name: BA-DG4 (round 8)

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

Flag Descriptions

SL-62 = Analysis performed by Pace Analytical National, Mount Juliet, TN 37122

CHEMTECH - FORD ANALYTICAL LABORATORY

CHAIN OF CUSTODY

COMPANY: Deseret Power Electric Cooperative
 ADDRESS: 12500 East 25500 South
 CITY/STATE/ZIP: Vernal, UT 84078-8525
 PHONE #: 435-781-5706 FAX
 CONTACT: Tyler Esplin PROJECT: BA-DG4 (round 8)
 EMAIL: tesplin@deseretspower.com

BILLING ADDRESS: _____
 BILLING CITY/STATE/ZIP: _____
 PURCHASE ORDER #: 187398



24D0413

1Z 849 747 01 6311 1032

Sample Receipt Conditions:

- ☐ Custody Seals Present
☒ Containers Intact
☐ CQC and Labels Match
☒ Received on ice
☒ Correct Containers
☐ CQC included
☐ CQC complete
☒ Sufficient Sample Volume
☐ Headspace Present (VOC)
☐ Temperature Blank
☐ Received within 30 days
 Checked by: AS

Lab Use Only	CLIENT SAMPLE INFORMATION						TESTS REQUESTED										Bacteria			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX	Field: Residual Chlorine	Chloride	Fluoride	Sulfate	TDS	Mercury	Metals by EPA 200.7 *	Metals by EPA 200.8 ***	Radium-226	Radium-228	Total Coliform	Total Coliform (E. coli)	HPC (F. coli)	E. coli		
01	BA-DG4	4/2/24	14:27	Water		X	X	X	X	X	X	X	X	X						
2.																				
3.																				
4.																				
5.																				
6.																				
7.																				
8.																				
9.																				
10.																				

Sampled by: (print) Trenton Keller Sampled by: (signature) [Signature]
 Special Instructions: * Ba,B,Ca,Li,Mo ** Sb,As,Be,Cd,Cr,Co,Pb,Se,Tl
 Relinquished by: (signature) Trenton Keller Date/Time: 4/13/24 10:30
 Relinquished by: (signature) _____ Date/Time: _____
 Relinquished by: (signature) _____ Date/Time: _____

Received by: (signature) [Signature] Date/Time: 4/14/24 1100
 Received by: (signature) _____ Date/Time: _____
 Received by: (signature) _____ Date/Time: _____

ON ICE ☒ NOT ON ICE ☐ Temp (C°): 5 to
 Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Preserved in receiving

CHEMTECH-FORD
 9632 South 500 West
 Sandy, UT 84070

801.262.7299 PHONE
 866.792.0093 FAX
 www.chemtechford.com

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.



ANALYTICAL REPORT

May 13, 2024

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Chemtech-Ford Laboratories

Sample Delivery Group: L1723107
Samples Received: 04/06/2024
Project Number:
Description:

Report To: Andrew Royer
9632 S 500 S
Sandy, UT 84070

Entire Report Reviewed By:

Donna Eidson
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 4

Cn: Case Narrative 9

Sr: Sample Results 10

24D0415-01 L1723107-01 10

24D0415-02 L1723107-02 11

24D0415-03 L1723107-03 12

24D0415-04 L1723107-04 13

24D0415-05 L1723107-05 14

24D0415-06 L1723107-06 15

24D0415-07 L1723107-07 16

24D0415-08 L1723107-08 17

24D0415-09 L1723107-09 18

24D0415-10 L1723107-10 19

24D0415-11 L1723107-11 20

24D0415-12 L1723107-12 21

24D0415-13 L1723107-13 22

24D0415-14 L1723107-14 23

24D0415-15 L1723107-15 24

24D0415-16 L1723107-16 25

24D0415-17 L1723107-17 26

24D0415-18 L1723107-18 27

24D0415-19 L1723107-19 28

24D0415-20 L1723107-20 29

24D0415-21 L1723107-21 30

24D0415-22 L1723107-22 31

24D0415-23 L1723107-23 32

24D0415-24 L1723107-24 33

24D0415-25 L1723107-25 34

24D0415-26 L1723107-26 35

24D0350-01 L1723107-27 36

24D0413-01 L1723107-28 37

24D0311-01 L1723107-29 38

24D0312-01 L1723107-30 39

Qc: Quality Control Summary 40

Radiochemistry by Method 900 40

Radiochemistry by Method 903.0/9315 41

Radiochemistry by Method 904 44

Radiochemistry by Method 904/9320 46

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Gl: Glossary of Terms

48

Al: Accreditations & Locations

49

Sc: Sample Chain of Custody

50

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

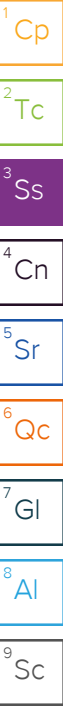
SAMPLE SUMMARY

24D0415-01 L1723107-01 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/01/24 10:25 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2268261	1	04/16/24 16:00	04/22/24 16:14	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2273003	1	04/26/24 00:27	05/01/24 21:48	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2268261	1	04/16/24 16:00	05/01/24 21:48	DDD	Mt. Juliet, TN



24D0415-02 L1723107-02 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/01/24 09:40 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2268261	1	04/16/24 16:00	04/22/24 16:14	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2273003	1	04/26/24 00:27	05/01/24 21:48	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2268261	1	04/16/24 16:00	05/01/24 21:48	DDD	Mt. Juliet, TN

24D0415-03 L1723107-03 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/01/24 10:05 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2268261	1	04/16/24 16:00	04/22/24 16:14	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2273003	1	04/26/24 00:27	05/01/24 21:48	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2268261	1	04/16/24 16:00	05/01/24 21:48	DDD	Mt. Juliet, TN

24D0415-04 L1723107-04 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 12:20 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2268261	1	04/16/24 16:00	04/22/24 16:14	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2273003	1	04/26/24 00:27	05/01/24 21:48	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2268261	1	04/16/24 16:00	05/01/24 21:48	DDD	Mt. Juliet, TN

24D0415-05 L1723107-05 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 12:50 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 00:48	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2273003	1	04/26/24 00:27	05/01/24 21:48	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/01/24 21:48	SNR	Mt. Juliet, TN

24D0415-06 L1723107-06 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 12:55 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 01:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2273003	1	04/26/24 00:27	05/01/24 21:48	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/01/24 21:48	SNR	Mt. Juliet, TN

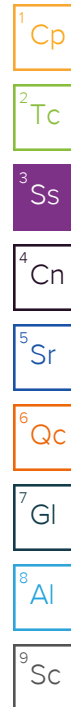
SAMPLE SUMMARY

24D0415-07 L1723107-07 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 13:05 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 01:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2273003	1	04/26/24 00:27	05/01/24 21:48	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/01/24 21:48	SNR	Mt. Juliet, TN



24D0415-08 L1723107-08 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 13:15 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 01:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2273003	1	04/26/24 00:27	05/01/24 21:48	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/01/24 21:48	SNR	Mt. Juliet, TN

24D0415-09 L1723107-09 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 13:35 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 01:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2273003	1	04/26/24 00:27	05/01/24 21:48	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/01/24 21:48	SNR	Mt. Juliet, TN

24D0415-10 L1723107-10 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 10:10 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 02:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

24D0415-11 L1723107-11 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/01/24 14:55 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 02:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

24D0415-12 L1723107-12 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/01/24 14:35 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 02:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

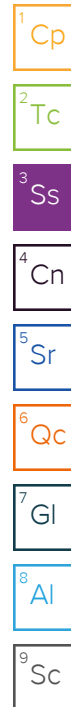
SAMPLE SUMMARY

24D0415-13 L1723107-13 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/01/24 14:10 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 02:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN



24D0415-14 L1723107-14 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/01/24 14:20 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 03:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

24D0415-15 L1723107-15 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/01/24 13:45 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 03:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

24D0415-16 L1723107-16 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/01/24 13:25 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 03:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

24D0415-17 L1723107-17 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/01/24 10:50 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 03:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

24D0415-18 L1723107-18 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/01/24 11:00 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 04:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

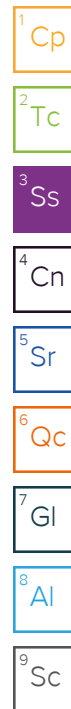
SAMPLE SUMMARY

24D0415-19 L1723107-19 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 09:25 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 04:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN



24D0415-20 L1723107-20 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 09:10 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 04:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

24D0415-21 L1723107-21 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 09:15 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 04:49	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

24D0415-22 L1723107-22 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 09:35 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 05:50	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

24D0415-23 L1723107-23 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 08:55 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 05:50	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

24D0415-24 L1723107-24 Non-Potable Water

Collected by
Collected date/time
Received date/time

04/02/24 09:55 04/06/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2271689	1	04/22/24 12:36	04/28/24 05:50	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2271689	1	04/22/24 12:36	05/06/24 17:11	SNR	Mt. Juliet, TN

SAMPLE SUMMARY

24D0415-25 L1723107-25 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					04/02/24 14:05	04/06/24 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2272295	1	04/24/24 08:50	04/28/24 10:52	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2272295	1	04/24/24 08:50	05/06/24 17:11	SNR	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

24D0415-26 L1723107-26 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					04/02/24 13:50	04/06/24 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2272295	1	04/24/24 08:50	04/28/24 10:52	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2272295	1	04/24/24 08:50	05/06/24 17:11	SNR	Mt. Juliet, TN

24D0350-01 L1723107-27 DW

				Collected by	Collected date/time	Received date/time
					04/03/24 10:45	04/06/24 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2268697	1	04/17/24 13:46	05/03/24 17:38	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2272998	1	04/27/24 11:11	05/08/24 20:21	SNR	Mt. Juliet, TN

24D0413-01 L1723107-28 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					04/02/24 14:27	04/06/24 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2272295	1	04/24/24 08:50	04/28/24 10:52	SNR	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2275529	1	04/29/24 22:52	05/06/24 17:11	DDD	Mt. Juliet, TN

24D0311-01 L1723107-29 DW

				Collected by	Collected date/time	Received date/time
					04/03/24 13:00	04/06/24 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2268697	1	04/17/24 13:46	05/03/24 17:38	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2272998	1	04/27/24 11:11	05/08/24 20:21	SNR	Mt. Juliet, TN

24D0312-01 L1723107-30 DW

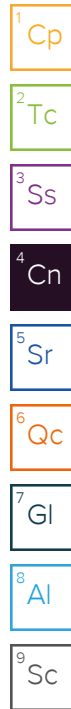
				Collected by	Collected date/time	Received date/time
					04/03/24 12:00	04/06/24 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2268697	1	04/17/24 13:46	05/03/24 17:38	SNR	Mt. Juliet, TN
Radiochemistry by Method 904	WG2272998	1	04/27/24 11:11	05/08/24 20:21	SNR	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Donna Eidson
Project Manager



Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.161	U	0.235	0.139	0.410	0.0870	04/22/2024 16:14	WG2268261
(T) Barium	102					30.0-143	04/22/2024 16:14	WG2268261

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.324	U	0.237	1.69	0.447	0.236	05/01/2024 21:48	WG2273003
(T) Barium	95.3					30.0-143	05/01/2024 21:48	WG2273003
(T) Yttrium	89.6					30.0-136	05/01/2024 21:48	WG2273003

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.161	U	0.334	0.607	05/01/2024 21:48	WG2268261

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.218	U	0.302	0.184	0.522	0.120	04/22/2024 16:14	WG2268261
(T) Barium	106					30.0-143	04/22/2024 16:14	WG2268261

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.0962	U	0.230	1.72	0.426	0.224	05/01/2024 21:48	WG2273003
(T) Barium	94.3					30.0-143	05/01/2024 21:48	WG2273003
(T) Yttrium	113					30.0-136	05/01/2024 21:48	WG2273003

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.218	U	0.380	0.674	05/01/2024 21:48	WG2268261

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.428		0.331	0.270	0.409	0.0877	04/22/2024 16:14	WG2268261
(T) Barium	101					30.0-143	04/22/2024 16:14	WG2268261

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.343	J	0.235	1.21	0.419	0.221	05/01/2024 21:48	WG2273003
(T) Barium	91.8					30.0-143	05/01/2024 21:48	WG2273003
(T) Yttrium	104					30.0-136	05/01/2024 21:48	WG2273003

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.770		0.406	0.586	05/01/2024 21:48	WG2268261

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.273	J	0.283	0.199	0.417	0.0899	04/22/2024 16:14	WG2268261
(T) Barium	98.4					30.0-143	04/22/2024 16:14	WG2268261

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.288	U	0.279	2.50	0.515	0.268	05/01/2024 21:48	WG2273003
(T) Barium	101					30.0-143	05/01/2024 21:48	WG2273003
(T) Yttrium	117					30.0-136	05/01/2024 21:48	WG2273003

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.273	J	0.397	0.663	05/01/2024 21:48	WG2268261

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.198	J	0.184	0.186	0.271	0.0636	04/28/2024 00:48	WG2271689
(T) Barium	104					30.0-143	04/28/2024 00:48	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.0804	U	0.276	2.34	0.504	0.263	05/01/2024 21:48	WG2273003
(T) Barium	92.7					30.0-143	05/01/2024 21:48	WG2273003
(T) Yttrium	101					30.0-136	05/01/2024 21:48	WG2273003

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.198	U	0.332	0.572	05/01/2024 21:48	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.0847	U	0.124	0.0630	0.216	0.0454	04/28/2024 01:49	WG2271689
(T) Barium	103					30.0-143	04/28/2024 01:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.312	U	0.304	2.61	0.559	0.291	05/01/2024 21:48	WG2273003
(T) Barium	93.6					30.0-143	05/01/2024 21:48	WG2273003
(T) Yttrium	95.5					30.0-136	05/01/2024 21:48	WG2273003

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.0847	U	0.328	0.599	05/01/2024 21:48	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	-0.0574	U	0.159	0.0536	0.385	0.101	04/28/2024 01:49	WG2271689
(T) Barium	105					30.0-143	04/28/2024 01:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.376	J	0.267	1.33	0.475	0.248	05/01/2024 21:48	WG2273003
(T) Barium	94.1					30.0-143	05/01/2024 21:48	WG2273003
(T) Yttrium	104					30.0-136	05/01/2024 21:48	WG2273003

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.376	J	0.311	0.611	05/01/2024 21:48	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
Radium-226	-0.0563	U	0.135	0.0457	0.346	0.0888	04/28/2024 01:49	WG2271689
(T) Barium	105					30.0-143	04/28/2024 01:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.247	J	0.280	2.19	0.501	0.261	05/01/2024 21:48	WG2273003
(T) Barium	95.7					30.0-143	05/01/2024 21:48	WG2273003
(T) Yttrium	105					30.0-136	05/01/2024 21:48	WG2273003

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.247	U	0.311	0.609	05/01/2024 21:48	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.113	U	0.156	0.105	0.270	0.0625	04/28/2024 01:49	WG2271689
(T) Barium	105					30.0-143	04/28/2024 01:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.04		0.295	0.791	0.507	0.264	05/01/2024 21:48	WG2273003
(T) Barium	102					30.0-143	05/01/2024 21:48	WG2273003
(T) Yttrium	111					30.0-136	05/01/2024 21:48	WG2273003

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.15		0.334	0.574	05/01/2024 21:48	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.253		0.183	0.186	0.215	0.0440	04/28/2024 02:49	WG2271689
(T) Barium	105					30.0-143	04/28/2024 02:49	WG2271689

¹Cp

²Tc

³Ss

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.298	<u>U</u>	0.368	2.48	0.671	0.351	05/06/2024 17:11	WG2275529
(T) Barium	105					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	92.0					30.0-136	05/06/2024 17:11	WG2275529

⁴Cn

⁵Sr

⁶Qc

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.551	<u>J</u>	0.411	0.705	05/06/2024 17:11	WG2271689

⁷Gl

⁸Al

⁹Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.0286	U	0.186	0.0312	0.383	0.100	04/28/2024 02:49	WG2271689
(T) Barium	105					30.0-143	04/28/2024 02:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.122	U	0.221	1.74	0.407	0.214	05/06/2024 17:11	WG2275529
(T) Barium	96.5					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	105					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.150	U	0.289	0.559	05/06/2024 17:11	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.0841	U	0.182	0.0919	0.345	0.0880	04/28/2024 02:49	WG2271689
(T) Barium	105					30.0-143	04/28/2024 02:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.190	U	0.277	2.40	0.505	0.263	05/06/2024 17:11	WG2275529
(T) Barium	96.7					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	102					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.274	U	0.331	0.612	05/06/2024 17:11	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.141	J	0.165	0.139	0.269	0.0623	04/28/2024 02:49	WG2271689
(T) Barium	105					30.0-143	04/28/2024 02:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.392	J	0.246	1.14	0.443	0.232	05/06/2024 17:11	WG2275529
(T) Barium	97.2					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	97.4					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.533		0.296	0.518	05/06/2024 17:11	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.224		0.174	0.176	0.214	0.0440	04/28/2024 03:49	WG2271689
(T) Barium	105					30.0-143	04/28/2024 03:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.205	<u>U</u>	0.249	2.12	0.454	0.237	05/06/2024 17:11	WG2275529
(T) Barium	97.5					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	100					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.429	<u>J</u>	0.304	0.502	05/06/2024 17:11	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.114	U	0.209	0.140	0.382	0.102	04/28/2024 03:49	WG2271689
(T) Barium	103					30.0-143	04/28/2024 03:49	WG2271689

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.459	U	0.309	2.48	0.583	0.304	05/06/2024 17:11	WG2275529
(T) Barium	94.4					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	86.8					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.114	U	0.373	0.697	05/06/2024 17:11	WG2271689

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	-0.0279	U	0.145	0.0244	0.344	0.0873	04/28/2024 03:49	WG2271689
(T) Barium	106					30.0-143	04/28/2024 03:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.338	J	0.267	1.49	0.483	0.253	05/06/2024 17:11	WG2275529
(T) Barium	91.8					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	94.3					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.338	J	0.304	0.593	05/06/2024 17:11	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.280		0.205	0.209	0.268	0.0621	04/28/2024 03:49	WG2271689
(T) Barium	105					30.0-143	04/28/2024 03:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.110	<u>U</u>	0.226	1.64	0.417	0.220	05/06/2024 17:11	WG2275529
(T) Barium	92.6					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	95.1					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.390	<u>J</u>	0.305	0.496	05/06/2024 17:11	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.391		0.219	0.225	0.214	0.0436	04/28/2024 04:49	WG2271689
(T) Barium	106					30.0-143	04/28/2024 04:49	WG2271689

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.385	J	0.307	1.62	0.554	0.289	05/06/2024 17:11	WG2275529
(T) Barium	87.7					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	103					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.776		0.377	0.594	05/06/2024 17:11	WG2271689

Radiochemistry by Method 903.0/9315

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
Radium-226	-0.0568	U	0.157	0.0530	0.380	0.0990	04/28/2024 04:49	WG2271689
(T) Barium	106					30.0-143	04/28/2024 04:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.837		0.243	0.723	0.421	0.222	05/06/2024 17:11	WG2275529
(T) Barium	97.4					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	90.8					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
Combined Radium	0.837		0.289	0.567	05/06/2024 17:11	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.195	J	0.211	0.213	0.342	0.0887	04/28/2024 04:49	WG2271689
(T) Barium	103					30.0-143	04/28/2024 04:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.229	U	0.281	2.32	0.524	0.274	05/06/2024 17:11	WG2275529
(T) Barium	106					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	89.7					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.195	U	0.351	0.626	05/06/2024 17:11	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.308		0.213	0.217	0.268	0.0653	04/28/2024 04:49	WG2271689
(T) Barium	99.6					30.0-143	04/28/2024 04:49	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.02		0.385	1.04	0.678	0.355	05/06/2024 17:11	WG2275529
(T) Barium	103					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	95.9					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.33		0.440	0.729	05/06/2024 17:11	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.306		0.197	0.201	0.213	0.0436	04/28/2024 05:50	WG2271689
(T) Barium	105					30.0-143	04/28/2024 05:50	WG2271689

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.617		0.266	0.923	0.472	0.247	05/06/2024 17:11	WG2275529
(T) Barium	102					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	94.7					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.923		0.331	0.518	05/06/2024 17:11	WG2271689

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.311	J	0.254	0.258	0.379	0.100	04/28/2024 05:50	WG2271689
(T) Barium	104					30.0-143	04/28/2024 05:50	WG2271689

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.854		0.271	0.799	0.472	0.248	05/06/2024 17:11	WG2275529
(T) Barium	98.6					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	87.9					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.16		0.371	0.605	05/06/2024 17:11	WG2271689

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.166	J	0.203	0.205	0.341	0.0884	04/28/2024 05:50	WG2271689
(T) Barium	104					30.0-143	04/28/2024 05:50	WG2271689

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.0246	U	0.195	1.33	0.368	0.196	05/06/2024 17:11	WG2275529
(T) Barium	96.7					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	92.8					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.166	U	0.281	0.502	05/06/2024 17:11	WG2271689

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.000	U	0.215	0.486	0.466	0.121	04/28/2024 10:52	WG2272295
(T) Barium	106					30.0-143	04/28/2024 10:52	WG2272295

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.331	J	0.208	1.05	0.376	0.199	05/06/2024 17:11	WG2275529
(T) Barium	98.5					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	91.2					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.331	J	0.299	0.599	05/06/2024 17:11	WG2272295

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.000	U	0.189	0.392	0.419	0.108	04/28/2024 10:52	WG2272295
(T) Barium	104					30.0-143	04/28/2024 10:52	WG2272295

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.279	J	0.178	0.986	0.323	0.172	05/06/2024 17:11	WG2275529
(T) Barium	105					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	102					30.0-136	05/06/2024 17:11	WG2275529

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.279	J	0.260	0.529	05/06/2024 17:11	WG2272295

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	1.42		1.67	1.01	1.39	0.942	05/03/2024 17:38	WG2268697
GROSS BETA	0.272	J	1.29	0.349	1.03	0.823	05/03/2024 17:38	WG2268697

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.781	U	0.285	2.23	0.533	0.279	05/08/2024 20:21	WG2272998
(T) Barium	91.9					25.0-150	05/08/2024 20:21	WG2272998
(T) Yttrium	93.4					25.0-150	05/08/2024 20:21	WG2272998

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.000	U	0.134	0.219	0.327	0.0725	04/28/2024 10:52	WG2272295
(T) Barium	110					30.0-143	04/28/2024 10:52	WG2272295

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.0891	U	0.260	2.20	0.476	0.249	05/06/2024 17:11	WG2275529
(T) Barium	113					30.0-143	05/06/2024 17:11	WG2275529
(T) Yttrium	111					30.0-136	05/06/2024 17:11	WG2275529

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	0.616	J	0.993	0.607	0.841	0.595	05/03/2024 17:38	WG2268697
GROSS BETA	1.08		1.08	0.503	0.832	0.658	05/03/2024 17:38	WG2268697

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.157	U	0.231	1.72	0.422	0.222	05/08/2024 20:21	WG2272998
(T) Barium	93.9					25.0-150	05/08/2024 20:21	WG2272998
(T) Yttrium	97.9					25.0-150	05/08/2024 20:21	WG2272998

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	2.02		1.58	0.942	1.22	0.805	05/03/2024 17:38	WG2268697
GROSS BETA	1.59		1.40	0.688	1.08	0.853	05/03/2024 17:38	WG2268697

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.619	U	0.285	2.58	0.522	0.271	05/08/2024 20:21	WG2272998
(T) Barium	99.6					25.0-150	05/08/2024 20:21	WG2272998
(T) Yttrium	122					25.0-150	05/08/2024 20:21	WG2272998

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4066275-1 05/02/24 17:38

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
GROSS ALPHA	0.140	J	0.458	0.415	0.284
GROSS BETA	0.291	J	1.01	0.815	0.647

L1723107-29 Original Sample (OS) • Duplicate (DUP)

(OS) L1723107-29 05/03/24 17:38 • (DUP) R4066275-5 05/02/24 17:38

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
GROSS ALPHA	0.616	0.993	0.841	0.595	0.507	0.818	0.693	0.491	19.3	0.0840	J	20	2
GROSS BETA	1.08	1.08	0.832	0.658	1.35	1.07	0.816	0.645	22.1	0.177		20	2

Laboratory Control Sample (LCS)

(LCS) R4066275-2 05/02/24 17:38

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
GROSS ALPHA	15.0	17.5	117	80.0-120	
GROSS BETA	40.4	41.7	103	80.0-120	

L1722294-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1722294-01 05/02/24 17:38 • (MS) R4066275-3 05/02/24 17:38 • (MSD) R4066275-4 05/02/24 17:38

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
GROSS ALPHA	15.0	0.0856	13.6	11.6	89.8	76.8	1	70.0-130			15.4		20
GROSS BETA	40.4	1.60	43.1	43.1	103	103	1	70.0-130			0.0696		20

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4060821-1 04/22/24 15:13

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.188	⬇	0.158	0.206	0.0438
(T) Barium	101		101		

L1725958-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1725958-04 04/22/24 16:44 • (DUP) R4060821-5 04/22/24 15:44

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.696	0.406	0.410	0.0856	1.40	0.819	0.826	0.178	67.4	0.774		20	3
(T) Barium	103				99.5	99.5							

Laboratory Control Sample (LCS)

(LCS) R4060821-2 04/22/24 15:13

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.91	118	80.0-120	
(T) Barium			96.3		

L1725958-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1725958-01 04/22/24 16:44 • (MS) R4060821-3 04/22/24 15:13 • (MSD) R4060821-4 04/22/24 15:13

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.224	21.3	22.2	105	110	1	75.0-125			4.27		20
(T) Barium		95.6			95.6	93.8							

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4065612-1 04/27/24 23:48

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0567	<u>U</u>	0.0963	0.174	0.0458
(T) Barium	102		102		

L1723107-23 Original Sample (OS) • Duplicate (DUP)

(OS) L1723107-23 04/28/24 05:50 • (DUP) R4065612-5 04/28/24 00:48

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.311	0.254	0.379	0.100	0.0565	0.332	0.695	0.176	139	0.609	<u>U</u>	20	3
(T) Barium	104				106	106							

Laboratory Control Sample (LCS)

(LCS) R4065612-2 04/27/24 23:48

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.73	115	80.0-120	
(T) Barium			103		

L1723107-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1723107-05 04/28/24 00:48 • (MS) R4065612-3 04/28/24 00:48 • (MSD) R4065612-4 04/28/24 00:48

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.198	18.9	19.8	93.7	97.9	1	75.0-125			4.34		20
(T) Barium		104			107	107							

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4066311-1 04/28/24 09:52

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.125	⬇	0.105	0.137	0.0295
(T) Barium	96.1		96.1		

L1723184-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1723184-12 04/28/24 14:53 • (DUP) R4066311-5 04/28/24 10:52

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.667	0.320	0.320	0.0766	0.849	0.519	0.541	0.117	24.0	0.298		20	3
(T) Barium	102				96.7	96.7							

Laboratory Control Sample (LCS)

(LCS) R4066311-2 04/28/24 09:52

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	4.79	95.9	80.0-120	
(T) Barium			98.5		

L1723184-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1723184-03 04/28/24 12:52 • (MS) R4066311-3 04/28/24 09:52 • (MSD) R4066311-4 04/28/24 09:52

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.479	19.8	20.8	96.5	102	1	75.0-125			5.03		20
(T) Barium		98.4			99.9	96.6							

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4067701-1 05/08/24 20:21

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.251	<u>U</u>	0.197	0.362	0.190
(T) Barium	84.2		84.2		
(T) Yttrium	93.6		93.6		

L1725509-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1725509-06 05/08/24 20:21 • (DUP) R4067701-5 05/08/24 20:21

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.186	0.488	0.870	0.456	1.35	0.392	0.660	0.346	152	1.86		20	2
(T) Barium	88.9				91.5	91.5							
(T) Yttrium	75.0				97.3	97.3							

Laboratory Control Sample (LCS)

(LCS) R4067701-2 05/08/24 20:21

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.35	86.9	80.0-120	
(T) Barium			84.9		
(T) Yttrium			97.6		

L1724665-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1724665-01 05/08/24 20:21 • (MS) R4067701-3 05/08/24 20:21 • (MSD) R4067701-4 05/08/24 20:21

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	-0.0169	14.5	12.8	86.5	76.7	1	70.0-130			12.0		20
(T) Barium		95.3			85.8	91.6							
(T) Yttrium		122			96.7	94.2							

Method Blank (MB)

(MB) R4067701-1 05/08/24 20:21

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.251	<u>U</u>	0.197	0.362	0.190
(T) Barium	84.2		84.2		

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4067701-1 05/08/24 20:21

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
(T) Yttrium	93.6		93.6		

L1725509-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1725509-06 05/08/24 20:21 • (DUP) R4067701-5 05/08/24 20:21

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.186	0.488	0.870	0.456	1.35	0.392	0.660	0.346	152	1.86		20	2
(T) Barium	88.9				91.5	91.5							
(T) Yttrium	75.0				97.3	97.3							

Laboratory Control Sample (LCS)

(LCS) R4067701-2 05/08/24 20:21

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.35	86.9	80.0-120	
(T) Barium			84.9		
(T) Yttrium			97.6		

L1724665-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1724665-01 05/08/24 20:21 • (MS) R4067701-3 05/08/24 20:21 • (MSD) R4067701-4 05/08/24 20:21

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	-0.0169	14.5	12.8	86.5	76.7	1	70.0-130			12.0		20
(T) Barium		95.3			85.8	91.6							
(T) Yttrium		122			96.7	94.2							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4066346-1 05/01/24 21:48

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.0825	<u>U</u>	0.186	0.342	0.179
(T) Barium	102		102		
(T) Yttrium	97.5		97.5		

L1722557-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1722557-02 05/01/24 21:48 • (DUP) R4066346-5 05/01/24 21:48

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	-0.0126	0.219	0.405	0.214	0.197	0.330	0.600	0.317	200	0.530	<u>U</u>	20	3
(T) Barium	93.4				91.6	91.6							
(T) Yttrium	95.1				94.9	94.9							

Laboratory Control Sample (LCS)

(LCS) R4066346-2 05/01/24 21:48

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.41	108	80.0-120	
(T) Barium			90.1		
(T) Yttrium			90.2		

L1727064-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1727064-08 05/01/24 21:48 • (MS) R4066346-3 05/01/24 21:48 • (MSD) R4066346-4 05/01/24 21:48

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	10.0	0.346	8.89	8.03	85.5	76.9	1	70.0-130			10.2		20
(T) Barium		79.4			88.8	86.9							
(T) Yttrium		107			82.4	101							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4068007-1 05/06/24 17:11

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.0317	<u>U</u>	0.193	0.357	0.186
(T) Barium	99.0		99.0		
(T) Yttrium	93.5		93.5		

L1723107-21 Original Sample (OS) • Duplicate (DUP)

(OS) L1723107-21 05/06/24 17:11 • (DUP) R4068007-5 05/06/24 17:11

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.02	0.385	0.678	0.355	-0.130	0.462	0.854	0.445	200	1.91	<u>U</u>	20	3
(T) Barium	103				101	101							
(T) Yttrium	95.9				79.6	79.6							

Laboratory Control Sample (LCS)

(LCS) R4068007-2 05/06/24 17:11

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.00	100	80.0-120	
(T) Barium			107		
(T) Yttrium			107		

L1723107-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1723107-10 05/06/24 17:11 • (MS) R4068007-3 05/06/24 17:11 • (MSD) R4068007-4 05/06/24 17:11

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.298	16.9	17.9	99.7	106	1	70.0-130			5.73		20
(T) Barium		105			101	106							
(T) Yttrium		92.0			98.3	95.2							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
-----------	-------------

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

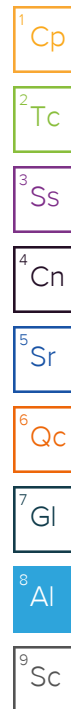
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.





SUBCONTRACT ORDER
Chemtech-Ford, Inc

B168
Work Order Number
24D0415

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 307-6356
Fax: -

L1723107

Work Order Please include QC3 data in report.

Comments:

12

Laboratory ID: 24D0415-01 Requested Test Radium-226 Radium-228	Matrix: Water Suggested Analytical Method * EPA 903.0 EPA 904.0	Client Matrix: Water Sampled: 04/01/2024 10:25 Include COMB RA (Calc.)	-01
Laboratory ID: 24D0415-02 Requested Test Radium-226 Radium-228	Matrix: Water Suggested Analytical Method * EPA 903.0 EPA 904.0	Client Matrix: Water Sampled: 04/01/2024 09:40 Include COMB RA (Calc.)	-02
Laboratory ID: 24D0415-03 Requested Test Radium-226 Radium-228	Matrix: Water Suggested Analytical Method * EPA 903.0 EPA 904.0	Client Matrix: Water Sampled: 04/01/2024 10:05 Include COMB RA (Calc.)	-03
Laboratory ID: 24D0415-04 Requested Test Radium-226 Radium-228	Matrix: Water Suggested Analytical Method * EPA 903.0 EPA 904.0	Client Matrix: Water Sampled: 04/02/2024 12:20 Include COMB RA (Calc.)	-04
Laboratory ID: 24D0415-05 Requested Test Radium-226 Radium-228	Matrix: Water Suggested Analytical Method * EPA 903.0 EPA 904.0	Client Matrix: Water Sampled: 04/02/2024 12:50 Include COMB RA (Calc.)	-05
Laboratory ID: 24D0415-06 Requested Test Radium-226 Radium-228	Matrix: Water Suggested Analytical Method * EPA 903.0 EPA 904.0	Client Matrix: Water Sampled: 04/02/2024 12:55 Include COMB RA (Calc.)	-06

Sample Receipt Checklist
QC Seal Present/Intact: ☒ Y ☐ N If Applicable
QC Signed/Accurate: ☒ Y ☐ N VOA Zero Headspace: ☒ Y ☐ N
Bottles arrive intact: ☒ Y ☐ N Pres. Correct/Check: ☒ Y ☐ N
Correct bottles used: ☒ Y ☐ N
Sufficient volume sent: ☒ Y ☐ N
RA Screen <0.5 mR/hr: ☒ Y ☐ N

Released By

4-1-24

Date

Received By

08:02 4/5/24

Date

Released By

Date

Received By

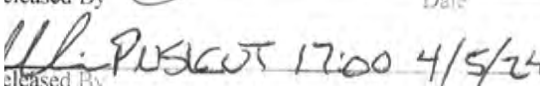
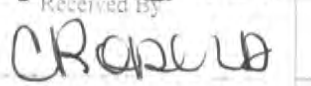
04:00:24 0800

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.

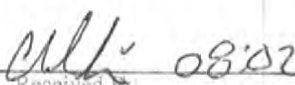
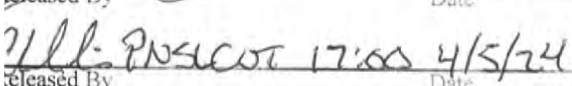
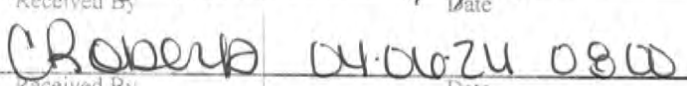
4723107

Laboratory ID: 24D0415-07 Requested Test	Matrix: Water Suggested Analytical Method *	Client Matrix: Water Sampled: 04/02/2024 13:05	-07
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-08 Requested Test	Matrix: Water Suggested Analytical Method *	Client Matrix: Water Sampled: 04/02/2024 13:15	-08
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-09 Requested Test	Matrix: Water Suggested Analytical Method *	Client Matrix: Water Sampled: 04/02/2024 13:35	-09
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-10 Requested Test	Matrix: Water Suggested Analytical Method *	Client Matrix: Water Sampled: 04/02/2024 10:10	-10
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-11 Requested Test	Matrix: Water Suggested Analytical Method *	Client Matrix: Water Sampled: 04/01/2024 14:55	-11
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-12 Requested Test	Matrix: Water Suggested Analytical Method *	Client Matrix: Water Sampled: 04/01/2024 14:35	-12
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-13 Requested Test	Matrix: Water Suggested Analytical Method *	Client Matrix: Water Sampled: 04/01/2024 14:10	-13
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-14 Requested Test	Matrix: Water Suggested Analytical Method *	Client Matrix: Water Sampled: 04/01/2024 14:20	-14
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		

Released By:  Date: 4.4.24
 Received By:  Date: 08:02 4/5/24
 Released By:  Date: 17:00 4/5/24
 Received By:  Date: 04:00 24 0800

L1723107

Laboratory ID: 24D0415-15	Matrix: Water	Client Matrix: Water	-15
Requested Test	Suggested Analytical Method *	Sampled: 04/01/2024 13:45	
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-16	Matrix: Water	Client Matrix: Water	-16
Requested Test	Suggested Analytical Method *	Sampled: 04/01/2024 13:25	
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-17	Matrix: Water	Client Matrix: Water	-17
Requested Test	Suggested Analytical Method *	Sampled: 04/01/2024 10:50	
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-18	Matrix: Water	Client Matrix: Water	-18
Requested Test	Suggested Analytical Method *	Sampled: 04/01/2024 11:00	
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-19	Matrix: Water	Client Matrix: Water	-19
Requested Test	Suggested Analytical Method *	Sampled: 04/02/2024 09:25	
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-20	Matrix: Water	Client Matrix: Water	-20
Requested Test	Suggested Analytical Method *	Sampled: 04/02/2024 09:10	
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-21	Matrix: Water	Client Matrix: Water	-21
Requested Test	Suggested Analytical Method *	Sampled: 04/02/2024 09:15	
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		
Laboratory ID: 24D0415-22	Matrix: Water	Client Matrix: Water	-22
Requested Test	Suggested Analytical Method *	Sampled: 04/02/2024 09:35	
Radium-226	EPA 903.0	Inclue COMB RA (Calc.)	
Radium-228	EPA 904.0		

Released By:  Date: 4.4.24
 Received By:  Date: 08:02 4/5/24
 Released By:  Date: 4/5/24
 Received By:  Date: 04.06.24 0800



SUBCONTRACT ORDER

Chemtec Labs

Work Order Number

24D0415

L72307

Laboratory ID: 24D0415-23 Requested Test Radium-226 Radium-228	Matrix: Water Suggested Analytical Method * EPA 903.0 EPA 904.0	Client Matrix: Water Sampled: 04/02/2024 08:55 Include COMB RA (Calc.)	-23
Laboratory ID: 24D0415-24 Requested Test Radium-226 Radium-228	Matrix: Water Suggested Analytical Method * EPA 903.0 EPA 904.0	Client Matrix: Water Sampled: 04/02/2024 09:55 Include COMB RA (Calc.)	-24
Laboratory ID: 24D0415-25 Requested Test Radium-226 Radium-228	Matrix: Water Suggested Analytical Method * EPA 903.0 EPA 904.0	Client Matrix: Water Sampled: 04/02/2024 14:05 Include COMB RA (Calc.)	-25
Laboratory ID: 24D0415-26 Requested Test Radium-226 Radium-228	Matrix: Water Suggested Analytical Method * EPA 903.0 EPA 904.0	Client Matrix: Water Sampled: 04/02/2024 13:50 Include COMB RA (Calc.)	-26

Released By

Date

Received By

Date

Released By

Date

Received By

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24D0350

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

L1723107

Work Order If gross alph is > 5, run radium 226
Comments:

Laboratory ID: 24D0350-01	Matrix: Water	Client Matrix: Drinking Water
Requested Test	Suggested Analytical Method *	Sampled: 04/03/2024 10:45
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

-27

Released By <i>[Signature]</i>	Date <i>4/4/24</i>	Received By <i>[Signature]</i>	Date <i>4/5/24</i>
Released By <i>[Signature]</i>	Date <i>4/5/24</i>	Received By <i>[Signature]</i>	Date <i>04/06/24</i>

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24D0413

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

61723107

Work Order
Comments:

Laboratory ID: 24D0413-01	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 04/02/2024 14:27
Radium-226	EPA 903.0	
Radium-228	EPA 904.0	

-28

Released By [Signature] Date 04/04/24 Received By [Signature] Date 08:02 4/5/24
Released By [Signature] Date 17:00 4/5/24 Received By [Signature] Date 04:00 24 0800

Page 59 of 62

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24D0311

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

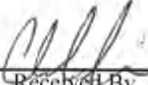
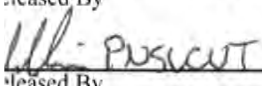
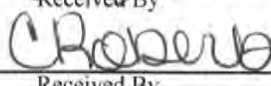
L1723107

Work Order
Comments:

Laboratory ID: 24D0311-01	Matrix: Water	Client Matrix: Drinking Water
Requested Test	Suggested Analytical Method *	Sampled: 04/03/2024 13:00
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

-29

Page 60 of 62

	4-3-24		08:02	4/5/24
Released By	Date	Received By	Date	
	17:00 4/5/24		04:00 4/5/24	0800
Released By	Date	Received By	Date	

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24D0312

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

4723107

Work Order
Comments:

TO 4/6

Laboratory ID: 24D0312-01	Matrix: Water	Client Matrix: Drinking Water
Requested Test	Suggested Analytical Method *	Sampled: 04/03/2024 12:00
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

29
-30

Released By: C. Allen Date: 4.3.24 Received By: Chli Date: 08:02 4/5/24
Released By: HLK-PROSCOT Date: 17:05 4/5/24 Received By: C. Roberson Date: 04:00 24 0800

L1723107

[illegible]

Name

Date _____



Well number: BA-DG4
Field Personnel: TK, KO
Sampling date: 4-2-2004
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): N/A
Water level, post-pump installation (ft): N/A
Rate & direction of groundwater flow: N/A
Total volume of water pumped (Liters): 0.98
Clock time of sample: 14:27
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic
Sample bottle(s) identification number used: BA-DG4
Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

[illegible]

CHAIN OF CUSTODY

BILLING ADDRESS:	
BILLING CITY/STATE/ZIP:	
PURCHASE ORDER #:	187398



CHEMTECH-FORD
LABORATORIES

12 849 747 01 6311 1032

☒ Custody Seals Present
☒ Containers Intact
☒ COC and Labels Match
☒ Received on Ice
☒ Correct Containers
☒ COC Included
☒ COC Complete
☒ Sufficient Sample Volume
☒ Headspace Present (VOL)
☒ Temperature Blank
☒ Received within Hold
 Checked by:

Checked by:

[illegible]

Signature: 

ON ICE

NOT ON ICE

Temp (C°):

So

Special Instructions: * Ba,B,Ca,Li,Mo ** Sb,As,Be,Cd,Cr,Co,Pb,Se,Tl

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

4/4/24	1100
Date/Time	

Date/Time

	Date/Time
--	-----------

801.262.7299 PHONE
866.792.0093 FAX
www.chemtechford.com

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

CHEMTECH - FORD ANALYTICAL LABORATORY

CHAIN OF CUSTODY

COMPANY: Deseret Power Electric Cooperative
 ADDRESS: 12500 East 25500 South
 CITY/STATE/ZIP: Vernal, UT 84078-8525
 PHONE #: 435-781-5706 FAX
 CONTACT: Tyler Esplin PROJECT: BA-DG4 (round 8)
 EMAIL: tesplin@deseretspower.com

BILLING ADDRESS: _____
 BILLING CITY/STATE/ZIP: _____
 PURCHASE ORDER #: 187398



24D0413

1Z 849 747 01 6311 1032

Sample Receipt Conditions:

- ☐ Custody Seals Present
☒ Containers Intact
☐ CQC and Labels Match
☒ Received on ice
☒ Correct Containers
☐ CQC included
☐ CQC complete
☒ Sufficient Sample Volume
☐ Headspace Present (VOC)
☐ Temperature Blank
☐ Received within 30 days
 Checked by: AS

Lab Use Only		CLIENT SAMPLE INFORMATION						TESTS REQUESTED										Bacteria				
		LOCATION / IDENTIFICATION	DATE	TIME	MATRIX	Field: Residual Chlorine	Chloride	Fluoride	Sulfate	TDS	Mercury	Metals by EPA 200.7 *	Metals by EPA 200.8 ***	Radium-226	Radium-228					Total Coliform (E. coli if enumerated)	HPC (if enumerated)	E. coli (if enumerated)
01	1	BA-DG4	4/2/24	14:27	Water		X	X	X	X	X	X	X	X	X							
	2																					
	3																					
	4																					
	5																					
	6				AG 1347																	
	7																					
	8																					
	9																					
	10																					

Sampled by: (print) Trenton Keller Sampled by: (signature) [Signature]
 Special Instructions: * Ba,B,Ca,Li,Mo ** Sb,As,Be,Cd,Cr,Co,Pb,Se,Tl
 Relinquished by: (signature) Trenton Keller Date/Time: 4/13/24 10:30
 Relinquished by: (signature) _____ Date/Time: _____
 Relinquished by: (signature) _____ Date/Time: _____

Received by: (signature) [Signature] Date/Time: 4/14/24 1100
 Received by: (signature) _____ Date/Time: _____
 Received by: (signature) _____ Date/Time: _____

ON ICE ☒ NOT ON ICE ☐ Temp (C°): 5 to
 Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Preserved in receiving

CHEMTECH-FORD
 9632 South 500 West
 Sandy, UT 84070

801.262.7299 PHONE
 866.792.0093 FAX
 www.chemtechford.com

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.



