

SEMI-ANNUAL GROUND WATER
QUALITY ASSURANCE REPORT

FIRST HALF OF 2020
(JANUARY THRU JUNE)

SEMI – ANNUAL QUALITY ASSURANCE

CHURCH ROCK SITE

JANUARY OF 2020 SAMPLING EVENT

AUGUST – 2020

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(1 of 1)

1.0 REQUIREMENTS

The quality assurance and control procedures are contained in Sec. 3.0 of the Remedial Action Plan of Church Rock Site dated April 1989. The procedure addresses sampling, chain of custody, laboratory quality control, and data validation. These requirements became effective July 3, 1989, when United Nuclear received the Administrative Order on the Church Rock Site from the U.S. Environmental Protection Agency (USEPA).

2.0 FIELD SAMPLING PROCEDURES AND QA/QC REPORT

Copies of the 2020 1st quarter field low flow purging and sampling data sheets are included in Appendix A. These sheets indicate the field parameter of pH, temperature, conductivity and the water level drop in the well if any, during the sampling. The quarterly QA/QC Field Blank, Rinsate, VOC Trip Blank and Duplicate analysis report are included in Appendix B.

3.0 CHAIN OF CUSTODY

Copies of the quarterly Chain of Custody report are included in Appendix C. Energy Laboratories, Inc., our contract laboratory is located in Casper, Wyoming. Energy Labs inspect the sample shipment upon arrival to verify the information of the Chain of Custody form and to determine if sample arrive at the appropriate temperature and preservation.

4.0 LABORATORY CONTROL

Copies of the quarterly internal Quality Control reports prepared by Energy Laboratories and associated EPA performance evaluations are included in Appendix D (1 of 1).

5.0 DATA EVALUATION

Analytical reports are reviewed by the Remedial Project Managers and site Radiation Safety Officer after receipt from Energy Labs. Significant increase or decrease and out of range values are identified and the laboratory is requested to recheck the suspect values. The laboratory responds by checking transcription for these items, and where necessary, repeats the analysis. A revised report is then issued for that sample if an error is discovered.

APPENDIX – A

QUARTERLY

FIELD DATA SHEET

PH Standard Verification Check

(Quar. Performance Monitoring - Pg. 1 of 7)

Cond. Standard Verification Check

STD. PH Reading Date/Time Initial
 4-Buffer 4.00 1-14-20/0753 FG
 7-Buffer 7.06 1-14-20/0748 FG

GROUND WATER MONITORING FIELD DATA SHEET
 FIRST QUARTER 20 20
 SAMPLING

STD. μ S/cm Reading Date/Time Initial
 1413 μ S/cm 1443 1-14-20/0754 FG

(pH/cond. meter #1 calibrated on 1-13-20 by TC)

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
1-14-20	717			5.200	5.210	5.220	5.130
				1st pH 3.37	2nd pH 3.37	Stable pH 3.36	Ending pH 3.52
				1st Temp. 5.6	2nd Temp. 5.6	Stable Temp. 5.7	Ending Temp. 12.7
				Comments: Conductivity is in μ S/cm Temperature is in $^{\circ}$ C pH is in std. units			
1-14-20	EPA-14			3.340	3.570	3.560	3.520
				1st pH 6.42	2nd pH 6.49	Stable pH 6.53	Ending pH 5.66
				1st Temp. 11.7	2nd Temp. 11.6	Stable Temp. 11.6	Ending Temp. 13.3
				Comments:			
1-14-20	717 DUPLICATE			5.160	5.150	5.160	5.200
				1st pH 3.52	2nd pH 3.52	Stable pH 3.52	Ending pH 3.49
				1st Temp. 12.5	2nd Temp. 12.6	Stable Temp. 12.5	Ending Temp. 13.1
				Comments: Resumed/collected sample after pump repair (loosened bladder was re-secured/connected inside pump).			
1-14-20	613			3.130	8.010	8.350	8.450
				1st pH 3.18	2nd pH 3.10	Stable pH 3.08	Ending pH 2.95
				1st Temp. 11.7	2nd Temp. 11.8	Stable Temp. 11.8	Ending Temp. 12.7
				Comments:			
1-15-20	614			7.010	7.020	7.020	7.100
				1st pH 6.81	2nd pH 6.89	Stable pH 6.91	Ending pH 6.46
				1st Temp. 9.2	2nd Temp. 9.5	Stable Temp. 9.6	Ending Temp. 11.7
				Comments:			
				Comments:			

PH Standard Verification Check
 STD. PH Reading Date/Time Initial
 4-Buffer 4.05 1-15-20/0758 FG
 7-Buffer 7.07 1-15-20/0752 FG

(Quar. Performance Monitoring - Pg. 2 of 7) Cond. Standard Verification Check
 GROUND WATER MONITORING FIELD DATA SHEET STD. $\mu\text{S/cm}$ Reading Date/Time Initial
 FIRST QUARTER 20 20 1413 $\mu\text{S/cm}$ 1450 1-15-20/0759 FG
 SAMPLING (pH/cond. meter on 1-15-20)

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond. Reading	2nd Cond. Reading	Stable Cond. Reading	Ending Cond. Reading
1-15-20	708	160.53'	161.90'	5,300	5,330	5,340	5,150
	Time	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
	1125	0.236'	0.234'	3.33	3.32	3.32	3.69
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
				11.6	11.7	11.7	12.7
				Comments: Sample collected after interior pump parts are cleaned/repared.			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond. Reading	2nd Cond. Reading	Stable Cond. Reading	Ending Cond. Reading
1-15-20	515-A	108.30'	112.79'	8,650	8,910	9,310	9,310
	Time	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
	1225	4.674'	0.183'	7.11	7.17	7.19	7.19
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
				12.3	12.3	12.4	12.4
				Comments: Water level dropped 4.49' during sample.			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond. Reading	2nd Cond. Reading	Stable Cond. Reading	Ending Cond. Reading
1-15-20	604	107.40'	108.36'	5,730	6,030	6,170	6,210
	Time	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
	1358	1.970'	1.033'	5.78	5.76	5.71	5.65
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
				12.4	12.4	12.5	12.3
				Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond. Reading	2nd Cond. Reading	Stable Cond. Reading	Ending Cond. Reading
	Time	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
				Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond. Reading	2nd Cond. Reading	Stable Cond. Reading	Ending Cond. Reading
1-20-20	517	108.66'		5,760	5,890	5,960	6,000
	Time	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
	0847	0.199'	0.199'	2.80	2.78	2.77	2.76
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
				8.6	8.5	8.5	8.6
				Comments: No post WL reading due to probe on top of pump. Required a 24 hr. recharge to resume/collect full sample.			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond. Reading	2nd Cond. Reading	Stable Cond. Reading	Ending Cond. Reading
1-20-20	719	171.36'	171.87'	3,870	3,990	4,130	5,390
	Time	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
	1050	0.396'	0.403'	5.01	5.02	5.03	5.44
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
				10.3	10.4	10.4	10.8
				Comments: Sample collected after pump repair (i.e. replaced upper and lower check balls).			

(Quar. Performance Monitoring – Pg. 3 of 7)

GROUND WATER MONITORING FIELD DATA SHEET

FIRST QUARTER 20 20
SAMPLING

TEST	STD.	$\mu\text{S/cm}$ Reading	Date/Time	Initial
1	1413	$\mu\text{S/cm}$ 1445	1-20-20/0733	JH

(pH/Cond. meter #1 calibrated on 1-17-20 by me)

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading		Reading		Reading			
				1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	1st pH	2nd pH	Stable pH	Ending pH
1-20-20	420	158.48'	159.39'	3.500	3.600	3.640	3.640	7.30	7.32	7.34	7.34
		1st Temp. 10.5	2nd Temp. 10.5	Stable Temp. 10.7	Ending Temp. 10.7						
	Time 1205	Bubbler Start	Bubbler End	Comments: Will need maintenance work.							
		0.282'	0.325'								
1-20-20	EPA-13	170.49'	171.62'	6.330	6.340	6.360	6.480	6.84	6.86	6.81	5.98
		1st Temp. 10.8	2nd Temp. 10.8	Stable Temp. 10.9	Ending Temp. 10.5						
	Time 1345	Bubbler Start	Bubbler End	Comments:							
		1.253'	0.284'								
1-21-20	711	185.71'	186.75'	4.920	4.950	5.040	4.850	3.13	3.11	3.10	3.84
		1st Temp. 8.6	2nd Temp. 8.7	Stable Temp. 8.7	Ending Temp. 7.4						
	Time 0926	Bubbler Start	Bubbler End	Comments:							
		0.005'	0.003'								
1-21-20	TWQ-142	203.71'	204.28'	1.810	1.854	1.855	1.930	7.69	7.72	7.72	7.84
		1st Temp. 8.5	2nd Temp. 9.2	Stable Temp. 9.2	Ending Temp. 10.7						
	Time 1340	Bubbler Start	Bubbler End	Comments:							
		17.157'	16.587'								
1-22-20	EPA-4	209.94'	210.53'	4.110	4.190	4.170	4.250	7.13	7.17	7.18	6.77
		1st Temp. 11.1	2nd Temp. 11.2	Stable Temp. 11.2	Ending Temp. 12.1						
	Time 0840	Bubbler Start	Bubbler End	Comments:							
		13.118'	12.548'								
1-22-20	EPA-5	128.87'	129.60'	3.840	4.200	4.440	4.280	3.87	3.85	3.83	6.04
		1st Temp. 9.7	2nd Temp. 9.8	Stable Temp. 9.8	Ending Temp. 13.0						
	Time 0935	Bubbler Start	Bubbler End	Comments:							
		1.893'	1.278'								

PH Standard Verification Check (Quar. Performance Monitoring - Pg. 4 of 7) Cond. Standard Verification Check
 STD. PH Reading Date/Time Initial GROUND WATER MONITORING FIELD DATA SHEET STD. $\mu\text{S/cm}$ Reading Date/Time Initial
 4-Buffer 4.05, 4.03 1-21-22/0803, 0739 7.4 ~~4.2~~ FIRST QUARTER 2020 1413 $\mu\text{S/cm}$ 1460, 1453 1-21-22/0804, 0738 7.7
 7-Buffer 7.10, 7.01 1-21-22/0758, 0738 4.2 ~~4.4~~ SAMPLING (pH/Cond. meter #1 on 1/21 & 22/20) ~~4.2~~

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
1-22-20	EPA-7			6,700	6,920	7,100	6,900
				1st pH 7.57	2nd pH 7.62	Stable pH 7.66	Ending pH 6.19
				1st Temp. 10.5	2nd Temp. 10.7	Stable Temp. 10.9	Ending Temp. 11.9
				Comments:			
	Time	Bubbler Start	Bubbler End				
	1035	8.589'	6.562'				
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
1-22-20	EPA-2			3,610	3,650	3,460	3,460
				1st pH 7.12	2nd pH 7.17	Stable pH 7.22	Ending pH 6.83
				1st Temp. 11.2	2nd Temp. 11.3	Stable Temp. 11.4	Ending Temp. 12.0
				Comments:			
	Time	Bubbler Start	Bubbler End				
	1142	5.429'	4.616'				
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
1-22-20	EPA-2 DUPLICATE			3,470	3,490	3,500	3,550
				1st pH 6.83	2nd pH 6.82	Stable pH 6.82	Ending pH 6.79
				1st Temp. 12.0	2nd Temp. 11.9	Stable Temp. 11.9	Ending Temp. 12.5
				Comments:			
	Time	Bubbler Start	Bubbler End				
	1222	4.616'	4.498'				
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
1-22-20	RINSE			2			
				1st pH 6.61	2nd pH	Stable pH	Ending pH
				1st Temp. 12.4	2nd Temp.	Stable Temp.	Ending Temp.
				Comments:			
	Time	Bubbler Start	Bubbler End				
	1300						
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
1-22-20	FIELD BLANK			3			
				1st pH 6.60	2nd pH	Stable pH	Ending pH
				1st Temp. 17.2	2nd Temp.	Stable Temp.	Ending Temp.
				Comments:			
	Time	Bubbler Start	Bubbler End				
	1315						
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
				Comments:			
	Time	Bubbler Start	Bubbler End				

PH Standard Verification Check			
STD.	PH Reading	Date/Time	Initial
4-Buffer	4.04	1-27-20/0757	W
7-Buffer	7.06	1-27-20/0756	W

(Quar. Performance Monitoring - Pg. 5 of 7)
 GROUND WATER MONITORING FIELD DATA SHEET
 FIRST QUARTER 2020
 SAMPLING

Cond. Standard Verification Check			
STD.	µS/cm Reading	Date/Time	Initial
1413 µS/cm	1425	1-27-20/0756	W

(pH/cond meter #1 calibrated on 1-24-20 by W)

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
1-27-20	509-D	86.01'	86.08'	1st pH 7.09	2nd pH 7.10	Stable pH 7.12	Ending pH 6.58
				1st Temp. 9.9	2nd Temp. 10.0	Stable Temp. 10.1	Ending Temp. 9.1
		0.258'	0.257'	Comments:			
1-27-20	EPA-23	62.60'	63.01'	1st Cond. 4.370	2nd Cond. 4.400	Stable Cond. 4.430	Ending Cond. 4.910
				1st pH 7.13	2nd pH 7.02	Stable pH 6.93	Ending pH 6.67
		0.227'	0.240'	1st Temp. 9.5	2nd Temp. 9.5	Stable Temp. 9.7	Ending Temp. 10.4
				Comments:			
1-27-20	803	69.10'	69.27'	1st Cond. 5.900	2nd Cond. 5.940	Stable Cond. 5.920	Ending Cond. 6.080
				1st pH 6.63	2nd pH 6.64	Stable pH 6.63	Ending pH 6.64
		7.708'	7.559'	1st Temp. 9.5	2nd Temp. 9.7	Stable Temp. 9.7	Ending Temp. 9.9
				Comments:			
1-27-20	808	56.34'	56.59'	1st Cond. 5.780	2nd Cond. 5.790	Stable Cond. 5.820	Ending Cond. 6.620
				1st pH 7.00	2nd pH 6.98	Stable pH 6.92	Ending pH 6.59
		7.285'	7.110'	1st Temp. 8.4	2nd Temp. 8.5	Stable Temp. 8.7	Ending Temp. 10.6
				Comments:			
1-27-20	802	54.64'	54.66'	1st Cond. 6.300	2nd Cond. 6.360	Stable Cond. 6.360	Ending Cond. 6.650
				1st pH 6.70	2nd pH 6.70	Stable pH 6.68	Ending pH 6.60
		13.062'	13.032'	1st Temp. 9.3	2nd Temp. 9.3	Stable Temp. 9.6	Ending Temp. 10.3
				Comments:			
1-27-20	632	51.13'	56.27'	1st Cond. 6.490	2nd Cond. 6.450	Stable Cond. 6.540	Ending Cond. 6.640
				1st pH 7.03	2nd pH 6.98	Stable pH 6.80	Ending pH 6.57
		5.921'	0.740'	1st Temp. 9.1	2nd Temp. 9.2	Stable Temp. 9.6	Ending Temp. 10.8
				Comments: Water level dropped 5.14' during sample.			

(Quar. Performance Monitoring - Pg. 6 of 7) Cond. Standard Verification Check
GROUND WATER MONITORING FIELD DATA SHEET STD. μ S/cm Reading Date/Time Initial
FIRST QUARTER 2020 1413 μ S/cm 1478 1-28-20/0748 MC
SAMPLING (pH/cond. meter #1 on 1-28-20)

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading		Reading		Reading		Reading	
				1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	1st pH	2nd pH	Stable pH	Ending pH
1-27-20	801	58.55'	60.35'	5.890	5.900	5.940	6.300	7.00	6.99	6.93	6.79
	Time	Bubbler Start	Bubbler End	Comments:							
	1416	3.189'	1.422'								
1-28-20	GW-1	68.36'	68.62'	5.520	5.580	5.660	6.160	7.13	7.09	7.04	6.67
	Time	Bubbler Start	Bubbler End	Comments:							
	0850	2.378'	2.118'								
1-28-20	EPA-28	69.21'	69.62'	4.430	4.490	4.580	4.660	7.70	7.74	7.75	6.89
	Time	Bubbler Start	Bubbler End	Comments:							
	0950	1.284'	0.883'								
1-28-20	EPA-28 DUPLICATE	69.62'	69.65'	4.710	4.740	4.750	4.670	6.89	6.89	6.89	6.85
	Time	Bubbler Start	Bubbler End	Comments:							
	1040	0.883'	0.834'								
1-28-20	624	57.25'	57.28'	4.390	4.560	4.970	5.540	7.39	7.30	6.97	6.54
	Time	Bubbler Start	Bubbler End	Comments:							
	1136	5.285'	5.286'								
1-28-20	SBL-1	51.51'	52.60'	7.360	7.540	7.580	7.540	7.38	7.35	7.27	6.56
	Time	Bubbler Start	Bubbler End	Comments:							
	1225	3.279'	2.157'								

PH Standard Verification Check (Quar. Performance Monitoring - Pg. 7 of 7) Cond. Standard Verification Check
 STD. PH Reading Date/Time Initial GROUND WATER MONITORING FIELD DATA SHEET STD. μ S/cm Reading Date/Time Initial
 4-Buffer 4.01 1-29-20/0725 JA FIRST QUARTER 20 20 1413 μ S/cm 1495 1-29-20/0726 JA
 7-Buffer 7.11 1-29-20/0715 JA SAMPLING (PH/Cond. meter #1 on 1-29-20)

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond. Reading	2nd Cond. Reading	Stable Cond. Reading	Ending Cond. Reading
1-29-20	627	63.46'	63.53'	1st pH 6.96	2nd pH 6.97	Stable pH 6.97	Ending pH 7.02
	Time 0818	Bubbler Start 0.249'	Bubbler End 0.126'	1st Temp. 9.1	2nd Temp. 9.5	Stable Temp. 9.5	Ending Temp. 10.0
				Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond. Reading	2nd Cond. Reading	Stable Cond. Reading	Ending Cond. Reading
1-29-20	EPA-25	59.81'	59.90'	1st pH 6.81	2nd pH 6.81	Stable pH 6.81	Ending pH 6.81
	Time 0925	Bubbler Start 1.156'	Bubbler End 1.078'	1st Temp. 9.5	2nd Temp. 9.6	Stable Temp. 9.8	Ending Temp. 10.3
				Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond. Reading	2nd Cond. Reading	Stable Cond. Reading	Ending Cond. Reading
1-29-20	RINSATE			1st pH 6.78	2nd pH	Stable pH	Ending pH
	Time 1105	Bubbler Start	Bubbler End	1st Temp. 8.9	2nd Temp.	Stable Temp.	Ending Temp.
				Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond. Reading	2nd Cond. Reading	Stable Cond. Reading	Ending Cond. Reading
1-29-20	FIELD BLANK			1st pH 6.01	2nd pH	Stable pH	Ending pH
	Time 1130	Bubbler Start	Bubbler End	1st Temp. 15.3	2nd Temp.	Stable Temp.	Ending Temp.
				Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond. Reading	2nd Cond. Reading	Stable Cond. Reading	Ending Cond. Reading
				1st pH	2nd pH	Stable pH	Ending pH
	Time	Bubbler Start	Bubbler End	1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
				Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond. Reading	2nd Cond. Reading	Stable Cond. Reading	Ending Cond. Reading
				1st pH	2nd pH	Stable pH	Ending pH
	Time	Bubbler Start	Bubbler End	1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
				Comments:			

Cond. Standard Verification Check

T	STD.	$\mu\text{S/cm}$ Reading	Date/Time	Initial
1413	$\mu\text{S/cm}$	1460	1-21-20/0804	JS

(pH/cond. meter #1 on 1-21-20)

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
1-21-20	MW-7	199.79'	199.83'	1st pH 7.57	2nd pH 7.58	Stable pH 7.59	Ending pH 6.49
	Time 1145	Bubbler Start	Bubbler End	1st Temp. 5.2	2nd Temp. 6.1	Stable Temp. 6.0	Ending Temp. 8.8
				Comments:			
1-21-20	NW-3	194.62'	195.04'	1st Cond. 4,200	2nd Cond. 4,220	Stable Cond. 4,230	Ending Cond. 4,240
	Time 1245	Bubbler Start	Bubbler End	1st pH 6.81	2nd pH 6.94	Stable pH 7.00	Ending pH 7.04
				1st Temp. 12.3	2nd Temp. 12.3	Stable Temp. 12.2	Ending Temp. 12.2
				Comments: Used pH/cond. meter #2 on this sample. Function check is 1409 us/cm (1413 cond. std.) @ 1231, 7.02 (2.00 pH std.) @ 1230, 4.00 (4.00 pH std.) @ 1233. Cal. on 1-17-20 by [signature]			
1-29-20	NBL-2	174.99'	175.10'	1st Cond. 3,390	2nd Cond. 3,420	Stable Cond. 3,450	Ending Cond. 3,450
	Time 1035	Bubbler Start	Bubbler End	1st pH 7.58	2nd pH 7.58	Stable pH 7.58	Ending pH 6.88
		5.331'	5.228'	1st Temp. 8.9	2nd Temp. 8.9	Stable Temp. 9.0	Ending Temp. 9.5
				Comments: Used pH/cond. meter #1 on this sample. For function check results see Over Performance monitoring-Pg. 7 of 7.			
1-29-20	NW-4	196.94'	198.00'	1st Cond. 4,010	2nd Cond. 4,000	Stable Cond. 3,940	Ending Cond. 4,010
	Time 1200	Bubbler Start	Bubbler End	1st pH 6.90	2nd pH 6.66	Stable pH 6.52	Ending pH 6.18
				1st Temp. 11.8	2nd Temp. 11.8	Stable Temp. 11.7	Ending Temp. 11.7
				Comments:			
1-29-20	NW-2	200.03'		1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.
	Time 1215	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
				Comments: No sample, water level only due to very minimal re-charge and very low water volume beginning November 2019.			
1-29-20	NW-1	199.55'		1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.
	Time 1220	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
				Comments: No sample, water level only due to very low water volume and pump was removed beginning June 2019.			

Cond. Standard Verification Check

T	STD.	$\mu\text{S/cm}$ Reading	Date/Time	Initial
1413	$\mu\text{S/cm}$	1430	1-29-20/0745	TC

(pH/cond. meter #2 calibrated on 1-24-20 by me)

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
1-29-20	NW-5	196.96'	197.21'	1st pH 5.68	2nd pH 5.69	Stable pH 5.71	Ending pH 5.74
	Time	Bubbler Start	Bubbler End	Comments: Extraction well was shut off on 1-14-20 in order to collect sample & to enhance recharge for well 719 due to low water vol. Restarted on 1-24-20 @ 1058.			
	1225						
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
1-29-20	RW-A	180.81'	181.10'	1st pH 5.71	2nd pH 5.72	Stable pH 5.70	Ending pH 5.70
	Time	Bubbler Start	Bubbler End	Comments: Extraction well was shut off on 1-14-20 in order to collect sample & to enhance recharge for well 719 due to low water vol. Restarted on 1-24-20 @ 1116.			
	1245						
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
	Time	Bubbler Start	Bubbler End	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
	Time	Bubbler Start	Bubbler End	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
	Time	Bubbler Start	Bubbler End	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
	Time	Bubbler Start	Bubbler End	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
	Time	Bubbler Start	Bubbler End	Comments:			

APPENDIX B

QUARTERLY SAMPLING

SEMI-ANNUAL GROUND WATER MONITORING REPORT

JANUARY OF 2020

QA/QC CONTROLS

FIELD BLANKS
RINSATES
VOC TRIP BLANKS

EPA-28 AND EPA-28 DUPLICATES FOR SW ALLUVIUM

EPA-2 AND EPA-2 DUPLICATES FOR ZONE 1

717 AND 717 DUPLICATES FOR ZONE 3

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-007
Client Sample ID: Field Blank

Report Date: 02/26/20
Collection Date: 01/22/20 13:15
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	ND	mg/L		5		A2320 B	01/27/20 18:47 / dmb
Chloride	ND	mg/L		1		E300.0	01/29/20 04:16 / dmb
Sulfate	ND	mg/L		1		E300.0	01/29/20 04:16 / dmb
Calcium	ND	mg/L		1		E200.7	01/29/20 21:05 / jcg
Magnesium	ND	mg/L		1		E200.7	01/29/20 21:05 / jcg
Potassium	ND	mg/L		1		E200.7	01/31/20 00:11 / jcg
Sodium	ND	mg/L		1		E200.7	01/29/20 21:05 / jcg
PHYSICAL PROPERTIES							
pH	5.39	s.u.	H	0.01		A4500-H B	01/27/20 11:50 / kjp
pH Measurement Temp	16	°C				A4500-H B	01/27/20 11:50 / kjp
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	01/27/20 09:47 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	01/29/20 15:38 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	01/29/20 12:48 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	01/28/20 22:24 / meh
Arsenic	ND	mg/L		0.001		E200.8	01/28/20 22:24 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/28/20 22:24 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/28/20 22:24 / meh
Cobalt	ND	mg/L		0.005		E200.8	01/28/20 22:24 / meh
Lead	ND	mg/L		0.001		E200.8	01/28/20 22:24 / meh
Manganese	ND	mg/L	L	0.002		E200.8	01/28/20 22:24 / meh
Molybdenum	ND	mg/L		0.001		E200.8	01/28/20 22:24 / meh
Nickel	ND	mg/L		0.005		E200.8	01/28/20 22:24 / meh
Selenium	ND	mg/L		0.001		E200.8	01/28/20 22:24 / meh
Uranium	ND	mg/L		0.0003		E200.8	01/28/20 22:24 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/28/20 22:24 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	0.2	pCi/L	U			E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U Precision (±)	0.3	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	02/02/20 08:56 / trs
Lead 210	-0.03	pCi/L	U			E909.0	02/09/20 10:54 / ajl
Lead 210 precision (±)	0.5	pCi/L				E909.0	02/09/20 10:54 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/09/20 10:54 / ajl
Radium 226	0.2	pCi/L				E903.0	02/12/20 15:18 / plj
Radium 226 precision (±)	0.1	pCi/L				E903.0	02/12/20 15:18 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/12/20 15:18 / plj
Radium 228	0.3	pCi/L	U			RA-05	02/06/20 13:32 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 MDC	1.2	pCi/L				RA-05	02/06/20 13:32 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
H - Analysis performed past the method holding time
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
L - Lowest available reporting limit for the analytical method used



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-007
Client Sample ID: Field Blank

Report Date: 02/26/20
Collection Date: 01/22/20 13:15
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.02	pCi/L	U		E908.0		02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.06	pCi/L			E908.0		02/12/20 06:40 / nsr
Thorium 230 MDC	0.1	pCi/L			E908.0		02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	ND	mg/L			A1030 E		01/31/20 13:59 / tlf
A/C Balance	50.0	%			A1030 E		01/31/20 13:59 / tlf
Anions	0	meq/L			A1030 E		01/31/20 13:59 / tlf
Cations	0.02	meq/L			A1030 E		01/31/20 13:59 / tlf
TDS Ratio	NA	unitless			A1030 E		01/31/20 13:59 / tlf
Cation\Anion Balance <±0.2 meq/L Difference							
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	1.8	ug/L		0.50	E624.1		02/03/20 15:17 / eli-b
Bromoform	2.6	ug/L		0.50	E624.1		02/03/20 15:17 / eli-b
Chlorodibromomethane	3.1	ug/L		0.50	E624.1		02/03/20 15:17 / eli-b
Chloroform	1.1	ug/L		0.50	E624.1		02/03/20 15:17 / eli-b
Trihalomethanes, Total	8.5	ug/L		0.50	E624.1		02/05/20 16:29 / tla
Surr: 1,2-Dichloroethane-d4	103	%REC		71-139	E624.1		02/03/20 15:17 / eli-b
Surr: p-Bromofluorobenzene	110	%REC		80-127	E624.1		02/03/20 15:17 / eli-b
Surr: Toluene-d8	108	%REC		80-123	E624.1		02/03/20 15:17 / eli-b

**Report
Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW Alluvium
Lab ID: C20010972-006
Client Sample ID: Field Blank

Report Date: 03/05/20
Collection Date: 01/29/20 11:30
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	ND	mg/L		5		A2320 B	02/06/20 14:38 / kjp
Chloride	ND	mg/L		1		E300.0	02/05/20 09:00 / dmb
Sulfate	ND	mg/L		1		E300.0	02/05/20 09:00 / dmb
Calcium	ND	mg/L		1		E200.7	02/05/20 03:36 / jcg
Magnesium	ND	mg/L		1		E200.7	02/05/20 03:36 / jcg
Potassium	ND	mg/L		1		E200.7	02/05/20 03:36 / jcg
Sodium	ND	mg/L		1		E200.7	02/05/20 03:36 / jcg
PHYSICAL PROPERTIES							
pH	5.54	s.u.	H	0.01		A4500-H B	02/03/20 12:11 / kjp
pH Measurement Temp	13	°C				A4500-H B	02/03/20 12:11 / kjp
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	02/04/20 10:54 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	02/04/20 16:20 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/05/20 13:04 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 17:58 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 17:58 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 17:58 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 17:58 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 17:58 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 17:58 / meh
Manganese	ND	mg/L	L	0.002		E200.8	02/05/20 17:58 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 17:58 / meh
Nickel	ND	mg/L		0.005		E200.8	02/05/20 17:58 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 17:58 / meh
Uranium	ND	mg/L		0.0003		E200.8	02/05/20 17:58 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 17:58 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	0.2	pCi/L	U			E900.1	02/10/20 13:31 / amm
Gross Alpha minus Rn & U Precision (±)	0.4	pCi/L				E900.1	02/10/20 13:31 / amm
Gross Alpha minus Rn & U MDC	0.6	pCi/L				E900.1	02/10/20 13:31 / amm
Lead 210	0.02	pCi/L	U			E909.0	02/16/20 00:31 / ajl
Lead 210 precision (±)	0.5	pCi/L				E909.0	02/16/20 00:31 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/16/20 00:31 / ajl
Radium 226	0.2	pCi/L				E903.0	02/19/20 14:59 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/19/20 14:59 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	02/19/20 14:59 / trs
Radium 228	-0.2	pCi/L	U			RA-05	02/10/20 14:58 / trs
Radium 228 precision (±)	0.8	pCi/L				RA-05	02/10/20 14:58 / trs
Radium 228 MDC	1.4	pCi/L				RA-05	02/10/20 14:58 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
H - Analysis performed past the method holding time
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
L - Lowest available reporting limit for the analytical method used



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW Alluvium
Lab ID: C20010972-006
Client Sample ID: Field Blank

Report Date: 03/05/20
Collection Date: 01/29/20 11:30
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.02	pCi/L	U		E908.0		02/19/20 14:38 / nsr
Thorium 230 precision (±)	0.04	pCi/L			E908.0		02/19/20 14:38 / nsr
Thorium 230 MDC	0.08	pCi/L			E908.0		02/19/20 14:38 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	ND	mg/L			A1030 E		02/07/20 16:29 / jlw
A/C Balance	49.9	%			A1030 E		02/07/20 16:29 / jlw
Anions	0	meq/L			A1030 E		02/07/20 16:29 / jlw
Cations	0.03	meq/L			A1030 E		02/07/20 16:29 / jlw
TDS Ratio	NA	unitless			A1030 E		02/07/20 16:29 / jlw
Cation\Anion Balance <±0.2 meq/L Difference							
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	1.7	ug/L		0.50	E624.1		02/05/20 13:57 / eli-b
Bromoform	2.4	ug/L		0.50	E624.1		02/05/20 13:57 / eli-b
Chlorodibromomethane	3.0	ug/L		0.50	E624.1		02/05/20 13:57 / eli-b
Chloroform	1.2	ug/L		0.50	E624.1		02/05/20 13:57 / eli-b
Trihalomethanes, Total	8.3	ug/L		0.50	E624.1		02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	92.0	%REC		71-139	E624.1		02/05/20 13:57 / eli-b
Surr: p-Bromofluorobenzene	100	%REC		80-127	E624.1		02/05/20 13:57 / eli-b
Surr: Toluene-d8	94.0	%REC		80-123	E624.1		02/05/20 13:57 / eli-b

**Report
Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-006
Client Sample ID: Rinsate

Report Date: 02/26/20
Collection Date: 01/22/20 13:00
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	ND	mg/L		5		A2320 B	01/27/20 18:43 / dmb
Chloride	ND	mg/L		1		E300.0	01/29/20 03:57 / dmb
Sulfate	ND	mg/L		1		E300.0	01/29/20 03:57 / dmb
Calcium	ND	mg/L		1		E200.7	01/29/20 20:52 / jcg
Magnesium	ND	mg/L		1		E200.7	01/29/20 20:52 / jcg
Potassium	ND	mg/L		1		E200.7	01/31/20 00:07 / jcg
Sodium	ND	mg/L		1		E200.7	01/29/20 20:52 / jcg
PHYSICAL PROPERTIES							
pH	5.68	s.u.	H	0.01		A4500-H B	01/27/20 11:47 / kjp
pH Measurement Temp	16	°C				A4500-H B	01/27/20 11:47 / kjp
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	01/27/20 09:44 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.01	mg/L		0.01		E353.2	01/29/20 15:37 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	01/29/20 12:47 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	01/28/20 22:20 / meh
Arsenic	ND	mg/L		0.001		E200.8	01/28/20 22:20 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/28/20 22:20 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/28/20 22:20 / meh
Cobalt	ND	mg/L		0.005		E200.8	01/28/20 22:20 / meh
Lead	ND	mg/L		0.001		E200.8	01/28/20 22:20 / meh
Manganese	ND	mg/L	L	0.002		E200.8	01/28/20 22:20 / meh
Molybdenum	ND	mg/L		0.001		E200.8	01/28/20 22:20 / meh
Nickel	ND	mg/L		0.005		E200.8	01/28/20 22:20 / meh
Selenium	ND	mg/L		0.001		E200.8	01/28/20 22:20 / meh
Uranium	ND	mg/L		0.0003		E200.8	01/28/20 22:20 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/28/20 22:20 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	0.3	pCi/L	U			E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U Precision (±)	0.3	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	02/02/20 08:56 / trs
Lead 210	-0.06	pCi/L	U			E909.0	02/09/20 07:02 / ajl
Lead 210 precision (±)	0.5	pCi/L				E909.0	02/09/20 07:02 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/09/20 07:02 / ajl
Radium 226	0.1	pCi/L	U			E903.0	02/12/20 15:18 / plj
Radium 226 precision (±)	0.1	pCi/L				E903.0	02/12/20 15:18 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/12/20 15:18 / plj
Radium 228	1.2	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	02/06/20 13:32 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
H - Analysis performed past the method holding time
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
L - Lowest available reporting limit for the analytical method used



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-006
Client Sample ID: Rinsate

Report Date: 02/26/20
Collection Date: 01/22/20 13:00
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.06	pCi/L	U		E908.0		02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.08	pCi/L			E908.0		02/12/20 06:40 / nsr
Thorium 230 MDC	0.1	pCi/L			E908.0		02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	ND	mg/L			A1030 E		01/31/20 13:58 / tif
A/C Balance	32.0	%			A1030 E		01/31/20 13:58 / tif
Anions	0.01	meq/L			A1030 E		01/31/20 13:58 / tif
Cations	0.02	meq/L			A1030 E		01/31/20 13:58 / tif
TDS Ratio	NA	unitless			A1030 E		01/31/20 13:58 / tif
Cation/Anion Balance <±0.2 meq/L Difference							
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	1.7	ug/L		0.50	E624.1		02/03/20 14:50 / eli-b
Bromoform	2.5	ug/L		0.50	E624.1		02/03/20 14:50 / eli-b
Chlorodibromomethane	3.1	ug/L		0.50	E624.1		02/03/20 14:50 / eli-b
Chloroform	1.1	ug/L		0.50	E624.1		02/03/20 14:50 / eli-b
Trihalomethanes, Total	8.3	ug/L		0.50	E624.1		02/05/20 16:29 / tia
Surr: 1,2-Dichloroethane-d4	100	%REC		71-139	E624.1		02/03/20 14:50 / eli-b
Surr: p-Bromofluorobenzene	101	%REC		80-127	E624.1		02/03/20 14:50 / eli-b
Surr: Toluene-d8	106	%REC		80-123	E624.1		02/03/20 14:50 / eli-b

**Report
Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW Alluvium
Lab ID: C20010972-005
Client Sample ID: Rinsate

Report Date: 03/05/20
Collection Date: 01/29/20 11:05
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	ND	mg/L		5		A2320 B	02/06/20 14:34 / kjp
Chloride	ND	mg/L		1		E300.0	02/05/20 08:41 / dmb
Sulfate	ND	mg/L		1		E300.0	02/05/20 08:41 / dmb
Calcium	ND	mg/L		1		E200.7	02/05/20 03:31 / jcg
Magnesium	ND	mg/L		1		E200.7	02/05/20 03:31 / jcg
Potassium	ND	mg/L		1		E200.7	02/05/20 03:31 / jcg
Sodium	ND	mg/L		1		E200.7	02/05/20 03:31 / jcg
PHYSICAL PROPERTIES							
pH	5.80	s.u.	H	0.01		A4500-H B	02/03/20 12:08 / kjp
pH Measurement Temp	13	°C				A4500-H B	02/03/20 12:08 / kjp
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	02/04/20 10:54 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	02/04/20 16:18 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/05/20 13:02 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 17:54 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 17:54 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 17:54 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 17:54 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 17:54 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 17:54 / meh
Manganese	ND	mg/L	L	0.002		E200.8	02/05/20 17:54 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 17:54 / meh
Nickel	ND	mg/L		0.005		E200.8	02/05/20 17:54 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 17:54 / meh
Uranium	ND	mg/L		0.0003		E200.8	02/05/20 17:54 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 17:54 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	0.9	pCi/L				E900.1	02/10/20 13:31 / amm
Gross Alpha minus Rn & U Precision (±)	0.5	pCi/L				E900.1	02/10/20 13:31 / amm
Gross Alpha minus Rn & U MDC	0.6	pCi/L				E900.1	02/10/20 13:31 / amm
Lead 210	0.3	pCi/L	U			E909.0	02/15/20 20:51 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/15/20 20:51 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/15/20 20:51 / ajl
Radium 226	0.1	pCi/L	U			E903.0	02/21/20 16:26 / amm
Radium 226 precision (±)	0.1	pCi/L				E903.0	02/21/20 16:26 / amm
Radium 226 MDC	0.2	pCi/L				E903.0	02/21/20 16:26 / amm
Radium 228	0.3	pCi/L	U			RA-05	02/10/20 14:58 / trs
Radium 228 precision (±)	1	pCi/L				RA-05	02/10/20 14:58 / trs
Radium 228 MDC	1.6	pCi/L				RA-05	02/10/20 14:58 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 H - Analysis performed past the method holding time
 U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 L - Lowest available reporting limit for the analytical method used



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW Alluvium
Lab ID: C20010972-005
Client Sample ID: Rinsate

Report Date: 03/05/20
Collection Date: 01/29/20 11:05
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.1	pCi/L	U		E908.0		02/19/20 14:38 / nsr
Thorium 230 precision (±)	0.2	pCi/L			E908.0		02/19/20 14:38 / nsr
Thorium 230 MDC	0.3	pCi/L			E908.0		02/19/20 14:38 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	ND	mg/L			A1030 E		02/07/20 16:29 / jlw
A/C Balance	40.3	%			A1030 E		02/07/20 16:29 / jlw
Anions	0	meq/L			A1030 E		02/07/20 16:29 / jlw
Cations	0.02	meq/L			A1030 E		02/07/20 16:29 / jlw
TDS Ratio	NA	unitless			A1030 E		02/07/20 16:29 / jlw
Cation/Anion Balance <±0.2 meq/L Difference							
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	1.8	ug/L		0.50	E624.1		02/05/20 13:32 / eli-b
Bromoform	2.4	ug/L		0.50	E624.1		02/05/20 13:32 / eli-b
Chlorodibromomethane	3.0	ug/L		0.50	E624.1		02/05/20 13:32 / eli-b
Chloroform	1.3	ug/L		0.50	E624.1		02/05/20 13:32 / eli-b
Trihalomethanes, Total	8.4	ug/L		0.50	E624.1		02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	92.0	%REC		71-139	E624.1		02/05/20 13:32 / eli-b
Surr: p-Bromofluorobenzene	100	%REC		80-127	E624.1		02/05/20 13:32 / eli-b
Surr: Toluene-d8	97.0	%REC		80-123	E624.1		02/05/20 13:32 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-009
Client Sample ID: Trip Blank 10926

Report Date: 02/26/20
Collection Date: 01/14/20 09:05
Date Received: 01/17/20
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		1.0	E624.1		01/27/20 00:00 / ta-a
Bromoform	ND	ug/L		2.0	E624.1		01/27/20 00:00 / ta-a
Chlorodibromomethane	ND	ug/L		1.0	E624.1		01/27/20 00:00 / ta-a
Chloroform	ND	ug/L		1.0	E624.1		01/27/20 00:00 / ta-a

***Method E624.1 subbed to Test America.

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-010
Client Sample ID: Trip Blank

Report Date: 02/26/20
Collection Date: 01/14/20 09:05
Date Received: 01/17/20
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Bromoform	ND	ug/L		2.0		E624.1	01/27/20 00:00 / ta-a
Chlorodibromomethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Chloroform	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a

***Method E624.1 subbed to Test America.

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		EPA-28	EPA-28	EPA-28	EPA-28
Collection Date:		1/27/2020	10/9/2019	7/15/2019	4/8/2019
Receive Date:		1/30/2020	10/16/2019	7/18/2019	4/11/2019
Report Date:		3/6/2020	11/21/2019	9/9/2019	5/21/2019
Analyte	Units	C20010929-009	C19100738-009	C19070767-009	C19040539-009
Bicarbonate as HCO ₃	mg/L	257	425	430	422
Chloride	mg/L	90	98	95	97
Sulfate	mg/L	2980	3200	3080	3180
Calcium	mg/L	459	505	466	505
Magnesium	mg/L	432	465	427	419
Potassium	mg/L	10	11	9	11
Sodium	mg/L	241	257	225	240
pH	s.u.	6.95	6.97	6.90	6.85
Solids, Total Dissolved TDS @ 180 C	mg/L	4990	5020	4990	5020
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	3.11	3.47	4.54	4.74
Aluminum	mg/L	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.002
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	0.003	ND(0.001)
Manganese	mg/L	0.193	0.476	0.599	0.510
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	0.005	0.012	0.009	0.012
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0200	0.0203	0.0203	0.0202
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	0.13	-1.11	-3.99	-3.91
Anions	meq/L	69.0	76.6	74.1	76.1
Cations	meq/L	69.2	74.9	68.4	70.4
Solids, Total Dissolved - Calculated	mg/L	4400	4800	4500	4700
TDS Ratio	unitless	1.14	1.05	1.10	1.07
Gross Alpha minus Rn & U	pCi/L	1.4	0.8	0.9	0.3
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.6	0.5	0.4	0.4
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	0.9	-0.2	0	0.07
Lead 210 precision (±)	pCi/L	0.7	0.6	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.0	0.9	1.0
Radium 226	pCi/L	0.9	0.5	0.5	0.5
Radium 226 precision (±)	pCi/L	0.3	0.1	0.2	0.2
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	1.6	0.6	0.6	0.2
Radium 228 precision (±)	pCi/L	0.6	0.9	1.0	1.1
Radium 228 MDC	pCi/L	0.8	1.5	1.7	1.8
Thorium 230	pCi/L	0.04	0.006	-0.009	0.03
Thorium 230 precision (±)	pCi/L	0.08	0.09	0.05	0.09
Thorium 230 MDC	pCi/L	0.1	0.2	0.1	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)



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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		EPA-28 Duplicate	EPA-28 Duplicate	EPA-28 Duplicate	EPA-28 Duplicate
Collection Date:		1/27/2020	10/9/2019	7/15/2019	4/8/2019
Receive Date:		1/30/2020	10/16/2019	7/18/2019	4/11/2019
Report Date:		3/6/2020	11/21/2019	9/9/2019	5/21/2019
Analyte	Units	C20010929-010	C19100738-010	C19070767-010	C19040539-010
Bicarbonate as HCO ₃	mg/L	426	432	441	434
Chloride	mg/L	92	102	95	103
Sulfate	mg/L	3020	3180	3060	3220
Calcium	mg/L	490	502	470	515
Magnesium	mg/L	455	461	431	462
Potassium	mg/L	11	11	10	10
Sodium	mg/L	251	253	231	258
pH	s.u.	6.90	7.03	6.91	6.87
Solids, Total Dissolved TDS @ 180 C	mg/L	5030	5000	4970	5010
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	3.23	3.56	4.45	5.15
Aluminum	mg/L	ND(0.03)	0.05	0.04	ND(0.03)
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.002
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	0.003	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	0.005	ND(0.001)
Manganese	mg/L	0.43	0.50	0.491	0.496
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	0.009	0.010	0.017	0.011
Selenium	mg/L	ND(0.001)	ND(0.002)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0214	0.0214	0.0207	0.0197
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
Balance	%	0.36	-1.43	-3.24	-1.47
Anions	meq/L	72.6	76.4	73.9	77.4
Cations	meq/L	73.1	74.3	69.3	75.2
Solids, Total Dissolved - Calculated	mg/L	4600	4800	4600	4800
TDS Ratio	unitless	1.11	1.05	1.09	1.04
Gross Alpha minus Rn & U	pCi/L	1.4	1.1	1	0.5
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.6	0.6	0.4	0.4
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	0.7	0.3	0.4	0.6
Lead 210 precision (±)	pCi/L	0.7	0.6	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.1	0.9	1.0
Radium 226	pCi/L	0.9	0.6	0.6	0.5
Radium 226 precision (±)	pCi/L	0.3	0.1	0.2	0.2
Radium 226 MDC	pCi/L	0.2	0.09	0.2	0.2
Radium 228	pCi/L	1.9	0.6	0.3	1.5
Radium 228 precision (±)	pCi/L	0.7	1.1	1.2	1.0
Radium 228 MDC	pCi/L	0.8	1.8	1.9	1.8
Thorium 230	pCi/L	-0.02	0.1	0.01	0.002
Thorium 230 precision (±)	pCi/L	0.05	0.07	0.08	0.1
Thorium 230 MDC	pCi/L	0.1	0.1	0.2	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-010
Client Sample ID: EPA-28 Duplicate

Report Date: 03/06/20
Collection Date: 01/28/20 10:40
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	426	mg/L		5		A2320 B	01/31/20 19:01 / kjp
Chloride	92	mg/L	D	2		E300.0	02/04/20 23:25 / dmb
Sulfate	3020	mg/L	D	8		E300.0	02/04/20 23:25 / dmb
Calcium	490	mg/L		1		E200.7	02/02/20 23:48 / jcg
Magnesium	455	mg/L		1		E200.7	02/02/20 23:48 / jcg
Potassium	11	mg/L		1		E200.7	02/02/20 23:48 / jcg
Sodium	251	mg/L		1		E200.7	02/02/20 23:48 / jcg
PHYSICAL PROPERTIES							
pH	6.90	s.u.	H	0.01		A4500-H B	01/31/20 12:11 / kjp
pH Measurement Temp	15	°C				A4500-H B	01/31/20 12:11 / kjp
Solids, Total Dissolved TDS @ 180 C	5030	mg/L	D	40		A2540 C	02/03/20 10:33 / kjp
- See case narrative for TDS.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	3.23	mg/L		0.01		E353.2	02/04/20 15:14 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/05/20 12:57 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 13:06 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/06/20 13:17 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 13:06 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 13:06 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 13:06 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 13:06 / meh
Manganese	0.43	mg/L	D	0.02		E200.8	02/06/20 13:17 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 13:06 / meh
Nickel	0.009	mg/L		0.005		E200.8	02/06/20 13:17 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 13:06 / meh
Uranium	0.0214	mg/L		0.0003		E200.8	02/05/20 13:06 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/06/20 13:17 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	1.4	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U Precision (±)	0.6	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Lead 210	0.7	pCi/L	U			E909.0	02/13/20 18:22 / ajl
Lead 210 precision (±)	0.7	pCi/L				E909.0	02/13/20 18:22 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/13/20 18:22 / ajl
Radium 226	0.9	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 precision (±)	0.3	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 MDC	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 228	1.9	pCi/L				RA-05	02/07/20 16:01 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	02/07/20 16:01 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-010
Client Sample ID: EPA-28 Duplicate

Report Date: 03/06/20
Collection Date: 01/28/20 10:40
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	0.8	pCi/L				RA-05	02/07/20 16:01 / trs
Thorium 230	-0.02	pCi/L	U			E908.0	02/19/20 14:37 / nsr
Thorium 230 precision (±)	0.05	pCi/L				E908.0	02/19/20 14:37 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/19/20 14:37 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	4600	mg/L				A1030 E	02/06/20 15:35 / tlf
A/C Balance	0.36	%				A1030 E	02/06/20 15:35 / tlf
Anions	72.6	meq/L				A1030 E	02/06/20 15:35 / tlf
Cations	73.1	meq/L				A1030 E	02/06/20 15:35 / tlf
TDS Ratio	1.11	unitless				A1030 E	02/06/20 15:35 / tlf
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 19:50 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 19:50 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 19:50 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	02/03/20 19:50 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	110	%REC		71-139		E624.1	02/03/20 19:50 / eli-b
Surr: p-Bromofluorobenzene	105	%REC		80-127		E624.1	02/03/20 19:50 / eli-b
Surr: Toluene-d8	104	%REC		80-123		E624.1	02/03/20 19:50 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 1					
Well ID:		EPA-2	EPA-2	EPA-2	EPA-2
Collection Date:		1/22/2020	10/8/2019	7/31/2019	4/9/2019
Receive Date:		1/24/2020	10/16/2018	8/7/2019	4/12/2019
Report Date:		2/26/2020	11/20/2019	9/24/2019	5/17/2019
Analyte	Units	C20010792-004	C19100743-008	C19080330-003	C19040604-004
Bicarbonate as HCO ₃	mg/L	264	258	280	293
Calcium	mg/L	487	458	449	388
Magnesium	mg/L	243	214	215	186
pH	s.u.	6.98	7.12	6.89	6.99
Chloride	mg/L	26	25	24	24
Potassium	mg/L	8	8	8	7
Sodium	mg/L	240	224	216	198
Sulfate	mg/L	2310	2250	2130	2080
pH Measurement Temp	°C	16	21	16	18
Solids, Total Dissolved TDS @ 180 C	mg/L	3660	3590	3470	3380
Nitrogen, Ammonia as N	mg/L	0.26	0.20	0.18	0.24
Nitrogen, Nitrate+Nitrite as N	mg/L	0.09	0.16	0.09	0.04
Aluminum	mg/L	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)
Arsenic	mg/L	0.001	0.001	ND(0.001)	ND(0.001)
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	0.002	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	1.05	1.66	2.05	1.83
Molybdenum	mg/L	0.001	0.001	0.001	0.001
Nickel	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0021	0.0023	0.0020	0.0018
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	0.01
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	1.70	-1.29	0.14	-5.80
Anions	meq/L	53.1	51.7	49.6	48.8
Cations	meq/L	55.0	50.4	49.7	43.5
Solids, Total Dissolved - Calculated	mg/L	3500	3300	3200	3000
TDS Ratio	unitless	1.05	1.08	1.08	1.11
Gross Alpha minus Rn & U	pCi/L	2.9	2.0	2.3	1.7
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.9	0.7	0.7	0.6
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	0.2	0.03	0.03	0.9
Lead 210 precision (±)	pCi/L	0.6	0.6	0.5	0.6
Lead 210 MDC	pCi/L	0.9	1.0	0.9	1
Radium 226	pCi/L	1.4	1.6	1.2	1.4
Radium 226 precision (±)	pCi/L	0.4	0.4	0.3	0.3
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	4.2	0.6	4.2	2.1
Radium 228 precision (±)	pCi/L	1.1	1.3	1.4	0.9
Radium 228 MDC	pCi/L	1	2.2	1.7	1.5
Thorium 230	pCi/L	0.03	0.02	0.05	-0.02
Thorium 230 precision (±)	pCi/L	0.07	0.06	0.07	0.08
Thorium 230 MDC	pCi/L	0.1	0.1	0.1	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

United Nuclear Corporation					
UNC - Zone 1					
Well ID:		EPA-2 Duplicate	EPA-2 Duplicate	EPA-2 Duplicate	EPA-2 Duplicate
Collection Date:		1/22/2020	10/8/2019	7/31/2019	4/9/2019
Receive Date:		1/24/2020	10/16/2018	8/7/2019	4/12/2019
Report Date:		2/26/2020	11/20/2019	9/24/2019	5/17/2019
Analyte	Units	C20010792-005	C19100743-009	C19080330-004	C19040604-005
Bicarbonate as HCO ₃	mg/L	276	273	278	290
Calcium	mg/L	480	537	451	407
Magnesium	mg/L	237	224	222	202
pH	s.u.	6.81	6.83	6.80	6.91
Chloride	mg/L	24	25	24	24
Potassium	mg/L	9	11	8	7
Sodium	mg/L	237	156	226	215
Sulfate	mg/L	2220	2230	2170	2150
Solids, Total Dissolved TDS @ 180 C	mg/L	3600	3590	3520	3430
Nitrogen, Ammonia as N	mg/L	0.36	0.33	0.29	0.35
Nitrogen, Nitrate+Nitrite as N	mg/L	0.03	0.02	0.01	0.02
Aluminum	mg/L	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)
Arsenic	mg/L	ND(0.001)	0.001	ND(0.001)	ND(0.001)
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	2.07	2.04	2.10	1.91
Molybdenum	mg/L	0.001	0.001	0.001	0.001
Nickel	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0019	0.0026	0.0025	0.0017
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	0.02
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
Balance	%	2.55	0.75	0.75	-3.75
Anions	meq/L	51.3	51.6	50.5	50.1
Cations	meq/L	54.0	52.3	51.3	46.5
Solids, Total Dissolved - Calculated	mg/L	3400	3400	3300	3200
TDS Ratio	unitless	1.07	1.07	1.07	1.08
Gross Alpha minus Rn & U	pCi/L	2.3	2.2	1.4	1.8
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.7	0.8	0.6	0.6
Gross Alpha minus Rn & U MDC	pCi/L	0.4	0.5	0.5	0.5
Lead 210	pCi/L	0.1	0.06	-0.09	0.3
Lead 210 precision (±)	pCi/L	0.5	0.6	0.5	0.6
Lead 210 MDC	pCi/L	0.9	1.0	0.8	0.9
Radium 226	pCi/L	1.5	1.8	1.4	1.1
Radium 226 precision (±)	pCi/L	0.4	0.4	0.4	0.3
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	4.6	0.2	2.0	2.4
Radium 228 precision (±)	pCi/L	1.1	1.3	1.1	1
Radium 228 MDC	pCi/L	1	2.2	1.7	1.6
Thorium 230	pCi/L	0.02	-0.008	0.07	0.07
Thorium 230 precision (±)	pCi/L	0.06	0.07	0.05	0.1
Thorium 230 MDC	pCi/L	0.1	0.2	0.07	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-005
Client Sample ID: EPA-2 Duplicate

Report Date: 02/26/20
Collection Date: 01/22/20 12:22
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	276	mg/L		5		A2320 B	01/27/20 18:38 / dmb
Chloride	24	mg/L		1		E300.0	01/29/20 03:38 / dmb
Sulfate	2220	mg/L	D	4		E300.0	01/29/20 03:38 / dmb
Calcium	480	mg/L		1		E200.7	01/29/20 20:06 / jcg
Magnesium	237	mg/L		1		E200.7	01/29/20 20:06 / jcg
Potassium	9	mg/L		1		E200.7	01/29/20 20:06 / jcg
Sodium	237	mg/L		1		E200.7	01/29/20 20:06 / jcg
PHYSICAL PROPERTIES							
pH	6.81	s.u.	H	0.01		A4500-H B	01/27/20 11:44 / kjp
pH Measurement Temp	16	°C				A4500-H B	01/27/20 11:44 / kjp
Solids, Total Dissolved TDS @ 180 C	3600	mg/L	D	40		A2540 C	01/27/20 09:43 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	01/29/20 15:36 / dmb
Nitrogen, Ammonia as N	0.36	mg/L		0.05		E350.1	01/29/20 12:45 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	01/28/20 22:16 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/24/20 13:09 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/28/20 22:16 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/28/20 22:16 / meh
Cobalt	ND	mg/L		0.005		E200.8	01/28/20 22:16 / meh
Lead	ND	mg/L		0.001		E200.8	02/24/20 13:09 / meh
Manganese	2.07	mg/L	L	0.002		E200.8	02/24/20 13:09 / meh
Molybdenum	0.001	mg/L		0.001		E200.8	01/28/20 22:16 / meh
Nickel	ND	mg/L		0.005		E200.8	01/28/20 22:16 / meh
Selenium	ND	mg/L		0.001		E200.8	01/28/20 22:16 / meh
Uranium	0.0019	mg/L		0.0003		E200.8	01/28/20 22:16 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/28/20 22:16 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	2.3	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U Precision (±)	0.7	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	02/02/20 08:56 / trs
Lead 210	0.1	pCi/L	U			E909.0	02/09/20 03:15 / ajl
Lead 210 precision (±)	0.5	pCi/L				E909.0	02/09/20 03:15 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/09/20 03:15 / ajl
Radium 226	1.5	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 precision (±)	0.4	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 228	4.6	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 precision (±)	1.1	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 MDC	1	pCi/L				RA-05	02/06/20 13:32 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
L - Lowest available reporting limit for the analytical method used

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time
U - Not detected at Minimum Detectable Concentration (MDC)



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-005
Client Sample ID: EPA-2 Duplicate

Report Date: 02/26/20
Collection Date: 01/22/20 12:22
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.02	pCi/L	U		E908.0		02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.06	pCi/L			E908.0		02/12/20 06:40 / nsr
Thorium 230 MDC	0.1	pCi/L			E908.0		02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	3400	mg/L			A1030 E		01/30/20 20:51 / tif
A/C Balance	2.55	%			A1030 E		01/30/20 20:51 / tif
Anions	51.3	meq/L			A1030 E		01/30/20 20:51 / tif
Cations	54.0	meq/L			A1030 E		01/30/20 20:51 / tif
TDS Ratio	1.07	unitless			A1030 E		01/30/20 20:51 / tif
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50	E624.1		02/03/20 14:22 / eli-b
Bromoform	ND	ug/L		0.50	E624.1		02/03/20 14:22 / eli-b
Chlorodibromomethane	ND	ug/L		0.50	E624.1		02/03/20 14:22 / eli-b
Chloroform	ND	ug/L		0.50	E624.1		02/03/20 14:22 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50	E624.1		02/05/20 16:29 / tla
Surr: 1,2-Dichloroethane-d4	106	%REC		71-139	E624.1		02/03/20 14:22 / eli-b
Surr: p-Bromofluorobenzene	106	%REC		80-127	E624.1		02/03/20 14:22 / eli-b
Surr: Toluene-d8	102	%REC		80-123	E624.1		02/03/20 14:22 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		717	717	717	717
Collection Date:		1/14/2020	10/1/2019	7/23/2019	4/15/2019
Receive Date:		1/17/2020	10/9/2019	7/31/2019	4/18/2019
Report Date:		2/26/2020	11/13/2019	9/12/2019	5/31/2019
Analyte	Units	C20010593-001	C19100479-001	C19071276-002	C19040783-004
Acidity, Total as CaCO ₃	mg/L	1340	1460	1540	1720
Bicarbonate as HCO ₃	mg/L	ND(5)	ND(5)	ND(5)	ND(5)
Chloride	mg/L	45	47	46	50
Sulfate	mg/L	4600	4600	4750	5450
Calcium	mg/L	462	481	433	468
Magnesium	mg/L	430	423	428	389
Potassium	mg/L	7	8	6	6
Sodium	mg/L	154	165	152	155
pH	s.u.	3.48	3.45	3.50	3.46
Solids, Total Dissolved TDS @ 180 C	mg/L	6380	6420	6660	6880
Nitrogen, Ammonia as N	mg/L	20	21	24	27
Nitrogen, Nitrate+Nitrite as N	mg/L	0.16	0.23	0.67	1.90
Aluminum	mg/L	227	235	279	260
Arsenic	mg/L	0.007	0.007	0.008	0.006
Beryllium	mg/L	0.152	0.166	0.199	0.18
Cadmium	mg/L	0.016	0.016	0.017	0.019
Cobalt	mg/L	0.914	0.980	1.07	1.06
Lead	mg/L	0.027	0.016	0.021	0.025
Manganese	mg/L	14.7	14.8	16.8	16.4
Molybdenum	mg/L	ND(0.001)	ND(0.001)	0.002	ND(0.001)
Nickel	mg/L	0.992	1.07	1.12	1.3
Selenium	mg/L	0.011	0.009	0.011	0.011
Uranium	mg/L	0.678	0.714	0.769	0.743
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Selenium-IV	mg/L	ND	ND		0.00023
A/C Balance	%	-2.13	-0.43	-2.41	-8.02
Anions	meq/L	97.7	97.8	101	116
Cations	meq/L	93.6	96.9	95.9	98.5
Solids, Total Dissolved - Calculated	mg/L	5800	5700	5800	6500
TDS Ratio	unitless	1.10	1.12	1.14	1.05
Gross Alpha minus Rn & U	pCi/L	46.1	21.0	13.9	22.0
Gross Alpha minus Rn & U Precision (±)	pCi/L	9.5	4.3	2.9	4.4
Gross Alpha minus Rn & U MDC	pCi/L	1.7	0.7	0.6	0.6
Lead 210	pCi/L	2.0	1.8	1.8	2.1
Lead 210 precision (±)	pCi/L	0.8	1	0.8	0.9
Lead 210 MDC	pCi/L	1	1.3	0.9	1.0
Radium 226	pCi/L	8.5	10.1	7.7	9.7
Radium 226 precision (±)	pCi/L	1.7	2.0	1.5	1.9
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	18.9	13.7	14.3	9.1
Radium 228 precision (±)	pCi/L	3.6	2.8	2.8	2.0
Radium 228 MDC	pCi/L	1.2	1.5	1.3	1.7
Thorium 230	pCi/L	2.4	2.8	2.3	2.7
Thorium 230 precision (±)	pCi/L	0.5	0.5	0.4	0.5
Thorium 230 MDC	pCi/L	1.8	0.9	0.6	1
Trihalomethanes, Total	ug/L	ND	ND(0.50)	0.29	ND(0.50)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		717-Duplicate	717-Duplicate	717-Duplicate	717-Duplicate
Collection Date:		1/14/2020	10/1/2019	7/23/2019	4/15/2019
Receive Date:		1/17/2020	10/9/2019	7/31/2019	4/18/2019
Report Date:		2/26/2020	11/13/2019	9/12/2019	5/31/2019
Analyte	Units	C20010593-002	C19100479-002	C19071276-003	C19040783-005
Acidity, Total as CaCO ₃	mg/L	1350	1490	1520	1720
Bicarbonate as HCO ₃	mg/L	ND(5)	ND(5)	ND(5)	ND(5)
Chloride	mg/L	45	45	46	50
Sulfate	mg/L	4600	4580	4650	5530
Calcium	mg/L	462	467	422	453
Magnesium	mg/L	424	424	415	379
Potassium	mg/L	8	8	6	5
Sodium	mg/L	155	160	144	147
pH	s.u.	3.53	3.50	3.50	3.46
Solids, Total Dissolved TDS @ 180 C	mg/L	6330	6410	6640	6860
Nitrogen, Ammonia as N	mg/L	19	21	25	28
Nitrogen, Nitrate+Nitrite as N	mg/L	0.05	0.20	0.57	1.71
Aluminum	mg/L	225	238	271	284
Arsenic	mg/L	0.008	0.006	0.007	0.006
Beryllium	mg/L	0.154	0.164	0.186	0.18
Cadmium	mg/L	0.015	0.016	0.017	0.019
Cobalt	mg/L	0.885	0.976	1.02	1.06
Lead	mg/L	0.016	0.019	0.019	0.018
Manganese	mg/L	14.5	15.1	15.3	16.5
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	1.04	1.07	1.10	1.2
Selenium	mg/L	0.008	0.009	0.011	0.009
Uranium	mg/L	0.681	0.723	0.750	0.750
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Vanadium-IV	mg/L	ND	ND		0.00022
Balance	%	-2.27	-0.30	-2.57	-9.57
Anions	meq/L	97.6	97.2	98.7	117
Cations	meq/L	93.3	96.6	93.7	96.8
Solids, Total Dissolved - Calculated	mg/L	5800	5700	5700	6600
TDS Ratio	unitless	1.09	1.12	1.17	1.04
Gross Alpha minus Rn & U	pCi/L	46.3	17.7	17.1	23.3
Gross Alpha minus Rn & U Precision (±)	pCi/L	9.1	3.7	3.5	4.7
Gross Alpha minus Rn & U MDC	pCi/L	0.8	0.7	0.6	0.6
Lead 210	pCi/L	2.4	2.1	1.7	1.4
Lead 210 precision (±)	pCi/L	1	1.0	0.7	0.8
Lead 210 MDC	pCi/L	1	1.3	0.9	1.0
Radium 226	pCi/L	9.5	10.0	7.6	13.7
Radium 226 precision (±)	pCi/L	1.9	2.0	1.5	2.7
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	17.5	13.3	15.9	11.5
Radium 228 precision (±)	pCi/L	3.5	2.8	3.1	2.4
Radium 228 MDC	pCi/L	1.5	1.5	1.3	1.6
Thorium 230	pCi/L	2.7	2.6	1.8	3.6
Thorium 230 precision (±)	pCi/L	0.5	0.5	0.3	0.7
Thorium 230 MDC	pCi/L	1.6	0.7	0.7	1.1
Trihalomethanes, Total	ug/L	0.55	0.83	0.60	0.67

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-002
Client Sample ID: 717 Duplicate

Report Date: 02/26/20
Collection Date: 01/14/20 13:00
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Acidity, Total as CaCO ₃	1350	mg/L				A2310 B	01/22/20 13:33 / dmb
Bicarbonate as HCO ₃	ND	mg/L		5		A2320 B	01/20/20 18:18 / dmb
Chloride	45	mg/L	D	2		E300.0	01/22/20 20:36 / ljl
Sulfate	4600	mg/L	D	8		E300.0	01/22/20 20:36 / ljl
Calcium	462	mg/L		1		E200.7	01/20/20 18:35 / jcg
Magnesium	424	mg/L		1		E200.7	01/20/20 18:35 / jcg
Potassium	8	mg/L		1		E200.7	01/20/20 18:35 / jcg
Sodium	155	mg/L		1		E200.7	01/20/20 18:35 / jcg
PHYSICAL PROPERTIES							
pH	3.53	s.u.	H	0.01		A4500-H B	01/17/20 16:33 / kjp
pH Measurement Temp	19	°C				A4500-H B	01/17/20 16:33 / kjp
Solids, Total Dissolved TDS @ 180 C	6330	mg/L	D	30		A2540 C	01/20/20 12:18 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.05	mg/L		0.01		E353.2	01/21/20 16:26 / dmb
Nitrogen, Ammonia as N	19	mg/L	D	1		E350.1	01/23/20 14:01 / dmb
METALS, TOTAL							
Aluminum	225	mg/L	D	2		E200.8	01/23/20 08:53 / meh
Arsenic	0.008	mg/L		0.001		E200.8	01/22/20 02:55 / jcg
Beryllium	0.154	mg/L		0.001		E200.8	01/22/20 02:55 / jcg
Cadmium	0.015	mg/L		0.001		E200.8	01/22/20 02:55 / jcg
Cobalt	0.885	mg/L		0.005		E200.8	01/22/20 02:55 / jcg
Lead	0.016	mg/L		0.001		E200.8	01/22/20 02:55 / jcg
Manganese	14.5	mg/L	D	0.2		E200.8	01/23/20 08:53 / meh
Molybdenum	ND	mg/L		0.001		E200.8	01/22/20 02:55 / jcg
Nickel	1.04	mg/L		0.005		E200.8	01/22/20 02:55 / jcg
Selenium	0.008	mg/L		0.001		E200.8	01/23/20 08:57 / meh
Uranium	0.681	mg/L		0.0003		E200.8	01/22/20 02:55 / jcg
Vanadium	ND	mg/L		0.01		E200.8	01/22/20 02:55 / jcg
METALS - SPECIATED - TOTAL							
Selenium-IV	ND	mg/L		0.005		A3114 C	01/29/20 00:00 / iml
***Selenium Speciation subbed to Pace Analytical.							
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	46.3	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U Precision (±)	9.1	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U MDC	0.8	pCi/L				E900.1	01/24/20 13:11 / trs
Lead 210	2.4	pCi/L				E909.0	02/01/20 16:57 / ajl
Lead 210 precision (±)	1	pCi/L				E909.0	02/01/20 16:57 / ajl
Lead 210 MDC	1	pCi/L				E909.0	02/01/20 16:57 / ajl
Radium 226	9.5	pCi/L				E903.0	02/10/20 15:21 / plj

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-002
Client Sample ID: 717 Duplicate

Report Date: 02/26/20
Collection Date: 01/14/20 13:00
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL						
Radium 226 precision (±)	1.9 pCi/L				E903.0	02/10/20 15:21 / plj
Radium 226 MDC	0.2 pCi/L				E903.0	02/10/20 15:21 / plj
Radium 228	17.5 pCi/L				RA-05	02/05/20 15:35 / trs
Radium 228 precision (±)	3.5 pCi/L				RA-05	02/05/20 15:35 / trs
Radium 228 MDC	1.5 pCi/L				RA-05	02/05/20 15:35 / trs
Thorium 230	2.7 pCi/L				E908.0	02/13/20 15:18 / dmf
Thorium 230 precision (±)	0.5 pCi/L				E908.0	02/13/20 15:18 / dmf
Thorium 230 MDC	1.6 pCi/L				E908.0	02/13/20 15:18 / dmf
DATA QUALITY						
Solids, Total Dissolved - Calculated	5800 mg/L				A1030 E	01/24/20 12:09 / tla
A/C Balance	-2.27 %				A1030 E	01/24/20 12:09 / tla
Anions	97.6 meq/L				A1030 E	01/24/20 12:09 / tla
Cations	93.3 meq/L				A1030 E	01/24/20 12:09 / tla
TDS Ratio	1.09 unitless				A1030 E	01/24/20 12:09 / tla
VOLATILE ORGANIC COMPOUNDS						
Bromodichloromethane	ND ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Bromoform	ND ug/L		2.0		E624.1	01/27/20 00:00 / ta-a
Chlorodibromomethane	ND ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Chloroform	0.55 ug/L	J	1.0		E624.1	01/27/20 00:00 / ta-a
Trihalomethanes, Total	0.55 ug/L	J	1.0		E624.1	01/27/20 00:00 / ta-a

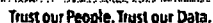
***Method E624.1 subbed to Test America.

