

SEMI-ANNUAL GROUND WATER  
QUALITY ASSURANCE REPORT

FIRST HALF OF 2013  
(JANUARY THRU JUNE)

**SEMI – ANNUAL QUALITY ASSURANCE**  
**CHURCH ROCK SITE**  
**JANUARY TO JUNE OF 2013 SAMPLING EVENTS**  
**AUGUST – 2013**

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(1 OF 2 & 2 OF 2)

## 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 address 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 2013 quarterly (1st and 2nd) 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 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.

## 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 2 and 2 of 2).

## 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	3.99	1-7-13/1007	✓
7-Buffer	7.07	1-7-13/1006	✓

GROUND WATER MONITORING FIELD DATA SHEET  
First QUARTER 2013  
SAMPLING

STD.	µS/cm Reading	Date/Time	Initial
1413 µS/cm	1469	1-7-13/1008	✓

Date	Well Number	Reading		Reading		Reading		Reading			
		WL w/Probe	WL w/Probe	1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	1st pH	2nd pH	Stable pH	Ending pH
1-7-13	509-D	Pre-Sample	Post Sample	5,030	5,470	5,860	6,420	7.12	7.13	7.07	6.47
		80.55'	80.57'	1st Temp. 11.3	2nd Temp. 11.4	Stable Temp. 11.6	Ending Temp. 12.0	Comments: Conductivity is in µS/cm Temperature is in °C pH is in std. units			
	Time	Bubbler Start	Bubbler End								
	1040	0.220'	0.158'								
1-7-13	EPA-23	Pre-Sample	Post Sample	2,600	4,430	4,450	4,550	7.05	6.98	6.92	6.62
		57.10'	57.37'	1st Temp. 11.6	2nd Temp. 11.5	Stable Temp. 11.6	Ending Temp. 12.4	Comments:			
	Time	Bubbler Start	Bubbler End								
	1201	4.777'	4.480'								
1-7-13	803	Pre-Sample	Post Sample	5,120	5,780	6,230	6,490	6.55	6.56	6.56	6.46
		64.01'	64.16'	1st Temp. 12.2	2nd Temp. 12.1	Stable Temp. 11.9	Ending Temp. 12.4	Comments:			
	Time	Bubbler Start	Bubbler End								
	1258	12.731'	12.600'								
1-7-13	808	Pre-Sample	Post Sample	5,580	5,880	6,320	6,600	6.82	6.73	6.68	6.43
		51.35'	51.55'	1st Temp. 11.1	2nd Temp. 11.2	Stable Temp. 11.3	Ending Temp. 12.5	Comments:			
	Time	Bubbler Start	Bubbler End								
	1339	12.210'	12.050'								
1-7-13	802	Pre-Sample	Post Sample	5,870	6,150	6,440	7,220	7.23	6.83	6.64	6.42
		49.72'	49.76'	1st Temp. 11.5	2nd Temp. 11.6	Stable Temp. 11.5	Ending Temp. 12.0	Comments:			
	Time	Bubbler Start	Bubbler End								
	1421	17.960'	17.905'								
1-7-13	801	Pre-Sample	Post Sample	5,540	5,830	6,020	6,170	6.74	6.74	6.67	6.51
		53.51'	54.79'	1st Temp. 10.6	2nd Temp. 10.6	Stable Temp. 10.7	Ending Temp. 11.3	Comments:			
	Time	Bubbler Start	Bubbler End								
	1503	8.171'	6.905'								

PH Standard Verification Check

(Quar. Performance Monitoring - Pg. 2 of 7)

Cond. Standard Verification Check

STD.	PH Reading	Date/Time	Initial
4-Buffer	3.97	1-8-13/0818	<i>re</i>
7-Buffer	7.05	1-8-13/0816	<i>re</i>

GROUND WATER MONITORING FIELD DATA SHEET  
 First QUARTER 20 13  
 SAMPLING

STD.	µS/cm Reading	Date/Time	Initial
1413 µS/cm	1470	1-8-13/0817	<i>re</i>

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading		Reading		
				1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	
1-7-13	GW-2	57.55'	58.35'	1st pH 6.82	2nd pH 6.73	Stable pH 6.65	Ending pH 6.37	
				1st Temp. 5.9	2nd Temp. 6.2	Stable Temp. 6.4	Ending Temp. 6.9	
		Time 1552	Bubbler Start	Bubbler End	Comments:			
			13.215'	12.420'				
1-7-13	GW-1	63.39'	63.41'	1st Cond. 5,990	2nd Cond. 6,040	Stable Cond. 5,990	Ending Cond. 6,900	
				1st pH 7.29	2nd pH 7.18	Stable pH 7.03	Ending pH 6.68	
		Time 1654	Bubbler Start	Bubbler End	Comments:			
			7.286'	7.339'				
1-8-13	632	46.41'	50.46'	1st Cond. 6,720	2nd Cond. 6,820	Stable Cond. 6,940	Ending Cond. 7,050	
				1st pH 6.92	2nd pH 6.87	Stable pH 6.84	Ending pH 6.47	
		Time 0905	Bubbler Start	Bubbler End	Comments:			
			10.635'	6.590'				
1-8-13	613	79.49'	80.50'	1st Cond. 8,750	2nd Cond. 8,990	Stable Cond. 9,280	Ending Cond. 9,290	
				1st pH 3.14	2nd pH 3.13	Stable pH 3.12	Ending pH 2.87	
		Time 1011	Bubbler Start	Bubbler End	Comments:			
			5.299'	4.307'				
1-8-13	517	103.99'	110.54'	1st Cond. 5,490	2nd Cond. 5,710	Stable Cond. 5,730	Ending Cond. 5,110	
				1st pH 2.73	2nd pH 2.74	Stable pH 2.71	Ending pH 3.37	
		Time 1058	Bubbler Start	Bubbler End	Comments:			
			2.634'	0.286'				
1-8-13	EPA-14	122.62'	122.76'	1st Cond. 3,610	2nd Cond. 3,830	Stable Cond. 4,120	Ending Cond. 4,240	
				1st pH 4.47	2nd pH 4.51	Stable pH 4.46	Ending pH 4.46	
		Time 1146	Bubbler Start	Bubbler End	Comments: Check for clogged pump screen due to the very slow discharge.			
			0.295'	0.213'				

PH Standard Verification Check  
 STD. PH Reading Date/Time Initial  
 4-Buffer 4.00 1-9-13/0812 re  
 7-Buffer 7.03 1-9-13/0810 re