5/22/2024

Work Order: 24E1214
Project: CCR Sampling 2024 Spring

Deseret Power Electric Cooperative

Attn: Tyler Esplin

12500 East 25500 South

Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 5/16/24 8:00 @ 2.6 °C
Date Reported: 5/22/2024
Project Name: CCR Sampling 2024 Spring

Sample ID: FA-UG1

Matrix: Water

Date Sampled: 5/13/24 10:50

Sampled By: Trenton Keller

Lab ID: 24E1214-01

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	33.7	mg/L	1.00	EPA 300.0	5/16/24	5/16/24	
Fluoride	1.96	mg/L	0.100	EPA 300.0	5/16/24	5/16/24	
Sulfate	349	mg/L	1.00	EPA 300.0	5/16/24	5/16/24	
Total Dissolved Solids (TDS)	1150	mg/L	20	SM 2540 C	5/16/24	5/16/24	
Metals							
Boron, Total	0.15	mg/L	0.05	EPA 200.7/200.2	5/20/24	5/20/24	
Calcium, Total	1.6	mg/L	0.2	EPA 200.7/200.2	5/20/24	5/20/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 5/16/24 8:00 @ 2.6 °C
Date Reported: 5/22/2024
Project Name: CCR Sampling 2024 Spring

Sample ID: FA-UG2

Matrix: Water

Date Sampled: 5/13/24 13:24

Sampled By: Trenton Keller

Lab ID: 24E1214-02

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	2030	mg/L	20.0	EPA 300.0	5/17/24	5/18/24	
Fluoride	0.494	mg/L	0.100	EPA 300.0	5/16/24	5/16/24	
Sulfate	8820	mg/L	50.0	EPA 300.0	5/17/24	5/18/24	
Total Dissolved Solids (TDS)	16600	mg/L	500	SM 2540 C	5/16/24	5/16/24	
Metals							
Boron, Total	52.9	mg/L	0.25	EPA 200.7/200.2	5/16/24	5/17/24	
Calcium, Total	525	mg/L	1.0	EPA 200.7/200.2	5/16/24	5/17/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 5/16/24 8:00 @ 2.6 °C
Date Reported: 5/22/2024
Project Name: CCR Sampling 2024 Spring

Sample ID: FA-DG2

Matrix: Water

Date Sampled: 5/14/24 9:20

Sampled By: Trenton Keller

Lab ID: 24E1214-03

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	650	mg/L	50.0	EPA 300.0	5/16/24	5/16/24	
Fluoride	42.0	mg/L	5.00	EPA 300.0	5/16/24	5/16/24	
Sulfate	5310	mg/L	50.0	EPA 300.0	5/16/24	5/16/24	
Total Dissolved Solids (TDS)	14400	mg/L	500	SM 2540 C	5/16/24	5/16/24	
Metals							
Boron, Total	8.69	mg/L	0.05	EPA 200.7/200.2	5/16/24	5/17/24	
Calcium, Total	1.3	mg/L	0.2	EPA 200.7/200.2	5/16/24	5/17/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 5/16/24 8:00 @ 2.6 °C
Date Reported: 5/22/2024
Project Name: CCR Sampling 2024 Spring

Sample ID: FA-DG3

Matrix: Water

Date Sampled: 5/14/24 13:33

Sampled By: Trenton Keller

Lab ID: 24E1214-04

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	205	mg/L	50.0	EPA 300.0	5/16/24	5/16/24	
Fluoride	5.90	mg/L	5.00	EPA 300.0	5/16/24	5/16/24	
Sulfate	1560	mg/L	50.0	EPA 300.0	5/16/24	5/16/24	
Total Dissolved Solids (TDS)	3620	mg/L	50	SM 2540 C	5/16/24	5/16/24	
Metals							
Boron, Total	0.45	mg/L	0.05	EPA 200.7/200.2	5/20/24	5/20/24	
Calcium, Total	0.6	mg/L	0.2	EPA 200.7/200.2	5/20/24	5/20/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative

Tyler Esplin

12500 East 25500 South

Vernal, UT 84078-8525

PO#: 187398

Receipt: 5/16/24 8:00 @ 2.6 °C

Date Reported: 5/22/2024

Project Name: CCR Sampling 2024 Spring

Sample ID: FA-DG4

Matrix: Water

Date Sampled: 5/14/24 10:55

Sampled By: Trenton Keller

Lab ID: 24E1214-05

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	787	mg/L	50.0	EPA 300.0	5/16/24	5/17/24	
Fluoride	5.87	mg/L	5.00	EPA 300.0	5/16/24	5/17/24	
Sulfate	3980	mg/L	50.0	EPA 300.0	5/16/24	5/17/24	
Total Dissolved Solids (TDS)	8680	mg/L	100	SM 2540 C	5/16/24	5/16/24	
Metals							
Boron, Total	2.21	mg/L	0.05	EPA 200.7/200.2	5/20/24	5/20/24	
Calcium, Total	9.9	mg/L	0.2	EPA 200.7/200.2	5/20/24	5/20/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O: (801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative

Tyler Esplin

12500 East 25500 South

Vernal, UT 84078-8525

PO#: 187398

Receipt: 5/16/24 8:00 @ 2.6 °C

Date Reported: 5/22/2024

Project Name: CCR Sampling 2024 Spring

Sample ID: FA-DG5

Matrix: Water

Date Sampled: 5/13/24 14:34

Sampled By: Trenton Keller

Lab ID: 24E1214-06

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	1910	mg/L	50.0	EPA 300.0	5/16/24	5/17/24	
Fluoride	0.689	mg/L	0.100	EPA 300.0	5/16/24	5/17/24	
Sulfate	9500	mg/L	50.0	EPA 300.0	5/16/24	5/17/24	
Total Dissolved Solids (TDS)	17700	mg/L	500	SM 2540 C	5/16/24	5/16/24	
Metals							
Antimony, Total	ND	mg/L	0.0005	EPA 200.8/200.2	5/16/24	5/17/24	
Arsenic, Total	0.0056	mg/L	0.0005	EPA 200.8/200.2	5/16/24	5/17/24	
Barium, Total	ND	mg/L	0.025	EPA 200.7/200.2	5/16/24	5/17/24	
Beryllium, Total	ND	mg/L	0.0005	EPA 200.8/200.2	5/16/24	5/17/24	
Boron, Total	56.7	mg/L	0.25	EPA 200.7/200.2	5/16/24	5/17/24	
Cadmium, Total	ND	mg/L	0.0002	EPA 200.8/200.2	5/16/24	5/17/24	
Calcium, Total	471	mg/L	1.0	EPA 200.7/200.2	5/16/24	5/17/24	
Chromium, Total	0.0024	mg/L	0.0005	EPA 200.8/200.2	5/16/24	5/17/24	
Cobalt, Total	0.0220	mg/L	0.0005	EPA 200.8/200.2	5/16/24	5/17/24	
Lead, Total	0.0010	mg/L	0.0005	EPA 200.8/200.2	5/16/24	5/17/24	
Lithium, Total	0.648	mg/L	0.025	EPA 200.7/200.2	5/16/24	5/17/24	
Mercury, Total	ND	mg/L	0.00015	EPA 245.1	5/17/24	5/20/24	
Molybdenum, Total	ND	mg/L	0.05	EPA 200.7/200.2	5/16/24	5/17/24	
Selenium, Total	0.0262	mg/L	0.0005	EPA 200.8/200.2	5/16/24	5/17/24	
Thallium, Total	ND	mg/L	0.0002	EPA 200.8/200.2	5/16/24	5/17/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 5/16/24 8:00 @ 2.6 °C
Date Reported: 5/22/2024
Project Name: CCR Sampling 2024 Spring

Sample ID: Duplicate

Matrix: Water

Date Sampled: 5/13/24 13:48

Sampled By: Trenton Keller

Lab ID: 24E1214-07

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	1810	mg/L	50.0	EPA 300.0	5/16/24	5/17/24	
Fluoride	0.469	mg/L	0.100	EPA 300.0	5/16/24	5/17/24	
Sulfate	9720	mg/L	50.0	EPA 300.0	5/16/24	5/17/24	
Total Dissolved Solids (TDS)	16700	mg/L	500	SM 2540 C	5/16/24	5/16/24	
Metals							
Boron, Total	50.4	mg/L	0.25	EPA 200.7/200.2	5/16/24	5/17/24	
Calcium, Total	503	mg/L	1.0	EPA 200.7/200.2	5/16/24	5/17/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 5/16/24 8:00 @ 2.6 °C
Date Reported: 5/22/2024
Project Name: CCR Sampling 2024 Spring

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

CHAIN OF CUSTODY - SAMPLE SUBMITTAL FORM



CHEMTECH-FORD

COMPANY: Deseret Power Electric Cooperative
 ADDRESS: 12500 East 25500 South
 CITY/STATE/ZIP: Vernal, UT 84078-8525
 PHONE #: 435-781-5706
 CONTACT: Tyler Esplin
 EMAIL: tyler.esplin@deseretpower.com
 PROJECT: CCR Sampling 2024 Spring
 PO Number: 187398
 INVOICE EMAIL ADDRESS:

RUSH Due Date*:	QC Level
	QC 2

* Expedited turnaround subject to additional charge

QC levels definition:
 QC1: none (default if blank)
 QC2: Batch QC, random sample
 QC3: 25% surcharge. Narrative plus Batch QC, your sample selected
 QC4: 40% surcharge. Add raw data

Chemtech Ford, Inc.
 9632 South 500 West
 Sandy, UT 84070
 Phone: 801-262-7299
 www.chemtechford.com

Sample condition		Delivery Method	
☒ Custody Seal	☒ Correct Containers	☒ UPS	☐ USPS
☒ Container Intact	☒ Sufficient Sample Volume	☐ FedEx	☐ Chemtech-Ford Courier
☒ COC/Labels Agree	☐ Headspace Present (VOC)	☐ Walk-in	☐ Customer Courier
☒ Received on Ice	☐ Temperature Blank		
	☒ Received within Holding Time		

24E1214 (1 of 2) (RADs on set 24E1218)

Lab Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
-01	1 FA-UG1	5-13-24	10:50	W
-02	2 FA-UG2	5-13-24	13:24	W
-03	3 FA-DG2	5-14-24	09:20	W
-04	4 FA-DG3	5-14-24	13:33	W
-05	5 FA-DG4	5-14-24	10:55	W
-06	6 FA-DG5	5-13-24	14:34	W
	7 BA-UG1			W
	8 BA-DG1			W
	9 BA-DG2			W
	10 BA-DG3			W

TESTS REQUESTED													
Chloride	Fluoride	Sulfate	TDS	245.1 Mercury	200.7: B, Ca	200.7: Ba, Li, Mo	Metals by 200.8:	Sb, As, Be, Cd, Cr, Co, Pb, Se, Ti	Radium 226 & 228	200.7: Mg, K, Na	Alkalinity		
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X	X	X	X	X	X	X				
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								

Bottle type Ag
 Lot # 1375 1378

Sampled by: (print) Trenton Keller	Sampled by: (signature) [Signature]	ON ICE	NOT ON ICE	Temp (C°): 2.6
Special Instructions:		Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.		
Relinquished by: (signature) [Signature]	Date/Time 5-15-24 12:00	Received by: (signature) Denise Bru	Date/Time 5/16/24 8:00	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

UPS NEXT DAY AIR

TRACKING #: 1Z 849 747 01 6547 8812

RUSH Due Date*:	QC Level
	QC 2
	QC levels definition: QC1: none (default if blank)

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

* Expedited turnaround subject to additional charge

QC levels definition:
QC1: none (default if blank)
QC2: Batch QC, random sample
QC3: 25% surcharge Narrative plus Batch QC, your sample selected
QC4: 40% surcharge Add raw data

24E1214 (2 of 2)

[illegible]

Bottle type

ON ICE NOT ON ICE Temp (C°): 2.6

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Relinquished by: [signature] 	Date/Time 5-15-24 12:00	Received by: [signature] 	Date/Time 5/16/24 8:00
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time AS 5/16/24
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time

Page 11 of 18

QC Report for Work Order (WO) - 24E1214

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.7

QC Sample ID: BYE0838-BLK1	Batch: BYE0838								
Date Prepared: 05/16/2024	Date Analyzed: 05/17/2024								
Barium, Total					ND		0.005	1.00	
Boron, Total					ND		0.05	1.00	
Calcium, Total					ND		0.2	1.00	
Lithium, Total					ND		0.005	1.00	
Molybdenum, Total					ND		0.01	1.00	

QC Sample ID: BYE0954-BLK1	Batch: BYE0954								
Date Prepared: 05/20/2024	Date Analyzed: 05/20/2024								
Boron, Total					ND		0.05	1.00	
Calcium, Total					ND		0.2	1.00	

LCS - EPA 200.7

QC Sample ID: BYE0838-BS1	Batch: BYE0838								
Date Prepared: 05/16/2024	Date Analyzed: 05/17/2024								
Barium, Total	94.2	85 - 115		0.235		0.250	0.005	1.00	
Boron, Total	92.7	85 - 115		0.46		0.500	0.05	1.00	
Calcium, Total	94.1	85 - 115		9.6		10.2	0.2	1.00	
Lithium, Total	97.6	85 - 115		0.195		0.200	0.005	1.00	
Molybdenum, Total	95.8	85 - 115		0.19		0.200	0.01	1.00	

QC Sample ID: BYE0954-BS1	Batch: BYE0954								
Date Prepared: 05/20/2024	Date Analyzed: 05/20/2024								
Boron, Total	96.5	85 - 115		0.48		0.500	0.05	1.00	
Calcium, Total	96.7	85 - 115		9.9		10.2	0.2	1.00	

Matrix Spike - EPA 200.7

QC Sample ID: BYE0838-MS1	Batch: BYE0838	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 05/16/2024	Date Analyzed: 05/17/2024								
Barium, Total	94.0	70 - 130		0.342	0.107	0.250	0.005	1.00	
Boron, Total	99.3	70 - 130		0.57	0.07	0.500	0.05	1.00	
Calcium, Total	77.9	70 - 130		86.4	78.4	10.2	0.2	1.00	
Lithium, Total	102	70 - 130		0.221	0.017	0.200	0.005	1.00	
Molybdenum, Total	99.9	70 - 130		0.20	ND	0.200	0.01	1.00	

QC Sample ID: BYE0838-MS2	Batch: BYE0838	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 05/16/2024	Date Analyzed: 05/17/2024								
Barium, Total	97.7	70 - 130		0.296	0.051	0.250	0.005	1.00	
Boron, Total	103	70 - 130		0.52	ND	0.500	0.05	1.00	
Calcium, Total	98.0	70 - 130		55.4	45.4	10.2	0.2	1.00	
Lithium, Total	103	70 - 130		0.214	0.008	0.200	0.005	1.00	
Molybdenum, Total	102	70 - 130		0.21	0.002	0.200	0.01	1.00	

QC Sample ID: BYE0954-MS1	Batch: BYE0954	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 05/20/2024	Date Analyzed: 05/20/2024								
Boron, Total	102	70 - 130		0.54	0.03	0.500	0.05	1.00	
Calcium, Total	97.0	70 - 130		39.0	29.1	10.2	0.2	1.00	

QC Sample ID: BYE0954-MS2	Batch: BYE0954	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 05/20/2024	Date Analyzed: 05/20/2024								
Boron, Total	103	70 - 130		0.63	0.11	0.500	0.05	1.00	
Calcium, Total	91.6	70 - 130		76.9	67.5	10.2	0.2	1.00	

Matrix Spike Dup - EPA 200.7

QC Report for Work Order (WO) - 24E1214

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Matrix Spike Dup - EPA 200.7 (cont.)									
Sample ID: BYE0838-MSD1	Batch: BYE0838		QC Source Sample: XXXXXXXX-XX						
Prepared: 05/16/2024	Date Analyzed: 05/17/2024								
Barium, Total	95.1	0.816	70 - 130	20	0.344	0.107	0.250	0.005	1.00
Boron, Total	100	0.664	70 - 130	20	0.57	0.07	0.500	0.05	1.00
Calcium, Total	92.9	1.76	70 - 130	20	87.9	78.4	10.2	0.2	1.00
Lithium, Total	101	0.545	70 - 130	20	0.220	0.017	0.200	0.005	1.00
Molybdenum, Total	101	0.748	70 - 130	20	0.20	ND	0.200	0.01	1.00
Sample ID: BYE0838-MSD2	Batch: BYE0838		QC Source Sample: XXXXXXXX-XX						
Prepared: 05/16/2024	Date Analyzed: 05/17/2024								
Barium, Total	97.4	0.203	70 - 130	20	0.295	0.051	0.250	0.005	1.00
Boron, Total	104	0.426	70 - 130	20	0.52	ND	0.500	0.05	1.00
Calcium, Total	96.3	0.318	70 - 130	20	55.2	45.4	10.2	0.2	1.00
Lithium, Total	103	0.187	70 - 130	20	0.214	0.008	0.200	0.005	1.00
Molybdenum, Total	101	0.683	70 - 130	20	0.20	0.002	0.200	0.01	1.00
Sample ID: BYE0954-MSD1	Batch: BYE0954		QC Source Sample: XXXXXXXX-XX						
Prepared: 05/20/2024	Date Analyzed: 05/20/2024								
Boron, Total	100	1.75	70 - 130	20	0.53	0.03	0.500	0.05	1.00
Calcium, Total	97.2	0.0523	70 - 130	20	39.0	29.1	10.2	0.2	1.00
Sample ID: BYE0954-MSD2	Batch: BYE0954		QC Source Sample: XXXXXXXX-XX						
Prepared: 05/20/2024	Date Analyzed: 05/20/2024								
Boron, Total	101	1.21	70 - 130	20	0.62	0.11	0.500	0.05	1.00
Calcium, Total	88.9	0.364	70 - 130	20	76.6	67.5	10.2	0.2	1.00

QC Report for Work Order (WO) - 24E1214

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.8

QC Sample ID: BYE0839-BLK1		Batch: BYE0839							
Date Prepared: 05/16/2024		Date Analyzed: 05/17/2024							
Antimony, Total					ND		0.0005	1.00	
Arsenic, Total					ND		0.0005	1.00	
Beryllium, Total					ND		0.0005	1.00	
Cadmium, Total					ND		0.0002	1.00	
Chromium, Total					ND		0.0005	1.00	
Cobalt, Total					ND		0.0005	1.00	
Lead, Total					ND		0.0005	1.00	
Selenium, Total					ND		0.0005	1.00	
Thallium, Total					ND		0.0002	1.00	

LCS - EPA 200.8

QC Sample ID: BYE0839-BS1		Batch: BYE0839							
Date Prepared: 05/16/2024		Date Analyzed: 05/17/2024							
Antimony, Total	94.5	85 - 115		0.038		0.0400	0.0005	1.00	
Arsenic, Total	97.2	85 - 115		0.039		0.0400	0.0005	1.00	
Beryllium, Total	96.6	85 - 115		0.039		0.0400	0.0005	1.00	
Cadmium, Total	93.8	85 - 115		0.038		0.0400	0.0002	1.00	
Chromium, Total	103	85 - 115		0.041		0.0400	0.0005	1.00	
Cobalt, Total	100	85 - 115		0.040		0.0400	0.0005	1.00	
Lead, Total	99.4	85 - 115		0.040		0.0400	0.0005	1.00	
Selenium, Total	94.3	85 - 115		0.038		0.0400	0.0005	1.00	
Thallium, Total	101	85 - 115		0.040		0.0400	0.0002	1.00	

Matrix Spike - EPA 200.8

QC Sample ID: BYE0839-MS1	Batch: BYE0839		QC Source Sample: XXXXXXXX-XX				
Date Prepared: 05/16/2024	Date Analyzed: 05/17/2024						
Antimony, Total	97.5	70 - 130	0.041	0.002	0.0400	0.0005	1.00
Arsenic, Total	98.7	70 - 130	0.041	0.002	0.0400	0.0005	1.00
Beryllium, Total	94.9	70 - 130	0.038	ND	0.0400	0.0005	1.00
Cadmium, Total	92.1	70 - 130	0.037	0.0004	0.0400	0.0002	1.00
Chromium, Total	96.6	70 - 130	0.039	0.0003	0.0400	0.0005	1.00
Cobalt, Total	91.8	70 - 130	0.037	0.00006	0.0400	0.0005	1.00
Lead, Total	96.3	70 - 130	0.040	0.001	0.0400	0.0005	1.00
Selenium, Total	94.5	70 - 130	0.038	0.0005	0.0400	0.0005	1.00
Thallium, Total	99.1	70 - 130	0.040	ND	0.0400	0.0002	1.00

QC Sample ID: BYE0839-MS2		Batch: BYE0839		QC Source Sample: XXXXXXXX-XX			
Date Prepared: 05/16/2024		Date Analyzed: 05/17/2024					
Antimony, Total	97.3	70 - 130	0.039	0.00009	0.0400	0.0005	1.00
Arsenic, Total	99.8	70 - 130	0.040	ND	0.0400	0.0005	1.00
Beryllium, Total	95.6	70 - 130	0.038	ND	0.0400	0.0005	1.00
Cadmium, Total	95.3	70 - 130	0.038	ND	0.0400	0.0002	1.00
Chromium, Total	101	70 - 130	0.041	0.0003	0.0400	0.0005	1.00
Cobalt, Total	98.6	70 - 130	0.039	ND	0.0400	0.0005	1.00
Lead, Total	99.7	70 - 130	0.040	ND	0.0400	0.0005	1.00
Selenium, Total	96.2	70 - 130	0.038	ND	0.0400	0.0005	1.00
Thallium, Total	101	70 - 130	0.040	ND	0.0400	0.0002	1.00

QC Report for Work Order (WO) - 24E1214

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Blank - EPA 245.1

QC Sample ID: BYE0887-BLK1

Batch: BYE0887

Date Prepared: 05/17/2024

Date Analyzed: 05/20/2024

Mercury, Total

ND

0.00015 1.00

LCS - EPA 245.1

QC Sample ID: BYE0887-BS1

Batch: BYE0887

Date Prepared: 05/17/2024

Date Analyzed: 05/20/2024

Mercury, Total

94.7

85 - 115

0.00473

0.00500

0.00015 1.00

Matrix Spike - EPA 245.1

QC Sample ID: BYE0887-MS1

Batch: BYE0887

QC Source Sample: XXXXXXXX-XX

Date Prepared: 05/17/2024

Date Analyzed: 05/20/2024

Mercury, Total

94.7

75 - 125

0.00473

ND

0.00500

0.00015 1.00

QC Sample ID: BYE0887-MS2

Batch: BYE0887

QC Source Sample: XXXXXXXX-XX

Date Prepared: 05/17/2024

Date Analyzed: 05/20/2024

Mercury, Total

94.1

75 - 125

0.00470

ND

0.00500

0.00015 1.00

Matrix Spike Dup - EPA 245.1

QC Sample ID: BYE0887-MSD1

Batch: BYE0887

QC Source Sample: XXXXXXXX-XX

Date Prepared: 05/17/2024

Date Analyzed: 05/20/2024

Mercury, Total

97.1

2.51

75 - 125

20

0.00485

ND

0.00500

0.00015 1.00

QC Sample ID: BYE0887-MSD2

Batch: BYE0887

QC Source Sample: XXXXXXXX-XX

Date Prepared: 05/17/2024

Date Analyzed: 05/20/2024

Mercury, Total

84.1

11.2

75 - 125

20

0.00420

ND

0.00500

0.00015 1.00

QC Report for Work Order (WO) - 24E1214

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 300.0

QC Sample ID: BYE0836-BLK1	Batch: BYE0836								
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024								
Chloride					ND			1.00	1.00
Fluoride					ND			0.100	1.00
Sulfate					ND			1.00	1.00

QC Sample ID: BYE0849-BLK1	Batch: BYE0849								
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024								
Chloride					ND			1.00	1.00
Fluoride					ND			0.100	1.00
Sulfate					ND			1.00	1.00

QC Sample ID: BYE0928-BLK1	Batch: BYE0928								
Date Prepared: 05/17/2024	Date Analyzed: 05/17/2024								
Chloride					ND			1.00	1.00
Sulfate					ND			1.00	1.00

LCS - EPA 300.0

QC Sample ID: BYE0836-BS1	Batch: BYE0836								
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024								
Chloride	101	90 - 110		202		200		1.00	1.00
Fluoride	102	90 - 110		20.5		20.0		0.100	1.00
Sulfate	103	90 - 110		205		200		1.00	1.00

QC Sample ID: BYE0849-BS1	Batch: BYE0849								
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024								
Chloride	101	90 - 110		202		200		1.00	1.00
Fluoride	105	90 - 110		21.0		20.0		0.100	1.00
Sulfate	103	90 - 110		206		200		1.00	1.00

QC Sample ID: BYE0928-BS1	Batch: BYE0928								
Date Prepared: 05/17/2024	Date Analyzed: 05/17/2024								
Chloride	102	90 - 110		205		200		1.00	1.00
Sulfate	104	90 - 110		208		200		1.00	1.00

Matrix Spike - EPA 300.0

QC Sample ID: BYE0836-MS1	Batch: BYE0836	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024								
Chloride	104	80 - 120		560	537	22.2		1.11	1.00
Fluoride	100	80 - 120		2.72	0.493	2.22		0.111	1.00
Sulfate	102	80 - 120		64.1	41.3	22.2		1.11	1.00

QC Sample ID: BYE0836-MS2	Batch: BYE0836	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024								
Chloride	106	80 - 120		1130	1100	22.2		1.11	1.00
Fluoride	102	80 - 120		3.24	0.982	2.22		0.111	1.00
Sulfate	116	80 - 120		1370	1340	22.2		1.11	1.00

QC Sample ID: BYE0849-MS1	Batch: BYE0849	QC Source Sample: 24E1214-03							
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024								
Chloride	102	80 - 120		1670	650	1000		55.0	1.00
Fluoride	106	80 - 120		148	42.0	100		5.50	1.00
Sulfate	108	80 - 120		6390	5310	1000		55.0	1.00

QC Sample ID: BYE0849-MS2	Batch: BYE0849	QC Source Sample: 24E1214-04							
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024								
Chloride	97.6	80 - 120		1180	205	1000		55.0	1.00

QC Report for Work Order (WO) - 24E1214

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Matrix Spike - EPA 300.0 (cont.)

QC Sample ID: BYE0849-MS2	Batch: BYE0849	QC Source Sample: 24E1214-04						
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024							
Fluoride	93.9	80 - 120	99.8	5.90	100	5.50	1.00	
Sulfate	98.6	80 - 120	2550	1560	1000	55.0	1.00	
QC Sample ID: BYE0928-MS1	Batch: BYE0928	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/18/2024	Date Analyzed: 05/18/2024							
Chloride	99.8	80 - 120	275	75.9	200	11.0	1.00	
Sulfate	95.1	80 - 120	2140	1950	200	11.0	1.00	
QC Sample ID: BYE0928-MS2	Batch: BYE0928	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/18/2024	Date Analyzed: 05/18/2024							
Chloride	101	80 - 120	28.0	7.87	20.0	1.00	1.00	
Sulfate	101	80 - 120	29.1	8.90	20.0	1.00	1.00	

Matrix Spike Dup - EPA 300.0

QC Sample ID: BYE0836-MSD1	Batch: BYE0836		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024								
Chloride	106	0.0628	80 - 120	20	561	537	22.2	1.11	1.00
Fluoride	102	1.73	80 - 120	20	2.76	0.493	2.22	0.111	1.00
Sulfate	104	0.618	80 - 120	20	64.5	41.3	22.2	1.11	1.00
QC Sample ID: BYE0836-MSD2	Batch: BYE0836		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024								
Chloride	114	0.158	80 - 120	20	1130	1100	22.2	1.11	1.00
Fluoride	103	0.707	80 - 120	20	3.27	0.982	2.22	0.111	1.00
Sulfate	108	0.130	80 - 120	20	1370	1340	22.2	1.11	1.00
QC Sample ID: BYE0849-MSD1	Batch: BYE0849		QC Source Sample: 24E1214-03						
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024								
Chloride	101	0.456	80 - 120	20	1660	650	1000	55.0	1.00
Fluoride	106	0.491	80 - 120	20	148	42.0	100	5.50	1.00
Sulfate	107	0.0911	80 - 120	20	6380	5310	1000	55.0	1.00
QC Sample ID: BYE0849-MSD2	Batch: BYE0849		QC Source Sample: 24E1214-04						
Date Prepared: 05/16/2024	Date Analyzed: 05/16/2024								
Chloride	97.9	0.254	80 - 120	20	1180	205	1000	55.0	1.00
Fluoride	94.3	0.385	80 - 120	20	100	5.90	100	5.50	1.00
Sulfate	98.9	0.119	80 - 120	20	2550	1560	1000	55.0	1.00
QC Sample ID: BYE0928-MSD1	Batch: BYE0928		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/18/2024	Date Analyzed: 05/18/2024								
Chloride	100	0.196	80 - 120	20	276	75.9	200	11.0	1.00
Sulfate	77.2	1.68	80 - 120	20	2100	1950	200	11.0	1.00

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

QC Sample ID: BYE0928-MSD2	Batch: BYE0928		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/18/2024	Date Analyzed: 05/18/2024								
Chloride	101	0.258	80 - 120	20	28.1	7.87	20.0	1.00	1.00
Sulfate	102	0.605	80 - 120	20	29.3	8.90	20.0	1.00	1.00

QC Report for Work Order (WO) - 24E1214

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Blank - SM 2540 C

QC Sample ID: BYE0846-BLK1

Batch: BYE0846

Date Prepared: 05/16/2024

Date Analyzed: 05/16/2024

Total Dissolved Solids (TDS)

ND

10

1.00

Duplicate - SM 2540 C

QC Sample ID: BYE0846-DUP1

Batch: BYE0846

QC Source Sample: XXXXXXXX-XX

Date Prepared: 05/16/2024

Date Analyzed: 05/16/2024

Total Dissolved Solids (TDS)

1

10

2900

2870

20

1.00

QC Sample ID: BYE0846-DUP2

Batch: BYE0846

QC Source Sample: XXXXXXXX-XX

Date Prepared: 05/16/2024

Date Analyzed: 05/16/2024

Total Dissolved Solids (TDS)

2

10

388

396

20

1.00

LCS - SM 2540 C

QC Sample ID: BYE0846-BS1

Batch: BYE0846

Date Prepared: 05/16/2024

Date Analyzed: 05/16/2024

Total Dissolved Solids (TDS)

102

90 - 110

408

400

20

1.00



**BONANZA POWER PLANT
CCR GROUNDWATER MONITORING WELLS
SAMPLING & ANALYSIS PROGRAM**

Well number:

Field Personnel: TK, KO
Sampling date: 5/12/10

Sampling date: 5-13-24

Well condition: Good

Was the meter(s) calibrated prior to sampling (circle): Yes No

Water level, pre-pump installation (ft): N/A

Water level, post-pump installation (ft): NA

Rate & direction of groundwater flow: NA

Total volume of water pumped (Liters): 1.13

Clock time of sample: 10:50

Lab's name sample(s) are being sent to: CTF

Type and size of sample bottles used: Plastic

Sample bottle(s) identification number used: FA-UG I

Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

Additional Notes:

[illegible]



Well number: Duplicate (Took from FA-UG2)
Field Personnel: TK, KO
Sampling date: 5-13-24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): N/A
Water level, post-pump installation (ft): N/A
Rate & direction of groundwater flow: N/A
Total volume of water pumped (Liters): —
Clock time of sample: 13:48
Lab's name sample(s) are being sent to: CDF
Type and size of sample bottles used: Plastic
Sample bottle(s) identification number used: Duplicate
Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

Additional Notes:

See FA-UG2

[illegible]



**BONANZA POWER PLANT
CCR GROUNDWATER MONITORING WELLS
SAMPLING & ANALYSIS PROGRAM**

Well number: FA-UG2
Field Personnel: TK KO
Sampling date: 5-13-24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): N/A
Water level, post-pump installation (ft): N/A
Rate & direction of groundwater flow: N/A
Total volume of water pumped (Liters): 1.50
Clock time of sample: 13:24
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic
Sample bottle(s) identification number used: FA-UG2
Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

Additional Notes: _____

[illegible]



Well number: FA-DG2
Field Personnel: TK, RO
Sampling date: 5-14-24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): N/A
Water level, post-pump installation (ft): N/A
Rate & direction of groundwater flow: N/A
Total volume of water pumped (Liters): 1.13
Clock time of sample: 9:20
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: PLASTIC
Sample bottle(s) identification number used: FA-DG2
Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

[illegible]



Well number: FA-DG3

Field Personnel: TK, KO

Sampling date: 5-14-24

Well condition: Good

Was the meter(s) calibrated prior to sampling (circle): Yes No

Water level, pre-pump installation (ft): NA

Water level, post-pump installation (ft): N/A

Rate & direction of groundwater flow: N/A

Total volume of water pumped (Liters): 1.60

Clock time of sample: 13:33

Lab's name sample(s) are being sent to: CTF

Type and size of sample bottles used: Plastic

Sample bottle(s) identification number used: FA-DG3

Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

Additional Notes:

[illegible]



Well number: FA-DG 4
Field Personnel: TK, KO
Sampling date: 5-14-24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): N/A
Water level, post-pump installation (ft): N/A
Rate & direction of groundwater flow: N/A
Total volume of water pumped (Liters): 1.60
Clock time of sample: 10:55
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic
Sample bottle(s) identification number used: FA-DG 4
Was a blind sample obtained at this well (circle): Yes No

Additional Notes: _____

[illegible]



SAMPLING & ANALYSIS PROGRAM

Well number: FA-DG5

Field Personnel: TK, KO

Sampling date: 5-13-24

Well condition: Good

Was the meter(s) calibrated prior to sampling (circle): Yes No

Water level, pre-pump installation (ft): N/A

Water level, post-pump installation (ft): N/A

Rate & direction of groundwater flow: N/A

Total volume of water pumped (Liters): 2.0

Clock time of sample: 14:34

Lab's name sample(s) are being sent to: CYF

Type and size of sample bottles used: Plastic

Sample bottle(s) identification number used: FA-DG5

Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

Additional Notes:

[illegible]

CHAIN OF CUSTODY - SAMPLE SUBMITTAL FORM



CHEMTECH-FORD

COMPANY: Deseret Power Electric Cooperative
 ADDRESS: 12500 East 25500 South
 CITY/STATE/ZIP: Vernal, UT 84078-8525
 PHONE #: 435-781-5706
 CONTACT: Tyler Esplin
 EMAIL: tyler.esplin@deseretpower.com
 PROJECT: CCR Sampling 2024 Spring
 PO Number: 187398
 INVOICE EMAIL ADDRESS:

RUSH Due Date*:	QC Level
	QC 2

* Expedited turnaround subject to additional charge

QC levels definition:
 QC1: none (default if blank)
 QC2: Batch QC, random sample
 QC3: 25% surcharge. Narrative plus Batch QC, your sample selected
 QC4: 40% surcharge. Add raw data

Chemtech Ford, Inc.
 9632 South 500 West
 Sandy, UT 84070
 Phone: 801-262-7299
 www.chemtechford.com

Sample condition		Delivery Method	
☒ Custody Seal	☒ Correct Containers	☒ UPS	☐ USPS
☒ Container Intact	☒ Sufficient Sample Volume	☐ FedEx	☐ Chemtech-Ford Courier
☒ COC/Labels Agree	☐ Headspace Present (VOC)	☐ Walk-in	☐ Customer Courier
☒ Received on Ice	☐ Temperature Blank		
	☒ Received within Holding Time		

24E1214 (1 of 2) (RADs on set 24E1218)

Lab Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
-01	1 FA-UG1	5-13-24	10:50	W
-02	2 FA-UG2	5-13-24	13:24	W
-03	3 FA-DG2	5-14-24	09:20	W
-04	4 FA-DG3	5-14-24	13:33	W
-05	5 FA-DG4	5-14-24	10:55	W
-06	6 FA-DG5	5-13-24	14:34	W
	7 BA-UG1			W
	8 BA-DG1			W
	9 BA-DG2			W
	10 BA-DG3			W

TESTS REQUESTED													
Chloride	Fluoride	Sulfate	TDS	245.1 Mercury	200.7: B, Ca	200.7: Ba, Li, Mo	Metals by 200.8:	Sb, As, Be, Cd, Cr, Co, Pb, Se, Ti	Radium 226 & 228	200.7: Mg, K, Na	Alkalinity		
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X	X	X	X	X	X	X				
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								

Bottle type Ag
 Lot # 1375 1378

Sampled by: (print) Trenton Keller	Sampled by: (signature) [Signature]	ON ICE	NOT ON ICE	Temp (C°): 2.6
Special Instructions:		Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.		
Relinquished by: (signature) [Signature]	Date/Time 5-15-24 12:00	Received by: (signature) Denise Bru	Date/Time 5/16/24 8:00	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

UPS NEXT DAY AIR

TRACKING #: 1Z 849 747 01 6547 8812

RUSH Due Date*:	QC Level
	QC 2
	QC levels definition: QC1: none (default if blank)

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

* Expedited turnaround subject to additional charge

QC levels definition:
QC1: none (default if blank)
QC2: Batch QC, random sample
QC3: 25% surcharge Narrative plus Batch QC, your sample selected
QC4: 40% surcharge Add raw data

24E1214 (2 of 2)

[illegible]

Bottle type

ON ICE NOT ON ICE Temp (C°): 2.6

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Relinquished by: [signature] 	Date/Time 5-15-24 12:00	Received by: [signature] 	Date/Time 5/16/24 8:00
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time DS 5/16/24
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time

Page 11 of 18



6/4/2024

Work Order: 24E1861
Project: CCR Sampling 2024 Spring

Deseret Power Electric Cooperative

Attn: Tyler Esplin

12500 East 25500 South

Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative

Tyler Esplin

12500 East 25500 South

Vernal, UT 84078-8525

PO#: 187398

Receipt: 5/23/24 11:00 @ 2.3 °C

Date Reported: 6/4/2024

Project Name: CCR Sampling 2024 Spring

Sample ID: BA-UG1

Matrix: Water

Lab ID: 24E1861-01

Date Sampled: 5/20/24 9:38

Sampled By: Trenton Keller

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	1060	mg/L	100	EPA 300.0	5/29/24	5/29/24	
Fluoride	ND	mg/L	10.0	EPA 300.0	5/29/24	5/29/24	
Sulfate	8800	mg/L	100	EPA 300.0	5/29/24	5/29/24	
Total Dissolved Solids (TDS)	19800	mg/L	500	SM 2540 C	5/23/24	5/24/24	
Metals							
Boron, Total	202	mg/L	0.50	EPA 200.7/200.2	5/24/24	5/24/24	
Calcium, Total	582	mg/L	2.0	EPA 200.7/200.2	5/24/24	5/24/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 5/23/24 11:00 @ 2.3 °C
Date Reported: 6/4/2024
Project Name: CCR Sampling 2024 Spring

Sample ID: BA-DG1

Matrix: Water

Date Sampled: 5/20/24 11:10

Sampled By: Trenton Keller

Lab ID: 24E1861-02

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	775	mg/L	20.0	EPA 300.0	5/30/24	5/30/24	
Fluoride	4.34	mg/L	2.00	EPA 300.0	5/30/24	5/30/24	
Sulfate	5780	mg/L	20.0	EPA 300.0	5/30/24	5/30/24	
Total Dissolved Solids (TDS)	10800	mg/L	500	SM 2540 C	5/23/24	5/24/24	
Metals							
Boron, Total	14.9	mg/L	0.50	EPA 200.7/200.2	5/24/24	5/24/24	
Calcium, Total	253	mg/L	2.0	EPA 200.7/200.2	5/24/24	5/24/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative

Tyler Esplin

12500 East 25500 South

Vernal, UT 84078-8525

PO#: 187398

Receipt: 5/23/24 11:00 @ 2.3 °C

Date Reported: 6/4/2024

Project Name: CCR Sampling 2024 Spring

Sample ID: BA-DG2

Matrix: Water

Lab ID: 24E1861-03

Date Sampled: 5/20/24 13:27

Sampled By: Trenton Keller

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	713	mg/L	20.0	EPA 300.0	5/30/24	5/30/24	
Fluoride	5.32	mg/L	2.00	EPA 300.0	5/30/24	5/30/24	
Sulfate	7610	mg/L	20.0	EPA 300.0	5/30/24	5/30/24	
Total Dissolved Solids (TDS)	12600	mg/L	500	SM 2540 C	5/23/24	5/24/24	
Metals							
Boron, Total	42.2	mg/L	0.50	EPA 200.7/200.2	5/24/24	5/24/24	
Calcium, Total	527	mg/L	2.0	EPA 200.7/200.2	5/24/24	5/24/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 5/23/24 11:00 @ 2.3 °C
Date Reported: 6/4/2024
Project Name: CCR Sampling 2024 Spring

Sample ID: BA-DG3

Matrix: Water

Date Sampled: 5/21/24 9:34

Sampled By: Trenton Keller

Lab ID: 24E1861-04

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	416	mg/L	10.0	EPA 300.0	5/30/24	5/30/24	
Fluoride	10.6	mg/L	0.100	EPA 300.0	5/30/24	5/30/24	
Sulfate	2510	mg/L	10.0	EPA 300.0	5/30/24	5/30/24	
Total Dissolved Solids (TDS)	5130	mg/L	20	SM 2540 C	5/23/24	5/23/24	
Metals							
Boron, Total	9.04	mg/L	0.50	EPA 200.7/200.2	5/24/24	5/24/24	
Calcium, Total	30.3	mg/L	2.0	EPA 200.7/200.2	5/24/24	5/24/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative

Tyler Esplin

12500 East 25500 South

Vernal, UT 84078-8525

PO#: 187398

Receipt: 5/23/24 11:00 @ 2.3 °C

Date Reported: 6/4/2024

Project Name: CCR Sampling 2024 Spring

Sample ID: BA-DG4

Matrix: Water

Date Sampled: 5/21/24 10:57

Sampled By: Trenton Keller

Lab ID: 24E1861-05

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	619	mg/L	20.0	EPA 300.0	5/30/24	5/30/24	
Fluoride	2.40	mg/L	0.100	EPA 300.0	5/30/24	5/30/24	
Sulfate	6680	mg/L	20.0	EPA 300.0	5/30/24	5/30/24	
Total Dissolved Solids (TDS)	12000	mg/L	500	SM 2540 C	5/23/24	5/24/24	
Metals							
Antimony, Total	ND	mg/L	0.0005	EPA 200.8/200.8	5/24/24	5/24/24	
Arsenic, Total	0.0072	mg/L	0.0005	EPA 200.8/200.2	5/23/24	5/23/24	
Barium, Total	ND	mg/L	0.050	EPA 200.7/200.2	5/24/24	5/24/24	
Beryllium, Total	ND	mg/L	0.0005	EPA 200.8/200.2	5/23/24	5/23/24	
Boron, Total	29.3	mg/L	0.50	EPA 200.7/200.2	5/24/24	5/24/24	
Cadmium, Total	ND	mg/L	0.0002	EPA 200.8/200.2	5/23/24	5/23/24	
Calcium, Total	286	mg/L	2.0	EPA 200.7/200.2	5/24/24	5/24/24	
Chromium, Total	0.0092	mg/L	0.0005	EPA 200.8/200.2	5/23/24	5/23/24	
Cobalt, Total	ND	mg/L	0.10	EPA 200.7/200.2	5/24/24	5/24/24	
Lead, Total	ND	mg/L	0.0005	EPA 200.8/200.2	5/23/24	5/23/24	
Lithium, Total	0.187	mg/L	0.050	EPA 200.7/200.2	5/24/24	5/24/24	
Mercury, Total	ND	mg/L	0.00016	EPA 245.1	5/29/24	5/30/24	
Molybdenum, Total	ND	mg/L	0.10	EPA 200.7/200.2	5/24/24	5/24/24	
Selenium, Total	0.0305	mg/L	0.0005	EPA 200.8/200.8	5/24/24	5/24/24	
Thallium, Total	ND	mg/L	0.0002	EPA 200.8/200.2	5/23/24	5/23/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 5/23/24 11:00 @ 2.3 °C
Date Reported: 6/4/2024
Project Name: CCR Sampling 2024 Spring

Sample ID: NEP

Matrix: Water

Lab ID: 24E1861-06

Date Sampled: 5/21/24 13:04

Sampled By: Trenton Keller

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Inorganic							
Alkalinity - Bicarbonate (as CaCO ₃)	522	mg/L	1.0	SM 2320 B	5/23/24	5/23/24	
Alkalinity - Carbonate (as CaCO ₃)	246	mg/L	1.0	SM 2320 B	5/23/24	5/23/24	
Alkalinity - Hydroxide (as CaCO ₃)	ND	mg/L	1.0	SM 2320 B	5/23/24	5/23/24	
Alkalinity - Total (as CaCO ₃)	775	mg/L	1.0	SM 2320 B	5/23/24	5/23/24	
Chloride	4000	mg/L	100	EPA 300.0	5/30/24	5/30/24	
Fluoride	29.2	mg/L	0.100	EPA 300.0	5/30/24	5/30/24	
Sulfate	21300	mg/L	100	EPA 300.0	5/30/24	5/30/24	
Total Dissolved Solids (TDS)	37000	mg/L	500	SM 2540 C	5/23/24	5/24/24	
Metals							
Boron, Total	164	mg/L	0.50	EPA 200.7/200.2	5/23/24	5/24/24	
Calcium, Total	768	mg/L	2.0	EPA 200.7/200.2	5/23/24	5/24/24	
Magnesium, Total	3140	mg/L	2.0	EPA 200.7/200.2	5/23/24	5/24/24	
Potassium, Total	114	mg/L	10.0	EPA 200.7/200.2	5/23/24	5/24/24	
Sodium, Total	6050	mg/L	10.0	EPA 200.7/200.2	5/23/24	5/24/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 5/23/24 11:00 @ 2.3 °C
Date Reported: 6/4/2024
Project Name: CCR Sampling 2024 Spring

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

RUSH Due Date*:	QC Level
	QC 2
	QC levels definition: QC1: none (default if blank)

* Expedited turnaround subject to additional charge

QC levels definition:
QC1: none (default if blank)
QC2: Batch QC, random sample
QC3: 25% surcharge. Narrative plus Batch QC, your sample selected
QC4: 40% surcharge. Add raw data

CHEMTECH-FORD
LABORATORIES

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

Lob Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
	1. FA-UG1			W
	2. FA-UG2			W
	3. FA-DG2			W
	4. FA-DG3			W
	5. FA-DG4			W
	6. FA-DG5			W
01	7. BA-UG1	5-20-24	9:38	W
02	8. BA-DG1	5-20-24	11:10	W
03	9. BA-DG2	5-20-24	13:27	W
04	10. BA-DG3	5-21-24	9:34	W

Bottle type

Lot #

Sampled by: [print] Trenton Keller
Special Instructions:

Sampled by: (signature) 

ON ICE

NOT ON ICE

Temp (C°): 2.3

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Relinquished by: [signature]

Date/Time 5/22/24 11:55

Received by: [signature]

Date/Time

Relinquished by: [signature]

Date/Time

Received by: [signature]

Date/Time	Location	Activity	Remarks
10/10/2023	...	...	...