Report Definitions:

RL - Analyte Reporting Limit	MCL - Maximum Contaminant Level
QCL - Quality Control Limit	ND - Not detected at the Reporting Limit (RL)
J - Estimated value - analyte was present but less than the Reporting Limit (RL)	

APPENDIX – C

**QUARTERLY
CHAIN OF CUSTODY REPORT**



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Comments

Company/Name	United Nuclear Corp
Contact	Max Chischilly Jr.
Phone	(505) 905-6651
Mailing Address	P.O. Box 1088
City, State, Zip	Gallup, NM 87305
Email	max.chischilly@woodplc.com
Receive Report	☐ Hard Copy ☒ Email
Special Report/Format:	
	☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other _____

Wood PLC
Acct. No. is C16610

United Nuclear Corporation is no longer mining.

Analysis Requested

A- Air
W- Water
S- Soils/
Solids
V- Vegetation
B- Bioassay
O- Other
DW- Drinking
Water

			X			X		As(total), Se(total)
			X			X		As(total), Se(IV)
			X	X				
			X	X				As(III), Se(total)
			X	X	X	X	X	Be, Ca, Cd, Cl, HCO ₃ K, Mg, Mn, Na
			X	X	X	X	X	NH ₄ , NI, NO ₃ , Pb, Mo Pb-210, pH, S04
			X	X	X	X	X	TDS, Th-230, U, V Chloroform, Gross
			X	X	X	X	X	Alpha (-) U & Rn, Al
			X	X	X	X	X	Co, Combined Ra-226
			X	X	X	X	X	& Ra-228, & TTHM/S
			X	X	X	X	X	See Attached

All turnaround times are standard unless marked as RUSH.

**Energy Laboratories
MUST be contacted prior to
RUSH sample submittal for
charges and scheduling –
See Instructions Page**

[illegible]

Custody Record MUST be signed	Relinquished by (print) <i>Max Chischilly Jr.</i>	Date/Time <i>1-15-20/1500</i>	Signature <i>Max Chischilly Jr.</i>	Received by (print) <i>Francesca Gilbreath</i>	Date/Time <i>1-15-20/1520</i>	Signature <i>Francesca Gilbreath</i>			
	Relinquished by (print) <i>Ricky Spitz</i>	Date/Time <i>1-15-20/1530</i>	Signature <i>Ricky Spitz</i>	Received by Laboratory (print) <i>ASIE Jaspersbach</i>	Date/Time <i>1/16/2020 925</i>	Signature <i>ASIE Jaspersbach</i>			
LABORATORY USE ONLY									
Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount \$	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-10/18 v



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Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

Work Order Receipt Checklist

United Nuclear Corporation

C20010593

Login completed by: Casie C. Peppersack

Date Received: 1/17/2020

Reviewed by: Misty Stephens

Received by: CCP

Reviewed Date: 1/20/2020

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	1.7°C On Ice		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☒

Standard Reporting Procedures:

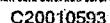
Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

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

Contact and Corrective Action Comments:

Multiple coolers received, additional temperatures are 1.9, 2.1 and 3.4. 1/17/2020 CP

2393 Salt Creek Hwy.
Casper, WY 82601-9601
307.235.0515



Page 1 of 1
17-Jan-20

PO:

Test Codes: CVAA-SEIV-3114-W-T

1/28/2020

Bus. Days Until Due:

5

Inter-Mountain Lab Inc
PO Box 661
Sheridan, WY 82801-0661
TEL: 3076747506
FAX:
Acct #: 3076747506

Subcontractor's Client:

5200/224

Requested Tests

[illegible]

001	C20010593-001D	Aqueous	01/14/20 09:05 A	1 - 250ML-P-NF-HCL
002	C20010593-002D	Aqueous	01/14/20 01:00 P	1 - 250ML-P-NF-HCL
003	C20010593-004D	Aqueous	01/14/20 02:15 P	1 - 250ML-P-NF-HCL
004	C20010593-005D	Aqueous	01/15/20 09:05 A	1 - 250ML-P-NF-HCL
005	C20010593-007D	Aqueous	01/15/20 12:25 P	1 - 250ML-P-NF-HCL
006	C20010593-008D	Aqueous	01/15/20 01:58 P	1 - 250ML-P-NF-HCL

QC Level:

11E(2)

Selenium Speciation only

Relinquished by: <u>Paul Depressack</u>		Date/Time: <u>1/17/2020 1601</u>		Received by: <u>Kathy Boop</u>		Date/Time: <u>1.21.20 11 AM</u>	
Relinquished by: _____		_____		Received by: _____		_____	
Shipped By: _____		Custody Seal		Intact		Temp Blank	
		Y ☒ N		☒ Y N		Y ☒ N	
				Receipt Temp: <u>0.8</u> °C			

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CASPER, W.

Toll Free: 888.235.0515 • 307.235.0515 • F: 307.234.1639
PO Box 247, Casper, WY 82602-0247 • 2393 Salt Creek Hwy (82501)



Survey Meter # Model 2241-2; SN 182115
pH strip lot # HC86 3453
Thermometer SN# 27130475

Condition Upon Receipt (Attach to COC)

Sample Receipt

1 Number of ice chests/packages received: 1 ROI? Yes No

Note as "OTC" if samples are received over the counter, unpackaged

2 Temperature of cooler/samples. (If more than 8 coolers, please write on back)

Temps Observed (°C): 0.8
Temps Corrected (°C): 1.7

Acceptable is: 0.1° to 10°C for Bacteria; and 0.1° to 6°C for most other water parameters. Samples may not have had adequate time to cool following collection. Indicate ROI (Received on Ice) for iced samples received on the same day as sampled, in addition to temperature at receipt.

Client contact for temperatures outside method criteria must be documented below:

3 Emission rate of samples for radiochemical analyses < 0.5mR/hr? Yes No N/A
4 COC Number (If applicable): _____
5 Do the number of bottles agree with the COC? Yes No N/A
6 Were the samples received intact? (no broken bottles, leaks, etc.) Yes No N/A
7 Were the sample custody seals intact? Yes No N/A
8 Is the COC properly completed, legible, and signed? Yes No

Sample Verification, Labeling & Distribution

1 Were all requested analyses understood and appropriate? Yes No
2 Did the bottle labels correspond with the COC information? Yes No
3 Samples collected in method-prescribed containers? Yes No
4 Sample Preservation:

pH at Receipt:

Final pH (if added in lab):

Preservative/Lot#

Date/Time Added:

____ Total Metals

____ Total Metals

HNO₃ _____

____ Diss Metals

____ Diss Metals

Filtered and preserved in metals

Filtered and preserved in metals

____ Nutrient

____ Nutrient

H₂SO₄ _____

____ Cyanide

____ Cyanide

NaOH _____

____ Sulfide

____ Sulfide

ZnAcet _____

____ Phenol

____ Phenol

H₂SO₄ _____

____ SDWA Rads

____ SDWA Rads

HNO₃ _____

Preserved samples for Rad analysis accompanied by Field Blank?

Yes No

5 VOA vials have <6mm headspace?

Yes No

N/A

6 Were all analyses within holding time at the time of receipt?

Yes No

N/A

7 Specially requested detection limits (RLs) assigned?

Yes No

N/A

8 Have rush or project due dates been checked and accepted?

Yes No

N/A

9 Do samples require subcontracted analyses?

Yes No

If "Yes", which type of subcontracting is required?

General

Customer-Specified

Certified

Sample Receipt, Verification, Login, Labeling & Distribution completed by (initials): KB

Set ID: S2001226

Discrepancy Documentation (use back of sheet for notes on discrepancies)

Any items listed above with a response of "No" or do not meet specifications must be resolved.

Person Contacted: _____

Method of Contact: _____ Phone: _____

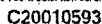
Initiated By: _____ Date/Time: _____

Email: _____

Problem: _____

Resolution: _____

2393 Salt Creek Hwy
Casper, WY 82601-9601
307.235.0515



Page 1 of 2
17-Jan-20

PO:

Earliest HT Expires: Tue. 1/28/2020 0905
Test Codes: VOC-624.1-W

Earliest Due Date:	1/28/2020
# Bus. Days Until Due:	7

Test America
4955 Yarrow St
Arvada, CO 80002
TEL: 3037360100
FAX:
Acct #: 3037360100

Subcontractor's Client

C20010593-001G	Aqueous	01/14/20 09:05 A	3 - 40ML-CG-VOA-AA-H	1
C20010593-002G	Aqueous	01/14/20 01:00 P	3 - 40ML-CG-VOA-AA-H	1
C20010593-003G	Aqueous	01/14/20 11:24 A	3 - 40ML-CG-VOA-AA-H	1
C20010593-004G	Aqueous	01/14/20 02:15 P	3 - 40ML-CG-VOA-AA-H	1
C20010593-005G	Aqueous	01/15/20 09:05 A	3 - 40ML-CG-VOA-AA-H	1
C20010593-006G	Aqueous	01/15/20,11:25 A	3 - 40ML-CG-VOA-AA-H	1
C20010593-007G	Aqueous	01/15/20,12:25 P	3 - 40ML-CG-VOA-AA-H	1
C20010593-008G	Aqueous	01/15/20 01:58 P	3 - 40ML-CG-VOA-AA-H	1
C20010593-009A	Trip Blank	01/14/20 09:05 A	1 - 40ML-CG-VOA-AA-3	1

QC Level:

11E(2)

Project # 28019578

280-133082 Chain of Custody

Relinquished by: <u>Cathy P. [Signature]</u>	Date/Time: <u>1/17/2020 1549</u>	Received by: <u>Felix [Signature]</u>	Date/Time: <u>1-22-20 09</u>
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____

4.4°C + 0.9 IR 9 JL 1-27-70

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Login Sample Receipt Checklist

Client: Energy Laboratories, Inc.

Job Number: 280-133082-1

Login Number: 133082
List Number: 1
Creator: Lubin, Julius C

List Source: Eurofins TestAmerica, Denver

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



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Chain of Custody & Analytical Request Record

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Page 1 of 1

Account Information (Billing Information)

Company/Name Wood PLC		
Contact Dorina Young		
Phone (505) 905-6651		
Mailing Address P.O. Box 1088		
City, State, Zip Gallup, NM 87305		
Email dorina.young@woodplc.com		
Receive Invoice ☐ Hard Copy ☒ Email	Receive Report ☐ Hard Copy ☒ Email	
Purchase Order C014000049	Quote 5406	Bottle Order 60334

Report Information (if different than Account Information)

Company/Name United Nuclear Corp	
Contact Max Chischilly Jr.	
Phone (505) 905-6651	
Mailing Address P.O. Box 1088	
City, State, Zip Gallup, NM 87305	
Email max.chischilly@woodplc.com	
Receive Report ☐ Hard Copy ☒ Email	
Special Report/Formats:	
☒ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other	

Comments

Wood PLC
Acct. No. is C16610

United Nuclear Corporation is no longer mining.

Project Information

Project Name, PWSID, Permit, etc. UNC-Zone 3 & Zone1	
Sampler Name Max Chischilly Jr.	Sampler Phone (505) 905-6651
Sample Origin State NM	EPA/State Compliance ☒ Yes ☐ No
URANIUM MINING CLIENTS MUST indicate sample type.	
☒ NOT Source or Byproduct Material	
☐ Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING	
☐ 11e.(2) Byproduct Material (Can ONLY be Submitted to ELJ Casper Location)	

Matrix Codes

A - Air
W - Water
S - Soils/
Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking
Water

Analysis Requested

Sample Identification (Name, Location, Interval, etc.)	Collection		Number of Containers	Matrix (See Codes Above)	As(total), Se(total)	As(total), Se(IV)	As(III), Se(total)	Be, Ca, Cd, Cl, HCO3 K, Mg, Mn, Na	NH4, Ni, NO3, Pb, Mo Pb-210, pH, SO4	TDS, Th-230, U, V Chloroform, Gross	Alpha (-) U & Rn, Al	Co, Combined Ra-226	& Ra-228, & TTHM's	See Attached	RUSH TAT	ELI LAB ID Laboratory Use Only
	Date	Time														
1 517	1/20/20	8:47 am	11	W	X			X	X	X	X	X	X			
2 719	1/20/20	10:50 am	11	W	X			X	X	X	X	X	X			
3 420	1/20/20	12:05 am	11	W	X			X	X	X	X	X	X			
4 EPA-13	1/20/20	1:45 pm	12	W			X	X	X	X	X	X	X			
5 711	1/21/20	9:26 am	11	W	X			X	X	X	X	X	X			
6 MW-7	1/21/20	11:45 am	11	W	X			X	X	X	X	X	X			
7 NW-3	1/21/20	12:45 am	12	W			X	X	X	X	X	X	X			
8 TWQ-142	1/21/20	1:40 pm	11	W	X			X	X	X	X	X	X			
9																
10																

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature
LABORATORY USE ONLY						
Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N
				Payment Type CC Cash Check	Amount \$	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

EU-COC-10/18 v.3



Work Order Receipt Checklist

United Nuclear Corporation

C20010793

Login completed by: Dorian Quis

Date Received: 1/24/2020

Reviewed by: Misty Stephens

Received by: CCP

Reviewed Date: 1/27/2020

Carrier name: Ground

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	1.0°C On Ice		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	Not Applicable ☐

Standard Reporting Procedures:

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

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

Contact and Corrective Action Comments:

None



Chain of Custody & Analytical Request Record

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Page 1 of 1

Account Information (Billing Information)

Company/Name Wood PLC		
Contact Dorina Young		
Phone (505) 905-6651		
Mailing Address P.O. Box 1088		
City, State, Zip Gallup, NM 87305		
Email dorina.young@woodplc.com		
Receive Invoice ☐ Hard Copy ☒ Email	Receive Report ☐ Hard Copy ☒ Email	
Purchase Order C014000049	Quote 5406	Bottle Order 60334

Report Information (if different than Account Information)

Company/Name United Nuclear Corp		
Contact Max Chischilly Jr.		
Phone (505) 905-6651		
Mailing Address P.O. Box 1088		
City, State, Zip Gallup, NM 87305		
Email max.chischilly@woodplc.com		
Receive Report ☐ Hard Copy ☒ Email		
Special Report/Formats:		
☒ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other		

Comments

Wood PLC
Acct. No. is C16610

United Nuclear Corporation is no longer mining.

Project Information

Project Name, PWSID, Permit, etc. UNC-Zone 1	
Sampler Name Max Chischilly Jr.	Sampler Phone (505) 905-6651
Sample Origin State NM	EPA/State Compliance ☒ Yes ☐ No
URANIUM MINING CLIENTS MUST indicate sample type.	
☒ NOT Source or Byproduct Material	
☐ Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING	
☐ 11e.(2) Byproduct Material (Can ONLY be Submitted to ELI Casper Location)	

Matrix Codes

- A - Air
- W - Water
- S - Solids/ Solids
- V - Vegetation
- B - Bioassay
- O - Other
- DW - Drinking Water

Analysis Requested

All turnaround times are standard unless marked as RUSH.

Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling - See Instructions Page

Sample Identification (Name, Location, Interval, etc.)		Collection		Number of Containers	Matrix (See Codes Above)	As(total)	As(total)	As(III), Se	Be, Ca, K, Mg, Na	NH4, Ni, Pb-210, pH	TDS, Th, Chloroform	Alpha (-)	Co, Com	& Ra-228	See At	RUSH TAT	ELI LAB ID Laboratory Use Only
		Date	Time														
1	EPA-4	1/22/20	8:40 am	11	W	X			X	X	X	X	X	X			C2DD10792
2	EPA-5	1/22/20	9:35 am	11	W	X			X	X	X	X	X	X			
3	EPA-7	1/22/20	10:35 am	12	W		X		X	X	X	X	X	X			
4	EPA-2	1/22/20	11:42 am	11	W	X			X	X	X	X	X	X			
5	EPA-2 DUPLICATE	1/22/20	12:22 am	11	W	X			X	X	X	X	X	X			
6	RINSATE	1/22/20	1:00 pm	11	W	X			X	X	X	X	X	X			
7	FIELD BLANK	1/22/20	1:15 pm	11	W	X			X	X	X	X	X	X			
8																	
9																	
10																	

Custody Record MUST be signed	Relinquished by (print) Max Chischilly Jr.	Date/Time 1-22-20/1330	Signature [Signature]	Received by (print) Francisco Gillreath	Date/Time 1-22-20/1400	Signature [Signature]			
	Relinquished by (print) Ricky E. Spitz	Date/Time 1-22-20/1415	Signature [Signature]	Received by Laboratory (print) [Signature]	Date/Time 1-22-20/1155	Signature [Signature]			
Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount \$	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-10/18 v.3



Work Order Receipt Checklist

United Nuclear Corporation

C20010792

Login completed by: Dorian Quis

Date Received: 1/24/2020

Reviewed by: Misty Stephens

Received by: CCP

Reviewed Date: 1/27/2020

Carrier name: Ground

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	1.1°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	Not Applicable ☐

Standard Reporting Procedures:

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

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

Contact and Corrective Action Comments:

None



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Chain of Custody & Analytical Request Record

www.energylab.com

Page 1 of 1

Account Information (Billing information)

Company/Name Wood PLC		
Contact Dorina Young		
Phone (505) 905-6651		
Mailing Address P.O. Box 1088		
City, State, Zip Gallup, NM 87305		
Email dorina.young@woodplc.com		
Receive Invoice ☐ Hard Copy ☒ Email	Receive Report ☐ Hard Copy ☒ Email	
Purchase Order C014000049	Quote 5406	Bottle Order 60334

Report Information (if different than Account Information)

Company/Name United Nuclear Corp		
Contact Max Chischilly Jr.		
Phone (505) 905-6651		
Mailing Address P.O. Box 1088		
City, State, Zip Gallup, NM 87305		
Email max.chischilly@woodplc.com		
Receive Report ☐ Hard Copy ☒ Email		
Special Report/Formats:		
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other		

Comments

Wood PLC
Acct. No. is C16610

United Nuclear Corporation is no longer mining.

Project Information

Project Name, PWSID, Permit, etc. UNC-SW-ALLUVIUM	
Sampler Name Max Chischilly Jr.	Sampler Phone (505) 905-6651
Sample Origin State NM	EPA/State Compliance ☒ Yes ☐ No
URANIUM MINING CLIENTS MUST indicate sample type.	
☒ NOT Source or Byproduct Material	
☒ Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING	
☒ 11e.(2) Byproduct Material (Can ONLY be Submitted to ELI Casper Location)	

Matrix Codes

A - Air
W - Water
S - Soils/
Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking
Water

Analysis Requested

As (total), Se (total)	As (total), Se (IV)	As (III), Se (total)	Be, Ca, Cd, Cl, HCO3 K, Mg, Mn, Na	NH4, Ni, NO3, Pb, Mo Pb-210, pH, S04	TDS, Th-230, U, V Chloroform, Gross	Alpha (-) U & Rn, Al	Co, Combined Ra-226	Ra-228, & TTHMS	See Attached
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			X	X	X	X	X	X	
X			X	X	X	X	X	X	

All turnaround times are standard unless marked as RUSH.

Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling - See Instructions Page

Sample Identification (Name, Location, Interval, etc.)		Collection		Number of Containers	Matrix (See Codes Above)	As (total), Se (total)	As (total), Se (IV)	As (III), Se (total)	Be, Ca, Cd, Cl, HCO3 K, Mg, Mn, Na	NH4, Ni, NO3, Pb, Mo Pb-210, pH, S04	TDS, Th-230, U, V Chloroform, Gross	Alpha (-) U & Rn, Al	Co, Combined Ra-226	Ra-228, & TTHMS	See Attached	RUSH TAT	ELI LAB ID Laboratory Use Only
Date	Time																
1 509-D	1/27/20	8:46 am	11	W		X			X	X	X	X	X	X			C20010929
2 EPA-23	1/27/20	9:55 am	11	W		X			X	X	X	X	X	X			
3 803	1/27/20	10:50 am	11	W		X			X	X	X	X	X	X			
4 808	1/27/20	11:35 am	11	W		X			X	X	X	X	X	X			
5 802	1/27/20	12:35 pm	11	W		X			X	X	X	X	X	X			
6 632	1/27/20	1:25 pm	11	W		X			X	X	X	X	X	X			
7 801	1/27/20	2:16 pm	11	W		X			X	X	X	X	X	X			
8 GW-1	1/28/20	8:50 am	11	W		X			X	X	X	X	X	X			
9 EPA-28	1/28/20	9:50 am	11	W		X			X	X	X	X	X	X			
10 EPA-28 DUPLICATE	1/28/20	10:40 am	11	W		X			X	X	X	X	X	X			

Custody Record MUST be signed	Relinquished by (print) Max Chischilly Jr.	Date/Time 1-28-20/1300	Signature <i>Max Chischilly Jr.</i>	Received by (print) Aaron Geroutte	Date/Time 1-28-20/1320	Signature <i>Aaron Geroutte</i>
	Relinquished by (print) Ricky E. Spitz	Date/Time 1-28-20/1330	Signature <i>Ricky E. Spitz</i>	Received by (print) ASIE [Signature]	Date/Time 1/28/2020 1140	Signature <i>ASIE</i>
LABORATORY USE ONLY						
Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N
				Payment Type CC Cash Check	Amount \$	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-10/18 v.3



Work Order Receipt Checklist

United Nuclear Corporation

C20010929

Login completed by: Dorian Quis

Date Received: 1/30/2020

Reviewed by: Kasey Vidick

Received by: CCP

Reviewed Date: 2/4/2020

Carrier name: Ground

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.5°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☒	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	Not Applicable ☐

Standard Reporting Procedures:

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

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

Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

2 out of 3 VOA vials for 509-D were received for Volatile Organics Analysis containing headspace gas bubbles greater than 1/4 Inch in diameter. 3 out of 3 VOA vials for EPA-23 were received for Volatile Organics Analysis containing headspace gas bubbles greater than 1/4 Inch in diameter. 3 out of 3 VOA vials for 803 were received for Volatile Organics Analysis containing headspace gas bubbles greater than 1/4 Inch in diameter. 3 out of 3 VOA vials for 808 were received for Volatile Organics Analysis containing headspace gas bubbles greater than 1/4 Inch in diameter. 3 out of 3 VOA vials for 802 were received for Volatile Organics Analysis containing headspace gas bubbles greater than 1/4 Inch in diameter. 3 out of 3 VOA vials for 632 were received for Volatile Organics Analysis containing headspace gas bubbles greater than 1/4 Inch in diameter. 3 out of 3 VOA vials for 801 were received for Volatile Organics Analysis containing headspace gas bubbles greater than 1/4 Inch in diameter. 3 out of 3 VOA vials for GW-1 were received for Volatile Organics Analysis containing headspace gas bubbles greater than 1/4 Inch in diameter. 2 out of 3 VOA vials for EPA-28* were received for Volatile Organics Analysis containing headspace gas bubbles greater than 1/4 Inch in



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Billings, MT 800.735.4489 • Casper, WY 888.235.0515
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

Work Order Receipt Checklist - Continued

United Nuclear Corporation

C20010929

diameter.



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Chain of Custody & Analytical Request Record

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Page 1 of 2

Account Information (Billing information)

Company/Name Wood PLC		
Contact Dorina Young		
Phone (505) 905-6651		
Mailing Address P.O. Box 1088		
City, State, Zip Gallup, NM 87305		
Email dorina.young@woodplc.com		
Receive Invoice ☐ Hard Copy ☒ Email	Receive Report ☐ Hard Copy ☒ Email	
Purchase Order C014000049	Quote 5406	Bottle Order 60334

Report Information (if different than Account Information)

Company/Name United Nuclear Corp		
Contact Max Chischilly Jr.		
Phone (505) 905-6651		
Mailing Address P.O. Box 1088		
City, State, Zip Gallup, NM 87305		
Email max.chischilly@woodplc.com		
Receive Report ☐ Hard Copy ☒ Email		
Special Report/Formats:		
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other		

Comments

Wood PLC
Acct. No. is C16610

United Nuclear Corporation is no longer mining.

Project Information

Project Name, PWSID, Permit, etc. UNC-SW-ALLUVIUM	
Sampler Name Max Chischilly Jr.	Sampler Phone (505) 905-6651
Sample Origin State NM	EPA/State Compliance ☒ Yes ☐ No
URANIUM MINING CLIENTS MUST indicate sample type.	
☒ NOT Source or Byproduct Material	
☐ Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING	
☐ 11e.(2) Byproduct Material (Can ONLY be Submitted to ELI Casper Location)	

Matrix Codes

A - Air
W - Water
S - Solids/
Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking
Water

Analysis Requested

As(total), Se(total)	As(total), Se(IV)	As(III), Se(total)	Be, Ca, Cd, Cl, HCO3 K, Mg, Mn, Na	NH4, Ni, NO3, Pb, Mo Pb-210, pH, S04	TDS, Th-230, U, V Chloroform, Gross	Alpha (-) U & Rn, Al	Co, Combined Ra-226	& Ra-228, & TTHMS	See Attached
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	

All turnaround times are standard unless marked as RUSH.

Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling - See Instructions Page

Sample Identification (Name, Location, Interval, etc.)		Collection		Number of Containers	Matrix (See Codes Above)	As(total), Se(total)	As(total), Se(IV)	As(III), Se(total)	Be, Ca, Cd, Cl, HCO3 K, Mg, Mn, Na	NH4, Ni, NO3, Pb, Mo Pb-210, pH, S04	TDS, Th-230, U, V Chloroform, Gross	Alpha (-) U & Rn, Al	Co, Combined Ra-226	& Ra-228, & TTHMS	See Attached	RUSH TAT	ELI LAB ID Laboratory Use Only
		Date	Time														
1	624	1/28/20	11:36 am	11	W	X			X	X	X	X	X	X			C20010972
2	SBL-1	1/28/20	12:25 pm	11	W	X			X	X	X	X	X	X			
3	627	1/29/20	8:18 am	11	W	X			X	X	X	X	X	X			
4	EPA-25	1/29/20	9:25 am	11	W	X			X	X	X	X	X	X			
5	RINSATE	1/29/20	11:05 am	11	W	X			X	X	X	X	X	X			
6	FIELD BLANK	1/29/20	11:30 am	11	W	X			X	X	X	X	X	X			
7																	
8																	
9																	
10																	

Custody Record MUST be signed	Relinquished by (print) Max Chischilly Jr.	Date/Time 1-29-20/1200	Signature [Signature]	Received by (print) Francesca Gillreath	Date/Time 1-29-20/1230	Signature [Signature]
	Relinquished by (print) Ricky E. Spitz	Date/Time 1-29-20/1350	Signature [Signature]	Received by Laboratory (print) [Signature]	Date/Time 1/30/2020 1040	Signature [Signature]
LABORATORY USE ONLY						
Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N
Payment Type CC Cash Check			Amount \$	Receipt Number (cash/check only)		

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-10/18 v.3



Work Order Receipt Checklist

United Nuclear Corporation

C20010972

Login completed by: Dorian Quis

Date Received: 1/31/2020

Reviewed by: Misty Stephens

Received by: CCP

Reviewed Date: 1/31/2020

Carrier name: Ground

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	1.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☒	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	Not Applicable ☐

Standard Reporting Procedures:

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

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

Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

2 of 3 VOA Vials for 624 have air space and 1 of 3 Vials for EPA-25 has airspace. - tla 3/5/2020



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Chain of Custody & Analytical Request Record

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Page 2 of 2

Account Information (Billing information)

Company/Name Wood PLC		
Contact	Dorina Young	
Phone	(505) 905-6651	
Mailing Address	PO Box 1088	
City, State, Zip	Gallup, NM 87305	
Email	dorina.young@woodplc.com	
Receive Invoice	☐ Hard Copy ☒ Email	Receive Report ☐ Hard Copy ☒ Email
Purchase Order	Quote	Bottle Order
C014000049	5406	60334

Report Information (if different than Account Information)

Company/Name United Nuclear Corp	
Contact	Max Chischilly Jr.
Phone	(505) 905-6651
Mailing Address	PO Box 1088
City, State, Zip	Gallup, NM 87305
Email	max.chischilly@woodplc.com
Receive Report	☐ Hard Copy ☒ Email
Special Report/Formats:	
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other	

Comments

Wood PLC
Acct. No. is C16610

United Nuclear Corp is no longer mining.

Project Information

Project Name, PWSID, Permit, etc. UNC- ZONE 3	
Sampler Name Max Chischilly Jr.	Sampler Phone (505) 905-6651
Sample Origin State NM	EPA/State Compliance ☒ Yes ☐ No
URANIUM MINING CLIENTS MUST indicate sample type.	
☒ NOT Source or Byproduct Material	
☐ Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING	
☐ 11e (2) Byproduct Material (Can ONLY be Submitted to ELI Casper Location)	

Matrix Codes

A - Air
W - Water
S - Solids/
Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking
Water

Analysis Requested

Sample Identification (Name, Location, Interval, etc.)	Collection		Number of Containers	Matrix (See Codes Above)	Bicarbonate	Chloride	pH	TDS											See Attached	RUSH TAT	ELI LAB ID Laboratory Use Only
	Date	Time																			
1 NBL-2	1/29/20	10:35 am	1	W	X	X	X	X													C20010971
2 NW-4	1/29/20	12:00 am	1	W	X	X	X	X													
3 NW-5	1/29/20	12:25 am	1	W	X	X	X	X													
4 RW-A	1/29/20	12:45 am	1	W	X	X	X	X													
5																					
6																					
7																					
8																					
9																					
10																					

Custody Record MUST be signed	Relinquished by (print) Max Chischilly Jr.	Date/Time 1-29-20/1200	Signature <i>Max Chischilly Jr.</i>	Received by (print) Francesca Grillroth	Date/Time 1-29-20/1230	Signature <i>Francesca Grillroth</i>			
	Relinquished by (print) Ricky E. Spitz	Date/Time 1-29-20/1350	Signature <i>Ricky E. Spitz</i>	Received by Laboratory (print) Ricky E. Spitz	Date/Time 1/31/2020 1035	Signature <i>Ricky E. Spitz</i>			
LABORATORY USE ONLY									
Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount \$	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-10/18 v.3



Work Order Receipt Checklist

United Nuclear Corporation

C20010971

Login completed by: Dorian Quis

Date Received: 1/31/2020

Reviewed by: Misty Stephens

Received by: CCP

Reviewed Date: 1/31/2020

Carrier name: Ground

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	1.2°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	Not Applicable ☐

Standard Reporting Procedures:

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

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

Contact and Corrective Action Comments:

None

APPENDIX – D (1 OF 1)

FIRST QUARTER

LABORATORY QUALITY CONTROL AND

PERFORMANCE REPORT



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ANALYTICAL SUMMARY REPORT

March 06, 2020

United Nuclear Corporation
21 Miles NE of Gallup
Gallup, NM 87305

Work Order: C20010929 Quote ID: C5406

Project Name: UNC-SW-Alluvium

Energy Laboratories, Inc. Casper WY received the following 10 samples for United Nuclear Corporation on 1/30/2020 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C20010929-001	509-D	01/27/20 08:46	01/30/20	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Anions by Ion Chromatography pH Check for H2SO4 Preserved Inorganics Metals pH check by the Laboratory FIRST Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Radon and Uranium, Total pH Check for Nitric Radiochem FIRST Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic, Total Solids, Total Dissolved Solids, Total Dissolved - Calculated 624-Purgeable Organics 624-Purgeable Organics
C20010929-002	EPA-23	01/27/20 09:55	01/30/20	Aqueous	Same As Above
C20010929-003	803	01/27/20 10:50	01/30/20	Aqueous	Same As Above
C20010929-004	808	01/27/20 11:35	01/30/20	Aqueous	Same As Above
C20010929-005	802	01/27/20 12:35	01/30/20	Aqueous	Same As Above
C20010929-006	632	01/27/20 13:25	01/30/20	Aqueous	Same As Above
C20010929-007	801	01/27/20 14:16	01/30/20	Aqueous	Same As Above
C20010929-008	GW-1	01/28/20 08:50	01/30/20	Aqueous	Same As Above
C20010929-009	EPA-28	01/28/20 09:50	01/30/20	Aqueous	Same As Above
C20010929-010	EPA-28 Duplicate	01/28/20 10:40	01/30/20	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy

ANALYTICAL SUMMARY REPORT

Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:

Tracey Archer
Project Manager

Digitally signed by
Tracey Archer
Date: 2020.03.06 09:46:49 -07:00



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CLIENT: United Nuclear Corporation
Project: UNC-SW-Alluvium
Work Order: C20010929

Report Date: 03/06/20

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

Total Dissolved Solids, A2540 C:

Per method, TDS samples are to be evaporated at 105°C overnight before continuing to dry at 180°C. Due to an error in the oven temperature programming, the TDS samples were evaporated between 106 - 180°C. All associated quality control was within acceptable limits.



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 02/10/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Analytical Run: MANTECH_200131A
Lab ID: ICV		Initial Calibration Verification Standard								01/31/20 14:27
pH		6.90	s.u.	0.010	101	98	102			
Method: A2320 B										Batch: R255287
Lab ID: MBLK		Method Blank					Run: MANTECH_200131A			01/31/20 18:17
Alkalinity, Total as CaCO ₃		ND	mg/L	2						
Lab ID: LCS		Laboratory Control Sample					Run: MANTECH_200131A			01/31/20 18:24
Alkalinity, Total as CaCO ₃		255	mg/L	5.0	102	90	110			
Lab ID: C20010929-008ADUP		Sample Duplicate					Run: MANTECH_200131A			01/31/20 18:45
Alkalinity, Total as CaCO ₃		1400	mg/L	5.0				0.2	10	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 02/10/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: TDS200131A
Lab ID: MB-1_200131A		Method Blank					Run: ORG_BAL3_C_200131A			01/31/20 15:15
Solids, Total Dissolved TDS @ 180 C		ND	mg/L							
- See case narrative for TDS.										
Lab ID: LCS-2_200131A		Laboratory Control Sample					Run: ORG_BAL3_C_200131A			01/31/20 15:15
Solids, Total Dissolved TDS @ 180 C		1000	mg/L	10	101	90	110			
- See case narrative for TDS.										
Lab ID: C20010929-004A DUP		Sample Duplicate					Run: ORG_BAL3_C_200131A			01/31/20 15:19
Solids, Total Dissolved TDS @ 180 C		6670	mg/L	100				0.6	5	
- See case narrative for TDS.										
Method: A2540 C										Batch: TDS200203A
Lab ID: MB-1_200203A		Method Blank					Run: ORG_BAL3_C_200203A			02/03/20 10:31
Solids, Total Dissolved TDS @ 180 C		ND	mg/L							
- See case narrative for TDS.										
Lab ID: LCS-2_200203A		Laboratory Control Sample					Run: ORG_BAL3_C_200203A			02/03/20 10:31
Solids, Total Dissolved TDS @ 180 C		1010	mg/L	10	101	90	110			
- See case narrative for TDS.										
Lab ID: C20010929-008A DUP		Sample Duplicate					Run: ORG_BAL3_C_200203A			02/03/20 10:32
Solids, Total Dissolved TDS @ 180 C		5950	mg/L	100				1.2	5	
- See case narrative for TDS.										

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 02/10/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B										Analytical Run: PHSC_101-C_200131A
Lab ID: 6.86	2	Initial Calibration Verification Standard								01/31/20 09:50
pH		6.86	s.u.	0.010	100	98	102			
pH Measurement Temp		19.8	°C			0	0			
Method: A4500-H B										Batch: R255190
Lab ID: C20010929-001ADUP	2	Sample Duplicate								Run: PHSC_101-C_200131A
pH		6.68	s.u.	0.010				0.0		01/31/20 11:44
pH Measurement Temp		14.4	°C							1.5

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 02/10/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0								Analytical Run: IC3-C_200204A		
Lab ID: ICV	2	Initial Calibration Verification Standard						02/04/20 15:25		
Chloride		9.93	mg/L	1.0	99	90	110			
Sulfate		39.6	mg/L	1.0	99	90	110			
Method: E300.0								Batch: R255389		
Lab ID: ICB	2	Method Blank				Run: IC3-C_200204A			02/04/20 15:44	
Chloride		ND	mg/L	0.06						
Sulfate		ND	mg/L	0.2						
Lab ID: LFB	2	Laboratory Fortified Blank				Run: IC3-C_200204A			02/04/20 16:04	
Chloride		9.89	mg/L	1.0	99	90	110			
Sulfate		39.4	mg/L	1.0	99	90	110			
Lab ID: C20010929-001AMS	2	Sample Matrix Spike				Run: IC3-C_200204A			02/04/20 17:01	
Chloride		525	mg/L	2.1	89	80	120			
Sulfate		3150	mg/L	8.3	80	80	120			
Lab ID: C20010929-001AMSD	2	Sample Matrix Spike Duplicate				Run: IC3-C_200204A			02/04/20 17:20	
Chloride		526	mg/L	2.1	89	80	120	0.2	20	
Sulfate		3150	mg/L	8.3	80	80	120	0.0	20	
Lab ID: C20010929-005AMS	2	Sample Matrix Spike				Run: IC3-C_200204A			02/04/20 21:29	
Chloride		348	mg/L	2.1	100	80	120			
Sulfate		3200	mg/L	8.3	93	80	120			
Lab ID: C20010929-005AMSD	2	Sample Matrix Spike Duplicate				Run: IC3-C_200204A			02/04/20 21:49	
Chloride		348	mg/L	2.1	100	80	120	0.1	20	
Sulfate		3220	mg/L	8.3	95	80	120	0.6	20	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 02/10/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0										Analytical Run: IC3-C_200207A
Lab ID: ICV	2	Initial Calibration Verification Standard								02/07/20 15:07
Chloride		9.89	mg/L	1.0	99	90	110			
Sulfate		39.5	mg/L	1.0	99	90	110			
Method: E300.0										Batch: R255471
Lab ID: ICB	2	Method Blank								Run: IC3-C_200207A 02/07/20 15:27
Chloride		ND	mg/L	0.06						
Sulfate		ND	mg/L	0.2						
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC3-C_200207A 02/07/20 15:46
Chloride		9.98	mg/L	1.0	100	90	110			
Sulfate		39.8	mg/L	1.0	100	90	110			
Lab ID: C20010897-002AMS	2	Sample Matrix Spike								Run: IC3-C_200207A 02/07/20 16:43
Chloride		195	mg/L	1.0	93	80	120			
Sulfate		533	mg/L	2.1	97	80	120			
Lab ID: C20010897-002AMSD	2	Sample Matrix Spike Duplicate								Run: IC3-C_200207A 02/07/20 17:02
Chloride		194	mg/L	1.0	92	80	120	0.3	20	
Sulfate		533	mg/L	2.1	97	80	120	0.1	20	

Qualifiers:

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ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 02/10/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E350.1								Analytical Run: FIA201-C_200205A		
Lab ID: ICV	Initial Calibration Verification Standard									02/05/20 12:31
Nitrogen, Ammonia as N		1.08	mg/L	0.050	108	90	110			
Method: E350.1								Batch: R255353		
Lab ID: MBLK	Method Blank									02/05/20 12:30
Nitrogen, Ammonia as N		ND	mg/L	0.02				Run: FIA201-C_200205A		
Lab ID: LFB	Laboratory Fortified Blank									02/05/20 12:33
Nitrogen, Ammonia as N		0.989	mg/L	0.050	100	90	110	Run: FIA201-C_200205A		
Lab ID: C20010929-007EMS	Sample Matrix Spike									02/05/20 12:52
Nitrogen, Ammonia as N		5.91	mg/L	0.25	89	90	110	Run: FIA201-C_200205A		S
Lab ID: C20010929-007EMSD	Sample Matrix Spike Duplicate									02/05/20 12:53
Nitrogen, Ammonia as N		5.91	mg/L	0.25	89	90	110	0.0	10	S

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 02/10/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA201-C_200204A		
Lab ID: ICV		Initial Calibration Verification Standard								02/04/20 13:55
Nitrogen, Nitrate+Nitrite as N		0.954	mg/L	0.010	95	90	110			
Method: E353.2								Batch: R255312		
Lab ID: MBLK		Method Blank								02/04/20 13:56
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.008						
Lab ID: LFB		Laboratory Fortified Blank								02/04/20 13:57
Nitrogen, Nitrate+Nitrite as N		1.00	mg/L	0.010	101	90	110			
Lab ID: C20010929-006EMS		Sample Matrix Spike								02/04/20 15:08
Nitrogen, Nitrate+Nitrite as N		44.3	mg/L	0.10	101	90	110			
Lab ID: C20010929-006EMSD		Sample Matrix Spike Duplicate								02/04/20 15:09
Nitrogen, Nitrate+Nitrite as N		43.4	mg/L	0.10	92	90	110	2.1	10	

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP4-C_200202A		
Lab ID: QCS	4	Initial Calibration Verification Standard						02/02/20 18:55		
Calcium		39.6	mg/L	0.50	99	90	110			
Magnesium		38.7	mg/L	0.50	97	90	110			
Potassium		39.5	mg/L	0.50	99	90	110			
Sodium		40.3	mg/L	0.50	101	90	110			
Method: E200.7								Batch: R255277		
Lab ID: MB-6300DIS200202A	4	Method Blank				Run: ICP4-C_200202A			02/02/20 18:42	
Calcium		0.05	mg/L	0.003						
Magnesium		ND	mg/L	0.009						
Potassium		0.09	mg/L	0.04						
Sodium		ND	mg/L	0.02						
Lab ID: LFB-6300DIS200202A	4	Laboratory Fortified Blank				Run: ICP4-C_200202A			02/02/20 18:51	
Calcium		48.9	mg/L	0.50	98	85	115			
Magnesium		48.0	mg/L	0.50	96	85	115			
Potassium		48.6	mg/L	0.50	97	85	115			
Sodium		49.6	mg/L	0.50	99	85	115			
Lab ID: C20010929-006BMS2	4	Sample Matrix Spike				Run: ICP4-C_200202A			02/02/20 22:45	
Calcium		994	mg/L	1.0	95	70	130			
Magnesium		1210	mg/L	1.0	98	70	130			
Potassium		497	mg/L	1.0	97	70	130			
Sodium		876	mg/L	1.0	100	70	130			
Lab ID: C20010929-006BMSD	4	Sample Matrix Spike Duplicate				Run: ICP4-C_200202A			02/02/20 22:49	
Calcium		1010	mg/L	1.0	98	70	130	1.5	20	
Magnesium		1200	mg/L	1.0	98	70	130	0.1	20	
Potassium		510	mg/L	1.0	100	70	130	2.6	20	
Sodium		891	mg/L	1.0	103	70	130	1.7	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP4-C_200204A		
Lab ID: QCS	4	Initial Calibration Verification Standard							02/04/20 18:42	
Calcium		39.9	mg/L	0.50	100	90	110			
Magnesium		40.1	mg/L	0.50	100	90	110			
Potassium		39.5	mg/L	0.50	99	90	110			
Sodium		39.9	mg/L	0.50	100	90	110			
Method: E200.7								Batch: R255336		
Lab ID: MB-6300DIS200204A	4	Method Blank				Run: ICP4-C_200204A			02/04/20 18:29	
Calcium		0.2	mg/L	0.003						
Magnesium		ND	mg/L	0.009						
Potassium		0.1	mg/L	0.04						
Sodium		ND	mg/L	0.02						
Lab ID: LFB-6300DIS200204A	4	Laboratory Fortified Blank				Run: ICP4-C_200204A			02/04/20 18:38	
Calcium		49.4	mg/L	0.50	99	85	115			
Magnesium		49.9	mg/L	0.50	100	85	115			
Potassium		49.2	mg/L	0.50	98	85	115			
Sodium		49.2	mg/L	0.50	98	85	115			
Lab ID: C20010929-006BMS2	4	Sample Matrix Spike				Run: ICP4-C_200204A			02/05/20 01:47	
Calcium		781	mg/L	1.0	97	70	130			
Magnesium		1040	mg/L	1.0	101	70	130			
Potassium		269	mg/L	1.0	103	70	130			
Sodium		647	mg/L	1.0	102	70	130			
Lab ID: C20010929-006BMSD	4	Sample Matrix Spike Duplicate				Run: ICP4-C_200204A			02/05/20 01:51	
Calcium		780	mg/L	1.0	96	70	130	0.1	20	
Magnesium		1040	mg/L	1.0	101	70	130	0.0	20	
Potassium		268	mg/L	1.0	103	70	130	0.3	20	
Sodium		647	mg/L	1.0	102	70	130	0.0	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS5-C_200205A		
Lab ID: QCS	12 Initial Calibration Verification Standard								02/05/20 10:18	
Aluminum		0.250	mg/L	0.030	100	90	110			
Arsenic		0.0491	mg/L	0.0010	98	90	110			
Beryllium		0.0250	mg/L	0.0010	100	90	110			
Cadmium		0.0250	mg/L	0.0010	100	90	110			
Cobalt		0.0498	mg/L	0.0050	100	90	110			
Lead		0.0487	mg/L	0.0010	97	90	110			
Manganese		0.244	mg/L	0.0010	98	90	110			
Molybdenum		0.0493	mg/L	0.0010	99	90	110			
Nickel		0.0494	mg/L	0.0050	99	90	110			
Selenium		0.0516	mg/L	0.0010	103	90	110			
Uranium		0.0189	mg/L	0.00030	95	90	110			
Vanadium		0.0477	mg/L	0.010	95	90	110			
Method: E200.8								Batch: 56679		
Lab ID: MB-56679	12 Method Blank								Run: ICPMS5-C_200205A 02/05/20 11:22	
Aluminum		ND	mg/L	0.02						
Arsenic		ND	mg/L	8E-05						
Beryllium		ND	mg/L	0.0001						
Cadmium		ND	mg/L	2E-05						
Cobalt		ND	mg/L	0.0002						
Lead		ND	mg/L	0.0001						
Manganese		ND	mg/L	0.002						
Molybdenum		ND	mg/L	0.0003						
Nickel		ND	mg/L	0.0001						
Selenium		ND	mg/L	0.0002						
Uranium		ND	mg/L	0.0001						
Vanadium		ND	mg/L	0.0006						
Lab ID: LCS3-56679	12 Laboratory Control Sample								Run: ICPMS5-C_200205A 02/05/20 11:27	
Aluminum		2.38	mg/L	0.030	95	85	115			
Arsenic		0.485	mg/L	0.0010	97	85	115			
Beryllium		0.238	mg/L	0.0010	95	85	115			
Cadmium		0.242	mg/L	0.0010	97	85	115			
Cobalt		0.485	mg/L	0.0050	97	85	115			
Lead		0.514	mg/L	0.0010	103	85	115			
Manganese		2.41	mg/L	0.0015	96	85	115			
Molybdenum		0.460	mg/L	0.0010	92	85	115			
Nickel		0.494	mg/L	0.0050	99	85	115			
Selenium		0.474	mg/L	0.0010	95	85	115			
Uranium		0.518	mg/L	0.00030	104	85	115			
Vanadium		0.480	mg/L	0.010	96	85	115			
Lab ID: C20010929-009CMS3	12 Sample Matrix Spike								Run: ICPMS5-C_200205A 02/05/20 12:53	
Aluminum		2.31	mg/L	0.032	93	70	130			
Arsenic		0.503	mg/L	0.0010	101	70	130			
Beryllium		0.215	mg/L	0.0010	86	70	130			

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 56679
Lab ID: C20010929-009CMS3 12 Sample Matrix Spike										Run: ICPMS5-C_200205A 02/05/20 12:53
Cadmium		0.233	mg/L	0.0010	93	70	130			
Cobalt		0.478	mg/L	0.0050	95	70	130			
Lead		0.516	mg/L	0.0010	103	70	130			
Manganese		2.55	mg/L	0.0030	94	70	130			
Molybdenum		0.442	mg/L	0.0010	88	70	130			
Nickel		0.477	mg/L	0.0050	94	70	130			
Selenium		0.561	mg/L	0.0010	112	70	130			
Uranium		0.570	mg/L	0.00030	110	70	130			
Vanadium		0.478	mg/L	0.010	96	70	130			
Lab ID: C20010929-009CMSD 12 Sample Matrix Spike Duplicate										Run: ICPMS5-C_200205A 02/05/20 12:57
Aluminum		2.32	mg/L	0.032	93	70	130	0.1	20	
Arsenic		0.500	mg/L	0.0010	100	70	130	0.5	20	
Beryllium		0.211	mg/L	0.0010	85	70	130	1.9	20	
Cadmium		0.233	mg/L	0.0010	93	70	130	0.1	20	
Cobalt		0.471	mg/L	0.0050	94	70	130	1.5	20	
Lead		0.513	mg/L	0.0010	103	70	130	0.5	20	
Manganese		2.54	mg/L	0.0030	94	70	130	0.5	20	
Molybdenum		0.444	mg/L	0.0010	89	70	130	0.3	20	
Nickel		0.476	mg/L	0.0050	94	70	130	0.2	20	
Selenium		0.560	mg/L	0.0010	112	70	130	0.1	20	
Uranium		0.566	mg/L	0.00030	109	70	130	0.7	20	
Vanadium		0.477	mg/L	0.010	95	70	130	0.2	20	
Method: E200.8										Analytical Run: ICPMS5-C_200206A
Lab ID: QCS 4 Initial Calibration Verification Standard										02/06/20 10:36
Arsenic		0.0495	mg/L	0.0010	99	90	110			
Manganese		0.249	mg/L	0.0010	99	90	110			
Nickel		0.0502	mg/L	0.0050	100	90	110			
Vanadium		0.0482	mg/L	0.010	96	90	110			
Method: E200.8										Batch: 56679
Lab ID: MB-56679 4 Method Blank										Run: ICPMS5-C_200206A 02/06/20 13:12
Arsenic		ND	mg/L	8E-05						
Manganese		ND	mg/L	0.002						
Nickel		ND	mg/L	0.0001						
Vanadium		ND	mg/L	0.0006						

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 02/07/20

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E624.1 Analytical Run: R334918									
Lab ID: CCV020320	Continuing Calibration Verification Standard								02/03/20 10:41
Bromodichloromethane	4.96	ug/L	0.50	99	70	130			
Bromoform	5.08	ug/L	0.50	102	70	130			
Chlorodibromomethane	5.09	ug/L	0.50	102	70	130			
Chloroform	4.58	ug/L	0.50	92	70	130			
Surr: 1,2-Dichloroethane-d4			0.50	102	71	139			
Surr: p-Bromofluorobenzene			0.50	106	80	127			
Surr: Toluene-d8			0.50	107	80	123			
Method: E624.1 Batch: R334918									
Lab ID: LCS020320	Laboratory Control Sample								02/03/20 11:08
Bromodichloromethane	5.02	ug/L	0.50	100	74	128			
Bromoform	5.20	ug/L	0.50	104	70	130			
Chlorodibromomethane	5.41	ug/L	0.50	108	74	125			
Chloroform	4.73	ug/L	0.50	95	70	135			
Surr: 1,2-Dichloroethane-d4			0.50	104	71	139			
Surr: p-Bromofluorobenzene			0.50	105	80	127			
Surr: Toluene-d8			0.50	106	80	123			
Lab ID: MBLK020320	Method Blank								02/03/20 12:03
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			0.50	103	71	139			
Surr: p-Bromofluorobenzene			0.50	99	80	127			
Surr: Toluene-d8			0.50	103	80	123			
Lab ID: B20011918-001GMS	Sample Matrix Spike								02/03/20 21:39
Bromodichloromethane	5.16	ug/L	0.50	103	74	128			
Bromoform	5.13	ug/L	0.50	103	66	128			
Chlorodibromomethane	5.33	ug/L	0.50	107	74	125			
Chloroform	4.94	ug/L	0.50	99	68	124			
Surr: 1,2-Dichloroethane-d4			0.50	110	71	139			
Surr: p-Bromofluorobenzene			0.50	108	80	127			
Surr: Toluene-d8			0.50	108	80	123			
Lab ID: B20011918-001GMSD	Sample Matrix Spike Duplicate								02/03/20 22:07
Bromodichloromethane	5.26	ug/L	0.50	105	74	128	1.9	20	
Bromoform	4.99	ug/L	0.50	100	66	128	2.8	20	
Chlorodibromomethane	5.59	ug/L	0.50	112	74	125	4.7	20	
Chloroform	5.22	ug/L	0.50	104	68	124	5.6	20	
Surr: 1,2-Dichloroethane-d4			0.50	111	71	139			
Surr: p-Bromofluorobenzene			0.50	104	80	127			
Surr: Toluene-d8			0.50	107	80	123			

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 03/05/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.1										Batch: GA-1183
Lab ID: MB-GA-1183	3	Method Blank					Run: G5000W_200131A			02/04/20 11:52
Gross Alpha minus Rn & U		0.2	pCi/L							U
Gross Alpha minus Rn & U Precision ($\pm$)		0.3	pCi/L							
Gross Alpha minus Rn & U MDC		0.5	pCi/L							
Lab ID: LCS-GA-1183	3	Laboratory Control Sample					Run: G5000W_200131A			02/04/20 11:52
Gross Alpha minus Rn & U		34	pCi/L	102		80	120			
Gross Alpha minus Rn & U Precision ($\pm$)		6.8	pCi/L							
Gross Alpha minus Rn & U MDC		0.54	pCi/L							
Lab ID: C20010929-010FDUP	3	Sample Duplicate					Run: G5000W_200131A			02/04/20 13:32
Gross Alpha minus Rn & U		1.1	pCi/L					26	20	R
Gross Alpha minus Rn & U Precision ($\pm$)		0.53	pCi/L							
Gross Alpha minus Rn & U MDC		0.54	pCi/L							

- For all R qualified analytes the RERs are less than the limit of 2.0. RER is 0.40.

Qualifiers:

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R - Relative Percent Difference (RPD) exceeds advisory limit

U - Not detected at Minimum Detectable Concentration (MDC)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 03/05/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-9553
Lab ID: LCS-RA226-9553	3	Laboratory Control Sample								Run: G5000W_200131C 02/12/20 13:51
Radium 226		11	pCi/L		106	80	120			
Radium 226 precision ($\pm$)		2.1	pCi/L							
Radium 226 MDC		0.21	pCi/L							
Lab ID: MB-RA226-9553	3	Method Blank								Run: G5000W_200131C 02/12/20 13:51
Radium 226		0.2	pCi/L							U
Radium 226 precision ($\pm$)		0.2	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C20010929-001FDUP	3	Sample Duplicate								Run: G5000W_200131C 02/12/20 13:51
Radium 226		0.35	pCi/L					13	20	
Radium 226 precision ($\pm$)		0.20	pCi/L							
Radium 226 MDC		0.22	pCi/L							

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 03/05/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0										Batch: RA-TH-ISO-2992_R
Lab ID: MB-RA-TH-ISO-2992	3	Method Blank						Run: EGG-ORTEC_2_200205A		02/12/20 06:40
Thorium 230		0.05	pCi/L							U
Thorium 230 precision (±)		0.07	pCi/L							
Thorium 230 MDC		0.1	pCi/L							
Lab ID: LCS-RA-TH-ISO-2992	3	Laboratory Control Sample						Run: EGG-ORTEC_2_200205A		02/12/20 06:40
Thorium 230		9.7	pCi/L	92		80	120			
Thorium 230 precision (±)		1.8	pCi/L							
Thorium 230 MDC		0.14	pCi/L							
Lab ID: C20010929-006FDUP	3	Sample Duplicate						Run: EGG-ORTEC_2_200205A		02/12/20 06:40
Thorium 230		0.016	pCi/L					97	20	UR
Thorium 230 precision (±)		0.093	pCi/L							
Thorium 230 MDC		0.19	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 2.0. RER is 0.25.

Method: E908.0										Batch: RA-TH-ISO-2995_R
Lab ID: MB-RA-TH-ISO-2995	3	Method Blank						Run: EGG-ORTEC_2_200217A		02/19/20 14:38
Thorium 230		0.09	pCi/L							U
Thorium 230 precision (±)		0.10	pCi/L							
Thorium 230 MDC		0.2	pCi/L							
Lab ID: LCS-RA-TH-ISO-2995	3	Laboratory Control Sample						Run: EGG-ORTEC_2_200217A		02/19/20 14:38
Thorium 230		11	pCi/L	99		80	120			
Thorium 230 precision (±)		2.0	pCi/L							
Thorium 230 MDC		0.13	pCi/L							
Lab ID: C20020018-002DDUP	3	Sample Duplicate						Run: EGG-ORTEC_2_200217A		02/19/20 14:38
Thorium 230		0.14	pCi/L					81	20	R
Thorium 230 precision (±)		0.075	pCi/L							
Thorium 230 MDC		0.073	pCi/L							

- The Sample and/or Duplicate are less than their respective MDCs and the RER is less than or equal to 2. RER is 0.80.

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 03/05/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0										Batch: PB-210-1106
Lab ID: LCS-PB-210-1106	3	Laboratory Control Sample				Run: TRICARB LSC_200205A				02/10/20 19:01
Lead 210		23	pCi/L	113		80	120			
Lead 210 precision (±)		6.9	pCi/L							
Lead 210 MDC		2.0	pCi/L							
Lab ID: MB-PB-210-1106	3	Method Blank				Run: TRICARB LSC_200205A				02/10/20 20:08
Lead 210		-0.2	pCi/L							U
Lead 210 precision (±)		0.6	pCi/L							
Lead 210 MDC		1	pCi/L							
Lab ID: C20010793-002FMS	3	Sample Matrix Spike				Run: TRICARB LSC_200205A				02/11/20 10:57
Lead 210		48	pCi/L	119		70	130			
Lead 210 precision (±)		15	pCi/L							
Lead 210 MDC		4.0	pCi/L							
Lab ID: C20010793-002FMSD	3	Sample Matrix Spike Duplicate				Run: TRICARB LSC_200205A				02/11/20 12:01
Lead 210		42	pCi/L	104		70	130	13	20	
Lead 210 precision (±)		13	pCi/L							
Lead 210 MDC		3.8	pCi/L							

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010929

Report Date: 03/05/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-6186
Lab ID: LCS-228-RA226-9553	3	Laboratory Control Sample			Run: TENNELEC-4_200131C			02/07/20 16:01		
Radium 228		8.2	pCi/L	86		80	120			
Radium 228 precision (±)		1.6	pCi/L							
Radium 228 MDC		0.83	pCi/L							
Lab ID: MB-RA226-9553	3	Method Blank			Run: TENNELEC-4_200131C			02/07/20 16:01		
Radium 228		1.0	pCi/L							
Radium 228 precision (±)		0.5	pCi/L							
Radium 228 MDC		0.8	pCi/L							
Lab ID: C20010929-001FDUP	3	Sample Duplicate			Run: TENNELEC-4_200131C			02/07/20 16:01		
Radium 228		1.0	pCi/L					15	20	
Radium 228 precision (±)		0.55	pCi/L							
Radium 228 MDC		0.81	pCi/L							

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

ANALYTICAL SUMMARY REPORT

March 05, 2020

United Nuclear Corporation
21 Miles NE of Gallup
Gallup, NM 87305

Work Order: C20010972 Quote ID: C5406

Project Name: UNC-SW Alluvium

Energy Laboratories, Inc. Casper WY received the following 6 samples for United Nuclear Corporation on 1/31/2020 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C20010972-001	624	01/28/20 11:36	01/31/20	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Anions by Ion Chromatography pH Check for H2SO4 Preserved Inorganics Metals pH check by the Laboratory FIRST Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Radon and Uranium, Total pH Check for Nitric Radiochem FIRST Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic, Total Solids, Total Dissolved Solids, Total Dissolved - Calculated 624-Purgeable Organics 624-Purgeable Organics
C20010972-002	SBL-1	01/28/20 12:25	01/31/20	Aqueous	Same As Above
C20010972-003	627	01/29/20 08:18	01/31/20	Aqueous	Same As Above
C20010972-004	EPA-25	01/29/20 09:25	01/31/20	Aqueous	Same As Above
C20010972-005	Rinsate	01/29/20 11:05	01/31/20	Aqueous	Same As Above
C20010972-006	Field Blank	01/29/20 11:30	01/31/20	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:

Digitally signed by
Tracey Archer



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CLIENT: United Nuclear Corporation
Project: UNC-SW Alluvium
Work Order: C20010972

Report Date: 03/05/20

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

Total Dissolved Solids, A2540 C:

Per method, TDS samples are to be evaporated at 105°C overnight before continuing to dry at 180°C. Due to an error in the oven temperature programming, the TDS samples were evaporated between 106 - 180°C. All associated quality control was within acceptable limits.