(Quar. Performance Monitoring - Pg. 3 of 7)  
 GROUND WATER MONITORING FIELD DATA SHEET  
 First QUARTER 20 13  
 SAMPLING

Cond. Standard Verification Check  
 STD.  $\mu$ S/cm Reading Date/Time Initial  
 1413  $\mu$ S/cm 1481 1-9-13/0811 re

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.
1-8-13	717			5,190	5,240	5,330	5,320
				1st pH 4.16	2nd pH 4.16	Stable pH 4.16	Ending pH 4.10
	Time			1st Temp. 12.0	2nd Temp. 11.9	Stable Temp. 12.0	Ending Temp. 12.7
	1350	Bubbler Start	Bubbler End	Comments:			
		131.96'	132.12'				
		0.249'	0.259'				
1-8-13	717 DUPLICATE			5,320	5,430	5,400	5,380
				1st pH 4.10	2nd pH 4.13	Stable pH 4.09	Ending pH 4.07
	Time			1st Temp. 12.7	2nd Temp. 12.8	Stable Temp. 12.6	Ending Temp. 12.8
	1420	Bubbler Start	Bubbler End	Comments:			
		132.12'	132.17'				
		0.259'	0.260'				
1-8-13	719			4,900	5,050	5,140	5,130
				1st pH 5.92	2nd pH 5.94	Stable pH 5.98	Ending pH 5.65
	Time			1st Temp. 10.3	2nd Temp. 10.3	Stable Temp. 10.3	Ending Temp. 11.5
	1452	Bubbler Start	Bubbler End	Comments:			
		169.45'	170.45'				
		0.342'	0.318'				
1-8-13	420			3,260	3,300	3,360	3,780
				1st pH 7.08	2nd pH 7.15	Stable pH 7.20	Ending pH 6.72
	Time			1st Temp. 10.0	2nd Temp. 10.1	Stable Temp. 10.1	Ending Temp. 8.0
	1544	Bubbler Start	Bubbler End	Comments:			
		152.95'	153.68'				
		1.510'	0.714'				
1-9-13	EPA-28			4,040	4,520	4,600	4,950
				1st pH 7.49	2nd pH 7.49	Stable pH 7.48	Ending pH 6.94
	Time			1st Temp. 11.5	2nd Temp. 11.3	Stable Temp. 11.2	Ending Temp. 11.9
	0855	Bubbler Start	Bubbler End	Comments:			
		64.72'	65.15'				
		5.667'	5.250'				
1-9-13	EPA-28 DUPLICATE			4,950	4,980	4,990	4,860
				1st pH 6.89	2nd pH 6.89	Stable pH 6.88	Ending pH 6.88
	Time			1st Temp. 11.7	2nd Temp. 11.5	Stable Temp. 11.4	Ending Temp. 12.2
	0935	Bubbler Start	Bubbler End	Comments:			
		65.15'	65.13'				
		5.250'	5.271'				





PH Standard Verification Check  
 STD. PH Reading Date/Time Initial  
 4-Buffer 4.02 1-14-13/0822 me  
 7-Buffer 6.99 1-14-13/0820 me

(Quar. Performance Monitoring - Pg. 5 of 7)  
 GROUND WATER MONITORING FIELD DATA SHEET  
 First QUARTER 2013  
 SAMPLING

Cond. Standard Verification Check  
 STD.  $\mu$ S/cm Reading Date/Time Initial  
 1413  $\mu$ S/cm 1495 1-14-13/0821 me

Date	Well Number	Reading		Reading		Reading		Reading				
		WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	1st pH	2nd pH	Stable pH	Ending pH	
1-14-13	627	59.66'	59.77'	4,390	4,670	4,800	4,680	7.11	7.10	7.08	6.89	
		Time 0857	Bubbler Start 2.888'	Bubbler End 2.813'	1st Temp. 7.9	2nd Temp. 7.8	Stable Temp. 8.1	Ending Temp. 9.0	Comments:			
		Reading		Reading		Reading		Reading				
		1st Cond. 3,500 2nd Cond. 3,730 Stable Cond. 3,880 Ending Cond. 4,720		1st pH 7.31 2nd pH 7.22 Stable pH 7.13 Ending pH 6.83		1st Temp. 7.7 2nd Temp. 8.4 Stable Temp. 8.8 Ending Temp. 7.8		Comments:				
1-14-13	EPA-25	55.21'	55.39'	4,650	4,820	4,910	5,060	7.10	6.99	6.87	6.79	
		Time 0957	Bubbler Start 5.717'	Bubbler End 5.537'	1st Temp. 7.1	2nd Temp. 7.6	Stable Temp. 7.9	Ending Temp. 8.1	Comments: Slow discharge.			
		Reading		Reading		Reading		Reading				
		1st Cond. 5,600 2nd Cond. 5,980 Stable Cond. 6,020 Ending Cond. 6,140		1st pH 7.18 2nd pH 7.14 Stable pH 7.10 Ending pH 5.89		1st Temp. 7.0 2nd Temp. 7.0 Stable Temp. 7.1 Ending Temp. 7.6		Comments:				
1-14-13	EPA-13	167.73'	168.85'	4,440	4,580	4,600	4,230	3.25	3.32	3.36	4.66	
		Time 1332	Bubbler Start 4.060'	Bubbler End 2.863'	1st Temp. 4.5	2nd Temp. 4.8	Stable Temp. 5.1	Ending Temp. 8.3	Comments:			
		Reading		Reading		Reading		Reading				
		1st Cond. 5,160 2nd Cond. 6,020 Stable Cond. 6,080 Ending Cond. 5,850		1st pH 2.47 2nd pH 2.46 Stable pH 2.44 Ending pH 2.65		1st Temp. 6.1 2nd Temp. 6.2 Stable Temp. 6.3 Ending Temp. 7.2		Comments:				
1-14-13	711	182.48'	183.42'	5,160	6,020	6,080	5,850	2.47	2.46	2.44	2.65	
		Time 1423	Bubbler Start 9.531'	Bubbler End 8.471'	1st Temp. 6.1	2nd Temp. 6.2	Stable Temp. 6.3	Ending Temp. 7.2	Comments:			
		Reading		Reading		Reading		Reading				
		1st Cond. 5,160 2nd Cond. 6,020 Stable Cond. 6,080 Ending Cond. 5,850		1st pH 2.47 2nd pH 2.46 Stable pH 2.44 Ending pH 2.65		1st Temp. 6.1 2nd Temp. 6.2 Stable Temp. 6.3 Ending Temp. 7.2		Comments:				
1-14-13	NBL-1	189.47'	190.62'	5,160	6,020	6,080	5,850	2.47	2.46	2.44	2.65	
		Time 1520	Bubbler Start 2.066'	Bubbler End 1.769'	1st Temp. 6.1	2nd Temp. 6.2	Stable Temp. 6.3	Ending Temp. 7.2	Comments:			
		Reading		Reading		Reading		Reading				
		1st Cond. 5,160 2nd Cond. 6,020 Stable Cond. 6,080 Ending Cond. 5,850		1st pH 2.47 2nd pH 2.46 Stable pH 2.44 Ending pH 2.65		1st Temp. 6.1 2nd Temp. 6.2 Stable Temp. 6.3 Ending Temp. 7.2		Comments:				