Relinquished by: [signature]

Date/Time

Received by: [signature]

Date/Time	
-----------	--

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

RUSH Due Date*:	QC Level
	QC 2
	QC levels definition: QC1: none (default if blank)

CHEMTECH-FORD
LABORATORIES

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

* Expedited turnaround subject to additional charge

[illegible]

Bottle type

Lot #

Sampled by: (signature) 

ON ICE NOT ON ICE Temp (C°): 2.3

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Received by: [signature]	
Received by: [signature]	
Received by: [signature]	

Date/Time	
Date/Time	5/23/24 11:00
Date/Time	

Page 10 of 20

QC Report for Work Order (WO) - 24E1861

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.7

QC Sample ID: BYE1264-BLK1		Batch: BYE1264							
Date Prepared: 05/23/2024		Date Analyzed: 05/24/2024							
Boron, Total					ND		0.05	1.00	
Calcium, Total					ND		0.2	1.00	
Magnesium, Total					ND		0.2	1.00	
Potassium, Total					ND		0.5	1.00	
Sodium, Total					ND		0.5	1.00	

QC Sample ID: BYE1302-BLK1		Batch: BYE1302							
Date Prepared: 05/24/2024		Date Analyzed: 05/24/2024							
Barium, Total					ND		0.005	1.00	
Boron, Total					ND		0.05	1.00	
Calcium, Total					ND		0.2	1.00	
Cobalt, Total					ND		0.01	1.00	
Lithium, Total					ND		0.005	1.00	
Molybdenum, Total					ND		0.01	1.00	

LCS - EPA 200.7

QC Sample ID: BYE1264-BS1		Batch: BYE1264							
Date Prepared: 05/23/2024		Date Analyzed: 05/24/2024							
Boron, Total	93.9	85 - 115		0.47		0.500	0.05	1.00	
Calcium, Total	98.4	85 - 115		10.0		10.2	0.2	1.00	
Magnesium, Total	97.6	85 - 115		10.0		10.2	0.2	1.00	
Potassium, Total	95.5	85 - 115		9.5		10.0	0.5	1.00	
Sodium, Total	98.1	85 - 115		9.8		10.0	0.5	1.00	

QC Sample ID: BYE1302-BS1		Batch: BYE1302							
Date Prepared: 05/24/2024		Date Analyzed: 05/24/2024							
Barium, Total	94.3	85 - 115		0.236		0.250	0.005	1.00	
Boron, Total	93.6	85 - 115		0.47		0.500	0.05	1.00	
Calcium, Total	95.8	85 - 115		9.8		10.2	0.2	1.00	
Cobalt, Total	92.1	85 - 115		0.18		0.200	0.01	1.00	
Lithium, Total	97.8	85 - 115		0.196		0.200	0.005	1.00	
Molybdenum, Total	97.4	85 - 115		0.19		0.200	0.01	1.00	

Matrix Spike - EPA 200.7

QC Sample ID: BYE1264-MS1	Batch: BYE1264	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/23/2024	Date Analyzed: 05/24/2024							
Boron, Total	114	70 - 130	4.83	4.25	0.500	0.05	1.00	
Calcium, Total	106	70 - 130	19.4	8.6	10.2	0.2	1.00	
Magnesium, Total	103	70 - 130	15.1	4.6	10.2	0.2	1.00	
Potassium, Total	101	70 - 130	15.5	5.5	10.0	0.5	1.00	
Sodium, Total	-562	70 - 130	1020	1080	10.0	0.5	1.00	

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

QC Sample ID: BYE1264-MS2		Batch: BYE1264		QC Source Sample: XXXXXXXX-XX				
Date Prepared: 05/23/2024		Date Analyzed: 05/24/2024						
Boron, Total	116	70 - 130	2.04	1.46	0.500	0.50	10.00	
Calcium, Total	232	70 - 130	85.3	61.7	10.2	2.0	10.00	

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Magnesium, Total	349	70 - 130		118	82.2	10.2	2.0	10.00	
------------------	-----	----------	--	-----	------	------	-----	-------	--

QC Report for Work Order (WO) - 24E1861

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Matrix Spike - EPA 200.7 (cont.)

QC Sample ID: BYE1264-MS2	Batch: BYE1264	QC Source Sample: XXXXXXXX-XX
Date Prepared: 05/23/2024	Date Analyzed: 05/24/2024	

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Potassium, Total	103	70 - 130	23.1	12.8	10.0	5.0	10.00
Sodium, Total	3530	70 - 130	7890	7530	10.0	5.0	10.00

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

QC Sample ID: BYE1302-MS1	Batch: BYE1302	QC Source Sample: XXXXXXXX-XX
Date Prepared: 05/24/2024	Date Analyzed: 05/24/2024	

Barium, Total	94.5	70 - 130	0.294	0.057	0.250	0.005	1.00
Boron, Total	97.4	70 - 130	0.49	ND	0.500	0.05	1.00
Calcium, Total	92.1	70 - 130	71.9	62.5	10.2	0.2	1.00
Cobalt, Total	92.0	70 - 130	0.18	ND	0.200	0.01	1.00
Lithium, Total	102	70 - 130	0.204	ND	0.200	0.005	1.00
Molybdenum, Total	98.7	70 - 130	0.20	ND	0.200	0.01	1.00

QC Sample ID: BYE1302-MS2	Batch: BYE1302	QC Source Sample: XXXXXXXX-XX
Date Prepared: 05/24/2024	Date Analyzed: 05/24/2024	

Barium, Total	96.0	70 - 130	0.267	0.027	0.250	0.005	1.00
Boron, Total	101	70 - 130	0.62	0.12	0.500	0.05	1.00
Calcium, Total	94.8	70 - 130	95.5	85.9	10.2	0.2	1.00
Cobalt, Total	93.8	70 - 130	0.19	ND	0.200	0.01	1.00
Lithium, Total	99.5	70 - 130	0.243	0.044	0.200	0.005	1.00
Molybdenum, Total	101	70 - 130	0.21	0.004	0.200	0.01	1.00

Matrix Spike Dup - EPA 200.7

QC Sample ID: BYE1264-MSD1	Batch: BYE1264	QC Source Sample: XXXXXXXX-XX
Date Prepared: 05/23/2024	Date Analyzed: 05/24/2024	

Boron, Total	119	0.500	70 - 130	20	4.85	4.25	0.500	0.05	1.00
Calcium, Total	105	0.0706	70 - 130	20	19.4	8.6	10.2	0.2	1.00
Magnesium, Total	103	0.0384	70 - 130	20	15.1	4.6	10.2	0.2	1.00
Potassium, Total	103	1.14	70 - 130	20	15.7	5.5	10.0	0.5	1.00
Sodium, Total	-572	0.0930	70 - 130	20	1020	1080	10.0	0.5	1.00

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

QC Sample ID: BYE1264-MSD2	Batch: BYE1264	QC Source Sample: XXXXXXXX-XX
Date Prepared: 05/23/2024	Date Analyzed: 05/24/2024	

Boron, Total	79.0	9.54	70 - 130	20	1.86	1.46	0.500	0.50	10.00
Calcium, Total	71.5	21.2	70 - 130	20	69.0	61.7	10.2	2.0	10.00

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Magnesium, Total	194	14.3	70 - 130	20	102	82.2	10.2	2.0	10.00
------------------	-----	------	----------	----	-----	------	------	-----	-------

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Potassium, Total	73.4	13.8	70 - 130	20	20.1	12.8	10.0	5.0	10.00
Sodium, Total	-2760	8.30	70 - 130	20	7260	7530	10.0	5.0	10.00

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

QC Report for Work Order (WO) - 24E1861

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Matrix Spike Dup - EPA 200.7 (cont.)

QC Sample ID: BYE1302-MSD1	Batch: BYE1302		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/24/2024	Date Analyzed: 05/24/2024								
Barium, Total	93.6	0.821	70 - 130	20	0.291	0.057	0.250	0.005	1.00
Boron, Total	96.1	1.39	70 - 130	20	0.48	ND	0.500	0.05	1.00
Calcium, Total	92.6	0.0784	70 - 130	20	72.0	62.5	10.2	0.2	1.00
Cobalt, Total	89.9	2.36	70 - 130	20	0.18	ND	0.200	0.01	1.00
Lithium, Total	100	1.78	70 - 130	20	0.200	ND	0.200	0.005	1.00
Molybdenum, Total	97.7	1.02	70 - 130	20	0.20	ND	0.200	0.01	1.00
QC Sample ID: BYE1302-MSD2	Batch: BYE1302		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/24/2024	Date Analyzed: 05/24/2024								
Barium, Total	96.5	0.411	70 - 130	20	0.268	0.027	0.250	0.005	1.00
Boron, Total	101	0.274	70 - 130	20	0.62	0.12	0.500	0.05	1.00
Calcium, Total	97.7	0.309	70 - 130	20	95.8	85.9	10.2	0.2	1.00
Cobalt, Total	89.5	4.75	70 - 130	20	0.18	ND	0.200	0.01	1.00
Lithium, Total	98.2	1.03	70 - 130	20	0.240	0.044	0.200	0.005	1.00
Molybdenum, Total	98.6	2.12	70 - 130	20	0.20	0.004	0.200	0.01	1.00

QC Report for Work Order (WO) - 24E1861

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Blank - EPA 200.8									
QC Sample ID: BYE1295-BLK1	Batch: BYE1295								
Date Prepared: 05/23/2024	Date Analyzed: 05/23/2024								
Arsenic, Total					ND			0.0005	1.00
Beryllium, Total					ND			0.0005	1.00
Cadmium, Total					ND			0.0002	1.00
Chromium, Total					ND			0.0005	1.00
Lead, Total					ND			0.0005	1.00
Thallium, Total					ND			0.0002	1.00
QC Sample ID: BYE1321-BLK1	Batch: BYE1321								
Date Prepared: 05/24/2024	Date Analyzed: 05/24/2024								
Antimony, Total					ND			0.0005	1.00
Selenium, Total					ND			0.0005	1.00
LCS - EPA 200.8									
QC Sample ID: BYE1295-BS1	Batch: BYE1295								
Date Prepared: 05/23/2024	Date Analyzed: 05/23/2024								
Arsenic, Total	96.5	85 - 115			0.039		0.0400	0.0005	1.00
Beryllium, Total	95.1	85 - 115			0.038		0.0400	0.0005	1.00
Cadmium, Total	94.9	85 - 115			0.038		0.0400	0.0002	1.00
Chromium, Total	97.7	85 - 115			0.039		0.0400	0.0005	1.00
Lead, Total	95.7	85 - 115			0.038		0.0400	0.0005	1.00
Thallium, Total	100	85 - 115			0.040		0.0400	0.0002	1.00
QC Sample ID: BYE1321-BS1	Batch: BYE1321								
Date Prepared: 05/24/2024	Date Analyzed: 05/24/2024								
Antimony, Total	91.4	85 - 115			0.037		0.0400	0.0005	1.00
Selenium, Total	94.9	85 - 115			0.038		0.0400	0.0005	1.00
Matrix Spike - EPA 200.8									
QC Sample ID: BYE1295-MS1	Batch: BYE1295		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/23/2024	Date Analyzed: 05/23/2024								
Arsenic, Total	86.5	70 - 130			0.044	0.009	0.0400	0.0005	1.00
Beryllium, Total	93.4	70 - 130			0.037	ND	0.0400	0.0005	1.00
Cadmium, Total	84.2	70 - 130			0.034	ND	0.0400	0.0002	1.00
Chromium, Total	86.7	70 - 130			0.036	0.001	0.0400	0.0005	1.00
Lead, Total	84.4	70 - 130			0.034	0.0003	0.0400	0.0005	1.00
Thallium, Total	87.6	70 - 130			0.035	ND	0.0400	0.0002	1.00
QC Sample ID: BYE1295-MS2	Batch: BYE1295		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/23/2024	Date Analyzed: 05/23/2024								
Arsenic, Total	83.5	70 - 130			0.041	0.008	0.0400	0.0005	1.00
Beryllium, Total	89.4	70 - 130			0.036	ND	0.0400	0.0005	1.00
Cadmium, Total	78.2	70 - 130			0.031	ND	0.0400	0.0002	1.00
Chromium, Total	79.4	70 - 130			0.033	0.0008	0.0400	0.0005	1.00
Lead, Total	78.1	70 - 130			0.031	ND	0.0400	0.0005	1.00
Thallium, Total	80.5	70 - 130			0.032	ND	0.0400	0.0002	1.00
QC Sample ID: BYE1321-MS1	Batch: BYE1321		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/24/2024	Date Analyzed: 05/24/2024								
Antimony, Total	90.7	70 - 130			0.036	0.0001	0.0400	0.0005	1.00
Selenium, Total	101	70 - 130			0.041	ND	0.0400	0.0005	1.00
QC Sample ID: BYE1321-MS2	Batch: BYE1321		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/24/2024	Date Analyzed: 05/24/2024								
Antimony, Total	94.1	70 - 130			0.038	0.0003	0.0400	0.0005	1.00

QC Report for Work Order (WO) - 24E1861

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Matrix Spike - EPA 200.8 (cont.)

QC Sample ID: BYE1321-MS2

Batch: BYE1321

QC Source Sample: XXXXXXXX-XX

Date Prepared: 05/24/2024

Date Analyzed: 05/24/2024

Selenium, Total

102

70 - 130

0.042

0.001

0.0400

0.0005

1.00

QC Report for Work Order (WO) - 24E1861

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Blank - EPA 245.1									
QC Sample ID: BYE1432-BLK1	Batch: BYE1432								
Date Prepared: 05/29/2024	Date Analyzed: 05/30/2024								
Mercury, Total					ND			0.00016	1.00
LCS - EPA 245.1									
QC Sample ID: BYE1432-BS1	Batch: BYE1432								
Date Prepared: 05/29/2024	Date Analyzed: 05/30/2024								
Mercury, Total	97.4		85 - 115		0.00487		0.00500	0.00016	1.00
Matrix Spike - EPA 245.1									
QC Sample ID: BYE1432-MS1	Batch: BYE1432		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/29/2024	Date Analyzed: 05/30/2024								
Mercury, Total	99.7		75 - 125		0.00499	ND	0.00500	0.00016	1.00
QC Sample ID: BYE1432-MS2	Batch: BYE1432		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/29/2024	Date Analyzed: 05/30/2024								
Mercury, Total	96.0		75 - 125		0.00480	ND	0.00500	0.00016	1.00
Matrix Spike Dup - EPA 245.1									
QC Sample ID: BYE1432-MSD1	Batch: BYE1432		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/29/2024	Date Analyzed: 05/30/2024								
Mercury, Total	97.6	2.16	75 - 125	20	0.00488	ND	0.00500	0.00016	1.00
QC Sample ID: BYE1432-MSD2	Batch: BYE1432		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/29/2024	Date Analyzed: 05/30/2024								
Mercury, Total	92.4	3.83	75 - 125	20	0.00462	ND	0.00500	0.00016	1.00

QC Report for Work Order (WO) - 24E1861

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 300.0

QC Sample ID: BYE1460-BLK1	Batch: BYE1460								
Date Prepared: 05/29/2024	Date Analyzed: 05/29/2024								
Chloride					ND		1.00	1.00	
Fluoride					ND		0.100	1.00	
Sulfate					ND		1.00	1.00	

QC Sample ID: BYE1530-BLK1	Batch: BYE1530								
Date Prepared: 05/30/2024	Date Analyzed: 05/30/2024								
Chloride					ND		1.00	1.00	
Fluoride					ND		0.100	1.00	
Sulfate					ND		1.00	1.00	

LCS - EPA 300.0

QC Sample ID: BYE1460-BS1	Batch: BYE1460								
Date Prepared: 05/29/2024	Date Analyzed: 05/29/2024								
Chloride	102	90 - 110		204		200	1.00	1.00	
Fluoride	106	90 - 110		21.2		20.0	0.100	1.00	
Sulfate	103	90 - 110		207		200	1.00	1.00	

QC Sample ID: BYE1530-BS1	Batch: BYE1530								
Date Prepared: 05/30/2024	Date Analyzed: 05/30/2024								
Chloride	103	90 - 110		206		200	1.00	1.00	
Fluoride	102	90 - 110		20.5		20.0	0.100	1.00	
Sulfate	103	90 - 110		207		200	1.00	1.00	

Matrix Spike - EPA 300.0

QC Sample ID: BYE1460-MS1	Batch: BYE1460	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 05/30/2024	Date Analyzed: 05/30/2024								
Chloride	97.3	80 - 120		9730	ND	10000	550	1.00	
Fluoride	104	80 - 120		1040	ND	1000	55.0	1.00	
Sulfate	93.0	80 - 120		9300	ND	10000	550	1.00	

QC Sample ID: BYE1460-MS2	Batch: BYE1460	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 05/29/2024	Date Analyzed: 05/29/2024								
Chloride	104	80 - 120		43.6	20.5	22.2	1.11	1.00	
Fluoride	98.7	80 - 120		2.19	ND	2.22	0.111	1.00	
Sulfate	101	80 - 120		147	125	22.2	1.11	1.00	

QC Sample ID: BYE1530-MS1	Batch: BYE1530	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 05/30/2024	Date Analyzed: 05/30/2024								
Chloride	99.0	80 - 120		244	46.1	200	11.0	1.00	
Fluoride	91.3	80 - 120		18.3	ND	20.0	1.10	1.00	
Sulfate	43.4	80 - 120		2780	2690	200	11.0	1.00	

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

QC Sample ID: BYE1530-MS2	Batch: BYE1530	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 05/30/2024	Date Analyzed: 05/30/2024								
Chloride	102	80 - 120		26.9	4.19	22.2	1.11	1.00	
Fluoride	100	80 - 120		2.23	ND	2.22	0.111	1.00	
Sulfate	100	80 - 120		33.5	11.2	22.2	1.11	1.00	

Matrix Spike Dup - EPA 300.0

QC Sample ID: BYE1460-MSD1	Batch: BYE1460	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 05/30/2024	Date Analyzed: 05/30/2024								
Chloride	98.4	1.13	80 - 120	20	9840	ND	10000	550	1.00

QC Report for Work Order (WO) - 24E1861

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Matrix Spike Dup - EPA 300.0 (cont.)

QC Sample ID: BYE1460-MSD1	Batch: BYE1460		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/30/2024	Date Analyzed: 05/30/2024								
Fluoride	106	2.31	80 - 120	20	1060	ND	1000	55.0	1.00
Sulfate	96.9	4.16	80 - 120	20	9690	ND	10000	550	1.00

QC Sample ID: BYE1460-MSD2	Batch: BYE1460		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/29/2024	Date Analyzed: 05/29/2024								
Chloride	105	0.525	80 - 120	20	43.9	20.5	22.2	1.11	1.00
Fluoride	101	2.06	80 - 120	20	2.24	ND	2.22	0.111	1.00
Sulfate	102	0.145	80 - 120	20	147	125	22.2	1.11	1.00

QC Sample ID: BYE1530-MSD1	Batch: BYE1530		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/30/2024	Date Analyzed: 05/30/2024								
Chloride	98.4	0.488	80 - 120	20	243	46.1	200	11.0	1.00
Fluoride	90.5	0.884	80 - 120	20	18.1	ND	20.0	1.10	1.00
Sulfate	49.5	0.434	80 - 120	20	2790	2690	200	11.0	1.00

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

QC Sample ID: BYE1530-MSD2	Batch: BYE1530		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/30/2024	Date Analyzed: 05/30/2024								
Chloride	103	0.298	80 - 120	20	27.0	4.19	22.2	1.11	1.00
Fluoride	100	0.160	80 - 120	20	2.23	ND	2.22	0.111	1.00
Sulfate	103	1.90	80 - 120	20	34.1	11.2	22.2	1.11	1.00

QC Report for Work Order (WO) - 24E1861

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Blank - SM 2320 B									
QC Sample ID: BYE1214-BLK1	Batch: BYE1214								
Date Prepared: 05/23/2024	Date Analyzed: 05/23/2024								
Alkalinity - Bicarbonate (as CaCO3)					ND			1.0	1.00
Alkalinity - Carbonate (as CaCO3)					ND			1.0	1.00
Alkalinity - Hydroxide (as CaCO3)					ND			1.0	1.00
Alkalinity - Total (as CaCO3)					ND			1.0	1.00
Duplicate - SM 2320 B									
QC Sample ID: BYE1214-DUP1	Batch: BYE1214		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 05/23/2024	Date Analyzed: 05/23/2024								
Alkalinity - Bicarbonate (as CaCO3)	2.68		20		33.1	34.0		1.0	1.00
Alkalinity - Carbonate (as CaCO3)			20		ND	ND		1.0	1.00
Alkalinity - Hydroxide (as CaCO3)			20		ND	ND		1.0	1.00
Alkalinity - Total (as CaCO3)	2.68		20		33.1	34.0		1.0	1.00
LCS - SM 2320 B									
QC Sample ID: BYE1214-BS1	Batch: BYE1214								
Date Prepared: 05/23/2024	Date Analyzed: 05/23/2024								
Alkalinity - Total (as CaCO3)	95.6		90 - 110		226		236	1.0	1.00

QC Report for Work Order (WO) - 24E1861

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Blank - SM 2540 C

QC Sample ID: BYE1243-BLK1

Batch: BYE1243

Date Prepared: 05/23/2024

Date Analyzed: 05/23/2024

Total Dissolved Solids (TDS)

ND

20

1.00

Duplicate - SM 2540 C

QC Sample ID: BYE1243-DUP1

Batch: BYE1243

QC Source Sample: XXXXXXXX-XX

Date Prepared: 05/23/2024

Date Analyzed: 05/23/2024

Total Dissolved Solids (TDS)

10

10

272

300

20

1.00

QC Sample ID: BYE1243-DUP2

Batch: BYE1243

QC Source Sample: XXXXXXXX-XX

Date Prepared: 05/23/2024

Date Analyzed: 05/23/2024

Total Dissolved Solids (TDS)

7

10

1500

1610

20

1.00

LCS - SM 2540 C

QC Sample ID: BYE1243-BS1

Batch: BYE1243

Date Prepared: 05/23/2024

Date Analyzed: 05/23/2024

Total Dissolved Solids (TDS)

95

90 - 110

380

400

20

1.00



6/27/2024

Work Order: 24E1870
Project: CCR Sampling 2024 Spring

Deseret Power Electric Cooperative

Attn: Tyler Esplin

12500 East 25500 South

Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 5/23/24 11:00 @ 2.3 °C
Date Reported: 6/27/2024
Project Name: CCR Sampling 2024 Spring

Sample ID: BA-DG4

Matrix: Water

Date Sampled: 5/21/24 10:57

Sampled By: Trenton Keller

Lab ID: 24E1870-01

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Calculations							
Combined Radium 226+228	3.4	pCi/L	1.4	Calc	6/6/24	6/15/24	SL-62
Radiochemistry							
Radium-226	0.16	pCi/L	0.26	EPA 903.0	6/6/24	6/15/24	SL-62
Radium-228	3.3	pCi/L	1.3	EPA 904.0	6/4/24	6/13/24	SL-62



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 5/23/24 11:00 @ 2.3 °C
Date Reported: 6/27/2024
Project Name: CCR Sampling 2024 Spring

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

Flag Descriptions

SL-62 = Analysis performed by Pace Analytical National, Mount Juliet, TN 37122

RUSH Due Date*:	QC Level
	QC 2
	QC levels definition: QC1: none (default if blank)

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

QC levels definition:
QC1: none (default if blank)
QC2: Batch QC, random sample
QC3: 25% surcharge. Narrative plus Batch QC, your sample selected
QC4: 40% surcharge. Add raw data

Lab Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
61	11. BA-DG4	5-21-24	10:57	W
	12. NEP	5-21-24	13:04	W
	13. Duplicate			W
	4.			
	5.			
	6.			
	7.			
	8.			
	9.			
	10.			

[illegible]

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

QC Report for Work Order (WO) -

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

QC Sample ID:

Batch:

Date Prepared:

Date Analyzed:



ANALYTICAL REPORT

June 26, 2024

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Chemtech-Ford Laboratories

Sample Delivery Group: L1740498
Samples Received: 05/25/2024
Project Number:
Description:

Report To: Andrew Royer
9632 S 500 S
Sandy, UT 84070

Entire Report Reviewed By:

Haley Torrence

Haley Torrence
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
24E1897-01 L1740498-01	5
24E1883-01 L1740498-02	6
24E1870-01 L1740498-03	7
24E1805-01 L1740498-04	8
24E1951-01 L1740498-05	9
Qc: Quality Control Summary	10
Radiochemistry by Method 900	10
Radiochemistry by Method 903.0/9315	11
Radiochemistry by Method 904	12
Radiochemistry by Method 904/9320	14
Radiochemistry by Method SM 7500 Ra B	15
Gl: Glossary of Terms	16
Al: Accreditations & Locations	17
Sc: Sample Chain of Custody	18

¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY

24E1897-01 L1740498-01 DW

Collected by
Collected date/time
Received date/time

05/23/24 07:51 05/25/24 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2300564	1	06/07/24 08:41	06/19/24 16:33	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2300127	1	06/06/24 16:02	06/19/24 18:04	DDD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

24E1883-01 L1740498-02 DW

Collected by
Collected date/time
Received date/time

05/23/24 09:30 05/25/24 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2300564	1	06/07/24 08:41	06/19/24 16:33	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2300127	1	06/06/24 16:02	06/19/24 18:04	DDD	Mt. Juliet, TN

24E1870-01 L1740498-03 Non-Potable Water

Collected by
Collected date/time
Received date/time

05/21/24 10:57 05/25/24 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2299310	1	06/06/24 11:17	06/15/24 03:43	ASN	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2298332	1	06/04/24 15:15	06/13/24 21:54	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2299310	1	06/06/24 11:17	06/15/24 03:43	DDD	Mt. Juliet, TN

24E1805-01 L1740498-04 DW

Collected by
Collected date/time
Received date/time

05/22/24 15:29 05/25/24 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2300564	1	06/07/24 08:41	06/19/24 17:08	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2300127	1	06/06/24 16:02	06/19/24 18:04	DDD	Mt. Juliet, TN

24E1951-01 L1740498-05 DW

Collected by
Collected date/time
Received date/time

05/22/24 10:00 05/25/24 08:00

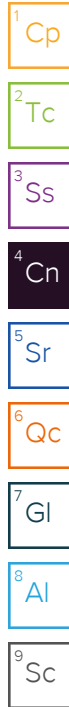
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2300564	1	06/07/24 08:41	06/19/24 17:08	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2300127	1	06/06/24 16:02	06/19/24 18:04	DDD	Mt. Juliet, TN
Radiochemistry by Method SM 7500 Ra B	WG2294738	1	05/29/24 13:38	06/20/24 00:36	ASN	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Haley Torrence
Project Manager



Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	0.961	J	2.08	2.11	1.86	1.26	06/19/2024 16:33	WG2300564
GROSS BETA	1.27	J	3.01	3.03	2.40	1.91	06/19/2024 16:33	WG2300564

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	-0.182	U	0.250	0.351	0.465	0.244	06/19/2024 18:04	WG2300127
(T) Barium	103					25.0-150	06/19/2024 18:04	WG2300127
(T) Yttrium	96.2					25.0-150	06/19/2024 18:04	WG2300127

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	-0.265	U	1.34	1.35	1.33	0.903	06/19/2024 16:33	WG2300564
GROSS BETA	0.812	J	1.22	1.23	0.968	0.765	06/19/2024 16:33	WG2300564

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.06		0.298	0.428	0.511	0.272	06/19/2024 18:04	WG2300127
(T) Barium	92.7					25.0-150	06/19/2024 18:04	WG2300127
(T) Yttrium	66.6					25.0-150	06/19/2024 18:04	WG2300127

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.162	J	0.163	0.165	0.255	0.0933	06/15/2024 03:43	WG2299310
(T) Barium	109					30.0-143	06/15/2024 03:43	WG2299310

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	3.28		0.846	1.06	1.34	0.700	06/13/2024 21:54	WG2298332
(T) Barium	34.5					30.0-143	06/13/2024 21:54	WG2298332
(T) Yttrium	102					30.0-136	06/13/2024 21:54	WG2298332

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	3.44		0.862	1.36	06/15/2024 03:43	WG2299310

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	21.2		3.61	3.63	0.924	0.468	06/19/2024 17:08	WG2300564
GROSS BETA	7.13		1.79	1.80	1.15	0.911	06/19/2024 17:08	WG2300564

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.736		0.240	0.353	0.417	0.222	06/19/2024 18:04	WG2300127
(T) Barium	98.3					25.0-150	06/19/2024 18:04	WG2300127
(T) Yttrium	80.2					25.0-150	06/19/2024 18:04	WG2300127

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	5.34		3.37	3.39	2.47	1.64	06/19/2024 17:08	WG2300564
GROSS BETA	9.62		3.07	3.10	2.13	1.69	06/19/2024 17:08	WG2300564

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	5.14		0.296	0.401	0.368	0.196	06/19/2024 18:04	WG2300127
(T) Barium	90.0					25.0-150	06/19/2024 18:04	WG2300127
(T) Yttrium	103					25.0-150	06/19/2024 18:04	WG2300127

Radiochemistry by Method SM 7500 Ra B

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	2.23		0.328	0.426	0.108	0.0705	06/20/2024 00:36	WG2294738
(T) Barium	91.6					30.0-125	06/20/2024 00:36	WG2294738

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4085681-1 06/19/24 13:03

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
GROSS ALPHA	-0.00723	U	0.362	0.360	0.237
GROSS BETA	0.739	U	0.934	0.739	0.582

L1739676-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1739676-01 06/21/24 16:26 • (DUP) R4085681-5 06/21/24 16:26

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
GROSS ALPHA	1.26	0.847	0.633	0.418	1.06	0.798	0.615	0.405	17.5	0.174		20	2
GROSS BETA	2.38	1.14	0.838	0.661	0.0790	1.28	1.03	0.824	187	1.34	J	20	2

Laboratory Control Sample (LCS)

(LCS) R4085681-2 06/19/24 13:03

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
GROSS ALPHA	15.0	15.8	105	80.0-120	
GROSS BETA	40.3	38.2	94.7	80.0-120	

L1733101-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1733101-01 06/21/24 16:26 • (MS) R4085681-3 06/21/24 16:26 • (MSD) R4085681-4 06/21/24 16:26

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
GROSS ALPHA	15.0	0.419	14.6	15.6	94.8	101	1	70.0-130			6.41		20
GROSS BETA	40.3	0.983	38.4	40.1	92.8	97.1	1	70.0-130			4.38		20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4082849-1 06/14/24 23:42

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0116	<u>U</u>	0.0603	0.129	0.0470
(T) Barium	102		102		

L1740434-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1740434-02 06/15/24 02:43 • (DUP) R4082849-5 06/15/24 00:42

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.784	0.306	0.332	0.132	1.07	0.490	0.513	0.188	30.6	0.490		20	3
(T) Barium	102				102	102							

Laboratory Control Sample (LCS)

(LCS) R4082849-2 06/15/24 00:42

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.21	104	75.0-125	
(T) Barium			103		

L1740434-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1740434-06 06/15/24 03:43 • (MS) R4082849-3 06/15/24 00:42 • (MSD) R4082849-4 06/15/24 00:42

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.829	17.3	19.4	82.3	93.1	1	75.0-125			11.8		20
(T) Barium		102			104	103							

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4086413-1 06/19/24 18:04

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.378	⬇	0.223	0.399	0.209
(T) Barium	92.4		92.4		
(T) Yttrium	84.6		84.6		

L1741871-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1741871-01 06/19/24 18:04 • (DUP) R4086413-5 06/19/24 18:04

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.384	0.287	0.517	0.271	0.622	0.280	0.496	0.264	47.4	0.594		20	2
(T) Barium	103				92.9	92.9							
(T) Yttrium	77.3				101	101							

Laboratory Control Sample (LCS)

(LCS) R4086413-2 06/19/24 18:04

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.69	114	80.0-120	
(T) Barium			99.7		
(T) Yttrium			97.7		

L1740439-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1740439-01 06/19/24 18:04 • (MS) R4086413-3 06/19/24 18:04 • (MSD) R4086413-4 06/19/24 18:04

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.412	18.7	18.6	110	109	1	70.0-130			0.482		20
(T) Barium		87.8			90.2	87.0							
(T) Yttrium		98.2			99.3	98.5							

Method Blank (MB)

(MB) R4086413-1 06/19/24 18:04

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.378	⬇	0.223	0.399	0.209
(T) Barium	92.4		92.4		

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4086413-1 06/19/24 18:04

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
(T) Yttrium	84.6		84.6		

L1741871-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1741871-01 06/19/24 18:04 • (DUP) R4086413-5 06/19/24 18:04

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.384	0.287	0.517	0.271	0.622	0.280	0.496	0.264	47.4	0.594		20	2
(T) Barium	103				92.9	92.9							
(T) Yttrium	77.3				101	101							

Laboratory Control Sample (LCS)

(LCS) R4086413-2 06/19/24 18:04

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.69	114	80.0-120	
(T) Barium			99.7		
(T) Yttrium			97.7		

L1740439-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1740439-01 06/19/24 18:04 • (MS) R4086413-3 06/19/24 18:04 • (MSD) R4086413-4 06/19/24 18:04

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.412	18.7	18.6	110	109	1	70.0-130			0.482		20
(T) Barium		87.8			90.2	87.0							
(T) Yttrium		98.2			99.3	98.5							

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Method Blank (MB)

(MB) R4082988-1 06/13/24 21:54

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.662		0.373	0.612	0.319
(T) Barium	58.3		58.3		
(T) Yttrium	104		104		

L1740498-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1740498-03 06/13/24 21:54 • (DUP) R4082988-5 06/13/24 21:54

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	3.28	0.846	1.34	0.700	4.49	0.672	0.985	0.524	31.3	1.13		20	3
(T) Barium	34.5				79.5	79.5							
(T) Yttrium	102				108	108							

Laboratory Control Sample (LCS)

(LCS) R4082988-2 06/13/24 21:54

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.73	115	80.0-120	
(T) Barium			88.2		
(T) Yttrium			88.2		

L1740434-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1740434-03 06/13/24 21:54 • (MS) R4082988-3 06/13/24 21:54 • (MSD) R4082988-4 06/13/24 21:54

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	1.53	22.1	18.4	123	101	1	70.0-130			18.2		20
(T) Barium		104			91.8	71.0							
(T) Yttrium		104			94.2	98.1							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4083779-1 05/31/24 20:26

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0708		0.103	0.160	0.0890
(T) Barium	80.6		80.6		

L1733101-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1733101-01 05/31/24 21:26 • (DUP) R4083779-5 05/31/24 21:26

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	-0.173	0.240	0.542	0.225	0.269	0.393	0.467	0.198	200	0.960		20	2
(T) Barium	87.8				83.3	83.3							

Laboratory Control Sample (LCS)

(LCS) R4083779-2 05/31/24 20:26

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.27	105	90.0-110	
(T) Barium			83.6		

L1740439-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1740439-01 06/01/24 01:27 • (MS) R4083779-3 05/31/24 20:26 • (MSD) R4083779-4 05/31/24 20:26

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.0390	20.1	22.2	100	111	1	80.0-120			10.2		20
(T) Barium		89.8			81.2	83.6							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

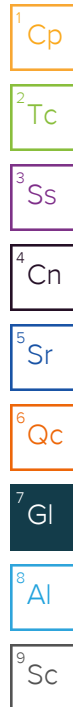
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.



ACCREDITATIONS & LOCATIONS

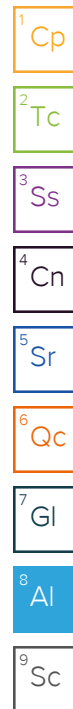
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.





SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24E1897
A042

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

L1740498

Work Order
Comments:

Laboratory ID: 24E1897-01	Matrix: Water	Client Matrix: Drinking Water -01
Requested Test	Suggested Analytical Method *	Sampled: 05/23/2024 07:51
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

Sample Receipt Checklist *total 10*

COC Seal Present/Intact:	☒ Y ☐ N	If Applicable	
COC Signed/Accurate:	☒ Y ☐ N	VOA Zero Headspace:	☐ Y ☐ N
Bottles arrive intact:	☒ Y ☐ N	Pres. Correct/Check:	☐ Y ☐ N
Correct bottles used:	☒ Y ☐ N		
Sufficient volume sent:	☒ Y ☐ N		
RA Screen <0.5 mR/hr:	☒ Y ☐ N		

3/300123.4

Released By

Date

Received By

Date

Released By

Date

Received By

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24E1883

Page 24 of 28

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

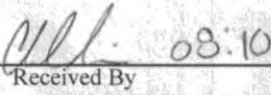
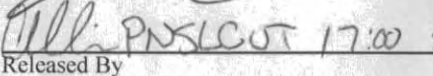
RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

U1740498

Work Order
Comments:

Laboratory ID: 24E1883-01	Matrix: Water	Client Matrix: Drinking Water -02
Requested Test	Suggested Analytical Method *	Sampled: 05/23/2024 09:30
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

Released By 	Date 5/23/24	Received By 	Date 5/24/24
Released By 	Date 5/24/24	Received By 	Date 5/25/24

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24E1870

Page 25 of 28

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order
Comments:

L740498

Laboratory ID: 24E1870-01	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 05/21/2024 10:57

Radium-226
Radium-228

EPA 903.0
EPA 904.0

Include COMB (RA) Calc.

Released By <i>A. Ware-Tee</i>	Date 5/23/24	Received By <i>ALL</i>	Date 08:10 5/24/24
Released By <i>ALL PMS/CUT</i>	Date 17:00 5/24/24	Received By <i>[Signature]</i>	Date 05-25-24 0800

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24E1805

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order If Gross Alpha is >5, run Radium 226.
Comments:

L1740486

Laboratory ID: 24E1805-01	Matrix: Water	Client Matrix: Drinking Water -04
Requested Test	Suggested Analytical Method *	Sampled: 05/22/2024 15:29
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

Released By <i>Denise Brun</i>	Date 5/22/24	Received By <i>Albi</i>	Date 08:10 5/24/24
Released By <i>Albi</i>	Date 17:00 5/24/24	Received By <i>[Signature]</i>	Date 08-25-24 0800

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24E1951

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

U740498

Work Order
Comments:

Laboratory ID: 24E1951-01	Matrix: Water	Client Matrix: Drinking Water -05
Requested Test	Suggested Analytical Method *	Sampled: 05/22/2024 10:00
Gross Alpha	EPA 900.0	
Gross Beta	EPA 900.0	
Radium-228	EPA 904.0	
Radium-226	SM 7500 Ra B	

Released By

Date

Received By

Date

Released By

Date

Received By

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.

Thom (

08 25-24

Date _____



Well number: BA-DG4
Field Personnel: TK, KO
Sampling date: 5-21-24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): N/A
Water level, post-pump installation (ft): N/A
Rate & direction of groundwater flow: N/A
Total volume of water pumped (Liters): 1.45
Clock time of sample: 10:57
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic
Sample bottle(s) identification number used: BA-DG4
Was a blind sample obtained at this well (circle): Yes No

Additional Notes: _____

[illegible]



Well number: BA-DG3
Field Personnel: TK, KO
Sampling date: 5-21-24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): N/A
Water level, post-pump installation (ft): N/A
Rate & direction of groundwater flow: N/A
Total volume of water pumped (Liters): 1.05
Clock time of sample: 9:34
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: PLASTIC
Sample bottle(s) identification number used: BA-DG3
Was a blind sample obtained at this well (circle): Yes No

Additional Notes: _____

[illegible]



Well number: BA-DG1
Field Personnel: TK, KO
Sampling date: 5-20-24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): N/A
Water level, post-pump installation (ft): N/A
Rate & direction of groundwater flow: N/A
Total volume of water pumped (Liters): 0.90
Clock time of sample: 11:10
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic
Sample bottle(s) identification number used: BA-DG1
Was a blind sample obtained at this well (circle): Yes No

Additional Notes: _____

[illegible]



Well number: BA-UG1
Field Personnel: TK, KO
Sampling date: 5-20-24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): N/A
Water level, post-pump installation (ft): N/A
Rate & direction of groundwater flow: N/A
Total volume of water pumped (Liters): 1.20
Clock time of sample: 09:38
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: BA-UG1 Plastic
Sample bottle(s) identification number used: BA-UG1
Was a blind sample obtained at this well (circle): Yes No

Additional Notes: _____

[illegible]



Well number: NEP

Field Personnel: TK, KO

Sampling date: 5-21-24

Well condition: ✓

Was the meter(s) calibrated prior to sampling (circle): Yes No

Water level, pre-pump installation (ft): N/A

Water level, post-pump installation (ft): N/A

Rate & direction of groundwater flow: N/A

Total volume of water pumped (Liters): N/A

Clock time of sample: 13:04

Lab's name sample(s) are being sent to: CTF

Type and size of sample bottles used: Plastic

Sample bottle(s) identification number used: NEP

Was a blind sample obtained at this well (circle): Yes No

Additional Notes: _____

[illegible]

RUSH Due Date*:	QC Level
	QC 2
	QC levels definition: QC1: none (default if blank)

* Expedited turnaround subject to additional charge

QC levels definition:
 QC1: none (default if blank)
 QC2: Batch QC, random sample
 QC3: 25% surcharge. Narrative plus Batch QC, your sample selected
 QC4: 40% surcharge. Add raw data

CHEMTECH-FORD
LABORATORIES

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

Lob Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
	1. FA-UG1			W
	2. FA-UG2			W
	3. FA-DG2			W
	4. FA-DG3			W
	5. FA-DG4			W
	6. FA-DG5			W
01	7. BA-UG1	5-20-24	9:38	W
02	8. BA-DG1	5-20-24	11:10	W
03	9. BA-DG2	5-20-24	13:27	W
04	10. BA-DG3	5-21-24	9:34	W

Bottle type

Lot #

Sampled by: [print] Trenton Keller
Special Instructions:

Sampled by: (signature) 

ON ICE	NOT ON ICE	Temp (C°):
2.3	2.3	2.3

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Relinquished by: [signature]

Date/Time 5/22/24 11:55

Received by: [signature]

Date/Time

Relinquished by: [signature]

Date/Time

Received by: [signature]

Date/Time	Location	Activity	Remarks
10/10/2023	...	...	...