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										
Analytical Run: MANTECH_200204A										
Lab ID: ICV		Initial Calibration Verification Standard								02/04/20 12:52
pH		6.88	s.u.	0.010	100	98	102			
Method: A2320 B										
Batch: R255309										
Lab ID: MBLK		Method Blank								02/04/20 12:56
Alkalinity, Total as CaCO ₃		8	mg/L	2						
Run: MANTECH_200204A										
Lab ID: LCS		Laboratory Control Sample								02/04/20 13:01
Alkalinity, Total as CaCO ₃		1000	mg/L	5.0	100	90	110			
Run: MANTECH_200204A										
Method: A2320 B										
Analytical Run: MANTECH_200206B										
Lab ID: ICV		Initial Calibration Verification Standard								02/06/20 13:51
pH		6.92	s.u.	0.010	101	98	102			
Method: A2320 B										
Batch: R255427										
Lab ID: MBLK		Method Blank								02/06/20 13:56
Alkalinity, Total as CaCO ₃		ND	mg/L	2						
Run: MANTECH_200206B										
Lab ID: LCS		Laboratory Control Sample								02/06/20 14:04
Alkalinity, Total as CaCO ₃		248	mg/L	5.0	99	90	110			
Run: MANTECH_200206B										
Lab ID: C20010971-002ADUP		Sample Duplicate								02/06/20 14:16
Alkalinity, Total as CaCO ₃		10.7	mg/L	5.0				0.4	10	
Run: MANTECH_200206B										

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: TDS200203A
Lab ID: MB-1_200203A		Method Blank						Run: ORG_BAL3_C_200203A		02/03/20 10:31
Solids, Total Dissolved TDS @ 180 C		ND	mg/L							
- See case narrative for TDS.										
Lab ID: LCS-2_200203A		Laboratory Control Sample						Run: ORG_BAL3_C_200203A		02/03/20 10:31
Solids, Total Dissolved TDS @ 180 C		1010	mg/L	10	101	90	110			
- See case narrative for TDS.										
Lab ID: C20010933-002A DUP		Sample Duplicate						Run: ORG_BAL3_C_200203A		02/03/20 10:36
Solids, Total Dissolved TDS @ 180 C		389	mg/L	10				0.3	5	
- See case narrative for TDS.										
Method: A2540 C										Batch: TDS200204A
Lab ID: MB-1_200204A		Method Blank						Run: ORG_BAL3_C_200204B		02/04/20 10:32
Solids, Total Dissolved TDS @ 180 C		2	mg/L							
Lab ID: LCS-2_200204A		Laboratory Control Sample						Run: ORG_BAL3_C_200204B		02/04/20 10:33
Solids, Total Dissolved TDS @ 180 C		1010	mg/L	10	102	90	110			
Lab ID: C20010934-001A DUP		Sample Duplicate						Run: ORG_BAL3_C_200204B		02/04/20 10:43
Solids, Total Dissolved TDS @ 180 C		315	mg/L	10				0.8	5	

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B		Analytical Run: PHSC_101-C_200203A								
Lab ID: 6.86	2	Initial Calibration Verification Standard								02/03/20 11:05
pH		6.87	s.u.	0.010	100	98	102			
pH Measurement Temp		20.0	°C			0	0			
Method: A4500-H B		Batch: R255244								
Lab ID: C20010971-001ADUP	2	Sample Duplicate								02/03/20 11:42
pH		7.15	s.u.	0.010				0.1	1.5	
pH Measurement Temp		11.1	°C							

Qualifiers:

RL - Analyte Reporting Limit

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method:	E300.0								Analytical Run: IC3-C_200204A		
Lab ID:	ICV	2	Initial Calibration Verification Standard					02/04/20 15:25			
Chloride		9.93	mg/L	1.0	99	90	110				
Sulfate		39.6	mg/L	1.0	99	90	110				
Method:	E300.0								Batch: R255389		
Lab ID:	ICB	2	Method Blank			Run: IC3-C_200204A			02/04/20 15:44		
Chloride		ND	mg/L	0.06							
Sulfate		ND	mg/L	0.2							
Lab ID:	LFB	2	Laboratory Fortified Blank			Run: IC3-C_200204A			02/04/20 16:04		
Chloride		9.89	mg/L	1.0	99	90	110				
Sulfate		39.4	mg/L	1.0	99	90	110				
Lab ID:	C20010971-003AMS	2	Sample Matrix Spike			Run: IC3-C_200204A			02/05/20 06:27		
Chloride		230	mg/L	2.1	102	80	120				
Sulfate		4590	mg/L	8.3		80	120			A	
Lab ID:	C20010971-003AMSD	2	Sample Matrix Spike Duplicate			Run: IC3-C_200204A			02/05/20 06:46		
Chloride		232	mg/L	2.1	103	80	120	1.1	20		
Sulfate		4750	mg/L	8.3		80	120	3.5	20	A	

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ND - Not detected at the Reporting Limit (RL)

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated



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Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E350.1								Analytical Run: FIA201-C_200205A		
Lab ID: ICV	Initial Calibration Verification Standard									02/05/20 12:31
Nitrogen, Ammonia as N		1.08	mg/L	0.050	108	90	110			
Method: E350.1								Batch: R255353		
Lab ID: MBLK	Method Blank					Run: FIA201-C_200205A			02/05/20 12:30	
Nitrogen, Ammonia as N		ND	mg/L	0.02						
Lab ID: LFB	Laboratory Fortified Blank					Run: FIA201-C_200205A			02/05/20 12:33	
Nitrogen, Ammonia as N		0.989	mg/L	0.050	100	90	110			
Lab ID: C20010929-007EMS	Sample Matrix Spike					Run: FIA201-C_200205A			02/05/20 12:52	
Nitrogen, Ammonia as N		5.91	mg/L	0.25	89	90	110			S
Lab ID: C20010929-007EMSD	Sample Matrix Spike Duplicate					Run: FIA201-C_200205A			02/05/20 12:53	
Nitrogen, Ammonia as N		5.91	mg/L	0.25	89	90	110	0.0	10	S

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA201-C_200204A		
Lab ID: ICV	Initial Calibration Verification Standard									02/04/20 13:55
Nitrogen, Nitrate+Nitrite as N		0.954	mg/L	0.010	95	90	110			
Method: E353.2								Batch: R255312		
Lab ID: MBLK	Method Blank									02/04/20 13:56
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.008						
Run: FIA201-C_200204A										
Lab ID: LFB	Laboratory Fortified Blank									02/04/20 13:57
Nitrogen, Nitrate+Nitrite as N		1.00	mg/L	0.010	101	90	110			
Run: FIA201-C_200204A										
Lab ID: C20010972-003EMS	Sample Matrix Spike									02/04/20 16:15
Nitrogen, Nitrate+Nitrite as N		114	mg/L	0.50	90	90	110			
Run: FIA201-C_200204A										
Lab ID: C20010972-003EMSD	Sample Matrix Spike Duplicate									02/04/20 16:16
Nitrogen, Nitrate+Nitrite as N		116	mg/L	0.50	94	90	110	1.8	10	

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Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7 Analytical Run: ICP4-C_200204A										
Lab ID: QCS	4	Initial Calibration Verification Standard								02/04/20 18:42
Calcium		39.9	mg/L	0.50	100	90	110			
Magnesium		40.1	mg/L	0.50	100	90	110			
Potassium		39.5	mg/L	0.50	99	90	110			
Sodium		39.9	mg/L	0.50	100	90	110			
Method: E200.7 Batch: R255336										
Lab ID: MB-6300DIS200204A	4	Method Blank								02/04/20 18:29
					Run: ICP4-C_200204A					
Calcium		0.2	mg/L	0.003						
Magnesium		ND	mg/L	0.009						
Potassium		0.1	mg/L	0.04						
Sodium		ND	mg/L	0.02						
Lab ID: LFB-6300DIS200204A	4	Laboratory Fortified Blank								02/04/20 18:38
					Run: ICP4-C_200204A					
Calcium		49.4	mg/L	0.50	99	85	115			
Magnesium		49.9	mg/L	0.50	100	85	115			
Potassium		49.2	mg/L	0.50	98	85	115			
Sodium		49.2	mg/L	0.50	98	85	115			
Lab ID: C20010966-003BMS2	4	Sample Matrix Spike								02/05/20 02:51
					Run: ICP4-C_200204A					
Calcium		271	mg/L	1.0	102	70	130			
Magnesium		273	mg/L	1.0	104	70	130			
Potassium		281	mg/L	1.0	102	70	130			
Sodium		761	mg/L	1.0	102	70	130			
Lab ID: C20010966-003BMSD	4	Sample Matrix Spike Duplicate								02/05/20 02:55
					Run: ICP4-C_200204A					
Calcium		278	mg/L	1.0	106	70	130	2.8	20	
Magnesium		281	mg/L	1.0	107	70	130	2.9	20	
Potassium		287	mg/L	1.0	104	70	130	2.1	20	
Sodium		730	mg/L	1.0	90	70	130	4.1	20	
Method: E200.7 Analytical Run: ICP4-C_200206A										
Lab ID: QCS		Initial Calibration Verification Standard								02/06/20 15:17
Calcium		40.6	mg/L	0.50	102	90	110			
Method: E200.7 Batch: R255413										
Lab ID: MB-6300DIS200206A		Method Blank								02/06/20 15:06
					Run: ICP4-C_200206A					
Calcium		0.03	mg/L	0.003						
Lab ID: LFB-6300DIS200206A		Laboratory Fortified Blank								02/06/20 15:14
					Run: ICP4-C_200206A					
Calcium		51.0	mg/L	0.50	102	85	115			
Lab ID: C20010972-003BMS2		Sample Matrix Spike								02/06/20 17:32
					Run: ICP4-C_200206A					
Calcium		805	mg/L	1.0	100	70	130			
Lab ID: C20010972-003BMSD		Sample Matrix Spike Duplicate								02/06/20 17:36
					Run: ICP4-C_200206A					
Calcium		810	mg/L	1.0	102	70	130	0.6	20	

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QA/QC Summary Report

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Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS5-C_200205A		
Lab ID: QCS	12 Initial Calibration Verification Standard								02/05/20 13:45	
Aluminum		0.249	mg/L	0.030	100	90	110			
Arsenic		0.0489	mg/L	0.0010	98	90	110			
Beryllium		0.0252	mg/L	0.0010	101	90	110			
Cadmium		0.0246	mg/L	0.0010	98	90	110			
Cobalt		0.0492	mg/L	0.0050	98	90	110			
Lead		0.0484	mg/L	0.0010	97	90	110			
Manganese		0.249	mg/L	0.0010	99	90	110			
Molybdenum		0.0486	mg/L	0.0010	97	90	110			
Nickel		0.0490	mg/L	0.0050	98	90	110			
Selenium		0.0512	mg/L	0.0010	102	90	110			
Uranium		0.0189	mg/L	0.00030	94	90	110			
Vanadium		0.0490	mg/L	0.010	98	90	110			

Method: E200.8				Batch: 56680	
Lab ID: MB-56680	12 Method Blank			Run: ICPMS5-C_200205A	
				02/05/20 15:40	
Aluminum	ND	mg/L	0.02		
Arsenic	ND	mg/L	8E-05		
Beryllium	ND	mg/L	0.0001		
Cadmium	ND	mg/L	2E-05		
Cobalt	ND	mg/L	0.0002		
Lead	ND	mg/L	0.0001		
Manganese	ND	mg/L	0.002		
Molybdenum	ND	mg/L	0.0003		
Nickel	ND	mg/L	0.0001		
Selenium	ND	mg/L	0.0002		
Uranium	ND	mg/L	0.0001		
Vanadium	ND	mg/L	0.0006		

Lab ID: LCS3-56680	12 Laboratory Control Sample				Run: ICPMS5-C_200205A			02/05/20 15:44
Aluminum	2.43	mg/L	0.030	97	85	115		
Arsenic	0.487	mg/L	0.0010	97	85	115		
Beryllium	0.243	mg/L	0.0010	97	85	115		
Cadmium	0.244	mg/L	0.0010	98	85	115		
Cobalt	0.493	mg/L	0.0050	99	85	115		
Lead	0.503	mg/L	0.0010	101	85	115		
Manganese	2.54	mg/L	0.0015	102	85	115		
Molybdenum	0.481	mg/L	0.0010	96	85	115		
Nickel	0.488	mg/L	0.0050	98	85	115		
Selenium	0.475	mg/L	0.0010	95	85	115		
Uranium	0.504	mg/L	0.00030	101	85	115		
Vanadium	0.502	mg/L	0.010	100	85	115		

Lab ID: C20010975-001CMS3	12 Sample Matrix Spike					Run: ICPMS5-C_200205A		02/05/20 18:28
Aluminum	2.32	mg/L	0.030	93	70	130		
Arsenic	0.467	mg/L	0.0010	93	70	130		
Beryllium	0.236	mg/L	0.0010	94	70	130		

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: 56680										
Lab ID: C20010975-001CMS3 12 Sample Matrix Spike Run: ICPMS5-C_200205A 02/05/20 18:28										
Cadmium		0.251	mg/L	0.0010	100	70	130			
Cobalt		0.482	mg/L	0.0050	96	70	130			
Lead		0.499	mg/L	0.0010	100	70	130			
Manganese		2.41	mg/L	0.0015	96	70	130			
Molybdenum		0.469	mg/L	0.0010	94	70	130			
Nickel		0.465	mg/L	0.0050	93	70	130			
Selenium		0.489	mg/L	0.0010	98	70	130			
Uranium		0.512	mg/L	0.00030	102	70	130			
Vanadium		0.468	mg/L	0.010	94	70	130			
Lab ID: C20010975-001CMSD 12 Sample Matrix Spike Duplicate Run: ICPMS5-C_200205A 02/05/20 18:33										
Aluminum		2.34	mg/L	0.030	94	70	130	0.9	20	
Arsenic		0.466	mg/L	0.0010	93	70	130	0.0	20	
Beryllium		0.240	mg/L	0.0010	96	70	130	2.0	20	
Cadmium		0.248	mg/L	0.0010	99	70	130	1.1	20	
Cobalt		0.481	mg/L	0.0050	96	70	130	0.3	20	
Lead		0.497	mg/L	0.0010	99	70	130	0.4	20	
Manganese		2.41	mg/L	0.0015	96	70	130	0.2	20	
Molybdenum		0.461	mg/L	0.0010	92	70	130	1.8	20	
Nickel		0.468	mg/L	0.0050	93	70	130	0.7	20	
Selenium		0.488	mg/L	0.0010	98	70	130	0.3	20	
Uranium		0.511	mg/L	0.00030	102	70	130	0.2	20	
Vanadium		0.470	mg/L	0.010	94	70	130	0.4	20	
Method: E200.8 Analytical Run: ICPMS5-C_200206A										
Lab ID: QCS Initial Calibration Verification Standard 02/06/20 10:36										
Uranium		0.0194	mg/L	0.00030	97	90	110			
Method: E200.8 Batch: 56680										
Lab ID: MB-56680 Method Blank Run: ICPMS5-C_200206A 02/06/20 13:25										
Uranium		ND	mg/L	0.0001						

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 02/07/20

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E624.1							Analytical Run: R334979		
Lab ID: CCV020520	Continuing Calibration Verification Standard						02/05/20 10:07		
Bromodichloromethane	4.57	ug/L	0.50	91	70	130			
Bromoform	4.71	ug/L	0.50	94	70	130			
Chlorodibromomethane	4.61	ug/L	0.50	92	70	130			
Chloroform	4.37	ug/L	0.50	87	70	130			
Surr: 1,2-Dichloroethane-d4			0.50	88	71	139			
Surr: p-Bromofluorobenzene			0.50	95	80	127			
Surr: Toluene-d8			0.50	96	80	123			
Method: E624.1							Batch: R334979		
Lab ID: LCS020520	Laboratory Control Sample						Run: SV5972.I_200205A 02/05/20 10:33		
Bromodichloromethane	4.79	ug/L	0.50	96	74	128			
Bromoform	4.69	ug/L	0.50	94	70	130			
Chlorodibromomethane	4.83	ug/L	0.50	97	74	125			
Chloroform	4.34	ug/L	0.50	87	70	135			
Surr: 1,2-Dichloroethane-d4			0.50	88	71	139			
Surr: p-Bromofluorobenzene			0.50	94	80	127			
Surr: Toluene-d8			0.50	97	80	123			
Lab ID: MBLK020520	Method Blank						Run: SV5972.I_200205A 02/05/20 11:24		
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			0.50	86	71	139			
Surr: p-Bromofluorobenzene			0.50	97	80	127			
Surr: Toluene-d8			0.50	97	80	123			
Lab ID: C20010972-001GMS	Sample Matrix Spike						Run: SV5972.I_200205A 02/05/20 14:22		
Bromodichloromethane	4.69	ug/L	0.50	94	74	128			
Bromoform	4.61	ug/L	0.50	92	66	128			
Chlorodibromomethane	4.71	ug/L	0.50	94	74	125			
Chloroform	4.40	ug/L	0.50	88	68	124			
Surr: 1,2-Dichloroethane-d4			0.50	88	71	139			
Surr: p-Bromofluorobenzene			0.50	98	80	127			
Surr: Toluene-d8			0.50	96	80	123			
Lab ID: C20010972-001GMSD	Sample Matrix Spike Duplicate						Run: SV5972.I_200205A 02/05/20 14:47		
Bromodichloromethane	4.65	ug/L	0.50	93	74	128	0.8	20	
Bromoform	4.67	ug/L	0.50	93	66	128	1.3	20	
Chlorodibromomethane	4.71	ug/L	0.50	94	74	125	0.1	20	
Chloroform	4.29	ug/L	0.50	86	68	124	2.5	20	
Surr: 1,2-Dichloroethane-d4			0.50	88	71	139			
Surr: p-Bromofluorobenzene			0.50	98	80	127			
Surr: Toluene-d8			0.50	96	80	123			

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 03/04/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.1										Batch: GA-1184
Lab ID: MB-GA-1184	3	Method Blank					Run: G5000W_200206A		02/10/20 13:31	
Gross Alpha minus Rn & U		0.4	pCi/L							U
Gross Alpha minus Rn & U Precision ($\pm$)		0.4	pCi/L							
Gross Alpha minus Rn & U MDC		0.6	pCi/L							
Lab ID: LCS-GA-1184		Laboratory Control Sample					Run: G5000W_200206A		02/10/20 13:31	
Gross Alpha minus Rn & U		34	pCi/L	103		80	120			
Lab ID: C20010972-001FDUP	3	Sample Duplicate					Run: G5000W_200206A		02/10/20 13:31	
Gross Alpha minus Rn & U		0.89	pCi/L					28	20	R
Gross Alpha minus Rn & U Precision ($\pm$)		0.52	pCi/L							
Gross Alpha minus Rn & U MDC		0.57	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 2.0.										

Qualifiers:

RL - Analyte Reporting Limit

R - Relative Percent Difference (RPD) exceeds advisory limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 03/04/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-9554_R
Lab ID: LCS-RA226-9554	Laboratory Control Sample			Run: G542M-2_200205A			02/19/20 12:24			
Radium 226		11	pCi/L	108		80	120			
Lab ID: MB-RA226-9554	3	Method Blank		Run: G542M-2_200205A			02/19/20 12:24			
Radium 226		0.3	pCi/L							
Radium 226 precision (±)		0.2	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C20010978-001DDUP	3	Sample Duplicate		Run: G542M-2_200205A			02/19/20 14:59			
Radium 226		3.4	pCi/L					18	20	
Radium 226 precision (±)		0.82	pCi/L							
Radium 226 MDC		0.42	pCi/L							

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 03/04/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0								Batch: RA-TH-ISO-2995_R		
Lab ID: MB-RA-TH-ISO-2995	3	Method Blank		Run: EGG-ORTEC_2_200217A				02/19/20 14:38		
Thorium 230		0.09	pCi/L							U
Thorium 230 precision ($\pm$)		0.10	pCi/L							
Thorium 230 MDC		0.2	pCi/L							
Lab ID: LCS-RA-TH-ISO-2995		Laboratory Control Sample		Run: EGG-ORTEC_2_200217A				02/19/20 14:38		
Thorium 230		11	pCi/L	99		80	120			
Lab ID: C20020018-002DDUP	3	Sample Duplicate		Run: EGG-ORTEC_2_200217A				02/19/20 14:38		
Thorium 230		0.14	pCi/L					81	20	R
Thorium 230 precision ($\pm$)		0.075	pCi/L							
Thorium 230 MDC		0.073	pCi/L							
- The Sample and/or Duplicate are less than their respective MDCs and the RER is less than or equal to 2. RER is 0.80.										

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 03/04/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0										Batch: PB-210-1107
Lab ID: LCS-PB-210-1107		Laboratory Control Sample								Run: TRICARB LSC_200210A 02/14/20 21:26
Lead 210		19	pCi/L		94	80	120			
Lab ID: MB-PB-210-1107	3	Method Blank								Run: TRICARB LSC_200210A 02/14/20 22:34
Lead 210		-0.10	pCi/L							U
Lead 210 precision (±)		0.5	pCi/L							
Lead 210 MDC		0.9	pCi/L							
Lab ID: C20010972-006FMS		Sample Matrix Spike								Run: TRICARB LSC_200210A 02/16/20 04:19
Lead 210		36	pCi/L		90	70	130			
Lab ID: C20010972-006FMSD		Sample Matrix Spike Duplicate								Run: TRICARB LSC_200210A 02/16/20 05:29
Lead 210		38	pCi/L		95	70	130	5.2	20	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010972

Report Date: 03/04/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-6188
Lab ID: LCS-228-RA226-9554	Laboratory Control Sample			Run: TENNELEC-4_200205A			02/10/20 13:21			
Radium 228		8.4	pCi/L	89	80	120				
Lab ID: MB-RA226-9554	3	Method Blank		Run: TENNELEC-4_200205A			02/10/20 13:21			
Radium 228		0.4	pCi/L							U
Radium 228 precision ($\pm$)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C20010978-001DDUP	3	Sample Duplicate		Run: TENNELEC-4_200205A			02/10/20 13:21			
Radium 228		2.5	pCi/L					39	20	R
Radium 228 precision ($\pm$)		1.3	pCi/L							
Radium 228 MDC		2.0	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 2.0.										

Qualifiers:

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ANALYTICAL SUMMARY REPORT

February 26, 2020

United Nuclear Corporation
21 Miles NE of Gallup
Gallup, NM 87305

Work Order: C20010593 Quote ID: C5406

Project Name: UNC-Zone 3 & Zone 1

Energy Laboratories, Inc. Casper WY received the following 10 samples for United Nuclear Corporation on 1/17/2020 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C20010593-001	717	01/14/20 09:05	01/17/20	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Acidity, Total as CaCO3 Alkalinity Anion - Cation Balance Selenium-IV, Total Anions by Ion Chromatography pH Check for H2SO4 Preserved Inorganics Metals pH check by the Laboratory FIRST Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 CVAA Selenium Prep Gross Alpha minus Radon and Uranium, Total pH Check for Nitric Radiochem FIRST Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic, Total Solids, Total Dissolved Solids, Total Dissolved - Calculated 624-Purgeable Organics 624-Purgeable Organics
C20010593-002	717 Duplicate	01/14/20 13:00	01/17/20	Aqueous	Same As Above



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ANALYTICAL SUMMARY REPORT

C20010593-003 EPA-14

01/14/20 11:24 01/17/20

Aqueous

Metals by ICP/ICPMS, Dissolved
Metals by ICP/ICPMS, Total
Alkalinity
Anion - Cation Balance
Anions by Ion Chromatography
pH Check for H2SO4 Preserved
Inorganics
Metals pH check by the Laboratory
FIRST
Nitrogen, Ammonia
Nitrogen, Nitrate + Nitrite
pH
Metals Preparation by EPA 200.2
Gross Alpha minus Radon and
Uranium, Total
pH Check for Nitric Radiochem
FIRST
Lead 210, Total
Radium 226, Total
Radium 228, Total
Thorium, Isotopic, Total
Solids, Total Dissolved
Solids, Total Dissolved - Calculated
624-Purgeable Organics
624-Purgeable Organics

C20010593-004 613

01/14/20 14:15 01/17/20

Aqueous

Metals by ICP/ICPMS, Dissolved
Metals by ICP/ICPMS, Total
Acidity, Total as CaCO3
Alkalinity
Anion - Cation Balance
Selenium-IV, Total
Anions by Ion Chromatography
pH Check for H2SO4 Preserved
Inorganics
Metals pH check by the Laboratory
FIRST
Nitrogen, Ammonia
Nitrogen, Nitrate + Nitrite
pH
Metals Preparation by EPA 200.2
CVAA Selenium Prep
Gross Alpha minus Radon and
Uranium, Total
pH Check for Nitric Radiochem
FIRST
Lead 210, Total
Radium 226, Total
Radium 228, Total
Thorium, Isotopic, Total
Solids, Total Dissolved
Solids, Total Dissolved - Calculated
624-Purgeable Organics
624-Purgeable Organics



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ANALYTICAL SUMMARY REPORT

C20010593-005	614	01/15/20 09:05	01/17/20	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Selenium-IV, Total Anions by Ion Chromatography pH Check for H2SO4 Preserved Inorganics Metals pH check by the Laboratory FIRST Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 CVAA Selenium Prep Gross Alpha minus Radon and Uranium, Total pH Check for Nitric Radiochem FIRST Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic, Total Solids, Total Dissolved Solids, Total Dissolved - Calculated 624-Purgeable Organics 624-Purgeable Organics
C20010593-006	708	01/15/20 11:25	01/17/20	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Acidity, Total as CaCO3 Alkalinity Anion - Cation Balance Anions by Ion Chromatography pH Check for H2SO4 Preserved Inorganics Metals pH check by the Laboratory FIRST Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Radon and Uranium, Total pH Check for Nitric Radiochem FIRST Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic, Total Solids, Total Dissolved Solids, Total Dissolved - Calculated 624-Purgeable Organics 624-Purgeable Organics

ANALYTICAL SUMMARY REPORT

C20010593-007 515-A

01/15/20 12:25 01/17/20

Aqueous

Metals by ICP/ICPMS, Dissolved
Metals by ICP/ICPMS, Total
Alkalinity
Anion - Cation Balance
Selenium-IV, Total
Anions by Ion Chromatography
pH Check for H₂SO₄ Preserved
Inorganics
Metals pH check by the Laboratory
FIRST
Nitrogen, Ammonia
Nitrogen, Nitrate + Nitrite
pH
Metals Preparation by EPA 200.2
CVAA Selenium Prep
Gross Alpha minus Radon and
Uranium, Total
pH Check for Nitric Radiochem
FIRST
Lead 210, Total
Radium 226, Total
Radium 228, Total
Thorium, Isotopic, Total
Solids, Total Dissolved
Solids, Total Dissolved - Calculated
624-Purgeable Organics
624-Purgeable Organics

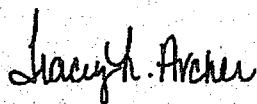
C20010593-008	604	01/15/20 13:58	01/17/20	Aqueous	Same As Above
C20010593-009	Trip Blank 10926	01/14/20 09:05	01/17/20	Trip Blank	624-Purgeable Organics
C20010593-010	Trip Blank	01/14/20 09:05	01/17/20	Trip Blank	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:



Digitally signed by
Tracey Archer
Date: 2020.02.26 08:46:37 -07:00



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CLIENT: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Work Order: C20010593

Report Date: 02/26/20

CASE NARRATIVE

Prep Comments for Sample 613, Test INORG-SULFURIC-PH-CK: - The sample fraction submitted for Nutrients was received in the laboratory with a pH of ~ 7. This is outside of the method specified requirement of pH < 2. Proper preservation was added before sample analysis.

Prep Comments for Sample 614, Test INORG-SULFURIC-PH-CK: - The sample fraction submitted for Nutrients was received in the laboratory with a pH of ~ 7. This is outside of the method specified requirement of pH < 2. Proper preservation was added before sample analysis.



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010593

Report Date: 01/28/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2310 B										
Analytical Run: ACIDITY_200122A										
Lab ID: ICV	Initial Calibration Verification Standard									
pH		6.83	s.u.	0.010	100	98	102			01/22/20 13:11
Method: A2310 B										
Batch: ACID200122_A										
Lab ID: MBLK	Method Blank									
Acidity, Total as CaCO ₃		0.0	mg/L							01/22/20 13:15
Run: ACIDITY_200122A										
Lab ID: LCS	Laboratory Control Sample									
Acidity, Total as CaCO ₃		945	mg/L		101	90	110			01/22/20 13:21
Run: ACIDITY_200122A										
Lab ID: C20010513-005A DUP	Sample Duplicate									
Acidity, Total as CaCO ₃		708	mg/L					0.6	10	01/22/20 13:29

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010593

Report Date: 01/28/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Analytical Run; MANTECH_200120A
Lab ID: ICV		Initial Calibration Verification Standard								01/20/20 11:39
pH		6.91	s.u.	0.010	101	98	102			
Method: A2320 B										Batch: R254856
Lab ID: MBLK		Method Blank								01/20/20 17:50
Alkalinity, Total as CaCO3		ND	mg/L	2						
Lab ID: LCS		Laboratory Control Sample								01/20/20 17:57
Alkalinity, Total as CaCO3		264	mg/L	5.0	106	90	110			
Lab ID: C20010592-004ADUP		Sample Duplicate								01/20/20 18:12
Alkalinity, Total as CaCO3		105	mg/L	5.0				0.9	10	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010593

Report Date: 01/28/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: TDS200120A
Lab ID: MB-25_200120A		Method Blank								Run: ORG_BAL3_C_200120A 01/20/20 12:17
Solids, Total Dissolved TDS @ 180 C		3	mg/L							
Lab ID: LCS-26_200120A		Laboratory Control Sample								Run: ORG_BAL3_C_200120A 01/20/20 12:17
Solids, Total Dissolved TDS @ 180 C		989	mg/L	10	99	90	110			
Lab ID: C20010592-003A DUP		Sample Duplicate								Run: ORG_BAL3_C_200120A 01/20/20 12:18
Solids, Total Dissolved TDS @ 180 C		564	mg/L	10				0.4	5	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010593

Report Date: 01/28/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	A4500-H B							Analytical Run: PHSC_101-C_200117A		
Lab ID:	6.86	2 Initial Calibration Verification Standard							01/17/20 11:59	
pH		6.87	s.u.	0.010	100	98	102			
pH Measurement Temp		20.3	°C			0	0			
Method:	A4500-H B							Batch: R254784		
Lab ID:	C20010593-004ADUP	2 Sample Duplicate							Run: PHSC_101-C_200117A	
pH		3.00	s.u.	0.010				0.3	1.5	
pH Measurement Temp		18.6	°C							

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010593

Report Date: 01/28/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0										Analytical Run: IC3-C_200122A
Lab ID: ICV	2	Initial Calibration Verification Standard								01/22/20 13:15
Chloride		10.0	mg/L	1.0	100	90	110			
Sulfate		40.1	mg/L	1.0	100	90	110			
Method: E300.0										Batch: R254956
Lab ID: ICB	2	Method Blank								Run: IC3-C_200122A 01/22/20 13:34
Chloride		ND	mg/L	0.06						
Sulfate		ND	mg/L	0.2						
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC3-C_200122A 01/22/20 13:54
Chloride		10.1	mg/L	1.0	101	90	110			
Sulfate		40.2	mg/L	1.0	101	90	110			
Lab ID: C20010592-003AMS	2	Sample Matrix Spike								Run: IC3-C_200122A 01/22/20 19:19
Chloride		35.8	mg/L	1.0	100	80	120			
Sulfate		361	mg/L	1.0	98	80	120			
Lab ID: C20010592-003AMSD	2	Sample Matrix Spike Duplicate								Run: IC3-C_200122A 01/22/20 19:38
Chloride		36.1	mg/L	1.0	101	80	120	0.8	20	
Sulfate		363	mg/L	1.0	101	80	120	0.6	20	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010593

Report Date: 01/28/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E350.1								Analytical Run: FIA201-C_200123A		
Lab ID: ICV		Initial Calibration Verification Standard							01/23/20 13:51	
Nitrogen, Ammonia as N		0.988	mg/L	0.050	99	90	110			
Method: E350.1								Batch: R254963		
Lab ID: MBLK		Method Blank				Run: FIA201-C_200123A			01/23/20 13:49	
Nitrogen, Ammonia as N		ND	mg/L	0.02						
Lab ID: LFB		Laboratory Fortified Blank				Run: FIA201-C_200123A			01/23/20 13:52	
Nitrogen, Ammonia as N		0.933	mg/L	0.050	94	90	110			
Lab ID: C20010593-007EMS		Sample Matrix Spike				Run: FIA201-C_200123A			01/23/20 14:11	
Nitrogen, Ammonia as N		34.8	mg/L	1.3	95	90	110			
Lab ID: C20010593-007EMSD		Sample Matrix Spike Duplicate				Run: FIA201-C_200123A			01/23/20 14:12	
Nitrogen, Ammonia as N		35.1	mg/L	1.3	96	90	110	0.7	10	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010593

Report Date: 01/28/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA201-C_200121A		
Lab ID: ICV	Initial Calibration Verification Standard									01/21/20 16:04
Nitrogen, Nitrate+Nitrite as N		0.953	mg/L	0.010	95	90	110			
Method: E353.2								Batch: R254893		
Lab ID: MBLK	Method Blank									01/21/20 16:05
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.008			Run: FIA201-C_200121A			
Lab ID: LFB	Laboratory Fortified Blank									01/21/20 16:07
Nitrogen, Nitrate+Nitrite as N		0.995	mg/L	0.010	101	90	110			
Lab ID: C20010593-002EMS	Sample Matrix Spike									01/21/20 16:27
Nitrogen, Nitrate+Nitrite as N		1.03	mg/L	0.010	98	90	110			
Lab ID: C20010593-002EMSD	Sample Matrix Spike Duplicate									01/21/20 16:28
Nitrogen, Nitrate+Nitrite as N		1.05	mg/L	0.010	100	90	110	1.9	10	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010593

Report Date: 02/25/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Analytical Run: ICP4-C_200120A
Lab ID: QCS	4	Initial Calibration Verification Standard								01/20/20 16:48
Calcium		40.5	mg/L	0.50	101	90	110			
Magnesium		41.1	mg/L	0.50	103	90	110			
Potassium		39.7	mg/L	0.50	99	90	110			
Sodium		40.2	mg/L	0.50	101	90	110			
Method: E200.7										Batch: R254853
Lab ID: MB-6300DIS200120A	4	Method Blank								Run: ICP4-C_200120A 01/20/20 16:35
Calcium		0.05	mg/L	0.003						
Magnesium		ND	mg/L	0.009						
Potassium		0.07	mg/L	0.04						
Sodium		ND	mg/L	0.02						
Lab ID: LFB-6300DIS200120A	4	Laboratory Fortified Blank								Run: ICP4-C_200120A 01/20/20 16:44
Calcium		49.5	mg/L	0.50	99	85	115			
Magnesium		50.0	mg/L	0.50	100	85	115			
Potassium		48.7	mg/L	0.50	97	85	115			
Sodium		49.3	mg/L	0.50	99	85	115			
Lab ID: C20010593-005BMS2	4	Sample Matrix Spike								Run: ICP4-C_200120A 01/20/20 18:52
Calcium		1040	mg/L	1.0	97	70	130			
Magnesium		1150	mg/L	1.0	98	70	130			
Potassium		510	mg/L	1.0	99	70	130			
Sodium		970	mg/L	1.0	100	70	130			
Lab ID: C20010593-005BMSD	4	Sample Matrix Spike Duplicate								Run: ICP4-C_200120A 01/20/20 18:57
Calcium		1050	mg/L	1.0	99	70	130	0.7	20	
Magnesium		1170	mg/L	1.0	100	70	130	0.9	20	
Potassium		515	mg/L	1.0	100	70	130	1.0	20	
Sodium		976	mg/L	1.0	101	70	130	0.7	20	

Qualifiers:

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Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8		Analytical Run: ICPMS5-C_200121A								
Lab ID: QCS	12 Initial Calibration Verification Standard								01/21/20 22:24	
Aluminum		0.250	mg/L	0.030	100	90	110			
Arsenic		0.0481	mg/L	0.0010	96	90	110			
Beryllium		0.0240	mg/L	0.0010	96	90	110			
Cadmium		0.0247	mg/L	0.0010	99	90	110			
Cobalt		0.0500	mg/L	0.0050	100	90	110			
Lead		0.0489	mg/L	0.0010	98	90	110			
Manganese		0.244	mg/L	0.0010	97	90	110			
Molybdenum		0.0473	mg/L	0.0010	95	90	110			
Nickel		0.0496	mg/L	0.0050	99	90	110			
Selenium		0.0506	mg/L	0.0010	101	90	110			
Uranium		0.0190	mg/L	0.00030	95	90	110			
Vanadium		0.0473	mg/L	0.010	95	90	110			
Method: E200.8										Batch: 56537
Lab ID: MB-56537	12 Method Blank				Run: ICPMS5-C_200121A				01/22/20 01:12	
Aluminum		ND	mg/L	0.02						
Arsenic		ND	mg/L	8E-05						
Beryllium		ND	mg/L	0.0001						
Cadmium		2E-05	mg/L	2E-05						
Cobalt		ND	mg/L	0.0002						
Lead		ND	mg/L	0.0001						
Manganese		0.003	mg/L	0.002						
Molybdenum		ND	mg/L	0.0003						
Nickel		0.0004	mg/L	0.0001						
Selenium		ND	mg/L	0.0002						
Uranium		0.0003	mg/L	0.0001						
Vanadium		ND	mg/L	0.0006						
Lab ID: LCS3-56537	12 Laboratory Control Sample				Run: ICPMS5-C_200121A				01/22/20 01:16	
Aluminum		2.38	mg/L	0.030	95	85	115			
Arsenic		0.487	mg/L	0.0010	97	85	115			
Beryllium		0.238	mg/L	0.0010	95	85	115			
Cadmium		0.260	mg/L	0.0010	104	85	115			
Cobalt		0.491	mg/L	0.0050	98	85	115			
Lead		0.512	mg/L	0.0010	102	85	115			
Manganese		2.48	mg/L	0.0015	99	85	115			
Molybdenum		0.468	mg/L	0.0010	94	85	115			
Nickel		0.488	mg/L	0.0050	98	85	115			
Selenium		0.502	mg/L	0.0010	100	85	115			
Uranium		0.524	mg/L	0.00030	105	85	115			
Vanadium		0.487	mg/L	0.010	97	85	115			
Lab ID: C20010593-001CMS3	12 Sample Matrix Spike				Run: ICPMS5-C_200121A				01/22/20 02:42	
Aluminum		194	mg/L	0.032		70	130			A
Arsenic		0.505	mg/L	0.0010	100	70	130			
Beryllium		0.365	mg/L	0.0010	85	70	130			

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Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 56537
Lab ID: C20010593-001CMS3	12	Sample Matrix Spike		Run: ICPMS5-C_200121A				01/22/20 02:42		
Cadmium		0.276	mg/L	0.0010	104	70	130			
Cobalt		1.39	mg/L	0.0050	95	70	130			
Lead		0.545	mg/L	0.0010	104	70	130			
Manganese		16.3	mg/L	0.0030		70	130			A
Molybdenum		0.528	mg/L	0.0010	106	70	130			
Nickel		1.40	mg/L	0.0050	82	70	130			
Selenium		0.622	mg/L	0.0010	123	70	130			
Uranium		1.24	mg/L	0.00030	112	70	130			
Vanadium		0.494	mg/L	0.010	99	70	130			
Lab ID: C20010593-001CMSD										Batch: 56537
	12	Sample Matrix Spike Duplicate		Run: ICPMS5-C_200121A				01/22/20 02:47		
Aluminum		195	mg/L	0.032		70	130	0.4	20	A
Arsenic		0.495	mg/L	0.0010	98	70	130	2.0	20	
Beryllium		0.371	mg/L	0.0010	88	70	130	1.5	20	
Cadmium		0.262	mg/L	0.0010	98	70	130	5.4	20	
Cobalt		1.40	mg/L	0.0050	96	70	130	0.6	20	
Lead		0.548	mg/L	0.0010	104	70	130	0.6	20	
Manganese		15.8	mg/L	0.0030		70	130	3.0	20	A
Molybdenum		0.496	mg/L	0.0010	99	70	130	6.2	20	
Nickel		1.50	mg/L	0.0050	101	70	130	6.5	20	
Selenium		0.634	mg/L	0.0010	125	70	130	1.9	20	
Uranium		1.24	mg/L	0.00030	113	70	130	0.4	20	
Vanadium		0.453	mg/L	0.010	91	70	130	8.8	20	
Method: E200.8										Analytical Run: ICPMS5-C_200122A
Lab ID: QCS	7	Initial Calibration Verification Standard		Run: ICPMS5-C_200122A				01/23/20 01:29		
Aluminum		0.254	mg/L	0.030	102	90	110			
Arsenic		0.0495	mg/L	0.0010	99	90	110			
Manganese		0.249	mg/L	0.0010	100	90	110			
Nickel		0.0497	mg/L	0.0050	99	90	110			
Selenium		0.0508	mg/L	0.0010	102	90	110			
Uranium		0.0189	mg/L	0.00030	94	90	110			
Vanadium		0.0482	mg/L	0.010	96	90	110			
Method: E200.8										Batch: 56537
Lab ID: MB-56537	7	Method Blank		Run: ICPMS5-C_200122A				01/23/20 08:10		
Aluminum		ND	mg/L	0.02						
Arsenic		ND	mg/L	8E-05						
Manganese		0.003	mg/L	0.002						
Nickel		0.0003	mg/L	0.0001						
Selenium		ND	mg/L	0.0002						
Uranium		0.0002	mg/L	0.0001						
Vanadium		ND	mg/L	0.0006						

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Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Analytical Run: ICPMS5-C_200123A
Lab ID: QCS		Initial Calibration Verification Standard								01/23/20 18:45
Aluminum		0.253	mg/L	0.030	101	90	110			
Method: E200.8										Batch: 56537
Lab ID: MB-56537		Method Blank					Run: ICPMS5-C_200123A			01/23/20 20:07
Aluminum		ND	mg/L	0.02						
Method: E200.8										Analytical Run: ICPMS5-C_200124A
Lab ID: QCS		Initial Calibration Verification Standard								01/24/20 18:25
Beryllium		0.0248	mg/L	0.0010	99	90	110			
Method: E200.8										Batch: 56537
Lab ID: MB-56537		Method Blank					Run: ICPMS5-C_200124A			01/24/20 20:04
Beryllium		ND	mg/L	0.0001						
Method: E200.8										Analytical Run: ICPMS5-C_200224A
Lab ID: QCS		Initial Calibration Verification Standard								02/24/20 10:38
Selenium		0.0507	mg/L	0.0010	101	90	110			
Method: E200.8										Batch: 56537
Lab ID: MB-56537		Method Blank					Run: ICPMS5-C_200224A			02/24/20 12:25
Selenium		ND	mg/L	0.0002						

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Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.1										Batch: GA-1179
Lab ID: MB-GA-1179	3	Method Blank					Run: G542M_200121A			01/24/20 13:11
Gross Alpha minus Rn & U		0.2	pCi/L							U
Gross Alpha minus Rn & U Precision ($\pm$)		0.6	pCi/L							
Gross Alpha minus Rn & U MDC		0.8	pCi/L							
Lab ID: LCS-GA-1179										
	3	Laboratory Control Sample					Run: G542M_200121A			01/24/20 13:11
Gross Alpha minus Rn & U		31	pCi/L	93		80	120			
Gross Alpha minus Rn & U Precision ($\pm$)		6.3	pCi/L							
Gross Alpha minus Rn & U MDC		0.84	pCi/L							
Lab ID: C20010593-001FDUP										
	3	Sample Duplicate					Run: G542M_200121A			01/24/20 13:11
Gross Alpha minus Rn & U		49	pCi/L					6.1	20	
Gross Alpha minus Rn & U Precision ($\pm$)		10	pCi/L							
Gross Alpha minus Rn & U MDC		1.7	pCi/L							

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Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-9542
Lab ID: LCS-RA226-9542	3	Laboratory Control Sample		Run: G542M_200121C		02/07/20 13:09				
Radium 226		9.2	pCi/L	92		80	120			
Radium 226 precision (±)		1.8	pCi/L							
Radium 226 MDC		0.22	pCi/L							
Lab ID: MB-RA226-9542	3	Method Blank		Run: G542M_200121C		02/07/20 13:09				
Radium 226		0.10	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C20010603-003DDUP	3	Sample Duplicate		Run: G542M_200121C		02/07/20 14:45				
Radium 226		1.3	pCi/L					37	20	R
Radium 226 precision (±)		0.41	pCi/L							
Radium 226 MDC		0.38	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 2.0.										
Method: E903.0										Batch: RA226-9541
Lab ID: LCS-RA226-9541	3	Laboratory Control Sample		Run: G542M_200121D		02/10/20 13:30				
Radium 226		9.8	pCi/L	98		80	120			
Radium 226 precision (±)		1.9	pCi/L							
Radium 226 MDC		0.22	pCi/L							
Lab ID: MB-RA226-9541	3	Method Blank		Run: G542M_200121D		02/10/20 13:30				
Radium 226		0.2	pCi/L							U
Radium 226 precision (±)		0.2	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Lab ID: C20010540-002FDUP	3	Sample Duplicate		Run: G542M_200121D		02/10/20 13:30				
Radium 226		3.0	pCi/L					39	20	R
Radium 226 precision (±)		0.66	pCi/L							
Radium 226 MDC		0.21	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 2.0.										

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Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0										Batch: RA-TH-ISO-2991_R
Lab ID: MB-RA-TH-ISO-2991	3	Method Blank				Run: EGG-ORTEC_200205A				02/12/20 06:38
Thorium 230		0.002	pCi/L							U
Thorium 230 precision (±)		0.07	pCi/L							
Thorium 230 MDC		0.1	pCi/L							
Lab ID: LCS-RA-TH-ISO-2991	3	Laboratory Control Sample				Run: EGG-ORTEC_200205A				02/12/20 06:38
Thorium 230		9.7	pCi/L	91		80	120			
Thorium 230 precision (±)		1.8	pCi/L							
Thorium 230 MDC		0.18	pCi/L							
Lab ID: C20010755-005FDUP	3	Sample Duplicate				Run: EGG-ORTEC_200205A				02/12/20 06:38
Thorium 230		0.056	pCi/L					150	20	UR
Thorium 230 precision (±)		0.10	pCi/L							
Thorium 230 MDC		0.18	pCi/L							
- The Sample and Duplicate are less than their respective MDCs and the RER is less than or equal to 2.										
Lab ID: MB-RA-TH-ISO-2991	3	Method Blank				Run: EGG-ORTEC_200205A				02/12/20 14:13
Thorium 230		0.004	pCi/L							U
Thorium 230 precision (±)		0.04	pCi/L							
Thorium 230 MDC		0.07	pCi/L							
Lab ID: LCS-RA-TH-ISO-2991	3	Laboratory Control Sample				Run: EGG-ORTEC_200205A				02/12/20 14:13
Thorium 230		9.4	pCi/L	88		80	120			
Thorium 230 precision (±)		1.8	pCi/L							
Thorium 230 MDC		0.081	pCi/L							
Method: E908.0										Batch: RA-TH-ISO-2993
Lab ID: MB-RA-TH-ISO-2993	3	Method Blank				Run: EGG-ORTEC_200212B				02/13/20 15:18
Thorium 230		0.1	pCi/L							U
Thorium 230 precision (±)		0.1	pCi/L							
Thorium 230 MDC		0.2	pCi/L							
Lab ID: LCS-RA-TH-ISO-2993	3	Laboratory Control Sample				Run: EGG-ORTEC_200212B				02/13/20 15:18
Thorium 230		13	pCi/L	120		80	120			
Thorium 230 precision (±)		2.4	pCi/L							
Thorium 230 MDC		0.31	pCi/L							
Lab ID: C20010793-006FDUP	3	Sample Duplicate				Run: EGG-ORTEC_200212B				02/13/20 15:18
Thorium 230		0.049	pCi/L					70	20	UR
Thorium 230 precision (±)		0.095	pCi/L							
Thorium 230 MDC		0.17	pCi/L							
- The Sample and Duplicate are less than their respective MDCs and the RER is less than or equal to 2.										

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Method: E909.0										Batch: PB-210-1101
Lab ID: LCS-PB-210-1101	3	Laboratory Control Sample				Run: TRICARB LSC_200128A				01/31/20 12:03
Lead 210		19	pCi/L	96		80	120			
Lead 210 precision (±)		5.9	pCi/L							
Lead 210 MDC		1.6	pCi/L							
Lab ID: MB-PB-210-1101	3	Method Blank				Run: TRICARB LSC_200128A				01/31/20 13:09
Lead 210		0.5	pCi/L							U
Lead 210 precision (±)		0.5	pCi/L							
Lead 210 MDC		0.9	pCi/L							
Lab ID: C20010592-001FMS	3	Sample Matrix Spike				Run: TRICARB LSC_200128A				02/01/20 00:43
Lead 210		34	pCi/L	84		70	130			
Lead 210 precision (±)		10	pCi/L							
Lead 210 MDC		3.1	pCi/L							
Lab ID: C20010592-001FMSD	3	Sample Matrix Spike Duplicate				Run: TRICARB LSC_200128A				02/01/20 01:56
Lead 210		37	pCi/L	92		70	130	9.3		20
Lead 210 precision (±)		11	pCi/L							
Lead 210 MDC		3.2	pCi/L							

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Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-6179
Lab ID: LCS-228-RA226-9542	3	Laboratory Control Sample				Run: TENNELEC-4_200121B				02/02/20 14:40
Radium 228		7.7	pCi/L	81		80	120			
Radium 228 precision (±)		1.6	pCi/L							
Radium 228 MDC		1.3	pCi/L							
Lab ID: MB-RA226-9542	3	Method Blank				Run: TENNELEC-4_200121B				02/02/20 14:40
Radium 228		0.8	pCi/L							U
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C20010603-003DDUP	3	Sample Duplicate				Run: TENNELEC-4_200121B				02/02/20 14:40
Radium 228		2.9	pCi/L					9.5	20	
Radium 228 precision (±)		1.3	pCi/L							
Radium 228 MDC		1.8	pCi/L							
Method: RA-05										Batch: RA228-6181
Lab ID: LCS-228-RA226-9541	3	Laboratory Control Sample				Run: TENNELEC-4_200121C				02/05/20 14:01
Radium 228		8.3	pCi/L	87		80	120			
Radium 228 precision (±)		1.8	pCi/L							
Radium 228 MDC		1.6	pCi/L							
Lab ID: MB-RA226-9541	3	Method Blank				Run: TENNELEC-4_200121C				02/05/20 14:01
Radium 228		2	pCi/L							
Radium 228 precision (±)		0.9	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: C20010540-002FDUP	3	Sample Duplicate				Run: TENNELEC-4_200121C				02/05/20 14:01
Radium 228		18	pCi/L					1.2	20	
Radium 228 precision (±)		3.4	pCi/L							
Radium 228 MDC		1.2	pCi/L							

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Date: 2/5/2020

CLIENT: Energy Laboratories, Inc.
Project: 11e2 SelV
Lab Order: S2001226

CASE NARRATIVE

Report ID: S2001226001

Samples C20010593-001D, C20010593-002D, C20010593-004D, C20010593-005D, C20010593-007D and C20010593-008D were received on January 21, 2020.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition

40 CFR Parts 136 and 141

40 CFR Part 50, Appendices B, J, L, and O

Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012

ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Qualifiers by sample

001226-003 - Dissolved Selenium Hydride/Selenium - Spike Recovery outside accepted recovery limits

001226-003 - Dissolved Selenium Hydride/Selenium IV - Spike Recovery outside accepted recovery limits

Reviewed by:

Ian Scofield, Project Manager



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Sample Analysis Report

CLIENT: Energy Laboratories, Inc.
2393 Salt Creek HWY
Casper, WY 82601-9601

Date Reported: 2/5/2020
Report ID: S2001226001

Project: 11e2 SeIV
Lab ID: S2001226-001
Client Sample ID: C20010593-001D

Work Order: S2001226
Collection Date: 1/14/2020 9:05:00 AM
Date Received: 1/21/2020 11:00:00 AM
Sampler:
Matrix: Water
COC:

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
Dissolved Metals						
Selenium IV	ND	0.005		mg/L	01/29/2020 1128 DG	SM 3114C
Selenium VI	0.005	0.005		mg/L	01/29/2020 1102 DG	SM 3114C

These results apply only to the samples tested.

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
L Analyzed by another laboratory
ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
X Matrix Effect

RL - Reporting Limit

C Calculated Value
G Analyzed at IML Gillette laboratory
J Analyte detected below quantitation limits
M Value exceeds Monthly Ave or MCL or is less than LCL
O Outside the Range of Dilutions
U Analysis reported under the reporting limit

Reviewed by: 
Ian Scofield, Project Manager



Sample Analysis Report

CLIENT: Energy Laboratories, Inc.
2393 Salt Creek HWY
Casper, WY 82601-9601

Date Reported: 2/5/2020
Report ID: S2001226001

Project: 11e2 SeIV
Lab ID: S2001226-002
Client Sample ID: C20010593-002D

Work Order: S2001226
Collection Date: 1/14/2020 1:00:00 PM
Date Received: 1/21/2020 11:00:00 AM
Sampler:
Matrix: Water
COC:

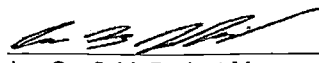
Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
Dissolved Metals						
Selenium IV	ND	0.005		mg/L	01/29/2020 1131 DG	SM 3114C
Selenium VI	ND	0.005		mg/L	01/29/2020 1109 DG	SM 3114C

These results apply only to the samples tested.

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
L Analyzed by another laboratory
ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
X Matrix Effect

RL - Reporting Limit

C Calculated Value
G Analyzed at IML Gillette laboratory
J Analyte detected below quantitation limits
M Value exceeds Monthly Ave or MCL or is less than LCL
O Outside the Range of Dilutions
U Analysis reported under the reporting limit

Reviewed by: 
Ian Scofield, Project Manager



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Sample Analysis Report

CLIENT: Energy Laboratories, Inc.
2393 Salt Creek HWY
Casper, WY 82601-9601

Date Reported: 2/5/2020
Report ID: S2001226001

Project: 11e2 SelV
Lab ID: S2001226-003
Client Sample ID: C20010593-004D

Work Order: S2001226
Collection Date: 1/14/2020 2:15:00 PM
Date Received: 1/21/2020 11:00:00 AM
Sampler:
Matrix: Water
COC:

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
Dissolved Metals						
Selenium IV	ND	0.005		mg/L	01/29/2020 1134 DG	SM 3114C
Selenium VI	0.015	0.005		mg/L	01/29/2020 1113 DG	SM 3114C

These results apply only to the samples tested.

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

RL - Reporting Limit

C	Calculated Value
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analysis reported under the reporting limit

Reviewed by: 
Ian Scofield, Project Manager

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Sample Analysis Report

CLIENT: Energy Laboratories, Inc.
2393 Salt Creek HWY
Casper, WY 82601-9601

Date Reported: 2/5/2020
Report ID: S2001226001

Project: 11e2 SelV
Lab ID: S2001226-004
Client Sample ID: C20010593-005D

Work Order: S2001226
Collection Date: 1/15/2020 9:05:00 AM
Date Received: 1/21/2020 11:00:00 AM
Sampler:
Matrix: Water
COC:

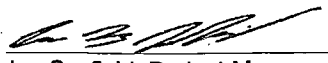
Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
Dissolved Metals						
Selenium IV	ND	0.005		mg/L	01/29/2020 1142 DG	SM 3114C
Selenium VI	0.055	0.005		mg/L	01/29/2020 1116 DG	SM 3114C

These results apply only to the samples tested.

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
L Analyzed by another laboratory
ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
X Matrix Effect

RL - Reporting Limit

C Calculated Value
G Analyzed at IML Gillette laboratory
J Analyte detected below quantitation limits
M Value exceeds Monthly Ave or MCL or is less than LCL
O Outside the Range of Dilutions
U Analysis reported under the reporting limit

Reviewed by: 
Ian Scofield, Project Manager



Sample Analysis Report

CLIENT: Energy Laboratories, Inc.
2393 Salt Creek HWY
Casper, WY 82601-9601

Date Reported: 2/5/2020
Report ID: S2001226001

Project: 11e2 SeIV
Lab ID: S2001226-005
Client Sample ID: C20010593-007D

Work Order: S2001226
Collection Date: 1/15/2020 12:25:00 PM
Date Received: 1/21/2020 11:00:00 AM
Sampler:
Matrix: Water
COC:

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
Dissolved Metals						
Selenium IV	ND	0.005		mg/L	01/29/2020 1144 DG	SM 3114C
Selenium VI	0.053	0.005		mg/L	01/29/2020 1118 DG	SM 3114C

These results apply only to the samples tested.

Qualifiers: B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
L Analyzed by another laboratory
ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits
X Matrix Effect

RL - Reporting Limit

C Calculated Value
G Analyzed at IML Gillette laboratory
J Analyte detected below quantitation limits
M Value exceeds Monthly Ave or MCL or is less than LCL
O Outside the Range of Dilutions
U Analysis reported under the reporting limit

Reviewed by: 
Ian Scofield, Project Manager



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Sample Analysis Report

CLIENT: Energy Laboratories, Inc.
2393 Salt Creek HWY
Casper, WY 82601-9601

Date Reported: 2/5/2020
Report ID: S2001226001

Project: 11e2 SelV
Lab ID: S2001226-006
Client Sample ID: C20010593-008D

Work Order: S2001226
Collection Date: 1/15/2020 1:58:00 PM
Date Received: 1/21/2020 11:00:00 AM
Sampler:
Matrix: Water
COC:

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
Dissolved Metals						
Selenium IV	ND	0.005		mg/L	01/29/2020 1145 DG	SM 3114C
Selenium VI	0.038	0.005		mg/L	01/29/2020 1119 DG	SM 3114C

These results apply only to the samples tested.

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- L Analyzed by another laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- X Matrix Effect

RL - Reporting Limit

- C Calculated Value
- G Analyzed at IML Gillette laboratory
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL or is less than LCL
- O Outside the Range of Dilutions
- U Analysis reported under the reporting limit

Reviewed by: 
Ian Scofield, Project Manager

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Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

ANALYTICAL QC SUMMARY REPORT**CLIENT:** Energy Laboratories, Inc.**Date:** 2/5/2020**Work Order:** S2001226**Report ID:** S2001226001**Project:** 11e2 SeIV**Dissolved Selenium Hydride**Sample Type **MBLK**

Units: mg/L

MB-COOKED (01/29/20 10:58)	RunNo: 175845							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Selenium VI	ND	0.005						

MB-UNCOOKED (01/29/20 11:24)	RunNo: 175845							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Selenium IV	ND	0.005						

Dissolved Selenium HydrideSample Type **MS**

Units: mg/L

S2001226-002AS (01/29/20 11:10)	RunNo: 175845							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Selenium VI	0.097	0.005	0.1	ND	96.6	70 - 130		

S2001226-003AS (01/29/20 11:14)	RunNo: 175845							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Selenium VI	0.104	0.005	0.1	0.015	88.7	70 - 130		

S2001226-002AS (01/29/20 11:32)	RunNo: 175845							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Selenium IV	0.100	0.005	0.1	ND	100	70 - 130		

S2001226-003AS (01/29/20 11:35)	RunNo: 175845							
Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual	
Selenium IV	0.010	0.005	0.1	ND	10.4	70 - 130	S	

Dissolved Selenium HydrideSample Type **MSD**

Units: mg/L

S2001226-002AMSD (01/29/20 11:11)	RunNo: 175845							
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual	
Selenium VI	0.097	0.005	0.097	0.310	96.9	20		

S2001226-003AMSD (01/29/20 11:15)	RunNo: 175845							
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual	
Selenium VI	0.103	0.005	0.104	0.873	87.8	20		

S2001226-002AMSD (01/29/20 11:33)	RunNo: 175845							
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual	
Selenium IV	0.096	0.005	0.100	4.07	96.2	20		

S2001226-003AMSD (01/29/20 11:41)	RunNo: 175845							
Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual	
Selenium IV	0.010	0.005	0.010	1.94	10.2	20	S	

Dissolved Selenium HydrideSample Type **DUP**

Units: mg/L

S2001226-001AD (01/29/20 11:08)	RunNo: 175845							
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual	
Selenium VI	ND	0.005	0.005			20		

Qualifiers:

B Analyte detected in the associated Method Blank

G Analyzed at IML Gillette laboratory

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

X Matrix Effect

E Value above quantitation range

H Holding times for preparation or analysis exceeded

L Analyzed by another laboratory

O Outside the Range of Dilutions

S Spike Recovery outside accepted recovery limits

ANALYTICAL QC SUMMARY REPORT

CLIENT: Energy Laboratories, Inc.
Work Order: S2001226
Project: 11e2 SelV

Date: 2/5/2020
Report ID: S2001226001

Dissolved Selenium Hydride	Sample Type	DUP	Units: mg/L				
S2001226-001AD (01/29/20 11:29)	RunNo: 175845						
Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Selenium IV	ND	0.005	ND			20	

Qualifiers:

B	Analyte detected in the associated Method Blank
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits
X	Matrix Effect

E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
O	Outside the Range of Dilutions
S	Spike Recovery outside accepted recovery limits



eurofins

Environment Testing
TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-133082-1
Client Project/Site: 11(e) Byproduct Material

For:
Energy Laboratories, Inc.
2393 North Salt Creek Highway
PO BOX 247
Casper, Wyoming 82601

Attn: Tracey Archer

Authorized for release by:

1/29/2020 11:01:31 AM

Chenise Lambert-Sykes, Project Manager I
(314)298-8566
chenise.lambert-sykes@testamericainc.com

Designee for

Ivan Vania, Project Manager II
(314)298-8566
ivan.vania@testamericainc.com

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

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

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Definitions/Glossary

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

Job ID: 280-133082-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Energy Laboratories, Inc.

Project: 11(e) Byproduct Material

Report Number: 280-133082-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 01/22/2020; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 5.3 C.

Receipt Exceptions

Two Chains of Custody (COCs) were provided with these samples. One COC lists only the samples that were provided and all samples were assigned a 624.1 analysis. The other COC lists all of the samples that were provided plus samples with the IDs of C20010593-001D, C20010593-002D, C20010593-003D, C20010593-004D, C20010593-005D, C20010593-006D, C20010593-007D and C20010593-008D that were not provided. These COC requests various analyses. The COC that was used was the one that only contained the samples provided. C20010593-001G (280-133082-1), C20010593-002G (280-133082-2), C20010593-003G (280-133082-3), C20010593-004G (280-133082-4), C20010593-005G (280-133082-5), C20010593-006G (280-133082-6), C20010593-007G (280-133082-7), C20010593-008G (280-133082-8), C20010593-009A (280-133082-9) and C20010593-010A (280-133082-10)

VOLATILE ORGANIC COMPOUNDS BY GC/MS

Samples C20010593-001G (280-133082-1), C20010593-002G (280-133082-2), C20010593-003G (280-133082-3), C20010593-004G (280-133082-4), C20010593-005G (280-133082-5), C20010593-006G (280-133082-6), C20010593-007G (280-133082-7), C20010593-008G (280-133082-8), C20010593-009A (280-133082-9) and C20010593-010A (280-133082-10) were analyzed for Volatile Organic Compounds by GC/MS in accordance with 624.1 40CFR136A. The samples were analyzed on 01/27/2020.