PH Standard Verification Check (Quar. Performance Monitoring - Pg. 6 of 7) Cond. Standard Verification Check  
 STD. PH Reading Date/Time Initial GROUND WATER MONITORING FIELD DATA SHEET STD.  $\mu$ S/cm Reading Date/Time Initial  
 4-Buffer 3.98 1-15-13/0839    First QUARTER 2013 1413  $\mu$ S/cm 1520 1-15-13/0838     
 7-Buffer 6.96 1-15-13/0837    SAMPLING

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.
1-15-13	614	104.51'	105.33'	7.840	8.020	8.040	8.220
				1st pH 7.19	2nd pH 7.22	Stable pH 7.24	Ending pH 6.46
	Time 0912	Bubbler Start 1.965'	Bubbler End 1.155'	1st Temp. 7.6	2nd Temp. 7.7	Stable Temp. 7.8	Ending Temp. 7.9
		Comments:					
1-15-13	515-A	105.14'	112.84'	9.250	9.610	9.590	9.320
				1st pH 7.05	2nd pH 7.05	Stable pH 7.01	Ending pH 5.98
	Time 1015	Bubbler Start 7.865'	Bubbler End 0.287'	1st Temp. 6.6	2nd Temp. 6.8	Stable Temp. 7.0	Ending Temp. 9.2
		Comments:					
1-15-13	604	104.12'	104.86'	6.370	6.430	6.430	6.260
				1st pH 5.75	2nd pH 5.74	Stable pH 5.74	Ending pH 5.27
	Time 1104	Bubbler Start 5.330'	Bubbler End 4.632'	1st Temp. 6.8	2nd Temp. 6.8	Stable Temp. 6.9	Ending Temp. 9.2
		Comments:					
1-15-13	EPA-7	115.62'	117.34'	2.640	7.000	7.240	7.330
				1st pH 6.96	2nd pH 7.01	Stable pH 7.05	Ending pH 5.97
	Time 1206	Bubbler Start 11.504'	Bubbler End 9.802'	1st Temp. 7.8	2nd Temp. 7.8	Stable Temp. 8.0	Ending Temp. 10.1
		Comments:					
1-15-13	EPA-5	125.95'	126.57'	4.390	4.450	4.370	4.300
				1st pH 5.99	2nd pH 5.98	Stable pH 5.97	Ending pH 5.85
	Time 1246	Bubbler Start 4.828'	Bubbler End 4.260'	1st Temp. 8.7	2nd Temp. 8.8	Stable Temp. 8.9	Ending Temp. 9.7
		Comments:					
1-15-13	EPA-4	207.46'	207.97'	4.100	4.270	4.180	4.490
				1st pH 6.68	2nd pH 6.71	Stable pH 6.74	Ending pH 6.61
	Time 1336	Bubbler Start	Bubbler End	1st Temp. 8.5	2nd Temp. 8.6	Stable Temp. 8.6	Ending Temp. 10.4
		Comments: Bubbler malfunctioned.					

PH Standard Verification Check  
 STD. PH Reading Date/Time Initial  
 4-Buffer 3.98 1-16-13/0810     
 7-Buffer 7.03 1-16-13/0808   

(Quar. Performance Monitoring - Pg. 7 of 7)  
 GROUND WATER MONITORING FIELD DATA SHEET  
 First QUARTER 2013  
 SAMPLING

Cond. Standard Verification Check  
 STD.  $\mu$ S/cm Reading Date/Time Initial  
 1413  $\mu$ S/cm 1496 1-16-13/0809   

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	
1-15-13	EPA-2 Time 1442	173.87'	174.65'	3,060	3,110	3,110	3,120	6.96	6.97	6.97	6.81	
		Bubbler Start		Bubbler End		Comments:						
		7.600'	6.883'									
1-15-13	EPA-2 DUPLICATE Time 1519	174.65'	174.83'	3,060	3,070	3,090	3,150	6.75	6.74	6.73	6.74	
		Bubbler Start		Bubbler End		Comments:						
		6.883'	5.328'									
1-15-13	708 Time 1600	155.39'	156.57'	5,720	5,790	5,930	5,500	2.64	2.63	2.62	3.35	
		Bubbler Start		Bubbler End		Comments:						
		3.091'	1.980'									
1-15-13	TWQ-142 Time 1715	201.56'	201.90'	2,020	2,120	2,180	2,180	7.37	7.40	7.43	7.43	
		Bubbler Start		Bubbler End		Comments: Bubbler malfunctioned.						
1-16-13	RINSATE Time 0945			4				5.81				
		Bubbler Start		Bubbler End		Comments:						
1-16-13	FIELD BLANK Time 1020			5				6.00				
		Bubbler Start		Bubbler End		Comments:						

PH Standard Verification Check

(Monthly/Quar. Supplemental - Pg. 1 of 2)

Cond. Standard Verification Check

STD.	PH Reading	Date/Time	Initial
4-Buffer	3.99	1-15-13/0839	<u>    </u>
7-Buffer	6.92	1-15-13/0838	<u>    </u>