Relinquished by: [signature]

Date/Time

Received by: [signature]

Date/Time	
-----------	--

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

CHEMTECH-FORD
LABORATORIES

RUSH Due Date*:	QC Level
	QC 2
* Expedited turnaround subject to additional charge	QC levels definition: QC1: none (default if blank) QC2: Batch QC, random sample QC3: 25% surcharge. Narrative plus Batch QC, your sample selected QCA: 40% surcharge. Add raw data

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

[illegible]

Sampled by: [print] Trenton Keller	Sampled by: [signature] <i>Trenton Keller</i>	☒ ON ICE ☐ NOT ON ICE Temp (C°): 2.3
Special Instructions:		Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.
Relinquished by: [signature] <i>Trenton Keller</i>	Date/Time 5/22/24 11:55	Received by: [signature]
Relinquished by: [signature]	Date/Time	Received by: [signature] <i>[Signature]</i>
Relinquished by: [signature]	Date/Time	Received by: [signature] <i>[Signature]</i>

Page 10 of 20



8/23/2024

Work Order: 24H1700
Project: CCR - Resample Spring 2024

Deseret Power Electric Cooperative

Attn: Tyler Esplin

12500 East 25500 South

Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 8/20/24 10:20 @ 7.2 °C
Date Reported: 8/23/2024
Project Name: CCR - Resample Spring 2024

Sample ID: BA-DG2

Matrix: Water

Date Sampled: 8/18/24 7:52

Sampled By: Trenton Keller

Lab ID: 24H1700-01

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Metals							
Calcium, Total	391	mg/L	2.0	EPA 200.7/200.2	8/20/24	8/21/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 8/20/24 10:20 @ 7.2 °C
Date Reported: 8/23/2024
Project Name: CCR - Resample Spring 2024

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

CHAIN OF CUSTODY

BILLING ADDRESS: _____
BILLING CITY/STATE _____
PURCHASE ORDER _____



QC Level 2

Please fill out the fields highlighted in light blue. TSS has a holding time of 7 days.

2441700 RUSH Due Date 7/23/24

Lab Use Only	CLIENT SAMPLE INFORMATION															Total Coliform	Total Coliform	HPC (Plate C)	E. Coli Only	
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX	Field: Residual Chlorine															
01	1. BA-DG2	8/18/24	07:52	Water																
	2.																			
	3.																			
	4.																			
	5.																			
	6.																			
	7.																			
	8.																			
	9.																			
	10.																			
Sampled by: (print) Trenton Keller		Sampled by: (signature) [Signature]													ON ICE		NOT ON ICE		Temp (C°): 7-2	
Special Instructions: This is a rotating cooler. Replace bottle and return. There will be six sampling events.					Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.															
Relinquished by: (signature) [Signature]		Date/Time 8-18-24 08:07		Received by: (signature) [Signature]												Date/Time 8/20/24 10:20				
Relinquished by: (signature)		Date/Time		Received by: (signature)												Date/Time				
Relinquished by: (signature)		Date/Time		# : 12 849 747 01 6490 8484												up5				

801.262.7299 PHONE
866.792.0093 FAX
www.chemtechford.com

- () Custody Seals Present
- () Containers Intact
- () COC and Labels Match
- () Received on Ice

- ☒ Correct Containers
- ☒ COC Included
- ☒ COC Complete
- ☒ Sufficient Sample Volume

() Headspace Present (VOC)
() Temperature Blank
☒ Received within Hold
Checked by: AI

ection costs and attorney's

QC Report for Work Order (WO) - 24H1700

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Blank - EPA 200.7

QC Sample ID: BYH1008-BLK1

Batch: BYH1008

Date Prepared: 08/20/2024

Date Analyzed: 08/21/2024

Calcium, Total

ND

0.2

1.00

LCS - EPA 200.7

QC Sample ID: BYH1008-BS1

Batch: BYH1008

Date Prepared: 08/20/2024

Date Analyzed: 08/21/2024

Calcium, Total

88.8

85 - 115

9.1

10.2

0.2

1.00

Matrix Spike - EPA 200.7

QC Sample ID: BYH1008-MS1

Batch: BYH1008

QC Source Sample: XXXXXXXX-XX

Date Prepared: 08/20/2024

Date Analyzed: 08/21/2024

Calcium, Total

277

70 - 130

260

232

10.2

2.0

10.00

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

QC Sample ID: BYH1008-MS2

Batch: BYH1008

QC Source Sample: XXXXXXXX-XX

Date Prepared: 08/20/2024

Date Analyzed: 08/21/2024

Calcium, Total

87.4

70 - 130

27.9

19.0

10.2

1.0

5.00

Matrix Spike Dup - EPA 200.7

QC Sample ID: BYH1008-MSD1

Batch: BYH1008

QC Source Sample: XXXXXXXX-XX

Date Prepared: 08/20/2024

Date Analyzed: 08/21/2024

Calcium, Total

399

4.69

70 - 130

20

273

232

10.2

2.0

10.00

QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

QC Sample ID: BYH1008-MSD2

Batch: BYH1008

QC Source Sample: XXXXXXXX-XX

Date Prepared: 08/20/2024

Date Analyzed: 08/21/2024

Calcium, Total

84.8

0.947

70 - 130

20

27.6

19.0

10.2

1.0

5.00



Amended

11/25/2024

**Work Order: 24J1549
Project: CCR Sampling 2024 Fall**

Deseret Power Electric Cooperative

Attn: Trenton Keller

12500 East 25500 South

Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Deseret Power Electric Cooperative
Trenton Keller

REPORT NARRATIVE

Sample Group

<u>Laboratory ID</u>	<u>Sample Name</u>
24J1549-01	FA-UG1
24J1549-02	FA-UG2
24J1549-03	FA-DG2
24J1549-04	FA-DG3
24J1549-05	FA-DG4
24J1549-06	FA-DG5
24J1549-07	Duplicate

Initial report contained a recovery flag on the LCS data for barium and cobalt. This flag was not needed and has been removed from the amended report.



Amended

Certificate of Analysis

Amended

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/17/24 10:40 @ 0.9 °C
Date Reported: 11/25/2024
Project Name: CCR Sampling 2024 Fall

Sample ID: FA-UG1

Matrix: Water

Date Sampled: 10/14/24 9:54

Sampled By: T. Esplin

Lab ID: 24J1549-01

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Inorganic							
Chloride	36.5	mg/L	1.00	EPA 300.0	10/21/24	10/22/24	
Fluoride	1.62	mg/L	0.100	EPA 300.0	10/21/24	10/22/24	
Sulfate	366	mg/L	1.00	EPA 300.0	10/21/24	10/22/24	
Total Dissolved Solids (TDS)	1090	mg/L	20	SM 2540 C	10/17/24	10/17/24	
Metals							
Boron, Total	0.78	mg/L	0.25	EPA 200.7/200.2	10/23/24	10/23/24	
Calcium, Total	7.5	mg/L	1.0	EPA 200.7/200.2	10/23/24	10/23/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Amended

Certificate of Analysis

Amended

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/17/24 10:40 @ 0.9 °C
Date Reported: 11/25/2024
Project Name: CCR Sampling 2024 Fall

Sample ID: FA-UG2

Matrix: Water

Date Sampled: 10/14/24 11:15

Sampled By: T. Esplin

Lab ID: 24J1549-02

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	1910	mg/L	10.0	EPA 300.0	10/21/24	10/22/24	
Fluoride	0.338	mg/L	0.100	EPA 300.0	10/21/24	10/22/24	
Sulfate	8600	mg/L	50.0	EPA 300.0	10/23/24	10/23/24	
Total Dissolved Solids (TDS)	16400	mg/L	500	SM 2540 C	10/17/24	10/17/24	
Metals							
Boron, Total	50.3	mg/L	0.05	EPA 200.7/200.2	10/18/24	10/21/24	
Calcium, Total	536	mg/L	0.2	EPA 200.7/200.2	10/18/24	10/21/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O: (801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Amended

Certificate of Analysis

Amended

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/17/24 10:40 @ 0.9 °C
Date Reported: 11/25/2024
Project Name: CCR Sampling 2024 Fall

Sample ID: FA-DG2

Matrix: Water

Date Sampled: 10/14/24 12:00

Sampled By: T. Esplin

Lab ID: 24J1549-03

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	735	mg/L	20.0	EPA 300.0	10/21/24	10/22/24	
Fluoride	39.8	mg/L	2.00	EPA 300.0	10/21/24	10/22/24	
Sulfate	5750	mg/L	20.0	EPA 300.0	10/21/24	10/22/24	
Total Dissolved Solids (TDS)	13600	mg/L	500	SM 2540 C	10/17/24	10/17/24	
Metals							
Boron, Total	7.13	mg/L	0.05	EPA 200.7/200.2	10/18/24	10/21/24	
Calcium, Total	2.0	mg/L	0.2	EPA 200.7/200.2	10/18/24	10/21/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Amended

Certificate of Analysis

Amended

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/17/24 10:40 @ 0.9 °C
Date Reported: 11/25/2024
Project Name: CCR Sampling 2024 Fall

Sample ID: FA-DG3

Matrix: Water

Date Sampled: 10/14/24 13:52

Sampled By: T. Esplin

Lab ID: 24J1549-04

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	241	mg/L	1.00	EPA 300.0	10/21/24	10/22/24	
Fluoride	8.50	mg/L	0.100	EPA 300.0	10/21/24	10/22/24	
Sulfate	1660	mg/L	5.00	EPA 300.0	10/21/24	10/22/24	
Total Dissolved Solids (TDS)	3620	mg/L	500	SM 2540 C	10/17/24	10/17/24	
Metals							
Boron, Total	2.26	mg/L	0.25	EPA 200.7/200.2	10/23/24	10/23/24	
Calcium, Total	2.4	mg/L	1.0	EPA 200.7/200.2	10/23/24	10/23/24	



Amended

Certificate of Analysis

Amended

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/17/24 10:40 @ 0.9 °C
Date Reported: 11/25/2024
Project Name: CCR Sampling 2024 Fall

Sample ID: FA-DG4

Matrix: Water

Lab ID: 24J1549-05

Date Sampled: 10/14/24 14:49

Sampled By: T. Esplin

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	954	mg/L	10.0	EPA 300.0	10/21/24	10/22/24	
Fluoride	7.62	mg/L	0.100	EPA 300.0	10/21/24	10/22/24	
Sulfate	4300	mg/L	20.0	EPA 300.0	10/23/24	10/23/24	
Total Dissolved Solids (TDS)	8300	mg/L	500	SM 2540 C	10/17/24	10/17/24	
Metals							
Boron, Total	10.1	mg/L	0.25	EPA 200.7/200.2	10/23/24	10/23/24	
Calcium, Total	45.1	mg/L	1.0	EPA 200.7/200.2	10/23/24	10/23/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Amended

Certificate of Analysis

Amended

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/17/24 10:40 @ 0.9 °C
Date Reported: 11/25/2024
Project Name: CCR Sampling 2024 Fall

Sample ID: FA-DG5

Matrix: Water

Lab ID: 24J1549-06

Date Sampled: 10/15/24 9:52

Sampled By: T. Esplin

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Inorganic							
Chloride	1930	mg/L	50.0	EPA 300.0	10/21/24	10/22/24	
Fluoride	0.574	mg/L	0.100	EPA 300.0	10/21/24	10/22/24	
Sulfate	9590	mg/L	50.0	EPA 300.0	10/21/24	10/22/24	
Total Dissolved Solids (TDS)	16400	mg/L	500	SM 2540 C	10/17/24	10/17/24	
Metals							
Antimony, Total	ND	mg/L	0.0005	EPA 200.8/200.2	10/18/24	10/21/24	
Arsenic, Total	0.0054	mg/L	0.0005	EPA 200.8/200.2	10/18/24	10/21/24	
Barium, Total	0.012	mg/L	0.005	EPA 200.7/200.2	10/18/24	10/21/24	
Beryllium, Total	ND	mg/L	0.0005	EPA 200.8/200.2	10/18/24	10/21/24	
Boron, Total	56.4	mg/L	0.05	EPA 200.7/200.2	10/18/24	10/21/24	
Cadmium, Total	ND	mg/L	0.0002	EPA 200.8/200.2	10/18/24	10/21/24	
Calcium, Total	517	mg/L	0.2	EPA 200.7/200.2	10/18/24	10/21/24	
Chromium, Total	0.0013	mg/L	0.0005	EPA 200.8/200.2	10/18/24	10/21/24	
Cobalt, Total	0.0267	mg/L	0.0005	EPA 200.8/200.2	10/18/24	10/21/24	
Lead, Total	ND	mg/L	0.0005	EPA 200.8/200.2	10/18/24	10/21/24	
Lithium, Total	0.730	mg/L	0.020	EPA 200.7/200.2	10/18/24	10/21/24	
Mercury, Total	ND	mg/L	0.00016	EPA 245.1	10/24/24	10/25/24	
Molybdenum, Total	0.03	mg/L	0.01	EPA 200.7/200.2	10/18/24	10/21/24	
Selenium, Total	0.0096	mg/L	0.0007	EPA 200.8/200.2	10/18/24	10/21/24	
Thallium, Total	ND	mg/L	0.0002	EPA 200.8/200.2	10/18/24	10/21/24	



Amended

Certificate of Analysis

Amended

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/17/24 10:40 @ 0.9 °C
Date Reported: 11/25/2024
Project Name: CCR Sampling 2024 Fall

Sample ID: Duplicate

Matrix: Water

Date Sampled: 10/14/24 15:04

Sampled By: T. Esplin

Lab ID: 24J1549-07

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Inorganic							
Chloride	879	mg/L	50.0	EPA 300.0	10/21/24	10/22/24	
Fluoride	7.67	mg/L	0.100	EPA 300.0	10/21/24	10/22/24	
Sulfate	4370	mg/L	50.0	EPA 300.0	10/21/24	10/22/24	
Total Dissolved Solids (TDS)	8400	mg/L	20	SM 2540 C	10/17/24	10/17/24	
Metals							
Boron, Total	11.5	mg/L	0.05	EPA 200.7/200.2	10/18/24	10/21/24	
Calcium, Total	52.3	mg/L	0.2	EPA 200.7/200.2	10/18/24	10/21/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Amended

Certificate of Analysis

Amended

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/17/24 10:40 @ 0.9 °C
Date Reported: 11/25/2024
Project Name: CCR Sampling 2024 Fall

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

CHAIN OF CUSTODY - SAMPLE SUBMITTAL FORM



CHEMTECH-FORD
LABORATORIES

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

COMPANY: Deseret Power Electric Cooperative
ADDRESS: 12500 East 25500 South
CITY/STATE/ZIP: Vernal, UT 84078-8525
PHONE #: 435-781-5706
CONTACT: Tyler Esplin
EMAIL: tesplin@deseretspower.com
PROJECT: CCR Sampling 2024 Fall
PO Number: 187398
INVOICE EMAIL ADDRESS:

RUSH Due Date*:	QC Level
	QC 2

* Expedited turnaround subject
to additional charge

QC level definition:
QC1: none (default if blank)
QC2: Batch QC, random sample
QC3: 25% surcharge. Narrative plus Batch QC,
your sample selected
QC4: 40% surcharge. Add raw data

Sample condition			
☒ Custody Seal	☒ Correct Containers		
☒ Container Intact	☒ Sufficient Sample Volume		
☒ COC/Labels Agree	Headspace Present (VOC)	☒ UPS	USPS
☒ Received on Ice	Temperature Blank	FedEx	Chemtech-Ford Courier
	Received within Holding Time	Walk-in	Customer Courier

Lab Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
1	FA-UG1	10/14/24	0954	W
2	FA-UG2	10/14/24	1115	W
3	FA-DG2	10/14/24	1200	W
4	FA-DG3	10/14/24	1352	W
5	FA-DG4	10/14/24	1449	W
6	FA-DG5	10/15/24	0952	W
7	BA-UG1			W
8	BA-DG1			W
9	BA-DG2			W
10	BA-DG3			W

TESTS REQUESTED													
Chloride	Fluoride	Sulfate	TDS	245.1 Mercury	200.7: B, Ca	200.7: Ba, Li, Mo	Metals by 200.8:	Sb, As, Be, Cd, Cr, Co, Pb, Se, Ti	Radium 226 & 228	200.7: Mg, K, Na	Alkalinity		
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X	X	X	X	X	X	X				
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								

Bottle type

Lot #

A9
13910
M
13916

Sampled by: [print] T. Esplin	Sampled by: [signature] Tyler Esplin	ON ICE	NOT ON ICE	Temp (C°): 0.9
Special Instructions:		Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.		
Relinquished by: [signature] Tyler Esplin	Date/Time 10/16/24 1500	Received by: [signature] Denise Brun	Date/Time 10/17/24 10:40	
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time	
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time	

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

UPS NEXT DAY AIR

TRACKING #: 1Z 849 747 01 6458 7634

RUSH Due Date*:	QC Level
	QC 2
	QC levels definition: QC1: none (default if blank)

CHEMTECH-FORD
LABORATORIES

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

* Expedited turnaround subject to additional charge

[illegible]

Lab Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
	11. BA-DG4			W
	12. NEP			W
-07	13. Duplicate	10/14/24	1504	W
	4.			
	5.			
	6.			
	7.			
	8.			
	9.			
	10.			

Lot #

Sampled by: [print] <i>J. Gsp/14</i>	Sampled by: [signature] <i>J. Gsp/14</i>	☒ ON ICE ☐ NOT ON ICE Temp (C°): <i>0.9</i>	
Special Instructions:		Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.	
Relinquished by: [signature] <i>J. Gsp/14</i>	Date/Time <i>10/16/24 1500</i>	Received by: [signature] <i>Denise Brun</i>	Date/Time <i>10/17/24 1840</i>
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

QC Report for Work Order (WO) - 24J1549

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.7

QC Sample ID: BYJ0992-BLK1		Batch: BYJ0992							
Date Prepared: 10/18/2024		Date Analyzed: 10/21/2024							
Barium, Total					ND		0.005	1.00	
Boron, Total					ND		0.05	1.00	
Calcium, Total					ND		0.2	1.00	
Cobalt, Total					ND		0.01	1.00	
Lithium, Total					ND		0.020	1.00	
Molybdenum, Total					ND		0.01	1.00	

QC Sample ID: BYJ1158-BLK1		Batch: BYJ1158							
Date Prepared: 10/23/2024		Date Analyzed: 10/23/2024							
Boron, Total					ND		0.05	1.00	
Calcium, Total					ND		0.2	1.00	

LCS - EPA 200.7

QC Sample ID: BYJ0992-BS1		Batch: BYJ0992							
Date Prepared: 10/18/2024		Date Analyzed: 10/21/2024							
Barium, Total	101	85 - 115		0.253		0.250	0.005	1.00	
Boron, Total	88.4	85 - 115		0.44		0.500	0.05	1.00	
Calcium, Total	106	85 - 115		10.8		10.2	0.2	1.00	
Cobalt, Total	103	85 - 115		0.21		0.200	0.01	1.00	
Lithium, Total	99.1	85 - 115		0.198		0.200	0.020	1.00	
Molybdenum, Total	91.5	85 - 115		0.18		0.200	0.01	1.00	

QC Sample ID: BYJ1158-BS1		Batch: BYJ1158							
Date Prepared: 10/23/2024		Date Analyzed: 10/23/2024							
Boron, Total	101	85 - 115		0.50		0.500	0.05	1.00	
Calcium, Total	104	85 - 115		10.6		10.2	0.2	1.00	

Matrix Spike - EPA 200.7

QC Sample ID: BYJ0992-MS1		Batch: BYJ0992		QC Source Sample: XXXXXXXX-XX				
Date Prepared: 10/18/2024		Date Analyzed: 10/21/2024						
Barium, Total	100	70 - 130	0.263	0.012	0.250	0.005	1.00	
Boron, Total	97.3	70 - 130	3.49	3.00	0.500	0.05	1.00	
Calcium, Total	183	70 - 130	424	406	10.2	0.2	1.00	
QM-010 - The MS recovery was outside acceptance limits but passed Duplicate Spike acceptance limits. The batch was accepted based on the acceptability of the MSD as the batch Spike.								
Cobalt, Total	104	70 - 130	0.21	ND	0.200	0.01	1.00	
Lithium, Total	123	70 - 130	1.81	1.56	0.200	0.020	1.00	
Molybdenum, Total	82.0	70 - 130	0.16	ND	0.200	0.01	1.00	

QC Sample ID: BYJ0992-MS2	Batch: BYJ0992	QC Source Sample: XXXXXXXX-XX					
Date Prepared: 10/18/2024	Date Analyzed: 10/21/2024						
Barium, Total	106	70 - 130	0.331	0.065	0.250	0.005	1.00
Boron, Total	94.0	70 - 130	0.63	0.16	0.500	0.05	1.00
Calcium, Total	123	70 - 130	85.5	73.0	10.2	0.2	1.00
Cobalt, Total	102	70 - 130	0.21	0.007	0.200	0.01	1.00
Lithium, Total	101	70 - 130	0.230	0.027	0.200	0.020	1.00
Molybdenum, Total	97.8	70 - 130	0.20	ND	0.200	0.01	1.00

QC Sample ID: BYJ1158-MS1		Batch: BYJ1158		QC Source Sample: XXXXXXXX-XX				
Date Prepared: 10/23/2024		Date Analyzed: 10/23/2024						
Boron, Total	102	70 - 130	0.55	0.04	0.500	0.05	1.00	
Calcium, Total	99.8	70 - 130	59.3	49.1	10.2	0.2	1.00	

QC Report for Work Order (WO) - 24J1549

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Matrix Spike - EPA 200.7 (cont.)									
QC Sample ID: BYJ1158-MS2	Batch: BYJ1158		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/23/2024	Date Analyzed: 10/23/2024								
Boron, Total	99.9		70 - 130		0.50	ND	0.500	0.05	1.00
Calcium, Total	74.1		70 - 130		102	94.7	10.2	0.2	1.00
Matrix Spike Dup - EPA 200.7									
QC Sample ID: BYJ0992-MSD1	Batch: BYJ0992		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/18/2024	Date Analyzed: 10/21/2024								
Barium, Total	99.7	0.687	70 - 130	20	0.261	0.012	0.250	0.005	1.00
Boron, Total	83.0	2.07	70 - 130	20	3.42	3.00	0.500	0.05	1.00
Calcium, Total	97.4	2.08	70 - 130	20	416	406	10.2	0.2	1.00
Cobalt, Total	103	0.579	70 - 130	20	0.21	ND	0.200	0.01	1.00
Lithium, Total	102	2.32	70 - 130	20	1.77	1.56	0.200	0.020	1.00
Molybdenum, Total	86.6	5.40	70 - 130	20	0.17	ND	0.200	0.01	1.00
QC Sample ID: BYJ0992-MSD2	Batch: BYJ0992		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/18/2024	Date Analyzed: 10/21/2024								
Barium, Total	104	1.80	70 - 130	20	0.326	0.065	0.250	0.005	1.00
Boron, Total	91.4	2.10	70 - 130	20	0.62	0.16	0.500	0.05	1.00
Calcium, Total	106	2.07	70 - 130	20	83.8	73.0	10.2	0.2	1.00
Cobalt, Total	100	2.01	70 - 130	20	0.21	0.007	0.200	0.01	1.00
Lithium, Total	98.6	2.25	70 - 130	20	0.224	0.027	0.200	0.020	1.00
Molybdenum, Total	102	4.11	70 - 130	20	0.20	ND	0.200	0.01	1.00
QC Sample ID: BYJ1158-MSD1	Batch: BYJ1158		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/23/2024	Date Analyzed: 10/23/2024								
Boron, Total	103	0.0728	70 - 130	20	0.55	0.04	0.500	0.05	1.00
Calcium, Total	99.8	0.00202	70 - 130	20	59.3	49.1	10.2	0.2	1.00
QC Sample ID: BYJ1158-MSD2	Batch: BYJ1158		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/23/2024	Date Analyzed: 10/23/2024								
Boron, Total	100	0.419	70 - 130	20	0.50	ND	0.500	0.05	1.00
Calcium, Total	76.4	0.233	70 - 130	20	103	94.7	10.2	0.2	1.00

QC Report for Work Order (WO) - 24J1549

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.8

QC Sample ID: BYJ0995-BLK1		Batch: BYJ0995							
Date Prepared: 10/18/2024		Date Analyzed: 10/21/2024							
Antimony, Total					ND		0.0005	1.00	
Arsenic, Total					ND		0.0005	1.00	
Beryllium, Total					ND		0.0005	1.00	
Cadmium, Total					ND		0.0002	1.00	
Chromium, Total					ND		0.0005	1.00	
Cobalt, Total					ND		0.0005	1.00	
Lead, Total					ND		0.0005	1.00	
Selenium, Total					ND		0.0007	1.00	
Thallium, Total					ND		0.0002	1.00	

LCS - EPA 200.8

QC Sample ID: BYJ0995-BS1		Batch: BYJ0995							
Date Prepared: 10/18/2024		Date Analyzed: 10/21/2024							
Antimony, Total	103	85 - 115		0.041		0.0400	0.0005	1.00	
Arsenic, Total	102	85 - 115		0.041		0.0400	0.0005	1.00	
Beryllium, Total	103	85 - 115		0.041		0.0400	0.0005	1.00	
Cadmium, Total	104	85 - 115		0.041		0.0400	0.0002	1.00	
Chromium, Total	100	85 - 115		0.040		0.0400	0.0005	1.00	
Cobalt, Total	103	85 - 115		0.041		0.0400	0.0005	1.00	
Lead, Total	104	85 - 115		0.042		0.0400	0.0005	1.00	
Selenium, Total	102	85 - 115		0.041		0.0400	0.0007	1.00	
Thallium, Total	100	85 - 115		0.040		0.0400	0.0002	1.00	

Matrix Spike - EPA 200.8

QC Sample ID: BYJ0995-MS1	Batch: BYJ0995	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/18/2024	Date Analyzed: 10/21/2024							
Antimony, Total	105	70 - 130	0.113	0.070	0.0400	0.0005	1.00	
Arsenic, Total	102	70 - 130	0.041	ND	0.0400	0.0005	1.00	
Beryllium, Total	102	70 - 130	0.041	ND	0.0400	0.0005	1.00	
Cadmium, Total	104	70 - 130	0.041	ND	0.0400	0.0002	1.00	
Chromium, Total	96.5	70 - 130	0.039	ND	0.0400	0.0005	1.00	
Cobalt, Total	99.2	70 - 130	0.040	0.0003	0.0400	0.0005	1.00	
Lead, Total	104	70 - 130	0.042	ND	0.0400	0.0005	1.00	
Selenium, Total	101	70 - 130	0.040	ND	0.0400	0.0007	1.00	
Thallium, Total	99.3	70 - 130	0.040	ND	0.0400	0.0002	1.00	

QC Sample ID: BYJ0995-MS2	Batch: BYJ0995	QC Source Sample: XXXXXXXX-XX					
Date Prepared: 10/18/2024	Date Analyzed: 10/21/2024						
Antimony, Total	108	70 - 130	0.044	0.0004	0.0400	0.0005	1.00
Arsenic, Total	95.4	70 - 130	0.038	0.0003	0.0400	0.0005	1.00
Beryllium, Total	69.8	70 - 130	0.028	ND	0.0400	0.0005	1.00

QM-05 - The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The analytical batch was accepted based on the acceptable data provided by the Laboratory Control Sample(s) [LCS] and/or LCS Duplicates.

Cadmium, Total	96.9	70 - 130		0.039	0.0001	0.0400	0.0002	1.00	
Chromium, Total	90.1	70 - 130		0.036	0.0002	0.0400	0.0005	1.00	
Cobalt, Total	88.3	70 - 130		0.039	0.004	0.0400	0.0005	1.00	
Lead, Total	94.1	70 - 130		0.038	ND	0.0400	0.0005	1.00	
Selenium, Total	94.4	70 - 130		0.039	0.002	0.0400	0.0007	1.00	
Thallium, Total	91.7	70 - 130		0.037	ND	0.0400	0.0002	1.00	

QC Report for Work Order (WO) - 24J1549

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Blank - EPA 245.1									
QC Sample ID: BYJ1252-BLK1	Batch: BYJ1252								
Date Prepared: 10/24/2024	Date Analyzed: 10/25/2024								
Mercury, Total					ND			0.00016	1.00
LCS - EPA 245.1									
QC Sample ID: BYJ1252-BS1	Batch: BYJ1252								
Date Prepared: 10/24/2024	Date Analyzed: 10/25/2024								
Mercury, Total	96.3		85 - 115		0.00482		0.00500	0.00016	1.00
Matrix Spike - EPA 245.1									
QC Sample ID: BYJ1252-MS1	Batch: BYJ1252		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/24/2024	Date Analyzed: 10/25/2024								
Mercury, Total	100		75 - 125		0.00500	ND	0.00500	0.00016	1.00
QC Sample ID: BYJ1252-MS2	Batch: BYJ1252		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/24/2024	Date Analyzed: 10/25/2024								
Mercury, Total	98.6		75 - 125		0.00493	ND	0.00500	0.00016	1.00
Matrix Spike Dup - EPA 245.1									
QC Sample ID: BYJ1252-MSD1	Batch: BYJ1252		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/24/2024	Date Analyzed: 10/25/2024								
Mercury, Total	94.8	5.32	75 - 125	20	0.00474	ND	0.00500	0.00016	1.00
QC Sample ID: BYJ1252-MSD2	Batch: BYJ1252		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/24/2024	Date Analyzed: 10/25/2024								
Mercury, Total	95.9	2.75	75 - 125	20	0.00480	ND	0.00500	0.00016	1.00

QC Report for Work Order (WO) - 24J1549

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Blank - EPA 300.0									
QC Sample ID: BYJ1067-BLK1	Batch: BYJ1067								
Date Prepared: 10/21/2024	Date Analyzed: 10/22/2024								
Chloride					ND			1.00	1.00
Fluoride					ND			0.100	1.00
Sulfate					ND			1.00	1.00
QC Sample ID: BYJ1170-BLK1	Batch: BYJ1170								
Date Prepared: 10/23/2024	Date Analyzed: 10/23/2024								
Sulfate					ND			1.00	1.00
LCS - EPA 300.0									
QC Sample ID: BYJ1067-BS1	Batch: BYJ1067								
Date Prepared: 10/21/2024	Date Analyzed: 10/22/2024								
Chloride	107		90 - 110		214		200	1.00	1.00
Fluoride	104		90 - 110		20.8		20.0	0.100	1.00
Sulfate	107		90 - 110		214		200	1.00	1.00
QC Sample ID: BYJ1170-BS1	Batch: BYJ1170								
Date Prepared: 10/23/2024	Date Analyzed: 10/23/2024								
Sulfate	98.8		90 - 110		198		200	1.00	1.00
Matrix Spike - EPA 300.0									
QC Sample ID: BYJ1067-MS1	Batch: BYJ1067	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 10/21/2024	Date Analyzed: 10/22/2024								
Chloride	107		80 - 120		136	29.4	100	5.50	1.00
Fluoride	89.9		80 - 120		8.99	ND	10.0	0.550	1.00
Sulfate	157		80 - 120		2460	2310	100	5.50	1.00
QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.									
QC Sample ID: BYJ1067-MS2	Batch: BYJ1067	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 10/21/2024	Date Analyzed: 10/22/2024								
Chloride	103		80 - 120		22.8	ND	22.2	1.11	1.00
Fluoride	85.4		80 - 120		1.90	ND	2.22	0.111	1.00
Sulfate	98.0		80 - 120		21.8	ND	22.2	1.11	1.00
QC Sample ID: BYJ1170-MS1	Batch: BYJ1170	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 10/23/2024	Date Analyzed: 10/23/2024								
Sulfate	97.8		80 - 120		86.9	65.2	22.2	1.11	1.00
QC Sample ID: BYJ1170-MS2	Batch: BYJ1170	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 10/23/2024	Date Analyzed: 10/23/2024								
Sulfate	102		80 - 120		251	228	22.2	1.11	1.00
Matrix Spike Dup - EPA 300.0									
QC Sample ID: BYJ1067-MSD1	Batch: BYJ1067	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 10/21/2024	Date Analyzed: 10/22/2024								
Chloride	106	0.671	80 - 120	20	135	29.4	100	5.50	1.00
Fluoride	86.0	4.43	80 - 120	20	8.60	ND	10.0	0.550	1.00
Sulfate	178	0.851	80 - 120	20	2480	2310	100	5.50	1.00
QM-4X - The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.									
QC Sample ID: BYJ1067-MSD2	Batch: BYJ1067	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 10/21/2024	Date Analyzed: 10/22/2024								

QC Report for Work Order (WO) - 24J1549

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Matrix Spike Dup - EPA 300.0 (cont.)

QC Sample ID: BYJ1067-MSD2	Batch: BYJ1067		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/21/2024	Date Analyzed: 10/22/2024								
Chloride	108	5.22	80 - 120	20	24.1	ND	22.2	1.11	1.00
Fluoride	90.1	5.37	80 - 120	20	2.00	ND	2.22	0.111	1.00
Sulfate	104	5.67	80 - 120	20	23.0	ND	22.2	1.11	1.00
QC Sample ID: BYJ1170-MSD1	Batch: BYJ1170		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/23/2024	Date Analyzed: 10/23/2024								
Sulfate	99.5	0.452	80 - 120	20	87.3	65.2	22.2	1.11	1.00
QC Sample ID: BYJ1170-MSD2	Batch: BYJ1170		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/23/2024	Date Analyzed: 10/23/2024								
Sulfate	95.4	0.550	80 - 120	20	249	228	22.2	1.11	1.00

QC Report for Work Order (WO) - 24J1549

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Blank - SM 2540 C									
QC Sample ID: BYJ0919-BLK1	Batch: BYJ0919								
Date Prepared: 10/17/2024	Date Analyzed: 10/17/2024								
Total Dissolved Solids (TDS)					ND			10	1.00
Duplicate - SM 2540 C									
QC Sample ID: BYJ0919-DUP1	Batch: BYJ0919		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/17/2024	Date Analyzed: 10/17/2024								
Total Dissolved Solids (TDS)	0.9			10	1260	1270		20	1.00
QC Sample ID: BYJ0919-DUP2	Batch: BYJ0919		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/17/2024	Date Analyzed: 10/17/2024								
Total Dissolved Solids (TDS)	0.2			10	8080	8100		100	1.00
LCS - SM 2540 C									
QC Sample ID: BYJ0919-BS1	Batch: BYJ0919								
Date Prepared: 10/17/2024	Date Analyzed: 10/17/2024								
Total Dissolved Solids (TDS)	101		90 - 110		404		400	20	1.00



11/19/2024

Work Order: 24J1554
Project: CCR Sampling 2024 Fall

Deseret Power Electric Cooperative
Attn: Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/17/24 10:40 @ 0.9 °C
Date Reported: 11/19/2024
Project Name: CCR Sampling 2024 Fall

Sample ID: FA-DG5

Matrix: Water

Date Sampled: 10/15/24 9:52

Sampled By: T. Esplin

Lab ID: 24J1554-01

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Calculations							
Combined Radium 226+228	0.62	pCi/L	0.98	Calc	11/4/24	11/11/24	SL-62
Radiochemistry							
Radium-226	0.36	pCi/L	0.22	EPA 903.0	11/4/24	11/10/24	SL-62
Radium-228	0.26	pCi/L	0.96	EPA 904.0	11/6/24	11/11/24	SL-62



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/17/24 10:40 @ 0.9 °C
Date Reported: 11/19/2024
Project Name: CCR Sampling 2024 Fall

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

Flag Descriptions

SL-62 = Analysis performed by Pace Analytical National, Mount Juliet, TN 37122

CHAIN OF CUSTODY - SAMPLE SUBMITTAL FORM



CHEMTECH-FORD
LABORATORIES

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

COMPANY: Deseret Power Electric Cooperative
ADDRESS: 12500 East 25500 South
CITY/STATE/ZIP: Vernal, UT 84078-8525
PHONE #: 435-781-5706
CONTACT: Tyler Esplin
EMAIL: tesplin@deseretspower.com
PROJECT: CCR Sampling 2024 Fall
PO Number: 187398
INVOICE EMAIL ADDRESS: _____

RUSH Due Date*:	QC Level
	QC 2

* Expedited turnaround subject to additional charge

QC levels definition:
QC1: none (default if blank)
QC2: Batch QC, random sample
QC3: 25% surcharge. Narrative plus Batch QC, your sample selected
QC4: 40% surcharge. Add raw data

Sample condition		Delivery Method	
☐ Custody Seal	☒ Correct Containers	☒ UPS	☐ USPS
☒ Container Intact	☒ Sufficient Sample Volume	☐ FedEx	☐ Chemtech-Ford Courier
☒ COC/Labels Agree	☐ Headspace Present (VOC)	☐ Walk-in	☐ Customer Courier
☐ Received on Ice	☐ Temperature Blank		
	☒ Received within Holding Time		

Lab Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
1	FA-UG1	10/14/24	0954	W
2	FA-UG2	10/14/24	1115	W
3	FA-DG2	10/14/24	1200	W
4	FA-DG3	10/14/24	1352	W
5	FA-DG4	10/14/24	1449	W
6	FA-DG5	10/15/24	0952	W
7	BA-UG1			W
8	BA-DG1			W
9	BA-DG2			W
10	BA-DG3			W

Bottle type

Lot #

TESTS REQUESTED													
Chloride	Fluoride	Sulfate	TDS	245.1 Mercury	200.7: B, Ca	200.7: Ba, Li, Mo	Metals by 200.8:	Sb, As, Be, Cd, Cr, Co, Pb, Se, Ti	Radium 226 & 228	200.7: Mg, K, Na	Alkalinity		
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X	X	X	X	X	X	X				
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								

Sampled by: [print] <u>T. Esplin</u>	Sampled by: [signature] <u>Tyler Esplin</u>	ON ICE ☒ NOT ON ICE ☐ Temp (C°): <u>0.9</u>	
Special Instructions:		Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.	
Relinquished by: [signature] <u>Tyler Esplin</u>	Date/Time <u>10/16/24 1500</u>	Received by: [signature] <u>Denise Brun</u>	Date/Time <u>10/17/24 10:40</u>
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

UPS NEXT DAY AIR

TRACKING #: 1Z 849 747 01 6458 7634

QC Report for Work Order (WO) -

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

QC Sample ID:

Batch:

Date Prepared:

Date Analyzed:



ANALYTICAL REPORT

November 19, 2024

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Chemtech-Ford Laboratories

Sample Delivery Group: L1790824
Samples Received: 10/19/2024
Project Number:
Description:

Report To: Mark Broadhead
9632 S 500 S
Sandy, UT 84070

Entire Report Reviewed By:

Donna Eidson
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
24J1634-01 L1790824-01	5	
24J1634-02 L1790824-02	6	⁴ Cn
24J1634-03 L1790824-03	7	⁵ Sr
24J1554-01 L1790824-04	8	
24J1543-01 L1790824-05	9	⁶ Qc
Qc: Quality Control Summary	10	⁷ Gl
Radiochemistry by Method 900	10	
Radiochemistry by Method 903.0/9315	11	⁸ Al
Radiochemistry by Method 904	12	
Radiochemistry by Method 904/9320	14	⁹ Sc
Radiochemistry by Method SM 7500 Ra B	15	
Gl: Glossary of Terms	16	
Al: Accreditations & Locations	17	
Sc: Sample Chain of Custody	18	

SAMPLE SUMMARY

24J1634-01 L1790824-01 DW

Collected by

Collected date/time

Received date/time

10/16/24 09:15

10/19/24 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2388270	1	10/26/24 10:36	11/13/24 21:08	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2392542	1	11/01/24 16:46	11/08/24 14:21	DDD	Mt. Juliet, TN
Radiochemistry by Method SM 7500 Ra B	WG2397492	1	11/07/24 17:24	11/16/24 13:40	SNR	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

24J1634-02 L1790824-02 DW

Collected by

Collected date/time

Received date/time

10/16/24 09:30

10/19/24 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2388270	1	10/26/24 10:36	11/13/24 21:08	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2392542	1	11/01/24 16:46	11/08/24 14:21	DDD	Mt. Juliet, TN
Radiochemistry by Method SM 7500 Ra B	WG2397492	1	11/07/24 17:24	11/16/24 13:40	SNR	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

10/16/24 09:00

10/19/24 08:00

24J1634-03 L1790824-03 DW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2388270	1	10/26/24 10:36	11/13/24 21:08	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2392542	1	11/01/24 16:46	11/08/24 14:21	DDD	Mt. Juliet, TN
Radiochemistry by Method SM 7500 Ra B	WG2397492	1	11/07/24 17:24	11/16/24 14:41	SNR	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

10/15/24 09:52

10/19/24 08:00

24J1554-01 L1790824-04 Non-Potable Water

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2394988	1	11/04/24 15:10	11/10/24 08:47	ASN	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2395235	1	11/06/24 17:20	11/11/24 17:13	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2394988	1	11/04/24 15:10	11/11/24 17:13	ASN	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

10/16/24 16:25

10/19/24 08:00

24J1543-01 L1790824-05 DW

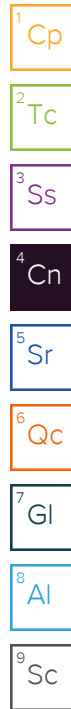
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2388270	1	10/26/24 10:36	11/13/24 21:08	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2392542	1	11/01/24 16:46	11/08/24 14:21	DDD	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Donna Eidson
Project Manager



Radiochemistry by Method 900

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	10.3		4.62	4.65	3.08	2.08	11/13/2024 21:08	WG2388270
GROSS BETA	7.30		4.16	4.19	3.10	2.47	11/13/2024 21:08	WG2388270

Radiochemistry by Method 904

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	4.16		0.307	0.516	0.480	0.251	11/08/2024 14:21	WG2392542
(T) Barium	97.3					25.0-150	11/08/2024 14:21	WG2392542
(T) Yttrium	92.4					25.0-150	11/08/2024 14:21	WG2392542

Radiochemistry by Method SM 7500 Ra B

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	2.98		0.416	0.782	0.120	0.0747	11/16/2024 13:40	WG2397492
(T) Barium	90.0					30.0-125	11/16/2024 13:40	WG2397492

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	8.34		3.57	3.60	2.35	1.61	11/13/2024 21:08	WG2388270
GROSS BETA	7.03		3.73	3.75	2.77	2.22	11/13/2024 21:08	WG2388270

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	3.44		0.304	0.513	0.494	0.258	11/08/2024 14:21	WG2392542
(T) Barium	118					25.0-150	11/08/2024 14:21	WG2392542
(T) Yttrium	90.3					25.0-150	11/08/2024 14:21	WG2392542

Radiochemistry by Method SM 7500 Ra B

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	2.64		0.410	0.759	0.126	0.0770	11/16/2024 13:40	WG2397492
(T) Barium	82.3					30.0-125	11/16/2024 13:40	WG2397492

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	76.2		10.9	11.0	3.67	2.44	11/13/2024 21:08	WG2388270
GROSS BETA	26.8		4.99	5.02	3.01	2.40	11/13/2024 21:08	WG2388270

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	4.06		0.318	0.521	0.514	0.267	11/08/2024 14:21	WG2392542
(T) Barium	96.6					25.0-150	11/08/2024 14:21	WG2392542
(T) Yttrium	99.5					25.0-150	11/08/2024 14:21	WG2392542

Radiochemistry by Method SM 7500 Ra B

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	7.50		0.624	1.47	0.112	0.0721	11/16/2024 14:41	WG2397492
(T) Barium	101					30.0-125	11/16/2024 14:41	WG2397492

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.365		0.213	0.353	0.215	0.0654	11/10/2024 08:47	WG2394988
(T) Barium	115					30.0-143	11/10/2024 08:47	WG2394988

1
Cp

2
Tc

3
Ss

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.255	U	0.521	0.984	0.956	0.501	11/11/2024 17:13	WG2395235
(T) Barium	121					30.0-143	11/11/2024 17:13	WG2395235
(T) Yttrium	104					30.0-136	11/11/2024 17:13	WG2395235

4
Cn

5
Sr

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.619	J	0.563	0.980	11/11/2024 17:13	WG2394988

6
Qc

7
Gl

8
Al

9
Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	0.159	J	1.01	1.05	0.997	0.640	11/13/2024 21:08	WG2388270
GROSS BETA	-0.816	U	2.41	2.44	2.02	1.59	11/13/2024 21:08	WG2388270

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.251	J	0.257	0.458	0.493	0.257	11/08/2024 14:21	WG2392542
(T) Barium	118					25.0-150	11/08/2024 14:21	WG2392542
(T) Yttrium	97.7					25.0-150	11/08/2024 14:21	WG2392542

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4145751-1 11/13/24 17:33

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
GROSS ALPHA	-0.0266	U	0.437	0.425	0.288
GROSS BETA	0.511	U	1.21	0.968	0.774

L1791283-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1791283-01 11/13/24 21:08 • (DUP) R4145751-5 11/13/24 17:33

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
GROSS ALPHA	0.00454	0.623	0.616	0.406	-0.301	0.666	0.700	0.470	200	0.334	U	20	2
GROSS BETA	0.514	1.23	0.992	0.783	0.881	1.27	1.01	0.795	52.6	0.208	U	20	2

Laboratory Control Sample (LCS)

(LCS) R4145751-2 11/13/24 17:33

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
GROSS ALPHA	15.0	12.6	84.1	80.0-120	
GROSS BETA	39.9	42.6	107	80.0-120	

L1789717-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1789717-01 11/13/24 17:33 • (MS) R4145751-3 11/13/24 17:33 • (MSD) R4145751-4 11/13/24 17:33

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
GROSS ALPHA	17.6	-0.806	20.3	21.8	115	124	1	70.0-130			7.08		20
GROSS BETA	46.9	1.04	48.6	51.3	101	107	1	70.0-130			5.47		20

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4147225-1 11/10/24 03:45

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0857	⌵	0.0792	0.109	0.0333
(T) Barium	105		105		

L1790823-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1790823-15 11/10/24 07:46 • (DUP) R4147225-5 11/10/24 04:46

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.0866	0.127	0.221	0.0674	0.0569	0.193	0.436	0.133	41.4	0.129	⌵	20	3
(T) Barium	98.2				107	107							

Laboratory Control Sample (LCS)

(LCS) R4147225-2 11/10/24 03:45

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.62	112	80.0-120	
(T) Barium			106		

L1790823-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1790823-01 11/10/24 04:46 • (MS) R4147225-3 11/10/24 03:45 • (MSD) R4147225-4 11/10/24 03:45

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.550	24.2	23.1	118	113	1	75.0-125			4.56		20
(T) Barium		113			109	110							

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4145690-5 11/12/24 23:00

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.129	⬇	0.172	0.163	0.0844
(T) Barium	92.0		92.0		
(T) Yttrium	104		104		

L1792020-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1792020-15 11/04/24 17:43 • (DUP) R4145690-4 11/04/24 17:43

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	-0.00563	0.328	0.631	0.329	-0.277	0.253	0.505	0.267	0.000	0.655	⬇	20	2
(T) Barium	120				129	129							
(T) Yttrium	99.2				98.3	98.3							

Laboratory Control Sample (LCS)

(LCS) R4145690-1 11/04/24 17:43

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.35	87.0	80.0-120	
(T) Barium			123		
(T) Yttrium			105		

L1789717-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1789717-01 11/04/24 17:43 • (MS) R4145690-2 11/04/24 17:43 • (MSD) R4145690-3 11/04/24 17:43

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	-0.445	13.6	14.5	81.5	86.8	1	70.0-130			6.33		20
(T) Barium		122			130	114							
(T) Yttrium		93.2			107	94.7							

Method Blank (MB)

(MB) R4145690-5 11/12/24 23:00

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	0.129	⬇	0.172	0.163	0.0844
(T) Barium	92.0		92.0		

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4145690-5 11/12/24 23:00

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
(T) Yttrium	104		104		

L1792020-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1792020-15 11/04/24 17:43 • (DUP) R4145690-4 11/04/24 17:43

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	-0.00563	0.328	0.631	0.329	-0.277	0.253	0.505	0.267	0.000	0.655	U	20	2
(T) Barium	120				129	129							
(T) Yttrium	99.2				98.3	98.3							

Laboratory Control Sample (LCS)

(LCS) R4145690-1 11/04/24 17:43

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.35	87.0	80.0-120	
(T) Barium			123		
(T) Yttrium			105		

L1789717-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1789717-01 11/04/24 17:43 • (MS) R4145690-2 11/04/24 17:43 • (MSD) R4145690-3 11/04/24 17:43

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	-0.445	13.6	14.5	81.5	86.8	1	70.0-130			6.33		20
(T) Barium		122			130	114							
(T) Yttrium		93.2			107	94.7							

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4145723-1 11/11/24 17:13

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.0721	<u>U</u>	0.142	0.266	0.140
(T) Barium	116		116		
(T) Yttrium	110		110		

L1794754-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1794754-08 11/11/24 17:13 • (DUP) R4145723-5 11/11/24 17:13

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.72	0.344	0.579	0.304	1.24	0.382	0.668	0.348	32.8	0.943		20	3
(T) Barium	135				117	117							
(T) Yttrium	103				95.4	95.4							

Laboratory Control Sample (LCS)

(LCS) R4145723-2 11/11/24 17:13

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.38	87.6	80.0-120	
(T) Barium			102		
(T) Yttrium			109		

L1790823-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1790823-01 11/11/24 17:13 • (MS) R4145723-3 11/11/24 17:13 • (MSD) R4145723-4 11/11/24 17:13

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.786	17.3	16.4	99.1	93.2	1	70.0-130			5.88		20
(T) Barium		124			117	130							
(T) Yttrium		99.7			88.6	93.8							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4147411-1 11/16/24 12:40

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0702	⬇	0.0507	0.0863	0.0629
(T) Barium	86.7		86.7		

L1790378-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1790378-01 11/18/24 14:31 • (DUP) R4147411-6 11/18/24 14:31

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	9.68	1.05	0.293	0.169	10.4	1.54	0.294	0.169	6.79	0.365		20	2
(T) Barium	88.0				85.7	85.7							

Laboratory Control Sample (LCS)

(LCS) R4147411-2 11/16/24 12:40

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.44	109	90.0-110	
(T) Barium			87.9		

L1794731-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1794731-01 11/16/24 16:41 • (MS) R4147411-3 11/16/24 12:40 • (MSD) R4147411-4 11/16/24 12:40

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.884	21.1	20.8	101	99.8	1	80.0-120			1.10		20
(T) Barium		91.1			84.0	91.8							

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

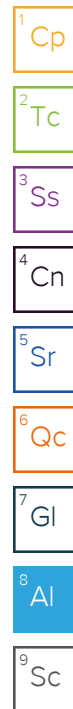
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.





SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24J1634

Page 23 of 26

A232

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order
Comments:

Laboratory ID: 24J1634-01	Matrix: Water	Client Matrix: Drinking Water - 0
Requested Test	Suggested Analytical Method *	Sampled: 10/16/2024 09:15
Gross Alpha	EPA 900.0	
Gross Beta	EPA 900.0	
Radium-228	EPA 904.0	
Radium-226	SM 7500 Ra B	

Laboratory ID: 24J1634-02	Matrix: Water	Client Matrix: Drinking Water - 0
Requested Test	Suggested Analytical Method *	Sampled: 10/16/2024 09:30
Gross Alpha	EPA 900.0	
Gross Beta	EPA 900.0	
Radium-228	EPA 904.0	
Radium-226	SM 7500 Ra B	

Laboratory ID: 24J1634-03	Matrix: Water	Client Matrix: Drinking Water - 0
Requested Test	Suggested Analytical Method *	Sampled: 10/16/2024 09:00
Gross Alpha	EPA 900.0	
Gross Beta	EPA 900.0	
Radium-228	EPA 904.0	
Radium-226	SM 7500 Ra B	

Sample Receipt Checklist

COC Seal Present/Intact:	☒ Y ☐ N	If Applicable
COC Signed/Accurate:	☒ Y ☐ N	VOA Zero Headspace: ☒ Y ☐ N
Bottles arrive intact:	☒ Y ☐ N	Pres. Correct/Check: ☒ Y ☐ N
Correct bottles used:	☒ Y ☐ N	
Sufficient volume sent:	☒ Y ☐ N	
RA Screen <0.5 mR/hr:	☒ Y ☐ N	

Released By

Date

Received By

Date

Released By

Date

Received By

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER

Chemtech-Ford, Inc

Work Order Number

24J1554

Page 24 of 26

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order
Comments:

U1790824

Laboratory ID: 24J1554-01	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 10/15/2024 09:52
Combined Radium 226+228	Calc	
Radium-226	EPA 903.0	Include COMB (RA) Calc.
Radium-228	EPA 904.0	

Released By

Date

10/17/24

Received By

Date

10/18/24

Released By

Date

10/18/24

Received By

Date

10-19-24

0800

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24J1543

Page 25 of 26

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order
Comments:

1179082

Laboratory ID: 24J1543-01	Matrix: Water	Client Matrix: Drinking Water - 0
Requested Test	Suggested Analytical Method *	Sampled: 10/16/2024 16:25
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

Released By	Date	Received By	Date
	10/17/24		10/18/24
Released By	Date	Received By	Date
	10/18/24		10/19/24

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.

Temperature

10.19.24
Date



11/6/2024

Work Order: 24J2104
Project: [none]

Deseret Power Electric Cooperative
Attn: Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O: (801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/24/24 10:45 @ 2.3 °C
Date Reported: 11/6/2024
Project Name: [none]

Sample ID: BA-UG1

Matrix: Water

Date Sampled: 10/22/24 12:40

Sampled By: Kevin Owens

Lab ID: 24J2104-01

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	1060	mg/L	100	EPA 300.0	10/28/24	10/28/24	
Fluoride	5.25	mg/L	0.100	EPA 300.0	10/28/24	10/28/24	
Sulfate	7940	mg/L	100	EPA 300.0	10/28/24	10/28/24	
Total Dissolved Solids (TDS)	17900	mg/L	500	SM 2540 C	10/24/24	10/24/24	
Metals							
Boron, Total	118	mg/L	0.25	EPA 200.7/200.2	10/30/24	10/30/24	
Calcium, Total	361	mg/L	1.0	EPA 200.7/200.2	10/30/24	10/30/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/24/24 10:45 @ 2.3 °C
Date Reported: 11/6/2024
Project Name: [none]

Sample ID: BA-DG1

Matrix: Water

Date Sampled: 10/21/24 10:00

Sampled By: Kevin Owens

Lab ID: 24J2104-02

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	618	mg/L	100	EPA 300.0	10/28/24	10/28/24	
Fluoride	3.71	mg/L	0.100	EPA 300.0	10/28/24	10/28/24	
Sulfate	4290	mg/L	100	EPA 300.0	10/28/24	10/28/24	
Total Dissolved Solids (TDS)	9900	mg/L	500	SM 2540 C	10/24/24	10/24/24	
Metals							
Boron, Total	11.9	mg/L	0.25	EPA 200.7/200.2	10/30/24	10/30/24	
Calcium, Total	185	mg/L	1.0	EPA 200.7/200.2	10/30/24	10/30/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/24/24 10:45 @ 2.3 °C
Date Reported: 11/6/2024
Project Name: [none]

Sample ID: BA-DG2

Matrix: Water

Date Sampled: 10/21/24 11:15

Sampled By: Kevin Owens

Lab ID: 24J2104-03

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	644	mg/L	100	EPA 300.0	10/28/24	10/28/24	
Fluoride	2.54	mg/L	0.100	EPA 300.0	10/28/24	10/28/24	
Sulfate	6420	mg/L	100	EPA 300.0	10/28/24	10/28/24	
Total Dissolved Solids (TDS)	12700	mg/L	500	SM 2540 C	10/24/24	10/24/24	
Metals							
Boron, Total	32.3	mg/L	0.25	EPA 200.7/200.2	10/30/24	10/30/24	
Calcium, Total	395	mg/L	1.0	EPA 200.7/200.2	10/30/24	10/30/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O: (801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/24/24 10:45 @ 2.3 °C
Date Reported: 11/6/2024
Project Name: [none]

Sample ID: BA-DG3

Matrix: Water

Date Sampled: 10/21/24 10:30

Sampled By: Kevin Owens

Lab ID: 24J2104-04

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	396	mg/L	1.00	EPA 300.0	10/28/24	10/29/24	
Fluoride	9.56	mg/L	0.100	EPA 300.0	10/28/24	10/29/24	
Sulfate	2120	mg/L	100	EPA 300.0	10/28/24	10/29/24	
Total Dissolved Solids (TDS)	5140	mg/L	20	SM 2540 C	10/24/24	10/24/24	
Metals							
Boron, Total	7.50	mg/L	0.25	EPA 200.7/200.7	10/28/24	10/29/24	
Calcium, Total	21.8	mg/L	1.0	EPA 200.7/200.7	10/28/24	10/29/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O: (801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/24/24 10:45 @ 2.3 °C
Date Reported: 11/6/2024
Project Name: [none]

Sample ID: BA-DG4

Matrix: Water

Date Sampled: 10/22/24 11:00

Sampled By: Kevin Owens

Lab ID: 24J2104-05

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Inorganic							
Chloride	525	mg/L	100	EPA 300.0	10/28/24	10/29/24	
Fluoride	2.96	mg/L	0.100	EPA 300.0	10/28/24	10/29/24	
Sulfate	4860	mg/L	100	EPA 300.0	10/28/24	10/29/24	
Total Dissolved Solids (TDS)	11600	mg/L	500	SM 2540 C	10/24/24	10/24/24	
Metals							
Antimony, Total	ND	mg/L	0.0005	EPA 200.8/200.8	10/29/24	10/29/24	
Arsenic, Total	0.0095	mg/L	0.0050	EPA 200.8/200.2	10/28/24	10/28/24	
Barium, Total	0.011	mg/L	0.010	EPA 200.7/200.2	10/30/24	10/30/24	
Beryllium, Total	ND	mg/L	0.0050	EPA 200.8/200.2	10/28/24	10/28/24	
Boron, Total	25.4	mg/L	0.10	EPA 200.7/200.2	10/30/24	10/30/24	
Cadmium, Total	ND	mg/L	0.0020	EPA 200.8/200.2	10/28/24	10/28/24	
Calcium, Total	275	mg/L	0.4	EPA 200.7/200.2	10/30/24	10/30/24	
Chromium, Total	ND	mg/L	0.0050	EPA 200.8/200.2	10/28/24	10/28/24	
Cobalt, Total	ND	mg/L	0.0050	EPA 200.8/200.2	10/28/24	10/28/24	
Lead, Total	0.0074	mg/L	0.0050	EPA 200.8/200.2	10/28/24	10/28/24	
Lithium, Total	0.087	mg/L	0.040	EPA 200.7/200.2	10/30/24	10/30/24	
Mercury, Total	ND	mg/L	0.00016	EPA 245.1	10/28/24	10/29/24	
Molybdenum, Total	0.03	mg/L	0.02	EPA 200.7/200.2	10/30/24	10/30/24	
Selenium, Total	0.0517	mg/L	0.0070	EPA 200.8/200.2	10/28/24	10/28/24	
Thallium, Total	ND	mg/L	0.0020	EPA 200.8/200.2	10/28/24	10/28/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/24/24 10:45 @ 2.3 °C
Date Reported: 11/6/2024
Project Name: [none]

Sample ID: NEP

Matrix: Water

Date Sampled: 10/22/24 14:30

Sampled By: Kevin Owens

Lab ID: 24J2104-06

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Inorganic							
Chloride	3110	mg/L	100	EPA 300.0	10/28/24	10/29/24	
Fluoride	26.7	mg/L	0.100	EPA 300.0	10/28/24	10/29/24	
Sulfate	14800	mg/L	100	EPA 300.0	10/28/24	10/29/24	
Total Dissolved Solids (TDS)	32400	mg/L	500	SM 2540 C	10/24/24	10/24/24	
Metals							
Boron, Total	142	mg/L	0.25	EPA 200.7/200.7	10/28/24	10/29/24	
Calcium, Total	619	mg/L	1.0	EPA 200.7/200.7	10/28/24	10/29/24	



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Tyler Esplin
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/24/24 10:45 @ 2.3 °C
Date Reported: 11/6/2024
Project Name: [none]

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

CHAIN OF CUSTODY - SAMPLE SUBMITTAL FORM



CHEMTECH-FORD
LABORATORIES

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

COMPANY: Deseret Power Electric Cooperative
ADDRESS: 12500 East 25500 South
CITY/STATE/ZIP: Vernal, UT 84078-8525
PHONE #: 435-781-5706
CONTACT: Tyler Esplin
EMAIL: tesplin@deseretspower.com
PROJECT: CCR Sampling 2024 Fall
PO Number: 187398
INVOICE EMAIL ADDRESS: _____

RUSH Due Date*:

QC Level

UPS NEXT DAY AIR

QC 2

TRACKING #: 1Z 849 747 01 6346 0263

QC levels definition:

QC1: none (default if blank)

QC2: Batch QC, random sample

QC3: 25% surcharge. Narrative plus Batch QC, your sample selected

QC4: 40% surcharge. Add raw data

* Expedited turnaround subject to additional charge

Sample condition	
☒ Custody Seal	☒ Correct Containers
☒ Container Intact	☒ Sufficient Sample Volume
☒ COC/Labels Agree	☒ Headspace Present (VOC)
☒ Received on Ice	☒ Temperature Blank
	☒ Received within Holding Time

Delivery Method

☒ UPS	☐ USPS
☐ FedEx	☐ Chemtech-Ford Courier
☐ Walk-in	☐ Customer Courier

Lab Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
	1. FA-UG1			W
	2. FA-UG2			W
	3. FA-DG2			W
	4. FA-DG3			W
	5. FA-DG4			W
	6. FA-DG5			W
01	7. BA-UG1	10-22-24	12:40	W
02	8. BA-DG1	10-21-24	10:00	W
03	9. BA-DG2	10-21-24	11:15	W
04	10. BA-DG3	10-21-24	10:30	W

Bottle type

Lot #

TESTS REQUESTED													
Chloride	Fluoride	Sulfate	TDS	245.1 Mercury	200.7: B, Ca	200.7: Ba, Li, Mo	Metals by 200.8:	Sb, As, Be, Cd, Cr, Co, Pb, Se, Ti	Radium 226 & 228	200.7: Mg, K, Na	Alkalinity		
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X	X	X	X	X	X	X				
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								

Sampled by: [print] <u>Kevin Owens</u>	Sampled by: [signature] <u>Kevin Owens</u>	ON ICE	NOT ON ICE	Temp (C*): <u>2.3</u>
Special Instructions:		Samples received outside the EPA recommended temperature range of 0-6 C* may be rejected.		
Relinquished by: [signature] <u>Kevin Owens</u>	Date/Time <u>10-23-24 16:00</u>	Received by: [signature] <u>Tyler Esplin</u>	Date/Time <u>10/24/24</u>	
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time	
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time	

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

CHAIN OF CUSTODY - SAMPLE SUBMITTAL FORM



CHEMTECH-FORD
LABORATORIES

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

COMPANY: Deseret Power Electric Cooperative
ADDRESS: 12500 East 25500 South
CITY/STATE/ZIP: Vernal, UT 84078-8525
PHONE #: 435-781-5706
CONTACT: Tyler Esplin
EMAIL: tesplin@deseretspower.com
PROJECT: CCR Sampling 2024 Fall
PO Number: 187398
INVOICE EMAIL ADDRESS:

RUSH Due Date*:	QC Level
	QC 2

* Expedited turnaround subject to additional charge

QC levels definition:
QC1: none (default if blank)
QC2: Batch QC, random sample
QC3: 25% surcharge. Narrative plus Batch QC, your sample selected
QC4: 40% surcharge. Add raw data

2/2

Sample condition			
☒ Custody Seal	☒ Correct Containers		
☒ Container Intact	☒ Sufficient Sample Volume		
☒ COC/Labels Agree	Headspace Present (VOC)	☒ UPS	USPS
☒ Received on Ice	Temperature Blank	FedEx	Chemtech-Ford Courier
	☒ Received within Holding Time	Walk-in	Customer Courier

Lab Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
05	11. BA-DG4	10-22-24	11:00	W
06	12. NEP	10-22-24	14:30	W
	13. Duplicate			W
	4.			
	5.			
	6.			
	7.			
	8.			
	9.			
	10.			

Bottle type

A2

Lot #

1375

m

1396

Sampled by: (print) Kevin Owens	Sampled by: (signature) Kevin Owens	ON ICE	NOT ON ICE	Temp (C°): 2.3
Special Instructions:		Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.		
Relinquished by: (signature) Kevin Owens	Date/Time 10-23-24 16:00	Received by: (signature)	Date/Time	
Relinquished by: (signature)	Date/Time	Received by: (signature) Selma Ay	Date/Time 10/24/24 1045	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time	

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

QC Report for Work Order (WO) - 24J2104

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.7

QC Sample ID: BYJ1389-BLK1	Batch: BYJ1389								
Date Prepared: 10/28/2024	Date Analyzed: 10/29/2024								
Boron, Total					ND			0.05	1.00
Calcium, Total					ND			0.2	1.00

QC Sample ID: BYJ1558-BLK1	Batch: BYJ1558								
Date Prepared: 10/30/2024	Date Analyzed: 10/30/2024								
Barium, Total					ND			0.005	1.00
Boron, Total					ND			0.05	1.00
Calcium, Total					ND			0.2	1.00
Lithium, Total					ND			0.020	1.00
Molybdenum, Total					ND			0.01	1.00

LCS - EPA 200.7

QC Sample ID: BYJ1389-BS1	Batch: BYJ1389								
Date Prepared: 10/28/2024	Date Analyzed: 10/29/2024								
Boron, Total	91.6	85 - 115		0.27		0.300		0.05	1.00
Calcium, Total	91.9	85 - 115		9.4		10.2		0.2	1.00

QC Sample ID: BYJ1558-BS1	Batch: BYJ1558								
Date Prepared: 10/30/2024	Date Analyzed: 10/30/2024								
Barium, Total	93.9	85 - 115		0.235		0.250		0.005	1.00
Boron, Total	89.9	85 - 115		0.27		0.300		0.05	1.00
Calcium, Total	101	85 - 115		10.3		10.2		0.2	1.00
Lithium, Total	66.8	85 - 115		0.134		0.200		0.020	1.00

QM-11 - The Laboratory Control Sample recovery was outside acceptance limits. The analytical batch was accepted based on the recovery of the Method Spike.

Molybdenum, Total	92.3	85 - 115		0.18		0.200		0.01	1.00
-------------------	------	----------	--	------	--	-------	--	------	------

Matrix Spike - EPA 200.7

QC Sample ID: BYJ1389-MS1	Batch: BYJ1389	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 10/28/2024	Date Analyzed: 10/29/2024								
Boron, Total	96.5	70 - 130		0.44	0.15	0.300		0.05	1.00
Calcium, Total	94.3	70 - 130		65.5	55.9	10.2		0.2	1.00

QC Sample ID: BYJ1389-MS2	Batch: BYJ1389	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 10/28/2024	Date Analyzed: 10/29/2024								
Boron, Total	96.2	70 - 130		0.80	0.52	0.300		0.05	1.00
Calcium, Total	95.5	70 - 130		50.4	40.7	10.2		0.2	1.00

QC Sample ID: BYJ1558-MS1	Batch: BYJ1558	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 10/30/2024	Date Analyzed: 10/30/2024								
Barium, Total	97.2	70 - 130		0.431	0.188	0.250		0.005	1.00
Boron, Total	96.1	70 - 130		0.48	0.19	0.300		0.05	1.00
Calcium, Total	71.7	70 - 130		213	206	10.2		0.2	1.00
Lithium, Total	95.6	70 - 130		0.191	ND	0.200		0.020	1.00
Molybdenum, Total	103	70 - 130		0.21	ND	0.200		0.01	1.00

QC Sample ID: BYJ1558-MS2	Batch: BYJ1558	QC Source Sample: XXXXXXXX-XX							
Date Prepared: 10/30/2024	Date Analyzed: 10/30/2024								
Barium, Total	132	70 - 130		0.397	0.066	0.250		0.005	1.00

QM-RPD - The recovery was outside acceptance limits for the MS and/or MSD. The RPD between the MS and MSD was acceptable and indicates the recovery is due to matrix interference. The batch was accepted based on the acceptable recovery of the LCS and the RPD.

Boron, Total	116	70 - 130		0.42	0.07	0.300		0.05	1.00
Calcium, Total	137	70 - 130		71.2	57.2	10.2		0.2	1.00

QC Report for Work Order (WO) - 24J2104

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Matrix Spike - EPA 200.7 (cont.)

QC Sample ID: BYJ1558-MS2	Batch: BYJ1558	QC Source Sample: XXXXXXXX-XX
Date Prepared: 10/30/2024	Date Analyzed: 10/30/2024	

QM-RPD - The recovery was outside acceptance limits for the MS and/or MSD. The RPD between the MS and MSD was acceptable and indicates the recovery is due to matrix interference. The batch was accepted based on the acceptable recovery of the LCS and the RPD.

Lithium, Total	86.4		70 - 130		0.186	0.013	0.200	0.020	1.00
Molybdenum, Total	111		70 - 130		0.22	ND	0.200	0.01	1.00

Matrix Spike Dup - EPA 200.7

QC Sample ID: BYJ1389-MSD1	Batch: BYJ1389	QC Source Sample: XXXXXXXX-XX
Date Prepared: 10/28/2024	Date Analyzed: 10/29/2024	

Boron, Total	92.2	2.97	70 - 130	20	0.43	0.15	0.300	0.05	1.00
Calcium, Total	75.3	3.00	70 - 130	20	63.5	55.9	10.2	0.2	1.00

QC Sample ID: BYJ1389-MSD2	Batch: BYJ1389	QC Source Sample: XXXXXXXX-XX
Date Prepared: 10/28/2024	Date Analyzed: 10/29/2024	

Boron, Total	98.3	0.792	70 - 130	20	0.81	0.52	0.300	0.05	1.00
Calcium, Total	96.8	0.255	70 - 130	20	50.6	40.7	10.2	0.2	1.00

QC Sample ID: BYJ1558-MSD1	Batch: BYJ1558	QC Source Sample: XXXXXXXX-XX
Date Prepared: 10/30/2024	Date Analyzed: 10/30/2024	

Barium, Total	122	13.6	70 - 130	20	0.494	0.188	0.250	0.005	1.00
Boron, Total	116	11.6	70 - 130	20	0.54	0.19	0.300	0.05	1.00
Calcium, Total	96.3	1.17	70 - 130	20	215	206	10.2	0.2	1.00
Lithium, Total	65.2	37.9	70 - 130	20	0.130	ND	0.200	0.020	1.00

QM-12 - The MSD recovery was outside acceptance limits, but passed duplicate spike acceptance criteria. The batch was accepted based on the acceptability of the MS.

Molybdenum, Total	89.2	14.8	70 - 130	20	0.18	ND	0.200	0.01	1.00
-------------------	------	------	----------	----	------	----	-------	------	------

QC Sample ID: BYJ1558-MSD2	Batch: BYJ1558	QC Source Sample: XXXXXXXX-XX
Date Prepared: 10/30/2024	Date Analyzed: 10/30/2024	

Barium, Total	138	3.71	70 - 130	20	0.412	0.066	0.250	0.005	1.00
---------------	-----	------	----------	----	-------	-------	-------	-------	------

QM-RPD - The recovery was outside acceptance limits for the MS and/or MSD. The RPD between the MS and MSD was acceptable and indicates the recovery is due to matrix interference. The batch was accepted based on the acceptable recovery of the LCS and the RPD.

Boron, Total	127	7.39	70 - 130	20	0.45	0.07	0.300	0.05	1.00
Calcium, Total	138	0.114	70 - 130	20	71.3	57.2	10.2	0.2	1.00

QM-RPD - The recovery was outside acceptance limits for the MS and/or MSD. The RPD between the MS and MSD was acceptable and indicates the recovery is due to matrix interference. The batch was accepted based on the acceptable recovery of the LCS and the RPD.

Lithium, Total	58.6	35.2	70 - 130	20	0.131	0.013	0.200	0.020	1.00
----------------	------	------	----------	----	-------	-------	-------	-------	------

QM-12 - The MSD recovery was outside acceptance limits, but passed duplicate spike acceptance criteria. The batch was accepted based on the acceptability of the MS.

Molybdenum, Total	107	3.03	70 - 130	20	0.21	ND	0.200	0.01	1.00
-------------------	-----	------	----------	----	------	----	-------	------	------

QC Report for Work Order (WO) - 24J2104

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 200.8

QC Sample ID: BYJ1379-BLK1		Batch: BYJ1379							
Date Prepared: 10/28/2024		Date Analyzed: 10/28/2024							
Arsenic, Total					ND			0.0005	1.00
Beryllium, Total					ND			0.0005	1.00
Cadmium, Total					ND			0.0002	1.00
Chromium, Total					ND			0.0005	1.00
Cobalt, Total					ND			0.0005	1.00
Lead, Total					ND			0.0005	1.00
Selenium, Total					ND			0.0007	1.00
Thallium, Total					ND			0.0002	1.00

QC Sample ID: BYJ1452-BLK1		Batch: BYJ1452							
Date Prepared: 10/29/2024		Date Analyzed: 10/29/2024							
Antimony, Total					ND			0.0005	1.00

LCS - EPA 200.8

QC Sample ID: BYJ1379-BS1		Batch: BYJ1379							
Date Prepared: 10/28/2024		Date Analyzed: 10/28/2024							
Arsenic, Total		95.6	85 - 115		0.038	0.0400	0.0005	1.00	
Beryllium, Total		94.1	85 - 115		0.038	0.0400	0.0005	1.00	
Cadmium, Total		95.9	85 - 115		0.038	0.0400	0.0002	1.00	
Chromium, Total		108	85 - 115		0.043	0.0400	0.0005	1.00	
Cobalt, Total		110	85 - 115		0.044	0.0400	0.0005	1.00	
Lead, Total		101	85 - 115		0.040	0.0400	0.0005	1.00	
Selenium, Total		93.8	85 - 115		0.038	0.0400	0.0007	1.00	
Thallium, Total		101	85 - 115		0.040	0.0400	0.0002	1.00	

QC Sample ID: BYJ1452-BS1		Batch: BYJ1452							
Date Prepared: 10/29/2024		Date Analyzed: 10/29/2024							
Antimony, Total		94.0	85 - 115		0.038	0.0400	0.0005	1.00	

Matrix Spike - EPA 200.8

QC Sample ID: BYJ1379-MS1	Batch: BYJ1379	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/28/2024	Date Analyzed: 10/28/2024							
Arsenic, Total	86.7	70 - 130	0.232	0.197	0.0400	0.0005	1.00	
Beryllium, Total	95.8	70 - 130	0.039	0.0002	0.0400	0.0005	1.00	
Cadmium, Total	93.4	70 - 130	0.038	0.0002	0.0400	0.0002	1.00	
Chromium, Total	84.6	70 - 130	0.036	0.002	0.0400	0.0005	1.00	
Cobalt, Total	85.4	70 - 130	0.035	0.0004	0.0400	0.0005	1.00	
Lead, Total	91.6	70 - 130	0.040	0.003	0.0400	0.0005	1.00	
Selenium, Total	103	70 - 130	0.042	0.001	0.0400	0.0007	1.00	
Thallium, Total	91.1	70 - 130	0.037	0.0002	0.0400	0.0002	1.00	

QC Sample ID: BYJ1379-MS2	Batch: BYJ1379	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/28/2024	Date Analyzed: 10/28/2024							
Arsenic, Total	104	70 - 130	0.043	0.001	0.0400	0.0005	1.00	
Beryllium, Total	98.7	70 - 130	0.039	ND	0.0400	0.0005	1.00	
Cadmium, Total	92.2	70 - 130	0.037	ND	0.0400	0.0002	1.00	
Chromium, Total	97.4	70 - 130	0.042	0.003	0.0400	0.0005	1.00	
Cobalt, Total	98.2	70 - 130	0.040	0.0004	0.0400	0.0005	1.00	
Lead, Total	91.7	70 - 130	0.037	ND	0.0400	0.0005	1.00	
Selenium, Total	103	70 - 130	0.042	0.0009	0.0400	0.0007	1.00	
Thallium, Total	93.9	70 - 130	0.038	ND	0.0400	0.0002	1.00	

QC Sample ID: BYJ1452-MS1	Batch: BYJ1452	QC Source Sample: XXXXXXXX-XX
Date Prepared: 10/29/2024	Date Analyzed: 10/29/2024	

CtF WO#: 24J2104

www.ChemtechFord.com

QC Report for Work Order (WO) - 24J2104

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Matrix Spike - EPA 200.8 (cont.)

QC Sample ID: BYJ1452-MS1	Batch: BYJ1452	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/29/2024	Date Analyzed: 10/29/2024							
Antimony, Total	99.8	70 - 130	0.040	0.0004	0.0400	0.0005	1.00	
QC Sample ID: BYJ1452-MS2	Batch: BYJ1452	QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/29/2024	Date Analyzed: 10/29/2024							
Antimony, Total	97.8	70 - 130	0.039	0.0002	0.0400	0.0005	1.00	

QC Report for Work Order (WO) - 24J2104

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

Blank - EPA 245.1

QC Sample ID: BYJ1410-BLK1

Batch: BYJ1410

Date Prepared: 10/28/2024

Date Analyzed: 10/29/2024

Mercury, Total

ND

0.00016 1.00

LCS - EPA 245.1

QC Sample ID: BYJ1410-BS1

Batch: BYJ1410

Date Prepared: 10/28/2024

Date Analyzed: 10/29/2024

Mercury, Total

93.7

85 - 115

0.00937

0.0100

0.00016 1.00

Matrix Spike - EPA 245.1

QC Sample ID: BYJ1410-MS1

Batch: BYJ1410

QC Source Sample: XXXXXXXX-XX

Date Prepared: 10/28/2024

Date Analyzed: 10/29/2024

Mercury, Total

91.1

75 - 125

0.0140

0.00944

0.00500

0.00016 1.00

Matrix Spike Dup - EPA 245.1

QC Sample ID: BYJ1410-MSD1

Batch: BYJ1410

QC Source Sample: XXXXXXXX-XX

Date Prepared: 10/28/2024

Date Analyzed: 10/29/2024

Mercury, Total

89.2

0.697

75 - 125

20

0.0139

0.00944

0.00500

0.00016 1.00

QC Report for Work Order (WO) - 24J2104

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
---------	-------	-----	--------	---------	--------	-------------	-----------	-----	----

Blank - EPA 300.0

QC Sample ID: BYJ1413-BLK1		Batch: BYJ1413							
Date Prepared: 10/28/2024		Date Analyzed: 10/28/2024							
Chloride					ND			1.00	1.00
Fluoride					ND			0.100	1.00
Sulfate					ND			1.00	1.00

LCS - EPA 300.0

QC Sample ID: BYJ1413-BS1		Batch: BYJ1413							
Date Prepared: 10/28/2024		Date Analyzed: 10/28/2024							
Chloride	100		90 - 110		200		200	1.00	1.00
Fluoride	101		90 - 110		20.1		20.0	0.100	1.00
Sulfate	92.6		90 - 110		185		200	1.00	1.00

Matrix Spike - EPA 300.0

QC Sample ID: BYJ1413-MS1		Batch: BYJ1413		QC Source Sample: XXXXXXXX-XX				
Date Prepared: 10/28/2024		Date Analyzed: 10/28/2024						
Chloride	97.2	80 - 120	458	263	200	110	10.00	
Fluoride	-350	80 - 120	9.09	79.0	20.0	11.0	10.00	
QM-RPD - The recovery was outside acceptance limits for the MS and/or MSD. The RPD between the MS and MSD was acceptable and indicates the recovery is due to matrix interference. The batch was accepted based on the acceptable recovery of the LCS and the RPD.								
Sulfate	86.5	80 - 120	249	76.6	200	110	10.00	

QC Sample ID: BYJ1413-MS2		Batch: BYJ1413		QC Source Sample: XXXXXXXX-XX				
Date Prepared: 10/28/2024		Date Analyzed: 10/28/2024						
Chloride	85.8	80 - 120	547	376	200	110	10.00	
Fluoride	-256	80 - 120	12.0	63.2	20.0	11.0	10.00	
QM-RPD - The recovery was outside acceptance limits for the MS and/or MSD. The RPD between the MS and MSD was acceptable and indicates the recovery is due to matrix interference. The batch was accepted based on the acceptable recovery of the LCS and the RPD.								
Sulfate	113	80 - 120	227	ND	200	110	10.00	

Matrix Spike Dup - EPA 300.0

QC Sample ID: BYJ1413-MSD1	Batch: BYJ1413		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/28/2024	Date Analyzed: 10/28/2024								
Chloride	92.7	2.00	80 - 120	20	449	263	200	110	10.00
Fluoride	-348	3.96	80 - 120	20	9.46	79.0	20.0	11.0	10.00
QM-RPD - The recovery was outside acceptance limits for the MS and/or MSD. The RPD between the MS and MSD was acceptable and indicates the recovery is due to matrix interference. The batch was accepted based on the acceptable recovery of the LCS and the RPD.									
Sulfate	82.4	3.27	80 - 120	20	241	76.6	200	110	10.00

QC Sample ID: BYJ1413-MSD2		Batch: BYJ1413		QC Source Sample: XXXXXXXX-XX					
Date Prepared: 10/28/2024		Date Analyzed: 10/28/2024							
Chloride	95.7	3.55	80 - 120	20	567	376	200	110	10.00
Fluoride	-256	0.744	80 - 120	20	11.9	63.2	20.0	11.0	10.00
QM-RPD - The recovery was outside acceptance limits for the MS and/or MSD. The RPD between the MS and MSD was acceptable and indicates the recovery is due to matrix interference. The batch was accepted based on the acceptable recovery of the LCS and the RPD.									
Sulfate	115	1.16	80 - 120	20	229	ND	200	110	10.00

QC Report for Work Order (WO) - 24J2104

Analyte	% Rec	RPD	Limits	RPD Max	Result	Source Conc	Spk Value	MRL	DF
Blank - SM 2540 C									
QC Sample ID: BYJ1259-BLK1	Batch: BYJ1259								
Date Prepared: 10/24/2024	Date Analyzed: 10/24/2024								
Total Dissolved Solids (TDS)					ND			10	1.00
Duplicate - SM 2540 C									
QC Sample ID: BYJ1259-DUP1	Batch: BYJ1259		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/24/2024	Date Analyzed: 10/24/2024								
Total Dissolved Solids (TDS)	0.6			10	7520	7470		20	1.00
QC Sample ID: BYJ1259-DUP2	Batch: BYJ1259		QC Source Sample: XXXXXXXX-XX						
Date Prepared: 10/24/2024	Date Analyzed: 10/24/2024								
Total Dissolved Solids (TDS)	0			10	16800	16800		500	1.00
LCS - SM 2540 C									
QC Sample ID: BYJ1259-BS1	Batch: BYJ1259								
Date Prepared: 10/24/2024	Date Analyzed: 10/24/2024								
Total Dissolved Solids (TDS)	106		90 - 110		424		400	20	1.00



11/27/2024

Work Order: 24J2118
Project: CCR Sampling 2024 Fall

Deseret Power Electric Cooperative

Attn: Trenton Keller

12500 East 25500 South

Vernal, UT 84078-8525

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.



Approved By:

Andrew Royer, Project Manager



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/24/24 10:45 @ 2.3 °C
Date Reported: 11/27/2024
Project Name: CCR Sampling 2024 Fall

Sample ID: BA-DG4

Matrix: Water

Date Sampled: 10/22/24 11:00

Sampled By: Kevin Owens

Lab ID: 24J2118-01

	<u>Result</u>	<u>Units</u>	<u>Minimum Reporting Limit</u>	<u>Method</u>	<u>Preparation Date/Time</u>	<u>Analysis Date/Time</u>	<u>Flag(s)</u>
Calculations							
Combined Radium 226+228	0.39	pCi/L	0.70	Calc	11/4/24	11/20/24	SL-62
Radiochemistry							
Radium-226	0.08	pCi/L	0.21	EPA 903.0	11/4/24	11/10/24	SL-62
Radium-228	0.31	pCi/L	0.66	EPA 904.0	11/13/24	11/20/24	SL-62



Chemtech-Ford Laboratories

Serving the Intermountain West Since 1953

9632 South 500 West
Sandy, UT 84070
O:(801) 262-7299 F: (866) 792-0093
www.ChemtechFord.com



Certificate of Analysis

Deseret Power Electric Cooperative
Trenton Keller
12500 East 25500 South
Vernal, UT 84078-8525

PO#: 187398
Receipt: 10/24/24 10:45 @ 2.3 °C
Date Reported: 11/27/2024
Project Name: CCR Sampling 2024 Fall

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).

1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.

1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.

1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

On calculated parameters, there may be a slight difference between summing the rounded values shown on the report vs the unrounded values used in the calculation.