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

Method Summary

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL DEN

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-133082-1	C20010593-001G	Water	01/14/20 09:05	01/22/20 09:55	
280-133082-2	C20010593-002G	Water	01/14/20 13:00	01/22/20 09:55	
280-133082-3	C20010593-003G	Water	01/14/20 11:24	01/22/20 09:55	
280-133082-4	C20010593-004G	Water	01/14/20 14:15	01/22/20 09:55	
280-133082-5	C20010593-005G	Water	01/15/20 09:05	01/22/20 09:55	
280-133082-6	C20010593-006G	Water	01/15/20 11:25	01/22/20 09:55	
280-133082-7	C20010593-007G	Water	01/15/20 12:25	01/22/20 09:55	
280-133082-8	C20010593-008G	Water	01/15/20 13:58	01/22/20 09:55	
280-133082-9	C20010593-009A	Water	01/15/20 09:05	01/22/20 09:55	
280-133082-10	C20010593-010A	Water	01/14/20 09:05	01/22/20 09:55	

Client Sample Results

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: C20010593-001G

Date Collected: 01/14/20 09:05

Date Received: 01/22/20 09:55

Lab Sample ID: 280-133082-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		1.0	0.15	ug/L			01/27/20 12:43	1
Bromoform	ND		2.0	0.67	ug/L			01/27/20 12:43	1
Chlorodibromomethane	ND		1.0	0.21	ug/L			01/27/20 12:43	1
Chloroform	ND		1.0	0.22	ug/L			01/27/20 12:43	1
Trihalomethanes, Total	ND		1.0	0.15	ug/L			01/27/20 12:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		73 - 122		01/27/20 12:43	1
4-Bromofluorobenzene (Surr)	96		79 - 119		01/27/20 12:43	1
Toluene-d8 (Surr)	104		80 - 120		01/27/20 12:43	1

Client Sample ID: C20010593-002G

Date Collected: 01/14/20 13:00

Date Received: 01/22/20 09:55

Lab Sample ID: 280-133082-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		1.0	0.15	ug/L			01/27/20 13:06	1
Bromoform	ND		2.0	0.67	ug/L			01/27/20 13:06	1
Chlorodibromomethane	ND		1.0	0.21	ug/L			01/27/20 13:06	1
Chloroform	0.55	J	1.0	0.22	ug/L			01/27/20 13:06	1
Trihalomethanes, Total	0.55	J	1.0	0.15	ug/L			01/27/20 13:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		73 - 122		01/27/20 13:06	1
4-Bromofluorobenzene (Surr)	96		79 - 119		01/27/20 13:06	1
Toluene-d8 (Surr)	103		80 - 120		01/27/20 13:06	1

Client Sample ID: C20010593-003G

Date Collected: 01/14/20 11:24

Date Received: 01/22/20 09:55

Lab Sample ID: 280-133082-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		1.0	0.15	ug/L			01/27/20 13:28	1
Bromoform	ND		2.0	0.67	ug/L			01/27/20 13:28	1
Chlorodibromomethane	ND		1.0	0.21	ug/L			01/27/20 13:28	1
Chloroform	0.26	J	1.0	0.22	ug/L			01/27/20 13:28	1
Trihalomethanes, Total	0.26	J	1.0	0.15	ug/L			01/27/20 13:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		73 - 122		01/27/20 13:28	1
4-Bromofluorobenzene (Surr)	95		79 - 119		01/27/20 13:28	1
Toluene-d8 (Surr)	103		80 - 120		01/27/20 13:28	1

Client Sample ID: C20010593-004G

Date Collected: 01/14/20 14:15

Date Received: 01/22/20 09:55

Lab Sample ID: 280-133082-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		1.0	0.15	ug/L			01/27/20 13:51	1
Bromoform	ND		2.0	0.67	ug/L			01/27/20 13:51	1
Chlorodibromomethane	ND		1.0	0.21	ug/L			01/27/20 13:51	1
Chloroform	64		1.0	0.22	ug/L			01/27/20 13:51	1
Trihalomethanes, Total	64		1.0	0.15	ug/L			01/27/20 13:51	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		73 - 122		01/27/20 13:51	1
4-Bromofluorobenzene (Surr)	97		79 - 119		01/27/20 13:51	1
Toluene-d8 (Surr)	103		80 - 120		01/27/20 13:51	1

Client Sample ID: C20010593-005G

Date Collected: 01/15/20 09:05

Date Received: 01/22/20 09:55

Lab Sample ID: 280-133082-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		1.0	0.15	ug/L			01/27/20 14:14	1
Bromoform	ND		2.0	0.67	ug/L			01/27/20 14:14	1
Chlorodibromomethane	ND		1.0	0.21	ug/L			01/27/20 14:14	1
Chloroform	80		1.0	0.22	ug/L			01/27/20 14:14	1
Trihalomethanes, Total	80		1.0	0.15	ug/L			01/27/20 14:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		73 - 122		01/27/20 14:14	1
4-Bromofluorobenzene (Surr)	95		79 - 119		01/27/20 14:14	1
Toluene-d8 (Surr)	104		80 - 120		01/27/20 14:14	1

Client Sample ID: C20010593-006G

Date Collected: 01/15/20 11:25

Date Received: 01/22/20 09:55

Lab Sample ID: 280-133082-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		1.0	0.15	ug/L			01/27/20 14:36	1
Bromoform	ND		2.0	0.67	ug/L			01/27/20 14:36	1
Chlorodibromomethane	ND		1.0	0.21	ug/L			01/27/20 14:36	1
Chloroform	1.7		1.0	0.22	ug/L			01/27/20 14:36	1
Trihalomethanes, Total	1.7		1.0	0.15	ug/L			01/27/20 14:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		73 - 122		01/27/20 14:36	1
4-Bromofluorobenzene (Surr)	95		79 - 119		01/27/20 14:36	1
Toluene-d8 (Surr)	103		80 - 120		01/27/20 14:36	1

Client Sample ID: C20010593-007G

Date Collected: 01/15/20 12:25

Date Received: 01/22/20 09:55

Lab Sample ID: 280-133082-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		1.0	0.15	ug/L			01/27/20 14:59	1
Bromoform	ND		2.0	0.67	ug/L			01/27/20 14:59	1
Chlorodibromomethane	ND		1.0	0.21	ug/L			01/27/20 14:59	1
Chloroform	160		1.0	0.22	ug/L			01/27/20 14:59	1
Trihalomethanes, Total	160		1.0	0.15	ug/L			01/27/20 14:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		73 - 122		01/27/20 14:59	1
4-Bromofluorobenzene (Surr)	95		79 - 119		01/27/20 14:59	1
Toluene-d8 (Surr)	103		80 - 120		01/27/20 14:59	1

Client Sample ID: C20010593-008G

Date Collected: 01/15/20 13:58

Date Received: 01/22/20 09:55

Lab Sample ID: 280-133082-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		1.0	0.15	ug/L			01/27/20 15:22	1

Eurofins TestAmerica, Denver

Client Sample Results

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: C20010593-008G

Date Collected: 01/15/20 13:58

Date Received: 01/22/20 09:55

Lab Sample ID: 280-133082-8

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		2.0	0.67	ug/L			01/27/20 15:22	1
Chlorodibromomethane	ND		1.0	0.21	ug/L			01/27/20 15:22	1
Chloroform	17		1.0	0.22	ug/L			01/27/20 15:22	1
Trihalomethanes, Total	17		1.0	0.15	ug/L			01/27/20 15:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		73 - 122		01/27/20 15:22	1
4-Bromofluorobenzene (Surr)	96		79 - 119		01/27/20 15:22	1
Toluene-d8 (Surr)	103		80 - 120		01/27/20 15:22	1

Client Sample ID: C20010593-009A

Date Collected: 01/15/20 09:05

Date Received: 01/22/20 09:55

Lab Sample ID: 280-133082-9

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		1.0	0.15	ug/L			01/27/20 15:44	1
Bromoform	ND		2.0	0.67	ug/L			01/27/20 15:44	1
Chlorodibromomethane	ND		1.0	0.21	ug/L			01/27/20 15:44	1
Chloroform	ND		1.0	0.22	ug/L			01/27/20 15:44	1
Trihalomethanes, Total	ND		1.0	0.15	ug/L			01/27/20 15:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		73 - 122		01/27/20 15:44	1
4-Bromofluorobenzene (Surr)	96		79 - 119		01/27/20 15:44	1
Toluene-d8 (Surr)	103		80 - 120		01/27/20 15:44	1

Client Sample ID: C20010593-010A

Date Collected: 01/14/20 09:05

Date Received: 01/22/20 09:55

Lab Sample ID: 280-133082-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		1.0	0.15	ug/L			01/27/20 16:07	1
Bromoform	ND		2.0	0.67	ug/L			01/27/20 16:07	1
Chlorodibromomethane	ND		1.0	0.21	ug/L			01/27/20 16:07	1
Chloroform	ND		1.0	0.22	ug/L			01/27/20 16:07	1
Trihalomethanes, Total	ND		1.0	0.15	ug/L			01/27/20 16:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		73 - 122		01/27/20 16:07	1
4-Bromofluorobenzene (Surr)	97		79 - 119		01/27/20 16:07	1
Toluene-d8 (Surr)	103		80 - 120		01/27/20 16:07	1

Surrogate Summary

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	DCA	BFB	TOL
		(73-122)	(79-119)	(80-120)
280-133082-1	C20010593-001G	97	96	104
280-133082-2	C20010593-002G	97	96	103
280-133082-3	C20010593-003G	97	95	103
280-133082-4	C20010593-004G	99	97	103
280-133082-5	C20010593-005G	98	95	104
280-133082-6	C20010593-006G	99	95	103
280-133082-7	C20010593-007G	98	95	103
280-133082-8	C20010593-008G	99	96	103
280-133082-9	C20010593-009A	99	96	103
280-133082-10	C20010593-010A	97	97	103
LCS 280-484036/4	Lab Control Sample	100	96	102
LCSD 280-484036/5	Lab Control Sample Dup	98	94	100
MB 280-484036/6	Method Blank	98	96	103

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-484036/6

Matrix: Water

Analysis Batch: 484036

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	ND		1.0	0.15	ug/L			01/27/20 12:20	1
Bromoform	ND		2.0	0.67	ug/L			01/27/20 12:20	1
Chlorodibromomethane	ND		1.0	0.21	ug/L			01/27/20 12:20	1
Chloroform	ND		1.0	0.22	ug/L			01/27/20 12:20	1
Trihalomethanes, Total	ND		1.0	0.15	ug/L			01/27/20 12:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		73 - 122		01/27/20 12:20	1
4-Bromofluorobenzene (Surr)	96		79 - 119		01/27/20 12:20	1
Toluene-d8 (Surr)	103		80 - 120		01/27/20 12:20	1

Lab Sample ID: LCS 280-484036/4

Matrix: Water

Analysis Batch: 484036

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromodichloromethane	25.0	22.6		ug/L		91	65 - 135
Bromoform	25.0	19.1		ug/L		76	70 - 130
Chlorodibromomethane	25.0	21.4		ug/L		86	70 - 135
Chloroform	25.0	24.9		ug/L		100	70 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		73 - 122
4-Bromofluorobenzene (Surr)	96		79 - 119
Toluene-d8 (Surr)	102		80 - 120

Lab Sample ID: LCSD 280-484036/5

Matrix: Water

Analysis Batch: 484036

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromodichloromethane	25.0	22.7		ug/L		91	65 - 135	0	30
Bromoform	25.0	19.3		ug/L		77	70 - 130	1	30
Chlorodibromomethane	25.0	21.3		ug/L		85	70 - 135	0	30
Chloroform	25.0	25.3		ug/L		101	70 - 135	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		73 - 122
4-Bromofluorobenzene (Surr)	94		79 - 119
Toluene-d8 (Surr)	100		80 - 120

Eurofins TestAmerica, Denver

QC Association Summary

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

GC/MS VOA

Analysis Batch: 484036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-133082-1	C20010593-001G	Total/NA	Water	624.1	
280-133082-2	C20010593-002G	Total/NA	Water	624.1	
280-133082-3	C20010593-003G	Total/NA	Water	624.1	
280-133082-4	C20010593-004G	Total/NA	Water	624.1	
280-133082-5	C20010593-005G	Total/NA	Water	624.1	
280-133082-6	C20010593-006G	Total/NA	Water	624.1	
280-133082-7	C20010593-007G	Total/NA	Water	624.1	
280-133082-8	C20010593-008G	Total/NA	Water	624.1	
280-133082-9	C20010593-009A	Total/NA	Water	624.1	
280-133082-10	C20010593-010A	Total/NA	Water	624.1	
MB 280-484036/6	Method Blank	Total/NA	Water	624.1	
LCS 280-484036/4	Lab Control Sample	Total/NA	Water	624.1	
LCSD 280-484036/5	Lab Control Sample Dup	Total/NA	Water	624.1	

Lab Chronicle

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

Client Sample ID: C20010593-001G

Lab Sample ID: 280-133082-1

Date Collected: 01/14/20 09:05

Matrix: Water

Date Received: 01/22/20 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	5 mL	5 mL	484036	01/27/20 12:43	JLS	TAL DEN

Client Sample ID: C20010593-002G

Lab Sample ID: 280-133082-2

Date Collected: 01/14/20 13:00

Matrix: Water

Date Received: 01/22/20 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	5 mL	5 mL	484036	01/27/20 13:06	JLS	TAL DEN

Client Sample ID: C20010593-003G

Lab Sample ID: 280-133082-3

Date Collected: 01/14/20 11:24

Matrix: Water

Date Received: 01/22/20 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	5 mL	5 mL	484036	01/27/20 13:28	JLS	TAL DEN

Client Sample ID: C20010593-004G

Lab Sample ID: 280-133082-4

Date Collected: 01/14/20 14:15

Matrix: Water

Date Received: 01/22/20 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	5 mL	5 mL	484036	01/27/20 13:51	JLS	TAL DEN

Client Sample ID: C20010593-005G

Lab Sample ID: 280-133082-5

Date Collected: 01/15/20 09:05

Matrix: Water

Date Received: 01/22/20 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	5 mL	5 mL	484036	01/27/20 14:14	JLS	TAL DEN

Client Sample ID: C20010593-006G

Lab Sample ID: 280-133082-6

Date Collected: 01/15/20 11:25

Matrix: Water

Date Received: 01/22/20 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	5 mL	5 mL	484036	01/27/20 14:36	JLS	TAL DEN

Client Sample ID: C20010593-007G

Lab Sample ID: 280-133082-7

Date Collected: 01/15/20 12:25

Matrix: Water

Date Received: 01/22/20 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	5 mL	5 mL	484036	01/27/20 14:59	JLS	TAL DEN

Eurofins TestAmerica, Denver

Lab Chronicle

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

Client Sample ID: C20010593-008G

Lab Sample ID: 280-133082-8

Date Collected: 01/15/20 13:58

Matrix: Water

Date Received: 01/22/20 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	5 mL	5 mL	484036	01/27/20 15:22	JLS	TAL DEN

Client Sample ID: C20010593-009A

Lab Sample ID: 280-133082-9

Date Collected: 01/15/20 09:05

Matrix: Water

Date Received: 01/22/20 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	5 mL	5 mL	484036	01/27/20 15:44	JLS	TAL DEN

Client Sample ID: C20010593-010A

Lab Sample ID: 280-133082-10

Date Collected: 01/14/20 09:05

Matrix: Water

Date Received: 01/22/20 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	5 mL	5 mL	484036	01/27/20 16:07	JLS	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-133082-1

Laboratory: Eurofins TestAmerica, Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-21
A2LA	ISO/IEC 17025	2907.01	10-31-21
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	01-08-20 *
Arizona	State	AZ0713	12-20-20
Arkansas DEQ	State	19-047-0	06-01-20
California	State	2513	01-08-20 *
Connecticut	State	PH-0686	09-30-20
Florida	NELAP	E87667-57	06-30-20
Illinois	NELAP	2000172019-1	04-30-20
Iowa	State	IA#370	12-01-20
Kansas	NELAP	E-10166	04-30-20
Louisiana	NELAP	30785	06-30-20
Maine	State	2019011 (231)	03-03-21
Minnesota	NELAP	1788752	12-31-20
Nevada	State	CO000262020-1	07-31-20
New Hampshire	NELAP	205319	04-28-20
New Jersey	NELAP	190002	06-30-20
New York	NELAP	59923	04-01-20
North Carolina (WW/SW)	State	358	12-31-20
North Dakota	State	R-034	01-08-20 *
Oklahoma	State	2018-006	08-31-20
Oregon	NELAP	4025-011	01-08-21
Pennsylvania	NELAP	013	08-01-20
South Carolina	State	72002001	01-08-20 *
Texas	NELAP	T104704183-19-17	09-30-20
US Fish & Wildlife	Federal		07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal		03-26-21
USDA	US Federal Programs	P330-18-00099	03-26-21
Utah	NELAP	CO000262019-11	07-31-20
Virginia	NELAP	10490	06-14-20
Washington	State	C583-19	08-05-20
West Virginia DEP	State	354	11-30-20
Wisconsin	State	999615430	08-31-20
Wyoming (UST)	A2LA	2907.01	10-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

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ANALYTICAL SUMMARY REPORT

February 26, 2020

United Nuclear Corporation
21 Miles NE of Gallup
Gallup, NM 87305

Work Order: C20010793 Quote ID: C5406

Project Name: UNC-Zone 3 & Zone 1

Energy Laboratories, Inc. Casper WY received the following 8 samples for United Nuclear Corporation on 1/24/2020 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C20010793-001	517	01/20/20 08:47	01/24/20	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Acidity, Total as CaCO ₃ Alkalinity Anion - Cation Balance Anions by Ion Chromatography pH Check for H ₂ SO ₄ Preserved Inorganics Metals pH check by the Laboratory FIRST Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Radon and Uranium, Total pH Check for Nitric Radiochem FIRST Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic, Total Solids, Total Dissolved Solids, Total Dissolved - Calculated 624-Purgeable Organics 624-Purgeable Organics



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ANALYTICAL SUMMARY REPORT

C20010793-002	719	01/20/20 10:50	01/24/20	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Anions by Ion Chromatography pH Check for H2SO4 Preserved Inorganics Metals pH check by the Laboratory FIRST Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Radon and Uranium, Total pH Check for Nitric Radiochem FIRST Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic, Total Solids, Total Dissolved Solids, Total Dissolved - Calculated 624-Purgeable Organics 624-Purgeable Organics
C20010793-003	420	01/20/20 12:05	01/24/20	Aqueous	Same As Above
C20010793-004	EPA-13	01/20/20 13:45	01/24/20	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Arsenic Speciation, Total Anions by Ion Chromatography pH Check for H2SO4 Preserved Inorganics Metals pH check by the Laboratory FIRST Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Radon and Uranium, Total pH Check for Nitric Radiochem FIRST Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic, Total Solids, Total Dissolved Solids, Total Dissolved - Calculated 624-Purgeable Organics 624-Purgeable Organics



ANALYTICAL SUMMARY REPORT

C20010793-005 711

01/21/20 09:26 01/24/20

Aqueous

Metals by ICP/ICPMS, Dissolved
Metals by ICP/ICPMS, Total
Acidity, Total as CaCO₃
Alkalinity
Anion - Cation Balance
Anions by Ion Chromatography
pH Check for H₂SO₄ Preserved
Inorganics
Metals pH check by the Laboratory
FIRST
Nitrogen, Ammonia
Nitrogen, Nitrate + Nitrite
pH
Metals Preparation by EPA 200.2
Gross Alpha minus Radon and
Uranium, Total
pH Check for Nitric Radiochem
FIRST
Lead 210, Total
Radium 226, Total
Radium 228, Total
Thorium, Isotopic, Total
Solids, Total Dissolved
Solids, Total Dissolved - Calculated
624-Purgeable Organics
624-Purgeable Organics

C20010793-006 MW-7

01/21/20 11:45 01/24/20

Aqueous

Metals by ICP/ICPMS, Dissolved
Metals by ICP/ICPMS, Total
Alkalinity
Anion - Cation Balance
Anions by Ion Chromatography
pH Check for H₂SO₄ Preserved
Inorganics
Metals pH check by the Laboratory
FIRST
Nitrogen, Ammonia
Nitrogen, Nitrate + Nitrite
pH
Metals Preparation by EPA 200.2
Gross Alpha minus Radon and
Uranium, Total
pH Check for Nitric Radiochem
FIRST
Lead 210, Total
Radium 226, Total
Radium 228, Total
Thorium, Isotopic, Total
Solids, Total Dissolved
Solids, Total Dissolved - Calculated
624-Purgeable Organics
624-Purgeable Organics



ANALYTICAL SUMMARY REPORT

C20010793-007 NW-3

01/21/20 12:45 01/24/20

Aqueous

Metals by ICP/ICPMS, Dissolved
Metals by ICP/ICPMS, Total
Alkalinity
Anion - Cation Balance
Arsenic Speciation, Total
Anions by Ion Chromatography
pH Check for H2SO4 Preserved
Inorganics
Metals pH check by the Laboratory
FIRST
Nitrogen, Ammonia
Nitrogen, Nitrate + Nitrite
pH
Metals Preparation by EPA 200.2
Gross Alpha minus Radon and
Uranium, Total
pH Check for Nitric Radiochem
FIRST
Lead 210, Total
Radium 226, Total
Radium 228, Total
Thorium, Isotopic, Total
Solids, Total Dissolved
Solids, Total Dissolved - Calculated
624-Purgeable Organics
624-Purgeable Organics

C20010793-008 TWQ-142

01/21/20 13:40 01/24/20

Aqueous

Metals by ICP/ICPMS, Dissolved
Metals by ICP/ICPMS, Total
Alkalinity
Anion - Cation Balance
Anions by Ion Chromatography
pH Check for H2SO4 Preserved
Inorganics
Metals pH check by the Laboratory
FIRST
Nitrogen, Ammonia
Nitrogen, Nitrate + Nitrite
pH
Metals Preparation by EPA 200.2
Gross Alpha minus Radon and
Uranium, Total
pH Check for Nitric Radiochem
FIRST
Lead 210, Total
Radium 226, Total
Radium 228, Total
Thorium, Isotopic, Total
Solids, Total Dissolved
Solids, Total Dissolved - Calculated
624-Purgeable Organics
624-Purgeable Organics

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

ANALYTICAL SUMMARY REPORT

Report Approved By:

Tracey Archer

Digitally signed by
Tracey Archer
Date: 2020.02.26 10:32:04 -07:00



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Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

CLIENT: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Work Order: C20010793

Report Date: 02/26/20

CASE NARRATIVE

Tests associated with analyst identified as ELI-H were subcontracted to Energy Laboratories, 3161 E. Lyndale Ave., Helena, MT, EPA Number MT00945.

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/03/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2310 B										Analytical Run: ACIDITY_200201A
Lab ID: ICV										Initial Calibration Verification Standard
pH										02/01/20 11:06
		6.85	s.u.	0.010	100	98	102			
Method: A2310 B										Batch: ACID200201_A
Lab ID: MBLK										Method Blank
Acidity, Total as CaCO ₃										Run: ACIDITY_200201A
		2	mg/L							02/01/20 11:10
Lab ID: LCS										Laboratory Control Sample
Acidity, Total as CaCO ₃										Run: ACIDITY_200201A
		955	mg/L		102	90	110			02/01/20 11:12
Lab ID: C20010793-001A DUP										Sample Duplicate
Acidity, Total as CaCO ₃										Run: ACIDITY_200201A
		545	mg/L					0.9	10	02/01/20 11:14

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/03/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Analytical Run: MANTECH_200127A
Lab ID: ICV										Initial Calibration Verification Standard
pH										01/27/20 16:18
		6.88	s.u.	0.010	100	98	102			
Method: A2320 B										Batch: R255059
Lab ID: MBLK										Method Blank
Alkalinity, Total as CaCO ₃										Run: MANTECH_200127A
		ND	mg/L	2						01/27/20 19:07
Lab ID: LCS										Laboratory Control Sample
Alkalinity, Total as CaCO ₃										Run: MANTECH_200127A
		253	mg/L	5.0	101	90	110			01/27/20 19:14
Lab ID: C20010793-003ADUP										Sample Duplicate
Alkalinity, Total as CaCO ₃										Run: MANTECH_200127A
		197	mg/L	5.0				0.9	10	01/27/20 19:29

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/03/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: TDS200127A
Lab ID: MB-25_200127A		Method Blank					Run: ORG_BAL3_C_200127A			01/27/20 09:48
Solids, Total Dissolved TDS @ 180 C		ND	mg/L							
Lab ID: LCS-26_200127A		Laboratory Control Sample					Run: ORG_BAL3_C_200127A			01/27/20 09:48
Solids, Total Dissolved TDS @ 180 C		1010	mg/L	10	101	90	110			
Lab ID: C20010793-004A DUP		Sample Duplicate					Run: ORG_BAL3_C_200127A			01/27/20 09:49
Solids, Total Dissolved TDS @ 180 C		7480	mg/L	100				2.4	5	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/03/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B										Analytical Run: PHSC_101-C_200127A
Lab ID: 6.86	2	Initial Calibration Verification Standard								01/27/20 09:32
pH		6.87	s.u.	0.010	100	98	102			
pH Measurement Temp		20.1	°C			0	0			
Method: A4500-H B										Batch: R255022
Lab ID: C20010793-001ADUP	2	Sample Duplicate								Run: PHSC_101-C_200127A 01/27/20 10:14
pH		3.08	s.u.	0.010				1.3	1.5	
pH Measurement Temp		11.2	°C							

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/03/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0										Analytical Run: IC3-C_200128A
Lab ID: ICV	2	Initial Calibration Verification Standard								01/28/20 11:58
Chloride		9.90	mg/L	1.0	99	90	110			
Sulfate		39.6	mg/L	1.0	99	90	110			
Method: E300.0										Batch: R255134
Lab ID: ICB	2	Method Blank								Run: IC3-C_200128A 01/28/20 12:18
Chloride		ND	mg/L	0.06						
Sulfate		ND	mg/L	0.2						
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC3-C_200128A 01/28/20 12:37
Chloride		10.1	mg/L	1.0	101	90	110			
Sulfate		40.4	mg/L	1.0	101	90	110			
Lab ID: C20010793-007AMS	2	Sample Matrix Spike								Run: IC3-C_200128A 01/29/20 07:28
Chloride		239	mg/L	2.1	102	80	120			
Sulfate		3590	mg/L	8.3	102	80	120			
Lab ID: C20010793-007AMSD	2	Sample Matrix Spike Duplicate								Run: IC3-C_200128A 01/29/20 07:47
Chloride		242	mg/L	2.1	104	80	120	1.2	20	
Sulfate		3630	mg/L	8.3	108	80	120	1.3	20	

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/03/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E350.1										Analytical Run: FIA201-C_200129A
Lab ID: ICV										Initial Calibration Verification Standard
Nitrogen, Ammonia as N										01/29/20 12:17
		1.05	mg/L	0.050	105	90	110			
Method: E350.1										Batch: R255117
Lab ID: MBLK										Run: FIA201-C_200129A
Nitrogen, Ammonia as N										01/29/20 12:16
		ND	mg/L	0.02						
Lab ID: LFB										Run: FIA201-C_200129A
Nitrogen, Ammonia as N										01/29/20 12:18
		1.00	mg/L	0.050	101	90	110			
Lab ID: C20010793-002EMS										Run: FIA201-C_200129A
Nitrogen, Ammonia as N										01/29/20 12:54
		1.28	mg/L	0.050	96	90	110			
Lab ID: C20010793-002EMSD										Run: FIA201-C_200129A
Nitrogen, Ammonia as N										01/29/20 12:55
		1.29	mg/L	0.050	97	90	110	0.8	10	

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/03/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA201-C_200129B		
Lab ID: ICV	Initial Calibration Verification Standard								01/29/20 14:54	
Nitrogen, Nitrate+Nitrite as N		0.958	mg/L	0.010	96	90	110			
Method: E353.2								Batch: R255143		
Lab ID: MBLK	Method Blank					Run: FIA201-C_200129B			01/29/20 14:55	
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.008						
Lab ID: LFB	Laboratory Fortified Blank					Run: FIA201-C_200129B			01/29/20 14:56	
Nitrogen, Nitrate+Nitrite as N		0.998	mg/L	0.010	101	90	110			
Lab ID: C20010793-002EMS	Sample Matrix Spike					Run: FIA201-C_200129B			01/29/20 15:44	
Nitrogen, Nitrate+Nitrite as N		1.04	mg/L	0.010	99	90	110			
Lab ID: C20010793-002EMSD	Sample Matrix Spike Duplicate					Run: FIA201-C_200129B			01/29/20 15:45	
Nitrogen, Nitrate+Nitrite as N		1.04	mg/L	0.010	99	90	110	0.0	10	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP4-C_200129A		
Lab ID: QCS	3	Initial Calibration Verification Standard						01/29/20 16:02		
Calcium		40.8	mg/L	0.50	102	90	110			
Magnesium		41.1	mg/L	0.50	103	90	110			
Sodium		40.6	mg/L	0.50	102	90	110			
Method: E200.7								Batch: R255141		
Lab ID: MB-6300DIS200129A	3	Method Blank				Run: ICP4-C_200129A			01/29/20 15:49	
Calcium		ND	mg/L	0.003						
Magnesium		ND	mg/L	0.009						
Sodium		ND	mg/L	0.02						
Lab ID: LFB-6300DIS200129A	3	Laboratory Fortified Blank				Run: ICP4-C_200129A			01/29/20 15:58	
Calcium		50.8	mg/L	0.50	102	85	115			
Magnesium		52.4	mg/L	0.50	105	85	115			
Sodium		50.7	mg/L	0.50	101	85	115			
Lab ID: C20010792-006BMS2	3	Sample Matrix Spike				Run: ICP4-C_200129A			01/29/20 20:56	
Calcium		52.7	mg/L	1.0	105	70	130			
Magnesium		51.1	mg/L	1.0	102	70	130			
Sodium		52.7	mg/L	1.0	105	70	130			
Lab ID: C20010792-006BMSD	3	Sample Matrix Spike Duplicate				Run: ICP4-C_200129A			01/29/20 21:01	
Calcium		55.7	mg/L	1.0	111	70	130	5.5	20	
Magnesium		54.6	mg/L	1.0	109	70	130	6.6	20	
Sodium		55.9	mg/L	1.0	112	70	130	5.9	20	
Lab ID: C20010797-001BMS2	3	Sample Matrix Spike				Run: ICP4-C_200129A			01/29/20 22:27	
Calcium		947	mg/L	1.0	97	70	130			
Magnesium		1030	mg/L	1.0	99	70	130			
Sodium		2090	mg/L	1.0	100	70	130			
Lab ID: C20010797-001BMSD	3	Sample Matrix Spike Duplicate				Run: ICP4-C_200129A			01/29/20 22:31	
Calcium		929	mg/L	1.0	94	70	130	2.0	20	
Magnesium		1030	mg/L	1.0	98	70	130	0.2	20	
Sodium		2030	mg/L	1.0	90	70	130	2.5	20	

Qualifiers:

RL - Analyte Reporting Limit

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Analytical Run: ICP4-C_200130A
Lab ID: QCS	Initial Calibration Verification Standard									01/30/20 22:00
Potassium		40.2	mg/L	0.50	100	95	105			
Method: E200.7										Batch: R255185
Lab ID: MB-6300DIS200130A	Method Blank									Run: ICP4-C_200130A
Potassium		0.1	mg/L	0.04						01/30/20 21:46
Lab ID: LFB-6300DIS200130A	Laboratory Fortified Blank									Run: ICP4-C_200130A
Potassium		49.9	mg/L	0.50	100	85	115			01/30/20 21:56
Lab ID: C20010793-004BMS2	Sample Matrix Spike									Run: ICP4-C_200130A
Potassium		517	mg/L	1.0	100	70	130			01/31/20 00:43
Lab ID: C20010793-004BMSD	Sample Matrix Spike Duplicate									Run: ICP4-C_200130A
Potassium		520	mg/L	1.0	101	70	130	0.5		01/31/20 00:47

Qualifiers:

RL - Analyte Reporting Limit

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS5-C_200128A		
Lab ID: QCS	12 Initial Calibration Verification Standard							01/28/20 21:24		
Aluminum		0.266	mg/L	0.030	106	90	110			
Arsenic		0.0496	mg/L	0.0010	99	90	110			
Beryllium		0.0246	mg/L	0.0010	98	90	110			
Cadmium		0.0247	mg/L	0.0010	99	90	110			
Cobalt		0.0495	mg/L	0.0050	99	90	110			
Lead		0.0486	mg/L	0.0010	97	90	110			
Manganese		0.246	mg/L	0.0010	98	90	110			
Molybdenum		0.0477	mg/L	0.0010	95	90	110			
Nickel		0.0491	mg/L	0.0050	98	90	110			
Selenium		0.0500	mg/L	0.0010	100	90	110			
Uranium		0.0188	mg/L	0.00030	94	90	110			
Vanadium		0.0479	mg/L	0.010	96	90	110			
Method: E200.8								Batch: 56618		
Lab ID: MB-56618D	12 Method Blank							Run: ICPMS5-C_200128A		01/28/20 22:33
Aluminum		ND	mg/L	0.02						
Arsenic		9E-05	mg/L	8E-05						
Beryllium		ND	mg/L	0.0001						
Cadmium		ND	mg/L	2E-05						
Cobalt		ND	mg/L	0.0002						
Lead		ND	mg/L	0.0001						
Manganese		ND	mg/L	0.002						
Molybdenum		ND	mg/L	0.0003						
Nickel		0.0010	mg/L	0.0001						
Selenium		ND	mg/L	0.0002						
Uranium		ND	mg/L	0.0001						
Vanadium		0.002	mg/L	0.0006						
Lab ID: LCS3-56618	12 Laboratory Control Sample							Run: ICPMS5-C_200128A		01/28/20 22:59
Aluminum		2.66	mg/L	0.030	106	85	115			
Arsenic		0.502	mg/L	0.0010	100	85	115			
Beryllium		0.241	mg/L	0.0010	96	85	115			
Cadmium		0.254	mg/L	0.0010	102	85	115			
Cobalt		0.531	mg/L	0.0050	106	85	115			
Lead		0.541	mg/L	0.0010	108	85	115			
Manganese		2.76	mg/L	0.0015	111	85	115			
Molybdenum		0.479	mg/L	0.0010	96	85	115			
Nickel		0.514	mg/L	0.0050	103	85	115			
Selenium		0.495	mg/L	0.0010	99	85	115			
Uranium		0.571	mg/L	0.00030	114	85	115			
Vanadium		0.517	mg/L	0.010	103	85	115			
Lab ID: C20010793-001CMS3	12 Sample Matrix Spike							Run: ICPMS5-C_200128A		01/28/20 23:12
Aluminum		18.6	mg/L	0.032		70	130			A
Arsenic		0.534	mg/L	0.0010	106	70	130			
Beryllium		0.248	mg/L	0.0010	92	70	130			

Qualifiers:

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ND - Not detected at the Reporting Limit (RL)

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 56618
Lab ID: C20010793-001CMS3 12 Sample Matrix Spike										Run: ICPMS5-C_200128A 01/28/20 23:12
Cadmium		0.255	mg/L	0.0010	100	70	130			
Cobalt		1.42	mg/L	0.0050	104	70	130			
Lead		0.542	mg/L	0.0010	105	70	130			
Manganese		17.0	mg/L	0.0030		70	130			A
Molybdenum		0.477	mg/L	0.0010	95	70	130			
Nickel		1.33	mg/L	0.0050	103	70	130			
Selenium		0.596	mg/L	0.0010	119	70	130			
Uranium		0.973	mg/L	0.00030	118	70	130			
Vanadium		0.529	mg/L	0.010	106	70	130			
Lab ID: C20010793-001CMSD 12 Sample Matrix Spike Duplicate										Run: ICPMS5-C_200128A 01/28/20 23:16
Aluminum		18.4	mg/L	0.032		70	130	1.1	20	A
Arsenic		0.531	mg/L	0.0010	106	70	130	0.5	20	
Beryllium		0.245	mg/L	0.0010	91	70	130	1.5	20	
Cadmium		0.256	mg/L	0.0010	100	70	130	0.5	20	
Cobalt		1.41	mg/L	0.0050	103	70	130	0.6	20	
Lead		0.546	mg/L	0.0010	106	70	130	0.7	20	
Manganese		16.8	mg/L	0.0030		70	130	0.7	20	A
Molybdenum		0.553	mg/L	0.0010	111	70	130	15	20	
Nickel		1.30	mg/L	0.0050	97	70	130	2.2	20	
Selenium		0.596	mg/L	0.0010	119	70	130	0.0	20	
Uranium		0.979	mg/L	0.00030	120	70	130	0.6	20	
Vanadium		0.523	mg/L	0.010	105	70	130	1.2	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8		Analytical Run: ICPMS5-C_200129A								
Lab ID: QCS		10 Initial Calibration Verification Standard								01/29/20 16:28
Aluminum		0.259	mg/L	0.030	104	90	110			
Arsenic		0.0498	mg/L	0.0010	100	90	110			
Beryllium		0.0246	mg/L	0.0010	98	90	110			
Cadmium		0.0247	mg/L	0.0010	99	90	110			
Cobalt		0.0500	mg/L	0.0050	100	90	110			
Manganese		0.252	mg/L	0.0010	101	90	110			
Molybdenum		0.0478	mg/L	0.0010	96	90	110			
Nickel		0.0512	mg/L	0.0050	102	90	110			
Selenium		0.0506	mg/L	0.0010	101	90	110			
Vanadium		0.0491	mg/L	0.010	98	90	110			

Method: E200.8						Batch: 56618	
Lab ID: MB-56618D	10 Method Blank		Run: ICPMS5-C_200129A			01/29/20 18:13	
Aluminum	ND	mg/L	0.02				
Arsenic	ND	mg/L	8E-05				
Beryllium	ND	mg/L	0.0001				
Cadmium	ND	mg/L	2E-05				
Cobalt	ND	mg/L	0.0002				
Manganese	ND	mg/L	0.002				
Molybdenum	ND	mg/L	0.0003				
Nickel	0.001	mg/L	0.0001				
Selenium	ND	mg/L	0.0002				
Vanadium	0.0006	mg/L	0.0006				

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										
Analytical Run: ICPMS5-C_200205A										
Lab ID: QCS	12 Initial Calibration Verification Standard									
								02/05/20 10:18		
Aluminum		0.250	mg/L	0.030	100	90	110			
Arsenic		0.0491	mg/L	0.0010	98	90	110			
Beryllium		0.0250	mg/L	0.0010	100	90	110			
Cadmium		0.0250	mg/L	0.0010	100	90	110			
Cobalt		0.0498	mg/L	0.0050	100	90	110			
Lead		0.0487	mg/L	0.0010	97	90	110			
Manganese		0.244	mg/L	0.0010	98	90	110			
Molybdenum		0.0493	mg/L	0.0010	99	90	110			
Nickel		0.0494	mg/L	0.0050	99	90	110			
Selenium		0.0516	mg/L	0.0010	103	90	110			
Uranium		0.0189	mg/L	0.00030	95	90	110			
Vanadium		0.0477	mg/L	0.010	95	90	110			
Method: E200.8										
Batch: 56679										
Lab ID: MB-56679	12 Method Blank									
								Run: ICPMS5-C_200205A		
								02/05/20 11:22		
Aluminum		ND	mg/L	0.02						
Arsenic		ND	mg/L	8E-05						
Beryllium		ND	mg/L	0.0001						
Cadmium		ND	mg/L	2E-05						
Cobalt		ND	mg/L	0.0002						
Lead		ND	mg/L	0.0001						
Manganese		ND	mg/L	0.002						
Molybdenum		ND	mg/L	0.0003						
Nickel		ND	mg/L	0.0001						
Selenium		ND	mg/L	0.0002						
Uranium		ND	mg/L	0.0001						
Vanadium		ND	mg/L	0.0006						
Lab ID: LCS3-56679	12 Laboratory Control Sample									
								Run: ICPMS5-C_200205A		
								02/05/20 11:27		
Aluminum		2.38	mg/L	0.030	95	85	115			
Arsenic		0.485	mg/L	0.0010	97	85	115			
Beryllium		0.238	mg/L	0.0010	95	85	115			
Cadmium		0.242	mg/L	0.0010	97	85	115			
Cobalt		0.485	mg/L	0.0050	97	85	115			
Lead		0.514	mg/L	0.0010	103	85	115			
Manganese		2.41	mg/L	0.0015	96	85	115			
Molybdenum		0.460	mg/L	0.0010	92	85	115			
Nickel		0.494	mg/L	0.0050	99	85	115			
Selenium		0.474	mg/L	0.0010	95	85	115			
Uranium		0.518	mg/L	0.00030	104	85	115			
Vanadium		0.480	mg/L	0.010	96	85	115			
Lab ID: C20010793-002CMS3	12 Sample Matrix Spike									
								Run: ICPMS5-C_200205A		
								02/05/20 11:44		
Aluminum		8.86	mg/L	0.080	89	70	130			
Arsenic		0.500	mg/L	0.0010	99	70	130			
Beryllium		0.252	mg/L	0.0010	99	70	130			

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 56679
Lab ID: C20010793-002CMS3 12 Sample Matrix Spike										Run: ICPMS5-C_200205A 02/05/20 11:44
Cadmium		0.246	mg/L	0.0010	98	70	130			
Cobalt		0.678	mg/L	0.0050	97	70	130			
Lead		0.496	mg/L	0.0010	99	70	130			
Manganese		6.57	mg/L	0.0076	94	70	130			
Molybdenum		0.728	mg/L	0.0013	88	70	130			
Nickel		0.785	mg/L	0.0050	99	70	130			
Selenium		0.530	mg/L	0.0010	106	70	130			
Uranium		0.682	mg/L	0.00064	102	70	130			
Vanadium		0.482	mg/L	0.010	96	70	130			
Lab ID: C20010793-002CMSD 12 Sample Matrix Spike Duplicate										Run: ICPMS5-C_200205A 02/05/20 11:48
Aluminum		8.90	mg/L	0.080	91	70	130	0.5	20	
Arsenic		0.505	mg/L	0.0010	100	70	130	1.1	20	
Beryllium		0.258	mg/L	0.0010	101	70	130	2.4	20	
Cadmium		0.249	mg/L	0.0010	99	70	130	1.3	20	
Cobalt		0.664	mg/L	0.0050	94	70	130	2.1	20	
Lead		0.500	mg/L	0.0010	100	70	130	0.8	20	
Manganese		6.58	mg/L	0.0076	94	70	130	0.2	20	
Molybdenum		0.720	mg/L	0.0013	86	70	130	1.1	20	
Nickel		0.791	mg/L	0.0050	100	70	130	0.8	20	
Selenium		0.537	mg/L	0.0010	107	70	130	1.3	20	
Uranium		0.682	mg/L	0.00064	103	70	130	0.1	20	
Vanadium		0.489	mg/L	0.010	98	70	130	1.4	20	

Qualifiers:

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/04/20

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E624.1 Analytical Run: R334766									
Lab ID: CCV012820	Continuing Calibration Verification Standard								01/28/20 12:38
Bromodichloromethane	5.17	ug/L	0.50	103	70	130			
Bromoform	5.19	ug/L	0.50	104	70	130			
Chlorodibromomethane	5.17	ug/L	0.50	103	70	130			
Chloroform	4.94	ug/L	0.50	99	70	130			
Surr: 1,2-Dichloroethane-d4			0.50	104	71	139			
Surr: p-Bromofluorobenzene			0.50	106	80	127			
Surr: Toluene-d8			0.50	107	80	123			
Method: E624.1 Batch: R334766									
Lab ID: LCS012820	Laboratory Control Sample								01/28/20 13:33
Bromodichloromethane	4.99	ug/L	0.50	100	74	128			
Bromoform	4.95	ug/L	0.50	99	70	130			
Chlorodibromomethane	5.14	ug/L	0.50	103	74	125			
Chloroform	4.80	ug/L	0.50	96	70	135			
Surr: 1,2-Dichloroethane-d4			0.50	105	71	139			
Surr: p-Bromofluorobenzene			0.50	106	80	127			
Surr: Toluene-d8			0.50	105	80	123			
Lab ID: MBLK012820	Method Blank								01/28/20 16:02
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			0.50	106	71	139			
Surr: p-Bromofluorobenzene			0.50	105	80	127			
Surr: Toluene-d8			0.50	106	80	123			
Lab ID: B20011774-001HMS	Sample Matrix Spike								01/28/20 21:38
Bromodichloromethane	226	ug/L	25	90	74	128			
Bromoform	174	ug/L	25	70	66	128			
Chlorodibromomethane	210	ug/L	25	84	74	125			
Chloroform	228	ug/L	25	91	68	124			
Surr: 1,2-Dichloroethane-d4			25	108	71	139			
Surr: p-Bromofluorobenzene			25	103	80	127			
Surr: Toluene-d8			25	104	80	123			
Lab ID: B20011774-001HMSD	Sample Matrix Spike Duplicate								01/28/20 22:06
Bromodichloromethane	234	ug/L	25	94	74	128	3.5	20	
Bromoform	176	ug/L	25	70	66	128	1.0	20	
Chlorodibromomethane	209	ug/L	25	84	74	125	0.5	20	
Chloroform	243	ug/L	25	97	68	124	6.4	20	
Surr: 1,2-Dichloroethane-d4			25	111	71	139			
Surr: p-Bromofluorobenzene			25	105	80	127			
Surr: Toluene-d8			25	104	80	123			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/04/20

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E1632AM Analytical Run: ARSENIC SPECIATION_200130A									
Lab ID: ICV_10r Arsenic-III	Initial Calibration Verification Standard								01/30/20 11:54
	22.9	ug/L	5.0	92	87.6	114			
Lab ID: CCV_11r Arsenic-III	Continuing Calibration Verification Standard								01/30/20 12:06
	52.2	ug/L	5.0	104	85	115			
Lab ID: CCV_26r Arsenic-III	Continuing Calibration Verification Standard								01/30/20 16:25
	42.9	ug/L	5.0	86	85	115			
Method: E1632AM Batch: R151630									
Lab ID: MBLK_13r Arsenic-III	Method Blank						Run: ARSENIC SPECIATION_2001		01/30/20 12:30
	ND	ug/L	0.4						
Lab ID: LCS_14r Arsenic-III	Laboratory Control Sample						Run: ARSENIC SPECIATION_2001		01/30/20 12:42
	51.1	ug/L	5.0	102	85	115			
Lab ID: C20010793-004D MS Arsenic-III	Sample Matrix Spike						Run: ARSENIC SPECIATION_2001		01/30/20 15:47
	296	ug/L	5.0	119	78	121			
Lab ID: C20010793-004D MSD Arsenic-III	Sample Matrix Spike Duplicate						Run: ARSENIC SPECIATION_2001		01/30/20 16:01
	271	ug/L	5.0	109	78	121	8.8	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/24/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.1										Batch: GA-1182
Lab ID: MB-GA-1182	3	Method Blank					Run: TENNELEC-4_200128B			02/02/20 08:56
Gross Alpha minus Rn & U		0.5	pCi/L							
Gross Alpha minus Rn & U Precision ($\pm$)		0.3	pCi/L							
Gross Alpha minus Rn & U MDC		0.4	pCi/L							
Lab ID: LCS-GA-1182										02/02/20 08:56
	3	Laboratory Control Sample					Run: TENNELEC-4_200128B			02/02/20 08:56
Gross Alpha minus Rn & U		33	pCi/L	99		80	120			
Gross Alpha minus Rn & U Precision ($\pm$)		6.6	pCi/L							
Gross Alpha minus Rn & U MDC		0.39	pCi/L							
Lab ID: C20010793-008FDUP										02/02/20 08:56
	3	Sample Duplicate					Run: TENNELEC-4_200128B			02/02/20 08:56
Gross Alpha minus Rn & U		1.2	pCi/L					6.6	20	
Gross Alpha minus Rn & U Precision ($\pm$)		0.50	pCi/L							
Gross Alpha minus Rn & U MDC		0.39	pCi/L							

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/24/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0 Batch: RA226-9548_R										
Lab ID: LCS-RA226-9548	3	Laboratory Control Sample					Run: G542M_200128C			02/11/20 11:06
Radium 226		10	pCi/L	98		80	120			
Radium 226 precision (±)		2.0	pCi/L							
Radium 226 MDC		0.25	pCi/L							
Lab ID: MB-RA226-9548	3	Method Blank					Run: G542M_200128C			02/11/20 11:06
Radium 226		0.04	pCi/L							U
Radium 226 precision (±)		0.2	pCi/L							
Radium 226 MDC		0.3	pCi/L							
Lab ID: C20010801-003EDUP	3	Sample Duplicate					Run: G542M_200128C			02/11/20 13:31
Radium 226		8.9	pCi/L					22	20	R
Radium 226 precision (±)		1.8	pCi/L							
Radium 226 MDC		0.22	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 2.0.										
Method: E903.0 Batch: RA226-9564										
Lab ID: LCS-RA226-9564	3	Laboratory Control Sample					Run: G542M-2_200213A			02/24/20 11:10
Radium 226		11	pCi/L	108		80	120			
Radium 226 precision (±)		2.1	pCi/L							
Radium 226 MDC		0.23	pCi/L							
Lab ID: MB-RA226-9564	3	Method Blank					Run: G542M-2_200213A			02/24/20 11:10
Radium 226		0.3	pCi/L							
Radium 226 precision (±)		0.2	pCi/L							
Radium 226 MDC		0.3	pCi/L							
Lab ID: C20010793-005FDUP	3	Sample Duplicate					Run: G542M-2_200213A			02/24/20 11:10
Radium 226		8.7	pCi/L					0.2	20	
Radium 226 precision (±)		1.7	pCi/L							
Radium 226 MDC		0.20	pCi/L							
Lab ID: C20010793-006FDUP	3	Sample Duplicate					Run: G542M-2_200213A			02/24/20 11:10
Radium 226		9.7	pCi/L					13	20	
Radium 226 precision (±)		1.9	pCi/L							
Radium 226 MDC		0.19	pCi/L							
Lab ID: C20010793-007FDUP	3	Sample Duplicate					Run: G542M-2_200213A			02/24/20 11:10
Radium 226		21	pCi/L					3.0	20	
Radium 226 precision (±)		4.0	pCi/L							
Radium 226 MDC		0.21	pCi/L							

Qualifiers:

RL - Analyte Reporting Limit

R - Relative Percent Difference (RPD) exceeds advisory limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/24/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
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Method: E908.0

Batch: RA-TH-ISO-2992_R

Lab ID: MB-RA-TH-ISO-2992 3 Method Blank

Run: EGG-ORTEC_2_200205A 02/12/20 06:40

Thorium 230 0.05 pCi/L U

Thorium 230 precision (±) 0.07 pCi/L

Thorium 230 MDC 0.1 pCi/L

Lab ID: LCS-RA-TH-ISO-2992 3 Laboratory Control Sample

Run: EGG-ORTEC_2_200205A 02/12/20 06:40

Thorium 230 9.7 pCi/L 92 80 120

Thorium 230 precision (±) 1.8 pCi/L

Thorium 230 MDC 0.14 pCi/L

Lab ID: C20010929-006FDUP 3 Sample Duplicate

Run: EGG-ORTEC_2_200205A 02/12/20 06:40

Thorium 230 0.016 pCi/L 97 20 UR

Thorium 230 precision (±) 0.093 pCi/L

Thorium 230 MDC 0.19 pCi/L

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 2.0.

Method: E908.0

Batch: RA-TH-ISO-2993A_R

Lab ID: MB-RA-TH-ISO-2993 3 Method Blank

Run: EGG-ORTEC_200212B 02/13/20 15:18

Thorium 230 0.1 pCi/L U

Thorium 230 precision (±) 0.1 pCi/L

Thorium 230 MDC 0.2 pCi/L

Lab ID: LCS-RA-TH-ISO-2993 3 Laboratory Control Sample

Run: EGG-ORTEC_200212B 02/13/20 15:18

Thorium 230 13 pCi/L 120 80 120

Thorium 230 precision (±) 2.4 pCi/L

Thorium 230 MDC 0.31 pCi/L

Lab ID: C20010793-006FDUP 3 Sample Duplicate

Run: EGG-ORTEC_200212B 02/13/20 15:18

Thorium 230 0.049 pCi/L 70 20 UR

Thorium 230 precision (±) 0.095 pCi/L

Thorium 230 MDC 0.17 pCi/L

- The Sample and Duplicate are less than their respective MDCs and the RER is less than or equal to 2.

Qualifiers:

RL - Analyte Reporting Limit

R - Relative Percent Difference (RPD) exceeds advisory limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/24/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0										Batch: PB-210-1106
Lab ID: LCS-PB-210-1106	3	Laboratory Control Sample					Run: TRICARB LSC_200205A			02/10/20 19:01
Lead 210		23	pCi/L	113		80	120			
Lead 210 precision (±)		6.9	pCi/L							
Lead 210 MDC		2.0	pCi/L							
Lab ID: MB-PB-210-1106	3	Method Blank					Run: TRICARB LSC_200205A			02/10/20 20:08
Lead 210		-0.2	pCi/L							U
Lead 210 precision (±)		0.6	pCi/L							
Lead 210 MDC		1	pCi/L							
Lab ID: C20010793-002FMS	3	Sample Matrix Spike					Run: TRICARB LSC_200205A			02/11/20 10:57
Lead 210		48	pCi/L	119		70	130			
Lead 210 precision (±)		15	pCi/L							
Lead 210 MDC		4.0	pCi/L							
Lab ID: C20010793-002FMSD	3	Sample Matrix Spike Duplicate					Run: TRICARB LSC_200205A			02/11/20 12:01
Lead 210		42	pCi/L	104		70	130	13	20	
Lead 210 precision (±)		13	pCi/L							
Lead 210 MDC		3.8	pCi/L							

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010793

Report Date: 02/24/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-6184_R
Lab ID: LCS-228-RA226-9548	3	Laboratory Control Sample				Run: TENNELEC-4_200128D				02/06/20 13:32
Radium 228		8.3	pCi/L	87		80	120			
Radium 228 precision (±)		1.7	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: C20010801-003EDUP	3	Sample Duplicate				Run: TENNELEC-4_200128D				02/06/20 13:32
Radium 228		6.1	pCi/L					12		20
Radium 228 precision (±)		1.3	pCi/L							
Radium 228 MDC		0.97	pCi/L							
Lab ID: MB-RA226-9548	3	Method Blank				Run: TENNELEC-4_200128D				02/13/20 12:47
Radium 228		1	pCi/L							U
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Method: RA-05										Batch: RA228-6196
Lab ID: C20010793-005FDUP	3	Sample Duplicate				Run: TENNELEC-4_200213A				02/19/20 11:33
Radium 228		10	pCi/L					4.0		20
Radium 228 precision (±)		2.1	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: C20010793-006FDUP	3	Sample Duplicate				Run: TENNELEC-4_200213A				02/19/20 11:33
Radium 228		13	pCi/L					17		20
Radium 228 precision (±)		2.5	pCi/L							
Radium 228 MDC		1.0	pCi/L							
Lab ID: C20010793-007FDUP	3	Sample Duplicate				Run: TENNELEC-4_200213A				02/19/20 11:33
Radium 228		14	pCi/L					8.8		20
Radium 228 precision (±)		2.6	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: MB-RA226-9548	3	Method Blank				Run: TENNELEC-4_200213A				02/19/20 11:33
Radium 228		0.6	pCi/L							U
Radium 228 precision (±)		0.8	pCi/L							
Radium 228 MDC		1	pCi/L							
Lab ID: LCS-228-RA226-9548	3	Laboratory Control Sample				Run: TENNELEC-4_200213A				02/19/20 11:33
Radium 228		8.1	pCi/L	99		80	120			
Radium 228 precision (±)		1.7	pCi/L							
Radium 228 MDC		1.2	pCi/L							

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)



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ANALYTICAL SUMMARY REPORT

February 26, 2020

United Nuclear Corporation
21 Miles NE of Gallup
Gallup, NM 87305

Work Order: C20010792 Quote ID: C5406

Project Name: UNC-Zone 1

Energy Laboratories, Inc. Casper WY received the following 7 samples for United Nuclear Corporation on 1/24/2020 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C20010792-001	EPA-4	01/22/20 08:40	01/24/20	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Anions by Ion Chromatography pH Check for H2SO4 Preserved Inorganics Metals pH check by the Laboratory FIRST Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Radon and Uranium, Total pH Check for Nitric Radiochem FIRST Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic, Total Solids, Total Dissolved Solids, Total Dissolved - Calculated 624-Purgeable Organics 624-Purgeable Organics
C20010792-002	EPA-5	01/22/20 09:35	01/24/20	Aqueous	Same As Above

ANALYTICAL SUMMARY REPORT

C20010792-003	EPA-7	01/22/20 10:35	01/24/20	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Selenium-IV, Total Anions by Ion Chromatography pH Check for H2SO4 Preserved Inorganics Metals pH check by the Laboratory FIRST Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 CVAA Selenium Prep Gross Alpha minus Radon and Uranium, Total pH Check for Nitric Radiochem FIRST Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic, Total Solids, Total Dissolved Solids, Total Dissolved - Calculated 624-Purgeable Organics 624-Purgeable Organics
C20010792-004	EPA-2	01/22/20 11:42	01/24/20	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity Anion - Cation Balance Anions by Ion Chromatography pH Check for H2SO4 Preserved Inorganics Metals pH check by the Laboratory FIRST Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Radon and Uranium, Total pH Check for Nitric Radiochem FIRST Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic, Total Solids, Total Dissolved Solids, Total Dissolved - Calculated 624-Purgeable Organics 624-Purgeable Organics
C20010792-005	EPA-2 Duplicate	01/22/20 12:22	01/24/20	Aqueous	Same As Above
C20010792-006	Rinsate	01/22/20 13:00	01/24/20	Aqueous	Same As Above
C20010792-007	Field Blank	01/22/20 13:15	01/24/20	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

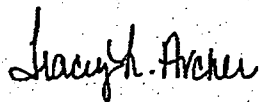
The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy

ANALYTICAL SUMMARY REPORT

Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



Digitally signed by
Tracey Archer
Date: 2020.02.26 11:01:11 -07:00



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CLIENT: United Nuclear Corporation
Project: UNC-Zone 1
Work Order: C20010792

Report Date: 02/26/20

CASE NARRATIVE

Tests associated with analyst identified as ELI-H were subcontracted to Energy Laboratories, 3161 E.Lyndale Ave., Helena, MT, EPA Number MT00945.

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/05/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										
Analytical Run: MANTECH_200127A										
Lab ID: ICV	Initial Calibration Verification Standard									
pH		6.88	s.u.	0.010	100	98	102			01/27/20 16:18
Method: A2320 B										
Batch: R255059										
Lab ID: MBLK	Method Blank									
Alkalinity, Total as CaCO ₃		ND	mg/L	2						Run: MANTECH_200127A 01/27/20 16:23
Lab ID: LCS										
Laboratory Control Sample										
Alkalinity, Total as CaCO ₃		251	mg/L	5.0	100	90	110			Run: MANTECH_200127A 01/27/20 16:30
Lab ID: C20010791-001ADUP										
Sample Duplicate										
Alkalinity, Total as CaCO ₃		415	mg/L	5.0				2.0	10	Run: MANTECH_200127A 01/27/20 18:03

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/05/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: TDS200127A
Lab ID: MB-1_200127A		Method Blank					Run: ORG_BAL3_C_200127A			01/27/20 09:38
Solids, Total Dissolved TDS @ 180 C		1.0	mg/L							
Lab ID: LCS-2_200127A										01/27/20 09:38
Solids, Total Dissolved TDS @ 180 C		989	mg/L	10	99	90	110			
Lab ID: C20010792-001A DUP										01/27/20 09:42
Solids, Total Dissolved TDS @ 180 C		4590	mg/L	39				0.7	5	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/05/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B								Analytical Run: PHSC_101-C_200127A		
Lab ID: 6.86	2	Initial Calibration Verification Standard							01/27/20 09:32	
pH		6.87	s.u.	0.010	100	98	102			
pH Measurement Temp		20.1	°C			0	0			
Method: A4500-H B								Batch: R255022		
Lab ID: C20010791-001ADUP	2	Sample Duplicate				Run: PHSC_101-C_200127A			01/27/20 11:29	
pH		6.53	s.u.	0.010				0.0	1.5	
pH Measurement Temp		15.1	°C							

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/05/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0										Analytical Run: IC3-C_200128A
Lab ID: ICV	2	Initial Calibration Verification Standard								01/28/20 11:58
Chloride		9.90	mg/L	1.0	99	90	110			
Sulfate		39.6	mg/L	1.0	99	90	110			
Method: E300.0										Batch: R255134
Lab ID: ICB	2	Method Blank								Run: IC3-C_200128A 01/28/20 12:18
Chloride		ND	mg/L	0.06						
Sulfate		ND	mg/L	0.2						
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC3-C_200128A 01/28/20 12:37
Chloride		10.1	mg/L	1.0	101	90	110			
Sulfate		40.4	mg/L	1.0	101	90	110			
Lab ID: C20010792-004AMS	2	Sample Matrix Spike								Run: IC3-C_200128A 01/29/20 03:00
Chloride		129	mg/L	1.0	103	80	120			
Sulfate		2760	mg/L	4.2		80	120			A
Lab ID: C20010792-004AMSD	2	Sample Matrix Spike Duplicate								Run: IC3-C_200128A 01/29/20 03:19
Chloride		130	mg/L	1.0	104	80	120	0.4	20	
Sulfate		2770	mg/L	4.2		80	120	0.4	20	A

Qualifiers:

RL - Analyte Reporting Limit

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated

ND - Not detected at the Reporting Limit (RL)



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/05/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E350.1								Analytical Run: FIA201-C_200129A		
Lab ID: ICV	Initial Calibration Verification Standard									01/29/20 12:17
Nitrogen, Ammonia as N		1.05	mg/L	0.050	105	90	110			
Method: E350.1								Batch: R255117		
Lab ID: MBLK	Method Blank					Run: FIA201-C_200129A			01/29/20 12:16	
Nitrogen, Ammonia as N		ND	mg/L	0.02						
Lab ID: LFB	Laboratory Fortified Blank					Run: FIA201-C_200129A			01/29/20 12:18	
Nitrogen, Ammonia as N		1.00	mg/L	0.050	101	90	110			
Lab ID: C20010782-004DMS	Sample Matrix Spike					Run: FIA201-C_200129A			01/29/20 12:37	
Nitrogen, Ammonia as N		1.03	mg/L	0.050	85	90	110			S
Lab ID: C20010782-004DMSD	Sample Matrix Spike Duplicate					Run: FIA201-C_200129A			01/29/20 12:38	
Nitrogen, Ammonia as N		1.02	mg/L	0.050	84	90	110	1.0	10	S

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/05/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2 Analytical Run: FIA201-C_200129B										
Lab ID: ICV	Initial Calibration Verification Standard									
Nitrogen, Nitrate+Nitrite as N		0.958	mg/L	0.010	96	90	110			01/29/20 14:54
Method: E353.2 Batch: R255143										
Lab ID: MBLK	Method Blank									
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.008						01/29/20 14:55
Lab ID: LFB	Laboratory Fortified Blank									
Nitrogen, Nitrate+Nitrite as N		0.998	mg/L	0.010	101	90	110			01/29/20 14:56
Lab ID: C20010782-004DMS	Sample Matrix Spike									
Nitrogen, Nitrate+Nitrite as N		1.06	mg/L	0.010	101	90	110			01/29/20 15:27
Lab ID: C20010782-004DMSD	Sample Matrix Spike Duplicate									
Nitrogen, Nitrate+Nitrite as N		1.09	mg/L	0.010	104	90	110	2.8	10	01/29/20 15:28
Method: E353.2 Analytical Run: FIA201-C_200204A										
Lab ID: ICV	Initial Calibration Verification Standard									
Nitrogen, Nitrate+Nitrite as N		0.954	mg/L	0.010	95	90	110			02/04/20 13:55
Method: E353.2 Batch: R255312										
Lab ID: MBLK	Method Blank									
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.008						02/04/20 13:56
Lab ID: LFB	Laboratory Fortified Blank									
Nitrogen, Nitrate+Nitrite as N		1.00	mg/L	0.010	101	90	110			02/04/20 13:57
Lab ID: C20010792-002EMS	Sample Matrix Spike									
Nitrogen, Nitrate+Nitrite as N		32.1	mg/L	0.10	94	90	110			02/04/20 14:01
Lab ID: C20010792-002EMSD	Sample Matrix Spike Duplicate									
Nitrogen, Nitrate+Nitrite as N		32.0	mg/L	0.10	93	90	110	0.3	10	02/04/20 14:02

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/26/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Analytical Run: ICP4-C_200129A
Lab ID: QCS	4	Initial Calibration Verification Standard								01/29/20 16:02
Calcium		40.8	mg/L	0.50	102	90	110			
Magnesium		41.1	mg/L	0.50	103	90	110			
Potassium		40.0	mg/L	0.50	100	90	110			
Sodium		40.6	mg/L	0.50	102	90	110			
Method: E200.7										Batch: R255141
Lab ID: MB-6300DIS200129A	4	Method Blank								Run: ICP4-C_200129A 01/29/20 15:49
Calcium		ND	mg/L	0.003						
Magnesium		ND	mg/L	0.009						
Potassium		0.10	mg/L	0.04						
Sodium		ND	mg/L	0.02						
Lab ID: LFB-6300DIS200129A	4	Laboratory Fortified Blank								Run: ICP4-C_200129A 01/29/20 15:58
Calcium		50.8	mg/L	0.50	102	85	115			
Magnesium		52.4	mg/L	0.50	105	85	115			
Potassium		49.7	mg/L	0.50	99	85	115			
Sodium		50.7	mg/L	0.50	101	85	115			
Lab ID: C20010776-001BMS2	4	Sample Matrix Spike								Run: ICP4-C_200129A 01/29/20 19:12
Calcium		2660	mg/L	1.0	103	70	130			
Magnesium		2600	mg/L	1.0	104	70	130			
Potassium		2590	mg/L	2.0	102	70	130			
Sodium		7850	mg/L	1.2	96	70	130			
Lab ID: C20010776-001BMSD	4	Sample Matrix Spike Duplicate								Run: ICP4-C_200129A 01/29/20 19:25
Calcium		2620	mg/L	1.0	102	70	130	1.4	20	
Magnesium		2590	mg/L	1.0	103	70	130	0.5	20	
Potassium		2540	mg/L	2.0	100	70	130	1.9	20	
Sodium		7780	mg/L	1.2	93	70	130	0.9	20	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/26/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Analytical Run: ICP4-C_200130A
Lab ID: QCS	2	Initial Calibration Verification Standard								01/30/20 22:00
Magnesium		39.8	mg/L	0.50	99	95	105			
Potassium		40.2	mg/L	0.50	100	95	105			
Method: E200.7										Batch: R255185
Lab ID: MB-6300DIS200130A	2	Method Blank								Run: ICP4-C_200130A 01/30/20 21:46
Magnesium		ND	mg/L	0.009						
Potassium		0.1	mg/L	0.04						
Lab ID: LFB-6300DIS200130A	2	Laboratory Fortified Blank								Run: ICP4-C_200130A 01/30/20 21:56
Magnesium		49.5	mg/L	0.50	99	85	115			
Potassium		49.9	mg/L	0.50	100	85	115			
Lab ID: C20010744-006CMS2	2	Sample Matrix Spike								Run: ICP4-C_200130A 01/30/20 23:40
Magnesium		74.0	mg/L	0.50	102	70	130			
Potassium		53.5	mg/L	0.50	102	70	130			
Lab ID: C20010744-006CMSD	2	Sample Matrix Spike Duplicate								Run: ICP4-C_200130A 01/30/20 23:44
Magnesium		74.3	mg/L	0.50	103	70	130	0.4	20	
Potassium		54.2	mg/L	0.50	104	70	130	1.3	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/26/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	E200.8	Analytical Run: ICPMS5-C_200128A								
Lab ID:	QCS	12 Initial Calibration Verification Standard								01/28/20 21:24
Aluminum		0.266	mg/L	0.030	106	90	110			
Arsenic		0.0496	mg/L	0.0010	99	90	110			
Beryllium		0.0246	mg/L	0.0010	98	90	110			
Cadmium		0.0247	mg/L	0.0010	99	90	110			
Cobalt		0.0495	mg/L	0.0050	99	90	110			
Lead		0.0486	mg/L	0.0010	97	90	110			
Manganese		0.246	mg/L	0.0010	98	90	110			
Molybdenum		0.0477	mg/L	0.0010	95	90	110			
Nickel		0.0491	mg/L	0.0050	98	90	110			
Selenium		0.0500	mg/L	0.0010	100	90	110			
Uranium		0.0188	mg/L	0.00030	94	90	110			
Vanadium		0.0479	mg/L	0.010	96	90	110			
Method:	E200.8									Batch: 56615
Lab ID:	MB-56615D	12 Method Blank				Run: ICPMS5-C_200128A			01/28/20 14:25	
Aluminum		ND	mg/L	0.02						
Arsenic		ND	mg/L	8E-05						
Beryllium		ND	mg/L	0.0001						
Cadmium		ND	mg/L	2E-05						
Cobalt		ND	mg/L	0.0002						
Lead		ND	mg/L	0.0001						
Manganese		ND	mg/L	0.002						
Molybdenum		ND	mg/L	0.0003						
Nickel		ND	mg/L	0.0001						
Selenium		ND	mg/L	0.0002						
Uranium		ND	mg/L	0.0001						
Vanadium		0.0007	mg/L	0.0006						
Lab ID:	LCS3-56615	12 Laboratory Control Sample				Run: ICPMS5-C_200128A			01/28/20 14:34	
Aluminum		2.45	mg/L	0.016	98	85	115			
Arsenic		0.483	mg/L	0.0010	97	85	115			
Beryllium		0.230	mg/L	0.0010	92	85	115			
Cadmium		0.241	mg/L	0.0010	96	85	115			
Cobalt		0.484	mg/L	0.0010	97	85	115			
Lead		0.501	mg/L	0.0010	100	85	115			
Manganese		2.54	mg/L	0.0015	102	85	115			
Molybdenum		0.445	mg/L	0.0010	89	85	115			
Nickel		0.485	mg/L	0.0010	97	85	115			
Selenium		0.474	mg/L	0.0010	95	85	115			
Uranium		0.509	mg/L	0.00030	102	85	115			
Vanadium		0.486	mg/L	0.0010	97	85	115			
Lab ID:	C20010792-001CMS3	12 Sample Matrix Spike				Run: ICPMS5-C_200128A			01/28/20 21:50	
Aluminum		2.63	mg/L	0.032	105	70	130			
Arsenic		0.549	mg/L	0.0010	110	70	130			
Beryllium		0.240	mg/L	0.0010	96	70	130			

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/26/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 56615
Lab ID: C20010792-001CMS3	12	Sample Matrix Spike		Run: ICPMS5-C_200128A				01/28/20 21:50		
Cadmium		0.248	mg/L	0.0010	99	70	130			
Cobalt		0.541	mg/L	0.0050	108	70	130			
Lead		0.524	mg/L	0.0010	105	70	130			
Manganese		5.75	mg/L	0.0030	112	70	130			
Molybdenum		0.494	mg/L	0.0010	99	70	130			
Nickel		0.517	mg/L	0.0050	103	70	130			
Selenium		0.577	mg/L	0.0010	115	70	130			
Uranium		0.569	mg/L	0.00030	114	70	130			
Vanadium		0.545	mg/L	0.010	109	70	130			
Lab ID: C20010792-001CMSD	12	Sample Matrix Spike Duplicate		Run: ICPMS5-C_200128A				01/28/20 21:54		
Aluminum		2.61	mg/L	0.032	104	70	130	0.6	20	
Arsenic		0.543	mg/L	0.0010	108	70	130	1.2	20	
Beryllium		0.235	mg/L	0.0010	94	70	130	2.1	20	
Cadmium		0.244	mg/L	0.0010	98	70	130	1.5	20	
Cobalt		0.538	mg/L	0.0050	107	70	130	0.5	20	
Lead		0.520	mg/L	0.0010	104	70	130	0.8	20	
Manganese		5.73	mg/L	0.0030	112	70	130	0.2	20	
Molybdenum		0.497	mg/L	0.0010	99	70	130	0.6	20	
Nickel		0.515	mg/L	0.0050	103	70	130	0.3	20	
Selenium		0.570	mg/L	0.0010	114	70	130	1.2	20	
Uranium		0.573	mg/L	0.00030	114	70	130	0.6	20	
Vanadium		0.538	mg/L	0.010	108	70	130	1.2	20	
Method: E200.8										Analytical Run: ICPMS5-C_200224A
Lab ID: QCS	3	Initial Calibration Verification Standard						02/24/20 10:38		
Arsenic		0.0493	mg/L	0.0010	99	90	110			
Lead		0.0491	mg/L	0.0010	98	90	110			
Manganese		0.246	mg/L	0.0010	98	90	110			
Method: E200.8										Batch: 56615
Lab ID: MB-56615D	3	Method Blank		Run: ICPMS5-C_200224A				02/24/20 13:00		
Arsenic		ND	mg/L	8E-05						
Lead		ND	mg/L	0.0001						
Manganese		ND	mg/L	0.002						

Qualifiers:

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/05/20

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E624.1 Analytical Run: R334918									
Lab ID: CCV020320	Continuing Calibration Verification Standard								02/03/20 10:41
Bromodichloromethane	4.96	ug/L	0.50	99	70	130			
Bromoform	5.08	ug/L	0.50	102	70	130			
Chlorodibromomethane	5.09	ug/L	0.50	102	70	130			
Chloroform	4.58	ug/L	0.50	92	70	130			
Surr: 1,2-Dichloroethane-d4			0.50	102	71	139			
Surr: p-Bromofluorobenzene			0.50	106	80	127			
Surr: Toluene-d8			0.50	107	80	123			
Method: E624.1 Batch: R334918									
Lab ID: LCS020320	Laboratory Control Sample								02/03/20 11:08
Bromodichloromethane	5.02	ug/L	0.50	100	74	128			
Bromoform	5.20	ug/L	0.50	104	70	130			
Chlorodibromomethane	5.41	ug/L	0.50	108	74	125			
Chloroform	4.73	ug/L	0.50	95	70	135			
Surr: 1,2-Dichloroethane-d4			0.50	104	71	139			
Surr: p-Bromofluorobenzene			0.50	105	80	127			
Surr: Toluene-d8			0.50	106	80	123			
Lab ID: MBLK020320	Method Blank								02/03/20 12:03
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			0.50	103	71	139			
Surr: p-Bromofluorobenzene			0.50	99	80	127			
Surr: Toluene-d8			0.50	103	80	123			
Lab ID: C20010792-001GMS	Sample Matrix Spike								02/03/20 21:39
Bromodichloromethane	5.16	ug/L	0.50	103	74	128			
Bromoform	5.13	ug/L	0.50	103	66	128			
Chlorodibromomethane	5.33	ug/L	0.50	107	74	125			
Chloroform	4.94	ug/L	0.50	99	68	124			
Surr: 1,2-Dichloroethane-d4			0.50	110	71	139			
Surr: p-Bromofluorobenzene			0.50	108	80	127			
Surr: Toluene-d8			0.50	108	80	123			
Lab ID: C20010792-001GMSD	Sample Matrix Spike Duplicate								02/03/20 22:07
Bromodichloromethane	5.26	ug/L	0.50	105	74	128	1.9	20	
Bromoform	4.99	ug/L	0.50	100	66	128	2.8	20	
Chlorodibromomethane	5.59	ug/L	0.50	112	74	125	4.7	20	
Chloroform	5.22	ug/L	0.50	104	68	124	5.6	20	
Surr: 1,2-Dichloroethane-d4			0.50	111	71	139			
Surr: p-Bromofluorobenzene			0.50	104	80	127			
Surr: Toluene-d8			0.50	107	80	123			

Qualifiers:

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ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/03/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A3114 C										
tical Run: SELENIUM PSA MILLENIUM_200129B										
Lab ID: ICV	Initial Calibration Verification Standard									
Selenium-IV	0.0198	mg/L	0.0010	99	90	110				01/29/20 16:01
Lab ID: CCV	Continuing Calibration Verification Standard									
Selenium-IV	0.0200	mg/L	0.0010	100	90	110				01/29/20 16:02
Method: A3114 C										
Batch: 50005										
Lab ID: MB-50005	Method Blank									
Selenium-IV	ND	mg/L	0.0009							Run: SELENIUM PSA MILLENIUM_ 01/29/20 16:05
Lab ID: LFB-50005	Laboratory Fortified Blank									
Selenium-IV	0.0209	mg/L	0.0010	105	85	115				Run: SELENIUM PSA MILLENIUM_ 01/29/20 16:07
Lab ID: C20010792-003DMS	Sample Matrix Spike									
Selenium-IV	0.0224	mg/L	0.0010	112	70	130				Run: SELENIUM PSA MILLENIUM_ 01/29/20 16:10
Lab ID: C20010792-003DMSD	Sample Matrix Spike Duplicate									
Selenium-IV	0.0217	mg/L	0.0010	109	70	130	3.1	20		Run: SELENIUM PSA MILLENIUM_ 01/29/20 16:12

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/14/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.1										Batch: GA-1181
Lab ID: MB-GA-1181	3	Method Blank					Run: TENNELEC-4_200128A			01/31/20 15:23
Gross Alpha minus Rn & U		0.5	pCi/L							
Gross Alpha minus Rn & U Precision ($\pm$)		0.4	pCi/L							
Gross Alpha minus Rn & U MDC		0.5	pCi/L							
Lab ID: LCS-GA-1181	3	Laboratory Control Sample					Run: TENNELEC-4_200128A			01/31/20 15:23
Gross Alpha minus Rn & U		31	pCi/L	92		80	120			
Gross Alpha minus Rn & U Precision ($\pm$)		6.2	pCi/L							
Gross Alpha minus Rn & U MDC		0.48	pCi/L							
Lab ID: C20010739-001FDUP	3	Sample Duplicate					Run: TENNELEC-4_200128A			01/31/20 15:23
Gross Alpha minus Rn & U		0.28	pCi/L					17	20	U
Gross Alpha minus Rn & U Precision ($\pm$)		0.33	pCi/L							
Gross Alpha minus Rn & U MDC		0.48	pCi/L							

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/14/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-9548_R
Lab ID: LCS-RA226-9548	3	Laboratory Control Sample				Run: G542M_200128C				02/11/20 11:06
Radium 226		10	pCi/L		98	80	120			
Radium 226 precision (±)		2.0	pCi/L							
Radium 226 MDC		0.25	pCi/L							
Lab ID: MB-RA226-9548	3	Method Blank				Run: G542M_200128C				02/11/20 11:06
Radium 226		0.04	pCi/L							U
Radium 226 precision (±)		0.2	pCi/L							
Radium 226 MDC		0.3	pCi/L							
Lab ID: C20010801-003EDUP	3	Sample Duplicate				Run: G542M_200128C				02/11/20 13:31
Radium 226		8.9	pCi/L					22	20	R
Radium 226 precision (±)		1.8	pCi/L							
Radium 226 MDC		0.22	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 2.0.