GROUND WATER MONITORING FIELD DATA SHEET  
 First QUARTER 2013  
 SAMPLING

STD.	µS/cm Reading	Date/Time	Initial
1413 µS/cm	1499	1-15-13/0840	<u>    </u>

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	
1-14-13	MW-7	190.88'	191.09'	4,090	4,010	4,020	4,020	6.38	6.49	6.59	6.59	
				1st Temp. 6.1	2nd Temp. 6.4	Stable Temp. 6.4	Ending Temp. 6.4	Comments:				
	Time 1604	Bubbler Start	Bubbler End									
1-15-13	NW-1	187.76'	189.20'	4,140				7.03				
				1st Temp. 8.3	2nd Temp.	Stable Temp.	Ending Temp.	Comments:				
	Time 1035	Bubbler Start	Bubbler End									
1-15-13	NW-5	183.82'	184.49'	3,820				6.91				
				1st Temp. 9.4	2nd Temp.	Stable Temp.	Ending Temp.	Comments:				
	Time 1102	Bubbler Start	Bubbler End									
1-15-13	NW-3	183.89'	184.74'	3,790				6.93				
				1st Temp. 11.0	2nd Temp.	Stable Temp.	Ending Temp.	Comments:				
	Time 1132	Bubbler Start	Bubbler End									
1-15-13	NW-4	193.82'	194.36'	4,410				6.50				
				1st Temp. 3.9	2nd Temp.	Stable Temp.	Ending Temp.	Comments:				
	Time 1217	Bubbler Start	Bubbler End									
1-15-13	PB-2	185.63'	185.98'	4,720				5.84				
				1st Temp. 5.4	2nd Temp.	Stable Temp.	Ending Temp.	Comments:				
	Time 1326	Bubbler Start	Bubbler End									

PH Standard Verification Check

(Monthly/Quar. Supplemental - Pg. 2 of 2)

Cond. Standard Verification Check

STD. PH Reading Date/Time Initial  
 4-Buffer 3.98 1-16-13/0810     
 7-Buffer 7.03 1-16-13/0808   

GROUND WATER MONITORING FIELD DATA SHEET  
 First QUARTER 20 13  
 SAMPLING

STD.  $\mu$ S/cm Reading Date/Time Initial  
 1413  $\mu$ S/cm 1496 1-16-13/0809   

Date	Well Number	Reading		Reading		Reading		Reading			
		WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	1st pH	2nd pH	Stable pH	Ending pH
1-15-13	NW-2	193.58'	193.83'	4,000				6.67			
				12.0							
	Time 1429	Bubbler Start	Bubbler End	Comments:							
1-15-13	RW-A	172.98'	173.35'	4,130				6.44			
				10.2							
	Time 1359	Bubbler Start	Bubbler End	Comments:							
1-16-13	NBL-2	163.92'	164.10'	3,750	3,840	3,830		6.80	6.82	6.82	6.84
				3.6	3.8	4.0					4.0
	Time 0830	Bubbler Start	Bubbler End	Comments:							
1-16-13	PB-3	186.95'	187.25'	3,580	3,670	3,730		7.13	7.17	7.20	6.47
				3.3	3.6	3.7					6.9
	Time 0852	Bubbler Start	Bubbler End	Comments:							
1-16-13	PB-4	186.77'	187.07'	7,110	7,110	7,110		2.48	2.48	2.48	2.48
				1.1	1.0	1.1					1.2
	Time 0915	Bubbler Start	Bubbler End	Comments:							
1-16-13	MW-6	194.40'		2,600	4,490	4,500		6.34	6.43	6.48	6.53
				9.8	9.8	9.8					9.8
	Time 1050	Bubbler Start	Bubbler End	Comments: A Grundfos Redi-Flow electrical submersible pump was used to collect sample due to a frozen low flow bladder pump line.							

PH Standard Verification Check  
 STD. PH Reading Date/Time Initial  
 4-Buffer 3.99 4-1-13/0841     
 7-Buffer 7.03 4-1-13/0840   

(Quar. Performance Monitoring - Pg. 1 of 7)  
 GROUND WATER MONITORING FIELD DATA SHEET  
 Second QUARTER 20 13  
 SAMPLING

Cond. Standard Verification Check  
 STD.  $\mu$ S/cm Reading Date/Time Initial  
 1413  $\mu$ S/cm 1481 4-1-13/0842   

Date	Well Number	Reading		Reading		Reading		Reading			
		WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	1st pH	2nd pH	Stable pH	Ending pH
4-1-13	509-D	80.83'	80.89'	5,840	5,890	5,970	6,390	6.99	6.97	6.95	6.46
		Time	Bubbler Start	Bubbler End	Comments: Conductivity is in $\mu$ S/cm Temperature is in °C pH is in std. units						
	0930	0.132'	0.143'								
4-1-13	EPA-23	57.40'	57.71'	4,200	4,280	4,340	4,360	7.07	6.98	6.93	6.73
		Time	Bubbler Start	Bubbler End	Comments:						
	1020	4.469'	4.145'								
4-1-13	803	64.26'	64.38'	6,070	6,220	6,280	6,100	6.56	6.54	6.57	6.50
		Time	Bubbler Start	Bubbler End	Comments:						
	1103	12.409'	12.300'								
4-1-13	808	51.60'	51.76'	5,380	5,610	5,880	6,470	6.80	6.76	6.70	6.49
		Time	Bubbler Start	Bubbler End	Comments:						
	1145	11.923'	11.783'								
4-1-13	802	49.89'	49.93'	4,870	5,510	6,140	6,810	7.61	7.07	6.71	6.56
		Time	Bubbler Start	Bubbler End	Comments:						
	1225	17.742'	17.700'								
4-1-13	801	53.68'	54.90'	5,160	5,730	5,950	6,280	6.85	6.82	6.78	6.55
		Time	Bubbler Start	Bubbler End	Comments:						
	1305	7.940'	6.713'								

PH Standard Verification Check

(Quar. Performance Monitoring - Pg. 2 of 7)

Cond. Standard Verification Check

STD.	PH Reading	Date/Time	Initial
4-Buffer	4.02	4-2-13/0822	✓
7-Buffer	7.04	4-2-13/0820	✓