Flag Descriptions

SL-62 = Analysis performed by Pace Analytical National, Mount Juliet, TN 37122

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

TESTS REQUESTED

Page 4 of 32

QC Report for Work Order (WO) -

Analyte

% Rec

RPD

Limits

RPD Max

Result

Source Conc

Spk Value

MRL

DF

QC Sample ID:

Batch:

Date Prepared:

Date Analyzed:



ANALYTICAL REPORT

November 27, 2024

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Chemtech-Ford Laboratories

Sample Delivery Group: L1792955
Samples Received: 10/26/2024
Project Number:
Description:

Report To: Mark Broadhead
9632 S 500 S
Sandy, UT 84070

Entire Report Reviewed By:

Donna Eidson
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
24J1987-01 L1792955-01	5	
24J1999-01 L1792955-02	6	⁴ Cn
24J2120-01 L1792955-03	7	⁵ Sr
24J2120-02 L1792955-04	8	
24J2118-01 L1792955-05	9	⁶ Qc
24J2187-01 L1792955-06	10	⁷ Gl
24J2191-01 L1792955-07	11	
Qc: Quality Control Summary	12	⁸ Al
Radiochemistry by Method 900	12	
Radiochemistry by Method 903.0/9315	13	⁹ Sc
Radiochemistry by Method 904	14	
Radiochemistry by Method 904/9320	16	
Radiochemistry by Method SM 7500 Ra B	17	
Gl: Glossary of Terms	18	
Al: Accreditations & Locations	19	
Sc: Sample Chain of Custody	20	

SAMPLE SUMMARY

24J1987-01 L1792955-01 DW

				Collected by	Collected date/time	Received date/time
					10/23/24 11:00	10/26/24 08:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2391886	1	11/05/24 14:37	11/07/24 18:15	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2397040	1	11/12/24 20:34	11/18/24 14:27	DDD	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

24J1999-01 L1792955-02 DW

				Collected by	Collected date/time	Received date/time
					10/23/24 10:25	10/26/24 08:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2391886	1	11/05/24 14:37	11/07/24 18:15	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2397040	1	11/12/24 20:34	11/18/24 14:27	DDD	Mt. Juliet, TN

⁴ Cn

⁵ Sr

⁶ Qc

24J2120-01 L1792955-03 DW

				Collected by	Collected date/time	Received date/time
					10/23/24 10:45	10/26/24 08:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2391886	1	11/05/24 14:37	11/07/24 18:15	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2397040	1	11/12/24 20:50	11/18/24 14:27	DDD	Mt. Juliet, TN

⁷ Gl

⁸ Al

⁹ Sc

24J2120-02 L1792955-04 DW

				Collected by	Collected date/time	Received date/time
					10/23/24 11:20	10/26/24 08:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2391886	1	11/05/24 14:37	11/08/24 19:10	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2397040	1	11/12/24 20:34	11/18/24 14:27	DDD	Mt. Juliet, TN

24J2118-01 L1792955-05 Non-Potable Water

				Collected by	Collected date/time	Received date/time
					10/22/24 11:00	10/26/24 08:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 903.0/9315	WG2394988	1	11/04/24 15:10	11/10/24 09:47	ASN	Mt. Juliet, TN
Radiochemistry by Method 904/9320	WG2397991	1	11/13/24 15:57	11/20/24 16:35	DDD	Mt. Juliet, TN
Radiochemistry by Method Calculation	WG2394988	1	11/04/24 15:10	11/20/24 16:35	DDD	Mt. Juliet, TN

24J2187-01 L1792955-06 DW

				Collected by	Collected date/time	Received date/time
					10/24/24 10:03	10/26/24 08:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 900	WG2391886	1	11/05/24 14:37	11/10/24 18:48	ALG	Mt. Juliet, TN
Radiochemistry by Method 904	WG2397040	1	11/12/24 20:34	11/18/24 14:27	DDD	Mt. Juliet, TN

24J2191-01 L1792955-07 DW

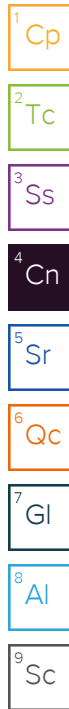
				Collected by	Collected date/time	Received date/time
					10/24/24 10:00	10/26/24 08:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG2397040	1	11/12/24 20:34	11/18/24 14:27	DDD	Mt. Juliet, TN
Radiochemistry by Method SM 7500 Ra B	WG2397492	1	11/07/24 17:24	11/16/24 15:41	SNR	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Donna Eidson
Project Manager



Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	2.65		2.30	2.32	1.82	1.23	11/07/2024 18:15	WG2391886
GROSS BETA	0.507	J	1.57	1.58	1.25	0.989	11/07/2024 18:15	WG2391886

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.177	J	0.177	0.375	0.333	0.177	11/18/2024 14:27	WG2397040
(T) Barium	112					25.0-150	11/18/2024 14:27	WG2397040
(T) Yttrium	103					25.0-150	11/18/2024 14:27	WG2397040

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	1.38	J	2.03	2.05	1.74	1.18	11/07/2024 18:15	WG2391886
GROSS BETA	1.73		1.49	1.51	1.15	0.910	11/07/2024 18:15	WG2391886

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.503		0.192	0.390	0.348	0.184	11/18/2024 14:27	WG2397040
(T) Barium	119					25.0-150	11/18/2024 14:27	WG2397040
(T) Yttrium	108					25.0-150	11/18/2024 14:27	WG2397040

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	5.81		2.79	2.81	1.95	1.38	11/07/2024 18:15	WG2391886
GROSS BETA	2.18		1.54	1.55	1.15	0.910	11/07/2024 18:15	WG2391886

Radiochemistry by Method 904

	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
Analyte	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	1.14		0.211	0.414	0.358	0.190	11/18/2024 14:27	WG2397040
(T) Barium	117					25.0-150	11/18/2024 14:27	WG2397040
(T) Yttrium	95.4					25.0-150	11/18/2024 14:27	WG2397040

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Radiochemistry by Method 900

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
GROSS ALPHA	6.38		2.50	2.52	1.57	1.05	11/08/2024 19:10	WG2391886
GROSS BETA	3.26		1.93	1.95	1.45	1.17	11/08/2024 19:10	WG2391886

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.114	U	0.281	0.488	0.527	0.275	11/18/2024 14:27	WG2397040
(T) Barium	111					25.0-150	11/18/2024 14:27	WG2397040
(T) Yttrium	91.9					25.0-150	11/18/2024 14:27	WG2397040

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Radiochemistry by Method 903.0/9315

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
Radium-226	0.0839	U	0.122	0.262	0.214	0.0652	11/10/2024 09:47	WG2394988
(T) Barium	113					30.0-143	11/10/2024 09:47	WG2394988

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Radiochemistry by Method 904/9320

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	0.311	J	0.386	0.677	0.664	0.347	11/20/2024 16:35	WG2397991
(T) Barium	119					30.0-143	11/20/2024 16:35	WG2397991
(T) Yttrium	91.1					30.0-136	11/20/2024 16:35	WG2397991

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.394	J	0.405	0.698	11/20/2024 16:35	WG2394988

Radiochemistry by Method 900

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
GROSS ALPHA	-0.829	U	3.09	3.11	2.89	2.08	11/10/2024 18:48	WG2391886
GROSS BETA	1.29	J	2.06	2.08	1.62	1.28	11/10/2024 18:48	WG2391886

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	2 sigma CE + / -	TPU + / -	MDA pCi/l	Lc pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.299	J	0.206	0.406	0.383	0.202	11/18/2024 14:27	WG2397040
(T) Barium	116					25.0-150	11/18/2024 14:27	WG2397040
(T) Yttrium	97.9					25.0-150	11/18/2024 14:27	WG2397040

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Radiochemistry by Method 904

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-228	3.45		0.291	0.494	0.445	0.233	11/18/2024 14:27	WG2397040
(T) Barium	114					25.0-150	11/18/2024 14:27	WG2397040
(T) Yttrium	94.8					25.0-150	11/18/2024 14:27	WG2397040

Radiochemistry by Method SM 7500 Ra B

Analyte	Result	Qualifier	2 sigma CE	TPU	MDA	Lc	Analysis Date	Batch
	pCi/l		+ / -	+ / -	pCi/l	pCi/l	date / time	
RADIUM-226	1.54		0.298	0.486	0.118	0.0743	11/16/2024 15:41	WG2397492
(T) Barium	91.6					30.0-125	11/16/2024 15:41	WG2397492

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4144684-1 11/07/24 18:15

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
GROSS ALPHA	0.223	U	0.485	0.431	0.293
GROSS BETA	0.242	U	1.23	0.986	0.789

L1790378-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1790378-02 11/07/24 18:15 • (DUP) R4144684-3 11/07/24 18:15

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
GROSS ALPHA	49.1	4.11	0.895	0.601	56.2	4.39	0.870	0.577	13.4	1.17		20	2
GROSS BETA	44.8	2.66	1.12	0.897	44.6	2.52	0.851	0.672	0.492	0.0600		20	2

Laboratory Control Sample (LCS)

(LCS) R4144684-2 11/07/24 18:15

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
GROSS ALPHA	15.0	13.1	87.1	80.0-120	
GROSS BETA	39.9	44.0	110	80.0-120	

L1794454-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1794454-01 11/08/24 16:42 • (MS) R4144684-6 11/09/24 01:26 • (MSD) R4144684-7 11/09/24 01:26

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
GROSS ALPHA	17.6	0.0798	19.6	18.4	111	104	1	70.0-130			6.05		20
GROSS BETA	46.9	0.370	47.8	51.9	101	110	1	70.0-130			8.10		20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4147225-1 11/10/24 03:45

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0857		0.0792	0.109	0.0333
(T) Barium	105		105		

L1790823-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1790823-15 11/10/24 07:46 • (DUP) R4147225-5 11/10/24 04:46

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	0.0866	0.127	0.221	0.0674	0.0569	0.193	0.436	0.133	41.4	0.129		20	3
(T) Barium	98.2				107	107							

Laboratory Control Sample (LCS)

(LCS) R4147225-2 11/10/24 03:45

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.62	112	80.0-120	
(T) Barium			106		

L1790823-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1790823-01 11/10/24 04:46 • (MS) R4147225-3 11/10/24 03:45 • (MSD) R4147225-4 11/10/24 03:45

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.550	24.2	23.1	118	113	1	75.0-125			4.56		20
(T) Barium		113			109	110							

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R4149268-5 11/20/24 21:50

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.328	<u>U</u>	0.183	0.181	0.0937
(T) Barium	109		109		
(T) Yttrium	90.8		90.8		

L1793920-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1793920-01 11/18/24 14:27 • (DUP) R4149268-4 11/18/24 14:27

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.14	0.298	0.526	0.278	0.348	0.344	0.638	0.333	106	1.73	<u>J</u>	20	2
(T) Barium	121				117	117							
(T) Yttrium	96.6				104	104							

Laboratory Control Sample (LCS)

(LCS) R4149268-1 11/18/24 14:27

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.33	86.5	80.0-120	
(T) Barium			111		
(T) Yttrium			91.9		

L1792020-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1792020-16 11/18/24 14:27 • (MS) R4149268-2 11/18/24 14:27 • (MSD) R4149268-3 11/18/24 14:27

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.658	15.5	17.5	89.1	101	1	70.0-130			12.0		20
(T) Barium		112			114	107							
(T) Yttrium		104			84.2	86.3							

Method Blank (MB)

(MB) R4149268-5 11/20/24 21:50

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.328	<u>U</u>	0.183	0.181	0.0937
(T) Barium	109		109		

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4149268-5 11/20/24 21:50

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
(T) Yttrium	90.8		90.8		

L1793920-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1793920-01 11/18/24 14:27 • (DUP) R4149268-4 11/18/24 14:27

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	1.14	0.298	0.526	0.278	0.348	0.344	0.638	0.333	106	1.73	J	20	2
(T) Barium	121				117	117							
(T) Yttrium	96.6				104	104							

Laboratory Control Sample (LCS)

(LCS) R4149268-1 11/18/24 14:27

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.33	86.5	80.0-120	
(T) Barium			111		
(T) Yttrium			91.9		

L1792020-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1792020-16 11/18/24 14:27 • (MS) R4149268-2 11/18/24 14:27 • (MSD) R4149268-3 11/18/24 14:27

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	16.7	0.658	15.5	17.5	89.1	101	1	70.0-130			12.0		20
(T) Barium		112			114	107							
(T) Yttrium		104			84.2	86.3							

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R4149278-1 11/20/24 16:35

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-228	-0.213	<u>U</u>	0.245	0.438	0.230
(T) Barium	78.2		78.2		
(T) Yttrium	76.8		76.8		

L1793620-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1793620-01 11/20/24 16:35 • (DUP) R4149278-5 11/20/24 16:35

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	0.0529	0.255	0.413	0.219	0.0780	0.368	0.638	0.333	38.2	0.0559	<u>U</u>	20	3
(T) Barium	96.6				107	107							
(T) Yttrium	88.8				108	108							

Laboratory Control Sample (LCS)

(LCS) R4149278-2 11/20/24 16:35

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.18	104	80.0-120	
(T) Barium			89.9		
(T) Yttrium			86.0		

L1792986-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1792986-03 11/20/24 16:35 • (MS) R4149278-3 11/20/24 16:35 • (MSD) R4149278-4 11/20/24 16:35

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	10.0	0.372	10.5	8.78	102	84.1	1	70.0-130			18.1		20
(T) Barium		89.8			95.1	96.6							
(T) Yttrium		75.6			86.1	85.1							

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R4147411-1 11/16/24 12:40

Analyte	MB Result pCi/l	MB Qualifier	MB 2 sigma CE + / -	MB MDA pCi/l	MB Lc pCi/l
Radium-226	0.0702	⬇	0.0507	0.0863	0.0629
(T) Barium	86.7		86.7		

L1790378-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1790378-01 11/18/24 14:31 • (DUP) R4147411-6 11/18/24 14:31

Analyte	Original Result pCi/l	Original 2 sigma CE + / -	Original MDA pCi/l	Original Lc pCi/l	DUP Result pCi/l	DUP 2 sigma CE + / -	DUP MDA pCi/l	DUP Lc pCi/l	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-226	9.68	1.05	0.293	0.169	10.4	1.54	0.294	0.169	6.79	0.365		20	2
(T) Barium	88.0				85.7	85.7							

Laboratory Control Sample (LCS)

(LCS) R4147411-2 11/16/24 12:40

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.00	5.44	109	90.0-110	
(T) Barium			87.9		

L1794731-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1794731-01 11/16/24 16:41 • (MS) R4147411-3 11/16/24 12:40 • (MSD) R4147411-4 11/16/24 12:40

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.0	0.884	21.1	20.8	101	99.8	1	80.0-120			1.10		20
(T) Barium		91.1			84.0	91.8							

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

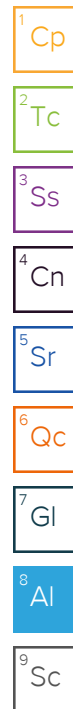
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.





SUBCONTRACT ORDER
Chemtech-Ford, Inc

B146

Work Order Number
24J1987

Page 25 of 32

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order
Comments:

LT92955

Laboratory ID: 24J1987-01	Matrix: Water	Client Matrix: Drinking Water -01
Requested Test	Suggested Analytical Method *	Sampled: 10/23/2024 11:00
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW).
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ N
COC Signed/Accurate: ☒ Y ☐ N
Bottle arrive intact: ☒ Y ☐ N
Correct bottles used: ☒ Y ☐ N
Sufficient volume sent: ☒ Y ☐ N
RA Screen <0.5 mR/hr: ☒ Y ☐ N
If Applicable
VOA Zero Headspace: ☒ Y ☐ N
Pres. Correct/Check: ☒ Y ☐ N

Released By Denise Brun Date 10/23/24

Received By Dr K Date 10/25/24

Released By Dr K Date 10/25/24

Received By CRIBERD Date 10-24-24 0800

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24J1999

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order If Gross Alpha is >5 run Radium -226
Comments:

61792955

Laboratory ID: 24J1999-01	Matrix: Water	Client Matrix: Drinking Water -02
Requested Test	Suggested Analytical Method *	Sampled: 10/23/2024 10:25
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

<i>Alvina Lee</i>	10/23/24	<i>SK</i>	8:48	10/25/24
Released By	Date	Received By		Date
<i>SK</i>	10/25/24	<i>CR</i>	10:26:24	0800
Released By	Date	Received By		Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24J2120

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order
Comments:

L1792955

Laboratory ID: 24J2120-01	Matrix: Water	Client Matrix: Drinking Water-03
Requested Test	Suggested Analytical Method *	Sampled: 10/23/2024 10:45
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

Laboratory ID: 24J2120-02	Matrix: Water	Client Matrix: Drinking Water-04
Requested Test	Suggested Analytical Method *	Sampled: 10/23/2024 11:20
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

Released By

Date

Received By

Date

Released By

Date

Received By

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER

Chemtech-Ford, Inc

Work Order Number

24J2118

Page 28 of 32

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

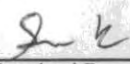
Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order

Comments:

11792955

Laboratory ID: 24J2118-01	Matrix: Water	Client Matrix: Water
Requested Test	Suggested Analytical Method *	Sampled: 10/22/2024 11:00
Combined Radium 226+228	Calc	
Radium-226	EPA 903.0	Include COMB (RA) Calc.
Radium-228	EPA 904.0	

	10/24/24		8:48	10/25/24
Released By	Date	Received By	Date	Date
	10/25/24		10/24/24	0800
Released By	Date	Received By	Date	Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24J2187

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

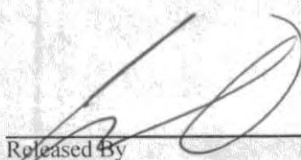
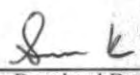
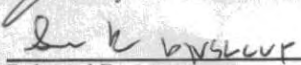
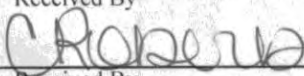
RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order
Comments:

L792955

Laboratory ID: 24J2187-01	Matrix: Water	Client Matrix: Water -OL
Requested Test	Suggested Analytical Method *	Sampled: 10/24/2024 10:03
Gross Alpha	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Gross Beta	EPA 900.0	If Gross Alpha > 5, run Ra-226 (DW)
Radium-228	EPA 904.0	If Gross Alpha > 5, run Ra-226 (DW)

Released By	Date	Received By	Date
	10/24/24		10/25/24
Released By	Date	Received By	Date
	10/25/24		10/26/24

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24J2191

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

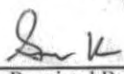
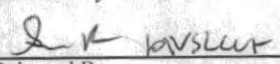
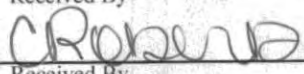
RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

Work Order
Comments:

U792955

Laboratory ID: 24J2191-01	Matrix: Water	Client Matrix: Drinking Water -07
Requested Test	Suggested Analytical Method *	Sampled: 10/24/2024 10:00
Radium-228	EPA 904.0	
Radium-226	SM 7500 Ra B *	

	10/24/24		8:48	10/25/24
Released By	Date	Received By		Date
	10/25/24		10:26:24	0800
Released By	Date	Received By		Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.



SUBCONTRACT ORDER
Chemtech-Ford, Inc

Work Order Number
24J1927

SENDING LABORATORY:

Chemtech-Ford, Inc
9632 South 500 West
Sandy, UT 84070
Phone: 801.262.7299
Fax: 866.792.0093

RECEIVING LABORATORY:

Pace Analytical Services
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: (612) 607-6356
Fax: -

1792955

210/24/24

Work Order Comments: They probably want Total Metals by 6020. If for Rocky Mountain Power, use Bill to Pacificorp project.

Laboratory ID: 24J1927-01 Requested Test Radium-226	Matrix: Solid Suggested Analytical Method * SM 7500	Client Matrix: Solid -08 Sampled: 10/22/2024 08:30
Laboratory ID: 24J1927-02 Requested Test Radium-226	Matrix: Solid Suggested Analytical Method * SM 7500	Client Matrix: Solid -09 Sampled: 10/22/2024 08:35
Laboratory ID: 24J1927-03 Requested Test Radium-226	Matrix: Solid Suggested Analytical Method * SM 7500	Client Matrix: Solid -10 Sampled: 10/22/2024 08:40
Laboratory ID: 24J1927-04 Requested Test Radium-226	Matrix: Solid Suggested Analytical Method * SM 7500	Client Matrix: Solid -11 Sampled: 10/22/2024 09:00

Released By

Date

Received By

Date

Released By

Date

Received By

Date

* NOTE - If you are not certified for our suggested analytical method, please use your certified method.

1792955

Fed Ex tracking #	Gun ID	Temperature
GWA	TLA9	$2.2 + 0.3 = 2.9$
SWA	TLA9	$1.3 + 0.3 = 1.6$
SWA	TLA9	$4.0 + 0.3 = 4.3$

Name

Date



Well number: Duplicate (FA-064)
Field Personnel: TE, KO, DT
Sampling date: 10/14/24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): _____
Water level, post-pump installation (ft): _____
Rate & direction of groundwater flow: _____
Total volume of water pumped (Liters): _____
Clock time of sample: 1504
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic, 1Q, 1P
Sample bottle(s) identification number used: _____
Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

Additional Notes:

See - FA-1064

[illegible]



Well number: FA-UG-1

Field Personnel: TE, KO, OT

Sampling date: 10/14/24

Well condition: Good

Was the meter(s) calibrated prior to sampling (circle): Yes No

Water level, pre-pump installation (ft):

Water level, post-pump installation (ft):

Rate & direction of groundwater flow:

Total volume of water pumped (Liters): 1.8

Clock time of sample: 09:54

Lab's name sample(s) are being sent to: CTF

Type and size of sample bottles used: Plastic, 1Q, 1P

Sample bottle(s) identification number used:

Was a blind sample obtained at this well (circle): Yes No

Additional Notes: _____

[illegible]



Well number: FA - UG2

Field Personnel: TE, KO, DT

Sampling date: 10/14/24

Well condition: Good

Was the meter(s) calibrated prior to sampling (circle): Yes No

Water level, pre-pump installation (ft): _____

Water level, post-pump installation (ft): _____

Rate & direction of groundwater flow: _____

Total volume of water pumped (Liters): 6

Clock time of sample: 11:15

Lab's name sample(s) are being sent to: CTF

Type and size of sample bottles used: Plastic, 1G, 1P

Sample bottle(s) identification number used: _____

Was a blind sample obtained at this well (circle): Yes No

Additional Notes: _____

[illegible]



Well number: FA-062
Field Personnel: TE, KO, DT
Sampling date: 10/14/24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): _____
Water level, post-pump installation (ft): _____
Rate & direction of groundwater flow: _____
Total volume of water pumped (Liters): 1.9
Clock time of sample: 12:00
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic, 1Q, 1L
Sample bottle(s) identification number used: _____
Was a blind sample obtained at this well (circle): Yes No

Additional Notes: _____

[illegible]



Well number: FA-063
Field Personnel: TE, KO, DF
Sampling date: 10/14/24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): _____
Water level, post-pump installation (ft): _____
Rate & direction of groundwater flow: _____
Total volume of water pumped (Liters): 1.9
Clock time of sample: 13:52
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic 1.0, 1P,
Sample bottle(s) identification number used: _____
Was a blind sample obtained at this well (circle): Yes No

Additional Notes: _____

[illegible]



Well number: FA-DG4
Field Personnel: TE, KO, DT
Sampling date: 10/14/24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): _____
Water level, post-pump installation (ft): _____
Rate & direction of groundwater flow: _____
Total volume of water pumped (Liters): 1.9
Clock time of sample: 1449
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic 1P, 1Q
Sample bottle(s) identification number used: _____
Was a blind sample obtained at this well (circle): Yes No

Additional Notes: _____

[illegible]



BONANZA POWER PLANT
CCR GROUNDWATER MONITORING WELLS
SAMPLING & ANALYSIS PROGRAM

Well number: FA - DG5
Field Personnel: KO - TE - DT
Sampling date: 10-15-21
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): (Yes) No
Water level, pre-pump installation (ft): NA
Water level, post-pump installation (ft): NA
Rate & direction of groundwater flow: NA
Total volume of water pumped (Liters): 4.73
Clock time of sample: 9:52
Lab's name sample(s) are being sent to: W
Type and size of sample bottles used: Plastic 1 @ 1pt 2 1/2 gallon
Sample bottle(s) identification number used: FA - DG5
Was a blind sample obtained at this well (circle): Yes (No)

Note: If yes, label the blind sample "CCR-QA".

Additional Notes: _____

Clock Time	Purge Rate (l/min)	Total Purged Volume (Liters)	Water Depth (ft)	Key Indicator Parameters						
				Temp.	pH	Conductivity	Turbidity	DO	ORP	BP
				(°F)	±0.1	±3%	±10%	(%/mg/L)	(mV)	(mmHg)
8:39			30.50							
8:40	.14		31.20	57.2	7.0	14427	7.70	52.6	-101.9	639.1
8:45	.10		31.15	57.8	7.0	14508	15.2	44.7	-111.1	639.2
8:50	.10		31.18	58.0	7.0	14560	20.2	30.8	-103.3	639.3
8:55	.14		31.21	57.5	7.0	14450	14.3	26.4	-98.6	639.2
9:00	.13		31.21	57.8	7.0	14460	10.2	27.0	-99.3	639.2
9:05	.13		31.20	57.9	7.0	14480	9.31	20.7	-101.1	639.2
9:10	.13		31.20	58.0	7.0	14437	6.20	19.0	-97.7	639.3
9:15	.13		31.20	58.1	7.0	14442	4.61	17.6	-93.4	639.2

6392



Well number: BA - DG1
Field Personnel: DT Ko
Sampling date: 10-21-24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): (Yes) No
Water level, pre-pump installation (ft): _____
Water level, post-pump installation (ft): _____
Rate & direction of groundwater flow: _____
Total volume of water pumped (Liters): 90 g 2.75 L
Clock time of sample: 10:00
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic
Sample bottle(s) identification number used: BA - DG1
Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-OA".

[illegible]



Well number: BA - 126Z
Field Personnel: KO DT TE
Sampling date: 10.21.24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): NA
Water level, post-pump installation (ft): NA
Rate & direction of groundwater flow: NA
Total volume of water pumped (Liters): 1.25
Clock time of sample: 11:15
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic
Sample bottle(s) identification number used: BA - 126Z
Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

[illegible]



Well number: BA - DG 3
Field Personnel: KO DT
Sampling date: 10-21-24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): _____
Water level, post-pump installation (ft): _____
Rate & direction of groundwater flow: _____
Total volume of water pumped (Liters): .89 3.02 L
Clock time of sample: 12:37
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic
Sample bottle(s) identification number used: BA DG 3
Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

Additional Notes: _____

[illegible]



Well number: BA - DG4
Field Personnel: KO DT
Sampling date: 10-22-24
Well condition: Good
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): NA
Water level, post-pump installation (ft): NA
Rate & direction of groundwater flow: NA
Total volume of water pumped (Liters): 3.0
Clock time of sample: 11:22
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: Plastic
Sample bottle(s) identification number used: BA-DG4
Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

[illegible]



**BONANZA POWER PLANT
CCR GROUNDWATER MONITORING WELLS
SAMPLING & ANALYSIS PROGRAM**

Well condition: 12.02.21

Was the meter(s) calibrated prior to sampling (circle): Yes No

Water level, pre-pump installation (ft): 11.5

Water level, post-pump installation (ft): 22.1

Rate & direction of groundwater flow: NA

Total volume of water pumped (Liters): 1.8

Clock time of sample: 12:40 pm

Lab's name sample(s) are being sent to: CTF

Type and size of sample bottles used: Plastic

Sample bottle(s) identification number used: _____

Was a blind sample obtained at this well (circle): *Yes* *No*

Note: If yes, label the blind sample "CCR-QA".

Additional Notes: _____

[illegible]



Well number: NEP
Field Personnel: KO TE
Sampling date: 10-28-24
Well condition: NA
Was the meter(s) calibrated prior to sampling (circle): Yes No
Water level, pre-pump installation (ft): _____
Water level, post-pump installation (ft): NA
Rate & direction of groundwater flow: _____
Total volume of water pumped (Liters): _____
Clock time of sample: 14:30
Lab's name sample(s) are being sent to: CTF
Type and size of sample bottles used: plastic
Sample bottle(s) identification number used: NEP
Was a blind sample obtained at this well (circle): Yes No

Note: If yes, label the blind sample "CCR-QA".

[illegible]

CHAIN OF CUSTODY - SAMPLE SUBMITTAL FORM



CHEMTECH-FORD
LABORATORIES

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

COMPANY: Deseret Power Electric Cooperative
ADDRESS: 12500 East 25500 South
CITY/STATE/ZIP: Vernal, UT 84078-8525
PHONE #: 435-781-5706
CONTACT: Tyler Esplin
EMAIL: tesplin@deseretpower.com
PROJECT: CCR Sampling 2024 Fall
PO Number: 187398
INVOICE EMAIL ADDRESS:

RUSH Due Date*:	QC Level
	QC 2

* Expedited turnaround subject
to additional charge

QC level definition:
QC1: none (default if blank)
QC2: Batch QC, random sample
QC3: 25% surcharge. Narrative plus Batch QC,
your sample selected
QC4: 40% surcharge. Add raw data

Sample condition			
☒ Custody Seal	☒ Correct Containers		
☒ Container Intact	☒ Sufficient Sample Volume		
☒ COC/Labels Agree	Headspace Present (VOC)	☒ UPS	USPS
☒ Received on Ice	Temperature Blank	FedEx	Chemtech-Ford Courier
	Received within Holding Time	Walk-in	Customer Courier

Lab Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
1	FA-UG1	10/14/24	0954	W
2	FA-UG2	10/14/24	1115	W
3	FA-DG2	10/14/24	1200	W
4	FA-DG3	10/14/24	1352	W
5	FA-DG4	10/14/24	1449	W
6	FA-DG5	10/15/24	0952	W
7	BA-UG1			W
8	BA-DG1			W
9	BA-DG2			W
10	BA-DG3			W

Bottle type

Lot #

TESTS REQUESTED													
Chloride	Fluoride	Sulfate	TDS	245.1 Mercury	200.7: B, Ca	200.7: Ba, Li, Mo	Metals by 200.8:	Sb, As, Be, Cd, Cr, Co, Pb, Se, Ti	Radium 226 & 228	200.7: Mg, K, Na	Alkalinity		
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X	X	X	X	X	X	X				
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								

Sampled by: [print] T. Esplin	Sampled by: [signature] Tyler Esplin	ON ICE	NOT ON ICE	Temp (C°): 0.9
Special Instructions:		Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.		
Relinquished by: [signature] Tyler Esplin	Date/Time 10/16/24 1500	Received by: [signature] Denise Brun	Date/Time 10/17/24 10:40	
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time	
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time	

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

UPS NEXT DAY AIR

TRACKING #: 1Z 849 747 01 6458 7634

RUSH Due Date*:	QC Level
	QC 2
	QC levels definition: QC1: none (default if blank)

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

QC levels definition:
 QC1: none (default if blank)
 QC2: Batch QC, random sample
 QC3: 25% surcharge. Narrative plus Batch QC, your sample selected
 QC4: 40% surcharge. Add raw data

* Expedited turnaround subject to additional charge

Lab Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
	11. BA-DG4			W
	12. NEP			W
-07	13. Duplicate	10/14/24	1504	W
	4.			
	5.			
	6.			
	7.			
	8.			
	9.			
	10.			

Lot #

[illegible]

Sampled by: [print] <i>J. Gsplin</i>	Sampled by: [signature] <i>J. Gsplin</i>	☒ ON ICE ☐ NOT ON ICE Temp (C°): <i>0.9</i>	
Special Instructions:		Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.	
Relinquished by: [signature] <i>Ty E</i>	Date/Time <i>10/16/24 1500</i>	Received by: [signature] <i>Denise Brun</i>	Date/Time <i>10/17/24 1840</i>
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

CHAIN OF CUSTODY - SAMPLE SUBMITTAL FORM



CHEMTECH-FORD
LABORATORIES

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

COMPANY: Deseret Power Electric Cooperative
ADDRESS: 12500 East 25500 South
CITY/STATE/ZIP: Vernal, UT 84078-8525
PHONE #: 435-781-5706
CONTACT: Tyler Esplin
EMAIL: tesplin@deseretspower.com
PROJECT: CCR Sampling 2024 Fall
PO Number: 187398
INVOICE EMAIL ADDRESS: _____

RUSH Due Date*:	QC Level
	QC 2

* Expedited turnaround subject to additional charge

QC levels definition:
QC1: none (default if blank)
QC2: Batch QC, random sample
QC3: 25% surcharge. Narrative plus Batch QC, your sample selected
QC4: 40% surcharge. Add raw data

Sample condition		Delivery Method	
☐ Custody Seal	☒ Correct Containers	☒ UPS	☐ USPS
☒ Container Intact	☒ Sufficient Sample Volume	☐ FedEx	☐ Chemtech-Ford Courier
☒ COC/Labels Agree	☐ Headspace Present (VOC)	☐ Walk-in	☐ Customer Courier
☐ Received on Ice	☐ Temperature Blank		
	☒ Received within Holding Time		

Lab Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
1	FA-UG1	10/14/24	0954	W
2	FA-UG2	10/14/24	1115	W
3	FA-DG2	10/14/24	1200	W
4	FA-DG3	10/14/24	1352	W
5	FA-DG4	10/14/24	1449	W
6	FA-DG5	10/15/24	0952	W
7	BA-UG1			W
8	BA-DG1			W
9	BA-DG2			W
10	BA-DG3			W

Bottle type

Lot #

TESTS REQUESTED													
Chloride	Fluoride	Sulfate	TDS	245.1 Mercury	200.7: B, Ca	200.7: Ba, Li, Mo	Metals by 200.8:	Sb, As, Be, Cd, Cr, Co, Pb, Se, Ti	Radium 226 & 228	200.7: Mg, K, Na	Alkalinity		
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X	X	X	X	X	X	X				
X	X	X	X		X								
X	X	X	X		X								
X	X	X	X		X								

Sampled by: [print] <u>T. Esplin</u>	Sampled by: [signature] <u>Tyler Esplin</u>	ON ICE ☐ NOT ON ICE ☒ Temp (C°): <u>0.9</u>	
Special Instructions:		Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.	
Relinquished by: [signature] <u>Tyler Esplin</u>	Date/Time <u>10/16/24 1500</u>	Received by: [signature] <u>Denise Brun</u>	Date/Time <u>10/17/24 10:40</u>
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

UPS NEXT DAY AIR

TRACKING #: 1Z 849 747 01 6458 7634

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

QC levels definition:
 QC1: none (default if blank)
 QC2: Batch QC, random sample
 QC3: 25% surcharge. Narrative plus Batch QC, your sample selected
 QC4: 40% surcharge. Add raw data

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

CHAIN OF CUSTODY - SAMPLE SUBMITTAL FORM



CHEMTECH-FORD
LABORATORIES

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

COMPANY: Deseret Power Electric Cooperative
ADDRESS: 12500 East 25500 South
CITY/STATE/ZIP: Vernal, UT 84078-8525
PHONE #: 435-781-5706
CONTACT: Tyler Esplin
EMAIL: tesplin@deseretspower.com
PROJECT: CCR Sampling 2024 Fall
PO Number: 187398
INVOICE EMAIL ADDRESS:

RUSH Due Date*:	QC Level
	QC 2

* Expedited turnaround subject to additional charge

QC levels definition:
QC1: none (default if blank)
QC2: Batch QC, random sample
QC3: 25% surcharge. Narrative plus Batch QC, your sample selected
QC4: 40% surcharge. Add raw data

2/2

Sample condition			
☒ Custody Seal	☒ Correct Containers		
☒ Container Intact	☒ Sufficient Sample Volume		
☒ COC/Labels Agree	Headspace Present (VOC)	☒ UPS	USPS
☒ Received on Ice	Temperature Blank	FedEx	Chemtech-Ford Courier
	☒ Received within Holding Time	Walk-in	Customer Courier

Lab Use Only	CLIENT SAMPLE INFORMATION			
	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX
05	11. BA-DG4	10-22-24	11:00	W
06	12. NEP	10-22-24	14:30	W
	13. Duplicate			W
	4.			
	5.			
	6.			
	7.			
	8.			
	9.			
	10.			

Bottle type

A2

Lot #

1375

m

1396

Sampled by: [print] Kevin Owens	Sampled by: [signature] Kevin Owens	ON ICE	NOT ON ICE	Temp (C°): 2.3
Special Instructions:		Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.		
Relinquished by: [signature] Kevin Owens	Date/Time 10-23-24 16:00	Received by: [signature]	Date/Time	
Relinquished by: [signature]	Date/Time	Received by: [signature] Selma Ay	Date/Time 10/24/24 1045	
Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time	

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.

Chemtech-Ford, Inc.
9632 South 500 West
Sandy, UT 84070
Phone: 801-262-7299
www.chemtechford.com

* Expedited turnaround subject to additional charge

QC levels definition:
 QC1: none (default if blank)
 QC2: Batch QC, random sample
 QC3: 25% surcharge. Narrative plus Batch QC, your sample selected
 QC4: 40% surcharge. Add raw data

Payment Terms are net 30 days OAC: 1.5% interest charge per month (18% per annum). Client agrees to pay collection costs and attorney's fees.



Appendix B Alternative Source Demonstrations (ASDs)

Technical Memorandum

To: Tyler Esplin, Deseret Power Electric Cooperative
From: Dale Kolstad, P.E., Barr Engineering Co.
Subject: Fall 2023 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant
Date: May 3, 2024
Project: 44241001.07 Bonanza Power Plant CCR Groundwater

1.0 Introduction

Deseret Power Electric Cooperative, Bonanza Power near Vernal, UT, has implemented a Detection Monitoring Program in accordance with the U.S. Environmental Protection Agency (EPA) Coal Combustion Residuals (CCR) Rule (40 CFR Parts 257 and 261).

The fall 2023 detection monitoring event occurred on October 16-18 and 24, 2023. The final laboratory report was received on November 8, 2023. Potential statistically significant increases (SSIs) were identified for pH at well BA-DG3 at the Bottom Ash (BA) Landfill Area and for fluoride at well FA-DG4 at the Fly Ash (FA) Landfill Area. SSIs were verified for pH at well BA-DG3 and fluoride at well FA-DG4 on February 6, 2024 (Barr, 2024).

1.1 Purpose

This memorandum is intended to provide written documentation of a well-specific Alternative Source Demonstration (ASD) for pH in well BA-DG3 and FA Landfill Area-wide ASD for fluoride (at all FA downgradient wells including at FA-DG4). It also provides a certification of accuracy for this ASD as described in the CCR Rule (§257.94(e)(2)).

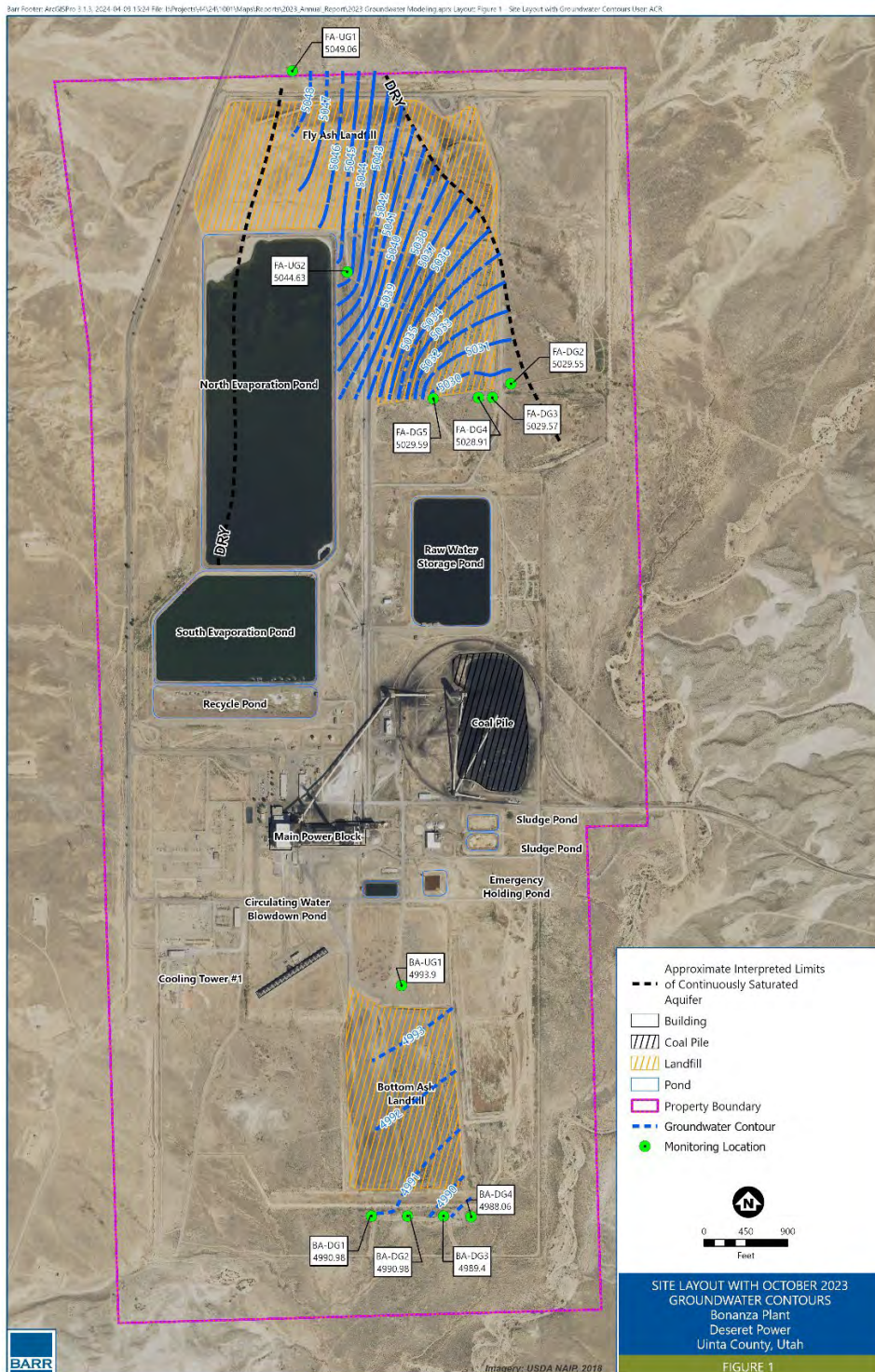
1.2 Background Information

Figure 1 shows the location of the monitoring well networks and site features in the area around the two CCR Units, the BA Landfill and the FA Landfill. The conceptual model for the site in the FA Area consists of groundwater flowing from the northwest under the FA Area to the south-southeast. The North Evaporation Pond (NEP) is a non-CCR pond that receives process water from the plant. The NEP has an earthen liner that limits infiltration but allows seepage so that water in the pond combines with upgradient groundwater under the FA Landfill. The groundwater flow is controlled by a groundwater capture system that is located downgradient of the FA Landfill Area monitoring wells. Therefore, groundwater quality in the FA Landfill Area downgradient monitoring wells is influenced by the water quality in the NEP.

The conceptual site model in the BA Area consists of groundwater flowing from northwest to southeast under the BA Landfill. Details on the network and conceptual model of groundwater flow are included in

the Groundwater Monitoring System Certification (Burns and McDonnell, 2017) and the Annual Review of Groundwater Levels (Loughlin, 2020).

Figure 1 Site Layout with October 2023 Groundwater Contours



A comparison of the fall 2023 groundwater results with the prediction limits calculated using the baseline data is included in Table 1. The EPA's Unified Guidance (USEPA, 2009) notes that parametric prediction limits can be computed using as few as three normally distributed background samples, though a minimum of eight is advised. Ten samples have been collected from the NEP from 2018-2023. The data were found to be normally distributed and were used to calculate a parametric prediction limit for fluoride. No prediction limit was calculated for pH from the NEP because the NEP is located adjacent to the FA Landfill but is spatially and hydraulically distant from the BA Landfill.

Table 1 Comparison of SSI Parameters with Prediction Limits

Well	Parameter (units)	Measured	Interwell PL	Intrawell PL	NEP PL
BA-DG3	pH (s.u.)	8.1	7.0 – 7.3	7.0 – 7.7*	n/a
FA-DG4	Fluoride (mg/L)	5.0	1.9	2.8	73.1

PL: Prediction Limit

*Intrawell prediction limit may not be appropriate due to trending data.

Interwell limits are valid for the site because they are based on the background data from upgradient monitoring well BA-UG1, which is not directly downgradient of a CCR unit and is separated from other CCR units at the facility by a groundwater divide created by a pump-back system that maintains gradient control under the main power block in order to prevent subsidence (Figure 1; Loughlin Associates, 2017). Intrawell limits are also valid because there is no evidence of a previous release from the CCR Unit.

However, pH SSIs at the site have previously been evaluated using intrawell prediction limits due to the narrow range of pH values observed in the upgradient wells, which may yield interwell prediction limits that do not fully account for natural variability within the aquifer or for instrument uncertainty. In addition, pH is subject to both upper and lower pH limits, as values on either side of the range may indicate changes to the groundwater.

Previous ASDs were completed for pH at BA-DG3 (Barr, 2021; Barr, 2022a; Barr, 2022b; Barr, 2023a; Barr, 2023b) concluded that the elevated pH was due to a source other than the BA Landfill. This ASD reinforces the findings of those earlier ASDs.

Previous ASDs were completed for FA-DG4 for fluoride (Barr, 2019; Barr, 2020a; Barr, 2020b; Barr, 2021; Barr, 2023b) concluded that the fluoride was due to a source other than the FA Landfill and identified the NEP as a potential source along with natural variability as shown by both regional and site geochemical data. This ASD reinforces the findings of those earlier ASDs and provides additional information that supports a FA Landfill area-wide ASD that will be included by reference to address potential future fluoride SSIs should they occur at FA-DG4 or other FA Landfill downgradient monitoring wells.

1.3 Rule Requirements

The requirements for written documentation and certification of accuracy for an ASD are included in §257.94(e) (2):

The owner or operator may demonstrate that a source other than the CCR unit caused the statistically significant increase over background levels for a constituent or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The owner or operator must complete the written demonstration within 90 days of detecting a statistically significant increase over background levels to include obtaining a certification from a qualified professional engineer verifying the accuracy of the information in the report.

In accordance with the above requirement, this memorandum is being issued within 90 days of the SSI determination, which occurred on February 6, 2024.

1.4 Potential Alternative Sources Review

Based on the rule (above), there are five categories that we evaluated for this ASD. These include:

1. A source other than the CCR unit
2. Sampling (or sampling equipment) methods
3. Laboratory methods
4. Statistical methods
5. Natural variation in groundwater quality

The rule citation above pertaining to '*a source other than the CCR unit*' does not state that a specific source other than the CCR unit be identified. Therefore, this ASD does not identify the other source.

2.0 Lines of Evidence Supporting an ASD: pH at BA-DG3

As part of the ASD, site data was evaluated to identify potential causes for pH outside of the intrawell PL in monitoring well BA-DG3. The following potential sources were selected for investigation:

- A source other than the CCR unit
- Natural variation in groundwater quality

A hypothesis was developed to evaluate the potential alternatives for the SSIs included in the rule and then tested against available data to determine if site data support the hypothesis as described in the following sections.

2.1 A source other than the CCR unit: BA-DG3

- Hypothesis: If the BA Landfill (the CCR Unit) is the source of a release to groundwater that caused the SSI for pH at BA-DG3, the expected concentrations of other parameters indicative of a CCR release should appear elevated in samples from BA-DG3 at about the same time.
- Analysis: While an increasing trend in pH is consistent with a release from a CCR Unit, the lack of a complementary suite of parameters is not consistent with a release. We evaluated the concentrations of other Appendix III parameters in BA-DG3 samples that correspond to the period when the increasing pH values were observed.

- Result: Concentrations of the other six Appendix III parameters indicated that other indicator parameters were present at concentrations that did not trigger SSIs and that were observed to have significantly decreasing trends. The decreasing trends for the other six Appendix III parameters are not likely to be related to retardation or other reactions in the subsurface as these parameters are generally non-reactive. These parameters were selected by EPA based on their utility as indicator parameters for this reason (40 CFR 257 preamble). Decreasing trends for these parameters are the opposite of what would be expected if a pH increase were indicative of a release from the CCR Unit. Therefore, the hypothesis that the CCR Unit is the source of the elevated pH is rejected.

Discussion of Hypothesis

If the CCR Unit is the source of a release to groundwater that caused the SSI for pH at BA-DG3, increased concentrations of other parameters indicative of a CCR release should appear at about the same time. This is because the CCR Unit water would contain a mixture of the Appendix III parameters. Conversely, if concentrations in BA-DG3 are not elevated for the remaining Appendix III parameters, the hypothesis above would be rejected, leading to the conclusion that the SSI is not the result of a release from the CCR Unit.

Demonstration

Time-series plots of the Appendix III parameters are shown in Figure 2. Over the period of record, from 2016 to 2023, concentrations of all six parameters other than pH are decreasing. These decreasing concentrations are not consistent with a release from the CCR Unit, which should show increasing trends. Therefore, a release is unlikely, and the cause for the SSI appears to be due to "a source other than" the CCR Unit. Since a specific source is not apparent at the site, the most likely cause is natural heterogeneity and variability of the aquifer, which is the expectation in most geologic environments (Freeze and Cherry, 1979).