Qualifiers:

RL - Analyte Reporting Limit

R - Relative Percent Difference (RPD) exceeds advisory limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/14/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0										Batch: RA-TH-ISO-2992
Lab ID: MB-RA-TH-ISO-2992	3	Method Blank						Run: EGG-ORTEC_2_200205A		02/12/20 06:40
Thorium 230		0.05	pCi/L							U
Thorium 230 precision (±)		0.07	pCi/L							
Thorium 230 MDC		0.1	pCi/L							
Lab ID: LCS-RA-TH-ISO-2992	3	Laboratory Control Sample						Run: EGG-ORTEC_2_200205A		02/12/20 06:40
Thorium 230		9.7	pCi/L	92		80	120			
Thorium 230 precision (±)		1.8	pCi/L							
Thorium 230 MDC		0.14	pCi/L							
Lab ID: C20010929-006FDUP	3	Sample Duplicate						Run: EGG-ORTEC_2_200205A		02/12/20 06:40
Thorium 230		0.016	pCi/L					97	20	UR
Thorium 230 precision (±)		0.093	pCi/L							
Thorium 230 MDC		0.19	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 2.0.										

Method: E908.0										Batch: RA-TH-ISO-2991_R
Lab ID: MB-RA-TH-ISO-2991	3	Method Blank						Run: EGG-ORTEC_200205A		02/12/20 06:38
Thorium 230		0.002	pCi/L							U
Thorium 230 precision (±)		0.07	pCi/L							
Thorium 230 MDC		0.1	pCi/L							
Lab ID: LCS-RA-TH-ISO-2991	3	Laboratory Control Sample						Run: EGG-ORTEC_200205A		02/12/20 06:38
Thorium 230		9.7	pCi/L	91		80	120			
Thorium 230 precision (±)		1.8	pCi/L							
Thorium 230 MDC		0.18	pCi/L							
Lab ID: C20010755-005FDUP	3	Sample Duplicate						Run: EGG-ORTEC_200205A		02/12/20 06:38
Thorium 230		0.056	pCi/L					150	20	UR
Thorium 230 precision (±)		0.10	pCi/L							
Thorium 230 MDC		0.18	pCi/L							
- The Sample and Duplicate are less than their respective MDCs and the RER is less than or equal to 2.										

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/14/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0										Batch: PB-210-1104
Lab ID: LCS-PB-210-1104	3	Laboratory Control Sample				Run: TRICARB LSC_200129A				02/06/20 16:22
Lead 210		17	pCi/L		85	80	120			
Lead 210 precision (±)		5.3	pCi/L							
Lead 210 MDC		1.6	pCi/L							
Lab ID: MB-PB-210-1104	3	Method Blank				Run: TRICARB LSC_200129A				02/06/20 17:35
Lead 210		0.02	pCi/L							U
Lead 210 precision (±)		0.5	pCi/L							
Lead 210 MDC		0.9	pCi/L							
Lab ID: C20010755-001FMS	3	Sample Matrix Spike				Run: TRICARB LSC_200129A				02/07/20 19:22
Lead 210		36	pCi/L		90	70	130			
Lead 210 precision (±)		11	pCi/L							
Lead 210 MDC		3.3	pCi/L							
Lab ID: C20010755-001FMSD	3	Sample Matrix Spike Duplicate				Run: TRICARB LSC_200129A				02/07/20 20:33
Lead 210		36	pCi/L		87	70	130	2.3	20	
Lead 210 precision (±)		11	pCi/L							
Lead 210 MDC		3.3	pCi/L							

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010792

Report Date: 02/14/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05										Batch: RA228-6184_R
Lab ID: LCS-228-RA226-9548	3	Laboratory Control Sample								
Radium 228		8.3	pCi/L	87		80	120			Run: TENNELEC-4_200128D 02/06/20 13:32
Radium 228 precision ($\pm$)		1.7	pCi/L							
Radium 228 MDC		1.1	pCi/L							
Lab ID: C20010801-003EDUP	3	Sample Duplicate								
Radium 228		6.1	pCi/L					12	20	Run: TENNELEC-4_200128D 02/06/20 13:32
Radium 228 precision ($\pm$)		1.3	pCi/L							
Radium 228 MDC		0.97	pCi/L							
Lab ID: MB-RA226-9548	3	Method Blank								
Radium 228		1	pCi/L							Run: TENNELEC-4_200128D 02/13/20 12:47
Radium 228 precision ($\pm$)		0.7	pCi/L							U
Radium 228 MDC		1	pCi/L							

Qualifiers:

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**ANALYTICAL SUMMARY REPORT**

February 10, 2020

United Nuclear Corporation
21 Miles NE of Gallup
Gallup, NM 87305

Work Order: C20010971

Project Name: UNC-Zone 3

Energy Laboratories, Inc. Casper WY received the following 4 samples for United Nuclear Corporation on 1/31/2020 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C20010971-001	NBL-2	01/29/20 10:35	01/31/20	Aqueous	Alkalinity Anions by Ion Chromatography pH Solids, Total Dissolved
C20010971-002	NW-4	01/29/20 12:00	01/31/20	Aqueous	Same As Above
C20010971-003	NW-5	01/29/20 12:25	01/31/20	Aqueous	Same As Above
C20010971-004	RW-A	01/29/20 12:45	01/31/20	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:

Tracey H. Archer
Project Manager

Digitally signed by
Tracey Archer
Date: 2020.02.10 15:56:29 -07:00



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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010971

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B Analytical Run: MANTECH_200204A										
Lab ID: ICV	Initial Calibration Verification Standard 02/04/20 12:52									
pH		6.88	s.u.	0.010	100	98	102			
Method: A2320 B Batch: R255309										
Lab ID: MBLK	Method Blank Run: MANTECH_200204A 02/04/20 12:56									
Alkalinity, Total as CaCO ₃		8	mg/L	2						
Lab ID: LCS	Laboratory Control Sample Run: MANTECH_200204A 02/04/20 13:01									
Alkalinity, Total as CaCO ₃		1000	mg/L	5.0	100	90	110			
Lab ID: C20010886-005ADUP	Sample Duplicate Run: MANTECH_200204A 02/04/20 13:13									
Alkalinity, Total as CaCO ₃		3490	mg/L	5.0				2.3	10	
Method: A2320 B Analytical Run: MANTECH_200206B										
Lab ID: ICV	Initial Calibration Verification Standard 02/06/20 13:51									
pH		6.92	s.u.	0.010	101	98	102			
Method: A2320 B Batch: R255427										
Lab ID: MBLK	Method Blank Run: MANTECH_200206B 02/06/20 13:56									
Alkalinity, Total as CaCO ₃		ND	mg/L	2						
Lab ID: LCS	Laboratory Control Sample Run: MANTECH_200206B 02/06/20 14:04									
Alkalinity, Total as CaCO ₃		248	mg/L	5.0	99	90	110			
Lab ID: C20010971-002ADUP	Sample Duplicate Run: MANTECH_200206B 02/06/20 14:16									
Alkalinity, Total as CaCO ₃		10.7	mg/L	5.0				0.4	10	

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010971

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: TDS200204A
Lab ID: MB-1_200204A		Method Blank					Run: ORG_BAL3_C_200204B		02/04/20 10:32	
Solids, Total Dissolved TDS @ 180 C	2	mg/L								
Lab ID: LCS-2_200204A		Laboratory Control Sample					Run: ORG_BAL3_C_200204B		02/04/20 10:33	
Solids, Total Dissolved TDS @ 180 C	1010	mg/L		10	102	90	110			
Lab ID: C20010934-001A DUP		Sample Duplicate					Run: ORG_BAL3_C_200204B		02/04/20 10:43	
Solids, Total Dissolved TDS @ 180 C	315	mg/L		10				0.8	5	

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010971

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B								Analytical Run: PHSC_101-C_200203A		
Lab ID: 6.86	2	Initial Calibration Verification Standard							02/03/20 11:05	
pH		6.87	s.u.	0.010	100	98	102			
pH Measurement Temp		20.0	°C			0	0			
Method: A4500-H B								Batch: R255244		
Lab ID: C20010971-001ADUP	2	Sample Duplicate				Run: PHSC_101-C_200203A			02/03/20 11:42	
pH		7.15	s.u.	0.010				0.1	1.5	
pH Measurement Temp		11.1	°C							

Qualifiers:

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QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Work Order: C20010971

Report Date: 02/07/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method:	E300.0								Analytical Run: IC3-C_200204A		
Lab ID:	ICV	Initial Calibration Verification Standard							02/04/20 15:25		
Chloride		9.93	mg/L	1.0	99	90	110				
Method:	E300.0								Batch: R255389		
Lab ID:	ICB	Method Blank				Run: IC3-C_200204A			02/04/20 15:44		
Chloride		ND	mg/L	0.06							
Lab ID:	LFB	Laboratory Fortified Blank				Run: IC3-C_200204A			02/04/20 16:04		
Chloride		9.89	mg/L	1.0	99	90	110				
Lab ID:	C20010971-003AMS	Sample Matrix Spike				Run: IC3-C_200204A			02/05/20 06:27		
Chloride		230	mg/L	2.1	102	80	120				
Lab ID:	C20010971-003AMSD	Sample Matrix Spike Duplicate				Run: IC3-C_200204A			02/05/20 06:46		
Chloride		232	mg/L	2.1	103	80	120	1.1	20		

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

SEMI-ANNUAL GROUND WATER
AND ENVIRONMENTAL
MONITORING REPORT

FIRST HALF OF 2020
(JANUARY THRU JUNE)

QUARTERLY SAMPLING
SEMI-ANNUAL GROUND WATER MONITORING REPORT
JANUARY TO JUNE OF 2020
FIELD DATA SHEET OF
FIRST AND SECOND QUARTER

CONTROLS

SW ALLUVIUM

ZONE – 1

ZONE – 3

GROUND WATER FIELD MONITORING WATER ELEVATIONS, pH, CONDUCTIVITY AND TEMPERATURE

MONTH: January & February

QUARTER: First

YEAR: 2020

SOUTHWEST ALLUVIUM

WELL NO.	DEPTH SAMPLE DATE/TIME	DEPTH TO WATER (FT)	REF. ELEV.	TOP OF WATER ELEV.	FIELD COND. (US/CM)	FIELD pH (UNITS)	FIELD TEMP. (°C)
509-D	1-27 0846	86.01	6949.50	6863.49	6,930	6.58	9.1
624	1-28 1136	57.25	6898.70	6841.45	5,540	6.54	11.6
627	1-29 0818	63.46	6892.40	6828.94	4,560	7.02	10.0
632	1-27 1325	51.13	6903.60	6852.47	6,640	6.57	10.8
801	1-27 1416	58.55	6904.30	6845.75	6,300	6.79	9.2
802	1-27 1235	54.64	6907.10	6852.46	6,650	6.60	10.3
803	1-27 1050	69.10	6922.60	6853.50	6,080	6.64	9.9
808	1-27 1135	56.34	6910.70	6854.36	6,620	6.59	10.6
GW-1	1-28 0850	68.36	6916.50	6848.14	6,160	6.67	10.4
GW-2			6912.90				
GW-3			6910.00				
EPA-23	1-27 0955	62.60	6926.50	6863.90	4,910	6.67	10.4
EPA-25	1-29 0925	59.81	6903.40	6843.59	4,840	6.81	10.3
EPA-28	1-28 0950	69.21	6917.90	6848.69	4,660	6.89	11.6
EPA-28 DUP (QA/QC)	1-28 1040	69.62	6917.90	6848.28	4,670	6.85	12.0
SBL-1	1-28 1225	51.51	6896.30	6844.79	7,540	6.56	12.3
805	2-5 1010	60.82	6915.60	6854.78			
807	2-5 1003	65.29	6923.40	6858.11			
RINSATE (QA/QC)	1-29 1105				3	6.78	8.9
FIELD BLANK (QA/QC)	1-29 1130				3	6.01	15.3

COMMENTS: No sample or measurement for well GW-2 and GW-3 due to unsafe conditions.

Well 632 water level dropped 5.14' during sample. Delayed water level only measurements until 2-5-20
due to muddy road conditions.

GROUND WATER FIELD MONITORING WATER ELEVATIONS, pH, CONDUCTIVITY AND TEMPERATURE

MONTH: January & February

QUARTER: First

YEAR: 2020

ZONE - 1

WELL NO.	DEPTH SAMPLE DATE/TIME	DEPTH TO WATER (FT)	REF. ELEV.	TOP OF WATER ELEV.	FIELD COND. (US/CM)	FIELD pH (UNITS)	FIELD TEMP. (°C)
515-A	1-15 1225	108.30	7008.80	6900.50	9,310	7.19	12.4
604	1-15 1358	107.40	7006.00	6898.60	6,210	5.65	12.3
614	1-15 0905	106.81	7012.00	6905.19	7,100	6.46	11.7
TWQ-142	1-21 1340	203.71	6983.40	6779.69	1,930	7.84	10.7
EPA-2	1-22 1142	176.07	7019.50	6843.43	3,460	6.83	12.0
EPA-2 DUP (QA/QC)	1-22 1222	176.92	7019.50	6842.58	3,550	6.79	12.5
EPA-4	1-22 0840	209.94	7069.80	6859.86	4,250	6.77	12.1
EPA-5	1-22 0935	128.87	7011.50	6882.63	4,280	6.04	13.0
EPA-7	1-22 1035	118.58	7011.70	6893.12	6,900	6.19	11.9
Rinsate (QA/QC)	1-22 1300				2	6.61	12.4
Field Blank (QA/QC)	1-22 1315				3	6.60	17.2
TWQ-143	2-5 1434	oil layer @ 210.11	6989.60	oil layer @ 6779.49			
EPA-8	2-5 1042	217.50	7076.40	6858.90			
505-A	2-5 1145	123.73	6963.10	6839.37			
502-A	2-5 1209	197.10	7025.30	6828.20			
501-A	2-5 1228	213.48	7048.00	6834.52			
504-A	2-5 1314	201.50	7001.40	6799.90			
412	2-5 1323	186.90	6979.40	6792.50			

COMMENTS: Well 515-A Water level dropped 4.49' during sample. Well TWQ-143 is measured to top layer oil level not water level. Wells 515-A, 604 and 614 samples were sent to Energy Labs as possible 11e.(2) By product material.

GROUND WATER FIELD MONITORING

WATER ELEVATIONS, pH, CONDUCTIVITY AND TEMPERATURE

MONTH: January & February

QUARTER: First

YEAR: 2020

ZONE - 3

WELL NO.	DEPTH SAMPLE DATE/TIME	DEPTH TO WATER (FT)	REF. ELEV.	TOP OF WATER ELEV.	FIELD COND. (US/CM)	FIELD pH (UNITS)	FIELD TEMP. (°C)
504-B	2-5 1318	dry @ 171.0	7001.80				
517	1-20 0847	108.66	6971.29	6862.63	6,000	2.76	8.6
EPA-14	1-14 1124	126.91	6963.88	6836.97	3,520	5.66	13.3
420	1-20 1205	158.48	6982.60	6824.12	3,640	7.34	10.7
711	1-21 0926	185.71	7042.75	6857.04	4,850	3.84	7.4
613	1-14 1415	80.30	6961.30	6881.00	8,450	2.95	12.7
708	1-15 1125	160.53	7011.73	6851.20	5,150	3.69	12.7
NBL-1	2-5 1415	mud @ 197.88	6991.96				
EPA-9	2-5 1054	170.70	7076.60	6905.90			
EPA-13	1-20 1345	170.49	7031.66	6861.17	6,480	5.98	10.5
702	2-5 1122	84.15	6974.20	6890.05			
710	2-5 1242	167.46	7016.36	6848.90			
712	2-5 1258	177.97	7022.16	6844.19			
713	2-5 1307	169.20	7024.19	6854.99			
714	2-5 1153	108.62	6962.54	6853.92			
701	2-5 1139	85.49	6961.30	6875.81			
706	2-5 1200	117.72	6972.12	6854.40			
707	2-5 1249	163.98	7005.20	6841.22			
717	1-14 0905	137.17	6972.07	6834.90	5,130	3.52	12.7
717 DUPL (QA/QC)	1-14 1300	138.27	6972.07	6833.80	5,200	3.49	13.1
719	1-20 1050	171.36	7001.48	6830.12	5,390	5.44	10.8
402	2-5 1330	138.12	6968.20	6830.08			
446	2-5 1458	oil layer @ 159.60	6998.30	oil layer @ 6838.70			
424**	2-5 1343	144.60	6972.62	6828.02			

COMMENTS: Well 517 required a 24 hr. recharge to resume/collect full sample. Samples were collected for wells 717, 719 and 708 after pump repair. Wells EPA-14, 613, 708 and 717 samples were sent to Energy Labs as possible 11e.(2) By product material.

GROUND WATER FIELD MONITORING WATER ELEVATIONS, pH, CONDUCTIVITY AND TEMPERATURE

MONTH: January & February

QUARTER: First

YEAR: 2020

SUPPLEMENTAL

ZONE -3

[illegible]

COMMENTS: Extraction wells NW-5, RW-A, RW-11 RW-16 and RW-17 were shut off on 1-14-20 and restarted on 1-24-20 @ 1058-1129 in order to collect samples.
RW-16 did not restart until 1-29-20 due to pump failure.

NBL-1, NBL-2, RW-A & PB WELL GROUND WATER MONITORING WATER ELEVATIONS, pH, CONDUCTIVITY, TITRATION AND TEMPERATURE

MONTH: January, February & March

QUARTER: First

YEAR: 2020

ZONE - 3

WELL NO.	DEPTH SAMPLE DATE/TIME	DEPTH TO WATER (FT)	REF. ELEV.	TOP OF WATER ELEV.	FIELD COND. (US/CM)	FIELD pH (UNITS)	FIELD TEMP. (°C)	HCO ₃ mg/l	Cl mg/l
NBL-1	2-5 1415	mud @ 197.88	6991.96						
NBL-2	1-29 1035	174.99	6975.61	6800.62	3,450	6.88	9.5	243	41
PB-2	2-5 1352	dry @ 189.95	6989.70						
PB-3	2-5 1356	dry @ 193.27	6990.23						
PB-4	2-5 1354	dry @ 193.35	6990.18						
RW-A	1-29 1245	180.81	6983.23	6802.42	5,220	5.70	16.5	46	30
NBL-1			6991.96						
NBL-2	2-26 1052	175.50	6975.61	6800.11	3,300	7.39	8.3	250	41
PB-2	2-26 1233	dry @ 189.95	6989.70						
PB-3	2-26 1230	dry @ 193.27	6990.23						
PB-4	2-26 1231	dry @ 193.35	6990.18						
RW-A	2-26 1130	176.90	6983.23	6806.33	5,350	4.93	2.0	24	30
NBL-1			6991.96						
NBL-2	3-24 1050	175.32	6975.61	6800.29	3,420	7.32	12.0	299	41
PB-2	3-24 1216	dry @ 189.95	6989.70						
PB-3	3-24 1218	dry @ 193.27	6990.23						
PB-4	3-24 1220	dry @ 193.35	6990.18						
RW-A	3-24 1205	177.92	6983.23	6805.31	5,190	5.53	12.0	23	30
NBL-1			6991.96						
NBL-2			6975.61						
PB-2		dry @ 189.95	6989.70						
PB-3		dry @ 193.27	6990.23						
PB-4		dry @ 193.27	6990.18						
RW-A			6983.23						

COMMENTS: _____

MW & NW WELL GROUND WATER MONITORING

WATER ELEVATIONS, pH, CONDUCTIVITY, TITRATION AND TEMPERATURE

MONTH: January, February & March

QUARTER: First

YEAR: 2020

ZONE - 3

WELL NO.	DEPTH SAMPLE DATE/TIME	DEPTH TO WATER (FT)	REF. ELEV.	TOP OF WATER ELEV.	FIELD COND. (US/CM)	FIELD pH (UNITS)	FIELD TEMP. (°C)	HCO3 mg/l	Chl mg/l
NW-1	1-29 1220	199.55	6997.15	6797.60					
NW-2	1-29 1215	200.03	6989.76	6789.73					
NW-3	1-21 1245	194.62	6985.57	6790.95	4,240	7.04	12.2	415	35
NW-4	1-29 1200	196.94	6990.13	6793.19	4,010	6.18	11.7	14	21
NW-5	1-29 1225	196.96	6985.85	6788.89	5,050	5.74	21.6	54	30
MW-6	2-5 1419	mud @ 200.13	6990.94						
MW-7	1-21 1145	199.79	6988.82	6789.03	4,580	6.49	8.8	119	34
NW-1	2-28 1020	199.40	6997.15	6797.75					
NW-2	2-26 1050	200.23	6989.76	6789.53					
NW-3	2-28 1150	194.90	6985.57	6790.67	4,310	6.80	6.4	396	35
NW-4	2-26 1030	196.86	6990.13	6793.27	4,020	5.92	11.9	15	21
NW-5	2-28 1110	194.90	6985.85	6790.95	5,050	5.58	16.0	48	30
MW-6	2-28 1238	mud @ 200.24	6990.94						
MW-7	2-28 1148	200.15	6988.82	6788.67	4,070	7.28	10.8	86	34
NW-1	3-24 1100	199.32	6997.15	6797.83					
NW-2	3-24 1130	200.07	6989.76	6789.69					
NW-3	3-24 1145	194.98	6985.57	6790.59	4,260	6.98	10.1	469	34
NW-4	3-24 1120	197.26	6990.13	6792.87	3,830	6.20	12.7	15	21
NW-5	3-24 1135	194.45	6985.85	6791.40					
MW-6	3-24 1214	mud @ 200.24	6990.94						
MW-7	3-24 1138	200.05	6988.82	6788.77	4,200	7.11	12.6	106	34
NW-1			6997.15						
NW-2			6989.76						
NW-3			6985.57						
NW-4			6990.13						
NW-5			6985.85						
MW-6			6990.94						
MW-7			6988.82						

COMMENTS: Very minimal recharge and no water discharge @ sample port due to very low water volume for well NW-2 on 2-26-20. NW-5 well was shut down on 3-2-20 @ 1255 for no water pressure due to suspended solid build up/obstruction in pump.

NBL-1, NBL-2, RW-A & PB WELL GROUND WATER MONITORING WATER ELEVATIONS, pH, CONDUCTIVITY, TITRATION AND TEMPERATURE

MONTH: May & June QUARTER: Second YEAR: 2020

ZONE - 3

WELL NO.	DEPTH SAMPLE DATE/TIME	DEPTH TO WATER (FT)	REF. ELEV.	TOP OF WATER ELEV.	FIELD COND. (US/CM)	FIELD pH (UNITS)	FIELD TEMP. (°C)	HCO3 mg/l	Chl mg/l
NBL-1			6991.96						
NBL-2	5-28 0945	175.55	6975.61	6800.06	3,390	7.06	15.6	299	40
PB-2	5-28 1056	dry @ 189.95	6989.70						
PB-3	5-28 1100	dry @ 193.27	6990.23						
PB-4	5-28 1058	dry @ 193.35	6990.18						
RW-A	5-28 1049	178.31	6983.23	6804.92	5,250	5.53	20.2	23	30
NBL-1			6991.96						
NBL-2	6-25 1003	175.40	6975.61	6800.21	3,370	7.38	18.0	305	39
PB-2	6-25 1127	dry @ 189.95	6989.70						
PB-3	6-25 1130	dry @ 193.27	6990.23						
PB-4	6-25 1129	dry @ 193.35	6990.18						
RW-A	6-25 1102	176.78	6983.23	6806.45	5,200	5.20	21.4	18	30
NBL-1			6991.96						
NBL-2			6975.61						
PB-2			6989.70						
PB-3			6990.23						
PB-4			6990.18						
RW-A			6983.23						
NBL-1			6991.96						
NBL-2			6975.61						
PB-2			6989.70						
PB-3			6990.23						
PB-4			6990.18						
RW-A			6983.23						

COMMENTS: No Sampling in April due to COVID-19 pandemic NM & CDC guidelines.

MW & NW WELL GROUND WATER MONITORING

WATER ELEVATIONS, pH, CONDUCTIVITY, TITRATION AND TEMPERATURE

MONTH: May & June QUARTER: Second YEAR: 2020

ZONE - 3

WELL NO.	DEPTH SAMPLE DATE/TIME	DEPTH TO WATER (FT)	REF. ELEV.	TOP OF WATER ELEV.	FIELD COND. (US/CM)	FIELD pH (UNITS)	FIELD TEMP. (°C)	HCO3 mg/l	Chl mg/l
NW-1	5-28 0950	199.11	6997.15	6798.04					
NW-2	5-28 1007	200.17	6989.76	6789.59					
NW-3	5-28 1018	194.87	6985.57	6790.70	4,320	7.19	12.9	457	34
NW-4	5-28 0958	196.62	6990.13	6793.51	3,980	5.79	13.9	15	21
NW-5	5-28 1031	194.50	6985.85	6791.35	5,010	5.96	16.2	79	30
MW-6	5-28 1054	mud @ 200.24	6990.94						
MW-7	5-28 1015	200.13	6988.82	6788.69	4,170	7.28	19.2	97	34
NW-1	6-25 1007	199.05	6997.15	6798.10					
NW-2	6-25 1028	200.16	6989.76	6789.60					
NW-3	6-25 1034	194.83	6985.57	6790.74	4,310	7.30	15.4	457	35
NW-4	6-25 1015	197.11	6990.13	6793.02	3,990	6.05	14.4	18	21
NW-5	6-25 1047	194.41	6985.85	6791.44	5,010	5.99	15.2	73	29
MW-6	6-25 1125	mud @ 200.24	6990.94						
MW-7	6-25 1050	200.09	6988.82	6788.73	4,270	7.06	19.2	91	34
NW-1			6997.15						
NW-2			6989.76						
NW-3			6985.57						
NW-4			6990.13						
NW-5			6985.85						
MW-6			6990.94						
MW-7			6988.82						
NW-1			6997.15						
NW-2			6989.76						
NW-3			6985.57						
NW-4			6990.13						
NW-5			6985.85						
MW-6			6990.94						
MW-7			6988.82						

COMMENTS: _____

QUARTERLY SAMPLING
SEMI-ANNUAL GROUND WATER MONITORING REPORT

JANUARY AND FEBRUARY OF 2020

SOUTH WEST ALLUVIUM

*509-D

624

627

*632

801

802

803

808

*GW-1

*EPA-23

EPA-25

*EPA-28

SBL-1

LEVELS ONLY

805

807

NOTE: *POINT OF COMPLIANCE WELLS
WATER LEVEL ONLY IS IN FIELD DATA SHEET
NO SAMPLING IN APRIL

INTENTIONALLY LEFT BLANK

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-001
Client Sample ID: 509-D

Report Date: 03/06/20
Collection Date: 01/27/20 08:46
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	2100	mg/L		5		A2320 B	01/31/20 17:01 / kjp
Chloride	348	mg/L	D	2		E300.0	02/04/20 16:42 / dmb
Sulfate	2520	mg/L	D	8		E300.0	02/04/20 16:42 / dmb
Calcium	743	mg/L		1		E200.7	02/02/20 22:09 / jcg
Magnesium	493	mg/L		1		E200.7	02/02/20 22:09 / jcg
Potassium	16	mg/L		1		E200.7	02/05/20 01:28 / jcg
Sodium	436	mg/L		1		E200.7	02/05/20 01:28 / jcg
PHYSICAL PROPERTIES							
pH	6.68	s.u.	H	0.01		A4500-H B	01/31/20 11:41 / kjp
pH Measurement Temp	14	°C				A4500-H B	01/31/20 11:41 / kjp
Solids, Total Dissolved TDS @ 180 C	5850	mg/L	D	100		A2540 C	01/31/20 15:18 / kjp
- See case narrative for TDS.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	18.8	mg/L	D	0.1		E353.2	02/04/20 14:58 / dmb
Nitrogen, Ammonia as N	0.09	mg/L		0.05		E350.1	02/05/20 12:41 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 11:57 / meh
Arsenic	0.001	mg/L		0.001		E200.8	02/05/20 11:57 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 11:57 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 11:57 / meh
Cobalt	0.006	mg/L		0.005		E200.8	02/05/20 11:57 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 11:57 / meh
Manganese	1.24	mg/L	D	0.003		E200.8	02/05/20 11:57 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 11:57 / meh
Nickel	0.006	mg/L		0.005		E200.8	02/05/20 11:57 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 11:57 / meh
Uranium	0.224	mg/L		0.0003		E200.8	02/05/20 11:57 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 11:57 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	1	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U Precision (±)	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Lead 210	0.4	pCi/L	U			E909.0	02/12/20 10:09 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/12/20 10:09 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/12/20 10:09 / ajl
Radium 226	0.4	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 MDC	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 228	0.9	pCi/L				RA-05	02/07/20 16:01 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	02/07/20 16:01 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-001
Client Sample ID: 509-D

Report Date: 03/06/20
Collection Date: 01/27/20 08:46
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	0.8	pCi/L				RA-05	02/07/20 16:01 / trs
Thorium 230	-0.01	pCi/L	U			E908.0	02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.07	pCi/L				E908.0	02/12/20 06:40 / nsr
Thorium 230 MDC	0.2	pCi/L				E908.0	02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	5700	mg/L				A1030 E	02/06/20 15:32 / tlf
A/C Balance	-0.44	%				A1030 E	02/06/20 15:32 / tlf
Anions	97.9	meq/L				A1030 E	02/06/20 15:32 / tlf
Cations	97.0	meq/L				A1030 E	02/06/20 15:32 / tlf
TDS Ratio	1.03	unitless				A1030 E	02/06/20 15:32 / tlf
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 15:44 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 15:44 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 15:44 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	02/03/20 15:44 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	110	%REC		71-139		E624.1	02/03/20 15:44 / eli-b
Surr: p-Bromofluorobenzene	109	%REC		80-127		E624.1	02/03/20 15:44 / eli-b
Surr: Toluene-d8	108	%REC		80-123		E624.1	02/03/20 15:44 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		509-D	509-D	509-D	509-D
Collection Date:		1/27/2020	10/9/2019	7/15/2019	4/8/2019
Receive Date:		1/30/2020	10/16/2019	7/18/2019	4/11/2019
Report Date:		3/6/2020	11/21/2019	9/9/2019	5/21/2019
Analyte	Units	C20010929-001	C19100738-001	C19070767-001	C19040539-001
Bicarbonate as HCO ₃	mg/L	2100	2250	2320	2360
Chloride	mg/L	348	331	329	328
Sulfate	mg/L	2520	2400	2100	2210
Calcium	mg/L	743	781	821	860
Magnesium	mg/L	493	459	368	385
Potassium	mg/L	16	15	12	12
Sodium	mg/L	436	412	384	343
pH	s.u.	6.68	6.65	6.69	6.58
Solids, Total Dissolved TDS @ 180 C	mg/L	5850	5870	5620	5620
Nitrogen, Ammonia as N	mg/L	0.09	0.14	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	18.8	19.3	12.2	11.0
Aluminum	mg/L	ND(0.03)	ND(0.03)	ND(0.03)	0.06
Arsenic	mg/L	0.001	0.001	0.001	0.005
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	0.006	0.008	0.009	0.010
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	1.24	1.85	3.01	2.64
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.001
Nickel	mg/L	0.006	0.007	0.006	0.010
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.003
Uranium	mg/L	0.224	0.216	0.245	0.224
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	0.02
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-0.44	-1.29	-1.97	-2.71
Anions	meq/L	97.9	97.5	91.8	94.8
Cations	meq/L	97.0	95.0	88.3	89.8
Solids, Total Dissolved - Calculated	mg/L	5700	5600	5200	5400
TDS Ratio	unitless	1.03	1.05	1.07	1.05
Gross Alpha minus Rn & U	pCi/L	1	0.7	0.5	0.5
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.5	0.4	0.4	0.4
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	0.4	0.4	-0.07	0.4
Lead 210 precision (±)	pCi/L	0.6	0.6	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.1	0.9	1.0
Radium 226	pCi/L	0.4	0.4	0.4	0.2
Radium 226 precision (±)	pCi/L	0.2	0.1	0.2	0.1
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	0.9	1.0	1.2	1.1
Radium 228 precision (±)	pCi/L	0.5	1.1	1.0	0.9
Radium 228 MDC	pCi/L	0.8	1.6	1.4	1.4
Thorium 230	pCi/L	-0.01	0.03	0.03	0.03
Thorium 230 precision (±)	pCi/L	0.07	0.1	0.09	0.09
Thorium 230 MDC	pCi/L	0.2	0.2	0.2	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW Alluvium
Lab ID: C20010972-001
Client Sample ID: 624

Report Date: 03/05/20
Collection Date: 01/28/20 11:36
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	1640	mg/L		5		A2320 B	02/04/20 13:37 / kjp
Chloride	215	mg/L	D	2		E300.0	02/05/20 07:24 / dmb
Sulfate	2280	mg/L	D	8		E300.0	02/05/20 07:24 / dmb
Calcium	589	mg/L		1		E200.7	02/05/20 03:13 / jcg
Magnesium	443	mg/L		1		E200.7	02/05/20 03:13 / jcg
Potassium	7	mg/L		1		E200.7	02/05/20 03:13 / jcg
Sodium	340	mg/L		1		E200.7	02/05/20 03:13 / jcg
PHYSICAL PROPERTIES							
pH	6.65	s.u.	H	0.01		A4500-H B	02/03/20 11:55 / kjp
pH Measurement Temp	12	°C				A4500-H B	02/03/20 11:55 / kjp
Solids, Total Dissolved TDS @ 180 C	5420	mg/L	D	40		A2540 C	02/03/20 10:37 / kjp
- See case narrative for TDS.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	69	mg/L	D	1		E353.2	02/04/20 16:09 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/05/20 12:58 / dmb
METALS, TOTAL							
Aluminum	0.06	mg/L		0.03		E200.8	02/05/20 17:37 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 17:37 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 17:37 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 17:37 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 17:37 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 17:37 / meh
Manganese	0.035	mg/L	D	0.003		E200.8	02/05/20 17:37 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 17:37 / meh
Nickel	ND	mg/L		0.005		E200.8	02/05/20 17:37 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 17:37 / meh
Uranium	0.0358	mg/L		0.0003		E200.8	02/05/20 17:37 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 17:37 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	1.2	pCi/L				E900.1	02/10/20 13:31 / amm
Gross Alpha minus Rn & U Precision (±)	0.5	pCi/L				E900.1	02/10/20 13:31 / amm
Gross Alpha minus Rn & U MDC	0.6	pCi/L				E900.1	02/10/20 13:31 / amm
Lead 210	-0.04	pCi/L	U			E909.0	02/15/20 06:14 / ajl
Lead 210 precision (±)	0.5	pCi/L				E909.0	02/15/20 06:14 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/15/20 06:14 / ajl
Radium 226	0.4	pCi/L				E903.0	02/19/20 12:25 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/19/20 12:25 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	02/19/20 12:25 / trs
Radium 228	0.5	pCi/L	U			RA-05	02/10/20 13:21 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	02/10/20 13:21 / trs

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix
 U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW Alluvium
Lab ID: C20010972-001
Client Sample ID: 624

Report Date: 03/05/20
Collection Date: 01/28/20 11:36
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	1.1	pCi/L				RA-05	02/10/20 13:21 / trs
Thorium 230	0.0007	pCi/L	U			E908.0	02/19/20 14:38 / nsr
Thorium 230 precision (±)	0.04	pCi/L				E908.0	02/19/20 14:38 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/19/20 14:38 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	5000	mg/L				A1030 E	02/06/20 15:36 / tlf
A/C Balance	-2.69	%				A1030 E	02/06/20 15:36 / tlf
Anions	85.3	meq/L				A1030 E	02/06/20 15:36 / tlf
Cations	80.8	meq/L				A1030 E	02/06/20 15:36 / tlf
TDS Ratio	1.08	unitless				A1030 E	02/06/20 15:36 / tlf
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/05/20 11:50 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/05/20 11:50 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/05/20 11:50 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	02/05/20 11:50 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	91.0	%REC		71-139		E624.1	02/05/20 11:50 / eli-b
Surr: p-Bromofluorobenzene	101	%REC		80-127		E624.1	02/05/20 11:50 / eli-b
Surr: Toluene-d8	95.0	%REC		80-123		E624.1	02/05/20 11:50 / eli-b

**Report
Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		624	624	624	624
Collection Date:		1/28/2020	10/9/2019	7/30/2019	4/9/2019
Receive Date:		1/31/2020	10/16/2019	8/7/2019	4/12/2019
Report Date:		3/5/2020	11/21/2019	9/20/2019	5/13/2019
Analyte	Units	C20010972-001	C19100738-011	C19080322-001	C19040607-001
Bicarbonate as HCO ₃	mg/L	1640	1620	1640	1690
Chloride	mg/L	215	221	222	222
Sulfate	mg/L	2280	2340	2310	2340
Calcium	mg/L	589	605	688	699
Magnesium	mg/L	443	438	422	437
Potassium	mg/L	7	7	7	6
Sodium	mg/L	340	332	318	333
pH	s.u.	6.65	6.66	6.67	6.76
Solids, Total Dissolved TDS @ 180 C	mg/L	5420	5280	5390	5360
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.2)	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	69	70.5	72.0	69.2
Aluminum	mg/L	0.06	0.27	0.27	ND(0.03)
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.002
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	0.035	0.11	0.158	0.124
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Selenium	mg/L	ND(0.001)	ND(0.002)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0358	0.037	0.0416	0.0393
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-2.69	-3.45	-1.98	-1.14
Anions	meq/L	85.3	86.6	86.5	87.4
Cations	meq/L	80.8	80.9	83.1	85.4
Solids, Total Dissolved - Calculated	mg/L	5000	5100	5100	5200
TDS Ratio	unitless	1.08	1.04	1.06	1.04
Gross Alpha minus Rn & U	pCi/L	1.2	1.1	0.3	0.6
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.5	0.6	0.4	0.4
Gross Alpha minus Rn & U MDC	pCi/L	0.6	0.5	0.5	0.6
Lead 210	pCi/L	-0.04	0.2	0.5	1.2
Lead 210 precision (±)	pCi/L	0.5	0.6	0.5	0.7
Lead 210 MDC	pCi/L	0.9	1.0	0.9	1
Radium 226	pCi/L	0.4	0.5	0.3	0.2
Radium 226 precision (±)	pCi/L	0.2	0.1	0.1	0.1
Radium 226 MDC	pCi/L	0.2	0.09	0.2	0.2
Radium 228	pCi/L	0.5	-1	2.5	0.3
Radium 228 precision (±)	pCi/L	0.7	1	1.3	1.1
Radium 228 MDC	pCi/L	1.1	1.8	1.9	1.8
Thorium 230	pCi/L	0.0007	0.003	-0.008	-0.06
Thorium 230 precision (±)	pCi/L	0.04	0.07	0.03	0.09
Thorium 230 MDC	pCi/L	0.1	0.2	0.07	0.3
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW Alluvium
Lab ID: C20010972-003
Client Sample ID: 627

Report Date: 03/05/20
Collection Date: 01/29/20 08:18
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	562	mg/L		5		A2320 B	02/04/20 13:48 / kjp
Chloride	31	mg/L	D	2		E300.0	02/05/20 08:03 / dmb
Sulfate	2340	mg/L	D	8		E300.0	02/05/20 08:03 / dmb
Calcium	555	mg/L		1		E200.7	02/06/20 17:20 / jcg
Magnesium	235	mg/L		1		E200.7	02/05/20 03:22 / jcg
Potassium	6	mg/L		1		E200.7	02/05/20 03:22 / jcg
Sodium	376	mg/L		1		E200.7	02/05/20 03:22 / jcg
PHYSICAL PROPERTIES							
pH	6.94	s.u.	H	0.01		A4500-H B	02/03/20 12:01 / kjp
pH Measurement Temp	13	°C				A4500-H B	02/03/20 12:01 / kjp
Solids, Total Dissolved TDS @ 180 C	4190	mg/L	D	40		A2540 C	02/04/20 10:46 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	68.5	mg/L	D	0.5		E353.2	02/04/20 16:14 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/05/20 13:00 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 17:45 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 17:45 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 17:45 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 17:45 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 17:45 / meh
Lead	0.002	mg/L		0.001		E200.8	02/05/20 17:45 / meh
Manganese	0.163	mg/L	D	0.003		E200.8	02/05/20 17:45 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 17:45 / meh
Nickel	ND	mg/L		0.005		E200.8	02/05/20 17:45 / meh
Selenium	0.018	mg/L		0.001		E200.8	02/05/20 17:45 / meh
Uranium	0.0194	mg/L		0.0003		E200.8	02/05/20 17:45 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 17:45 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	1.1	pCi/L				E900.1	02/10/20 13:31 / amm
Gross Alpha minus Rn & U Precision (±)	0.6	pCi/L				E900.1	02/10/20 13:31 / amm
Gross Alpha minus Rn & U MDC	0.6	pCi/L				E900.1	02/10/20 13:31 / amm
Lead 210	0.8	pCi/L	U			E909.0	02/15/20 13:51 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/15/20 13:51 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/15/20 13:51 / ajl
Radium 226	0.3	pCi/L				E903.0	02/19/20 12:25 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/19/20 12:25 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	02/19/20 12:25 / trs
Radium 228	0.6	pCi/L	U			RA-05	02/10/20 13:21 / trs
Radium 228 precision (±)	0.7	pCi/L				RA-05	02/10/20 13:21 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	02/10/20 13:21 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW Alluvium
Lab ID: C20010972-003
Client Sample ID: 627

Report Date: 03/05/20
Collection Date: 01/29/20 08:18
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.05	pCi/L	U		E908.0		02/19/20 14:38 / nsr
Thorium 230 precision (±)	0.06	pCi/L			E908.0		02/19/20 14:38 / nsr
Thorium 230 MDC	0.1	pCi/L			E908.0		02/19/20 14:38 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	4100	mg/L			A1030 E		02/07/20 16:28 / jlw
A/C Balance	-0.10	%			A1030 E		02/07/20 16:28 / jlw
Anions	63.6	meq/L			A1030 E		02/07/20 16:28 / jlw
Cations	63.5	meq/L			A1030 E		02/07/20 16:28 / jlw
TDS Ratio	1.01	unitless			A1030 E		02/07/20 16:28 / jlw
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50	E624.1		02/05/20 12:41 / eli-b
Bromoform	ND	ug/L		0.50	E624.1		02/05/20 12:41 / eli-b
Chlorodibromomethane	ND	ug/L		0.50	E624.1		02/05/20 12:41 / eli-b
Chloroform	ND	ug/L		0.50	E624.1		02/05/20 12:41 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50	E624.1		02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	93.0	%REC		71-139	E624.1		02/05/20 12:41 / eli-b
Surr: p-Bromofluorobenzene	97.0	%REC		80-127	E624.1		02/05/20 12:41 / eli-b
Surr: Toluene-d8	94.0	%REC		80-123	E624.1		02/05/20 12:41 / eli-b

- The sample was received in the laboratory with a pH > 2. The pH was 7.

Report Definitions:

RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		627	627	627	627
Collection Date:		1/28/2020	10/9/2019	7/30/2019	4/9/2019
Receive Date:		1/31/2020	10/16/2019	8/7/2019	4/12/2019
Report Date:		3/5/2020	11/21/2019	9/20/2019	5/13/2019
Analyte	Units	C20010972-003	C19100738-013	C19080322-004	C19040607-004
Bicarbonate as HCO ₃	mg/L	562	568	570	577
Chloride	mg/L	31	31	31	31
Sulfate	mg/L	2340	2330	2280	2320
Calcium	mg/L	555	531	500	517
Magnesium	mg/L	235	232	213	231
Potassium	mg/L	6	6	5	5
Sodium	mg/L	376	374	341	382
pH	s.u.	6.94	7.00	7.01	7.06
Solids, Total Dissolved TDS @ 180 C	mg/L	4190	4140	4190	4270
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	68.5	70.0	71.5	73.5
Aluminum	mg/L	ND(0.03)	ND(0.2)	ND(0.03)	ND(0.03)
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.002
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	0.002	0.004	ND(0.001)	ND(0.001)
Manganese	mg/L	0.163	0.07	0.120	0.027
Molybdenum	mg/L	ND(0.001)	ND(0.003)	ND(0.001)	ND(0.001)
Nickel	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	0.005
Selenium	mg/L	0.018	0.018	0.020	0.018
Uranium	mg/L	0.0194	0.018	0.0186	0.0186
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-0.10	-1.40	-4.36	-1.81
Anions	meq/L	63.6	63.7	62.7	63.9
Cations	meq/L	63.5	62.0	57.5	61.6
Solids, Total Dissolved - Calculated	mg/L	4100	4100	4000	4100
TDS Ratio	unitless	1.01	1.01	1.05	1.04
Gross Alpha minus Rn & U	pCi/L	1.1	0.7	0.9	0.9
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.6	0.4	0.4	0.5
Gross Alpha minus Rn & U MDC	pCi/L	0.6	0.5	0.5	0.6
Lead 210	pCi/L	0.8	1.1	0.2	1.2
Lead 210 precision (±)	pCi/L	0.6	0.7	0.5	0.7
Lead 210 MDC	pCi/L	0.9	1.1	0.9	1
Radium 226	pCi/L	0.3	0.4	0.4	0.3
Radium 226 precision (±)	pCi/L	0.2	0.1	0.1	0.2
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	0.6	0.2	0.4	-0.09
Radium 228 precision (±)	pCi/L	0.7	1.2	1.4	1.2
Radium 228 MDC	pCi/L	1.1	1.9	2.4	2.0
Thorium 230	pCi/L	0.05	-0.04	0.08	0.06
Thorium 230 precision (±)	pCi/L	0.06	0.09	0.04	0.1
Thorium 230 MDC	pCi/L	0.1	0.2	0.05	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-006
Client Sample ID: 632

Report Date: 03/06/20
Collection Date: 01/27/20 13:25
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	1710	mg/L		5		A2320 B	01/31/20 17:55 / kjp
Chloride	236	mg/L	D	2		E300.0	02/04/20 22:08 / dmb
Sulfate	3350	mg/L	D	8		E300.0	02/04/20 22:08 / dmb
Calcium	518	mg/L		1		E200.7	02/02/20 22:40 / jcg
Magnesium	714	mg/L		1		E200.7	02/02/20 22:40 / jcg
Potassium	10	mg/L		1		E200.7	02/05/20 01:42 / jcg
Sodium	377	mg/L		1		E200.7	02/02/20 22:40 / jcg
PHYSICAL PROPERTIES							
pH	6.60	s.u.	H	0.01		A4500-H B	01/31/20 11:59 / kjp
pH Measurement Temp	13	°C				A4500-H B	01/31/20 11:59 / kjp
Solids, Total Dissolved TDS @ 180 C	6790	mg/L	D	100		A2540 C	01/31/20 15:20 / kjp
- See case narrative for TDS.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	34.2	mg/L	D	0.1		E353.2	02/04/20 15:07 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/05/20 12:47 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 12:36 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 12:36 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 12:36 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 12:36 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 12:36 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 12:36 / meh
Manganese	2.16	mg/L	D	0.003		E200.8	02/05/20 12:36 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 12:36 / meh
Nickel	0.011	mg/L		0.005		E200.8	02/05/20 12:36 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 12:36 / meh
Uranium	0.0716	mg/L		0.0003		E200.8	02/05/20 12:36 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 12:36 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	2.3	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U Precision (±)	0.7	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Lead 210	1.5	pCi/L				E909.0	02/13/20 04:30 / ajl
Lead 210 precision (±)	0.8	pCi/L				E909.0	02/13/20 04:30 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/13/20 04:30 / ajl
Radium 226	1	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 precision (±)	0.3	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 MDC	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 228	1.8	pCi/L				RA-05	02/07/20 16:01 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	02/07/20 16:01 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-006
Client Sample ID: 632

Report Date: 03/06/20
Collection Date: 01/27/20 13:25
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	0.8	pCi/L				RA-05	02/07/20 16:01 / trs
Thorium 230	0.05	pCi/L	U			E908.0	02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.08	pCi/L				E908.0	02/12/20 06:40 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	6200	mg/L				A1030 E	02/06/20 15:34 / tlf
A/C Balance	-2.74	%				A1030 E	02/06/20 15:34 / tlf
Anions	107	meq/L				A1030 E	02/06/20 15:34 / tlf
Cations	101	meq/L				A1030 E	02/06/20 15:34 / tlf
TDS Ratio	1.09	unitless				A1030 E	02/06/20 15:34 / tlf
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 18:01 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 18:01 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 18:01 / eli-b
Chloroform	0.49	ug/L	J	0.50		E624.1	02/03/20 18:01 / eli-b
Trihalomethanes, Total	0.49	ug/L	J	0.50		E624.1	02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	110	%REC		71-139		E624.1	02/03/20 18:01 / eli-b
Surr: p-Bromofluorobenzene	105	%REC		80-127		E624.1	02/03/20 18:01 / eli-b
Surr: Toluene-d8	103	%REC		80-123		E624.1	02/03/20 18:01 / eli-b

- The sample was received in the laboratory with headspace gas bubbles greater than 1/4 inch in diameter.

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)



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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		632	632	632	632
Collection Date:		1/27/2020	10/9/2019	7/15/2019	4/8/2019
Receive Date:		1/30/2020	10/16/2019	7/18/2019	4/11/2019
Report Date:		3/6/2020	11/21/2019	9/9/2019	5/21/2019
Analyte	Units	C20010929-006	C19100738-006	C19070767-006	C19040539-007
Bicarbonate as HCO ₃	mg/L	1710	1730	1750	1740
Chloride	mg/L	236	245	235	239
Sulfate	mg/L	3350	3530	3470	3520
Calcium	mg/L	518	553	543	551
Magnesium	mg/L	714	752	716	722
Potassium	mg/L	10	10	9	10
Sodium	mg/L	377	383	359	405
pH	s.u.	6.60	6.59	6.58	6.55
Solids, Total Dissolved TDS @ 180 C	mg/L	6790	6810	6850	6830
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.2)	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	34.2	36.5	38.0	37.4
Aluminum	mg/L	ND(0.03)	0.04	0.08	0.06
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.003
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	2.16	2.12	3.15	3.23
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	0.011	0.011	0.014	0.018
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0716	0.0713	0.0716	0.0666
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	0.02
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-2.74	-2.25	-3.92	-2.99
Anions	meq/L	107	111	110	111
Cations	meq/L	101	106	102	105
Solids, Total Dissolved - Calculated	mg/L	6200	6500	6400	6500
TDS Ratio	unitless	1.09	1.05	1.07	1.05
Gross Alpha minus Rn & U	pCi/L	2.3	1.5	1.4	1.0
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.7	0.6	0.5	0.5
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	1.5	1.6	4.0	3.2
Lead 210 precision (±)	pCi/L	0.8	0.8	1.4	1.2
Lead 210 MDC	pCi/L	1.1	1.1	1.1	1.2
Radium 226	pCi/L	1	0.6	1.1	0.5
Radium 226 precision (±)	pCi/L	0.3	0.1	0.3	0.2
Radium 226 MDC	pCi/L	0.2	0.09	0.2	0.2
Radium 228	pCi/L	1.8	1.2	4.0	1.8
Radium 228 precision (±)	pCi/L	0.6	1.0	1.2	1.1
Radium 228 MDC	pCi/L	0.8	1.5	1.4	1.7
Thorium 230	pCi/L	0.05	0.08	0.06	0.02
Thorium 230 precision (±)	pCi/L	0.08	0.09	0.1	0.1
Thorium 230 MDC	pCi/L	0.1	0.1	0.2	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	0.72	0.54	0.59

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-007
Client Sample ID: 801

Report Date: 03/06/20
Collection Date: 01/27/20 14:16
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	1500	mg/L		5		A2320 B	01/31/20 18:06 / kjp
Chloride	201	mg/L	D	2		E300.0	02/04/20 22:27 / dmb
Sulfate	3100	mg/L	D	8		E300.0	02/04/20 22:27 / dmb
Calcium	526	mg/L		1		E200.7	02/02/20 22:53 / jcg
Magnesium	619	mg/L		1		E200.7	02/02/20 22:53 / jcg
Potassium	13	mg/L		1		E200.7	02/02/20 22:53 / jcg
Sodium	334	mg/L		1		E200.7	02/02/20 22:53 / jcg
PHYSICAL PROPERTIES							
pH	6.70	s.u.	H	0.01		A4500-H B	01/31/20 12:02 / kjp
pH Measurement Temp	14	°C				A4500-H B	01/31/20 12:02 / kjp
Solids, Total Dissolved TDS @ 180 C	6250	mg/L	D	100		A2540 C	01/31/20 15:20 / kjp
- See case narrative for TDS.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	30.8	mg/L	D	0.1		E353.2	02/04/20 15:10 / dmb
Nitrogen, Ammonia as N	1.4	mg/L	D	0.2		E350.1	02/05/20 12:51 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 12:40 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 12:40 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 12:40 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 12:40 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 12:40 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 12:40 / meh
Manganese	3.08	mg/L	D	0.003		E200.8	02/05/20 12:40 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 12:40 / meh
Nickel	0.011	mg/L		0.005		E200.8	02/05/20 12:40 / meh
Selenium	0.002	mg/L		0.001		E200.8	02/05/20 12:40 / meh
Uranium	0.0386	mg/L		0.0003		E200.8	02/05/20 12:40 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 12:40 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	1.2	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U Precision (±)	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Lead 210	0.6	pCi/L	U			E909.0	02/13/20 07:49 / aji
Lead 210 precision (±)	0.7	pCi/L				E909.0	02/13/20 07:49 / aji
Lead 210 MDC	1.1	pCi/L				E909.0	02/13/20 07:49 / aji
Radium 226	0.7	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 MDC	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 228	0.5	pCi/L	U			RA-05	02/07/20 16:01 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	02/07/20 16:01 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix
 U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-007
Client Sample ID: 801

Report Date: 03/06/20
Collection Date: 01/27/20 14:16
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	0.8	pCi/L				RA-05	02/07/20 16:01 / trs
Thorium 230	0.02	pCi/L	U			E908.0	02/19/20 14:38 / nsr
Thorium 230 precision (±)	0.06	pCi/L				E908.0	02/19/20 14:38 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/19/20 14:38 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	5700	mg/L				A1030 E	02/06/20 15:34 / tlf
A/C Balance	-2.54	%				A1030 E	02/06/20 15:34 / tlf
Anions	96.9	meq/L				A1030 E	02/06/20 15:34 / tlf
Cations	92.1	meq/L				A1030 E	02/06/20 15:34 / tlf
TDS Ratio	1.10	unitless				A1030 E	02/06/20 15:34 / tlf
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 18:28 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 18:28 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 18:28 / eli-b
Chloroform	0.23	ug/L	J	0.50		E624.1	02/03/20 18:28 / eli-b
Trihalomethanes, Total	0.23	ug/L	J	0.50		E624.1	02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	107	%REC		71-139		E624.1	02/03/20 18:28 / eli-b
Surr: p-Bromofluorobenzene	105	%REC		80-127		E624.1	02/03/20 18:28 / eli-b
Surr: Toluene-d8	107	%REC		80-123		E624.1	02/03/20 18:28 / eli-b

**Report
Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)



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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		801	801	801	801
Collection Date:		1/27/2020	10/9/2019	7/15/2019	4/8/2019
Receive Date:		1/30/2020	10/16/2019	7/18/2019	4/11/2019
Report Date:		3/6/2020	11/21/2019	9/9/2019	5/21/2019
Analyte	Units	C20010929-007	C19100738-007	C19070767-007	C19040539-003
Bicarbonate as HCO ₃	mg/L	1500	1490	1520	1510
Chloride	mg/L	201	213	207	210
Sulfate	mg/L	3100	3330	3230	3390
Calcium	mg/L	526	546	545	573
Magnesium	mg/L	619	679	653	686
Potassium	mg/L	13	13	12	13
Sodium	mg/L	334	353	327	352
pH	s.u.	6.70	6.76	6.68	6.64
Solids, Total Dissolved TDS @ 180 C	mg/L	6250	6430	6390	6440
Nitrogen, Ammonia as N	mg/L	1.4	3.6	2.5	2.8
Nitrogen, Nitrate+Nitrite as N	mg/L	30.8	37.0	36.9	39.2
Aluminum	mg/L	ND(0.03)	0.12	ND(0.03)	ND(0.03)
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.002
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	3.08	3.10	4.45	5.38
Molybdenum	mg/L	ND(0.001)	0.001	0.001	ND(0.001)
Nickel	mg/L	0.011	0.012	0.013	0.016
Selenium	mg/L	0.002	0.002	0.002	0.002
Uranium	mg/L	0.0386	0.0373	0.0372	0.0312
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	0.04
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-2.54	-1.69	-2.55	-1.56
Anions	meq/L	96.9	102	101	104
Cations	meq/L	92.1	99.1	95.6	101
Solids, Total Dissolved - Calculated	mg/L	5700	6000	5900	6100
TDS Ratio	unitless	1.10	1.07	1.08	1.05
Gross Alpha minus Rn & U	pCi/L	1.2	1.3	0.2	0.7
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.5	0.6	0.3	0.4
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	0.6	0.1	0.3	0.5
Lead 210 precision (±)	pCi/L	0.7	0.6	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.0	0.9	1.0
Radium 226	pCi/L	0.7	0.4	0.4	0.3
Radium 226 precision (±)	pCi/L	0.2	0.1	0.2	0.1
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	0.5	0.5	-0.1	1.3
Radium 228 precision (±)	pCi/L	0.5	1	0.8	0.9
Radium 228 MDC	pCi/L	0.8	1.6	1.4	1.4
Thorium 230	pCi/L	0.02	0.02	0.02	0.01
Thorium 230 precision (±)	pCi/L	0.06	0.09	0.1	0.2
Thorium 230 MDC	pCi/L	0.1	0.2	0.2	0.3

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-005
Client Sample ID: 802

Report Date: 03/06/20
Collection Date: 01/27/20 12:35
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	2030	mg/L		5		A2320 B	01/31/20 17:45 / kjp
Chloride	149	mg/L	D	2		E300.0	02/04/20 21:10 / dmb
Sulfate	2460	mg/L	D	8		E300.0	02/04/20 21:10 / dmb
Calcium	613	mg/L		1		E200.7	02/02/20 22:36 / jcg
Magnesium	695	mg/L		1		E200.7	02/02/20 22:36 / jcg
Potassium	6	mg/L		1		E200.7	02/02/20 22:36 / jcg
Sodium	327	mg/L		1		E200.7	02/02/20 22:36 / jcg
PHYSICAL PROPERTIES							
pH	6.60	s.u.	H	0.01		A4500-H B	01/31/20 11:57 / kjp
pH Measurement Temp	14	°C				A4500-H B	01/31/20 11:57 / kjp
Solids, Total Dissolved TDS @ 180 C	6760	mg/L	D	100		A2540 C	01/31/20 15:20 / kjp
- See case narrative for TDS.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	68.0	mg/L	D	0.5		E353.2	02/04/20 15:03 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/05/20 12:46 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 12:31 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 12:31 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 12:31 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 12:31 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 12:31 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 12:31 / meh
Manganese	1.04	mg/L	D	0.003		E200.8	02/05/20 12:31 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 12:31 / meh
Nickel	0.007	mg/L		0.005		E200.8	02/05/20 12:31 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 12:31 / meh
Uranium	0.134	mg/L		0.0003		E200.8	02/05/20 12:31 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 12:31 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	1.1	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U Precision (±)	0.4	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Lead 210	0.1	pCi/L	U			E909.0	02/13/20 00:43 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/13/20 00:43 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/13/20 00:43 / ajl
Radium 226	0.5	pCi/L				E903.0	02/12/20 13:51 / ammm
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/12/20 13:51 / ammm
Radium 226 MDC	0.2	pCi/L				E903.0	02/12/20 13:51 / ammm
Radium 228	0.9	pCi/L				RA-05	02/07/20 16:01 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	02/07/20 16:01 / trs

Report Definitions:
 RL - Analyte Reporting Limit
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MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-005
Client Sample ID: 802

Report Date: 03/06/20
Collection Date: 01/27/20 12:35
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	0.8	pCi/L				RA-05	02/07/20 16:01 / trs
Thorium 230	-0.02	pCi/L	U			E908.0	02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.07	pCi/L				E908.0	02/12/20 06:40 / nsr
Thorium 230 MDC	0.2	pCi/L				E908.0	02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	5600	mg/L				A1030 E	02/06/20 15:33 / tif
A/C Balance	4.43	%				A1030 E	02/06/20 15:33 / tif
Anions	93.5	meq/L				A1030 E	02/06/20 15:33 / tif
Cations	102	meq/L				A1030 E	02/06/20 15:33 / tif
TDS Ratio	1.22	unitless				A1030 E	02/06/20 15:33 / tif
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 17:33 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 17:33 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 17:33 / eli-b
Chloroform	1.1	ug/L		0.50		E624.1	02/03/20 17:33 / eli-b
Trihalomethanes, Total	1.1	ug/L		0.50		E624.1	02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	117	%REC		71-139		E624.1	02/03/20 17:33 / eli-b
Surr: p-Bromofluorobenzene	109	%REC		80-127		E624.1	02/03/20 17:33 / eli-b
Surr: Toluene-d8	112	%REC		80-123		E624.1	02/03/20 17:33 / eli-b

- The sample was received in the laboratory with headspace gas bubbles greater than 1/4 inch in diameter.