GROUND WATER MONITORING FIELD DATA SHEET  
Second QUARTER 2013  
SAMPLING

STD.	µS/cm Reading	Date/Time	Initial
1413 µS/cm	1480	4-2-13/0821	✓

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading		Reading	
				1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.
4-1-13	Gw-2	57.87'	58.08'	1st pH 6.91	2nd pH 6.81	Stable pH 6.72	Ending pH 6.38
				1st Temp. 10.8	2nd Temp. 10.9	Stable Temp. 10.8	Ending Temp. 12.8
	Time 1350	Bubbler Start	Bubbler End	Comments:			
		12.933'	12.633'				
4-1-13	Gw-1	63.50'	63.56'	1st Cond. 5,640	2nd Cond. 5,760	Stable Cond. 5,840	Ending Cond. 6,440
				1st pH 6.94	2nd pH 6.91	Stable pH 6.81	Ending pH 6.65
	Time 1500	Bubbler Start	Bubbler End	Comments:			
		7.179'	7.129'				
4-1-13	632	46.49'	50.38'	1st Cond. 6,330	2nd Cond. 6,430	Stable Cond. 6,540	Ending Cond. 6,720
				1st pH 6.86	2nd pH 6.79	Stable pH 6.75	Ending pH 6.49
	Time 1550	Bubbler Start	Bubbler End	Comments:			
		10.455'	6.330'				
4-2-13	624	52.51'	52.57'	1st Cond. 4,370	2nd Cond. 4,560	Stable Cond. 4,800	Ending Cond. 5,210
				1st pH 7.14	2nd pH 6.99	Stable pH 6.96	Ending pH 6.58
	Time 0850	Bubbler Start	Bubbler End	Comments:			
		10.021'	9.986'				
4-2-13	SBL-1	50.74'	51.65'	1st Cond. 6,760	2nd Cond. 7,050	Stable Cond. 7,180	Ending Cond. 7,360
				1st pH 7.36	2nd pH 7.30	Stable pH 7.15	Ending pH 6.61
	Time 0930	Bubbler Start	Bubbler End	Comments:			
		3.962'	3.056'				
4-2-13	EPA-28	64.57'	65.05'	1st Cond. 3,970	2nd Cond. 4,470	Stable Cond. 4,600	Ending Cond. 4,760
				1st pH 7.17	2nd pH 7.14	Stable pH 7.02	Ending pH 6.78
	Time 1015	Bubbler Start	Bubbler End	Comments:			
		5.765'	5.328'				



PH Standard Verification Check

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

Cond. Standard Verification Check

STD. PH Reading Date/Time Initial  
 4-Buffer \_\_\_\_\_  
 7-Buffer \_\_\_\_\_

GROUND WATER MONITORING FIELD DATA SHEET  
 Second QUARTER 2013  
 SAMPLING

STD.  $\mu$ S/cm Reading Date/Time Initial  
 1413  $\mu$ S/cm \_\_\_\_\_

Date	Well Number	WL w/Probe		Reading		Reading		Reading		Reading		
		Pre-Sample	Post Sample	1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	1st pH	2nd pH	Stable pH	Ending pH	
4-2-13	EPA-28 DUPLICATE	WL w/Probe	WL w/Probe	1st Cond. 4,800	2nd Cond. 4,820	Stable Cond. 4,830	Ending Cond. 4,730	1st pH 6.79	2nd pH 6.78	Stable pH 6.79	Ending pH 6.83	
		Pre-Sample	Post Sample	1st Temp. 12.8	2nd Temp. 12.8	Stable Temp. 12.6	Ending Temp. 12.5	Comments:				
		65.05'	65.10'									
		Bubbler Start	Bubbler End									
Time	1055	5.328'	5.237'									
4-2-13	613	WL w/Probe	WL w/Probe	1st Cond. 8,030	2nd Cond. 8,630	Stable Cond. 8,850	Ending Cond. 8,760	1st pH 3.00	2nd pH 2.98	Stable pH 2.98	Ending pH 2.86	
		Pre-Sample	Post Sample	1st Temp. 12.5	2nd Temp. 12.5	Stable Temp. 12.4	Ending Temp. 13.7	Comments:				
		79.45'	80.47'									
		Bubbler Start	Bubbler End									
Time	1145	5.300'	4.337'									
4-2-13	517	WL w/Probe	WL w/Probe	1st Cond. 4,500	2nd Cond. 5,240	Stable Cond. 5,350	Ending Cond. 5,050	1st pH 2.74	2nd pH 2.79	Stable pH 2.79	Ending pH 3.41	
		Pre-Sample	Post Sample	1st Temp. 13.8	2nd Temp. 13.6	Stable Temp. 13.4	Ending Temp. 12.5	Comments:				
		104.09'	110.79'									
		Bubbler Start	Bubbler End									
Time	1230	2.481'	0.285'									
4-2-13	627	WL w/Probe	WL w/Probe	1st Cond. 4,540	2nd Cond. 4,630	Stable Cond. 4,680	Ending Cond. 4,620	1st pH 7.19	2nd pH 7.18	Stable pH 7.09	Ending pH 6.99	
		Pre-Sample	Post Sample	1st Temp. 11.6	2nd Temp. 11.6	Stable Temp. 11.7	Ending Temp. 12.4	Comments:				
		59.85'	59.93'									
		Bubbler Start	Bubbler End									
Time	1330	2.737'	2.674'									
4-2-13	EPA-25	WL w/Probe	WL w/Probe	1st Cond. 3,430	2nd Cond. 3,710	Stable Cond. 3,850	Ending Cond. 4,590	1st pH 7.21	2nd pH 7.21	Stable pH 7.17	Ending pH 6.90	
		Pre-Sample	Post Sample	1st Temp. 12.2	2nd Temp. 12.2	Stable Temp. 12.2	Ending Temp. 11.7	Comments:				
		55.35'	55.44'									
		Bubbler Start	Bubbler End									
Time	1425	5.544'	5.452'									
4-2-13	GW-3	WL w/Probe	WL w/Probe	1st Cond. 4,420	2nd Cond. 4,830	Stable Cond. 5,130	Ending Cond. 5,210	1st pH 6.67	2nd pH 6.64	Stable pH 6.67	Ending pH 6.62	
		Pre-Sample	Post Sample	1st Temp. 11.4	2nd Temp. 11.4	Stable Temp. 11.5	Ending Temp. 11.6	Comments:				
		54.82'	56.35'									
		Bubbler Start	Bubbler End									
Time	1510	0.748'	0.100'									

PH Standard Verification Check

(Quar. Performance Monitoring - Pg. 4 of 7)

Cond. Standard Verification Check

STD.	PH Reading	Date/Time	Initial
4-Buffer	4.04	4-3-13/0840	MC
7-Buffer	7.07	4-3-13/0838	MC

GROUND WATER MONITORING FIELD DATA SHEET  
 Second QUARTER 2013  
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STD.	µS/cm Reading	Date/Time	Initial
1413 µS/cm	1482	4-3-13/0839	MC