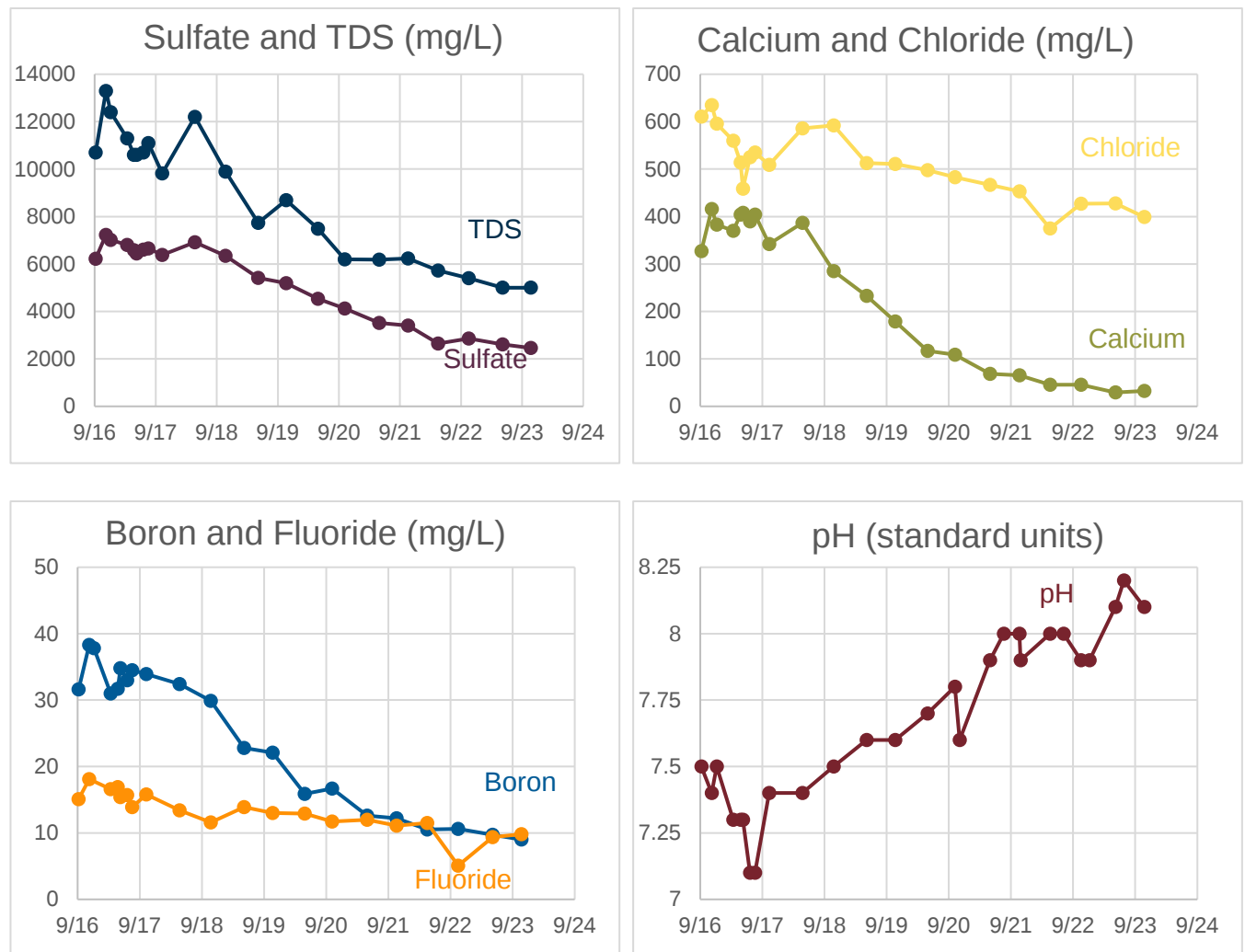


Figure 2 Time-series plots of Appendix III parameters at BA-DG3

3.0 Lines of Evidence Supporting an ASD: Fluoride at FA-DG4

As part of the ASD, site data was evaluated to identify potential causes for elevated fluoride concentrations in the FA-DG4 monitoring well. The following potential sources were selected for investigation:

- Surface water data from the NEP
- Natural variation
- Results of laboratory analysis on CCR material collected from the FA Landfill

A hypothesis was developed to evaluate each of the potential alternatives for the SSIs included in the rule and then tested against available data to determine if site data support the hypothesis as described in the following sections.

3.1 A “source other than the CCR unit” (North Evaporation Pond)

Groundwater flows from under the NEP toward the FA Landfill downgradient monitoring wells as shown on Figure 1.

- Hypothesis: The NEP, which is a non-CCR unit, is the source of elevated dissolved constituents contributing to the SSI for fluoride in the FA-DG4 monitoring well.
- Analysis: Data collected from the pond from 2018-2023 were compared to the groundwater concentrations. A mixing model of concentrations from upgradient monitoring well FA-UG1 and the NEP was used to evaluate whether the NEP could be a source.
- Result: Concentrations in the NEP were much higher than in the downgradient monitoring well. The concentrations in FA-DG4 are similar to what would be expected if waters from the NEP and upgradient were mixing. The NEP is therefore a likely source of the SSIs.

Figure 3 shows a time-series plot of fluoride concentrations in FA-DG4 collected under the CCR Rule. Dashed lines on the plot indicate the intrawell prediction limit for FA-DG4, the interwell prediction limit calculated from concentrations in FA-UG1 and FA-UG2 (PZ-11), and the interwell prediction limit calculated from the concentrations in the NEP. The prediction limit from the NEP (73.1 mg/L) was higher than the concentration in FA-DG4 (5.0 mg/L). The higher concentrations in the NEP suggest that it is a source of fluoride to downgradient wells.

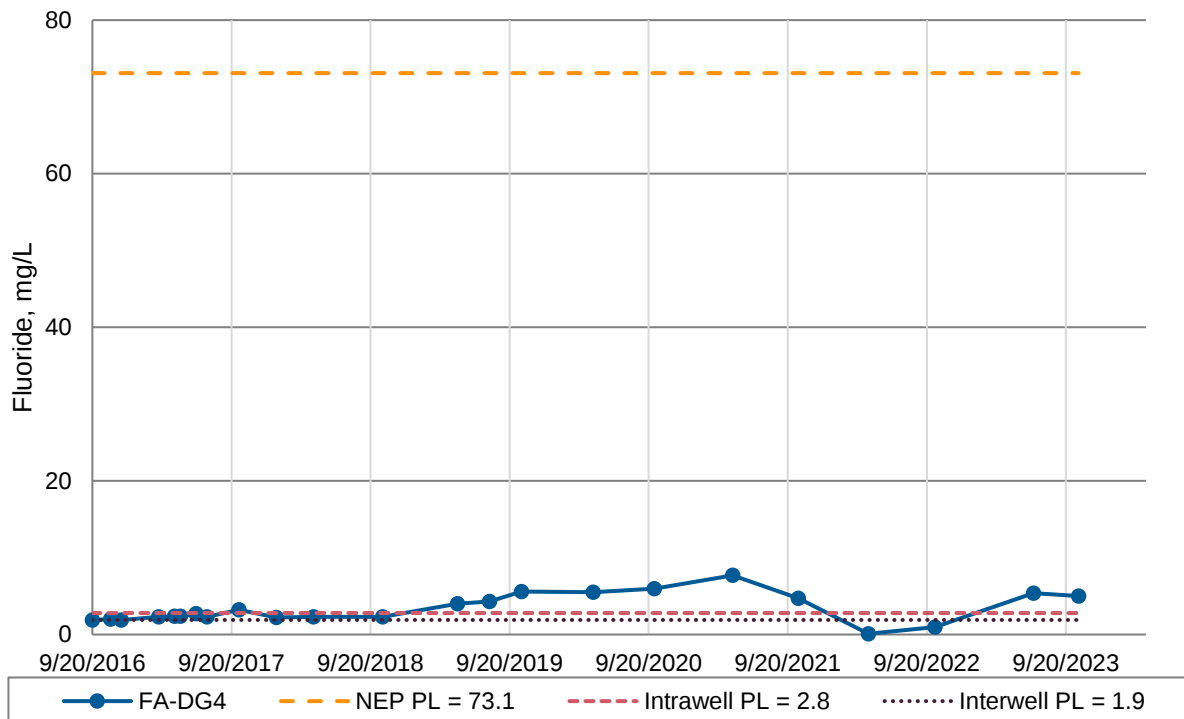


Figure 3 Time-series Plot of Fluoride Concentration in FA-DG4

To further test the hypothesis, the geochemical modeling software The Geochemist's Workbench (Aqueous Solutions LLC, Champaign, IL) was used to model what the composition of a water would be if it was the result of the mixing of waters from an upgradient well (represented by groundwater from FA-UG1) and the NEP. The model used groundwater concentrations measured in April 2018, the most recent available data that include the major ions bicarbonate (alkalinity), magnesium, potassium, and sodium. The model calculated incremental concentrations at every percentage combination (i.e., 100% FA-UG1 and 0% NEP through 100% NEP and 0% FA-UG1). The model accounted for formation of common minerals and predicted that calcite (CaCO_3), magnesite (MgCO_3), and fluorite (CaF_2) can be formed depending upon the mixing ratio.

Figure 4 shows the mixing model results on a Piper plot, along with the original 2018 compositions of the upgradient well, NEP samples, and FA-DG4 (Barr, 2019). The mixing model results indicate that a water similar in composition (i.e., values that are located near the predicted results on the Piper Plot) to the FA-DG4 sample could result from the mixing of waters from the NEP and upgradient wells. This is indicated by the position of the sample for FA-DG4, shown by the dark blue triangle, which plots close to the mixing path about halfway between the NEP samples and the upgradient groundwater sample on Figure 4. This indicates that values observed at FA-DG4 are consistent with the hypothesis that downgradient groundwater can be explained by the contribution of fluoride by the NEP.

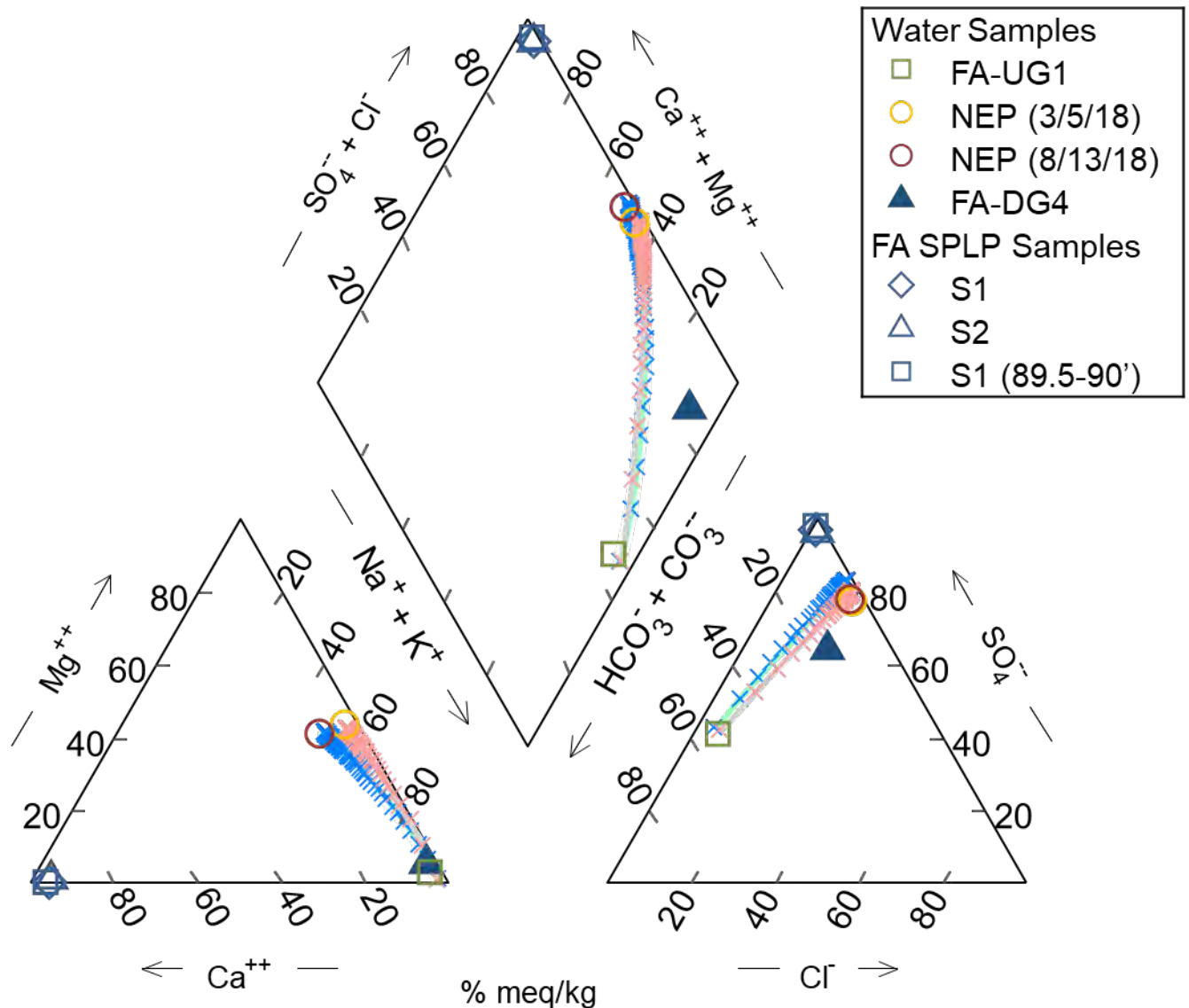


Figure 4 Piper Plot of Mixing Model Results

3.2 A “source other than the CCR unit” (inconsistent with CCR Unit)

- Hypothesis: Groundwater samples from FA-DG4 should have chemical signatures similar to fly ash leachate if the impacts were the result of leaching from the CCR unit.
- Analysis: Synthetic precipitation leaching procedure (SPLP) tests were performed on samples collected from borings advanced into the CCR unit, and the resulting samples were analyzed for major ions and CCR parameters.
- Result: The CCR material in the FA Landfill has a different composition than what would be expected if it were the source of a release affecting FA-DG4 based on the SPLP analysis designed to simulate leaching.

Borings were advanced within the Fly Ash Landfill in December 2019 at the locations shown on Figure 1. Composite samples from the CCR material were collected from several intervals between the surface and the bottom of the borings (90 feet below the surface) at locations S1 and S2. A grab sample from the bottom of boring S1 (89.5 to 90 feet below the surface) was also collected to represent ash from a previously closed non-CCR unit within the landfill footprint. These three samples were leached using the Synthetic Precipitation Leaching Procedure (SPLP), in which the samples were mixed with a slightly acidic solution designed to simulate rainwater that might percolate through the ash. The liquid from this procedure was analyzed for the same parameters used to evaluate groundwater. The results of the analysis were included in Table 2 and Attachment A of the Fall 2019 ASD (Barr, 2020a).

The major ion compositions of the SPLP leachate samples are shown on the Piper plot in Figure 3, which also shows samples from FA-UG1 and FA-DG4. The plot indicates that the SPLP samples from S1, S2, and S1 (89.5-90') have very similar compositions but are very different from the composition of the sample collected from downgradient monitoring well FA-DG4. In particular, the sample from FA-DG4 has sodium as the dominant cation ($\text{Na} > \text{Mg} > \text{Ca}$), whereas the SPLP samples exhibit calcium as the dominant cation ($\text{Ca} > \text{Na} > \text{Mg}$).

Fluoride concentrations in the SPLP samples were measured at less than 0.4 mg/L, whereas the fluoride concentrations that have been measured in FA-DG4 range from 0.96 to 7.7 mg/L. Although absolute concentrations may not be comparable between groundwater samples and SPLP leachate, fluoride makes up approximately 0.1% of the total anionic charge concentration in the FA-DG4 sample, whereas fluoride comprises only 0.03 to 0.06% of the anionic charge in the SPLP samples. The relative lack of fluoride in the SPLP samples means that the CCR unit is unlikely to be the source of fluoride to groundwater responsible for previous SSIs. These data refute the hypothesis that the release is due to the CCR unit.

Table 2 Synthetic Precipitation Leaching Procedure Results, Deseret Power Bonanza Plant

Location Depth Date	S1 89.5 - 90 ft 12/17/2019	S1 0 - 90 ft 12/17/2019	S2 0 - 90 ft 12/17/2019
Parameter [mg/l unless otherwise noted]			
SPLP General Parameters			
Alkalinity, Bicarbonate, as CaCO_3 (reprep)	26.0	25.0	20.0
Alkalinity, Carbonate as CaCO_3 (reprep)	< 10.0	12.0	20.0
Alkalinity, Hydroxide as CaCO_3 (reprep)	< 10.0	< 10.0	< 10.0
Alkalinity, Total, as CaCO_3 (reprep)	30.0	37.0	40.0
Chloride	3.05	8.93	11.4
Fluoride	0.185	0.288	0.380
pH (reprep) [pH units]	8.59	8.65	9.19
Sulfate	1,500	1,500	1,580
SPLP Metals			
Antimony	< 0.0300	< 0.0300	< 0.0300
Arsenic	< 0.0200	< 0.0200	< 0.0200
Beryllium	< 0.0100	< 0.0100	< 0.0100
Boron	0.554	1.00	2.00
Cadmium	< 0.00350	< 0.00350	< 0.00350

Calcium	652	622	656
Calcium (reprep)	708	633	677
Chromium	< 0.100	< 0.100	< 0.100
Cobalt	< 0.0200	< 0.0200	< 0.0200
Lead	< 0.0100	< 0.0100	< 0.0100
Lithium	< 0.100	< 0.100	< 0.100
Magnesium	< 1.00	1.15	5.15
Mercury	< 0.00100	< 0.00100	< 0.00100
Molybdenum	0.322	0.0623	0.104
Potassium	< 1.00	1.24	1.45
Selenium	0.0137	< 0.0100	0.0306
Sodium	24.6	27.1	30.9
Thallium	< 0.0100	< 0.0100	< 0.0100

3.3 Natural variation

- Hypothesis: Natural variation in fluoride concentrations within native geology at the site and in the region contributes to the elevated fluoride concentrations observed in FA-DG4.
- Analysis: Fluoride concentrations in all wells within the groundwater monitoring network were evaluated using publicly available data and published studies of regional geology and groundwater chemistry. A simple geochemical model for dissolution/precipitation of minerals helps explain the observed differences across the site in fluoride concentrations.
- Result: Fluoride concentrations in site wells and regionally vary widely due to the geology of the region and are likely to be affected by geochemical processes expected from interaction with the mineralogy of the subsurface. Therefore, natural variation is likely a significant cause of the SSI observed in FA-DG4.

As shown on Figure 5, the fluoride concentrations in site wells vary by approximately an order of magnitude. The concentration is lowest in the upgradient fly ash wells (averages of 1.8 and 0.6 mg/L in FA-UG1 and FA-UG2, respectively) and are the highest in FA-DG2 (average of 56 mg/L). Average concentrations in the other downgradient wells (FA-DG2 and FA-DG3) exceed the fluoride concentrations measured in FA-DG4 (Figure 5). Because other wells at the site had higher concentrations of fluoride that were not indicative of an SSI, it is concluded that there is high variability in fluoride concentrations in the area.

To test the hypothesis of natural variation as an explanation for the concentrations at FA-DG4, evidence of natural sources of fluoride and/or plausible explanations for the differences in concentrations between downgradient wells were evaluated as described below.

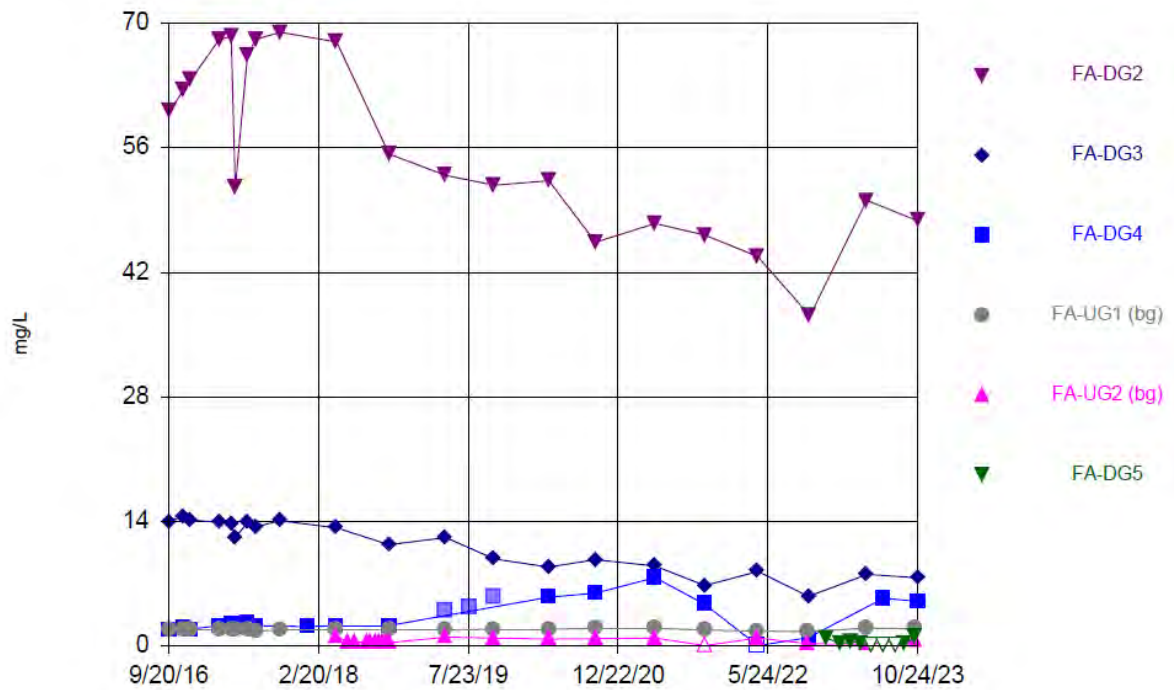


Figure 5 Time-Series Plot of Fluoride Concentrations in Monitoring Wells

The geology of the upper 20 feet of soil logged by Dames & Moore in 1991 consists primarily of very fine-grained sands and silt with occasional traces of clay. These sediments are geologically recent deposits, having been transported by alluvial and colluvial processes from the surrounding hills and cliffs of the Uinta Formation. The first and second hypersaline phases of the ancient Lake Uinta caused large depositions of Eocene-aged evaporites, particularly in the area of the Bonanza Power Plant (Vanden Berg and Birgenheier, 2017; Birdwell et al., 2019). Evaporites consist of readily soluble minerals, such as halite (NaCl) and nahcolite (NaHCO_3 , a source of baking soda), which can rapidly dissolve into groundwater.

A search for fluoride concentrations in groundwater within 50 miles of the site yielded 965 records from the Water Quality Portal (NWQMC et al., 2019). Concentrations ranged from below detection to 450 mg/L, with a lowest detected value of 0.03 mg/L and a 95th percentile of approximately 18 mg/L. Because these concentrations indicate naturally occurring levels of fluoride are elevated well above the concentrations observed at FA-DG4, it appears to confirm the hypothesis that natural variability is a likely contributor to the SSI at this well.

In addition, the natural variation hypothesis is also supported by a number of studies that have noted the spatial variability of groundwater compositions in this area (Wallace, 2012; Naftz, 1996; Holmes and Kimball, 1987; Lindskov and Kimball, 1984). The studies describe mineralogical controls on groundwater composition in the region that seem to explain the differences observed between the samples from different wells at the site.

For instance, calcium concentrations can decrease in groundwater when calcium carbonate minerals precipitate out of solution, leaving the groundwater undersaturated with respect to calcium- and fluoride-bearing minerals (e.g., fluorite and apatite). In this condition, the fluoride-bearing minerals may dissolve, increasing groundwater fluoride concentrations. This geochemical relationship appears to explain changes in concentration along the flow path between upgradient and downgradient wells at the site.

For example, low calcium (<5 mg/L) and high fluoride (> 10 mg/L) concentrations can occur in areas near where naturally occurring fluoride minerals are dissolving and calcium carbonate is precipitating. In groundwater with this composition, calcium is the limiting constituent in fluorite saturation. This is an explanation for calcium and fluoride concentrations observed in downgradient monitoring wells FA-DG2 and FA-DG3.

In contrast, where there are high calcium concentrations (>200 mg/L) and low fluoride (<2 mg/L) concentrations in groundwater (e.g., at FA-UG2), fluoride is the limiting constituent in fluorite saturation. This scenario is found where calcium minerals such as calcite are readily dissolving, increasing calcium concentrations in groundwater. Calculations made with The Geochemist's Workbench (Bethke, 2008; Table 3) indicate that calcite (calcium carbonate) is near saturation in the five fly ash monitoring wells, whereas the low-fluoride wells (FA-UG1, FA-UG2, and FA-DG4) are undersaturated with respect to fluorite. The calculations were made using data from April 2018, which is the most recent event where alkalinity (bicarbonate) was measured. When fluoride concentrations increase from 2018 concentrations to the concentration measured in fall 2023 (5.0 mg/L), FA-DG4 becomes slightly oversaturated with respect to fluorite. These observations indicate the low concentrations of fluoride are likely due to equilibration with fluorite in the subsurface as water from the NEP migrates toward the downgradient wells.

As groundwater is depleted in calcium due to mineral precipitation or mixes with more calcium-depleted water from upgradient of the landfill, the amount of calcium available to precipitate with fluoride into a mineral phase decreases. As a result, less fluoride is removed from groundwater, and concentrations can increase as groundwater contacts additional fluoride-bearing rocks. The results from FA-DG4 appear to match the conditions expected as part of this process.

The processes of mineral precipitation and dissolution are not necessarily instantaneous. As a result, they are more likely to occur in systems with lower flow and longer contact times with aquifer minerals, which also provide nucleation sites for mineral formation. Therefore, these processes are less likely to occur in surface waters like those sampled from the NEP because the pond is subjected to frequent disturbances such as wave action, pump circulation to misting machines, and discharges into the pond from operations which may prevent precipitation reactions from proceeding to equilibrium. In addition, nucleation sites for mineral formation are less prevalent in surface water than in groundwater.

The geochemical relationships described above also explain an apparent contradiction in that the NEP is a source of fluoride for FA-DG4 while samples from FA-UG2 (located next to the NEP) exhibit a lower concentration of fluoride. The geochemical conceptual model described above suggests that lower fluoride concentrations are expected where high concentrations of calcium from the NEP are resulting in

precipitation of fluorite within the geologic matrix and reducing the concentration in groundwater at this location.

Table 3 Calcite and Fluorite Saturation Indices for Monitoring Wells

Location	Calcium	Fluoride	Calcite	Fluorite
	mg/L	mg/L	log Q/K	log Q/K
FA-DG2	1.2	67.9	0.43	0.54
FA-DG3	1.8	13.3	0.15	-0.32
FA-DG4	54.1	2.3	0.14	-0.58
FA-UG1	11.5	1.8	-0.02	-1.0
FA-UG2	567	1.1	0.06	-0.56

Samples collected in April 2018

Thermodynamic data from The Geochemist's Workbench thermo.tdat

Values in the approximate range of -0.5 to 0.5 are assumed to be near equilibrium saturation.

Values <-0.5 are undersaturated, and values >0.5 are supersaturated.

4.0 Conclusion

The foregoing ASD establishes lines of evidence that meet the alternative source requirements of the CCR Rule §257.94(e)(2). Specifically, the SSI for fluoride from the fall 2023 monitoring event at FA-DG4 is due to a "source other than" the Fly Ash Landfill and/or to natural variation based on both site-specific and regional data. The elevated pH in BA-DG3 is due to a source other than the CCR unit because all of the other parameters are decreasing in concentration which is opposite of what would be expected if a presumed release from the CCR unit had occurred.

5.0 Certification

I certify that the written demonstration provided above are supported by the data that is accurate and consistent with our review of the groundwater data collected to date and as required under the CCR Rule (§257.94(e)(2)).



Dale Kolstad, P.E. (License #11117963-2202)
Barr Engineering Co.

6.0 References

- Barr Engineering Co., 2020. Alternative Source Demonstration (ASD), Fly Ash Landfill Area, Bonanza Power Plant. Technical Memorandum from Jeff Davis to Tyler Esplin, May 19, 2021. Included as Appendix B in 2020 Annual Groundwater Monitoring and Corrective Action Report (January 2021).
- Barr Engineering Co., 2021. Spring 2021 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant. Technical Memorandum from Jeff Davis to Tyler Esplin, November 30, 2021. Included as Appendix B in 2021 Annual Groundwater Monitoring and Corrective Action Report (January 2022).
- Barr Engineering Co., 2022a. Fall 2021 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant. Technical Memorandum from Dale Kolstad to Tyler Esplin, May 4, 2022. Included as Appendix B in 2022 Annual Groundwater Monitoring and Corrective Action Report (January 2023).
- Barr Engineering Co., 2022b. Spring 2022 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant. Technical Memorandum from Dale Kolstad to Tyler Esplin, November 4, 2022. Included as Appendix B in 2022 Annual Groundwater Monitoring and Corrective Action Report (January 2023).
- Barr Engineering Co., 2023a. Fall 2022 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant. Technical Memorandum from Dale Kolstad to Tyler Esplin, April 29, 2023. Included as Appendix B in 2023 Annual Groundwater Monitoring and Corrective Action Report (January 2024).
- Barr Engineering Co., 2023b. Spring 2023 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant. Technical Memorandum from Dale Kolstad to Tyler Esplin, October 31, 2023. Included as Appendix B in 2023 Annual Groundwater Monitoring and Corrective Action Report (January 2024).
- Barr Engineering Co., 2024. 2023 Annual Groundwater Monitoring and Corrective Action Report, Bonanza Power Plant. Prepared for Deseret Power Electric Cooperative. January 2024.
- Burns & McDonnell, 2017. Groundwater Monitoring System Certification, Deseret Generation and Transmission Cooperative – Bonanza Power Plant, Vernal, Utah. Letter to Tyler Esplin from Block Andrews and Wayne Weber, October 12, 2017.
- Freeze, R.A. and J.A. Cherry, 1979. Groundwater. Prentice Hall: Englewood Cliffs, NJ. 604 pp.
- Kosson, D. S., F. Sanchez, P. Kariher, L. H. Turner, R. Delapp, and P. Seignette, 2009. Characterization of Coal Combustion Residues from Electric Utilities - Leaching and Characterization Data. U.S. Environmental Protection Agency, EPA/600/R-09/151, 2009.
- Loughlin Water Associates, 2017. Bonanza Power Plant, Coal Combustion Residuals, Monitoring Well Installation Report. January 2017.
- Loughlin Water Associates, LLC, 2020. Annual Review of Groundwater Levels, December 2018 through December 2019. Prepared for Deseret Generation and Transmission Co-operative, April 2020.

Technical Memorandum

To: Tyler Esplin, Deseret Power Electric Cooperative
From: Dale Kolstad, P.E., Barr Engineering Co.
Subject: Spring 2024 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant
Date: November 18, 2024
Project: 44241001.07 Bonanza Power Plant CCR Groundwater

1.0 Introduction

Deseret Power Electric Cooperative, Bonanza Power Plant near Vernal, UT, has implemented a Detection Monitoring Program in accordance with the U.S. Environmental Protection Agency (EPA) Coal Combustion Residuals (CCR) Rule (40 CFR Parts 257 and 261).

The spring 2024 detection monitoring event occurred on May 13-14 and 20-21, 2024. The final laboratory report was received on May 22, 2024, for the Fly Ash (FA) Landfill Area and June 4, 2024, for the Bottom Ash (BA) Landfill Area. Potential statistically significant increases (pSSIs) were identified for pH at well BA-DG3 and calcium at BA-DG2 at the BA Landfill Area and for fluoride at well FA-DG4 at the Fly Ash (FA) Landfill Area. Calcium at BA-DG2 was resampled on August 18, 2024, and the pSSI was not verified. SSIs were verified for pH at well BA-DG3 and fluoride at well FA-DG4 on September 2, 2024, and August 20, 2024, respectively.

1.1 Purpose

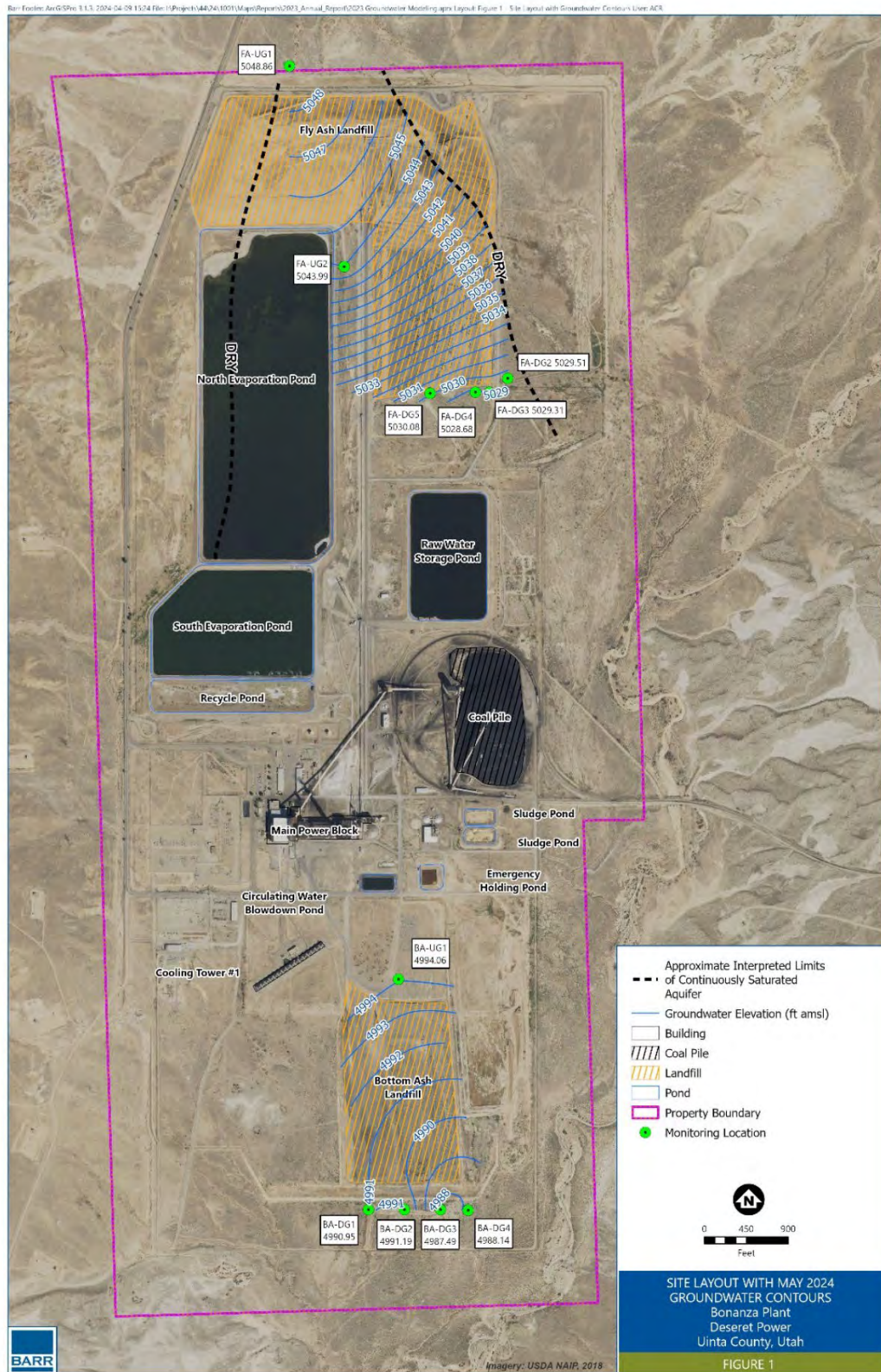
This memorandum is intended to provide written documentation of a well-specific Alternative Source Demonstration (ASD) for pH in well BA-DG3 and FA Landfill Area-wide ASD for fluoride (at all FA downgradient wells including at FA-DG4). It also provides a certification of accuracy for this ASD as described in the CCR Rule (§257.94(e)(2)).

1.2 Background Information

Figure 1 shows the location of the monitoring well networks and site features in the area around the two CCR Units, the BA Landfill and the FA Landfill. The conceptual model for the site in the FA Area consists of groundwater flowing from the northwest under the FA Area to the south-southeast. The North Evaporation Pond (NEP) is a non-CCR pond that receives process water from the plant. The NEP has an earthen liner that limits infiltration but allows seepage so that water in the pond combines with upgradient groundwater under the FA Landfill. The groundwater flow is controlled by a groundwater capture system that is located downgradient of the FA Landfill Area monitoring wells. Therefore, groundwater quality in the FA Landfill Area downgradient monitoring wells is influenced by the water quality in the NEP.

The conceptual site model in the BA Area consists of groundwater flowing from northwest or north to southeast or south under the BA Landfill. Details on the network and conceptual model of groundwater flow are included in the Groundwater Monitoring System Certification (Burns and McDonnell, 2017) and the Annual Review of Groundwater Levels (Loughlin, 2020).

Figure 1 Site Layout with May 2024 Groundwater Contours



A comparison of the spring 2024 groundwater results with the prediction limits calculated using the baseline data is included in Table 1. The EPA's Unified Guidance (USEPA, 2009) notes that parametric prediction limits can be computed using as few as three normally distributed background samples, though a minimum of eight is advised. Ten samples have been collected from the NEP from 2018-2023. The data were found to be normally distributed and were used to calculate a parametric prediction limit for fluoride. No prediction limit was calculated for pH from the NEP because the NEP is located adjacent to the FA Landfill but is spatially and hydraulically distant from the BA Landfill.

Table 1 Comparison of SSI Parameters with Prediction Limits

Well	Parameter (units)	Measured	Interwell PL	Intrawell PL	NEP PL
BA-DG3	pH (s.u.)	8.3	6.9 – 7.3	7.0 – 8.2*	n/a
FA-DG4	Fluoride (mg/L)	5.9	2.0	2.8	73.1

PL: Prediction Limit

*Intrawell prediction limit may not be appropriate due to trending data.

Interwell limits are valid for the site because they are based on the background data from upgradient monitoring well BA-UG1 for the BA Landfill area and monitoring wells FA-UG1 and FA-UG2 for the FA Landfill area (USEPA, 2009). The upgradient monitoring wells are not directly downgradient of a CCR unit and are separated from other CCR units at the facility by a groundwater divide created by a pump-back system that maintains gradient control under the main power block in order to prevent subsidence (Figure 1; Loughlin Associates, 2017). According to the EPA Unified Guidance (USEPA, 2009; page 6-31), interwell tests alone may not be suitable for sites with non-stationarity of distribution mean and variance. Non-stationarity is expected within the heterogeneous and interlayered alluvial fan geology documented at the Site. Therefore, intrawell limits are also valid per the guidance. The statistical methods used are intended to verify that there is no evidence of a previous release from the CCR Unit which may mask a release using intrawell methods. This conclusion is verified during each event by trend testing.

SSIs for pH have previously been evaluated using intrawell prediction limits due to the narrow range of pH values observed in the upgradient wells, which may yield interwell prediction limits that do not fully account for natural variability within the aquifer or for instrument uncertainty. In addition, pH is subject to both upper and lower pH limits, as values on either side of the range may indicate changes to the groundwater.

Previous ASDs were completed for pH at BA-DG3 (Barr, 2021; Barr, 2022a; Barr, 2022b; Barr, 2023a; Barr, 2023b; Barr, 2024a) concluded that the elevated pH was due to a source other than the BA Landfill. This ASD reinforces the findings of those earlier ASDs as described in Section 2 below.

Previous ASDs were completed for FA-DG4 for fluoride (Barr, 2019; Barr, 2020a; Barr, 2020b; Barr, 2021; Barr, 2023b; Barr, 2024a) concluded that the fluoride was due to a source other than the FA Landfill and identified the NEP as a potential source along with natural variability as shown by both regional and site geochemical data. This ASD reinforces the findings of those earlier ASDs and provides additional information that supports a FA Landfill area-wide ASD that will be included by reference to address

potential future fluoride SSIs should they occur at FA-DG4 or other FA Landfill downgradient monitoring wells.

1.3 Rule Requirements

The requirements for written documentation and certification of accuracy for an ASD are included in §257.94(e) (2):

The owner or operator may demonstrate that a source other than the CCR unit caused the statistically significant increase over background levels for a constituent or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The owner or operator must complete the written demonstration within 90 days of detecting a statistically significant increase over background levels to include obtaining a certification from a qualified professional engineer verifying the accuracy of the information in the report.

In accordance with the above requirement, this memorandum is being issued within 90 days of the SSI determination, which occurred on August 20, 2024 and September 2, 2024.

1.4 Potential Alternative Sources Review

Based on the rule (above), there are five categories that we evaluated for this ASD. These include:

1. A source other than the CCR unit
2. Sampling (or sampling equipment) methods
3. Laboratory methods
4. Statistical methods
5. Natural variation in groundwater quality

The rule citation above pertaining to 'a source other than the CCR unit' does not state that a specific source other than the CCR unit be identified. Therefore, this ASD does not identify the other source.

2.0 Lines of Evidence Supporting an ASD: pH at BA-DG3

As part of the ASD, site data was evaluated to identify potential causes for pH outside of the intrawell PL in monitoring well BA-DG3. The following potential sources were selected for investigation:

- A source other than the CCR unit
- Natural variation in groundwater quality

A hypothesis was developed to evaluate the potential alternatives for the SSIs included in the rule and then tested against available data to determine if site data support the hypothesis as described in the following sections.

2.1 A source other than the CCR unit: BA-DG3

- Hypothesis: If the BA Landfill (the CCR Unit) is the source of a release to groundwater that caused the SSI for pH at BA-DG3, the expected concentrations of other parameters indicative of a CCR release should appear elevated in samples from BA-DG3 at about the same time.
- Analysis: While an increasing trend in pH is consistent with a release from a CCR Unit, the lack of a complementary suite of parameters is not consistent with a release. We evaluated the concentrations of other Appendix III parameters in BA-DG3 samples that correspond to the period when the increasing pH values were observed.
- Result: Concentrations of the other six Appendix III parameters indicated that other indicator parameters were present at concentrations that did not trigger SSIs and that were observed to have significantly decreasing trends. The decreasing trends for the other six Appendix III parameters are not likely to be related to retardation or other reactions in the subsurface as these parameters are generally non-reactive in the subsurface. Although EPA has recently asserted that these parameters can be reactive (see for example EPA's Part A and B determinations), the EPA previously established that these parameters were intentionally selected by EPA precisely because they are mobile and hence non-reactive (see USEPA, 40 CFR 257 preamble to the CCR Rule). Decreasing trends for these parameters are the opposite of what would be expected if a pH increase were indicative of a release from the CCR Unit. Therefore, the hypothesis that the CCR Unit is the source of the elevated pH does not fit with the observed conditions and is rejected.

Discussion of Hypothesis

If the CCR Unit is the source of a release to groundwater that caused the SSI for pH at BA-DG3, increased concentrations of other parameters indicative of a CCR release should appear at about the same time because they are very conservative (non-reactive) in the environment. This is because that under a hypothetical release, leachate from a CCR Unit would contain a mixture of the Appendix III parameters that would result in a non-equilibrium condition and increased mass of these parameters in groundwater. Conversely, if concentrations in BA-DG3 are not elevated for the remaining Appendix III parameters, the hypothesis above would be rejected, leading to the conclusion that the SSI is not the result of a release from the CCR Unit.

Demonstration

Time-series plots of the Appendix III parameters are shown in Figure 2. Over the period of record, from 2016 to 2024, concentrations of all six parameters other than pH are decreasing. These decreasing concentrations are not consistent with a release from the CCR Unit, which should show increasing trends. Therefore, a release is unlikely, and the cause for the SSI appears to be due to "a source other than" the CCR Unit. Since a specific source is not apparent at the site, the most likely cause is natural heterogeneity and variability of the aquifer, which is the expectation in most geologic environments (Freeze and Cherry, 1979).