Report Definitions:

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QCL - Quality Control Limit
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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		802	802	802	802
Collection Date:		1/27/2020	10/9/2019	7/15/2019	4/8/2019
Receive Date:		1/30/2020	10/16/2019	7/18/2019	4/11/2019
Report Date:		3/6/2020	11/21/2019	9/9/2019	5/21/2019
Analyte	Units	C20010929-005	C19100738-005	C19070767-005	C19040539-006
Bicarbonate as HCO ₃	mg/L	2030	2010	2040	2030
Chloride	mg/L	149	188	183	189
Sulfate	mg/L	2460	3110	3160	3180
Calcium	mg/L	613	680	618	678
Magnesium	mg/L	695	728	691	643
Potassium	mg/L	6	6	5	6
Sodium	mg/L	327	337	309	350
pH	s.u.	6.60	6.60	6.60	6.56
Solids, Total Dissolved TDS @ 180 C	mg/L	6760	6670	6680	6650
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.2)	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	68.0	70.5	74.5	67.8
Aluminum	mg/L	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.003
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	1.04	1.32	1.37	1.47
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	0.007	0.007	0.006	0.011
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.134	0.136	0.134	0.130
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	0.01
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	4.43	0.27	-3.94	-3.53
Anions	meq/L	93.5	108	110	110
Cations	meq/L	102	109	101	102
Solids, Total Dissolved - Calculated	mg/L	5600	6400	6300	6300
TDS Ratio	unitless	1.22	1.05	1.06	1.05
Gross Alpha minus Rn & U	pCi/L	1.1	1.3	0.1	0.8
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.4	0.6	0.4	0.4
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	0.1	0.2	-0.2	0.4
Lead 210 precision (±)	pCi/L	0.6	0.6	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.0	0.9	1.0
Radium 226	pCi/L	0.5	0.2	0.3	0.3
Radium 226 precision (±)	pCi/L	0.2	0.1	0.2	0.1
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	0.9	0.3	1.2	2.3
Radium 228 precision (±)	pCi/L	0.5	0.9	0.9	1.1
Radium 228 MDC	pCi/L	0.8	1.6	1.5	1.7
Thorium 230	pCi/L	-0.02	0.07	0.06	0.02
Thorium 230 precision (±)	pCi/L	0.07	0.1	0.1	0.08
Thorium 230 MDC	pCi/L	0.2	0.2	0.2	0.2
Trihalomethanes, Total	ug/L	1.1	1.3	1.2	1.4

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-003
Client Sample ID: 803

Report Date: 03/06/20
Collection Date: 01/27/20 10:50
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	1700	mg/L		5		A2320 B	01/31/20 17:22 / kjp
Chloride	189	mg/L	D	2		E300.0	02/04/20 19:54 / dmb
Sulfate	3450	mg/L	D	8		E300.0	02/04/20 19:54 / dmb
Calcium	626	mg/L		1		E200.7	02/05/20 01:37 / jcg
Magnesium	698	mg/L		1		E200.7	02/05/20 01:37 / jcg
Potassium	12	mg/L		1		E200.7	02/05/20 01:37 / jcg
Sodium	274	mg/L		1		E200.7	02/05/20 01:37 / jcg
PHYSICAL PROPERTIES							
pH	6.66	s.u.	H	0.01		A4500-H B	01/31/20 11:50 / kjp
pH Measurement Temp	16	°C				A4500-H B	01/31/20 11:50 / kjp
Solids, Total Dissolved TDS @ 180 C	6460	mg/L	D	100		A2540 C	01/31/20 15:19 / kjp
- See case narrative for TDS.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	27.2	mg/L	D	0.2		E353.2	02/04/20 15:01 / dmb
Nitrogen, Ammonia as N	0.52	mg/L		0.05		E350.1	02/05/20 12:43 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 12:05 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 12:05 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 12:05 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 12:05 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 12:05 / meh
Lead	0.001	mg/L		0.001		E200.8	02/05/20 12:05 / meh
Manganese	2.76	mg/L	D	0.003		E200.8	02/05/20 12:05 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 12:05 / meh
Nickel	0.007	mg/L		0.005		E200.8	02/05/20 12:05 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 12:05 / meh
Uranium	0.0762	mg/L		0.0003		E200.8	02/05/20 12:05 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 12:05 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	0.9	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U Precision (±)	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Lead 210	0.6	pCi/L	U			E909.0	02/12/20 17:19 / ajl
Lead 210 precision (±)	0.7	pCi/L				E909.0	02/12/20 17:19 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/12/20 17:19 / ajl
Radium 226	0.4	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 MDC	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 228	1.1	pCi/L				RA-05	02/07/20 16:01 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	02/07/20 16:01 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix
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MCL - Maximum Contaminant Level
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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-003
Client Sample ID: 803

Report Date: 03/06/20
Collection Date: 01/27/20 10:50
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	0.8	pCi/L				RA-05	02/07/20 16:01 / trs
Thorium 230	-0.01	pCi/L	U			E908.0	02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.05	pCi/L				E908.0	02/12/20 06:40 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	6200	mg/L				A1030 E	02/06/20 15:41 / tif
A/C Balance	-2.86	%				A1030 E	02/06/20 15:41 / tif
Anions	107	meq/L				A1030 E	02/06/20 15:41 / tif
Cations	101	meq/L				A1030 E	02/06/20 15:41 / tif
TDS Ratio	1.04	unitless				A1030 E	02/06/20 15:41 / tif
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 16:39 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 16:39 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 16:39 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	02/03/20 16:39 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	110	%REC		71-139		E624.1	02/03/20 16:39 / eli-b
Surr: p-Bromofluorobenzene	108	%REC		80-127		E624.1	02/03/20 16:39 / eli-b
Surr: Toluene-d8	107	%REC		80-123		E624.1	02/03/20 16:39 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
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MCL - Maximum Contaminant Level
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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		803	803	803	803
Collection Date:		1/27/2020	10/9/2019	7/15/2019	4/8/2019
Receive Date:		1/30/2020	10/16/2019	7/18/2019	4/11/2019
Report Date:		3/6/2020	11/21/2019	9/9/2019	5/21/2019
Analyte	Units	C20010929-003	C19100738-003	C19070767-003	C19040539-004
Bicarbonate as HCO ₃	mg/L	1700	1600	1770	1750
Chloride	mg/L	189	156	172	167
Sulfate	mg/L	3450	3220	3370	3320
Calcium	mg/L	626	631	584	639
Magnesium	mg/L	698	667	677	710
Potassium	mg/L	12	12	13	14
Sodium	mg/L	274	269	270	281
pH	s.u.	6.66	6.63	6.64	6.62
Solids, Total Dissolved TDS @ 180 C	mg/L	6460	6270	6640	6470
Nitrogen, Ammonia as N	mg/L	0.52	0.37	1.37	1.09
Nitrogen, Nitrate+Nitrite as N	mg/L	27.2	27.7	29.2	29.7
Aluminum	mg/L	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.002
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	0.005	ND(0.005)
Lead	mg/L	0.001	ND(0.001)	ND(0.001)	0.002
Manganese	mg/L	2.76	2.75	2.62	2.64
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	0.007	0.007	0.006	0.009
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0762	0.0736	0.0839	0.0824
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	0.02
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-2.86	-0.61	-4.43	-0.81
Anions	meq/L	107	99.6	106	105
Cations	meq/L	101	98.4	97.0	103
Solids, Total Dissolved - Calculated	mg/L	6200	5900	6100	6100
TDS Ratio	unitless	1.04	1.07	1.09	1.06
Gross Alpha minus Rn & U	pCi/L	0.9	1.1	0.8	0.3
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.5	0.6	0.4	0.4
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	0.6	0.4	0.1	0.2
Lead 210 precision (±)	pCi/L	0.7	0.6	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.1	0.9	1.0
Radium 226	pCi/L	0.4	0.3	0.4	0.3
Radium 226 precision (±)	pCi/L	0.2	0.1	0.2	0.1
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	1.1	0.3	1.2	2.0
Radium 228 precision (±)	pCi/L	0.6	1	1	1.0
Radium 228 MDC	pCi/L	0.8	1.6	1.5	1.4
Thorium 230	pCi/L	-0.01	0.04	0.04	0.04
Thorium 230 precision (±)	pCi/L	0.05	0.08	0.08	0.1
Thorium 230 MDC	pCi/L	0.1	0.1	0.1	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-004
Client Sample ID: 808

Report Date: 03/06/20
Collection Date: 01/27/20 11:35
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	1900	mg/L		5		A2320 B	01/31/20 17:33 / kjp
Chloride	193	mg/L	D	2		E300.0	02/04/20 20:13 / dmb
Sulfate	3380	mg/L	D	8		E300.0	02/04/20 20:13 / dmb
Calcium	583	mg/L		1		E200.7	02/02/20 22:31 / jcg
Magnesium	679	mg/L		1		E200.7	02/02/20 22:31 / jcg
Potassium	11	mg/L		1		E200.7	02/02/20 22:31 / jcg
Sodium	339	mg/L		1		E200.7	02/02/20 22:31 / jcg
PHYSICAL PROPERTIES							
pH	6.60	s.u.	H	0.01		A4500-H B	01/31/20 11:54 / kjp
pH Measurement Temp	15	°C				A4500-H B	01/31/20 11:54 / kjp
Solids, Total Dissolved TDS @ 180 C	6710	mg/L	D	100		A2540 C	01/31/20 15:19 / kjp
- See case narrative for TDS.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	24.0	mg/L	D	0.2		E353.2	02/04/20 15:02 / dmb
Nitrogen, Ammonia as N	0.48	mg/L		0.05		E350.1	02/05/20 12:45 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 12:10 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 12:10 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 12:10 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 12:10 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 12:10 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 12:10 / meh
Manganese	1.68	mg/L	D	0.003		E200.8	02/05/20 12:10 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 12:10 / meh
Nickel	ND	mg/L		0.005		E200.8	02/05/20 12:10 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 12:10 / meh
Uranium	0.0753	mg/L		0.0003		E200.8	02/05/20 12:10 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 12:10 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	1.2	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U Precision (±)	0.6	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Lead 210	0.2	pCi/L	U			E909.0	02/12/20 20:56 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/12/20 20:56 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/12/20 20:56 / ajl
Radium 226	0.4	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 MDC	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 228	1.0	pCi/L				RA-05	02/07/20 16:01 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	02/07/20 16:01 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix
 U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-004
Client Sample ID: 808

Report Date: 03/06/20
Collection Date: 01/27/20 11:35
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	0.8	pCi/L				RA-05	02/07/20 16:01 / trs
Thorium 230	0.03	pCi/L	U			E908.0	02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.06	pCi/L				E908.0	02/12/20 06:40 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	6200	mg/L				A1030 E	02/06/20 15:33 / tif
A/C Balance	-4.12	%				A1030 E	02/06/20 15:33 / tif
Anions	109	meq/L				A1030 E	02/06/20 15:33 / tif
Cations	100	meq/L				A1030 E	02/06/20 15:33 / tif
TDS Ratio	1.08	unitless				A1030 E	02/06/20 15:33 / tif
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 17:06 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 17:06 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 17:06 / eli-b
Chloroform	0.32	ug/L	J	0.50		E624.1	02/03/20 17:06 / eli-b
Trihalomethanes, Total	0.32	ug/L	J	0.50		E624.1	02/10/20 13:44 / tia
Surr: 1,2-Dichloroethane-d4	108	%REC		71-139		E624.1	02/03/20 17:06 / eli-b
Surr: p-Bromofluorobenzene	105	%REC		80-127		E624.1	02/03/20 17:06 / eli-b
Surr: Toluene-d8	105	%REC		80-123		E624.1	02/03/20 17:06 / eli-b
- The sample was received in the laboratory with headspace gas bubbles greater than 1/4 inch in diameter.							

**Report
Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)



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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		808	808	808	808
Collection Date:		1/27/2020	10/9/2019	7/15/2019	4/8/2019
Receive Date:		1/30/2020	10/16/2019	7/18/2019	4/11/2019
Report Date:		3/6/2020	11/21/2019	9/9/2019	5/21/2019
Analyte	Units	C20010929-004	C19100738-004	C19070767-004	C19040539-005
Bicarbonate as HCO ₃	mg/L	1900	1880	1970	1970
Chloride	mg/L	193	180	183	186
Sulfate	mg/L	3380	3290	3440	3430
Calcium	mg/L	583	621	597	651
Magnesium	mg/L	679	698	737	744
Potassium	mg/L	11	11	8	8
Sodium	mg/L	339	345	314	322
pH	s.u.	6.60	6.64	6.62	6.56
Solids, Total Dissolved TDS @ 180 C	mg/L	6710	6480	6950	6830
Nitrogen, Ammonia as N	mg/L	0.48	0.79	0.28	0.24
Nitrogen, Nitrate+Nitrite as N	mg/L	24.0	24.5	39.0	34.4
Aluminum	mg/L	ND(0.03)	ND(0.03)	0.04	0.48
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.003
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	0.001	0.002	0.002
Manganese	mg/L	1.68	1.68	1.91	1.97
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	ND(0.005)	0.006	ND(0.005)	0.009
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0753	0.0802	0.0923	0.0906
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-4.12	-1.13	-3.52	-1.49
Anions	meq/L	109	106	112	111
Cations	meq/L	100	104	104	108
Solids, Total Dissolved - Calculated	mg/L	6200	6200	6400	6500
TDS Ratio	unitless	1.08	1.05	1.08	1.06
Gross Alpha minus Rn & U	pCi/L	1.2	1.4	0.6	0.9
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.6	0.6	0.4	0.4
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	0.2	0.4	-0.2	0.7
Lead 210 precision (±)	pCi/L	0.6	0.6	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.1	0.9	1.0
Radium 226	pCi/L	0.4	0.3	0.4	0.2
Radium 226 precision (±)	pCi/L	0.2	0.1	0.2	0.1
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	1.0	1.3	0.6	0.5
Radium 228 precision (±)	pCi/L	0.5	1.1	0.9	1.0
Radium 228 MDC	pCi/L	0.8	1.5	1.5	1.7
Thorium 230	pCi/L	0.03	0.1	0.03	0.05
Thorium 230 precision (±)	pCi/L	0.06	0.1	0.08	0.1
Thorium 230 MDC	pCi/L	0.1	0.1	0.2	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	0.55	0.60

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-008
Client Sample ID: GW-1

Report Date: 03/06/20
Collection Date: 01/28/20 08:50
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	1700	mg/L		5		A2320 B	01/31/20 18:34 / kjp
Chloride	231	mg/L	D	2		E300.0	02/04/20 22:46 / dmb
Sulfate	2600	mg/L	D	8		E300.0	02/04/20 22:46 / dmb
Calcium	585	mg/L		1		E200.7	02/02/20 22:58 / jcg
Magnesium	511	mg/L		1		E200.7	02/02/20 22:58 / jcg
Potassium	9	mg/L		1		E200.7	02/05/20 01:56 / jcg
Sodium	396	mg/L		1		E200.7	02/02/20 22:58 / jcg
PHYSICAL PROPERTIES							
pH	6.77	s.u.	H	0.01		A4500-H B	01/31/20 12:05 / kjp
pH Measurement Temp	14	°C				A4500-H B	01/31/20 12:05 / kjp
Solids, Total Dissolved TDS @ 180 C	6020	mg/L	D	100		A2540 C	02/03/20 10:32 / kjp
- See case narrative for TDS.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	65.0	mg/L	D	0.5		E353.2	02/04/20 15:11 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/05/20 12:54 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 12:44 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 12:44 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 12:44 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 12:44 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 12:44 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 12:44 / meh
Manganese	0.012	mg/L	D	0.003		E200.8	02/05/20 12:44 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 12:44 / meh
Nickel	ND	mg/L		0.005		E200.8	02/05/20 12:44 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 12:44 / meh
Uranium	0.119	mg/L		0.0003		E200.8	02/05/20 12:44 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 12:44 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	0.8	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U Precision (±)	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Lead 210	1.1	pCi/L				E909.0	02/13/20 11:25 / ajl
Lead 210 precision (±)	0.8	pCi/L				E909.0	02/13/20 11:25 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/13/20 11:25 / ajl
Radium 226	0.5	pCi/L				E903.0	02/12/20 13:51 / ammm
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/12/20 13:51 / ammm
Radium 226 MDC	0.2	pCi/L				E903.0	02/12/20 13:51 / ammm
Radium 228	0.5	pCi/L	U			RA-05	02/07/20 16:01 / trs
Radium 228 precision (±)	0.5	pCi/L				RA-05	02/07/20 16:01 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix
 U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-008
Client Sample ID: GW-1

Report Date: 03/06/20
Collection Date: 01/28/20 08:50
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	0.8	pCi/L				RA-05	02/07/20 16:01 / trs
Thorium 230	-0.002	pCi/L	U		E908.0		02/19/20 14:37 / nsr
Thorium 230 precision (±)	0.04	pCi/L			E908.0		02/19/20 14:37 / nsr
Thorium 230 MDC	0.1	pCi/L			E908.0		02/19/20 14:37 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	5500	mg/L			A1030 E		02/06/20 15:34 / tlf
A/C Balance	-2.45	%			A1030 E		02/06/20 15:34 / tlf
Anions	93.2	meq/L			A1030 E		02/06/20 15:34 / tlf
Cations	88.7	meq/L			A1030 E		02/06/20 15:34 / tlf
TDS Ratio	1.10	unitless			A1030 E		02/06/20 15:34 / tlf
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50	E624.1		02/03/20 18:56 / eli-b
Bromoform	ND	ug/L		0.50	E624.1		02/03/20 18:56 / eli-b
Chlorodibromomethane	ND	ug/L		0.50	E624.1		02/03/20 18:56 / eli-b
Chloroform	0.38	ug/L	J	0.50	E624.1		02/03/20 18:56 / eli-b
Trihalomethanes, Total	0.38	ug/L	J	0.50	E624.1		02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	104	%REC		71-139	E624.1		02/03/20 18:56 / eli-b
Surr: p-Bromofluorobenzene	104	%REC		80-127	E624.1		02/03/20 18:56 / eli-b
Surr: Toluene-d8	108	%REC		80-123	E624.1		02/03/20 18:56 / eli-b
- The sample was received in the laboratory with headspace gas bubbles greater than 1/4 inch in diameter.							

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)

United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		GW-1	GW-1	GW-1	GW-1
Collection Date:		1/27/2020	10/9/2019	7/15/2019	4/8/2019
Receive Date:		1/30/2020	10/16/2019	7/18/2019	4/11/2019
Report Date:		3/6/2020	11/21/2019	9/9/2019	5/21/2019
Analyte	Units	C20010929-008	C19100738-008	C19070767-008	C19040539-008
Bicarbonate as HCO ₃	mg/L	1700	1760	1800	1800
Chloride	mg/L	231	243	235	238
Sulfate	mg/L	2600	2740	2660	2780
Calcium	mg/L	585	718	647	685
Magnesium	mg/L	511	534	501	530
Potassium	mg/L	9	10	8	9
Sodium	mg/L	396	406	357	427
pH	s.u.	6.77	6.80	6.80	6.71
Solids, Total Dissolved TDS @ 180 C	mg/L	6020	5960	6010	5920
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.2)	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	65.0	66	72.5	70.2
Aluminum	mg/L	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.003
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	0.012	0.005	0.006	0.009
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	ND(0.005)	0.009	ND(0.005)	0.007
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.119	0.125	0.106	0.0982
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-2.45	0.18	-4.05	-1.34
Anions	meq/L	93.2	97.4	96.7	99.2
Cations	meq/L	88.7	97.7	89.2	96.6
Solids, Total Dissolved - Calculated	mg/L	5500	5800	5600	5900
TDS Ratio	unitless	1.10	1.03	1.07	1.01
Gross Alpha minus Rn & U	pCi/L	0.8	0.5	0.4	1.1
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.5	0.4	0.4	0.5
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	1.1	0.01	0.2	0.3
Lead 210 precision (±)	pCi/L	0.8	0.6	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.0	0.9	1.0
Radium 226	pCi/L	0.5	0.3	0.2	0.08
Radium 226 precision (±)	pCi/L	0.2	0.1	0.2	0.1
Radium 226 MDC	pCi/L	0.2	0.1	0.3	0.2
Radium 228	pCi/L	0.5	-0.4	2.7	0.07
Radium 228 precision (±)	pCi/L	0.5	1	1.1	1.0
Radium 228 MDC	pCi/L	0.8	1.7	1.5	1.7
Thorium 230	pCi/L	-0.002	0.008	-0.03	0.03
Thorium 230 precision (±)	pCi/L	0.04	0.09	0.06	0.1
Thorium 230 MDC	pCi/L	0.1	0.2	0.2	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	0.60	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-002
Client Sample ID: EPA-23

Report Date: 03/06/20
Collection Date: 01/27/20 09:55
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	1360	mg/L		5		A2320 B	01/31/20 17:11 / kjp
Chloride	132	mg/L	D	2		E300.0	02/07/20 17:21 / ljl
Sulfate	2440	mg/L	D	8		E300.0	02/07/20 17:21 / ljl
Calcium	630	mg/L		1		E200.7	02/02/20 22:22 / jcg
Magnesium	394	mg/L		1		E200.7	02/02/20 22:22 / jcg
Potassium	12	mg/L		1		E200.7	02/05/20 01:33 / jcg
Sodium	175	mg/L		1		E200.7	02/05/20 01:33 / jcg
PHYSICAL PROPERTIES							
pH	6.71	s.u.	H	0.01		A4500-H B	01/31/20 11:46 / kjp
pH Measurement Temp	15	°C				A4500-H B	01/31/20 11:46 / kjp
Solids, Total Dissolved TDS @ 180 C	4890	mg/L	D	30		A2540 C	01/31/20 15:18 / kjp
- See case narrative for TDS.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	5.55	mg/L	D	0.05		E353.2	02/04/20 14:59 / dmb
Nitrogen, Ammonia as N	0.63	mg/L		0.05		E350.1	02/05/20 12:42 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 12:01 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 12:01 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 12:01 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 12:01 / meh
Cobalt	0.006	mg/L		0.005		E200.8	02/05/20 12:01 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 12:01 / meh
Manganese	3.61	mg/L	D	0.003		E200.8	02/05/20 12:01 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 12:01 / meh
Nickel	ND	mg/L		0.005		E200.8	02/05/20 12:01 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 12:01 / meh
Uranium	0.0343	mg/L		0.0003		E200.8	02/05/20 12:01 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 12:01 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	1.5	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U Precision (±)	0.6	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Lead 210	1	pCi/L	U			E909.0	02/12/20 13:51 / aji
Lead 210 precision (±)	0.7	pCi/L				E909.0	02/12/20 13:51 / aji
Lead 210 MDC	1.1	pCi/L				E909.0	02/12/20 13:51 / aji
Radium 226	0.5	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 MDC	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 228	0.9	pCi/L				RA-05	02/07/20 16:01 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	02/07/20 16:01 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix
 U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-002
Client Sample ID: EPA-23

Report Date: 03/06/20
Collection Date: 01/27/20 09:55
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	0.8	pCi/L				RA-05	02/07/20 16:01 / trs
Thorium 230	-0.001	pCi/L	U			E908.0	02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.07	pCi/L				E908.0	02/12/20 06:40 / nsr
Thorium 230 MDC	0.2	pCi/L				E908.0	02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	4500	mg/L				A1030 E	02/10/20 09:54 / jlw
A/C Balance	-3.71	%				A1030 E	02/10/20 09:54 / jlw
Anions	77.3	meq/L				A1030 E	02/10/20 09:54 / jlw
Cations	71.8	meq/L				A1030 E	02/10/20 09:54 / jlw
TDS Ratio	1.09	unitless				A1030 E	02/10/20 09:54 / jlw
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 16:11 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 16:11 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 16:11 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	02/03/20 16:11 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	109	%REC		71-139		E624.1	02/03/20 16:11 / eli-b
Surr: p-Bromofluorobenzene	108	%REC		80-127		E624.1	02/03/20 16:11 / eli-b
Surr: Toluene-d8	106	%REC		80-123		E624.1	02/03/20 16:11 / eli-b

**Report
Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		EPA-23	EPA-23	EPA-23	EPA-23
Collection Date:		1/27/2020	10/9/2019	7/15/2019	4/8/2019
Receive Date:		1/30/2020	10/16/2019	7/18/2019	4/11/2019
Report Date:		3/6/2020	11/21/2019	9/9/2019	5/21/2019
Analyte	Units	C20010929-002	C19100738-002	C19070767-002	C19040539-002
Bicarbonate as HCO ₃	mg/L	1360	1350	1370	1350
Chloride	mg/L	132	126	128	122
Sulfate	mg/L	2440	2340	2480	2410
Calcium	mg/L	630	670	646	699
Magnesium	mg/L	394	402	389	399
Potassium	mg/L	12	12	11	12
Sodium	mg/L	175	165	159	162
pH	s.u.	6.71	6.79	6.71	6.65
Solids, Total Dissolved TDS @ 180 C	mg/L	4890	4790	4900	4840
Nitrogen, Ammonia as N	mg/L	0.63	0.17	0.70	0.28
Nitrogen, Nitrate+Nitrite as N	mg/L	5.55	2.65	5.10	2.82
Aluminum	mg/L	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.003
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	0.006	0.007	0.008	0.007
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	3.61	3.90	6.15	5.78
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	0.006
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0343	0.0333	0.0327	0.0291
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	0.04
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				0.001
A/C Balance	%	-3.71	-0.38	-4.50	-0.52
Anions	meq/L	77.3	74.6	78.2	75.9
Cations	meq/L	71.8	74.0	71.5	75.1
Solids, Total Dissolved - Calculated	mg/L	4500	4400	4500	4500
TDS Ratio	unitless	1.09	1.09	1.08	1.08
Gross Alpha minus Rn & U	pCi/L	1.5	1	0.6	1.1
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.6	0.5	0.4	0.4
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	1	0.7	0.7	0.8
Lead 210 precision (±)	pCi/L	0.7	0.7	0.6	0.6
Lead 210 MDC	pCi/L	1.1	1.1	0.9	1.0
Radium 226	pCi/L	0.5	0.5	0.5	0.3
Radium 226 precision (±)	pCi/L	0.2	0.1	0.2	0.1
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	0.9	0.8	3.7	0.2
Radium 228 precision (±)	pCi/L	0.6	1.1	1.2	0.9
Radium 228 MDC	pCi/L	0.8	1.7	1.5	1.5
Thorium 230	pCi/L	-0.001	0.007	0.04	0.1
Thorium 230 precision (±)	pCi/L	0.07	0.1	0.1	0.2
Thorium 230 MDC	pCi/L	0.2	0.2	0.2	0.3
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW Alluvium
Lab ID: C20010972-004
Client Sample ID: EPA-25

Report Date: 03/05/20
Collection Date: 01/29/20 09:25
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	1400	mg/L		5		A2320 B	02/04/20 13:53 / kjp
Chloride	148	mg/L	D	2		E300.0	02/05/20 08:22 / dmb
Sulfate	1910	mg/L	D	8		E300.0	02/05/20 08:22 / dmb
Calcium	722	mg/L		1		E200.7	02/05/20 03:27 / jcg
Magnesium	253	mg/L		1		E200.7	02/05/20 03:27 / jcg
Potassium	9	mg/L		1		E200.7	02/05/20 03:27 / jcg
Sodium	226	mg/L		1		E200.7	02/05/20 03:27 / jcg
PHYSICAL PROPERTIES							
pH	6.84	s.u.	H	0.01		A4500-H B	02/03/20 12:05 / kjp
pH Measurement Temp	13	°C				A4500-H B	02/03/20 12:05 / kjp
Solids, Total Dissolved TDS @ 180 C	4540	mg/L	D	40		A2540 C	02/04/20 10:47 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	60.0	mg/L	D	0.5		E353.2	02/04/20 16:17 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/05/20 13:01 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 17:50 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 17:50 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 17:50 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 17:50 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 17:50 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 17:50 / meh
Manganese	0.223	mg/L	D	0.003		E200.8	02/05/20 17:50 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 17:50 / meh
Nickel	ND	mg/L		0.005		E200.8	02/05/20 17:50 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 17:50 / meh
Uranium	0.143	mg/L		0.0003		E200.8	02/05/20 17:50 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 17:50 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	0.02	pCi/L	U			E900.1	02/10/20 13:31 / amm
Gross Alpha minus Rn & U Precision (±)	0.4	pCi/L				E900.1	02/10/20 13:31 / amm
Gross Alpha minus Rn & U MDC	0.6	pCi/L				E900.1	02/10/20 13:31 / amm
Lead 210	0.6	pCi/L	U			E909.0	02/15/20 17:19 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/15/20 17:19 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/15/20 17:19 / ajl
Radium 226	0.2	pCi/L				E903.0	02/21/20 16:26 / amm
Radium 226 precision (±)	0.1	pCi/L				E903.0	02/21/20 16:26 / amm
Radium 226 MDC	0.2	pCi/L				E903.0	02/21/20 16:26 / amm
Radium 228	-0.3	pCi/L	U			RA-05	02/10/20 14:58 / trs
Radium 228 precision (±)	0.9	pCi/L				RA-05	02/10/20 14:58 / trs
Radium 228 MDC	1.6	pCi/L				RA-05	02/10/20 14:58 / trs

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW Alluvium
Lab ID: C20010972-004
Client Sample ID: EPA-25

Report Date: 03/05/20
Collection Date: 01/29/20 09:25
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.01	pCi/L	U			E908.0	02/19/20 14:38 / nsr
Thorium 230 precision (±)	0.05	pCi/L				E908.0	02/19/20 14:38 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/19/20 14:38 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	4200	mg/L				A1030 E	02/06/20 15:36 / tlf
A/C Balance	-2.95	%				A1030 E	02/06/20 15:36 / tlf
Anions	71.0	meq/L				A1030 E	02/06/20 15:36 / tlf
Cations	66.9	meq/L				A1030 E	02/06/20 15:36 / tlf
TDS Ratio	1.07	unitless				A1030 E	02/06/20 15:36 / tlf
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/05/20 13:06 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/05/20 13:06 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/05/20 13:06 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	02/05/20 13:06 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	90.0	%REC		71-139		E624.1	02/05/20 13:06 / eli-b
Surr: p-Bromofluorobenzene	100	%REC		80-127		E624.1	02/05/20 13:06 / eli-b
Surr: Toluene-d8	96.0	%REC		80-123		E624.1	02/05/20 13:06 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		EPA-25	EPA-25	EPA-25	EPA-25
Collection Date:		1/28/2020	10/9/2019	7/30/2019	4/9/2019
Receive Date:		1/31/2020	10/16/2019	8/7/2019	4/12/2019
Report Date:		3/5/2020	11/21/2019	9/20/2019	5/13/2019
Analyte	Units	C20010972-004	C19100738-014	C19080322-003	C19040607-003
Bicarbonate as HCO ₃	mg/L	1400	1410	1420	1430
Chloride	mg/L	148	148	142	152
Sulfate	mg/L	1910	1890	1840	1950
Calcium	mg/L	722	780	780	791
Magnesium	mg/L	253	249	245	250
Potassium	mg/L	9	9	8	8
Sodium	mg/L	226	227	212	227
pH	s.u.	6.84	6.85	6.91	6.92
Solids, Total Dissolved TDS @ 180 C	mg/L	4540	4450	4550	4590
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.2)	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	60.0	64.0	65.5	66.2
Aluminum	mg/L	ND(0.03)	ND(0.2)	ND(0.03)	ND(0.03)
Arsenic	mg/L	ND(0.001)	ND(0.001)	0.001	0.002
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	0.223	0.16	0.652	0.361
Molybdenum	mg/L	ND(0.001)	ND(0.003)	ND(0.001)	ND(0.001)
Nickel	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Selenium	mg/L	ND(0.001)	ND(0.002)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.143	0.114	0.124	0.120
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-2.95	-1.19	-1.27	-1.97
Anions	meq/L	71.0	71.1	70.3	73.0
Cations	meq/L	66.9	69.5	68.5	70.2
Solids, Total Dissolved - Calculated	mg/L	4200	4300	4200	4400
TDS Ratio	unitless	1.07	1.03	1.07	1.05
Gross Alpha minus Rn & U	pCi/L	0.02	0.3	0.2	0.4
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.4	0.3	0.4	0.4
Gross Alpha minus Rn & U MDC	pCi/L	0.6	0.5	0.5	0.6
Lead 210	pCi/L	0.6	-0.02	0.1	0.8
Lead 210 precision (±)	pCi/L	0.6	0.6	0.5	0.6
Lead 210 MDC	pCi/L	0.9	1.0	0.9	1
Radium 226	pCi/L	0.2	0.1	0.2	0.08
Radium 226 precision (±)	pCi/L	0.1	0.08	0.1	0.1
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	-0.3	-0.2	1.7	0.3
Radium 228 precision (±)	pCi/L	0.9	1.1	1.2	1.1
Radium 228 MDC	pCi/L	1.6	1.9	2.0	1.8
Thorium 230	pCi/L	0.01	0.02	-0.01	0.0009
Thorium 230 precision (±)	pCi/L	0.05	0.08	0.04	0.08
Thorium 230 MDC	pCi/L	0.1	0.2	0.09	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-009
Client Sample ID: EPA-28

Report Date: 03/06/20
Collection Date: 01/28/20 09:50
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	257	mg/L		5		A2320 B	01/31/20 18:52 / kjp
Chloride	90	mg/L	D	2		E300.0	02/04/20 23:06 / dmb
Sulfate	2980	mg/L	D	8		E300.0	02/04/20 23:06 / dmb
Calcium	459	mg/L		1		E200.7	02/02/20 23:02 / jcg
Magnesium	432	mg/L		1		E200.7	02/02/20 23:02 / jcg
Potassium	10	mg/L		1		E200.7	02/02/20 23:02 / jcg
Sodium	241	mg/L		1		E200.7	02/02/20 23:02 / jcg
PHYSICAL PROPERTIES							
pH	6.95	s.u.	H	0.01		A4500-H B	01/31/20 12:08 / kjp
pH Measurement Temp	15	°C				A4500-H B	01/31/20 12:08 / kjp
Solids, Total Dissolved TDS @ 180 C	4990	mg/L	D	100		A2540 C	02/03/20 10:33 / kjp
- See case narrative for TDS.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	3.11	mg/L		0.01		E353.2	02/04/20 15:13 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/05/20 12:55 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	02/05/20 12:49 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 12:49 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 12:49 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 12:49 / meh
Cobalt	ND	mg/L		0.005		E200.8	02/05/20 12:49 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 12:49 / meh
Manganese	0.193	mg/L	D	0.003		E200.8	02/05/20 12:49 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 12:49 / meh
Nickel	0.005	mg/L		0.005		E200.8	02/05/20 12:49 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 12:49 / meh
Uranium	0.0200	mg/L		0.0003		E200.8	02/05/20 12:49 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 12:49 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	1.4	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U Precision (±)	0.6	pCi/L				E900.1	02/04/20 11:52 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	02/04/20 11:52 / trs
Lead 210	0.9	pCi/L	U			E909.0	02/13/20 14:50 / ajl
Lead 210 precision (±)	0.7	pCi/L				E909.0	02/13/20 14:50 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/13/20 14:50 / ajl
Radium 226	0.9	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 precision (±)	0.3	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 226 MDC	0.2	pCi/L				E903.0	02/12/20 13:51 / amm
Radium 228	1.6	pCi/L				RA-05	02/07/20 16:01 / trs
Radium 228 precision (±)	0.6	pCi/L				RA-05	02/07/20 16:01 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix
 U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW-Alluvium
Lab ID: C20010929-009
Client Sample ID: EPA-28

Report Date: 03/06/20
Collection Date: 01/28/20 09:50
Date Received: 01/30/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	0.8	pCi/L				RA-05	02/07/20 16:01 / trs
Thorium 230	0.04	pCi/L	U			E908.0	02/19/20 14:37 / nsr
Thorium 230 precision (±)	0.08	pCi/L				E908.0	02/19/20 14:37 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/19/20 14:37 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	4400	mg/L				A1030 E	02/06/20 15:34 / tlf
A/C Balance	0.13	%				A1030 E	02/06/20 15:34 / tlf
Anions	69.0	meq/L				A1030 E	02/06/20 15:34 / tlf
Cations	69.2	meq/L				A1030 E	02/06/20 15:34 / tlf
TDS Ratio	1.14	unitless				A1030 E	02/06/20 15:34 / tlf
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 19:23 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 19:23 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 19:23 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	02/03/20 19:23 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	107	%REC		71-139		E624.1	02/03/20 19:23 / eli-b
Surr: p-Bromofluorobenzene	104	%REC		80-127		E624.1	02/03/20 19:23 / eli-b
Surr: Toluene-d8	102	%REC		80-123		E624.1	02/03/20 19:23 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		EPA-28	EPA-28	EPA-28	EPA-28
Collection Date:		1/27/2020	10/9/2019	7/15/2019	4/8/2019
Receive Date:		1/30/2020	10/16/2019	7/18/2019	4/11/2019
Report Date:		3/6/2020	11/21/2019	9/9/2019	5/21/2019
Analyte	Units	C20010929-009	C19100738-009	C19070767-009	C19040539-009
Bicarbonate as HCO ₃	mg/L	257	425	430	422
Chloride	mg/L	90	98	95	97
Sulfate	mg/L	2980	3200	3080	3180
Calcium	mg/L	459	505	466	505
Magnesium	mg/L	432	465	427	419
Potassium	mg/L	10	11	9	11
Sodium	mg/L	241	257	225	240
pH	s.u.	6.95	6.97	6.90	6.85
Solids, Total Dissolved TDS @ 180 C	mg/L	4990	5020	4990	5020
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	3.11	3.47	4.54	4.74
Aluminum	mg/L	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.002
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	0.003	ND(0.001)
Manganese	mg/L	0.193	0.476	0.599	0.510
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	0.005	0.012	0.009	0.012
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0200	0.0203	0.0203	0.0202
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	0.13	-1.11	-3.99	-3.91
Anions	meq/L	69.0	76.6	74.1	76.1
Cations	meq/L	69.2	74.9	68.4	70.4
Solids, Total Dissolved - Calculated	mg/L	4400	4800	4500	4700
TDS Ratio	unitless	1.14	1.05	1.10	1.07
Gross Alpha minus Rn & U	pCi/L	1.4	0.8	0.9	0.3
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.6	0.5	0.4	0.4
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	0.9	-0.2	0	0.07
Lead 210 precision (±)	pCi/L	0.7	0.6	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.0	0.9	1.0
Radium 226	pCi/L	0.9	0.5	0.5	0.5
Radium 226 precision (±)	pCi/L	0.3	0.1	0.2	0.2
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	1.6	0.6	0.6	0.2
Radium 228 precision (±)	pCi/L	0.6	0.9	1.0	1.1
Radium 228 MDC	pCi/L	0.8	1.5	1.7	1.8
Thorium 230	pCi/L	0.04	0.006	-0.009	0.03
Thorium 230 precision (±)	pCi/L	0.08	0.09	0.05	0.09
Thorium 230 MDC	pCi/L	0.1	0.2	0.1	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW Alluvium
Lab ID: C20010972-002
Client Sample ID: SBL-1

Report Date: 03/05/20
Collection Date: 01/28/20 12:25
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	449	mg/L		5		A2320 B	02/04/20 13:42 / kjp
Chloride	76	mg/L	D	5		E300.0	02/05/20 07:43 / dmb
Sulfate	6270	mg/L	D	20		E300.0	02/05/20 07:43 / dmb
Calcium	475	mg/L		1		E200.7	02/05/20 03:18 / jcg
Magnesium	1260	mg/L		1		E200.7	02/05/20 03:18 / jcg
Potassium	15	mg/L		1		E200.7	02/05/20 03:18 / jcg
Sodium	284	mg/L		1		E200.7	02/05/20 03:18 / jcg
PHYSICAL PROPERTIES							
pH	6.77	s.u.	H	0.01		A4500-H B	02/03/20 11:58 / kjp
pH Measurement Temp	12	°C				A4500-H B	02/03/20 11:58 / kjp
Solids, Total Dissolved TDS @ 180 C	9510	mg/L	D	100		A2540 C	02/03/20 10:37 / kjp
- See case narrative for TDS.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	33.6	mg/L	D	0.5		E353.2	02/04/20 16:10 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	02/05/20 12:59 / dmb
METALS, TOTAL							
Aluminum	0.18	mg/L	D	0.08		E200.8	02/05/20 17:41 / meh
Arsenic	ND	mg/L		0.001		E200.8	02/05/20 17:41 / meh
Beryllium	ND	mg/L		0.001		E200.8	02/05/20 17:41 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 17:41 / meh
Cobalt	0.030	mg/L		0.005		E200.8	02/05/20 17:41 / meh
Lead	ND	mg/L		0.001		E200.8	02/05/20 17:41 / meh
Manganese	3.19	mg/L	D	0.008		E200.8	02/05/20 17:41 / meh
Molybdenum	ND	mg/L		0.001		E200.8	02/05/20 17:41 / meh
Nickel	0.128	mg/L		0.005		E200.8	02/05/20 17:41 / meh
Selenium	0.021	mg/L		0.001		E200.8	02/05/20 17:41 / meh
Uranium	0.0067	mg/L	D	0.0006		E200.8	02/06/20 13:30 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 17:41 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	0.9	pCi/L				E900.1	02/10/20 13:31 / amm
Gross Alpha minus Rn & U Precision (±)	0.5	pCi/L				E900.1	02/10/20 13:31 / amm
Gross Alpha minus Rn & U MDC	0.6	pCi/L				E900.1	02/10/20 13:31 / amm
Lead 210	0.07	pCi/L	U			E909.0	02/15/20 10:04 / ajl
Lead 210 precision (±)	0.5	pCi/L				E909.0	02/15/20 10:04 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/15/20 10:04 / ajl
Radium 226	0.8	pCi/L				E903.0	02/19/20 12:25 / trs
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/19/20 12:25 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	02/19/20 12:25 / trs
Radium 228	3.2	pCi/L				RA-05	02/10/20 13:21 / trs
Radium 228 precision (±)	1	pCi/L				RA-05	02/10/20 13:21 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix
 U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-SW Alluvium
Lab ID: C20010972-002
Client Sample ID: SBL-1

Report Date: 03/05/20
Collection Date: 01/28/20 12:25
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	1.1	pCi/L				RA-05	02/10/20 13:21 / trs
Thorium 230	0.03	pCi/L	U			E908.0	02/19/20 14:38 / nsr
Thorium 230 precision (±)	0.05	pCi/L				E908.0	02/19/20 14:38 / nsr
Thorium 230 MDC	0.09	pCi/L				E908.0	02/19/20 14:38 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	8800	mg/L				A1030 E	02/06/20 15:36 / tlf
A/C Balance	-0.86	%				A1030 E	02/06/20 15:36 / tlf
Anions	142	meq/L				A1030 E	02/06/20 15:36 / tlf
Cations	140	meq/L				A1030 E	02/06/20 15:36 / tlf
TDS Ratio	1.08	unitless				A1030 E	02/06/20 15:36 / tlf
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/05/20 12:15 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/05/20 12:15 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/05/20 12:15 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	02/05/20 12:15 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/10/20 13:44 / tla
Surr: 1,2-Dichloroethane-d4	93.0	%REC		71-139		E624.1	02/05/20 12:15 / eli-b
Surr: p-Bromofluorobenzene	98.0	%REC		80-127		E624.1	02/05/20 12:15 / eli-b
Surr: Toluene-d8	93.0	%REC		80-123		E624.1	02/05/20 12:15 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - SW Alluvium					
Well ID:		SBL-1	SBL-1	SBL-1	SBL-1
Collection Date:		1/28/2020	10/9/2019	7/30/2019	4/9/2019
Receive Date:		1/31/2020	10/16/2019	8/7/2019	4/12/2019
Report Date:		3/5/2020	11/21/2019	9/20/2019	5/13/2019
Analyte	Units	C20010972-002	C19100738-012	C19080322-002	C19040607-002
Bicarbonate as HCO ₃	mg/L	449	415	396	456
Chloride	mg/L	76	76	77	74
Sulfate	mg/L	6270	6210	6190	5990
Calcium	mg/L	475	483	480	480
Magnesium	mg/L	1260	1260	1260	1270
Potassium	mg/L	15	14	15	13
Sodium	mg/L	284	286	282	291
pH	s.u.	6.77	6.79	6.75	6.90
Solids, Total Dissolved TDS @ 180 C	mg/L	9510	9200	9440	9610
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	33.6	35.8	39.4	33.4
Aluminum	mg/L	0.18	0.22	0.47	0.59
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.002
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.001
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	0.030	0.031	0.036	0.026
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	3.19	3.52	3.75	3.89
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.001
Nickel	mg/L	0.128	0.126	0.130	0.08
Selenium	mg/L	0.021	0.016	0.019	0.013
Uranium	mg/L	0.0067	0.005	0.0069	0.0085
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				0.001
A/C Balance	%	-0.86	-0.20	0.08	1.67
Anions	meq/L	142	141	140	137
Cations	meq/L	140	140	141	141
Solids, Total Dissolved - Calculated	mg/L	8800	8700	8700	8500
TDS Ratio	unitless	1.08	1.06	1.09	1.13
Gross Alpha minus Rn & U	pCi/L	0.9	1.0	1.4	1
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.5	0.5	0.6	0.5
Gross Alpha minus Rn & U MDC	pCi/L	0.6	0.5	0.5	0.6
Lead 210	pCi/L	0.07	-0.03	-0.2	0.6
Lead 210 precision (±)	pCi/L	0.5	0.6	0.5	0.6
Lead 210 MDC	pCi/L	0.9	1.0	0.8	0.9
Radium 226	pCi/L	0.8	0.4	0.7	0.4
Radium 226 precision (±)	pCi/L	0.2	0.2	0.2	0.2
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	3.2	1.0	3.0	1.6
Radium 228 precision (±)	pCi/L	1	1.1	1.4	1.1
Radium 228 MDC	pCi/L	1.1	1.9	1.9	1.9
Thorium 230	pCi/L	0.03	-0.007	0.07	-0.04
Thorium 230 precision (±)	pCi/L	0.05	0.06	0.05	0.07
Thorium 230 MDC	pCi/L	0.09	0.1	0.07	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

QUARTERLY SAMPLING
SEMI-ANNUAL GROUND WATER MONITORING REPORT

JANUARY AND FEBRUARY OF 2020

ZONE - 1

515-A

*604

*614

TWQ-142

EPA-2

*EPA-4

*EPA-5

*EPA-7

LEVELS ONLY

TWQ-143

EPA-8

505-A

502-A

501-A

504-A

412

NOTE: *POINT OF COMPLIANCE WELLS
WATER LEVEL ONLY IS IN FIELD DATA SHEET
NO SAMPLING IN APRIL

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-007
Client Sample ID: 515-A

Report Date: 02/26/20
Collection Date: 01/15/20 12:25
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	830	mg/L		5		A2320 B	01/20/20 18:46 / dmb
Chloride	377	mg/L	D	5		E300.0	01/22/20 22:12 / ljl
Sulfate	6510	mg/L	D	20		E300.0	01/22/20 22:12 / ljl
Calcium	456	mg/L		1		E200.7	01/20/20 19:06 / jcg
Magnesium	1360	mg/L		1		E200.7	01/20/20 19:06 / jcg
Potassium	18	mg/L		1		E200.7	01/20/20 19:06 / jcg
Sodium	611	mg/L		1		E200.7	01/20/20 19:06 / jcg
PHYSICAL PROPERTIES							
pH	6.11	s.u.	H	0.01		A4500-H B	01/17/20 16:50 / kjp
pH Measurement Temp	19	°C				A4500-H B	01/17/20 16:50 / kjp
Solids, Total Dissolved TDS @ 180 C	10800	mg/L	D	100		A2540 C	01/20/20 12:20 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	43	mg/L	D	1		E353.2	01/21/20 16:34 / dmb
Nitrogen, Ammonia as N	11	mg/L	D	1		E350.1	01/23/20 14:10 / dmb
METALS, TOTAL							
Aluminum	0.31	mg/L		0.03		E200.8	01/22/20 03:34 / jcg
Arsenic	ND	mg/L		0.001		E200.8	01/23/20 09:40 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/24/20 20:26 / meh
Cadmium	0.001	mg/L		0.001		E200.8	01/22/20 03:34 / jcg
Cobalt	0.021	mg/L		0.005		E200.8	01/22/20 03:34 / jcg
Lead	0.001	mg/L		0.001		E200.8	01/22/20 03:34 / jcg
Manganese	6.26	mg/L	D	0.003		E200.8	01/22/20 03:34 / jcg
Molybdenum	ND	mg/L		0.001		E200.8	01/22/20 03:34 / jcg
Nickel	0.098	mg/L		0.005		E200.8	01/22/20 03:34 / jcg
Selenium	0.078	mg/L		0.001		E200.8	01/22/20 03:34 / jcg
Uranium	0.0086	mg/L		0.0003		E200.8	01/22/20 03:34 / jcg
Vanadium	ND	mg/L		0.01		E200.8	01/23/20 09:40 / meh
METALS - SPECIATED - TOTAL							
Selenium-IV	ND	mg/L		0.005		A3114 C	01/29/20 00:00 / iml
***Selenium Speciation subbed to Pace Analytical.							
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	7.8	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U Precision (±)	1.9	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U MDC	0.8	pCi/L				E900.1	01/24/20 13:11 / trs
Lead 210	1.4	pCi/L				E909.0	02/02/20 09:38 / ajl
Lead 210 precision (±)	0.7	pCi/L				E909.0	02/02/20 09:38 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/02/20 09:38 / ajl
Radium 226	2.0	pCi/L				E903.0	02/07/20 13:09 / trs
Radium 226 precision (±)	0.5	pCi/L				E903.0	02/07/20 13:09 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-007
Client Sample ID: 515-A

Report Date: 02/26/20
Collection Date: 01/15/20 12:25
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226 MDC	0.3	pCi/L				E903.0	02/07/20 13:09 / trs
Radium 228	3.3	pCi/L				RA-05	02/02/20 14:40 / trs
Radium 228 precision (±)	1	pCi/L				RA-05	02/02/20 14:40 / trs
Radium 228 MDC	1.2	pCi/L				RA-05	02/02/20 14:40 / trs
Thorium 230	0.1	pCi/L	U			E908.0	02/12/20 14:13 / nsr
Thorium 230 precision (±)	0.09	pCi/L				E908.0	02/12/20 14:13 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/12/20 14:13 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	9900	mg/L				A1030 E	01/24/20 12:11 / tla
A/C Balance	-0.03	%				A1030 E	01/24/20 12:11 / tla
Anions	163	meq/L				A1030 E	01/24/20 12:11 / tla
Cations	163	meq/L				A1030 E	01/24/20 12:11 / tla
TDS Ratio	1.10	unitless				A1030 E	01/24/20 12:11 / tla
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Bromoform	ND	ug/L		2.0		E624.1	01/27/20 00:00 / ta-a
Chlorodibromomethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Chloroform	160	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Trihalomethanes, Total	160	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a

***Method E624.1 subbed to Test America.

Report Definitions:

RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		515-A	515-A	515-A	515-A
Collection Date:		1/14/2020	10/1/2019	7/23/2019	4/9/2019
Receive Date:		1/17/2020	10/9/2019	7/31/2019	4/12/2019
Report Date:		2/26/2020	11/13/2019	9/12/2019	6/4/2019
Analyte	Units	C20010593-007	C19100479-007	C19071276-006	C19040610-002
Bicarbonate as HCO ₃	mg/L	830	766	838	841
Chloride	mg/L	377	365	374	375
Sulfate	mg/L	6510	6280	6430	6430
Calcium	mg/L	456	445	425	431
Magnesium	mg/L	1360	1270	1320	1360
Potassium	mg/L	18	19	17	16
Sodium	mg/L	611	580	569	612
pH	s.u.	6.11	6.09	6.16	6.25
Solids, Total Dissolved TDS @ 180 C	mg/L	10800	10500	10900	10800
Nitrogen, Ammonia as N	mg/L	11	17	17	17
Nitrogen, Nitrate+Nitrite as N	mg/L	43	36	36.3	37.0
Aluminum	mg/L	0.31	0.41	1.04	0.22
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.002
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	0.001	0.001	0.001	0.001
Cobalt	mg/L	0.021	0.023	0.023	0.025
Lead	mg/L	0.001	0.001	0.001	0.001
Manganese	mg/L	6.26	6.62	6.79	7.51
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	0.098	0.099	0.097	0.103
Selenium	mg/L	0.078	0.068	0.072	0.071
Uranium	mg/L	0.0086	0.0082	0.0091	0.0091
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Selenium-IV	mg/L	ND	ND		0.0025
A/C Balance	%	-0.03	-0.91	-0.55	0.34
Anions	meq/L	163	156	158	161
Cations	meq/L	163	153	156	162
Solids, Total Dissolved - Calculated	mg/L	9900	9500	9600	9800
TDS Ratio	unitless	1.10	1.11	1.14	1.10
Gross Alpha minus Rn & U MDC	pCi/L	0.8	0.7	0.6	0.6
Gross Alpha minus Rn & U	pCi/L	7.8	3.4	2.3	3.4
Gross Alpha minus Rn & U Precision (±)	pCi/L	1.9	1	0.8	0.9
Lead 210 MDC	pCi/L	0.9	1.2	0.8	1
Lead 210	pCi/L	1.4	0.2	1.1	0.9
Lead 210 precision (±)	pCi/L	0.7	0.7	0.6	0.6
Radium 226 MDC	pCi/L	0.3	0.1	0.2	0.2
Radium 226	pCi/L	2.0	2.2	1.8	2.1
Radium 226 precision (±)	pCi/L	0.5	0.5	0.4	0.5
Radium 228 MDC	pCi/L	1.2	1.6	1.8	2.5
Radium 228	pCi/L	3.3	4.9	4.0	2.9
Radium 228 precision (±)	pCi/L	1	1.4	1.3	1.3
Thorium 230 MDC	pCi/L	0.1	0.2	0.2	0.4
Thorium 230	pCi/L	0.1	0.2	-0.02	0.07
Thorium 230 precision (±)	pCi/L	0.09	0.2	0.05	0.2
Trihalomethanes, Total	ug/L	160	390	290	72

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-008
Client Sample ID: 604

Report Date: 02/26/20
Collection Date: 01/15/20 13:58
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	26	mg/L		5		A2320 B	01/20/20 18:53 / dmb
Chloride	114	mg/L	D	2		E300.0	01/22/20 22:32 / ljl
Sulfate	4790	mg/L	D	8		E300.0	01/22/20 22:32 / ljl
Calcium	443	mg/L		1		E200.7	01/20/20 19:19 / jcg
Magnesium	812	mg/L		1		E200.7	01/20/20 19:19 / jcg
Potassium	12	mg/L		1		E200.7	01/20/20 19:19 / jcg
Sodium	307	mg/L		1		E200.7	01/20/20 19:19 / jcg
PHYSICAL PROPERTIES							
pH	5.50	s.u.	H	0.01		A4500-H B	01/17/20 16:53 / kjp
pH Measurement Temp	19	°C				A4500-H B	01/17/20 16:53 / kjp
Solids, Total Dissolved TDS @ 180 C	7160	mg/L	D	100		A2540 C	01/20/20 12:20 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	62	mg/L	D	1		E353.2	01/21/20 16:35 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	01/23/20 14:13 / dmb
METALS, TOTAL							
Aluminum	0.49	mg/L		0.03		E200.8	01/22/20 03:39 / jcg
Arsenic	ND	mg/L		0.001		E200.8	01/23/20 09:45 / meh
Beryllium	0.001	mg/L		0.001		E200.8	01/24/20 20:30 / meh
Cadmium	0.002	mg/L		0.001		E200.8	01/22/20 03:39 / jcg
Cobalt	0.100	mg/L		0.005		E200.8	01/22/20 03:39 / jcg
Lead	ND	mg/L		0.001		E200.8	01/22/20 03:39 / jcg
Manganese	4.21	mg/L	D	0.003		E200.8	01/22/20 03:39 / jcg
Molybdenum	ND	mg/L		0.001		E200.8	01/22/20 03:39 / jcg
Nickel	0.192	mg/L		0.005		E200.8	01/22/20 03:39 / jcg
Selenium	0.056	mg/L		0.001		E200.8	01/22/20 03:39 / jcg
Uranium	ND	mg/L	D	0.0006		E200.8	01/23/20 09:45 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/23/20 09:45 / meh
METALS - SPECIATED - TOTAL							
Selenium-IV	ND	mg/L		0.005		A3114 C	01/29/20 00:00 / iml
***Selenium Speciation subbed to Pace Analytical.							
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	3.6	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U Precision (±)	1.1	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U MDC	0.8	pCi/L				E900.1	01/24/20 13:11 / trs
Lead 210	0.9	pCi/L				E909.0	02/02/20 12:58 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/02/20 12:58 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/02/20 12:58 / ajl
Radium 226	1.2	pCi/L				E903.0	02/07/20 13:09 / trs
Radium 226 precision (±)	0.3	pCi/L				E903.0	02/07/20 13:09 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-008
Client Sample ID: 604

Report Date: 02/26/20
Collection Date: 01/15/20 13:58
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226 MDC	0.2	pCi/L				E903.0	02/07/20 13:09 / trs
Radium 228	3.7	pCi/L				RA-05	02/02/20 14:40 / trs
Radium 228 precision (±)	1	pCi/L				RA-05	02/02/20 14:40 / trs
Radium 228 MDC	0.9	pCi/L				RA-05	02/02/20 14:40 / trs
Thorium 230	0.02	pCi/L	U			E908.0	02/12/20 14:13 / nsr
Thorium 230 precision (±)	0.07	pCi/L				E908.0	02/12/20 14:13 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/12/20 14:13 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	6800	mg/L				A1030 E	01/24/20 12:11 / tla
A/C Balance	-2.44	%				A1030 E	01/24/20 12:11 / tla
Anions	108	meq/L				A1030 E	01/24/20 12:11 / tla
Cations	103	meq/L				A1030 E	01/24/20 12:11 / tla
TDS Ratio	1.06	unitless				A1030 E	01/24/20 12:11 / tla
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Bromoform	ND	ug/L		2.0		E624.1	01/27/20 00:00 / ta-a
Chlorodibromomethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Chloroform	17	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Trihalomethanes, Total	17	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a

***Method E624.1 subbed to Test America.

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		604	604	604	604
Collection Date:		1/14/2020	10/1/2019	7/23/2019	4/9/2019
Receive Date:		1/17/2020	10/9/2019	7/31/2019	4/12/2019
Report Date:		2/26/2020	11/13/2019	9/12/2019	6/4/2019
Analyte	Units	C20010593-008	C19100479-008	C19071276-007	C19040610-003
Bicarbonate as HCO ₃	mg/L	26	29	28	28
Chloride	mg/L	114	109	111	109
Sulfate	mg/L	4790	4650	4680	4790
Calcium	mg/L	443	439	463	404
Magnesium	mg/L	812	765	831	714
Potassium	mg/L	12	13	11	10
Sodium	mg/L	307	299	317	267
pH	s.u.	5.50	5.50	5.52	5.62
Solids, Total Dissolved TDS @ 180 C	mg/L	7160	7150	7310	7270
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	62	59	58.8	57.0
Aluminum	mg/L	0.49	1.2	0.62	0.81
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.001
Beryllium	mg/L	0.001	0.002	0.001	ND(0.001)
Cadmium	mg/L	0.002	0.002	0.001	0.002
Cobalt	mg/L	0.100	0.106	0.092	0.102
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	4.21	4.57	4.24	4.03
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	0.192	0.197	0.194	0.202
Selenium	mg/L	0.056	0.053	0.052	0.045
Uranium	mg/L	ND(0.0006)	0.0004	0.0004	ND(0.0003)
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Selenium-IV	mg/L	ND	ND		0.00059
A/C Balance	%	-2.44	-3.13	0.15	-8.33
Anions	meq/L	108	105	105	107
Cations	meq/L	103	98.2	106	90.8
Solids, Total Dissolved - Calculated	mg/L	6800	6600	6700	6600
TDS Ratio	unitless	1.06	1.09	1.09	1.11
Gross Alpha minus Rn & U MDC	pCi/L	0.8	0.7	0.6	0.6
Gross Alpha minus Rn & U	pCi/L	3.6	2.4	1.5	2.1
Gross Alpha minus Rn & U Precision (±)	pCi/L	1.1	0.8	0.7	0.7
Lead 210 MDC	pCi/L	0.9	1.1	0.8	0.9
Lead 210	pCi/L	0.9	-0.08	0.2	0.6
Lead 210 precision (±)	pCi/L	0.6	0.7	0.5	0.6
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 226	pCi/L	1.2	1.3	1.2	1.3
Radium 226 precision (±)	pCi/L	0.3	0.3	0.3	0.3
Radium 228 MDC	pCi/L	0.9	1.5	1.6	2.5
Radium 228	pCi/L	3.7	4.1	7.9	3.1
Radium 228 precision (±)	pCi/L	1	1.4	1.9	1.4
Thorium 230 MDC	pCi/L	0.1	0.1	0.06	0.3
Thorium 230	pCi/L	0.02	0.03	0.02	-0.01
Thorium 230 precision (±)	pCi/L	0.07	0.06	0.02	0.1
Trihalomethanes, Total	ug/L	17	16	16	14

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-005
Client Sample ID: 614

Report Date: 02/26/20
Collection Date: 01/15/20 09:05
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	1320	mg/L		5		A2320 B	01/20/20 18:36 / dmb
Chloride	319	mg/L	D	5		E300.0	01/22/20 21:34 / ljl
Sulfate	3420	mg/L	D	20		E300.0	01/22/20 21:34 / ljl
Calcium	558	mg/L		1		E200.7	01/20/20 18:48 / jcg
Magnesium	665	mg/L		1		E200.7	01/20/20 18:48 / jcg
Potassium	15	mg/L		1		E200.7	01/20/20 18:48 / jcg
Sodium	470	mg/L		1		E200.7	01/20/20 18:48 / jcg
PHYSICAL PROPERTIES							
pH	6.49	s.u.	H	0.01		A4500-H B	01/17/20 16:44 / kjp
pH Measurement Temp	19	°C				A4500-H B	01/17/20 16:44 / kjp
Solids, Total Dissolved TDS @ 180 C	6820	mg/L	D	100		A2540 C	01/20/20 12:19 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	110	mg/L	D	1		E353.2	01/21/20 16:32 / dmb
Nitrogen, Ammonia as N	95	mg/L	D	5		E350.1	01/23/20 14:05 / dmb
METALS, TOTAL							
Aluminum	0.25	mg/L		0.03		E200.8	01/22/20 03:26 / jcg
Arsenic	ND	mg/L		0.001		E200.8	01/23/20 09:15 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/24/20 20:17 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/22/20 03:26 / jcg
Cobalt	ND	mg/L		0.005		E200.8	01/22/20 03:26 / jcg
Lead	0.001	mg/L		0.001		E200.8	01/22/20 03:26 / jcg
Manganese	0.938	mg/L	D	0.008		E200.8	01/23/20 09:15 / meh
Molybdenum	ND	mg/L		0.001		E200.8	01/22/20 03:26 / jcg
Nickel	0.023	mg/L		0.005		E200.8	01/23/20 09:15 / meh
Selenium	0.074	mg/L		0.001		E200.8	01/23/20 09:15 / meh
Uranium	0.0433	mg/L		0.0003		E200.8	01/22/20 03:26 / jcg
Vanadium	ND	mg/L		0.01		E200.8	01/23/20 09:15 / meh
METALS - SPECIATED - TOTAL							
Selenium-IV	ND	mg/L		0.005		A3114 C	01/29/20 00:00 / iml
***Selenium Speciation subbed to Pace Analytical.							
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	5.3	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U Precision (±)	1.4	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U MDC	0.8	pCi/L				E900.1	01/24/20 13:11 / trs
Lead 210	1	pCi/L				E909.0	02/02/20 02:50 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/02/20 02:50 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/02/20 02:50 / ajl
Radium 226	0.8	pCi/L				E903.0	02/10/20 15:21 / plj
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/10/20 15:21 / plj

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-005
Client Sample ID: 614

Report Date: 02/26/20
Collection Date: 01/15/20 09:05
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226 MDC	0.2	pCi/L				E903.0	02/10/20 15:21 / plj
Radium 228	3.5	pCi/L				RA-05	02/05/20 15:35 / trs
Radium 228 precision (±)	1.2	pCi/L				RA-05	02/05/20 15:35 / trs
Radium 228 MDC	1.5	pCi/L				RA-05	02/05/20 15:35 / trs
Thorium 230	0.06	pCi/L	U			E908.0	02/12/20 14:13 / nsr
Thorium 230 precision (±)	0.07	pCi/L				E908.0	02/12/20 14:13 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/12/20 14:13 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	6600	mg/L				A1030 E	01/24/20 12:10 / tia
A/C Balance	0.21	%				A1030 E	01/24/20 12:10 / tia
Anions	110	meq/L				A1030 E	01/24/20 12:10 / tia
Cations	110	meq/L				A1030 E	01/24/20 12:10 / tia
TDS Ratio	1.03	unitless				A1030 E	01/24/20 12:10 / tia
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Bromoform	ND	ug/L		2.0		E624.1	01/27/20 00:00 / ta-a
Chlorodibromomethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Chloroform	80	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Trihalomethanes, Total	80	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a

***Method E624.1 subbed to Test America.

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		614	614	614	614
Collection Date:		1/14/2020	10/1/2019	7/23/2019	4/9/2019
Receive Date:		1/17/2020	10/9/2019	7/31/2019	4/12/2019
Report Date:		2/26/2020	11/13/2019	9/12/2019	6/4/2019
Analyte	Units	C20010593-005	C19100479-006	C19071276-005	C19040610-001
Bicarbonate as HCO ₃	mg/L	1320	1490	1490	1320
Chloride	mg/L	319	313	313	301
Sulfate	mg/L	3420	3400	3440	3290
Calcium	mg/L	558	537	527	530
Magnesium	mg/L	665	613	671	652
Potassium	mg/L	15	15	14	12
Sodium	mg/L	470	442	445	457
pH	s.u.	6.49	6.61	6.60	6.65
Solids, Total Dissolved TDS @ 180 C	mg/L	6820	6760	6890	6970
Nitrogen, Ammonia as N	mg/L	95	98	106	62
Nitrogen, Nitrate+Nitrite as N	mg/L	110	107	97	152
Aluminum	mg/L	0.25	ND(0.08)	0.06	0.06
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.002
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	0.001	0.002	0.002	0.003
Manganese	mg/L	0.938	0.922	0.939	1.04
Molybdenum	mg/L	ND(0.001)	ND(0.001)	0.002	ND(0.001)
Nickel	mg/L	0.023	0.014	0.011	0.013
Selenium	mg/L	0.074	0.069	0.075	0.066
Uranium	mg/L	0.0433	0.0435	0.0440	0.0462
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Selenium-IV	mg/L	ND	ND		0.00091
A/C Balance	%	0.21	-3.61	-4.92	-2.18
Anions	meq/L	110	112	112	109
Cations	meq/L	110	104	101	105
Solids, Total Dissolved - Calculated	mg/L	6600	6500	6600	6600
TDS Ratio	unitless	1.03	1.04	1.04	1.06
Gross Alpha minus Rn & U	pCi/L	5.3	1.8	1.4	1.1
Gross Alpha minus Rn & U Precision (±)	pCi/L	1.4	0.7	0.6	0.5
Gross Alpha minus Rn & U MDC	pCi/L	0.8	0.7	0.6	0.6
Lead 210	pCi/L	1	-0.3	0.4	0.7
Lead 210 precision (±)	pCi/L	0.6	0.7	0.5	0.6
Lead 210 MDC	pCi/L	0.9	1.1	0.8	0.9
Radium 226	pCi/L	0.8	0.8	0.5	0.7
Radium 226 precision (±)	pCi/L	0.2	0.2	0.2	0.2
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.1
Radium 228	pCi/L	3.5	2.5	2.7	3.2
Radium 228 precision (±)	pCi/L	1.2	1.1	1.0	1.5
Radium 228 MDC	pCi/L	1.5	1.5	1.5	2.1
Thorium 230	pCi/L	0.06	0.009	0.1	0.08
Thorium 230 precision (±)	pCi/L	0.07	0.07	0.08	0.2
Thorium 230 MDC	pCi/L	0.1	0.2	0.1	0.3
Trihalomethanes, Total	ug/L	80	196	87	60

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-008
Client Sample ID: TWQ-142

Report Date: 02/26/20
Collection Date: 01/21/20 13:40
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	306	mg/L		5		A2320 B	01/27/20 19:59 / dmb
Chloride	17	mg/L		1		E300.0	01/29/20 08:06 / dmb
Sulfate	738	mg/L	D	2		E300.0	01/29/20 08:06 / dmb
Calcium	68	mg/L		1		E200.7	01/29/20 21:50 / jcg
Magnesium	35	mg/L		1		E200.7	01/29/20 21:50 / jcg
Potassium	4	mg/L		1		E200.7	01/31/20 01:05 / jcg
Sodium	321	mg/L		1		E200.7	01/29/20 21:50 / jcg
PHYSICAL PROPERTIES							
pH	7.49	s.u.	H	0.01		A4500-H B	01/27/20 10:35 / kjp
pH Measurement Temp	14	°C				A4500-H B	01/27/20 10:35 / kjp
Solids, Total Dissolved TDS @ 180 C	1340	mg/L	D	20		A2540 C	01/27/20 09:50 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.47	mg/L		0.01		E353.2	01/29/20 15:52 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	01/29/20 13:02 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L	D	0.08		E200.8	01/29/20 19:05 / meh
Arsenic	ND	mg/L		0.001		E200.8	01/29/20 19:05 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/29/20 19:05 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/29/20 19:05 / meh
Cobalt	ND	mg/L		0.005		E200.8	01/29/20 19:05 / meh
Lead	ND	mg/L		0.001		E200.8	01/29/20 00:08 / meh
Manganese	0.030	mg/L	D	0.008		E200.8	01/29/20 19:05 / meh
Molybdenum	0.004	mg/L		0.001		E200.8	01/29/20 19:05 / meh
Nickel	ND	mg/L		0.005		E200.8	01/29/20 19:05 / meh
Selenium	ND	mg/L		0.001		E200.8	01/29/20 19:05 / meh
Uranium	ND	mg/L		0.0003		E200.8	01/29/20 00:08 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/29/20 19:05 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	1.3	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U Precision (±)	0.5	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	02/02/20 08:56 / trs
Lead 210	0.4	pCi/L	U			E909.0	02/12/20 06:28 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/12/20 06:28 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/12/20 06:28 / ajl
Radium 226	0.5	pCi/L				E903.0	02/11/20 13:31 / plj
Radium 226 precision (±)	0.2	pCi/L				E903.0	02/11/20 13:31 / plj
Radium 226 MDC	0.3	pCi/L				E903.0	02/11/20 13:31 / plj
Radium 228	0.5	pCi/L	U			RA-05	02/06/20 15:13 / trs
Radium 228 precision (±)	0.9	pCi/L				RA-05	02/06/20 15:13 / trs
Radium 228 MDC	1.4	pCi/L				RA-05	02/06/20 15:13 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix
 U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-008
Client Sample ID: TWQ-142