Date	Well Number	WL w/Probe		Reading		Reading	
		Pre-Sample	Post Sample	1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.
4-3-13	614	104.62'	105.43'	7.430	7.650	7.820	7.920
		1st pH 7.23	2nd pH 7.23	Stable pH 7.23	Ending pH 6.46		
	Time 0905	Bubbler Start	Bubbler End	1st Temp. 10.1	2nd Temp. 10.2	Stable Temp. 10.3	Ending Temp. 12.8
		1.812'	1.041'	Comments:			
4-3-13	515-A	105.28'	110.74'	8.020	8.580	8.800	9.100
		1st pH 7.40	2nd pH 7.42	Stable pH 7.42	Ending pH 6.04		
	Time 1020	Bubbler Start	Bubbler End	1st Temp. 12.2	2nd Temp. 12.2	Stable Temp. 12.1	Ending Temp. 12.8
		7.748'	2.290'	Comments:			
4-3-13	604	104.22'	105.07'	5.790	6.060	6.070	6.080
		1st pH 6.09	2nd pH 6.09	Stable pH 6.09	Ending pH 5.34		
	Time 1105	Bubbler Start	Bubbler End	1st Temp. 12.0	2nd Temp. 12.0	Stable Temp. 12.0	Ending Temp. 13.0
		5.214'	4.386'	Comments:			
4-3-13	RIN SATE			2			
		1st pH 6.43	2nd pH	Stable pH	Ending pH		
	Time 1140	Bubbler Start	Bubbler End	1st Temp. 13.3	2nd Temp.	Stable Temp.	Ending Temp.
				Comments:			
4-3-13	FIELD BLANK			3			
		1st pH 6.43	2nd pH	Stable pH	Ending pH		
	Time 1200	Bubbler Start	Bubbler End	1st Temp. 16.4	2nd Temp.	Stable Temp.	Ending Temp.
				Comments:			
Date	Well Number						
		1st pH	2nd pH	Stable pH	Ending pH		
	Time	Bubbler Start	Bubbler End	1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
				Comments:			

PH Standard Verification Check

(Quar. Performance Monitoring - Pg. 5 of 7)

Cond. Standard Verification Check

STD.	PH Reading	Date/Time	Initial
4-Buffer	4.06	4-8-13/0813	✓
7-Buffer	7.09	4-8-13/0810	✓

GROUND WATER MONITORING FIELD DATA SHEET  
 Second QUARTER 2013  
 SAMPLING

STD.	µS/cm Reading	Date/Time	Initial
1413 µS/cm	1447	4-8-13/0812	✓

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	
4-8-13	EPA-4	207.18'	207.63'	3,580	3,930	3,970	4,210	7.25	7.27	7.29	6.71	
		1st Temp. 12.7 2nd Temp. 12.7 Stable Temp. 12.6 Ending Temp. 13.3										
	Time 0910	Bubbler Start	Bubbler End	Comments:								
		15.815'	15.342'									
4-8-13	EPA-5	125.66'	126.28'	3,840	3,990	4,060	4,000	6.44	6.44	6.43	5.94	
		1st Temp. 13.3 2nd Temp. 13.4 Stable Temp. 13.3 Ending Temp. 14.7										
	Time 1010	Bubbler Start	Bubbler End	Comments:								
		5.146'	4.555'									
4-8-13	EPA-7	115.00'	117.07'	6,540	6,670	6,900	6,860	7.45	7.47	7.47	6.04	
		1st Temp. 13.2 2nd Temp. 13.3 Stable Temp. 13.3 Ending Temp. 14.3										
	Time 1100	Bubbler Start	Bubbler End	Comments:								
		11.801'	10.070'									
4-8-13	EPA-2	173.40'	174.17'	2,740	2,830	2,890	2,890	7.14	7.14	7.14	6.86	
		1st Temp. 14.0 2nd Temp. 13.8 Stable Temp. 13.7 Ending Temp. 14.2										
	Time 1150	Bubbler Start	Bubbler End	Comments:								
		8.023'	7.290'									
4-8-13	EPA-2 DUPLICATE	174.17'	174.33'	2,860	2,940	2,940	3,000	6.86	6.85	6.85	6.87	
		1st Temp. 14.2 2nd Temp. 14.1 Stable Temp. 14.0 Ending Temp. 14.0										
	Time 1220	Bubbler Start	Bubbler End	Comments:								
		7.290'	7.047'									
4-8-13	708	155.18'	156.33'	4,140	4,850	5,280	5,090	2.76	2.75	2.74	3.62	
		1st Temp. 14.8 2nd Temp. 14.7 Stable Temp. 14.5 Ending Temp. 13.9										
	Time 1305	Bubbler Start	Bubbler End	Comments:								
		3.355'	2.235'									

PH Standard Verification Check  
 STD. PH Reading Date/Time Initial  
 4-Buffer 4.01 4-9-13/0822     
 7-Buffer 7.09 4-9-13/0820   

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 GROUND WATER MONITORING FIELD DATA SHEET  
 Second QUARTER 20 13  
 SAMPLING

Cond. Standard Verification Check  
 STD.  $\mu$ S/cm Reading Date/Time Initial  
 1413  $\mu$ S/cm 1454 4-9-13/0821   

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	1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.	Comments	
4-8-13	711	182.28'	182.70'	3,760	4,050	4,080	4,090	3.09	3.08	3.08	4.63	15.2	15.2	15.2	14.9	Need to check pump bladder and screen due to a very slow discharge.	
		Time	Bubbler Start	Bubbler End													
		1350	9.755'	9.340'													
4-8-13	EPA-13	167.50'	168.60'	5,520	5,570	5,730	5,720	6.50	6.54	6.58	5.97	13.7	13.7	13.6	14.4	Need to check discharge line due to water leakage.	
		Time	Bubbler Start	Bubbler End													
		1515	4.174'	3.058'													
4-9-13	719	169.17'	169.92'	5,320	5,350	5,210	5,150	6.24	6.28	6.26	5.10	8.8	8.9	9.1	9.3	Need to check discharge line due to water leakage.	
		Time	Bubbler Start	Bubbler End													
		0855	0.414'	0.457'													
4-9-13	420	152.87'	153.63'	3,450	3,460	3,480	3,560	7.23	7.26	7.28	6.69	7.7	7.7	7.7	9.0	Comments:	
		Time	Bubbler Start	Bubbler End													
		0955	1.632'	0.933'													
4-9-13	717	131.98'	132.15'	2,530	5,500	5,540	5,420	4.24	4.25	4.24	4.14	10.7	10.7	10.9	10.7	Comments:	
		Time	Bubbler Start	Bubbler End													
		1055	0.303'	0.324'													
4-9-13	717 DUPLICATE	132.15'	132.20'	5,430	5,420	5,430	5,450	4.14	4.15	4.16	4.14	10.8	10.5	10.6	10.8	Comments:	
		Time	Bubbler Start	Bubbler End													
		1125	0.324'	0.336'													

PH Standard Verification Check

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

Cond. Standard Verification Check

STD.	PH Reading	Date/Time	Initial
4-Buffer	4.01	4-10-13/0850	PC
7-Buffer	7.06	4-10-13/0840	PC