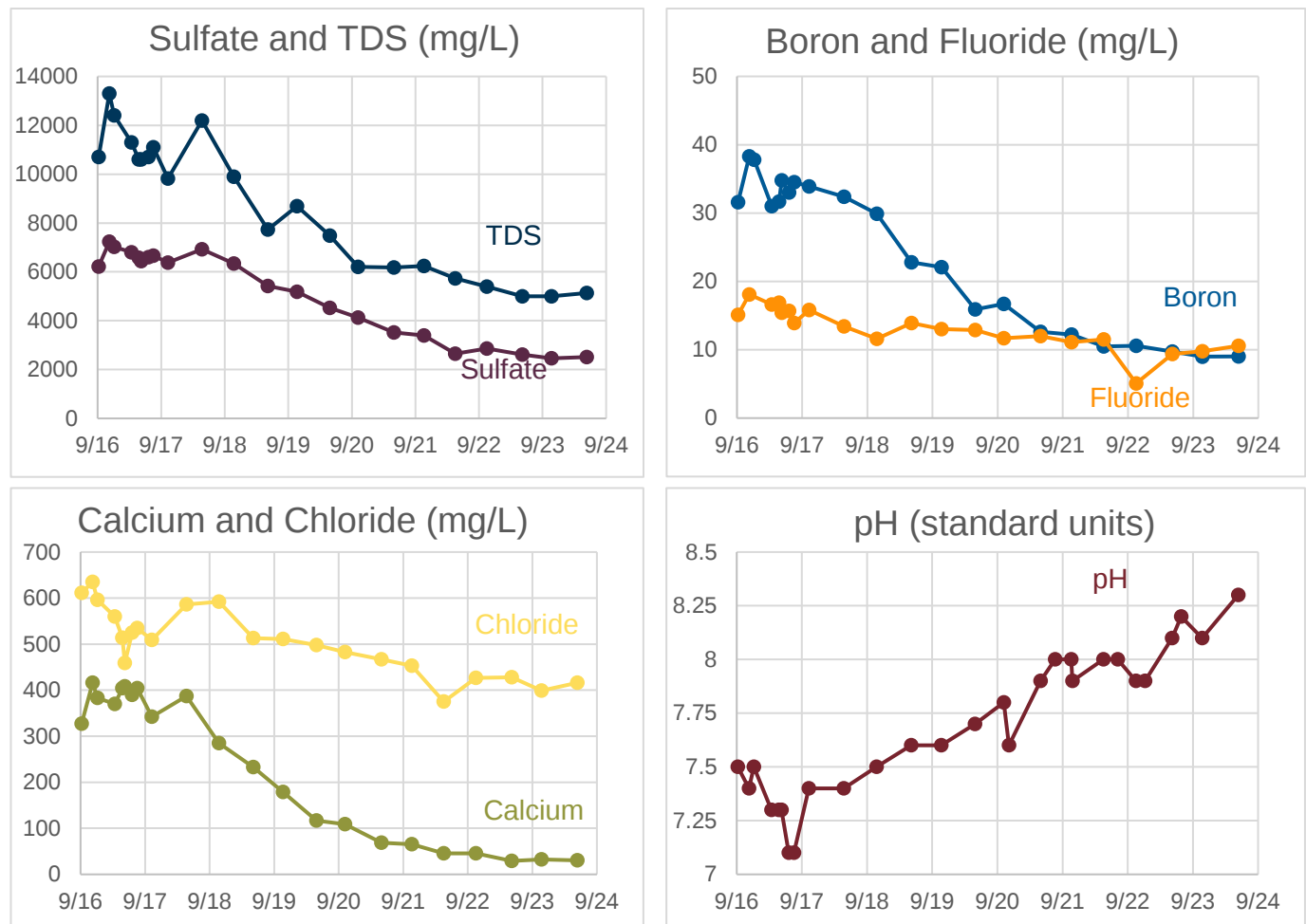


Figure 2 Time-series plots of Appendix III parameters at BA-DG3

3.0 Lines of Evidence Supporting an ASD: Fluoride at FA-DG4

As part of the ASD, site data was evaluated to identify potential causes for elevated fluoride concentrations in the FA-DG4 monitoring well. The following potential sources were selected for investigation:

- Surface water data from the NEP
- Natural variation
- Results of laboratory analysis on CCR material collected from the FA Landfill

A hypothesis was developed to evaluate each of the potential alternatives for the SSIs included in the rule and then tested against available data to determine if site data support the hypothesis as described in the following sections.

3.1 A “source other than the CCR unit” (North Evaporation Pond)

Groundwater flows from under the NEP toward the FA Landfill downgradient monitoring wells as shown on Figure 1.

- Hypothesis: The NEP, which is a non-CCR unit with leakage, is the source of elevated dissolved constituents contributing to the SSI for fluoride in the FA-DG4 monitoring well.
- Analysis: Data collected from the pond from 2018-2023 were compared to the groundwater concentrations. A mixing model of concentrations from upgradient monitoring well FA-UG1 and the NEP was used to evaluate whether the NEP could be a source.
- Result: Concentrations in the NEP were much higher than in the downgradient monitoring well. The concentrations in FA-DG4 are similar to what would be expected if waters from the NEP and upgradient were mixing. The NEP is therefore a likely source of the SSIs.

Figure 3 shows a time-series plot of fluoride concentrations in FA-DG4 collected under the CCR Rule. Dashed lines on the plot indicate the intrawell prediction limit for FA-DG4, the interwell prediction limit calculated from concentrations in FA-UG1 and FA-UG2 (PZ-11), and the interwell prediction limit calculated from the concentrations in the NEP. The prediction limit from the NEP (73.1 mg/L) was higher than the concentration in FA-DG4 (5.9 mg/L). The higher concentrations in the NEP suggest that it is a source of fluoride to downgradient wells.

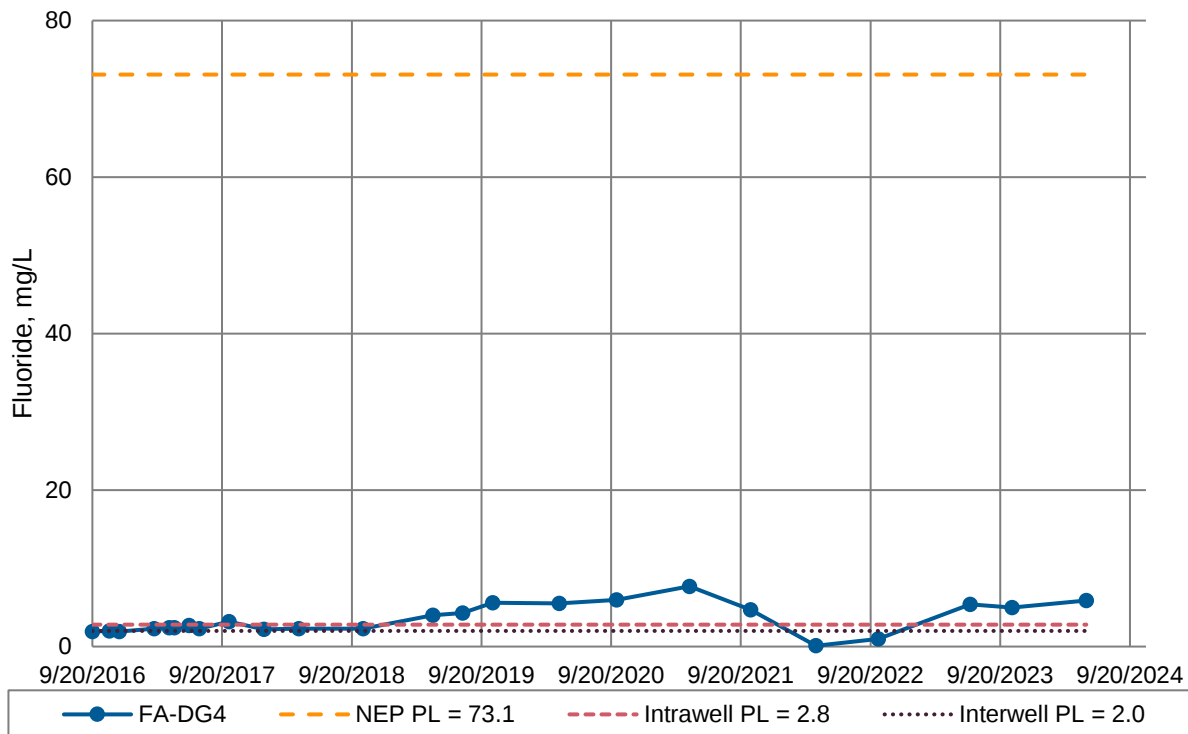


Figure 3 Time-series Plot of Fluoride Concentration in FA-DG4

To further test the hypothesis, the geochemical modeling software The Geochemist's Workbench (Aqueous Solutions LLC, Champaign, IL) was used to model what the composition of a water would be if it was the result of the mixing of waters from an upgradient well (represented by groundwater from FA-UG1) and the NEP. The model used groundwater concentrations measured in April 2018, the most recent available data that include the major ions bicarbonate (alkalinity), magnesium, potassium, and sodium. The model calculated incremental concentrations at every percentage combination (i.e., 100% FA-UG1 and 0% NEP through 100% NEP and 0% FA-UG1). The model accounted for formation of common minerals and predicted that calcite (CaCO_3), magnesite (MgCO_3), and fluorite (CaF_2) can be formed depending upon the mixing ratio.

Figure 4 shows the mixing model results on a Piper plot, along with the original 2018 compositions of the upgradient well, NEP samples, and FA-DG4 (Barr, 2019). The mixing model results indicate that a water similar in composition (i.e., values that are located near the predicted results on the Piper Plot) to the FA-DG4 sample could result from the mixing of waters from the NEP and upgradient wells. This is indicated by the position of the sample for FA-DG4, shown by the dark blue triangle, which plots close to the mixing path about halfway between the NEP samples and the upgradient groundwater sample on Figure 4. This indicates that values observed at FA-DG4 are consistent with the hypothesis that downgradient groundwater can be explained by the contribution of fluoride by the NEP.

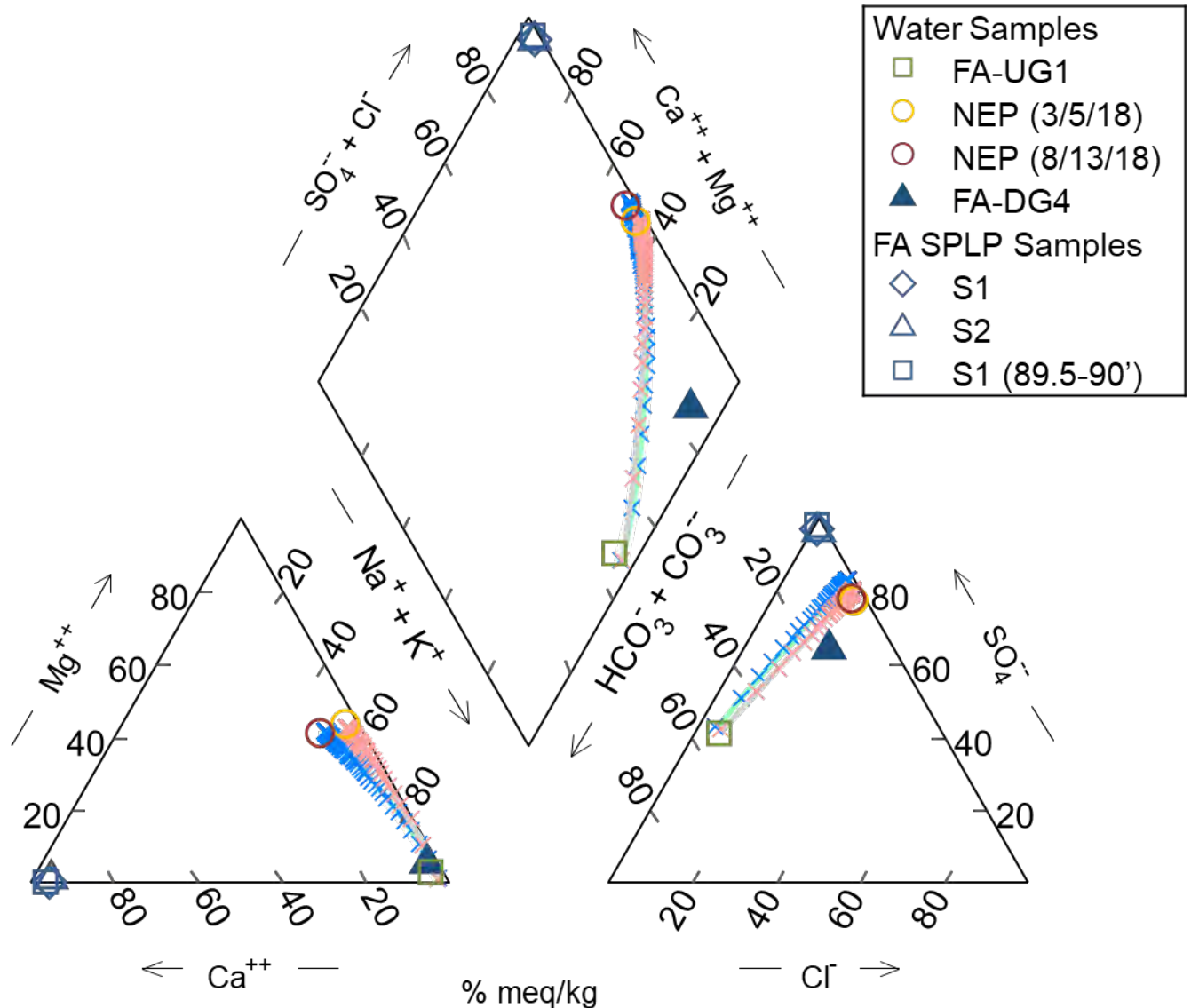


Figure 4 Piper Plot of Mixing Model Results

3.2 A “source other than the CCR unit” (inconsistent with CCR Unit)

- Hypothesis: Groundwater samples from FA-DG4 should have chemical signatures similar to fly ash leachate if the impacts were the result of leaching from the CCR unit.
- Analysis: Synthetic precipitation leaching procedure (SPLP) tests were performed on samples collected from borings advanced into the CCR unit, and the resulting samples were analyzed for major ions and CCR parameters.
- Result: The CCR material in the FA Landfill has a different composition than what would be expected if it were the source of a release affecting FA-DG4 based on the SPLP analysis designed to simulate leaching.

Borings were advanced within the Fly Ash Landfill in December 2019 at the locations shown on Figure 1. Composite samples from the CCR material were collected from several intervals between the surface and the bottom of the borings (90 feet below the surface) at locations S1 and S2. A grab sample from the bottom of boring S1 (89.5 to 90 feet below the surface) was also collected to represent ash from a previously closed non-CCR unit within the landfill footprint. These three samples were leached using the Synthetic Precipitation Leaching Procedure (SPLP), in which the samples were mixed with a slightly acidic solution designed to simulate rainwater that might percolate through the ash. The liquid from this procedure was analyzed for the same parameters used to evaluate groundwater. The results of the analysis were included in Table 2 and Attachment A of the Fall 2019 ASD (Barr, 2020a).

The major ion compositions of the SPLP leachate samples are shown on the Piper plot in Figure 3, which also shows samples from FA-UG1 and FA-DG4. The plot indicates that the SPLP samples from S1, S2, and S1 (89.5-90') have very similar compositions but are very different from the composition of the sample collected from downgradient monitoring well FA-DG4. In particular, the sample from FA-DG4 has sodium as the dominant cation ($\text{Na} > \text{Mg} > \text{Ca}$), whereas the SPLP samples exhibit calcium as the dominant cation ($\text{Ca} > \text{Na} > \text{Mg}$).

Fluoride concentrations in the SPLP samples were measured at less than 0.4 mg/L, whereas the fluoride concentrations that have been measured in FA-DG4 range from 0.96 to 7.7 mg/L. Although absolute concentrations may not be comparable between groundwater samples and SPLP leachate, fluoride makes up approximately 0.1% of the total anionic charge concentration in the FA-DG4 sample, whereas fluoride comprises only 0.03 to 0.06% of the anionic charge in the SPLP samples. The relative lack of fluoride in the SPLP samples means that the CCR unit is unlikely to be the source of fluoride to groundwater responsible for previous SSIs. These data refute the hypothesis that the release is due to the CCR unit.

Table 2 Synthetic Precipitation Leaching Procedure Results, Deseret Power Bonanza Plant

Location Depth Date	S1 89.5 - 90 ft 12/17/2019	S1 0 - 90 ft 12/17/2019	S2 0 - 90 ft 12/17/2019
Parameter [mg/l unless otherwise noted]			
SPLP General Parameters			
Alkalinity, Bicarbonate, as CaCO_3 (reprep)	26.0	25.0	20.0
Alkalinity, Carbonate as CaCO_3 (reprep)	< 10.0	12.0	20.0
Alkalinity, Hydroxide as CaCO_3 (reprep)	< 10.0	< 10.0	< 10.0
Alkalinity, Total, as CaCO_3 (reprep)	30.0	37.0	40.0
Chloride	3.05	8.93	11.4
Fluoride	0.185	0.288	0.380
pH (reprep) [pH units]	8.59	8.65	9.19
Sulfate	1,500	1,500	1,580
SPLP Metals			
Antimony	< 0.0300	< 0.0300	< 0.0300
Arsenic	< 0.0200	< 0.0200	< 0.0200
Beryllium	< 0.0100	< 0.0100	< 0.0100
Boron	0.554	1.00	2.00
Cadmium	< 0.00350	< 0.00350	< 0.00350

Calcium	652	622	656
Calcium (reprep)	708	633	677
Chromium	< 0.100	< 0.100	< 0.100
Cobalt	< 0.0200	< 0.0200	< 0.0200
Lead	< 0.0100	< 0.0100	< 0.0100
Lithium	< 0.100	< 0.100	< 0.100
Magnesium	< 1.00	1.15	5.15
Mercury	< 0.00100	< 0.00100	< 0.00100
Molybdenum	0.322	0.0623	0.104
Potassium	< 1.00	1.24	1.45
Selenium	0.0137	< 0.0100	0.0306
Sodium	24.6	27.1	30.9
Thallium	< 0.0100	< 0.0100	< 0.0100

3.3 Natural variation

- Hypothesis: Natural variation in fluoride concentrations within native geology at the site and in the region contributes to the elevated fluoride concentrations observed in FA-DG4.
- Analysis: Fluoride concentrations in all wells within the groundwater monitoring network were evaluated using publicly available data and published studies of regional geology and groundwater chemistry. A simple geochemical model for dissolution/precipitation of minerals helps explain the observed differences across the site in fluoride concentrations.
- Result: Fluoride concentrations in site wells and regionally vary widely due to the geology of the region and are likely to be affected by geochemical processes expected from interaction with the mineralogy of the subsurface. Therefore, natural variation is likely a significant cause of the SSI observed in FA-DG4.

As shown on Figure 5, the fluoride concentrations in site wells vary by approximately an order of magnitude. The concentration is lowest in the upgradient fly ash wells (averages of 1.8 and 0.6 mg/L in FA-UG1 and FA-UG2, respectively) and are the highest in FA-DG2 (average of 56 mg/L). Average concentrations in the other downgradient wells (FA-DG2 and FA-DG3) exceed the fluoride concentrations measured in FA-DG4 (Figure 5). Because other wells at the site had higher concentrations of fluoride that were not indicative of an SSI, it is concluded that there is high variability in fluoride concentrations in the area.

To test the hypothesis of natural variation as an explanation for the concentrations at FA-DG4, evidence of natural sources of fluoride and/or plausible explanations for the differences in concentrations between downgradient wells were evaluated as described below.

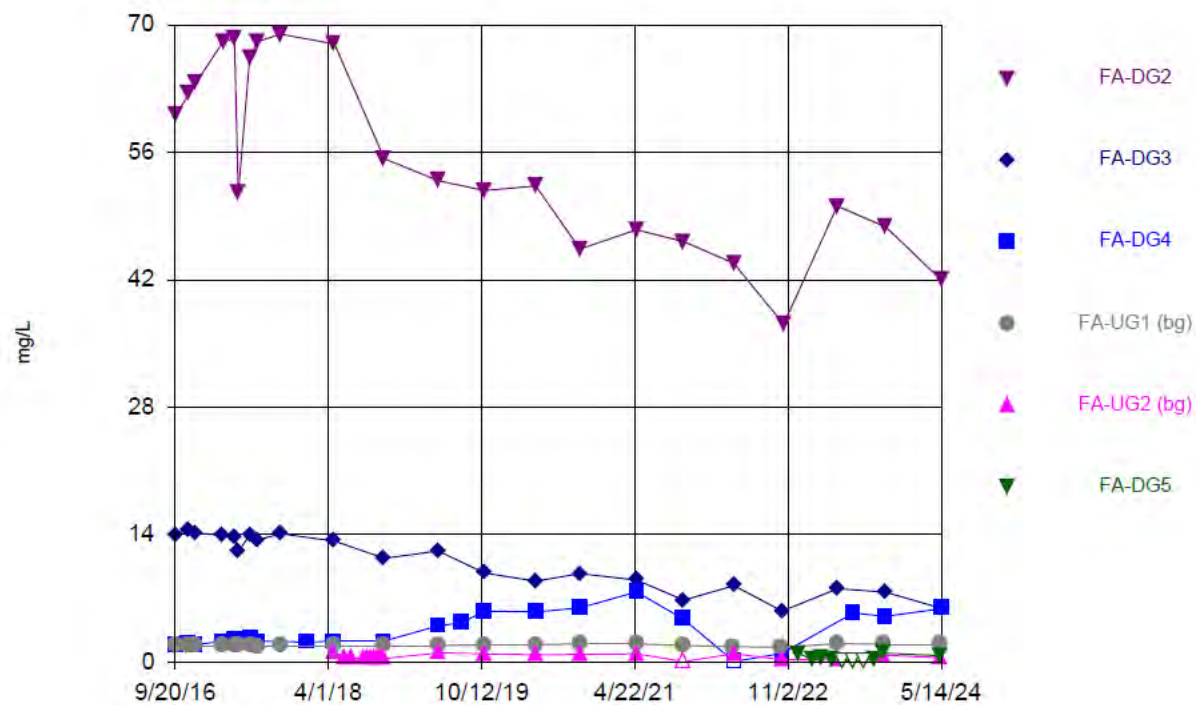


Figure 5 Time-Series Plot of Fluoride Concentrations in Monitoring Wells

The geology of the upper 20 feet of soil logged by Dames & Moore in 1991 consists primarily of very fine-grained sands and silt with occasional traces of clay. These sediments are geologically recent deposits, having been transported by alluvial and colluvial processes from the surrounding hills and cliffs of the Uinta Formation. The first and second hypersaline phases of the ancient Lake Uinta caused large depositions of Eocene-aged evaporites, particularly in the area of the Bonanza Power Plant (Vanden Berg and Birgenheier, 2017; Birdwell et al., 2019). Evaporites consist of readily soluble minerals, such as halite (NaCl) and nahcolite (NaHCO_3 , a source of baking soda), which can rapidly dissolve into groundwater.

A search for fluoride concentrations in groundwater within 50 miles of the site yielded 965 records from the Water Quality Portal (NWQMC et al., 2019). Concentrations ranged from below detection to 450 mg/L, with a lowest detected value of 0.03 mg/L and a 95th percentile of approximately 18 mg/L. Because these concentrations indicate naturally occurring levels of fluoride are elevated well above the concentrations observed at FA-DG4, it adds to the weight of evidence that supports the hypothesis that natural variability is a likely contributor to the SSI at this well.

In addition, the natural variation hypothesis is also supported by a number of studies that have noted the spatial variability of groundwater compositions in this area (Wallace, 2012; Naftz, 1996; Holmes and Kimball, 1987; Lindskov and Kimball, 1984). The studies describe mineralogical controls on groundwater composition in the region that seem to explain the differences observed between the samples from different wells at the site.

For instance, calcium concentrations can decrease in groundwater when calcium carbonate minerals precipitate out of solution, leaving the groundwater undersaturated with respect to calcium- and fluoride-bearing minerals (e.g., fluorite and apatite). In this condition, the fluoride-bearing minerals may dissolve, increasing groundwater fluoride concentrations. This geochemical relationship appears to offer an explanation for the differences in concentration along the flow path between upgradient and downgradient wells at the site.

For example, low calcium (<5 mg/L) and high fluoride (>10 mg/L) concentrations can occur in areas near where naturally occurring fluoride minerals are dissolving and calcium carbonate is precipitating. In groundwater with this composition, calcium is the limiting constituent in fluorite saturation. This is an explanation for calcium and fluoride concentrations observed in downgradient monitoring wells FA-DG2 and FA-DG3.

In contrast, where there are high calcium concentrations (>200 mg/L) and low fluoride (<2 mg/L) concentrations in groundwater (e.g., at FA-UG2), fluoride is the limiting constituent in fluorite saturation. This scenario is found where calcium minerals such as calcite are readily dissolving, increasing calcium concentrations in groundwater. Calculations made with The Geochemist's Workbench (Bethke, 2008; Table 3) indicate that calcite (calcium carbonate) is near saturation in the five fly ash monitoring wells, whereas the low-fluoride wells (FA-UG1, FA-UG2, and FA-DG4) are undersaturated with respect to fluorite. The calculations were made using data from April 2018, which is the most recent event where alkalinity (bicarbonate) was measured. When fluoride concentrations increase from 2018 concentrations to the concentration measured in spring 2024 (5.9 mg/L), FA-DG4 becomes slightly oversaturated with respect to fluorite. These observations indicate the low concentrations of fluoride are likely due to equilibration with fluorite in the subsurface as water from the NEP migrates toward the downgradient wells.

As groundwater is depleted in calcium due to mineral precipitation or mixes with more calcium-depleted water from upgradient of the landfill, the amount of calcium available to precipitate with fluoride into a mineral phase decreases. As a result, less fluoride is removed from groundwater, and concentrations can increase as groundwater contacts additional fluoride-bearing rocks. The results from FA-DG4 appear to match the conditions expected as part of this process.

The processes of mineral precipitation and dissolution are not necessarily instantaneous. As a result, they are more likely to occur in systems with lower flow and longer contact times with aquifer minerals, which also provide nucleation sites for mineral formation. Therefore, these processes are less likely to occur in surface waters like those sampled from the NEP because the pond is subjected to frequent disturbances such as wave action, pump circulation to misting machines, and discharges into the pond from operations which may prevent precipitation reactions from proceeding to equilibrium. In addition, nucleation sites for mineral formation are less prevalent in surface water than in groundwater.

The geochemical relationships described above also explain an apparent contradiction in that the NEP is a source of fluoride for FA-DG4 while samples from FA-UG2 (located next to the NEP) exhibit a lower concentration of fluoride. The geochemical conceptual model described above suggests that lower

fluoride concentrations are expected where high concentrations of calcium from the NEP are resulting in precipitation of fluorite within the geologic matrix and reducing the concentration in groundwater at this location.

Table 3 Calcite and Fluorite Saturation Indices for Monitoring Wells

Location	Calcium	Fluoride	Calcite	Fluorite
	mg/L	mg/L	log Q/K	log Q/K
FA-DG2	1.2	67.9	0.43	0.54
FA-DG3	1.8	13.3	0.15	-0.32
FA-DG4	54.1	2.3	0.14	-0.58
FA-UG1	11.5	1.8	-0.02	-1.0
FA-UG2	567	1.1	0.06	-0.56

Samples collected in April 2018

Thermodynamic data from The Geochemist's Workbench thermo.tdat

Values in the approximate range of -0.5 to 0.5 are assumed to be near equilibrium saturation.

Values <-0.5 are undersaturated, and values >0.5 are supersaturated.

4.0 Conclusion

The foregoing ASD establishes lines of evidence that meet the alternative source requirements of the CCR Rule §257.94(e)(2). Specifically, the SSI for fluoride from the spring 2024 monitoring event at FA-DG4 is due to a "source other than" the Fly Ash Landfill and/or to natural variation based on both site-specific and regional data. The elevated pH in BA-DG3 is due to a source other than the CCR unit because all of the other parameters are decreasing in concentration which is opposite of what would be expected if a presumed release from the CCR unit had occurred.

5.0 Certification

I certify that the written demonstration provided above are supported by the data that is accurate and consistent with our review of the groundwater data collected to date and as required under the CCR Rule (§257.94(e)(2)).



Dale Kolstad, P.E. (License #11117963-2202)
Barr Engineering Co.

6.0 References

- Barr Engineering Co., 2020. Alternative Source Demonstration (ASD), Fly Ash Landfill Area, Bonanza Power Plant. Technical Memorandum from Jeff Davis to Tyler Esplin, May 19, 2021. Included as Appendix B in 2020 Annual Groundwater Monitoring and Corrective Action Report (January 2021).
- Barr Engineering Co., 2021. Spring 2021 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant. Technical Memorandum from Jeff Davis to Tyler Esplin, November 30, 2021. Included as Appendix B in 2021 Annual Groundwater Monitoring and Corrective Action Report (January 2022).
- Barr Engineering Co., 2022a. Fall 2021 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant. Technical Memorandum from Dale Kolstad to Tyler Esplin, May 4, 2022. Included as Appendix B in 2022 Annual Groundwater Monitoring and Corrective Action Report (January 2023).
- Barr Engineering Co., 2022b. Spring 2022 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant. Technical Memorandum from Dale Kolstad to Tyler Esplin, November 4, 2022. Included as Appendix B in 2022 Annual Groundwater Monitoring and Corrective Action Report (January 2023).
- Barr Engineering Co., 2023a. Fall 2022 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant. Technical Memorandum from Dale Kolstad to Tyler Esplin, April 29, 2023. Included as Appendix B in 2023 Annual Groundwater Monitoring and Corrective Action Report (January 2024).
- Barr Engineering Co., 2023b. Spring 2023 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant. Technical Memorandum from Dale Kolstad to Tyler Esplin, October 31, 2023. Included as Appendix B in 2023 Annual Groundwater Monitoring and Corrective Action Report (January 2024).
- Barr Engineering Co., 2024a. Fall 2023 Monitoring Event Alternative Source Demonstration (ASD), Bonanza Power Plant. Technical Memorandum from Dale Kolstad to Tyler Esplin, May 3, 2024.
- Barr Engineering Co., 2024b. 2023 Annual Groundwater Monitoring and Corrective Action Report, Bonanza Power Plant. Prepared for Deseret Power Electric Cooperative. January 2024.
- Burns & McDonnell, 2017. Groundwater Monitoring System Certification, Deseret Generation and Transmission Cooperative – Bonanza Power Plant, Vernal, Utah. Letter to Tyler Esplin from Block Andrews and Wayne Weber, October 12, 2017.
- Freeze, R.A. and J.A. Cherry, 1979. Groundwater. Prentice Hall: Englewood Cliffs, NJ. 604 pp.
- Kosson, D. S., F. Sanchez, P. Kariher, L. H. Turner, R. Delapp, and P. Seignette, 2009. Characterization of Coal Combustion Residues from Electric Utilities - Leaching and Characterization Data. U.S. Environmental Protection Agency, EPA/600/R-09/151, 2009.
- Loughlin Water Associates, 2017. Bonanza Power Plant, Coal Combustion Residuals, Monitoring Well Installation Report. January 2017.
- Loughlin Water Associates, LLC, 2020. Annual Review of Groundwater Levels, December 2018 through December 2019. Prepared for Deseret Generation and Transmission Co-operative, April 2020.



Appendix C

2024 Gradients and Flowrates

Deseret Power Fly Ash Area Groundwater Velocity Calculation

Date

5/13/24-5/14/24

Kh low (ft/d)	0.2	Groundwater Monitoring System Certification (Burns & McDonnell, 2017)
Kh high (ft/d)	8.8	Groundwater Monitoring System Certification (Burns & McDonnell, 2017)
porosity, n	0.4	Groundwater Monitoring System Certification (Burns & McDonnell, 2017)
gradient, i (ft/ft)	0.005	
V low (ft/d)	0.002	
V high (ft/d)	0.105	
V low (ft/yr)	0.87	
V high (ft/yr)	38	
Flow Direction	Southeast	

	Top of Casing Elevation	Depth to Water	Water Level Elevation
	ft amsl	ft below TOC	ft amsl
FA-UG1	5084.46	35.58	5048.88
FA-UG2	5069.17	25.03	5044.14
FA-DG2	5060.61	31.29	5029.32
FA-DG3	5058.97	29.69	5029.28
FA-DG4	5059.81	31.02	5028.79
FA-DG5	5060.38	30.64	5029.74

*Previously PZ-212

Fly Ash Landfill horizontal distance, ft

	FA-UG1
FA-DG2	4178
FA-DG3	4152
FA-DG4	4096
FA-DG5	3994

*Previously PZ-212

Fly Ash Landfill difference in WL elevation, ft

	FA-UG1
FA-DG2	19.56
FA-DG3	19.60
FA-DG4	20.09
FA-DG5	19.13

*Previously PZ-212

Fly Ash Landfill horizontal gradient, ft/ft

	FA-UG1
FA-DG2	0.005
FA-DG3	0.005
FA-DG4	0.005
FA-DG5	0.005
Average	0.005

*Previously PZ-212

Deseret Power Bottom Ash Area Groundwater Velocity Calculation

Date

5/20/24-5/21/24

Kh low (ft/d)	0.6	Groundwater Monitoring System Certification (Burns & McDonnell, 2017)
Kh high (ft/d)	5.2	Groundwater Monitoring System Certification (Burns & McDonnell, 2017)
porosity, n	0.4	Groundwater Monitoring System Certification (Burns & McDonnell, 2017)
gradient, i (ft/ft)	0.001	
V low (ft/d)	0.002	
V high (ft/d)	0.017	
V low (ft/yr)	0.7	
V high (ft/yr)	6	
Flow Direction	Southeast	

	Top of Casing Elevation	Depth to Water	Water Level Elevation
	ft amsl	ft below TOC	ft amsl
BA-UG1	5028.82	34.90	4993.92
BA-DG1	5005.91	14.72	4991.19
BA-DG2	5007.27	16.11	4991.16
BA-DG3	5006.95	17.32	4989.63
BA-DG4	5007.38	19.45	4987.93

Bottom Ash Landfill horizontal distance, ft

	BA-UG1
BA-DG1	2484
BA-DG2	2479
BA-DG3	2528
BA-DG4	2597

Bottom Ash Landfill difference in WL elevation, ft

	BA-UG1
BA-DG1	2.72
BA-DG2	2.76
BA-DG3	4.28
BA-DG4	5.98

Bottom Ash Landfill horizontal gradient, ft/ft

	BA-UG1
BA-DG1	0.001
BA-DG2	0.001
BA-DG3	0.002
BA-DG4	0.002
Average	0.001

Deseret Power Fly Ash Area Groundwater Velocity Calculation

Date

10/14/24-10/15/24

Kh low (ft/d)	0.2	Groundwater Monitoring System Certification (Burns & McDonnell, 2017)
Kh high (ft/d)	8.8	Groundwater Monitoring System Certification (Burns & McDonnell, 2017)
porosity, n	0.4	Groundwater Monitoring System Certification (Burns & McDonnell, 2017)
gradient, i (ft/ft)	0.005	
V low (ft/d)	0.002	
V high (ft/d)	0.106	
V low (ft/yr)	0.88	
V high (ft/yr)	39	
Flow Direction	Southeast	

	Top of Casing Elevation	Depth to Water	Water Level Elevation
	ft amsl	ft below TOC	ft amsl
FA-UG1	5084.46	35.77	5048.69
FA-UG2	5069.17	21.78	5047.39
FA-DG2	5060.61	31.67	5028.94
FA-DG3	5058.97	30.07	5028.90
FA-DG4	5059.81	31.22	5028.59
FA-DG5	5060.38	31.20	5029.18

*Previously PZ-212

Fly Ash Landfill horizontal distance, ft

	FA-UG1
FA-DG2	4178
FA-DG3	4152
FA-DG4	4096
FA-DG5	3994

*Previously PZ-212

Fly Ash Landfill difference in WL elevation, ft

	FA-UG1
FA-DG2	19.75
FA-DG3	19.79
FA-DG4	20.10
FA-DG5	19.50

*Previously PZ-212

Fly Ash Landfill horizontal gradient, ft/ft

	FA-UG1
FA-DG2	0.005
FA-DG3	0.005
FA-DG4	0.005
FA-DG5	0.005
Average	0.005

*Previously PZ-212

Deseret Power Bottom Ash Area Groundwater Velocity Calculation

Date

10/21/24-10/22/24

Kh low (ft/d)	0.6	Groundwater Monitoring System Certification (Burns & McDonnell, 2017)
Kh high (ft/d)	5.2	Groundwater Monitoring System Certification (Burns & McDonnell, 2017)
porosity, n	0.4	Groundwater Monitoring System Certification (Burns & McDonnell, 2017)
gradient, i (ft/ft)	0.002	
V low (ft/d)	0.002	
V high (ft/d)	0.021	
V low (ft/yr)	0.9	
V high (ft/yr)	8	
Flow Direction	Southeast	

	Top of Casing Elevation	Depth to Water	Water Level Elevation
	ft amsl	ft below TOC	ft amsl
BA-UG1	5028.82	35.20	4993.62
BA-DG1	5005.91	15.15	4990.76
BA-DG2	5007.27	16.38	4990.89
BA-DG3	5006.95	17.76	4989.19
BA-DG4	5007.38	19.86	4987.52

Bottom Ash Landfill horizontal distance, ft

	BA-UG1
BA-DG1	2484
BA-DG2	2479
BA-DG3	2528
BA-DG4	2597

Bottom Ash Landfill difference in WL elevation, ft

	BA-UG1
BA-DG1	2.85
BA-DG2	2.73
BA-DG3	4.43
BA-DG4	6.09

Bottom Ash Landfill horizontal gradient, ft/ft

	BA-UG1
BA-DG1	0.001
BA-DG2	0.001
BA-DG3	0.002
BA-DG4	0.002
Average	0.002



Appendix D

2024 Baseline Analytical Data

Appendix D
Baseline Analytical Data
2024 CCR Annual Report
Deseret Power Cooperative

Location Date Sample Type		BA - DG4 3/07/2023 N	BA - DG4 5/21/2023 N	BA - DG4 8/08/2023 N	BA - DG4 10/16/2023 N	BA - DG4 11/28/2023 N	BA - DG4 1/15/2024 N	BA - DG4 2/21/2024 N	BA - DG4 4/02/2024 N
Parameter	Units								
General Parameters									
Chloride	mg/l	539	566	604	616	678	578	572	614
Fluoride	mg/l	2.57	1.32	1.53	2.87	1.22	2.21	2.53	2.25
Solids, total dissolved	mg/l	11400	12600	10600	15600	10600	11400	9400	11200
Sulfate, as SO4	mg/l	6190	6570	6780	6620	6830	6480	8.77	6530
Field Parameters									
Barometric pressure	mmHg	635.8	635.9	634.6	640.4	643.6	635.7	632.4	639.8
Dissolved oxygen saturation	%	41.9	13.3	10.5	13.0	30.1	11.1	31.3	70.7
pH	pH units	7.4	7.5	7.6	7.5	7.5	7.6	7.7	7.6
Redox (oxidation potential)	mV	123.4	35.3	23.6	42.4	64.1	25.1	36.7	68.8
Specific conductance @ 25 deg C	umhos/cm	9246	12540	12963	12101	9491	8791	10171	9704
Temperature	deg F	46.3	69.4	73.4	63.7	55.3	50.4	59.8	57.1
Turbidity	NTU	0.85	0.64	1.80	0.73	0.75	0.56	0.38	0.26
Water Level Elevation	ft amsl	4988.19	4988.22	4988.17	4987.94	4987.96	4987.97	4988.05	4987.95
Total Metals									
Antimony	mg/l	< 0.0025 U	< 0.0005 U	< 0.0005 U	< 0.0025 U	< 0.0005 U	< 0.0025 U	< 0.0005 U	< 0.0005 U
Arsenic	mg/l	0.0050	0.0077	0.0093	0.0118	0.0113	0.0076	0.0059	0.0058
Barium	mg/l	0.031	0.020	< 0.050 U	0.018	0.016	0.015	0.015	0.014
Beryllium	mg/l	< 0.0025 U	< 0.0010 U	< 0.0010 U	< 0.0025 U	< 0.0005 U	< 0.0025 U	< 0.0005 U	< 0.0005 U
Boron	mg/l	28.1	29.4	30.2	27.0	30.2	28.1	29.2	33.2
Cadmium	mg/l	< 0.0010 U	< 0.0002 U	< 0.0002 U	< 0.0010 U	< 0.0002 U	< 0.0010 U	< 0.0002 U	< 0.0002 U
Calcium	mg/l	282	242	289	238	237	224	237	236
Chromium	mg/l	0.0033	0.0030	0.0033	< 0.0025 U	0.0044	0.0033	0.0029	0.0007
Cobalt	mg/l	< 0.01 U	0.0016	0.0025	0.0026	0.0025	< 0.0025 U	0.0016	0.0017
Lead	mg/l	< 0.0025 U	< 0.0005 U	< 0.0005 U	< 0.0025 U	< 0.0005 U	< 0.0025 U	< 0.0005 U	< 0.0005 U
Lithium	mg/l	0.240	0.196	0.191	0.182	0.169	0.184	0.184	0.190
Magnesium	mg/l	500	--	--	--	--	--	--	--
Mercury	mg/l	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U	< 0.00015 U
Molybdenum	mg/l	0.09	0.07	< 0.10 U	< 0.10 U	0.06	0.06	0.06	0.06
Phosphorus, total, as P	mg/l	0.04	--	--	--	--	--	--	--
Potassium	mg/l	8.1	--	--	--	--	--	--	--
Selenium	mg/l	0.0193	0.0305	0.0322	0.0402	0.0434	0.0277	0.0198	0.0309
Sodium	mg/l	2410	--	--	--	--	--	--	--
Thallium	mg/l	< 0.0010 U	< 0.0002 U	< 0.0002 U	< 0.0010 U	< 0.0002 U	< 0.0010 U	< 0.0002 U	< 0.0002 U
Radiochemical Parameters									
Radium 226	pCi/l	0.51 +/- 0.315	0.818 +/- 0.326	0.488 +/- 0.258 NDB	0.313 +/- 0.191 UB	0.376 +/- 0.337	0.226 +/- 0.276 ND	0.224 +/- 0.366 ND	0 +/- 0.134 ND
Radium 228	pCi/l	0.85 +/- 0.25	0.0778 +/- 0.267 ND	0.0980 +/- 0.369 ND	0.619 +/- 0.265 UB	0.369 +/- 0.313	1.71 +/- 0.271	0.423 +/- 0.274 ND	0.0891 +/- 0.260 ND
Radium, combined (226+228), calculated	pCi/l	1.360 +/- 0.40	0.8958 +/- 0.42 q	0.586 +/- 0.45 q	0.932 +/- 0.33 ND	0.75 +/- 0.46 ND	1.94 +/- 0.39 q	0.65 +/- 0.65 ND	0.0891 +/- 0.290 ND

Data Footnotes and Qualifiers

Barr Standard Footnotes and Qualifiers

--	Not analyzed/Not available.
N	Sample Type: Normal
ND	Not detected.
q	The combined radium result includes both detected and not detected values.
U	The analyte was analyzed for, but was not detected.
UB	The analyte was detected in one of the associated laboratory, equipment, field or trip blank samples and is considered non-detect at the concentration reported by the laboratory.



Appendix E

2024 Prediction Limits

Appendix E
2024 Prediction Limits
2024 CCR Annual Report
Deseret Power Cooperative

Appendix III Constituents - Prediction Limits							
Well	Boron (T)	Calcium (T)	Chloride	Fluoride	pH	Sulfate	TDS
	mg/L	mg/L	mg/L	mg/L	units	mg/L	mg/L
Bottom Ash Area Wells							
	<i>Intrawell Prediction Limit</i>	<i>Intrawell Prediction Limit</i>	<i>Intrawell Prediction Limit</i>	<i>Intrawell Prediction Limit</i>	<i>Intrawell Prediction Limit</i>	<i>Intrawell Prediction Limit</i>	<i>Intrawell Prediction Limit</i>
BA-DG1	11.5	86.1	397	6.9	7.1-7.7	2,730	5,150
BA-DG2	44.4	480	871	9.4	7.0-7.3	8,810	14,900
BA-DG3	38.3	416	649	19.2	7.0-8.2	7,230	14,200
BA-DG4	34.4	289	707	3.7	7.3-7.8	7,110	16,500
BA Interwell Prediction Limit	218	468	1590	13.4	6.9 - 7.3	12,700	22,600
Fly Ash Area Wells							
	<i>Intrawell Prediction Limit</i>	<i>Intrawell Prediction Limit</i>	<i>Intrawell Prediction Limit</i>	<i>Intrawell Prediction Limit</i>	<i>Intrawell Prediction Limit</i>	<i>Intrawell Prediction Limit</i>	<i>Intrawell Prediction Limit</i>
FA-DG2	13.8	2.1	413	75.5	9.0-9.4	5,940	14,600
FA-DG3	3.24	1.5	165	14.6	8.5-9.4	1,810	3,930
FA-DG4	12.4	60.6	966	2.8	7.5-7.7	4,420	12,200
FA-DG5	72.5	633	2030	2.5	6.8-7.4	9740	35,100
FA Interwell Prediction Limit	55.8	659	1730	2.0	6.8 - 8.2	9360	16,800

Parametric prediction limits used if background data satisfied normality test. If not, non-parametric prediction limits of highest background value used.

Upgradient (background) wells: BA-UG1; FA-UG1 and FA-UG2

Gray: Not analyzed by intrawell methods due to significant increasing trends.

pH: two-sided prediction limit



Appendix F

Monitoring System Elevations

Appendix F
Monitoring System Elevations
2024 CCR Annual Report
Deseret Power Cooperative

Well	Top of Casing Elevation (ft amsl)
Bottom Ash Landfill	
BA-UG1	5028.816
BA-DG1	5005.912
BA-DG2	5007.266
BA-DG3	5006.951
BA-DG4	5007.382
Fly Ash Landfill	
FA-UG1	5084.456
FA-UG2	5069.168
FA-DG2	5060.609
FA-DG3	5058.965
FA-DG4	5059.809
FA-DG5	5060.384

NAVD88 Geoid18