Report Date: 02/26/20
Collection Date: 01/21/20 13:40
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.05	pCi/L	U		E908.0		02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.1	pCi/L			E908.0		02/12/20 06:40 / nsr
Thorium 230 MDC	0.2	pCi/L			E908.0		02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	1400	mg/L			A1030 E		01/31/20 14:04 / tif
A/C Balance	-1.43	%			A1030 E		01/31/20 14:04 / tif
Anions	20.9	meq/L			A1030 E		01/31/20 14:04 / tif
Cations	20.3	meq/L			A1030 E		01/31/20 14:04 / tif
TDS Ratio	0.99	unitless			A1030 E		01/31/20 14:04 / tif
Cation/Anion Balance includes selected metals							
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50	E624.1		01/28/20 20:43 / eli-b
Bromoform	ND	ug/L		0.50	E624.1		01/28/20 20:43 / eli-b
Chlorodibromomethane	ND	ug/L		0.50	E624.1		01/28/20 20:43 / eli-b
Chloroform	ND	ug/L		0.50	E624.1		01/28/20 20:43 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50	E624.1		02/05/20 16:29 / tla
Surr: 1,2-Dichloroethane-d4	109	%REC		71-139	E624.1		01/28/20 20:43 / eli-b
Surr: p-Bromofluorobenzene	104	%REC		80-127	E624.1		01/28/20 20:43 / eli-b
Surr: Toluene-d8	102	%REC		80-123	E624.1		01/28/20 20:43 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		TWQ-142	TWQ-142	TWQ-142	TWQ-142
Collection Date:		1/20/2020	10/8/2019	7/31/2019	4/9/2019
Receive Date:		1/24/2020	10/16/2019	8/7/2019	4/12/2019
Report Date:		2/26/2020	11/20/2019	9/24/2019	5/17/2019
Analyte	Units	C20010793-008	C19100743-007	C19080330-002	C19040604-006
Bicarbonate as HCO ₃	mg/L	306	307	308	309
Chloride	mg/L	17	17	17	17
Sulfate	mg/L	738	745	729	736
Calcium	mg/L	68	71	68	66
Magnesium	mg/L	35	36	35	35
Potassium	mg/L	4	5	4	4
Sodium	mg/L	321	331	318	338
pH	s.u.	7.49	7.62	7.56	7.59
pH Measurement Temp	°C	14	21	16	18
Solids, Total Dissolved TDS @ 180 C	mg/L	1340	1350	1350	1350
Nitrogen, Ammonia as N	mg/L	ND(0.05)	0.07	ND(0.05)	ND(0.05)
Nitrogen, Nitrate+Nitrite as N	mg/L	0.47	0.44	0.51	0.51
Aluminum	mg/L	ND(0.08)	0.05	0.07	0.20
Arsenic	mg/L	ND(0.001)	0.001	0.001	ND(0.001)
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	0.030	0.033	0.021	0.082
Molybdenum	mg/L	0.004	0.007	0.007	0.007
Nickel	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	ND(0.0003)	0.0003	0.0004	0.0003
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-1.43	-0.01	-1.44	0.20
Anions	meq/L	20.9	21.1	20.8	20.9
Cations	meq/L	20.3	21.1	20.2	21.0
Solids, Total Dissolved - Calculated	mg/L	1400	1400	1300	1400
TDS Ratio	unitless	0.99	0.99	1.01	0.99
Gross Alpha minus Rn & U	pCi/L	1.3	1.2	0.9	1.2
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.5	0.6	0.4	0.5
Gross Alpha minus Rn & U MDC	pCi/L	0.4	0.5	0.5	0.5
Lead 210	pCi/L	0.4	0	-0.2	0.5
Lead 210 precision (±)	pCi/L	0.6	0.6	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.0	0.8	0.9
Radium 226	pCi/L	0.5	0.7	0.7	0.8
Radium 226 precision (±)	pCi/L	0.2	0.2	0.2	0.2
Radium 226 MDC	pCi/L	0.3	0.1	0.2	0.2
Radium 228	pCi/L	0.5	0.7	0.4	1.1
Radium 228 precision (±)	pCi/L	0.9	1.4	1.1	0.8
Radium 228 MDC	pCi/L	1.4	2.4	1.7	1.6
Thorium 230	pCi/L	0.05	-0.01	0.1	0.01
Thorium 230 precision (±)	pCi/L	0.1	0.07	0.05	0.07
Thorium 230 MDC	pCi/L	0.2	0.2	0.05	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-004
Client Sample ID: EPA-2

Report Date: 02/26/20
Collection Date: 01/22/20 11:42
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	264	mg/L		5		A2320 B	01/27/20 18:31 / dmb
Chloride	26	mg/L		1		E300.0	01/29/20 02:41 / dmb
Sulfate	2310	mg/L	D	4		E300.0	01/29/20 02:41 / dmb
Calcium	487	mg/L		1		E200.7	01/29/20 20:02 / jcg
Magnesium	243	mg/L		1		E200.7	01/29/20 20:02 / jcg
Potassium	8	mg/L		1		E200.7	01/29/20 20:02 / jcg
Sodium	240	mg/L		1		E200.7	01/29/20 20:02 / jcg
PHYSICAL PROPERTIES							
pH	6.98	s.u.	H	0.01		A4500-H B	01/27/20 11:41 / kjp
pH Measurement Temp	16	°C				A4500-H B	01/27/20 11:41 / kjp
Solids, Total Dissolved TDS @ 180 C	3660	mg/L	D	40		A2540 C	01/27/20 09:43 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.09	mg/L		0.01		E353.2	01/29/20 15:34 / dmb
Nitrogen, Ammonia as N	0.26	mg/L		0.05		E350.1	01/29/20 12:44 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	01/28/20 22:11 / meh
Arsenic	0.001	mg/L		0.001		E200.8	02/24/20 13:04 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/28/20 22:11 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/28/20 22:11 / meh
Cobalt	ND	mg/L		0.005		E200.8	01/28/20 22:11 / meh
Lead	0.002	mg/L		0.001		E200.8	02/24/20 13:04 / meh
Manganese	1.05	mg/L	L	0.002		E200.8	02/24/20 13:04 / meh
Molybdenum	0.001	mg/L		0.001		E200.8	01/28/20 22:11 / meh
Nickel	ND	mg/L		0.005		E200.8	01/28/20 22:11 / meh
Selenium	ND	mg/L		0.001		E200.8	01/28/20 22:11 / meh
Uranium	0.0021	mg/L		0.0003		E200.8	01/28/20 22:11 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/28/20 22:11 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	2.9	pCi/L				E900.1	01/31/20 15:23 / trs
Gross Alpha minus Rn & U Precision (±)	0.9	pCi/L				E900.1	01/31/20 15:23 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	01/31/20 15:23 / trs
Lead 210	0.2	pCi/L	U			E909.0	02/08/20 23:31 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/08/20 23:31 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/08/20 23:31 / ajl
Radium 226	1.4	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 precision (±)	0.4	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 228	4.2	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 precision (±)	1.1	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 MDC	1	pCi/L				RA-05	02/06/20 13:32 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix
 L - Lowest available reporting limit for the analytical method used

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time
 U - Not detected at Minimum Detectable Concentration (MDC)



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-004
Client Sample ID: EPA-2

Report Date: 02/26/20
Collection Date: 01/22/20 11:42
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.03	pCi/L	U			E908.0	02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.07	pCi/L				E908.0	02/12/20 06:40 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	3500	mg/L				A1030 E	01/30/20 20:51 / tlf
A/C Balance	1.70	%				A1030 E	01/30/20 20:51 / tlf
Anions	53.1	meq/L				A1030 E	01/30/20 20:51 / tlf
Cations	55.0	meq/L				A1030 E	01/30/20 20:51 / tlf
TDS Ratio	1.05	unitless				A1030 E	01/30/20 20:51 / tlf
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 13:55 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 13:55 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 13:55 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	02/03/20 13:55 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/05/20 16:29 / tla
Surr: 1,2-Dichloroethane-d4	109	%REC		71-139		E624.1	02/03/20 13:55 / eli-b
Surr: p-Bromofluorobenzene	105	%REC		80-127		E624.1	02/03/20 13:55 / eli-b
Surr: Toluene-d8	107	%REC		80-123		E624.1	02/03/20 13:55 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 1					
Well ID:		EPA-2	EPA-2	EPA-2	EPA-2
Collection Date:		1/22/2020	10/8/2019	7/31/2019	4/9/2019
Receive Date:		1/24/2020	10/16/2018	8/7/2019	4/12/2019
Report Date:		2/26/2020	11/20/2019	9/24/2019	5/17/2019
Analyte	Units	C20010792-004	C19100743-008	C19080330-003	C19040604-004
Bicarbonate as HCO ₃	mg/L	264	258	280	293
Calcium	mg/L	487	458	449	388
Magnesium	mg/L	243	214	215	186
pH	s.u.	6.98	7.12	6.89	6.99
Chloride	mg/L	26	25	24	24
Potassium	mg/L	8	8	8	7
Sodium	mg/L	240	224	216	198
Sulfate	mg/L	2310	2250	2130	2080
pH Measurement Temp	°C	16	21	16	18
Solids, Total Dissolved TDS @ 180 C	mg/L	3660	3590	3470	3380
Nitrogen, Ammonia as N	mg/L	0.26	0.20	0.18	0.24
Nitrogen, Nitrate+Nitrite as N	mg/L	0.09	0.16	0.09	0.04
Aluminum	mg/L	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)
Arsenic	mg/L	0.001	0.001	ND(0.001)	ND(0.001)
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	0.002	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	1.05	1.66	2.05	1.83
Molybdenum	mg/L	0.001	0.001	0.001	0.001
Nickel	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0021	0.0023	0.0020	0.0018
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	0.01
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	1.70	-1.29	0.14	-5.80
Anions	meq/L	53.1	51.7	49.6	48.8
Cations	meq/L	55.0	50.4	49.7	43.5
Solids, Total Dissolved - Calculated	mg/L	3500	3300	3200	3000
TDS Ratio	unitless	1.05	1.08	1.08	1.11
Gross Alpha minus Rn & U	pCi/L	2.9	2.0	2.3	1.7
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.9	0.7	0.7	0.6
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	0.2	0.03	0.03	0.9
Lead 210 precision (±)	pCi/L	0.6	0.6	0.5	0.6
Lead 210 MDC	pCi/L	0.9	1.0	0.9	1
Radium 226	pCi/L	1.4	1.6	1.2	1.4
Radium 226 precision (±)	pCi/L	0.4	0.4	0.3	0.3
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	4.2	0.6	4.2	2.1
Radium 228 precision (±)	pCi/L	1.1	1.3	1.4	0.9
Radium 228 MDC	pCi/L	1	2.2	1.7	1.5
Thorium 230	pCi/L	0.03	0.02	0.05	-0.02
Thorium 230 precision (±)	pCi/L	0.07	0.06	0.07	0.08
Thorium 230 MDC	pCi/L	0.1	0.1	0.1	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-001
Client Sample ID: EPA-4

Report Date: 02/26/20
Collection Date: 01/22/20 08:40
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	169	mg/L		5		A2320 B	01/27/20 18:10 / dmb
Chloride	52	mg/L	D	2		E300.0	01/29/20 01:05 / dmb
Sulfate	3030	mg/L	D	8		E300.0	01/29/20 01:05 / dmb
Calcium	511	mg/L		1		E200.7	01/29/20 19:48 / jcg
Magnesium	412	mg/L		1		E200.7	01/29/20 19:48 / jcg
Potassium	10	mg/L		1		E200.7	01/29/20 19:48 / jcg
Sodium	190	mg/L		1		E200.7	01/29/20 19:48 / jcg
PHYSICAL PROPERTIES							
pH	6.84	s.u.	H	0.01		A4500-H B	01/27/20 11:32 / kjp
pH Measurement Temp	15	°C				A4500-H B	01/27/20 11:32 / kjp
Solids, Total Dissolved TDS @ 180 C	4620	mg/L	D	40		A2540 C	01/27/20 09:42 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.54	mg/L		0.01		E353.2	01/29/20 15:31 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	01/29/20 12:41 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	01/28/20 21:45 / meh
Arsenic	ND	mg/L		0.001		E200.8	01/28/20 21:45 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/28/20 21:45 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/28/20 21:45 / meh
Cobalt	ND	mg/L		0.005		E200.8	01/28/20 21:45 / meh
Lead	ND	mg/L		0.001		E200.8	01/28/20 21:45 / meh
Manganese	2.94	mg/L	D	0.003		E200.8	01/28/20 21:45 / meh
Molybdenum	ND	mg/L		0.001		E200.8	01/28/20 21:45 / meh
Nickel	ND	mg/L		0.005		E200.8	01/28/20 21:45 / meh
Selenium	ND	mg/L		0.001		E200.8	01/28/20 21:45 / meh
Uranium	0.0003	mg/L		0.0003		E200.8	01/28/20 21:45 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/28/20 21:45 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	2.7	pCi/L				E900.1	01/31/20 15:23 / trs
Gross Alpha minus Rn & U Precision (±)	0.9	pCi/L				E900.1	01/31/20 15:23 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	01/31/20 15:23 / trs
Lead 210	0.5	pCi/L	U			E909.0	02/08/20 12:22 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/08/20 12:22 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/08/20 12:22 / ajl
Radium 226	2.1	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 precision (±)	0.5	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 228	3.2	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 precision (±)	0.9	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 MDC	1	pCi/L				RA-05	02/06/20 13:32 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix
 U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-001
Client Sample ID: EPA-4

Report Date: 02/26/20
Collection Date: 01/22/20 08:40
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.04	pCi/L	U			E908.0	02/12/20 06:38 / nsr
Thorium 230 precision (±)	0.1	pCi/L				E908.0	02/12/20 06:38 / nsr
Thorium 230 MDC	0.2	pCi/L				E908.0	02/12/20 06:38 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	4300	mg/L				A1030 E	01/30/20 20:51 / tif
A/C Balance	0.42	%				A1030 E	01/30/20 20:51 / tif
Anions	67.3	meq/L				A1030 E	01/30/20 20:51 / tif
Cations	67.9	meq/L				A1030 E	01/30/20 20:51 / tif
TDS Ratio	1.07	unitless				A1030 E	01/30/20 20:51 / tif
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 12:33 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 12:33 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 12:33 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	02/03/20 12:33 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/05/20 16:29 / tia
Surr: 1,2-Dichloroethane-d4	107	%REC		71-139		E624.1	02/03/20 12:33 / eli-b
Surr: p-Bromofluorobenzene	109	%REC		80-127		E624.1	02/03/20 12:33 / eli-b
Surr: Toluene-d8	108	%REC		80-123		E624.1	02/03/20 12:33 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 1					
Well ID:		EPA-4	EPA-4	EPA-4	EPA-4
Collection Date:		1/22/2020	10/8/2019	7/31/2019	4/9/2019
Receive Date:		1/24/2020	10/16/2018	8/7/2019	4/12/2019
Report Date:		2/26/2020	11/20/2019	9/24/2019	5/17/2019
Analyte	Units	C20010792-001	C19100743-006	C19080330-001	C19040604-003
Bicarbonate as HCO ₃	mg/L	169	176	180	179
Calcium	mg/L	511	492	526	467
Magnesium	mg/L	412	393	389	364
pH	s.u.	6.84	6.74	6.77	6.90
Chloride	mg/L	52	38	36	35
Potassium	mg/L	10	9	9	8
Sodium	mg/L	190	181	175	172
Sulfate	mg/L	3030	3140	3090	3060
Solids, Total Dissolved TDS @ 180 C	mg/L	4620	4660	4720	4760
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.05)	0.27	0.18
Nitrogen, Nitrate+Nitrite as N	mg/L	0.54	0.57	0.28	0.39
Aluminum	mg/L	ND(0.03)	ND(0.03)	ND(0.03)	0.12
Arsenic	mg/L	ND(0.001)	0.001	ND(0.001)	ND(0.001)
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	2.94	2.46	3.90	3.15
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0003	0.0004	0.0004	ND(0.0003)
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	0.02
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	0.42	-3.22	-1.68	-5.29
Anions	meq/L	67.3	69.3	68.4	67.7
Cations	meq/L	67.9	65.0	66.1	60.9
Solids, Total Dissolved - Calculated	mg/L	4300	4400	4400	4200
TDS Ratio	unitless	1.07	1.07	1.09	1.13
Gross Alpha minus Rn & U	pCi/L	2.7	1.5	1.2	1.0
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.9	0.6	0.5	0.4
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.5	0.5	0.5
Lead 210	pCi/L	0.5	0.3	-0.07	0.8
Lead 210 precision (±)	pCi/L	0.6	0.6	0.5	0.6
Lead 210 MDC	pCi/L	0.9	1.0	0.8	1
Radium 226	pCi/L	2.1	1.1	1.2	1.1
Radium 226 precision (±)	pCi/L	0.5	0.3	0.3	0.3
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	3.2	0.1	2.8	2.5
Radium 228 precision (±)	pCi/L	0.9	1.1	1.3	1.0
Radium 228 MDC	pCi/L	1	1.9	1.7	1.6
Thorium 230	pCi/L	0.04	0.005	0.1	0.03
Thorium 230 precision (±)	pCi/L	0.1	0.07	0.05	0.1
Thorium 230 MDC	pCi/L	0.2	0.1	0.05	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-002
Client Sample ID: EPA-5

Report Date: 02/26/20
Collection Date: 01/22/20 09:35
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	46	mg/L		5		A2320 B	01/27/20 18:16 / dmb
Chloride	39	mg/L	D	2		E300.0	01/29/20 01:24 / dmb
Sulfate	3180	mg/L	D	8		E300.0	01/29/20 01:24 / dmb
Calcium	493	mg/L		1		E200.7	01/29/20 19:53 / jcg
Magnesium	499	mg/L		1		E200.7	01/29/20 19:53 / jcg
Potassium	12	mg/L		1		E200.7	01/29/20 19:53 / jcg
Sodium	118	mg/L		1		E200.7	01/29/20 19:53 / jcg
PHYSICAL PROPERTIES							
pH	6.00	s.u.	H	0.01		A4500-H B	01/27/20 11:35 / kjp
pH Measurement Temp	15	°C				A4500-H B	01/27/20 11:35 / kjp
Solids, Total Dissolved TDS @ 180 C	4690	mg/L	D	40		A2540 C	01/27/20 09:42 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	22.7	mg/L	D	0.1		E353.2	02/04/20 14:00 / dmb
Nitrogen, Ammonia as N	11	mg/L	D	1		E350.1	01/29/20 12:42 / dmb
METALS, TOTAL							
Aluminum	0.28	mg/L		0.03		E200.8	01/28/20 22:03 / meh
Arsenic	ND	mg/L		0.001		E200.8	01/28/20 22:03 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/28/20 22:03 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/28/20 22:03 / meh
Cobalt	0.042	mg/L		0.005		E200.8	01/28/20 22:03 / meh
Lead	0.004	mg/L		0.001		E200.8	01/28/20 22:03 / meh
Manganese	0.240	mg/L	D	0.003		E200.8	01/28/20 22:03 / meh
Molybdenum	ND	mg/L		0.001		E200.8	01/28/20 22:03 / meh
Nickel	0.036	mg/L		0.005		E200.8	01/28/20 22:03 / meh
Selenium	0.001	mg/L		0.001		E200.8	01/28/20 22:03 / meh
Uranium	0.0028	mg/L		0.0003		E200.8	01/28/20 22:03 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/28/20 22:03 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	4.3	pCi/L				E900.1	01/31/20 15:23 / trs
Gross Alpha minus Rn & U Precision (±)	1.2	pCi/L				E900.1	01/31/20 15:23 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	01/31/20 15:23 / trs
Lead 210	0.09	pCi/L	U			E909.0	02/08/20 15:58 / ajl
Lead 210 precision (±)	0.5	pCi/L				E909.0	02/08/20 15:58 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/08/20 15:58 / ajl
Radium 226	2.0	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 precision (±)	0.5	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 228	3.0	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 precision (±)	0.9	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 MDC	0.9	pCi/L				RA-05	02/06/20 13:32 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-002
Client Sample ID: EPA-5

Report Date: 02/26/20
Collection Date: 01/22/20 09:35
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.05	pCi/L	U			E908.0	02/12/20 06:38 / nsr
Thorium 230 precision (±)	0.09	pCi/L				E908.0	02/12/20 06:38 / nsr
Thorium 230 MDC	0.2	pCi/L				E908.0	02/12/20 06:38 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	4400	mg/L				A1030 E	01/31/20 10:27 / tlf
A/C Balance	2.60	%				A1030 E	01/31/20 10:27 / tlf
Anions	68.2	meq/L				A1030 E	01/31/20 10:27 / tlf
Cations	71.9	meq/L				A1030 E	01/31/20 10:27 / tlf
TDS Ratio	1.07	unitless				A1030 E	01/31/20 10:27 / tlf
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 13:00 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 13:00 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 13:00 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	02/03/20 13:00 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/05/20 16:29 / tla
Surr: 1,2-Dichloroethane-d4	107	%REC		71-139		E624.1	02/03/20 13:00 / eli-b
Surr: p-Bromofluorobenzene	109	%REC		80-127		E624.1	02/03/20 13:00 / eli-b
Surr: Toluene-d8	105	%REC		80-123		E624.1	02/03/20 13:00 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 1					
Well ID:		EPA-5	EPA-5	EPA-5	EPA-5
Collection Date:		1/22/2020	10/8/2019	7/31/2019	4/9/2019
Receive Date:		1/24/2020	10/16/2018	8/7/2019	4/12/2019
Report Date:		2/26/2020	11/20/2019	9/24/2019	5/17/2019
Analyte	Units	C20010792-002	C19100743-005	C19080330-006	C19040604-002
Bicarbonate as HCO ₃	mg/L	46	43	96	61
Calcium	mg/L	493	477	465	451
Magnesium	mg/L	499	460	464	457
pH	s.u.	6.00	6.13	6.44	6.32
Chloride	mg/L	39	38	36	38
Potassium	mg/L	12	11	11	9
Sodium	mg/L	118	108	102	102
Sulfate	mg/L	3180	3150	3120	3230
Solids, Total Dissolved TDS @ 180 C	mg/L	4690	4580	4610	4660
Nitrogen, Ammonia as N	mg/L	11	17	24	16
Nitrogen, Nitrate+Nitrite as N	mg/L	22.7	20.0	10.9	15.0
Aluminum	mg/L	0.28	0.18	0.10	0.11
Arsenic	mg/L	ND(0.001)	0.001	ND(0.001)	ND(0.001)
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	0.042	0.043	0.038	0.044
Lead	mg/L	0.004	ND(0.001)	ND(0.001)	0.018
Manganese	mg/L	0.240	0.228	0.202	0.207
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	0.036	0.035	0.034	0.042
Selenium	mg/L	0.001	ND(0.001)	0.001	0.001
Uranium	mg/L	0.0028	0.0026	0.0037	0.0026
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				0.001
A/C Balance	%	2.60	-0.65	-0.49	-3.25
Anions	meq/L	68.2	68.8	68.5	70.4
Cations	meq/L	71.9	67.9	67.8	65.9
Solids, Total Dissolved - Calculated	mg/L	4400	4400	4300	4400
TDS Ratio	unitless	1.07	1.05	1.07	1.06
Gross Alpha minus Rn & U	pCi/L	4.3	2.3	2.0	2.1
Gross Alpha minus Rn & U Precision (±)	pCi/L	1.2	0.8	0.7	0.7
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.6	0.5	0.5
Lead 210	pCi/L	0.09	0.08	-0.1	0.3
Lead 210 precision (±)	pCi/L	0.5	0.6	0.5	0.6
Lead 210 MDC	pCi/L	0.9	1.0	0.8	0.9
Radium 226	pCi/L	2.0	1.8	1.7	1.5
Radium 226 precision (±)	pCi/L	0.5	0.4	0.4	0.4
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	3.0	-0.5	2.1	2.9
Radium 228 precision (±)	pCi/L	0.9	1.1	1.1	1.2
Radium 228 MDC	pCi/L	0.9	1.9	1.6	1.9
Thorium 230	pCi/L	0.05	-0.02	0.04	0.07
Thorium 230 precision (±)	pCi/L	0.09	0.08	0.04	0.1
Thorium 230 MDC	pCi/L	0.2	0.2	0.06	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	0.83

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-003
Client Sample ID: EPA-7

Report Date: 02/26/20
Collection Date: 01/22/20 10:35
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	522	mg/L		5		A2320 B	01/27/20 18:24 / dmb
Chloride	236	mg/L	D	5		E300.0	01/29/20 01:43 / dmb
Sulfate	4560	mg/L	D	20		E300.0	01/29/20 01:43 / dmb
Calcium	531	mg/L		1		E200.7	01/29/20 19:57 / jcg
Magnesium	906	mg/L		1		E200.7	01/31/20 00:02 / jcg
Potassium	12	mg/L		1		E200.7	01/29/20 19:57 / jcg
Sodium	394	mg/L		1		E200.7	01/29/20 19:57 / jcg
PHYSICAL PROPERTIES							
pH	6.27	s.u.	H	0.01		A4500-H B	01/27/20 11:38 / kjp
pH Measurement Temp	15	°C				A4500-H B	01/27/20 11:38 / kjp
Solids, Total Dissolved TDS @ 180 C	7740	mg/L	D	100		A2540 C	01/27/20 09:43 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	106	mg/L	D	1		E353.2	01/29/20 15:33 / dmb
Nitrogen, Ammonia as N	0.05	mg/L		0.05		E350.1	01/29/20 12:43 / dmb
METALS, TOTAL							
Aluminum	0.22	mg/L		0.03		E200.8	01/28/20 22:07 / meh
Arsenic	ND	mg/L		0.001		E200.8	01/28/20 22:07 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/28/20 22:07 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/28/20 22:07 / meh
Cobalt	0.115	mg/L		0.005		E200.8	01/28/20 22:07 / meh
Lead	ND	mg/L		0.001		E200.8	01/28/20 22:07 / meh
Manganese	3.19	mg/L	D	0.003		E200.8	01/28/20 22:07 / meh
Molybdenum	ND	mg/L		0.001		E200.8	01/28/20 22:07 / meh
Nickel	0.137	mg/L		0.005		E200.8	01/28/20 22:07 / meh
Selenium	0.100	mg/L		0.001		E200.8	01/28/20 22:07 / meh
Uranium	0.0016	mg/L		0.0003		E200.8	01/28/20 22:07 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/28/20 22:07 / meh
METALS - SPECIATED - TOTAL							
Selenium-IV	ND	mg/L		0.001		A3114 C	01/29/20 16:09 / eli-h
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	2.3	pCi/L				E900.1	01/31/20 15:23 / trs
Gross Alpha minus Rn & U Precision (±)	0.8	pCi/L				E900.1	01/31/20 15:23 / trs
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	01/31/20 15:23 / trs
Lead 210	0.2	pCi/L	U			E909.0	02/08/20 19:46 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/08/20 19:46 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/08/20 19:46 / ajl
Radium 226	1.1	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 precision (±)	0.3	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/11/20 11:06 / plj

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 1
Lab ID: C20010792-003
Client Sample ID: EPA-7

Report Date: 02/26/20
Collection Date: 01/22/20 10:35
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228	2.4	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 precision (±)	0.8	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 MDC	0.9	pCi/L				RA-05	02/06/20 13:32 / trs
Thorium 230	0.05	pCi/L	U			E908.0	02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.08	pCi/L				E908.0	02/12/20 06:40 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	7400	mg/L				A1030 E	01/31/20 13:57 / tif
A/C Balance	0.33	%				A1030 E	01/31/20 13:57 / tif
Anions	118	meq/L				A1030 E	01/31/20 13:57 / tif
Cations	119	meq/L				A1030 E	01/31/20 13:57 / tif
TDS Ratio	1.05	unitless				A1030 E	01/31/20 13:57 / tif
Cation/Anion Balance includes selected metals							
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	02/03/20 13:28 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	02/03/20 13:28 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	02/03/20 13:28 / eli-b
Chloroform	0.32	ug/L	J	0.50		E624.1	02/03/20 13:28 / eli-b
Trihalomethanes, Total	0.32	ug/L	J	0.50		E624.1	02/05/20 16:29 / tia
Surr: 1,2-Dichloroethane-d4	106	%REC		71-139		E624.1	02/03/20 13:28 / eli-b
Surr: p-Bromofluorobenzene	108	%REC		80-127		E624.1	02/03/20 13:28 / eli-b
Surr: Toluene-d8	107	%REC		80-123		E624.1	02/03/20 13:28 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)



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United Nuclear Corporation					
UNC - Zone 1					
Well ID:		EPA-7	EPA-7	EPA-7	EPA-7
Collection Date:		1/22/2020	10/8/2019	7/31/2019	4/9/2019
Receive Date:		1/24/2020	10/16/2018	8/7/2019	4/12/2019
Report Date:		2/26/2020	11/20/2019	9/24/2019	5/17/2019
Analyte	Units	C20010792-003	C19100743-004	C19080330-005	C19040604-001
Bicarbonate as HCO ₃	mg/L	522	533	540	553
Calcium	mg/L	531	514	517	450
Magnesium	mg/L	906	883	925	819
pH	s.u.	6.27	6.31	6.25	6.32
Chloride	mg/L	236	226	226	215
Potassium	mg/L	12	10	10	7
Sodium	mg/L	394	374	373	325
Sulfate	mg/L	4560	4410	4360	4100
Solids, Total Dissolved TDS @ 180 C	mg/L	7740	7570	7720	7680
Nitrogen, Ammonia as N	mg/L	0.05	ND(0.05)	ND(0.05)	0.05
Nitrogen, Nitrate+Nitrite as N	mg/L	106	104	108	108
Aluminum	mg/L	0.22	0.07	0.27	0.4
Arsenic	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	0.115	0.106	0.107	0.102
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	3.19	2.86	3.02	2.60
Molybdenum	mg/L	ND(0.001)	0.004	ND(0.001)	ND(0.001)
Nickel	mg/L	0.137	0.119	0.140	0.12
Selenium	mg/L	0.100	0.082	0.100	0.091
Uranium	mg/L	0.0016	0.0024	0.0017	0.0016
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	0.02
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
A/C Balance	%	0.33	0.20	2.04	-1.94
Anions	meq/L	118	114	114	108
Cations	meq/L	119	115	118	104
Solids, Total Dissolved - Calculated	mg/L	7400	7200	7200	6700
TDS Ratio	unitless	1.05	1.06	1.08	1.15
Gross Alpha minus Rn & U	pCi/L	2.3	2.4	0.8	1.5
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.8	0.8	0.4	0.5
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.6	0.5	0.5
Lead 210	pCi/L	0.2	0.2	0.07	0.7
Lead 210 precision (±)	pCi/L	0.6	0.6	0.5	0.6
Lead 210 MDC	pCi/L	0.9	1.0	0.9	1
Radium 226	pCi/L	1.1	0.9	0.7	0.7
Radium 226 precision (±)	pCi/L	0.3	0.2	0.2	0.2
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	2.4	-0.6	0.6	2.2
Radium 228 precision (±)	pCi/L	0.8	1.2	1	1.2
Radium 228 MDC	pCi/L	0.9	2.1	1.6	1.8
Thorium 230	pCi/L	0.05	0.02	0.1	0.2
Thorium 230 precision (±)	pCi/L	0.08	0.05	0.07	0.2
Thorium 230 MDC	pCi/L	0.1	0.1	0.1	0.4
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	2.2

QUARTERLY SAMPLING
SEMI-ANNUAL GROUND WATER MONITORING REPORT
JANUARY AND FEBRUARY OF 2020

ZONE-3

*517

EPA-14

420

*711

*613

*708

EPA-13

717

719

LEVELS ONLY

EPA-9

702

710

712

713

714

701

706

707

402

446

424

NOTE: *POINT OF COMPLIANCE WELLS
WATER LEVEL ONLY IS IN FIELD DATA SHEET
NO SAMPLING IN APRIL

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-001
Client Sample ID: 517

Report Date: 02/26/20
Collection Date: 01/20/20 08:47
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Acidity, Total as CaCO ₃	550	mg/L				A2310 B	02/01/20 11:13 / dmb
Bicarbonate as HCO ₃	ND	mg/L		5		A2320 B	01/27/20 18:49 / dmb
Chloride	30	mg/L	D	2		E300.0	01/29/20 04:35 / dmb
Sulfate	4240	mg/L	D	8		E300.0	01/29/20 04:35 / dmb
Calcium	464	mg/L		1		E200.7	01/29/20 21:10 / jcg
Magnesium	592	mg/L		1		E200.7	01/29/20 21:10 / jcg
Potassium	15	mg/L		1		E200.7	01/31/20 00:16 / jcg
Sodium	155	mg/L		1		E200.7	01/29/20 21:10 / jcg
PHYSICAL PROPERTIES							
pH	3.12	s.u.	H	0.01		A4500-H B	01/27/20 10:11 / kjp
pH Measurement Temp	12	°C				A4500-H B	01/27/20 10:11 / kjp
Solids, Total Dissolved TDS @ 180 C	6260	mg/L	DH	40		A2540 C	01/27/20 09:47 / hat
- Hold time was exceeded due to Laboratory error.							
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	01/29/20 15:39 / dmb
Nitrogen, Ammonia as N	7.0	mg/L	D	0.2		E350.1	01/29/20 12:49 / dmb
METALS, TOTAL							
Aluminum	15.7	mg/L	D	0.2		E200.8	01/29/20 18:17 / meh
Arsenic	0.002	mg/L		0.001		E200.8	01/28/20 23:07 / meh
Beryllium	0.019	mg/L		0.001		E200.8	01/29/20 18:17 / meh
Cadmium	0.005	mg/L		0.001		E200.8	01/28/20 23:07 / meh
Cobalt	0.895	mg/L		0.005		E200.8	01/28/20 23:07 / meh
Lead	0.015	mg/L		0.001		E200.8	01/28/20 23:07 / meh
Manganese	13.7	mg/L	D	0.02		E200.8	01/29/20 18:17 / meh
Molybdenum	ND	mg/L		0.001		E200.8	01/28/20 23:07 / meh
Nickel	0.818	mg/L		0.005		E200.8	01/28/20 23:07 / meh
Selenium	0.002	mg/L		0.001		E200.8	01/28/20 23:07 / meh
Uranium	0.381	mg/L		0.0003		E200.8	01/28/20 23:07 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/28/20 23:07 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	12.8	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U Precision (±)	2.8	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	02/02/20 08:56 / trs
Lead 210	1.6	pCi/L				E909.0	02/11/20 03:56 / ajl
Lead 210 precision (±)	0.8	pCi/L				E909.0	02/11/20 03:56 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/11/20 03:56 / ajl
Radium 226	6.2	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 precision (±)	1.3	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 228	10.2	pCi/L				RA-05	02/06/20 13:32 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-001
Client Sample ID: 517

Report Date: 02/26/20
Collection Date: 01/20/20 08:47
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 precision (±)	2.0	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 MDC	1	pCi/L				RA-05	02/06/20 13:32 / trs
Thorium 230	3.7	pCi/L				E908.0	02/13/20 15:18 / dmf
Thorium 230 precision (±)	0.7	pCi/L				E908.0	02/13/20 15:18 / dmf
Thorium 230 MDC	0.4	pCi/L				E908.0	02/13/20 15:18 / dmf
DATA QUALITY							
Solids, Total Dissolved - Calculated	5500	mg/L				A1030 E	01/31/20 13:59 / tif
A/C Balance	-4.50	%				A1030 E	01/31/20 13:59 / tif
Anions	89.4	meq/L				A1030 E	01/31/20 13:59 / tif
Cations	81.7	meq/L				A1030 E	01/31/20 13:59 / tif
TDS Ratio	1.13	unitless				A1030 E	01/31/20 13:59 / tif
Cation/Anion Balance includes selected metals							
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	01/28/20 17:03 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	01/28/20 17:03 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	01/28/20 17:03 / eli-b
Chloroform	3.0	ug/L		0.50		E624.1	01/28/20 17:03 / eli-b
Trihalomethanes, Total	3.0	ug/L		0.50		E624.1	02/05/20 16:29 / tla
Surr: 1,2-Dichloroethane-d4	103	%REC		71-139		E624.1	01/28/20 17:03 / eli-b
Surr: p-Bromofluorobenzene	106	%REC		80-127		E624.1	01/28/20 17:03 / eli-b
Surr: Toluene-d8	107	%REC		80-123		E624.1	01/28/20 17:03 / eli-b

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		517	517	517	517
Collection Date:		1/20/2020	10/3/2019	7/23/2019	4/15/2019
Receive Date:		1/24/2020	10/9/2019	7/31/2019	4/22/2019
Report Date:		2/26/2020	11/22/2019	9/12/2019	6/19/2019
Analyte	Units	C20010793-001	C19100480-001	C19071281-002	C19040873-003
Acidity, Total as CaCO ₃	mg/L	550	595	545	537
Bicarbonate as HCO ₃	mg/L	ND(5)	ND(5)	ND(5)	ND(5)
Chloride	mg/L	30	31	29	30
Sulfate	mg/L	4240	4270	4260	4200
Calcium	mg/L	464	453	419	344
Magnesium	mg/L	592	576	608	436
Potassium	mg/L	15	14	14	12
Sodium	mg/L	155	151	151	141
pH	s.u.	3.12	3.42	3.35	3.19
Solids, Total Dissolved TDS @ 180 C	mg/L	6260	6190	6320	6180
Nitrogen, Ammonia as N	mg/L	7.0	6.5	5.4	7.1
Nitrogen, Nitrate+Nitrite as N	mg/L	0.03	ND(0.01)	ND(0.01)	0.02
Aluminum	mg/L	15.7	18	13	17.0
Arsenic	mg/L	0.002	0.003	0.002	0.004
Beryllium	mg/L	0.019	0.02	0.016	0.016
Cadmium	mg/L	0.005	0.003	0.004	0.006
Cobalt	mg/L	0.895	0.88	0.871	0.844
Lead	mg/L	0.015	ND(0.01)	0.036	0.020
Manganese	mg/L	13.7	12.9	12.8	12.3
Molybdenum	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Nickel	mg/L	0.818	0.89	0.759	0.90
Selenium	mg/L	0.002	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.381	0.189	0.373	0.357
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-4.50	-0.43	-0.35	-11.2
Anions	meq/L	89.4	90.1	89.8	88.6
Cations	meq/L	81.7	89.3	89.2	70.7
Solids, Total Dissolved - Calculated	mg/L	5500	5500	5500	5200
TDS Ratio	unitless	1.13	1.12	1.15	1.19
Gross Alpha minus Rn & U	pCi/L	12.8	15.8	18.0	16.2
Gross Alpha minus Rn & U Precision (±)	pCi/L	2.8	3.3	3.9	3.5
Gross Alpha minus Rn & U MDC	pCi/L	0.4	0.7	1	1.0
Lead 210	pCi/L	1.6	1.9	1	0.7
Lead 210 precision (±)	pCi/L	0.8	1	0.5	0.7
Lead 210 MDC	pCi/L	1.1	1.3	0.8	1.1
Radium 226	pCi/L	6.2	7.8	8.6	5.1
Radium 226 precision (±)	pCi/L	1.3	1.6	1.7	1.0
Radium 226 MDC	pCi/L	0.2	0.2	0.2	0.2
Radium 228	pCi/L	10.2	12.9	12.7	11.4
Radium 228 precision (±)	pCi/L	2.0	2.6	2.6	2.4
Radium 228 MDC	pCi/L	1	1.5	1.2	1.6
Thorium 230	pCi/L	3.7	4.8	2.1	3.0
Thorium 230 precision (±)	pCi/L	0.7	0.9	0.4	0.6
Thorium 230 MDC	pCi/L	0.4	0.1	1	0.2
Trihalomethanes, Total	ug/L	3.0	4.6	3.9	3.3

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-003
Client Sample ID: EPA-14

Report Date: 02/26/20
Collection Date: 01/14/20 11:24
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	91	mg/L		5		A2320 B	01/20/20 18:24 / dmb
Chloride	49	mg/L		1		E300.0	01/22/20 20:55 / ljl
Sulfate	2810	mg/L	D	4		E300.0	01/22/20 20:55 / ljl
Calcium	489	mg/L		1		E200.7	01/20/20 18:39 / jcg
Magnesium	292	mg/L		1		E200.7	01/20/20 18:39 / jcg
Potassium	9	mg/L		1		E200.7	01/20/20 18:39 / jcg
Sodium	148	mg/L		1		E200.7	01/20/20 18:39 / jcg
PHYSICAL PROPERTIES							
pH	5.70	s.u.	H	0.01		A4500-H B	01/17/20 16:35 / kjp
pH Measurement Temp	19	°C				A4500-H B	01/17/20 16:35 / kjp
Solids, Total Dissolved TDS @ 180 C	3860	mg/L	D	30		A2540 C	01/20/20 12:19 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.13	mg/L		0.01		E353.2	01/21/20 16:29 / dmb
Nitrogen, Ammonia as N	12.1	mg/L	D	0.5		E350.1	01/23/20 14:02 / dmb
METALS, TOTAL							
Aluminum	6.66	mg/L	D	0.08		E200.8	01/23/20 09:02 / meh
Arsenic	0.002	mg/L		0.001		E200.8	01/22/20 03:17 / jcg
Beryllium	0.011	mg/L		0.001		E200.8	01/24/20 20:08 / meh
Cadmium	0.003	mg/L		0.001		E200.8	01/22/20 03:17 / jcg
Cobalt	0.322	mg/L		0.005		E200.8	01/22/20 03:17 / jcg
Lead	0.010	mg/L		0.001		E200.8	01/22/20 03:17 / jcg
Manganese	6.56	mg/L	D	0.008		E200.8	01/23/20 09:02 / meh
Molybdenum	0.028	mg/L		0.001		E200.8	01/22/20 03:17 / jcg
Nickel	0.276	mg/L		0.005		E200.8	01/22/20 03:17 / jcg
Selenium	ND	mg/L		0.001		E200.8	01/23/20 09:02 / meh
Uranium	0.0645	mg/L		0.0003		E200.8	01/22/20 03:17 / jcg
Vanadium	ND	mg/L		0.01		E200.8	01/22/20 03:17 / jcg
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	9.9	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U Precision (±)	2.3	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U MDC	0.8	pCi/L				E900.1	01/24/20 13:11 / trs
Lead 210	1.4	pCi/L				E909.0	02/01/20 19:56 / aji
Lead 210 precision (±)	0.7	pCi/L				E909.0	02/01/20 19:56 / aji
Lead 210 MDC	0.9	pCi/L				E909.0	02/01/20 19:56 / aji
Radium 226	4.1	pCi/L				E903.0	02/10/20 15:21 / plj
Radium 226 precision (±)	0.9	pCi/L				E903.0	02/10/20 15:21 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/10/20 15:21 / plj
Radium 228	7.0	pCi/L				RA-05	02/05/20 15:35 / trs
Radium 228 precision (±)	1.7	pCi/L				RA-05	02/05/20 15:35 / trs
Radium 228 MDC	1.5	pCi/L				RA-05	02/05/20 15:35 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-003
Client Sample ID: EPA-14

Report Date: 02/26/20
Collection Date: 01/14/20 11:24
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.2	pCi/L	U			E908.0	02/12/20 14:13 / nsr
Thorium 230 precision (±)	0.3	pCi/L				E908.0	02/12/20 14:13 / nsr
Thorium 230 MDC	0.5	pCi/L				E908.0	02/12/20 14:13 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	3800	mg/L				A1030 E	01/24/20 12:09 / tla
A/C Balance	-4.61	%				A1030 E	01/24/20 12:09 / tla
Anions	61.4	meq/L				A1030 E	01/24/20 12:09 / tla
Cations	56.0	meq/L				A1030 E	01/24/20 12:09 / tla
TDS Ratio	1.00	unitless				A1030 E	01/24/20 12:09 / tla
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Bromoform	ND	ug/L		2.0		E624.1	01/27/20 00:00 / ta-a
Chlorodibromomethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Chloroform	0.26	ug/L	J	1.0		E624.1	01/27/20 00:00 / ta-a
Trihalomethanes, Total	0.26	ug/L	J	1.0		E624.1	01/27/20 00:00 / ta-a

***Method E624.1 subbed to Test America.

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
U - Not detected at Minimum Detectable Concentration (MDC)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		EPA-14	EPA-14	EPA-14	EPA-14
Collection Date:		1/14/2020	10/1/2019	7/23/2019	4/15/2019
Receive Date:		1/17/2020	10/9/2019	7/31/2019	4/18/2019
Report Date:		2/26/2020	11/13/2019	9/12/2019	5/31/2019
Analyte	Units	C20010593-003	C19100479-004	C19071276-004	C19040783-003
Bicarbonate as HCO ₃	mg/L	91	143	77	81
Chloride	mg/L	49	45	46	45
Sulfate	mg/L	2810	2700	2660	2650
Calcium	mg/L	489	490	465	509
Magnesium	mg/L	292	280	301	251
Potassium	mg/L	9	10	10	10
Sodium	mg/L	148	146	140	140
pH	s.u.	5.70	5.78	5.71	5.76
Solids, Total Dissolved TDS @ 180 C	mg/L	3860	3960	3980	3860
Nitrogen, Ammonia as N	mg/L	12.1	10.0	11.9	11.3
Nitrogen, Nitrate+Nitrite as N	mg/L	0.13	0.33	0.20	0.33
Aluminum	mg/L	6.66	2.2	6	6.5
Arsenic	mg/L	0.002	ND(0.001)	0.001	0.002
Beryllium	mg/L	0.011	0.006	0.008	0.009
Cadmium	mg/L	0.003	0.003	0.004	0.003
Cobalt	mg/L	0.322	0.276	0.372	0.299
Lead	mg/L	0.010	0.003	0.006	0.009
Manganese	mg/L	6.56	4.79	6.56	5.44
Molybdenum	mg/L	0.028	0.021	0.022	0.028
Nickel	mg/L	0.276	0.201	0.284	0.236
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0645	0.0302	0.0527	0.0579
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
A/C Balance	%	-4.61	-4.53	-2.51	-4.18
Anions	meq/L	61.4	60.0	58.0	57.9
Cations	meq/L	56.0	54.8	55.1	53.2
Solids, Total Dissolved - Calculated	mg/L	3800	3800	3700	3600
TDS Ratio	unitless	1.00	1.05	1.08	1.06
Gross Alpha minus Rn & U	pCi/L	9.9	6.2	4.2	4.7
Gross Alpha minus Rn & U Precision (±)	pCi/L	2.3	1.5	1.1	1.2
Gross Alpha minus Rn & U MDC	pCi/L	0.8	0.7	0.6	0.6
Lead 210	pCi/L	1.4	1.1	1.4	0.9
Lead 210 precision (±)	pCi/L	0.7	0.8	0.7	0.6
Lead 210 MDC	pCi/L	0.9	1.2	0.9	1.0
Radium 226	pCi/L	4.1	3.8	3.9	3.3
Radium 226 precision (±)	pCi/L	0.9	0.8	0.8	0.7
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	7.0	4.7	6.4	5.8
Radium 228 precision (±)	pCi/L	1.7	1.4	1.6	1.5
Radium 228 MDC	pCi/L	1.5	1.5	1.5	1.6
Thorium 230	pCi/L	0.2	0.06	0.7	-0.1
Thorium 230 precision (±)	pCi/L	0.3	0.08	0.5	0.7
Thorium 230 MDC	pCi/L	0.5	0.1	0.7	1.5
Trihalomethanes, Total	ug/L	ND	ND(0.50)	ND	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-003
Client Sample ID: 420

Report Date: 02/26/20
Collection Date: 01/20/20 12:05
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	238	mg/L		5		A2320 B	01/27/20 19:21 / dmb
Chloride	40	mg/L		1		E300.0	01/29/20 05:14 / dmb
Sulfate	2470	mg/L	D	4		E300.0	01/29/20 05:14 / dmb
Calcium	634	mg/L		1		E200.7	01/29/20 21:18 / jcg
Magnesium	208	mg/L		1		E200.7	01/29/20 21:18 / jcg
Potassium	10	mg/L		1		E200.7	01/31/20 00:34 / jcg
Sodium	149	mg/L		1		E200.7	01/29/20 21:18 / jcg
PHYSICAL PROPERTIES							
pH	6.77	s.u.	H	0.01		A4500-H B	01/27/20 10:20 / kjp
pH Measurement Temp	12	°C				A4500-H B	01/27/20 10:20 / kjp
Solids, Total Dissolved TDS @ 180 C	3790	mg/L	D	40		A2540 C	01/27/20 09:48 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	01/29/20 15:46 / dmb
Nitrogen, Ammonia as N	4.1	mg/L	D	0.2		E350.1	01/29/20 12:56 / dmb
METALS, TOTAL							
Aluminum	0.04	mg/L		0.03		E200.8	01/28/20 23:29 / meh
Arsenic	0.004	mg/L		0.001		E200.8	01/28/20 23:29 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/29/20 18:26 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/28/20 23:29 / meh
Cobalt	0.110	mg/L		0.005		E200.8	01/28/20 23:29 / meh
Lead	ND	mg/L		0.001		E200.8	01/28/20 23:29 / meh
Manganese	4.37	mg/L	D	0.008		E200.8	01/29/20 18:26 / meh
Molybdenum	0.234	mg/L		0.001		E200.8	01/28/20 23:29 / meh
Nickel	0.106	mg/L		0.005		E200.8	01/28/20 23:29 / meh
Selenium	ND	mg/L		0.001		E200.8	01/28/20 23:29 / meh
Uranium	0.148	mg/L		0.0003		E200.8	01/28/20 23:29 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/28/20 23:29 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	7.7	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U Precision (±)	1.8	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	02/02/20 08:56 / trs
Lead 210	0.08	pCi/L	U			E909.0	02/11/20 13:12 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/11/20 13:12 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/11/20 13:12 / ajl
Radium 226	5.0	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 precision (±)	1.1	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 228	8.3	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 precision (±)	1.7	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 MDC	1	pCi/L				RA-05	02/06/20 13:32 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-003
Client Sample ID: 420

Report Date: 02/26/20
Collection Date: 01/20/20 12:05
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.004	pCi/L	U			E908.0	02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.05	pCi/L				E908.0	02/12/20 06:40 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	3600	mg/L				A1030 E	01/31/20 14:01 / tif
A/C Balance	-0.41	%				A1030 E	01/31/20 14:01 / tif
Anions	56.4	meq/L				A1030 E	01/31/20 14:01 / tif
Cations	55.9	meq/L				A1030 E	01/31/20 14:01 / tif
TDS Ratio	1.04	unitless				A1030 E	01/31/20 14:01 / tif
Cation/Anion Balance includes selected metals							
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	01/28/20 18:26 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	01/28/20 18:26 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	01/28/20 18:26 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	01/28/20 18:26 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/05/20 16:29 / tia
Surr: 1,2-Dichloroethane-d4	111	%REC		71-139		E624.1	01/28/20 18:26 / eli-b
Surr: p-Bromofluorobenzene	104	%REC		80-127		E624.1	01/28/20 18:26 / eli-b
Surr: Toluene-d8	106	%REC		80-123		E624.1	01/28/20 18:26 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		420	420	420	420
Collection Date:		1/20/2020	10/3/2019	7/23/2019	4/15/2019
Receive Date:		1/24/2020	10/9/2019	7/31/2019	4/22/2019
Report Date:		2/26/2020	11/22/2019	9/12/2019	6/19/2019
Analyte	Units	C20010793-003	C19100480-004	C19071281-003	C19040873-001
Bicarbonate as HCO ₃	mg/L	238	260	275	302
Chloride	mg/L	40	39	38	41
Sulfate	mg/L	2470	2380	2330	2360
Calcium	mg/L	634	638	590	678
Magnesium	mg/L	208	197	209	177
Potassium	mg/L	10	10	10	8
Sodium	mg/L	149	143	135	132
pH	s.u.	6.77	6.71	6.77	6.74
Solids, Total Dissolved TDS @ 180 C	mg/L	3790	3800	3830	3810
Nitrogen, Ammonia as N	mg/L	4.1	3.5	4.7	1.9
Nitrogen, Nitrate+Nitrite as N	mg/L	0.03	0.18	0.06	0.45
Aluminum	mg/L	0.04	0.04	0.11	0.10
Arsenic	mg/L	0.004	0.008	0.022	0.019
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	0.110	0.119	0.124	0.077
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	4.37	4.43	4.66	3.22
Molybdenum	mg/L	0.234	0.230	0.231	0.328
Nickel	mg/L	0.106	0.099	0.108	0.063
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.148	0.168	0.146	0.201
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				0.002
A/C Balance	%	-0.41	-0.17	-0.89	-0.74
Anions	meq/L	56.4	55.0	54.0	55.2
Cations	meq/L	55.9	54.8	53.1	54.4
Solids, Total Dissolved - Calculated	mg/L	3600	3600	3500	3600
TDS Ratio	unitless	1.04	1.07	1.11	1.07
Gross Alpha minus Rn & U	pCi/L	7.7	7.2	6.4	9.6
Gross Alpha minus Rn & U Precision (±)	pCi/L	1.8	1.7	1.7	2.3
Gross Alpha minus Rn & U MDC	pCi/L	0.4	0.7	1	1.0
Lead 210	pCi/L	0.08	0.7	1.5	-0.09
Lead 210 precision (±)	pCi/L	0.6	0.7	0.7	0.6
Lead 210 MDC	pCi/L	1.1	1.2	0.9	1.1
Radium 226	pCi/L	5.0	5.2	5.5	3.8
Radium 226 precision (±)	pCi/L	1.1	1.1	1.1	0.8
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	8.3	5.7	7.1	4.9
Radium 228 precision (±)	pCi/L	1.7	1.5	1.6	1.5
Radium 228 MDC	pCi/L	1	1.4	1.3	1.8
Thorium 230	pCi/L	0.004	0.06	0.07	0.04
Thorium 230 precision (±)	pCi/L	0.05	0.09	0.05	0.06
Thorium 230 MDC	pCi/L	0.1	0.2	0.07	0.1
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-005
Client Sample ID: 711

Report Date: 02/26/20
Collection Date: 01/21/20 09:26
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Acidity, Total as CaCO ₃	395	mg/L				A2310 B	02/01/20 11:15 / dmb
Bicarbonate as HCO ₃	ND	mg/L		5		A2320 B	01/27/20 19:38 / dmb
Chloride	24	mg/L	D	2		E300.0	01/29/20 05:52 / dmb
Sulfate	3810	mg/L	D	8		E300.0	01/29/20 05:52 / dmb
Calcium	456	mg/L		1		E200.7	01/29/20 21:27 / jcg
Magnesium	514	mg/L		1		E200.7	01/29/20 21:27 / jcg
Potassium	12	mg/L		1		E200.7	01/31/20 00:52 / jcg
Sodium	116	mg/L		1		E200.7	01/29/20 21:27 / jcg
PHYSICAL PROPERTIES							
pH	3.27	s.u.	H	0.01		A4500-H B	01/27/20 10:26 / kjp
pH Measurement Temp	13	°C				A4500-H B	01/27/20 10:26 / kjp
Solids, Total Dissolved TDS @ 180 C	5490	mg/L	D	40		A2540 C	01/27/20 09:49 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	01/29/20 15:49 / dmb
Nitrogen, Ammonia as N	1.5	mg/L	D	0.2		E350.1	01/29/20 12:59 / dmb
METALS, TOTAL							
Aluminum	35.2	mg/L	D	0.2		E200.8	01/29/20 18:35 / meh
Arsenic	0.003	mg/L		0.001		E200.8	01/28/20 23:37 / meh
Beryllium	0.052	mg/L		0.001		E200.8	01/29/20 18:35 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/28/20 23:37 / meh
Cobalt	0.794	mg/L		0.005		E200.8	01/28/20 23:37 / meh
Lead	0.005	mg/L		0.001		E200.8	01/28/20 23:37 / meh
Manganese	10.1	mg/L	D	0.02		E200.8	01/29/20 18:35 / meh
Molybdenum	0.010	mg/L		0.001		E200.8	01/28/20 23:37 / meh
Nickel	0.947	mg/L		0.005		E200.8	01/28/20 23:37 / meh
Selenium	ND	mg/L		0.001		E200.8	01/28/20 23:37 / meh
Uranium	0.425	mg/L		0.0003		E200.8	01/28/20 23:37 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/28/20 23:37 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	14.1	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U Precision (±)	3.0	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	02/02/20 08:56 / trs
Lead 210	1.5	pCi/L				E909.0	02/11/20 20:23 / ajl
Lead 210 precision (±)	0.8	pCi/L				E909.0	02/11/20 20:23 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/11/20 20:23 / ajl
Radium 226	8.7	pCi/L				E903.0	02/24/20 11:10 / plj
Radium 226 precision (±)	1.7	pCi/L				E903.0	02/24/20 11:10 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/24/20 11:10 / plj
Radium 228	10.1	pCi/L				RA-05	02/19/20 11:33 / trs
Radium 228 precision (±)	2.0	pCi/L				RA-05	02/19/20 11:33 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-005
Client Sample ID: 711

Report Date: 02/26/20
Collection Date: 01/21/20 09:26
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	1.1	pCi/L				RA-05	02/19/20 11:33 / trs
Thorium 230	0.2	pCi/L				E908.0	02/12/20 14:14 / nsr
Thorium 230 precision (±)	0.1	pCi/L				E908.0	02/12/20 14:14 / nsr
Thorium 230 MDC	0.2	pCi/L				E908.0	02/12/20 14:14 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	5000	mg/L				A1030 E	01/31/20 14:02 / tif
A/C Balance	-3.52	%				A1030 E	01/31/20 14:02 / tif
Anions	80.3	meq/L				A1030 E	01/31/20 14:02 / tif
Cations	74.8	meq/L				A1030 E	01/31/20 14:02 / tif
TDS Ratio	1.10	unitless				A1030 E	01/31/20 14:02 / tif
Cation/Anion Balance includes selected metals							
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	01/28/20 19:20 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	01/28/20 19:20 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	01/28/20 19:20 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	01/28/20 19:20 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/05/20 16:29 / tla
Surr: 1,2-Dichloroethane-d4	108	%REC		71-139		E624.1	01/28/20 19:20 / eli-b
Surr: p-Bromofluorobenzene	108	%REC		80-127		E624.1	01/28/20 19:20 / eli-b
Surr: Toluene-d8	103	%REC		80-123		E624.1	01/28/20 19:20 / eli-b

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		711	711	711	711
Collection Date:		1/20/2020	10/3/2019	7/23/2019	4/15/2019
Receive Date:		1/24/2020	10/9/2019	7/31/2019	4/22/2019
Report Date:		2/26/2020	11/22/2019	9/12/2019	6/19/2019
Analyte	Units	C20010793-005	C19100480-002	C19071281-001	C19040873-002
Acidity, Total as CaCO ₃	mg/L	395	370	350	303
Bicarbonate as HCO ₃	mg/L	ND(5)	ND(5)	ND(5)	ND(5)
Chloride	mg/L	24	25	24	23
Sulfate	mg/L	3810	3800	3720	3680
Calcium	mg/L	456	442	428	446
Magnesium	mg/L	514	482	538	500
Potassium	mg/L	12	12	11	10
Sodium	mg/L	116	112	110	105
pH	s.u.	3.27	3.23	3.34	3.40
Solids, Total Dissolved TDS @ 180 C	mg/L	5490	5400	5460	5350
Nitrogen, Ammonia as N	mg/L	1.5	1.4	1.38	1.37
Nitrogen, Nitrate+Nitrite as N	mg/L	ND(0.01)	0.01	ND(0.01)	0.02
Aluminum	mg/L	35.2	30	29	22.2
Arsenic	mg/L	0.003	0.001	0.002	0.008
Beryllium	mg/L	0.052	0.043	0.045	0.036
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	0.794	0.74	0.677	0.643
Lead	mg/L	0.005	0.007	0.009	0.005
Manganese	mg/L	10.1	9.1	8.82	8.33
Molybdenum	mg/L	0.010	0.006	0.005	0.043
Nickel	mg/L	0.947	0.517	0.930	0.88
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.425	0.186	0.332	0.275
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-3.52	-3.62	-0.37	-1.96
Anions	meq/L	80.3	80.0	78.3	77.4
Cations	meq/L	74.8	74.4	77.7	74.4
Solids, Total Dissolved - Calculated	mg/L	5000	4900	4900	4800
TDS Ratio	unitless	1.10	1.10	1.12	1.11
Gross Alpha minus Rn & U	pCi/L	14.1	11.5	11.1	17.0
Gross Alpha minus Rn & U Precision (±)	pCi/L	3.0	2.5	2.6	3.7
Gross Alpha minus Rn & U MDC	pCi/L	0.4	0.7	1	1.0
Lead 210	pCi/L	1.5	0.6	0.04	0.3
Lead 210 precision (±)	pCi/L	0.8	0.7	0.05	0.7
Lead 210 MDC	pCi/L	1.1	1.2	0.08	1.1
Radium 226	pCi/L	8.7	7.6	8.8	7.7
Radium 226 precision (±)	pCi/L	1.7	1.5	1.8	1.6
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	10.1	10.6	9.7	9.3
Radium 228 precision (±)	pCi/L	2.0	2.3	2.0	2.1
Radium 228 MDC	pCi/L	1.1	1.4	1.3	1.7
Thorium 230	pCi/L	0.2	0.5	0.2	0.2
Thorium 230 precision (±)	pCi/L	0.1	0.4	0.1	0.1
Thorium 230 MDC	pCi/L	0.2	0.5	0.2	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	0.92	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-004
Client Sample ID: 613

Report Date: 02/26/20
Collection Date: 01/14/20 14:15
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Acidity, Total as CaCO ₃	2960	mg/L				A2310 B	01/22/20 13:35 / dmb
Bicarbonate as HCO ₃	ND	mg/L		5		A2320 B	01/20/20 18:26 / dmb
Chloride	107	mg/L	D	5		E300.0	01/22/20 21:15 / ljl
Sulfate	8040	mg/L	D	20		E300.0	01/22/20 21:15 / ljl
Calcium	436	mg/L		1		E200.7	01/20/20 18:43 / jcg
Magnesium	721	mg/L		1		E200.7	01/20/20 18:43 / jcg
Potassium	2	mg/L		1		E200.7	01/20/20 18:43 / jcg
Sodium	227	mg/L		1		E200.7	01/20/20 18:43 / jcg
PHYSICAL PROPERTIES							
pH	3.01	s.u.	H	0.01		A4500-H B	01/17/20 16:39 / kjp
pH Measurement Temp	19	°C				A4500-H B	01/17/20 16:39 / kjp
Solids, Total Dissolved TDS @ 180 C	10900	mg/L	D	100		A2540 C	01/20/20 12:19 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	1.29	mg/L		0.01		E353.2	01/21/20 16:30 / dmb
Nitrogen, Ammonia as N	128	mg/L	D	5		E350.1	01/23/20 14:04 / dmb
METALS, TOTAL							
Aluminum	500	mg/L	D	8		E200.8	01/23/20 20:16 / meh
Arsenic	0.007	mg/L		0.001		E200.8	01/22/20 03:21 / jcg
Beryllium	0.146	mg/L	D	0.003		E200.8	01/24/20 20:13 / meh
Cadmium	0.041	mg/L		0.001		E200.8	01/22/20 03:21 / jcg
Cobalt	1.52	mg/L		0.005		E200.8	01/22/20 03:21 / jcg
Lead	0.010	mg/L		0.001		E200.8	01/22/20 03:21 / jcg
Manganese	43.1	mg/L	D	0.2		E200.8	01/23/20 09:06 / meh
Molybdenum	0.008	mg/L		0.001		E200.8	01/22/20 03:21 / jcg
Nickel	1.61	mg/L		0.005		E200.8	01/22/20 03:21 / jcg
Selenium	0.020	mg/L	D	0.003		E200.8	01/23/20 09:10 / meh
Uranium	0.562	mg/L		0.0003		E200.8	01/22/20 03:21 / jcg
Vanadium	0.57	mg/L		0.01		E200.8	01/22/20 03:21 / jcg
METALS - SPECIATED - TOTAL							
Selenium-IV	ND	mg/L		0.005		A3114 C	01/29/20 00:00 / iml
***Selenium Speciation subbed to Pace Analytical.							
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	34.3	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U Precision (±)	6.9	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U MDC	0.8	pCi/L				E900.1	01/24/20 13:11 / trs
Lead 210	0.9	pCi/L	U			E909.0	02/01/20 23:16 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/01/20 23:16 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/01/20 23:16 / ajl
Radium 226	8.9	pCi/L				E903.0	02/10/20 15:21 / plj

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-004
Client Sample ID: 613

Report Date: 02/26/20
Collection Date: 01/14/20 14:15
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226 precision (±)	1.8	pCi/L				E903.0	02/10/20 15:21 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/10/20 15:21 / plj
Radium 228	0.6	pCi/L	U			RA-05	02/05/20 15:35 / trs
Radium 228 precision (±)	1.0	pCi/L				RA-05	02/05/20 15:35 / trs
Radium 228 MDC	1.7	pCi/L				RA-05	02/05/20 15:35 / trs
Thorium 230	509	pCi/L				E908.0	02/13/20 15:18 / dmf
Thorium 230 precision (±)	96.8	pCi/L				E908.0	02/13/20 15:18 / dmf
Thorium 230 MDC	18.9	pCi/L				E908.0	02/13/20 15:18 / dmf
DATA QUALITY							
Solids, Total Dissolved - Calculated	9700	mg/L				A1030 E	01/27/20 09:30 / jlw
A/C Balance	-3.57	%				A1030 E	01/27/20 09:30 / jlw
Anions	171	meq/L				A1030 E	01/27/20 09:30 / jlw
Cations	159	meq/L				A1030 E	01/27/20 09:30 / jlw
TDS Ratio	1.13	unitless				A1030 E	01/27/20 09:30 / jlw
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Bromoform	ND	ug/L		2.0		E624.1	01/27/20 00:00 / ta-a
Chlorodibromomethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Chloroform	64	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Trihalomethanes, Total	64	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a