GROUND WATER MONITORING FIELD DATA SHEET  
 Second QUARTER 20 13  
 SAMPLING

STD.	µS/cm Reading	Date/Time	Initial
1413 µS/cm	1467	4-10-13/0842	PC

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading		Reading		
				1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	
4-9-13	EPA-14	122.78'	122.92'	1st pH	2nd pH	Stable pH	Ending pH	
				4.70	4.70	4.70	4.70	
		Time 1600	Bubbler Start	Bubbler End	Comments: <i>might need to extend pump lines due to a very slow discharge.</i>			
			0.322'	0.182'				
4-9-13	TWQ-142	201.06'	201.61'	1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	
				1,854	1,857	1,867	1,866	
		Time 1255	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
			19.708'	19.158'	7.75	7.76	7.77	7.88
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.	
				8.5	8.6	8.5	10.2	
				Comments:				
4-10-13	RINSATE			1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	
				2				
		Time 1155	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
					6.30			
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.	
				14.2				
				Comments:				
4-10-13	FIELD BLANK			1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	
				2				
		Time 1200	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
					6.30			
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.	
				14.2				
				Comments:				
4-11-13	NBL-1	195.95'		1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	
		Time 1020	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
			0.282'					
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.	
				Comments: <i>Attempted sampling for 20 minutes but no water was collected and water level probe had mud (no water).</i>				
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	1st Cond.	2nd Cond.	Stable Cond.	Ending Cond.	
		Time	Bubbler Start	Bubbler End	1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.	
				Comments:				

PH Standard Verification Check

(Monthly/Quar. Supplemental - Pg. 1 of 2)

Cond. Standard Verification Check

STD. PH Reading Date/Time Initial  
 4-Buffer 4.01 4-9-13/0822 *rc*  
 7-Buffer 7.09 4-9-13/0820 *rc*

GROUND WATER MONITORING FIELD DATA SHEET  
 Second QUARTER 20 13  
 SAMPLING

STD.  $\mu$ S/cm Reading Date/Time Initial  
 1413  $\mu$ S/cm 1454 4-9-13/0821 *rc*

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	
4-9-13	NBL-2	163.67'	163.86'	1st Cond. 3,530	2nd Cond. 3,530	Stable Cond. 3,540	Ending Cond. 3,540	
				1st pH 6.62	2nd pH 6.63	Stable pH 6.63	Ending pH 6.62	
		Time 1230	Bubbler Start 0.351'	Bubbler End 0.367'	1st Temp. 9.1	2nd Temp. 9.1	Stable Temp. 9.1	Ending Temp. 10.5
					Comments:			
4-9-13	MW-7	190.97'	191.17'	1st Cond. 2,530	2nd Cond. 3,670	Stable Cond. 3,690	Ending Cond. 3,690	
				1st pH 7.26	2nd pH 7.28	Stable pH 7.28	Ending pH 6.59	
		Time 1355	Bubbler Start	Bubbler End	1st Temp. 10.2	2nd Temp. 10.2	Stable Temp. 10.3	Ending Temp. 11.4
					Comments:			
4-9-13	MW-6	194.71'	195.49'	1st Cond. 4,310	2nd Cond. 4,290	Stable Cond. 4,340	Ending Cond. 4,260	
				1st pH 6.39	2nd pH 6.41	Stable pH 6.41	Ending pH 6.40	
		Time 1425	Bubbler Start	Bubbler End	1st Temp. 9.8	2nd Temp. 9.8	Stable Temp. 9.9	Ending Temp. 9.7
					Comments:			
4-10-13	PB-4	186.99'	187.30'	1st Cond. 5,900	2nd Cond. 5,930	Stable Cond. 5,940	Ending Cond. 5,950	
				1st pH 2.53	2nd pH 2.53	Stable pH 2.53	Ending pH 2.53	
		Time 0920	Bubbler Start	Bubbler End	1st Temp. 5.8	2nd Temp. 5.8	Stable Temp. 5.8	Ending Temp. 5.8
					Comments: <i>Need to replace ruptured bladder and might extend pump lines.</i>			
4-9-13	NW-3	184.13'	184.27'	1st Cond. 3,610	2nd Cond. 3,600	Stable Cond. 3,600	Ending Cond. 3,600	
				1st pH 6.69	2nd pH 6.81	Stable pH 6.81	Ending pH 6.81	
		Time 1000	Bubbler Start	Bubbler End	1st Temp. 10.9	2nd Temp. 9.8	Stable Temp. 9.7	Ending Temp. 9.7
					Comments:			
4-9-13	NW-5	183.94'	184.25'	1st Cond. 4,100	2nd Cond. 4,090	Stable Cond. 4,070	Ending Cond. 4,060	
				1st pH 6.74	2nd pH 6.74	Stable pH 6.75	Ending pH 6.77	
		Time 1030	Bubbler Start	Bubbler End	1st Temp. 11.5	2nd Temp. 11.3	Stable Temp. 11.3	Ending Temp. 11.1
					Comments:			

STD.	PH Reading	Date/Time	Initial
4-Buffer	4.01	4-10-13/0850	re
7-Buffer	7.06	4-10-13/0840	re

(Monthly/Quar. Supplemental - Pg. 2 of 2)  
 GROUND WATER MONITORING FIELD DATA SHEET  
 Second QUARTER 2013  
 SAMPLING

Cond. STD. $\mu$ S/cm	Reading	Date/Time	Initial
1413 $\mu$ S/cm	1467	4-10-13/0842	re

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.
4-9-13	NW-2	194.08'	194.29'	1st pH 6.57	2nd pH 6.53	Stable pH 6.53	Ending pH 6.52
				1st Temp. 12.5	2nd Temp. 12.5	Stable Temp. 12.3	Ending Temp. 12.0
	Time 1045	Bubbler Start	Bubbler End	Comments:			
4-9-13	NW-4	200.42'	200.82'	1st Cond. 4,150	2nd Cond. 4,150	Stable Cond. 4,150	Ending Cond. 4,150
				1st pH 6.12	2nd pH 6.11	Stable pH 6.10	Ending pH 6.09
	Time 1125	Bubbler Start	Bubbler End	Comments:			
4-9-13	NW-1	198.41'	198.81'	1st Cond. 4,000	2nd Cond. 4,000	Stable Cond. 3,990	Ending Cond. 3,980
				1st pH 7.41	2nd pH 7.51	Stable pH 7.56	Ending pH 7.60
	Time 1155	Bubbler Start	Bubbler End	Comments:			
4-9-13	RW-A	173.69'	173.87'	1st Cond. 4,010	2nd Cond. 4,010	Stable Cond. 4,010	Ending Cond. 4,010
				1st pH 6.45	2nd pH 6.41	Stable pH 6.39	Ending pH 6.38
	Time 1215	Bubbler Start	Bubbler End	Comments:			
4-9-13	PB-2	185.60'	186.69'	1st Cond. 4,530	2nd Cond. 4,540	Stable Cond. 4,540	Ending Cond. 4,540
				1st pH 5.88	2nd pH 5.86	Stable pH 5.85	Ending pH 5.84
	Time 1605	Bubbler Start	Bubbler End	Comments:			
4-9-13	PB-3	187.10'	187.38'	1st Cond. 4,010	2nd Cond. 3,990	Stable Cond. 4,000	Ending Cond. 4,440
				1st pH 4.53	2nd pH 4.49	Stable pH 4.46	Ending pH 3.72
	Time 1525	Bubbler Start	Bubbler End	Comments:			