***Method E624.1 subbed to Test America.

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		613	613	613	613
Collection Date:		1/14/2020	10/1/2019	7/23/2019	4/15/2019
Receive Date:		1/17/2020	10/9/2019	7/31/2019	4/18/2019
Report Date:		2/26/2020	11/13/2019	9/12/2019	5/31/2019
Analyte	Units	C20010593-004	C19100479-003	C19071276-008	C19040783-001
Acidity, Total as CaCO ₃	mg/L	2960	3220	3150	3250
Bicarbonate as HCO ₃	mg/L	ND(5)	ND(5)	ND(5)	ND(5)
Chloride	mg/L	107	104	104	104
Sulfate	mg/L	8040	7910	7800	8600
Calcium	mg/L	436	432	409	423
Magnesium	mg/L	721	684	720	670
Potassium	mg/L	2	3	3	2
Sodium	mg/L	227	225	214	204
pH	s.u.	3.01	2.98	3.01	3.01
Solids, Total Dissolved TDS @ 180 C	mg/L	10900	10700	11000	10600
Nitrogen, Ammonia as N	mg/L	128	131	127	135
Nitrogen, Nitrate+Nitrite as N	mg/L	1.29	1.40	1.45	1.27
Aluminum	mg/L	500	520	531	510
Arsenic	mg/L	0.007	0.007	0.008	0.007
Beryllium	mg/L	0.146	0.134	0.105	0.15
Cadmium	mg/L	0.041	0.043	0.041	0.039
Cobalt	mg/L	1.52	1.73	1.83	1.66
Lead	mg/L	0.010	0.024	0.005	0.007
Manganese	mg/L	43.1	42.9	46	41.1
Molybdenum	mg/L	0.008	0.004	0.013	0.016
Nickel	mg/L	1.61	1.72	1.63	1.8
Selenium	mg/L	0.020	0.020	0.023	0.021
Uranium	mg/L	0.562	0.602	0.624	0.591
Vanadium	mg/L	0.57	0.94	0.57	0.91
Selenium-IV	mg/L	ND	ND		0.00039
A/C Balance	%	-3.57	-2.11	-1.54	-6.70
Anions	meq/L	171	168	166	183
Cations	meq/L	159	161	161	160
Solids, Total Dissolved - Calculated	mg/L	9700	9400	9400	10000
TDS Ratio	unitless	1.13	1.14	1.17	1.06
Gross Alpha minus Rn & U	pCi/L	34.3	30.1	25.5	18.8
Gross Alpha minus Rn & U Precision (±)	pCi/L	6.9	6.0	5.1	3.8
Gross Alpha minus Rn & U MDC	pCi/L	0.8	0.7	0.6	0.6
Lead 210	pCi/L	0.9	0.2	0.7	0.9
Lead 210 precision (±)	pCi/L	0.6	0.7	0.5	0.6
Lead 210 MDC	pCi/L	0.9	1.2	0.8	1
Radium 226	pCi/L	8.9	11.2	9.5	7.6
Radium 226 precision (±)	pCi/L	1.8	2.2	1.9	1.5
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	0.6	2.3	0.4	2.2
Radium 228 precision (±)	pCi/L	1.0	1.1	1.1	1
Radium 228 MDC	pCi/L	1.7	1.7	1.8	1.7
Thorium 230	pCi/L	509	491	532	435
Thorium 230 precision (±)	pCi/L	96.8	93.3	101	82.6
Thorium 230 MDC	pCi/L	18.9	3.3	16.9	10.6
Trihalomethanes, Total	ug/L	64	66	58	57

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-006
Client Sample ID: 708

Report Date: 02/26/20
Collection Date: 01/15/20 11:25
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Acidity, Total as CaCO ₃	720	mg/L				A2310 B	01/22/20 13:36 / dmb
Bicarbonate as HCO ₃	ND	mg/L		5		A2320 B	01/20/20 18:39 / dmb
Chloride	26	mg/L	D	2		E300.0	01/22/20 21:53 / ljl
Sulfate	4280	mg/L	D	8		E300.0	01/22/20 21:53 / ljl
Calcium	431	mg/L		1		E200.7	01/20/20 19:01 / jcg
Magnesium	574	mg/L		1		E200.7	01/20/20 19:01 / jcg
Potassium	14	mg/L		1		E200.7	01/20/20 19:01 / jcg
Sodium	120	mg/L		1		E200.7	01/20/20 19:01 / jcg
PHYSICAL PROPERTIES							
pH	3.70	s.u.	H	0.01		A4500-H B	01/17/20 16:47 / kjp
pH Measurement Temp	19	°C				A4500-H B	01/17/20 16:47 / kjp
Solids, Total Dissolved TDS @ 180 C	6220	mg/L	D	40		A2540 C	01/20/20 12:20 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.01		E353.2	01/21/20 16:33 / dmb
Nitrogen, Ammonia as N	0.79	mg/L		0.05		E350.1	01/23/20 14:06 / dmb
METALS, TOTAL							
Aluminum	33.5	mg/L	D	0.3		E200.8	01/23/20 09:19 / meh
Arsenic	0.006	mg/L		0.001		E200.8	01/22/20 03:30 / jcg
Beryllium	0.060	mg/L		0.001		E200.8	01/24/20 20:21 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/22/20 03:30 / jcg
Cobalt	0.464	mg/L		0.005		E200.8	01/22/20 03:30 / jcg
Lead	0.005	mg/L		0.001		E200.8	01/22/20 03:30 / jcg
Manganese	13.3	mg/L	D	0.03		E200.8	01/23/20 09:19 / meh
Molybdenum	0.016	mg/L		0.001		E200.8	01/22/20 03:30 / jcg
Nickel	0.516	mg/L		0.005		E200.8	01/22/20 03:30 / jcg
Selenium	ND	mg/L		0.001		E200.8	02/24/20 12:51 / meh
Uranium	0.0997	mg/L		0.0003		E200.8	01/22/20 03:30 / jcg
Vanadium	ND	mg/L		0.01		E200.8	01/22/20 03:30 / jcg
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	20.7	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U Precision (±)	4.3	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U MDC	0.8	pCi/L				E900.1	01/24/20 13:11 / trs
Lead 210	1.5	pCi/L				E909.0	02/02/20 06:20 / ajl
Lead 210 precision (±)	0.7	pCi/L				E909.0	02/02/20 06:20 / ajl
Lead 210 MDC	0.9	pCi/L				E909.0	02/02/20 06:20 / ajl
Radium 226	8.8	pCi/L				E903.0	02/07/20 13:09 / trs
Radium 226 precision (±)	1.7	pCi/L				E903.0	02/07/20 13:09 / trs
Radium 226 MDC	0.2	pCi/L				E903.0	02/07/20 13:09 / trs
Radium 228	4.4	pCi/L				RA-05	02/02/20 14:40 / trs
Radium 228 precision (±)	1.1	pCi/L				RA-05	02/02/20 14:40 / trs

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-006
Client Sample ID: 708

Report Date: 02/26/20
Collection Date: 01/15/20 11:25
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228 MDC	1	pCi/L				RA-05	02/02/20 14:40 / trs
Thorium 230	-0.004	pCi/L	U			E908.0	02/12/20 14:13 / nsr
Thorium 230 precision (±)	0.3	pCi/L				E908.0	02/12/20 14:13 / nsr
Thorium 230 MDC	0.6	pCi/L				E908.0	02/12/20 14:13 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	5500	mg/L				A1030 E	01/24/20 12:11 / tla
A/C Balance	-0.94	%				A1030 E	01/24/20 12:11 / tla
Anions	90.4	meq/L				A1030 E	01/24/20 12:11 / tla
Cations	88.7	meq/L				A1030 E	01/24/20 12:11 / tla
TDS Ratio	1.13	unitless				A1030 E	01/24/20 12:11 / tla
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Bromoform	ND	ug/L		2.0		E624.1	01/27/20 00:00 / ta-a
Chlorodibromomethane	ND	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Chloroform	1.7	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a
Trihalomethanes, Total	1.7	ug/L		1.0		E624.1	01/27/20 00:00 / ta-a

***Method E624.1 subbed to Test America.

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		708	708	708	708
Collection Date:		1/14/2020	10/1/2019	7/23/2019	4/15/2019
Receive Date:		1/17/2020	10/9/2019	7/31/2019	4/18/2019
Report Date:		2/26/2020	11/13/2019	9/12/2019	5/31/2019
Analyte	Units	C20010593-006	C19100479-005	C19071276-001	C19040783-002
Acidity, Total as CaCO ₃	mg/L	720	730	725	780
Bicarbonate as HCO ₃	mg/L	ND(5)	ND(5)	ND(5)	ND(5)
Chloride	mg/L	26	25	25	26
Sulfate	mg/L	4280	4280	4260	4820
Calcium	mg/L	431	441	423	453
Magnesium	mg/L	574	568	588	507
Potassium	mg/L	14	14	14	13
Sodium	mg/L	120	123	118	114
pH	s.u.	3.70	3.32	3.45	3.00
Solids, Total Dissolved TDS @ 180 C	mg/L	6220	6310	6420	6270
Nitrogen, Ammonia as N	mg/L	0.79	0.75	0.70	0.78
Nitrogen, Nitrate+Nitrite as N	mg/L	0.06	ND(0.01)	0.03	ND(0.01)
Aluminum	mg/L	33.5	37.2	55	40
Arsenic	mg/L	0.006	0.002	0.018	0.004
Beryllium	mg/L	0.060	0.058	0.057	0.05
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	0.464	0.482	0.518	0.492
Lead	mg/L	0.005	0.010	0.010	0.007
Manganese	mg/L	13.3	13.1	19.6	12.8
Molybdenum	mg/L	0.016	0.007	0.051	0.011
Nickel	mg/L	0.516	0.514	0.528	0.530
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0997	0.104	0.108	0.116
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
A/C Balance	%	-0.94	-0.70	-0.27	-8.87
Anions	meq/L	90.4	90.4	90.0	102
Cations	meq/L	88.7	89.1	89.5	85.2
Solids, Total Dissolved - Calculated	mg/L	5500	5500	5500	6000
TDS Ratio	unitless	1.13	1.16	1.17	1.05
Gross Alpha minus Rn & U	pCi/L	20.7	18.0	11.3	12.5
Gross Alpha minus Rn & U Precision (±)	pCi/L	4.3	3.7	2.4	2.6
Gross Alpha minus Rn & U MDC	pCi/L	0.8	0.7	0.6	0.6
Lead 210	pCi/L	1.5	1.4	1.0	1.0
Lead 210 precision (±)	pCi/L	0.7	0.9	0.6	0.7
Lead 210 MDC	pCi/L	0.9	1.2	0.8	1.0
Radium 226	pCi/L	8.8	7.7	6.5	6.9
Radium 226 precision (±)	pCi/L	1.7	1.5	1.3	1.4
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	4.4	3.3	3.3	5.4
Radium 228 precision (±)	pCi/L	1.1	1.2	1.1	1.4
Radium 228 MDC	pCi/L	1	1.5	1.3	1.4
Thorium 230	pCi/L	-0.004	0.5	0.9	0.7
Thorium 230 precision (±)	pCi/L	0.3	0.3	0.4	0.6
Thorium 230 MDC	pCi/L	0.6	0.4	0.5	0.9
Trihalomethanes, Total	ug/L	1.7	ND(0.50)	ND	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-004
Client Sample ID: EPA-13

Report Date: 02/26/20
Collection Date: 01/20/20 13:45
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	61	mg/L		5		A2320 B	01/27/20 19:35 / dmb
Chloride	42	mg/L	D	2		E300.0	01/29/20 05:33 / dmb
Sulfate	5470	mg/L	D	8		E300.0	01/29/20 05:33 / dmb
Calcium	475	mg/L		1		E200.7	01/29/20 21:23 / jcg
Magnesium	1020	mg/L		1		E200.7	01/29/20 21:23 / jcg
Potassium	16	mg/L		1		E200.7	01/31/20 00:38 / jcg
Sodium	189	mg/L		1		E200.7	01/29/20 21:23 / jcg
PHYSICAL PROPERTIES							
pH	6.12	s.u.	H	0.01		A4500-H B	01/27/20 10:23 / kjp
pH Measurement Temp	12	°C				A4500-H B	01/27/20 10:23 / kjp
Solids, Total Dissolved TDS @ 180 C	7660	mg/L	D	100		A2540 C	01/27/20 09:49 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.10	mg/L		0.01		E353.2	01/29/20 15:48 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	01/29/20 12:57 / dmb
METALS, TOTAL							
Aluminum	0.04	mg/L		0.03		E200.8	01/28/20 23:33 / meh
Arsenic	0.445	mg/L		0.001		E200.8	01/28/20 23:33 / meh
Beryllium	0.003	mg/L		0.001		E200.8	01/29/20 18:30 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/28/20 23:33 / meh
Cobalt	0.132	mg/L		0.005		E200.8	01/28/20 23:33 / meh
Lead	ND	mg/L		0.001		E200.8	01/28/20 23:33 / meh
Manganese	7.82	mg/L	D	0.003		E200.8	01/28/20 23:33 / meh
Molybdenum	0.278	mg/L		0.001		E200.8	01/28/20 23:33 / meh
Nickel	0.331	mg/L		0.005		E200.8	01/28/20 23:33 / meh
Selenium	ND	mg/L		0.001		E200.8	01/29/20 18:30 / meh
Uranium	0.0099	mg/L		0.0003		E200.8	01/28/20 23:33 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/28/20 23:33 / meh
METALS - SPECIATED - TOTAL							
Arsenic-III	ND	mg/L		0.005		E1632AM	01/30/20 16:13 / eli-h
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	8.9	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U Precision (±)	2.0	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	02/02/20 08:56 / trs
Lead 210	1.3	pCi/L				E909.0	02/11/20 17:00 / ajl
Lead 210 precision (±)	0.8	pCi/L				E909.0	02/11/20 17:00 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/11/20 17:00 / ajl
Radium 226	6.0	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 precision (±)	1.2	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/11/20 11:06 / plj

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-004
Client Sample ID: EPA-13

Report Date: 02/26/20
Collection Date: 01/20/20 13:45
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228	7.5	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 precision (±)	1.6	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 MDC	1.0	pCi/L				RA-05	02/06/20 13:32 / trs
Thorium 230	0.07	pCi/L	U			E908.0	02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.08	pCi/L				E908.0	02/12/20 06:40 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	7300	mg/L				A1030 E	01/31/20 14:01 / tif
A/C Balance	0.14	%				A1030 E	01/31/20 14:01 / tif
Anions	116	meq/L				A1030 E	01/31/20 14:01 / tif
Cations	117	meq/L				A1030 E	01/31/20 14:01 / tif
TDS Ratio	1.05	unitless				A1030 E	01/31/20 14:01 / tif
Cation/Anion Balance includes selected metals							
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	01/28/20 18:53 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	01/28/20 18:53 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	01/28/20 18:53 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	01/28/20 18:53 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/05/20 16:29 / tla
Surr: 1,2-Dichloroethane-d4	106	%REC		71-139		E624.1	01/28/20 18:53 / eli-b
Surr: p-Bromofluorobenzene	106	%REC		80-127		E624.1	01/28/20 18:53 / eli-b
Surr: Toluene-d8	106	%REC		80-123		E624.1	01/28/20 18:53 / eli-b

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)

United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		EPA-13	EPA-13	EPA-13	EPA-13
Collection Date:		1/20/2020	10/3/2019	7/23/2019	4/15/2019
Receive Date:		1/24/2020	10/9/2019	7/31/2019	4/22/2019
Report Date:		2/26/2020	11/22/2019	9/12/2019	6/19/2019
Analyte	Units	C20010793-004	C19100480-003	C19071281-004	C19040873-005
Bicarbonate as HCO ₃	mg/L	61	60	61	63
Chloride	mg/L	42	41	41	42
Sulfate	mg/L	5470	5420	5380	5450
Calcium	mg/L	475	436	442	459
Magnesium	mg/L	1020	957	1030	931
Potassium	mg/L	16	16	15	14
Sodium	mg/L	189	183	180	173
pH	s.u.	6.12	6.07	6.02	6.09
Solids, Total Dissolved TDS @ 180 C	mg/L	7660	7550	7850	7640
Nitrogen, Ammonia as N	mg/L	ND(0.05)	0.07	0.09	0.06
Nitrogen, Nitrate+Nitrite as N	mg/L	0.10	0.08	0.09	0.08
Aluminum	mg/L	0.04	ND(0.03)	ND(0.03)	0.09
Arsenic	mg/L	0.445	0.072	0.417	0.828
Beryllium	mg/L	0.003	0.001	0.002	0.002
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	0.132	0.122	0.124	0.126
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	7.82	6.81	7.13	7.30
Molybdenum	mg/L	0.278	0.143	0.223	0.313
Nickel	mg/L	0.331	0.158	0.328	0.30
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0099	0.0047	0.0090	0.0132
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L	ND(0.005)	0.011	ND(0.005)	0.016
Selenium-IV	mg/L				0.001
A/C Balance	%	0.14	-2.83	0.34	-3.74
Anions	meq/L	116	115	114	116
Cations	meq/L	117	109	115	107
Solids, Total Dissolved - Calculated	mg/L	7300	7100	7100	7100
TDS Ratio	unitless	1.05	1.06	1.10	1.07
Gross Alpha minus Rn & U	pCi/L	8.9	8.2	7.8	11.3
Gross Alpha minus Rn & U Precision (±)	pCi/L	2.0	1.9	1.9	2.6
Gross Alpha minus Rn & U MDC	pCi/L	0.4	0.7	1	1.0
Lead 210	pCi/L	1.3	0.6	0.7	-0.05
Lead 210 precision (±)	pCi/L	0.8	0.7	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.2	0.8	1.1
Radium 226	pCi/L	6.0	5.5	5.4	4.6
Radium 226 precision (±)	pCi/L	1.2	1.1	1.1	0.9
Radium 226 MDC	pCi/L	0.2	0.2	0.2	0.2
Radium 228	pCi/L	7.5	7.9	5.8	9.3
Radium 228 precision (±)	pCi/L	1.6	1.9	1.6	2.1
Radium 228 MDC	pCi/L	1.0	1.5	1.5	1.7
Thorium 230	pCi/L	0.07	0.02	0.3	0.07
Thorium 230 precision (±)	pCi/L	0.08	0.07	0.1	0.1
Thorium 230 MDC	pCi/L	0.1	0.1	0.2	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-001
Client Sample ID: 717

Report Date: 02/26/20
Collection Date: 01/14/20 09:05
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Acidity, Total as CaCO ₃	1340	mg/L				A2310 B	01/22/20 13:32 / dmb
Bicarbonate as HCO ₃	ND	mg/L		5		A2320 B	01/20/20 18:15 / dmb
Chloride	45	mg/L	D	2		E300.0	01/22/20 20:17 / ljl
Sulfate	4600	mg/L	D	8		E300.0	01/22/20 20:17 / ljl
Calcium	462	mg/L		1		E200.7	01/20/20 18:30 / jcg
Magnesium	430	mg/L		1		E200.7	01/20/20 18:30 / jcg
Potassium	7	mg/L		1		E200.7	01/20/20 18:30 / jcg
Sodium	154	mg/L		1		E200.7	01/20/20 18:30 / jcg
PHYSICAL PROPERTIES							
pH	3.48	s.u.	H	0.01		A4500-H B	01/17/20 16:30 / kjp
pH Measurement Temp	19	°C				A4500-H B	01/17/20 16:30 / kjp
Solids, Total Dissolved TDS @ 180 C	6380	mg/L	D	40		A2540 C	01/20/20 12:18 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.16	mg/L		0.01		E353.2	01/21/20 16:22 / dmb
Nitrogen, Ammonia as N	20	mg/L	D	1		E350.1	01/23/20 14:00 / dmb
METALS, TOTAL							
Aluminum	227	mg/L	D	2		E200.8	01/23/20 08:19 / meh
Arsenic	0.007	mg/L		0.001		E200.8	01/22/20 02:38 / jcg
Beryllium	0.152	mg/L		0.001		E200.8	01/22/20 02:38 / jcg
Cadmium	0.016	mg/L		0.001		E200.8	01/22/20 02:38 / jcg
Cobalt	0.914	mg/L		0.005		E200.8	01/22/20 02:38 / jcg
Lead	0.027	mg/L		0.001		E200.8	01/22/20 02:38 / jcg
Manganese	14.7	mg/L	D	0.2		E200.8	01/23/20 08:19 / meh
Molybdenum	ND	mg/L		0.001		E200.8	01/22/20 02:38 / jcg
Nickel	0.992	mg/L		0.005		E200.8	01/22/20 02:38 / jcg
Selenium	0.011	mg/L	D	0.002		E200.8	02/24/20 12:30 / meh
Uranium	0.678	mg/L		0.0003		E200.8	01/22/20 02:38 / jcg
Vanadium	ND	mg/L		0.01		E200.8	01/22/20 02:38 / jcg
METALS - SPECIATED - TOTAL							
Selenium-IV	ND	mg/L		0.005		A3114 C	01/29/20 00:00 / iml
***Selenium Speciation subbed to Pace Analytical.							
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	46.1	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U Precision (±)	9.5	pCi/L				E900.1	01/24/20 13:11 / trs
Gross Alpha minus Rn & U MDC	1.7	pCi/L				E900.1	01/24/20 13:11 / trs
Lead 210	2.0	pCi/L				E909.0	02/01/20 13:49 / ajl
Lead 210 precision (±)	0.8	pCi/L				E909.0	02/01/20 13:49 / ajl
Lead 210 MDC	1	pCi/L				E909.0	02/01/20 13:49 / ajl
Radium 226	8.5	pCi/L				E903.0	02/10/20 13:30 / plj

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010593-001
Client Sample ID: 717

Report Date: 02/26/20
Collection Date: 01/14/20 09:05
Date Received: 01/17/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 226 precision (±)	1.7	pCi/L			E903.0		02/10/20 13:30 / plj
Radium 226 MDC	0.2	pCi/L			E903.0		02/10/20 13:30 / plj
Radium 228	18.9	pCi/L			RA-05		02/05/20 14:01 / trs
Radium 228 precision (±)	3.6	pCi/L			RA-05		02/05/20 14:01 / trs
Radium 228 MDC	1.2	pCi/L			RA-05		02/05/20 14:01 / trs
Thorium 230	2.4	pCi/L			E908.0		02/13/20 15:18 / dmf
Thorium 230 precision (±)	0.5	pCi/L			E908.0		02/13/20 15:18 / dmf
Thorium 230 MDC	1.8	pCi/L			E908.0		02/13/20 15:18 / dmf
DATA QUALITY							
Solids, Total Dissolved - Calculated	5800	mg/L			A1030 E		01/24/20 12:08 / tla
A/C Balance	-2.13	%			A1030 E		01/24/20 12:08 / tla
Anions	97.7	meq/L			A1030 E		01/24/20 12:08 / tla
Cations	93.6	meq/L			A1030 E		01/24/20 12:08 / tla
TDS Ratio	1.10	unitless			A1030 E		01/24/20 12:08 / tla
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		1.0	E624.1		01/27/20 00:00 / ta-a
Bromoform	ND	ug/L		2.0	E624.1		01/27/20 00:00 / ta-a
Chlorodibromomethane	ND	ug/L		1.0	E624.1		01/27/20 00:00 / ta-a
Chloroform	ND	ug/L		1.0	E624.1		01/27/20 00:00 / ta-a
Trihalomethanes, Total	ND	ug/L		1.0	E624.1		01/27/20 00:00 / ta-a

***Method E624.1 subbed to Test America.

Report RL - Analyte Reporting Limit
Definitions: QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		717	717	717	717
Collection Date:		1/14/2020	10/1/2019	7/23/2019	4/15/2019
Receive Date:		1/17/2020	10/9/2019	7/31/2019	4/18/2019
Report Date:		2/26/2020	11/13/2019	9/12/2019	5/31/2019
Analyte	Units	C20010593-001	C19100479-001	C19071276-002	C19040783-004
Acidity, Total as CaCO ₃	mg/L	1340	1460	1540	1720
Bicarbonate as HCO ₃	mg/L	ND(5)	ND(5)	ND(5)	ND(5)
Chloride	mg/L	45	47	46	50
Sulfate	mg/L	4600	4600	4750	5450
Calcium	mg/L	462	481	433	468
Magnesium	mg/L	430	423	428	389
Potassium	mg/L	7	8	6	6
Sodium	mg/L	154	165	152	155
pH	s.u.	3.48	3.45	3.50	3.46
Solids, Total Dissolved TDS @ 180 C	mg/L	6380	6420	6660	6880
Nitrogen, Ammonia as N	mg/L	20	21	24	27
Nitrogen, Nitrate+Nitrite as N	mg/L	0.16	0.23	0.67	1.90
Aluminum	mg/L	227	235	279	260
Arsenic	mg/L	0.007	0.007	0.008	0.006
Beryllium	mg/L	0.152	0.166	0.199	0.18
Cadmium	mg/L	0.016	0.016	0.017	0.019
Cobalt	mg/L	0.914	0.980	1.07	1.06
Lead	mg/L	0.027	0.016	0.021	0.025
Manganese	mg/L	14.7	14.8	16.8	16.4
Molybdenum	mg/L	ND(0.001)	ND(0.001)	0.002	ND(0.001)
Nickel	mg/L	0.992	1.07	1.12	1.3
Selenium	mg/L	0.011	0.009	0.011	0.011
Uranium	mg/L	0.678	0.714	0.769	0.743
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Selenium-IV	mg/L	ND	ND		0.00023
A/C Balance	%	-2.13	-0.43	-2.41	-8.02
Anions	meq/L	97.7	97.8	101	116
Cations	meq/L	93.6	96.9	95.9	98.5
Solids, Total Dissolved - Calculated	mg/L	5800	5700	5800	6500
TDS Ratio	unitless	1.10	1.12	1.14	1.05
Gross Alpha minus Rn & U	pCi/L	46.1	21.0	13.9	22.0
Gross Alpha minus Rn & U Precision (±)	pCi/L	9.5	4.3	2.9	4.4
Gross Alpha minus Rn & U MDC	pCi/L	1.7	0.7	0.6	0.6
Lead 210	pCi/L	2.0	1.8	1.8	2.1
Lead 210 precision (±)	pCi/L	0.8	1	0.8	0.9
Lead 210 MDC	pCi/L	1	1.3	0.9	1.0
Radium 226	pCi/L	8.5	10.1	7.7	9.7
Radium 226 precision (±)	pCi/L	1.7	2.0	1.5	1.9
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	18.9	13.7	14.3	9.1
Radium 228 precision (±)	pCi/L	3.6	2.8	2.8	2.0
Radium 228 MDC	pCi/L	1.2	1.5	1.3	1.7
Thorium 230	pCi/L	2.4	2.8	2.3	2.7
Thorium 230 precision (±)	pCi/L	0.5	0.5	0.4	0.5
Thorium 230 MDC	pCi/L	1.8	0.9	0.6	1
Trihalomethanes, Total	ug/L	ND	ND(0.50)	0.29	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-002
Client Sample ID: 719

Report Date: 02/26/20
Collection Date: 01/20/20 10:50
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	41	mg/L		5		A2320 B	01/27/20 18:56 / dmb
Chloride	28	mg/L	D	2		E300.0	01/29/20 04:55 / dmb
Sulfate	4370	mg/L	D	8		E300.0	01/29/20 04:55 / dmb
Calcium	502	mg/L		1		E200.7	01/29/20 21:14 / jcg
Magnesium	739	mg/L		1		E200.7	01/29/20 21:14 / jcg
Potassium	13	mg/L		1		E200.7	01/31/20 00:29 / jcg
Sodium	155	mg/L		1		E200.7	01/29/20 21:14 / jcg
PHYSICAL PROPERTIES							
pH	5.72	s.u.	H	0.01		A4500-H B	01/27/20 10:17 / kjp
pH Measurement Temp	12	°C				A4500-H B	01/27/20 10:17 / kjp
Solids, Total Dissolved TDS @ 180 C	6270	mg/L	D	40		A2540 C	01/27/20 09:47 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.05	mg/L		0.01		E353.2	01/29/20 15:43 / dmb
Nitrogen, Ammonia as N	0.32	mg/L		0.05		E350.1	01/29/20 12:53 / dmb
METALS, TOTAL							
Aluminum	6.63	mg/L	D	0.08		E200.8	02/05/20 11:39 / meh
Arsenic	0.005	mg/L		0.001		E200.8	02/05/20 11:39 / meh
Beryllium	0.005	mg/L		0.001		E200.8	02/05/20 11:39 / meh
Cadmium	ND	mg/L		0.001		E200.8	02/05/20 11:39 / meh
Cobalt	0.192	mg/L		0.005		E200.8	02/05/20 11:39 / meh
Lead	0.002	mg/L		0.001		E200.8	02/05/20 11:39 / meh
Manganese	4.22	mg/L	D	0.008		E200.8	02/05/20 11:39 / meh
Molybdenum	0.289	mg/L		0.001		E200.8	02/05/20 11:39 / meh
Nickel	0.290	mg/L		0.005		E200.8	02/05/20 11:39 / meh
Selenium	ND	mg/L		0.001		E200.8	02/05/20 11:39 / meh
Uranium	0.170	mg/L	D	0.0006		E200.8	02/05/20 11:39 / meh
Vanadium	ND	mg/L		0.01		E200.8	02/05/20 11:39 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	7.5	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U Precision (±)	1.7	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	02/02/20 08:56 / trs
Lead 210	0.2	pCi/L	U			E909.0	02/11/20 07:12 / ajl
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/11/20 07:12 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/11/20 07:12 / ajl
Radium 226	4.7	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 precision (±)	1	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/11/20 11:06 / plj
Radium 228	9.9	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 precision (±)	2.0	pCi/L				RA-05	02/06/20 13:32 / trs
Radium 228 MDC	1.0	pCi/L				RA-05	02/06/20 13:32 / trs

Report Definitions:
 RL - Analyte Reporting Limit
 QCL - Quality Control Limit
 D - Reporting Limit (RL) increased due to sample matrix
 U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
 ND - Not detected at the Reporting Limit (RL)
 H - Analysis performed past the method holding time



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-002
Client Sample ID: 719

Report Date: 02/26/20
Collection Date: 01/20/20 10:50
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL						
Thorium 230	0.2 pCi/L				E908.0	02/14/20 12:44 / dmf
Thorium 230 precision (±)	0.08 pCi/L				E908.0	02/14/20 12:44 / dmf
Thorium 230 MDC	0.08 pCi/L				E908.0	02/14/20 12:44 / dmf
DATA QUALITY						
Solids, Total Dissolved - Calculated	5800 mg/L				A1030 E	01/31/20 14:00 / tif
A/C Balance	0.82 %				A1030 E	01/31/20 14:00 / tif
Anions	92.4 meq/L				A1030 E	01/31/20 14:00 / tif
Cations	94.0 meq/L				A1030 E	01/31/20 14:00 / tif
TDS Ratio	1.07 unitless				A1030 E	01/31/20 14:00 / tif
Cation/Anion Balance includes selected metals						
VOLATILE ORGANIC COMPOUNDS						
Bromodichloromethane	ND ug/L		0.50		E624.1	01/28/20 17:58 / eli-b
Bromoform	ND ug/L		0.50		E624.1	01/28/20 17:58 / eli-b
Chlorodibromomethane	ND ug/L		0.50		E624.1	01/28/20 17:58 / eli-b
Chloroform	ND ug/L		0.50		E624.1	01/28/20 17:58 / eli-b
Trihalomethanes, Total	ND ug/L		0.50		E624.1	02/05/20 16:29 / tla
Surr: 1,2-Dichloroethane-d4	111 %REC		71-139		E624.1	01/28/20 17:58 / eli-b
Surr: p-Bromofluorobenzene	104 %REC		80-127		E624.1	01/28/20 17:58 / eli-b
Surr: Toluene-d8	106 %REC		80-123		E624.1	01/28/20 17:58 / eli-b

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		719	719	719	719
Collection Date:		1/20/2020	10/8/2019	7/23/2019	4/15/2019
Receive Date:		1/24/2020	10/16/2019	7/31/2019	4/22/2019
Report Date:		2/26/2020	11/20/2019	9/12/2019	6/19/2019
Analyte	Units	C20010793-002	C19100743-003	C19071281-005	C19040873-004
Bicarbonate as HCO ₃	mg/L	41	25	41	5
Chloride	mg/L	28	30	28	29
Sulfate	mg/L	4370	4550	4370	4460
Calcium	mg/L	502	494	457	441
Magnesium	mg/L	739	740	742	625
Potassium	mg/L	13	13	12	12
Sodium	mg/L	155	154	141	138
pH	s.u.	5.72	5.48	5.73	5.17
Solids, Total Dissolved TDS @ 180 C	mg/L	6270	6320	6470	6430
Nitrogen, Ammonia as N	mg/L	0.32	0.43	0.41	0.41
Nitrogen, Nitrate+Nitrite as N	mg/L	0.05	0.03	0.04	0.05
Aluminum	mg/L	6.63	4.2	2.2	5.5
Arsenic	mg/L	0.005	0.005	0.005	0.010
Beryllium	mg/L	0.005	0.004	0.001	0.003
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	0.192	0.248	0.202	0.247
Lead	mg/L	0.002	ND(0.003)	ND(0.001)	0.001
Manganese	mg/L	4.22	6.08	5.75	6.20
Molybdenum	mg/L	0.289	0.541	0.678	0.434
Nickel	mg/L	0.290	0.341	0.313	0.344
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.170	0.121	0.0556	0.117
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	0.82	-1.83	-1.22	-8.13
Anions	meq/L	92.4	96.1	92.5	93.8
Cations	meq/L	94.0	92.6	90.3	79.7
Solids, Total Dissolved - Calculated	mg/L	5800	6000	5800	5700
TDS Ratio	unitless	1.07	1.05	1.12	1.12
Gross Alpha minus Rn & U	pCi/L	7.5	9.1	7.2	14.1
Gross Alpha minus Rn & U Precision (±)	pCi/L	1.7	2.1	1.8	3.2
Gross Alpha minus Rn & U MDC	pCi/L	0.4	0.6	1	1.0
Lead 210	pCi/L	0.2	1.0	0.9	0.3
Lead 210 precision (±)	pCi/L	0.6	0.7	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.1	0.8	1.1
Radium 226	pCi/L	4.7	4.9	4.9	6.0
Radium 226 precision (±)	pCi/L	1	1.1	1.0	1.2
Radium 226 MDC	pCi/L	0.2	0.2	0.2	0.2
Radium 228	pCi/L	9.9	12.5	10.6	14.4
Radium 228 precision (±)	pCi/L	2.0	2.7	2.3	2.9
Radium 228 MDC	pCi/L	1.0	2.2	1.7	1.7
Thorium 230	pCi/L	0.2	0.2	0.03	0.2
Thorium 230 precision (±)	pCi/L	0.08	0.1	0.1	0.1
Thorium 230 MDC	pCi/L	0.08	0.1	0.3	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

SEMI-ANNUAL GROUND WATER MONITORING REPORT
SUPPLEMENTAL QUARTERLY/ MONTHLY SAMPLING
JANUARY TO JUNE OF 2020

ZONE-3

NBL-2
RW-A
NW-3
NW-4
NW-5
MW-7
RW-11(OCTOBER ONLY)

LEVELS ONLY

PB-2
PB-3
PB-4
MW-6
IW-A
NW-1
NW-2

NOTE: WATER LEVEL ONLY IS IN FIELD DATA SHEET
NO SAMPLING IN APRIL

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3
Lab ID: C20010971-001
Client Sample ID: NBL-2

Report Date: 02/10/20
Collection Date: 01/29/20 10:35
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	317	mg/L		5		A2320 B	02/04/20 13:18 / kjp
Chloride	39	mg/L		1		E300.0	02/05/20 04:51 / dmb
PHYSICAL PROPERTIES							
pH	7.14	s.u.	H	0.01		A4500-H B	02/03/20 11:39 / kjp
pH Measurement Temp	12	°C				A4500-H B	02/03/20 11:39 / kjp
Solids, Total Dissolved TDS @ 180 C	3660	mg/L	D	40		A2540 C	02/04/20 10:44 / hat

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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United Nuclear Corporation					
UNC- Zone 3					
Well ID:		NBL-2	NBL-2	NBL-2	NBL-2
Collection Date:		1/29/2020	10/3/2019	7/30/2019	4/17/2019
Receive Date:		1/31/2020	10/9/2019	8/7/2019	4/22/2019
Report Date:		2/10/2020	11/22/2019	8/22/2019	4/26/2019
Analyte	Units	C20010971-001	C19100480-005	C19080337-001	C19040874-004
Bicarbonate as HCO ₃	mg/L	317	320	316	317
Chloride	mg/L	39	39	39	39
pH	s.u.	7.14	6.75	7.38	7.03
pH Measurement Temp	°C	12	14	16	17
Solids, Total Dissolved TDS @ 180 C	mg/L	3660	3630	3630	3630



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3
Lab ID: C20010971-004
Client Sample ID: RW-A

Report Date: 02/10/20
Collection Date: 01/29/20 12:45
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	38	mg/L		5		A2320 B	02/06/20 14:30 / kjp
Chloride	27	mg/L	D	2		E300.0	02/05/20 07:05 / dmb
PHYSICAL PROPERTIES							
pH	5.87	s.u.	H	0.01		A4500-H B	02/03/20 11:52 / kjp
pH Measurement Temp	12	°C				A4500-H B	02/03/20 11:52 / kjp
Solids, Total Dissolved TDS @ 180 C	6100	mg/L	D	40		A2540 C	02/04/20 10:45 / hat

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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United Nuclear Corporation					
UNC - Zone 3					
Well ID:		RW-A	RW-A	RW-A	RW-A
Collection Date:		1/29/2020	10/3/2019	8/2/2019	4/17/2019
Receive Date:		1/31/2020	10/9/2019	8/7/2019	4/22/2019
Report Date:		2/10/2020	11/22/2019	8/22/2019	4/26/2019
Analyte	Units	C20010971-004	C19100743-001	C19080337-005	C19040874-003
Bicarbonate as HCO ₃	mg/L	38	25	25	29
Chloride	mg/L	27	27	26	27
pH	s.u.	5.87	5.61	5.66	5.65
pH Measurement Temp	°C	12	21	18	17
Solids, Total Dissolved TDS @ 180 C	mg/L	6100	6060	6120	6070

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-007
Client Sample ID: NW-3

Report Date: 02/26/20
Collection Date: 01/21/20 12:45
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	438	mg/L		5		A2320 B	01/27/20 19:52 / dmb
Chloride	34	mg/L	D	2		E300.0	01/29/20 07:09 / dmb
Sulfate	2770	mg/L	D	8		E300.0	01/29/20 07:09 / dmb
Calcium	606	mg/L		1		E200.7	01/29/20 21:45 / jcg
Magnesium	305	mg/L		1		E200.7	01/29/20 21:45 / jcg
Potassium	9	mg/L		1		E200.7	01/31/20 01:01 / jcg
Sodium	156	mg/L		1		E200.7	01/29/20 21:45 / jcg
PHYSICAL PROPERTIES							
pH	6.88	s.u.	H	0.01		A4500-H B	01/27/20 10:32 / kjp
pH Measurement Temp	13	°C				A4500-H B	01/27/20 10:32 / kjp
Solids, Total Dissolved TDS @ 180 C	4540	mg/L	D	30		A2540 C	01/27/20 09:50 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.02	mg/L		0.01		E353.2	01/29/20 15:51 / dmb
Nitrogen, Ammonia as N	0.40	mg/L		0.05		E350.1	01/29/20 13:01 / dmb
METALS, TOTAL							
Aluminum	0.12	mg/L		0.03		E200.8	01/29/20 00:03 / meh
Arsenic	9.78	mg/L		0.001		E200.8	01/29/20 18:43 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/29/20 00:03 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/29/20 18:43 / meh
Cobalt	0.005	mg/L		0.005		E200.8	01/29/20 18:43 / meh
Lead	ND	mg/L		0.001		E200.8	01/29/20 00:03 / meh
Manganese	3.78	mg/L	D	0.02		E200.8	01/29/20 18:43 / meh
Molybdenum	0.354	mg/L	D	0.003		E200.8	01/29/20 18:43 / meh
Nickel	ND	mg/L		0.005		E200.8	01/29/20 18:43 / meh
Selenium	ND	mg/L	D	0.002		E200.8	01/29/20 18:43 / meh
Uranium	0.146	mg/L		0.0003		E200.8	01/29/20 00:03 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/29/20 18:43 / meh
METALS - SPECIATED - TOTAL							
Arsenic-III	9.9	mg/L	D	0.1		E1632AM	01/30/20 17:13 / eli-h
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	22.9	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U Precision (±)	4.7	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	02/02/20 08:56 / trs
Lead 210	1.5	pCi/L				E909.0	02/12/20 03:09 / ajl
Lead 210 precision (±)	0.8	pCi/L				E909.0	02/12/20 03:09 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/12/20 03:09 / ajl
Radium 226	21.3	pCi/L				E903.0	02/24/20 11:10 / plj
Radium 226 precision (±)	4.1	pCi/L				E903.0	02/24/20 11:10 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/24/20 11:10 / plj

Report RL - Analyte Reporting Limit

Definitions: QCL - Quality Control Limit

D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level

ND - Not detected at the Reporting Limit (RL)

H - Analysis performed past the method holding time

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-007
Client Sample ID: NW-3

Report Date: 02/26/20
Collection Date: 01/21/20 12:45
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Radium 228	12.4	pCi/L				RA-05	02/19/20 11:33 / trs
Radium 228 precision (±)	2.4	pCi/L				RA-05	02/19/20 11:33 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	02/19/20 11:33 / trs
Thorium 230	-0.003	pCi/L	U			E908.0	02/12/20 06:40 / nsr
Thorium 230 precision (±)	0.05	pCi/L				E908.0	02/12/20 06:40 / nsr
Thorium 230 MDC	0.1	pCi/L				E908.0	02/12/20 06:40 / nsr
DATA QUALITY							
Solids, Total Dissolved - Calculated	4100	mg/L				A1030 E	01/31/20 14:03 / tif
A/C Balance	-2.57	%				A1030 E	01/31/20 14:03 / tif
Anions	65.8	meq/L				A1030 E	01/31/20 14:03 / tif
Cations	62.5	meq/L				A1030 E	01/31/20 14:03 / tif
TDS Ratio	1.10	unitless				A1030 E	01/31/20 14:03 / tif
Cation/Anion Balance includes selected metals							
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	01/28/20 20:16 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	01/28/20 20:16 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	01/28/20 20:16 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	01/28/20 20:16 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/05/20 16:29 / tla
Surr: 1,2-Dichloroethane-d4	108	%REC		71-139		E624.1	01/28/20 20:16 / eli-b
Surr: p-Bromofluorobenzene	109	%REC		80-127		E624.1	01/28/20 20:16 / eli-b
Surr: Toluene-d8	104	%REC		80-123		E624.1	01/28/20 20:16 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		NW-3	NW-3	NW-3	NW-3
Collection Date:		1/20/2020	10/3/2019	7/23/2019	4/15/2019
Receive Date:		1/24/2020	10/9/2019	7/31/2019	4/22/2019
Report Date:		2/26/2020	11/22/2019	9/12/2019	6/19/2019
Analyte	Units	C20010793-007	C19100480-007	C19071281-007	C19040873-007
Bicarbonate as HCO ₃	mg/L	438	390	465	483
Chloride	mg/L	34	35	34	34
Sulfate	mg/L	2770	2740	2680	2710
Calcium	mg/L	606	611	560	602
Magnesium	mg/L	305	292	307	291
Potassium	mg/L	9	9	8	8
Sodium	mg/L	156	160	160	166
pH	s.u.	6.88	6.92	6.98	6.89
Solids, Total Dissolved TDS @ 180 C	mg/L	4540	4420	4380	4440
Nitrogen, Ammonia as N	mg/L	0.40	0.30	0.37	0.35
Nitrogen, Nitrate+Nitrite as N	mg/L	0.02	ND(0.01)	ND(0.01)	ND(0.01)
Aluminum	mg/L	0.12	0.27	0.18	0.10
Arsenic	mg/L	9.78	10.4	10.2	9.51
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	0.005	0.012	ND(0.005)	ND(0.005)
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	3.78	3.71	2.67	2.61
Molybdenum	mg/L	0.354	0.459	0.559	0.503
Nickel	mg/L	ND(0.005)	0.006	ND(0.005)	ND(0.005)
Selenium	mg/L	ND(0.002)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.146	0.174	0.148	0.142
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L	9.9	1.6	7.7	7.6
Selenium-IV	mg/L				0.002
A/C Balance	%	-2.57	-2.09	-3.10	-3.00
Anions	meq/L	65.8	64.4	64.3	65.3
Cations	meq/L	62.5	61.8	60.5	61.5
Solids, Total Dissolved - Calculated	mg/L	4100	4100	4000	4100
TDS Ratio	unitless	1.10	1.09	1.10	1.09
Gross Alpha minus Rn & U	pCi/L	22.9	28.2	26.3	48.0
Gross Alpha minus Rn & U Precision (±)	pCi/L	4.7	5.7	5.4	9.5
Gross Alpha minus Rn & U MDC	pCi/L	0.4	0.7	1	1.0
Lead 210	pCi/L	1.5	1.2	0.3	0.6
Lead 210 precision (±)	pCi/L	0.8	0.8	0.5	0.7
Lead 210 MDC	pCi/L	1.1	1.2	0.8	1.1
Radium 226	pCi/L	21.3	17.7	23.3	20.1
Radium 226 precision (±)	pCi/L	4.1	3.4	4.5	3.8
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	12.4	9.3	7.9	10.3
Radium 228 precision (±)	pCi/L	2.4	2.0	1.8	2.3
Radium 228 MDC	pCi/L	1.1	1.4	1.5	2.1
Thorium 230	pCi/L	-0.003	0.008	0.04	-0.01
Thorium 230 precision (±)	pCi/L	0.05	0.05	0.04	0.07
Thorium 230 MDC	pCi/L	0.1	0.1	0.06	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3
Lab ID: C20010971-002
Client Sample ID: NW-4

Report Date: 02/10/20
Collection Date: 01/29/20 12:00
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	13	mg/L		5		A2320 B	02/06/20 14:10 / kjp
Chloride	19	mg/L	D	2		E300.0	02/05/20 05:10 / dmb
PHYSICAL PROPERTIES							
pH	5.99	s.u.	H	0.01		A4500-H B	02/03/20 11:45 / kjp
pH Measurement Temp	12	°C				A4500-H B	02/03/20 11:45 / kjp
Solids, Total Dissolved TDS @ 180 C	4380	mg/L	D	40		A2540 C	02/04/20 10:45 / hat

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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United Nuclear Corporation					
UNC - Zone 3					
Well ID:		NW-4	NW-4	NW-4	NW-4
Collection Date:		1/29/2020	10/3/2019	8/2/2019	4/17/2019
Receive Date:		1/31/2020	10/9/2019	8/7/2019	4/22/2019
Report Date:		2/10/2020	11/22/2019	8/22/2019	4/26/2019
Analyte	Units	C20010971-002	C19100736-001	C19080337-002	C19040874-001
Bicarbonate as HCO ₃	mg/L	13	19	18	15
Chloride	mg/L	19	19	18	20
pH	s.u.	5.99	6.13	6.25	6.30
pH Measurement Temp	°C	12	19	17	16
Solids, Total Dissolved TDS @ 180 C	mg/L	4380	4310	4380	4370



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3
Lab ID: C20010971-003
Client Sample ID: NW-5

Report Date: 02/10/20
Collection Date: 01/29/20 12:25
Date Received: 01/31/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	54	mg/L		5		A2320 B	02/06/20 14:24 / kjp
Chloride	26	mg/L	D	2		E300.0	02/05/20 06:08 / dmb
PHYSICAL PROPERTIES							
pH	5.82	s.u.	H	0.01		A4500-H B	02/03/20 11:48 / kjp
pH Measurement Temp	13	°C				A4500-H B	02/03/20 11:48 / kjp
Solids, Total Dissolved TDS @ 180 C	5860	mg/L	D	40		A2540 C	02/04/20 10:45 / hat

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
H - Analysis performed past the method holding time



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United Nuclear Corporation					
UNC-Zone 3					
Well ID:		NW-5	NW-5	NW-5	NW-5
Collection Date:		1/29/2020	10/3/2019	8/2/2019	4/17/2019
Receive Date:		1/31/2020	10/9/2019	8/7/2019	4/22/2019
Report Date:		2/10/2020	11/22/2019	8/22/2019	4/26/2019
Analyte	Units	C20010971-003	C19100743-010	C19080337-004	C19040874-002
Bicarbonate as HCO ₃	mg/L	54	ND(5)	69	29
Chloride	mg/L	26	28	27	28
pH	s.u.	5.82	4.30	5.99	5.40
pH Measurement Temp	°C	13	21	17	17
Solids, Total Dissolved TDS @ 180 C	mg/L	5860	5650	5760	5400

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-006
Client Sample ID: MW-7

Report Date: 02/26/20
Collection Date: 01/21/20 11:45
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Bicarbonate as HCO ₃	158	mg/L		5		A2320 B	01/27/20 19:45 / dmb
Chloride	30	mg/L	D	2		E300.0	01/29/20 06:11 / dmb
Sulfate	3350	mg/L	D	8		E300.0	01/29/20 06:11 / dmb
Calcium	519	mg/L		1		E200.7	01/29/20 21:32 / jcg
Magnesium	407	mg/L		1		E200.7	01/29/20 21:32 / jcg
Potassium	10	mg/L		1		E200.7	01/31/20 00:56 / jcg
Sodium	147	mg/L		1		E200.7	01/29/20 21:32 / jcg
PHYSICAL PROPERTIES							
pH	6.45	s.u.	H	0.01		A4500-H B	01/27/20 10:29 / kjp
pH Measurement Temp	13	°C				A4500-H B	01/27/20 10:29 / kjp
Solids, Total Dissolved TDS @ 180 C	4900	mg/L	D	40		A2540 C	01/27/20 09:50 / hat
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.58	mg/L		0.01		E353.2	01/29/20 15:50 / dmb
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	01/29/20 13:00 / dmb
METALS, TOTAL							
Aluminum	ND	mg/L		0.03		E200.8	01/28/20 23:42 / meh
Arsenic	0.029	mg/L		0.001		E200.8	01/28/20 23:42 / meh
Beryllium	ND	mg/L		0.001		E200.8	01/29/20 18:39 / meh
Cadmium	ND	mg/L		0.001		E200.8	01/29/20 18:39 / meh
Cobalt	0.236	mg/L		0.005		E200.8	01/28/20 23:42 / meh
Lead	ND	mg/L		0.001		E200.8	01/28/20 23:42 / meh
Manganese	5.04	mg/L	D	0.003		E200.8	01/28/20 23:42 / meh
Molybdenum	0.263	mg/L		0.001		E200.8	01/28/20 23:42 / meh
Nickel	0.247	mg/L		0.005		E200.8	01/28/20 23:42 / meh
Selenium	ND	mg/L		0.001		E200.8	01/28/20 23:42 / meh
Uranium	0.0365	mg/L		0.0003		E200.8	01/28/20 23:42 / meh
Vanadium	ND	mg/L		0.01		E200.8	01/29/20 18:39 / meh
RADIONUCLIDES, TOTAL							
Gross Alpha minus Rn & U	14.4	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U Precision (±)	3.0	pCi/L				E900.1	02/02/20 08:56 / trs
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	02/02/20 08:56 / trs
Lead 210	1.1	pCi/L	U			E909.0	02/11/20 23:42 / ajl
Lead 210 precision (±)	0.7	pCi/L				E909.0	02/11/20 23:42 / ajl
Lead 210 MDC	1.1	pCi/L				E909.0	02/11/20 23:42 / ajl
Radium 226	8.5	pCi/L				E903.0	02/24/20 11:10 / plj
Radium 226 precision (±)	1.7	pCi/L				E903.0	02/24/20 11:10 / plj
Radium 226 MDC	0.2	pCi/L				E903.0	02/24/20 11:10 / plj
Radium 228	11.0	pCi/L				RA-05	02/19/20 11:33 / trs
Radium 228 precision (±)	2.2	pCi/L				RA-05	02/19/20 11:33 / trs
Radium 228 MDC	1.1	pCi/L				RA-05	02/19/20 11:33 / trs

Report Definitions:

RL - Analyte Reporting Limit	MCL - Maximum Contaminant Level
QCL - Quality Control Limit	ND - Not detected at the Reporting Limit (RL)
D - Reporting Limit (RL) increased due to sample matrix	H - Analysis performed past the method holding time
U - Not detected at Minimum Detectable Concentration (MDC)	



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LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: United Nuclear Corporation
Project: UNC-Zone 3 & Zone 1
Lab ID: C20010793-006
Client Sample ID: MW-7

Report Date: 02/26/20
Collection Date: 01/21/20 11:45
Date Received: 01/24/20
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
RADIONUCLIDES, TOTAL							
Thorium 230	0.02	pCi/L	U			E908.0	02/13/20 15:18 / dmf
Thorium 230 precision (±)	0.09	pCi/L				E908.0	02/13/20 15:18 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	02/13/20 15:18 / dmf
DATA QUALITY							
Solids, Total Dissolved - Calculated	4600	mg/L				A1030 E	01/31/20 14:03 / tlf
A/C Balance	-4.99	%				A1030 E	01/31/20 14:03 / tlf
Anions	73.2	meq/L				A1030 E	01/31/20 14:03 / tlf
Cations	66.3	meq/L				A1030 E	01/31/20 14:03 / tlf
TDS Ratio	1.07	unitless				A1030 E	01/31/20 14:03 / tlf
Cation/Anion Balance includes selected metals							
VOLATILE ORGANIC COMPOUNDS							
Bromodichloromethane	ND	ug/L		0.50		E624.1	01/28/20 19:48 / eli-b
Bromoform	ND	ug/L		0.50		E624.1	01/28/20 19:48 / eli-b
Chlorodibromomethane	ND	ug/L		0.50		E624.1	01/28/20 19:48 / eli-b
Chloroform	ND	ug/L		0.50		E624.1	01/28/20 19:48 / eli-b
Trihalomethanes, Total	ND	ug/L		0.50		E624.1	02/05/20 16:29 / tla
Surr: 1,2-Dichloroethane-d4	106	%REC		71-139		E624.1	01/28/20 19:48 / eli-b
Surr: p-Bromofluorobenzene	103	%REC		80-127		E624.1	01/28/20 19:48 / eli-b
Surr: Toluene-d8	107	%REC		80-123		E624.1	01/28/20 19:48 / eli-b

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



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United Nuclear Corporation					
UNC - Zone 3 & Zone 1					
Well ID:		MW-7	MW-7	MW-7	MW-7
Collection Date:		1/20/2020	10/3/2019	7/23/2019	4/15/2019
Receive Date:		1/24/2020	10/9/2019	7/31/2019	4/22/2019
Report Date:		2/26/2020	11/22/2019	9/12/2019	6/19/2019
Analyte	Units	C20010793-006	C19100480-006	C19071281-006	C19040873-006
Bicarbonate as HCO ₃	mg/L	158	193	181	184
Chloride	mg/L	30	33	32	31
Sulfate	mg/L	3350	3170	3030	3130
Calcium	mg/L	519	579	568	610
Magnesium	mg/L	407	403	394	364
Potassium	mg/L	10	10	10	9
Sodium	mg/L	147	156	144	137
pH	s.u.	6.45	6.49	6.62	6.55
Solids, Total Dissolved TDS @ 180 C	mg/L	4900	4750	4780	4790
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.05)	0.41	0.15
Nitrogen, Nitrate+Nitrite as N	mg/L	0.58	0.70	0.50	0.51
Aluminum	mg/L	ND(0.03)	ND(0.03)	0.06	ND(0.03)
Arsenic	mg/L	0.029	0.037	0.013	0.006
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	0.236	0.282	0.199	0.150
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	5.04	5.47	4.68	3.75
Molybdenum	mg/L	0.263	0.199	0.231	0.278
Nickel	mg/L	0.247	0.292	0.234	0.194
Selenium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Uranium	mg/L	0.0365	0.0406	0.0448	0.0429
Vanadium	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Arsenic-III	mg/L				ND(0.005)
Selenium-IV	mg/L				ND(0.001)
A/C Balance	%	-4.99	-0.75	0.14	-1.82
Anions	meq/L	73.2	70.1	67.1	69.0
Cations	meq/L	66.3	69.1	67.3	66.5
Solids, Total Dissolved - Calculated	mg/L	4600	4500	4300	4400
TDS Ratio	unitless	1.07	1.07	1.11	1.09
Gross Alpha minus Rn & U	pCi/L	14.4	10.9	9.8	19.0
Gross Alpha minus Rn & U Precision (±)	pCi/L	3.0	2.4	2.3	4.1
Gross Alpha minus Rn & U MDC	pCi/L	0.4	0.7	1	1.0
Lead 210	pCi/L	1.1	0.9	0.7	-0.3
Lead 210 precision (±)	pCi/L	0.7	0.7	0.5	0.6
Lead 210 MDC	pCi/L	1.1	1.2	0.8	1.1
Radium 226	pCi/L	8.5	10.0	9.0	8.2
Radium 226 precision (±)	pCi/L	1.7	2.0	1.8	1.6
Radium 226 MDC	pCi/L	0.2	0.1	0.2	0.2
Radium 228	pCi/L	11.0	9.3	5.6	10.6
Radium 228 precision (±)	pCi/L	2.2	2.0	1.5	2.5
Radium 228 MDC	pCi/L	1.1	1.4	1.5	2.0
Thorium 230	pCi/L	0.02	0.07	0.07	0.04
Thorium 230 precision (±)	pCi/L	0.09	0.1	0.05	0.09
Thorium 230 MDC	pCi/L	0.2	0.2	0.07	0.2
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	0.69	ND(0.50)

**SEMI-ANNUAL
ENVIRONMENTAL MONITORING REPORT
JANUARY TO JUNE OF 2020**

AVAILABLE MONITORING DATA

- **ENVIRONMENTAL INSPECTION REPORT (continued this procedure to show and maintain the integrity of the tailings area).**

ENVIRONMENTAL INSPECTION REPORTS

ENVIRONMENTAL INSPECTION

DATE: 1-30-20

TIME START: 0921

INSPECTOR: Waf Chiselly J.

TIME END: 1038

TAILINGS AREA:

	<u>OKAY</u>	<u>PROBLEM</u>	<u>COMMENTS</u>
1. Fences	<u>✓</u>	<u> </u>	<u> </u>
2. Air Monitors	<u>-</u>	<u>NA -</u>	<u>Under RWP</u>
3. Radiation Warning Signs	<u>✓</u>	<u> </u>	<u> </u>
4. Locked Gates	<u>✓</u>	<u> </u>	<u> </u>

ACTION TAKEN:

OTHER COMMENT: Domestic water well pump was repaired/
re-installed on 1-9-20 and operational on 1-10-20.

North Pond wet sediment/water depth level is 0.60' and
South Pond is 0.60'.

Weekly Evaporation pond inspection

Month:	January	Date:	1/6/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	0.8	Domestic well GPM:	0	Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

Weekly Evaporation pond inspection

Month:	January	Date:	1/13/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	0.6	Domestic well GPM:	0	Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

Weekly Evaporation pond inspection

Month:	January	Date:	1/20/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	1	Domestic well GPM:		Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

Weekly Evaporation pond inspection

Month:	January	Date:	1/27/2020	Inspected by:	A Garoutte	
North pond water level:		0.6	South Pond water level:		0.60"	
Extraction wells GPM:	0.8	Domestic well GPM:	0	Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

ENVIRONMENTAL INSPECTION

DATE: 2-25-20

TIME START: 0943

INSPECTOR: Waf Chisibly J.

TIME END: 1128

TAILINGS AREA:

	<u>OKAY</u>	<u>PROBLEM</u>	<u>COMMENTS</u>
1. Fences	<u>✓</u>	<u> </u>	<u> </u>
2. Air Monitors	<u>- NA</u>	<u>-</u>	<u>Under RWP</u>
3. Radiation Warning Signs	<u>✓</u>	<u> </u>	<u> </u>
4. Locked Gates	<u>✓</u>	<u> </u>	<u> </u>

ACTION TAKEN:

OTHER COMMENT: North Pond wet sediment/water depth level is
0.50', South Pond is 0.50' and both ponds bottom liner areas
are about 3/4 covered with water.

Weekly Evaporation pond inspection

Month:	February	Date:	2/3/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	0.7	Domestic well GPM:	0	Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

Weekly Evaporation pond inspection

Month:	February	Date:	2/12/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	0.9	Domestic well GPM:		Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

Weekly Evaporation pond inspection

Month:	February	Date:	2/17/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	0.08	Domestic well GPM:		Flow	North pond/South pond	
Liner Inspected	Yes	Comments:				

Weekly Evaporation pond inspection

Month:	February	Date:	2/24/2020	Inspected by:	A Garoutte	
North pond water level:		0.5	South Pond water level:		0.5	
Extraction wells GPM:		Domestic well GPM:		Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

ENVIRONMENTAL INSPECTION

DATE: 3-31-20

TIME START: 1215

INSPECTOR: Wap Chinchelly S.

TIME END: 1350

TAILINGS AREA:

	<u>OKAY</u>	<u>PROBLEM</u>	<u>COMMENTS</u>
1. Fences	<u>✓</u>	<u> </u>	<u> </u>
2. Air Monitors	<u>—</u>	<u>NA</u>	<u>Under RWP</u>
3. Radiation Warning Signs	<u>✓</u>	<u> </u>	<u> </u>
4. Locked Gates	<u>✓</u>	<u> </u>	<u> </u>

ACTION TAKEN:

OTHER COMMENT: Domestic water well pump is currently shut off
but will be restarted soon. North Pond wet sediment/water depth
level is 0.50', South Pond is 0.55' and both ponds bottom liner
areas are about 1/2 covered with water.

Weekly Evaporation pond inspection

Month:	March	Date:	3/2/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	0.07	Domestic well GPM:	0	Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

Weekly Evaporation pond inspection

Month:	March	Date:	3/10/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	0.7	Domestic well GPM:	0	Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

Weekly Evaporation pond inspection

Month:	March	Date:	3/16/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	0.6	Domestic well GPM:		Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

Weekly Evaporation pond inspection

Month:	March	Date:	3/23/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	0.06	Domestic well GPM:	0	Flow	North pond/South pond	
Liner Inspected	Yes	Comments:				

Weekly Evaporation pond inspection

Month:	March	Date:	3/30/2020	Inspected by:	A Garoutte	
North pond water level:	0.5	South Pond water level:	0.55			
Extraction wells GPM:	0.5	Domestic well GPM:		Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

ENVIRONMENTAL INSPECTION

DATE: 4-27-20

TIME START: 1130

INSPECTOR: Max Chischilly J.

TIME END: 1330

TAILINGS AREA:

	<u>OKAY</u>	<u>PROBLEM</u>	<u>COMMENTS</u>
1. Fences	<u>✓</u>	<u> </u>	<u> </u>
2. Air Monitors	<u>—</u>	<u>NA</u>	<u>Under RWP</u>
3. Radiation Warning Signs	<u>✓</u>	<u> </u>	<u> </u>
4. Locked Gates	<u>✓</u>	<u> </u>	<u> </u>

ACTION TAKEN:

OTHER COMMENT: Domestic water well pump was restarted
on 4-2-20 @ 1148 and currently discharging into both North,
South Pond, North Pond wet sediment/water depth level is 0.57';
South Pond is 0.55' and both ponds bottom liner areas are
about 3/4 covered with water.

Weekly Evaporation pond Inspection

Month:	April	Date:	4/6/2020	Inspected by:	A Garoutte		
North pond water level:			South Pond water level:				
Extraction wells GPM:	0.7	Domestic well GPM:	61.55		Flow	North pond/South pond	
Liner Inspected	yes		Comments:		Water to ponds turned on 4/2/20 at11:48		

Weekly Evaporation pond Inspection

Month:	April	Date:	4/13/2020	Inspected by:	A Garoutte		
North pond water level:			South Pond water level:				
Extraction wells GPM:		0.8	Domestic well GPM:	61.33	Flow	North pond/South pond	
Liner Inspected		Yes		Comments:			

Weekly Evaporation pond Inspection

Month:	April	Date:	4/20/2020	Inspected by:	A Garoutte		
North pond water level:			South Pond water level:				
Extraction wells GPM:	0.7	Domestic well GPM:	61.14		Flow	North pond/South pond	
Liner Inspected	Yes		Comments:				

Weekly Evaporation pond Inspection

Month:	April	Date:	4/27/2020	Inspected by:	A Garoutte		
North pond water level:		0.57	South Pond water level:		0.55		
Extraction wells GPM:		0.7	Domestic well GPM:		60.83	Flow	North pond/South pond
Liner Inspected		yes		Comments:			

ENVIRONMENTAL INSPECTION

DATE: 5-27-20

TIME START: 0945

INSPECTOR: Phil Chubbly Jr.

TIME END: 1150

TAILINGS AREA:

	<u>OKAY</u>	<u>PROBLEM</u>	<u>COMMENTS</u>
1. Fences	<u>✓</u>	<u> </u>	<u> </u>
2. Air Monitors	<u>—</u>	<u>NA</u>	<u>Under RWP</u>
3. Radiation Warning Signs	<u>✓</u>	<u> </u>	<u> </u>
4. Locked Gates	<u>✓</u>	<u> </u>	<u> </u>

ACTION TAKEN:

OTHER COMMENT: Domestic water is discharging into both
North and South Evaporation Ponds. North Pond wet sediment/
water depth level is 0.62', South Pond is 0.62' and both ponds
bottom liner areas are about fully covered with water.

Weekly Evaporation pond inspection

Month:	May	Date:	5/4/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	0.7	Domestic well GPM:	60.83	Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

Weekly Evaporation pond inspection

Month:	May	Date:	5/11/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	0.8	Domestic well GPM:	60.79	Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

Weekly Evaporation pond inspection

Month:	May	Date:	5/18/2020	Inspected by:	A Garoutte	
North pond water level:		South Pond water level:				
Extraction wells GPM:	0.5	Domestic well GPM:	60.67	Flow	North pond/South pond	
Liner Inspected	yes	Comments:				

Weekly Evaporation pond inspection

Month:	May	Date:	5/26/2020	Inspected by:	A Garoutte	
North pond water level:		0.62 ft	South Pond water level:		0.62 ft	
Extraction wells GPM:	0.7	Domestic well GPM:	60.53	Flow	North pond/South pond	
Liner Inspected	yes	Comments:				
2,972,920 Gallons into ponds from Domestic well this month						

ENVIRONMENTAL INSPECTION

DATE: 6-29-20

TIME START: 1000

INSPECTOR: Map Chisellly J.

TIME END: 1125

TAILINGS AREA:

	<u>OKAY</u>	<u>PROBLEM</u>	<u>COMMENTS</u>
1. Fences	<u>✓</u>	<u> </u>	<u> </u>
2. Air Monitors	<u>—</u>	<u>NA</u>	<u>Under RWP</u>
3. Radiation Warning Signs	<u>✓</u>	<u> </u>	<u> </u>
4. Locked Gates	<u>✓</u>	<u> </u>	<u> </u>

ACTION TAKEN:

OTHER COMMENT: Domestic water is discharging into both
North and South Evaporation Ponds. North Pond wet sediment/
water depth level is 0.66', South Pond is 0.60' and both ponds
bottom liner areas are about fully covered with water.

Weekly Evaporation pond inspection

Month:	June	Date:	6/1/2020	Inspected by:	A Garoutte
North pond water level:		South Pond water level:			
Extraction wells GPM:	0.51	Domestic well GPM:	60.93	Flow	North pond/South pond
Liner Inspected	yes	Comments:			

Weekly Evaporation pond inspection

Month:	June	Date:	6/8/2020	Inspected by:	A Garoutte
North pond water level:		South Pond water level:			
Extraction wells GPM:	0.65	Domestic well GPM:	60.47	Flow	North pond/South pond
Liner Inspected	yes	Comments:			

Weekly Evaporation pond inspection

Month:	June	Date:	6/15/2020	Inspected by:	A Garoutte
North pond water level:		South Pond water level:			
Extraction wells GPM:	0.57	Domestic well GPM:	60.53	Flow	North pond/South pond
Liner Inspected	yes	Comments:			

Weekly Evaporation pond inspection

Month:	June	Date:	6/23/2020	Inspected by:	A Garoutte
North pond water level:		South Pond water level:			
Extraction wells GPM:	0.62	Domestic well GPM:	60.32	Flow	North pond/South pond
Liner Inspected		Comments:			

Weekly Evaporation pond inspection

Month:	June	Date:	6/29/2020	Inspected by:	60-93 A. Garoutte	
North pond water level:	0.66	South Pond water level:	0.6			
Extraction wells GPM:	0.53	Domestic well GPM:	60.56	Flow	North pond/South pond	
Liner Inspected	yes	Comments:				