**APPENDIX B**  
**QUARTERLY SAMPLING**  
**SEMI-ANNUAL GROUND WATER MONITORING REPORT**  
**JANUARY TO JUNE OF 2013**

**QA/QC CONTROLS**

FIELD BLANKS  
RINSATES

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





### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** SW Alluvium  
**Lab ID:** C13010343-015  
**Client Sample ID:** Field Blank

**Report Date:** 02/25/13  
**Collection Date:** 01/09/13 12:00  
**Date Received:** 01/11/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		5		A2320 B	01/11/13 18:26 / jba
Calcium	ND	mg/L		1		E200.7	01/14/13 22:57 / sf
Chloride	ND	mg/L		1		E300.0	01/14/13 18:40 / wc
Magnesium	ND	mg/L		1		E200.7	01/14/13 22:57 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	01/14/13 14:07 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	01/16/13 15:50 / lr
Potassium	ND	mg/L		1		E200.7	01/14/13 22:57 / sf
Sodium	ND	mg/L		1		E200.7	01/14/13 22:57 / sf
Sulfate	1	mg/L		1		E300.0	01/14/13 18:40 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	5.64	s.u.	H	0.01		A4500-H B	01/11/13 14:25 / ab
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	01/11/13 14:39 / ab
<b>METALS - TOTAL</b>							
Aluminum	ND	mg/L		0.1		E200.7	01/15/13 23:13 / sf
Beryllium	ND	mg/L		0.001		E200.7	01/15/13 23:13 / sf
Cadmium	ND	mg/L		0.005		E200.7	01/15/13 23:13 / sf
Cobalt	ND	mg/L		0.01		E200.7	01/15/13 23:13 / sf
Lead	ND	mg/L		0.001		E200.8	01/18/13 02:51 / clm
Manganese	ND	mg/L		0.01		E200.7	01/15/13 23:13 / sf
Molybdenum	ND	mg/L		0.1		E200.7	01/15/13 23:13 / sf
Nickel	ND	mg/L		0.05		E200.7	01/15/13 23:13 / sf
Uranium	ND	mg/L		0.0003		E200.8	01/18/13 02:51 / clm
Vanadium	ND	mg/L		0.1		E200.7	01/15/13 23:13 / sf
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	01/29/13 13:44 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	01/31/13 13:07 / jrm
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	0.4	pCi/L	U			E900.1	01/25/13 08:01 / lbb
Gross Alpha minus Rn & U Precision (±)	0.4	pCi/L				E900.1	01/25/13 08:01 / lbb
Gross Alpha minus Rn & U MDC	0.6	pCi/L				E900.1	01/25/13 08:01 / lbb
Lead 210	0.5	pCi/L	U			E909.0	02/08/13 10:58 / eli-cs
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/08/13 10:58 / eli-cs
Lead 210 MDC	1.0	pCi/L				E909.0	02/08/13 10:58 / eli-cs
Radium 226	0.16	pCi/L	U			E903.0	01/30/13 12:46 / trs
Radium 226 precision (±)	0.14	pCi/L				E903.0	01/30/13 12:46 / trs
Radium 226 MDC	0.20	pCi/L				E903.0	01/30/13 12:46 / trs
Radium 228	0.82	pCi/L	U			RA-05	01/24/13 18:58 / gb
Radium 228 precision (±)	0.95	pCi/L				RA-05	01/24/13 18:58 / gb
Radium 228 MDC	1.5	pCi/L				RA-05	01/24/13 18:58 / gb

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 U - Not detected at minimum detectable concentration

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 H - Analysis performed past recommended holding time.



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**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** SW Alluvium  
**Lab ID:** C13010343-015  
**Client Sample ID:** Field Blank

**Report Date:** 02/25/13  
**Collection Date:** 01/09/13 12:00  
**Date Received:** 01/11/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	0.05	pCi/L	U			E908.0	01/30/13 16:20 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	01/30/13 16:20 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	01/30/13 16:20 / dmf
<b>DATA QUALITY</b>							
A/C Balance (± 5)	2.57	%				A1030 E	01/17/13 07:46 / kbh
Anions	0.0344	meq/L				A1030 E	01/17/13 07:46 / kbh
Cations	0.0362	meq/L				A1030 E	01/17/13 07:46 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Bromodichloromethane	0.68	ug/L		0.50		E624	01/15/13 03:58 / jk
Bromoform	ND	ug/L		0.50		E624	01/15/13 03:58 / jk
Chlorodibromomethane	0.61	ug/L		0.50		E624	01/15/13 03:58 / jk
Chloroform	0.70	ug/L		0.50		E624	01/15/13 03:58 / jk
Trihalomethanes, Total	2.00	ug/L		0.50		E624	01/15/13 03:58 / jk
Surr: 1,2-Dichlorobenzene-d4	92.0	%REC		80-120		E624	01/15/13 03:58 / jk
Surr: Dibromofluoromethane	84.0	%REC		80-120		E624	01/15/13 03:58 / jk
Surr: p-Bromofluorobenzene	105	%REC		80-120		E624	01/15/13 03:58 / jk
Surr: Toluene-d8	102	%REC		80-120		E624	01/15/13 03:58 / jk
- The sample was received in the laboratory with a pH > 2. The pH was 5.							

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 U - Not detected at minimum detectable concentration

### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-3  
**Lab ID:** C13010580-007  
**Client Sample ID:** Field Blank

**Report Date:** 02/25/13  
**Collection Date:** 01/16/13 10:20  
**Date Received:** 01/18/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		5		A2320 B	01/19/13 02:08 / jba
Calcium	ND	mg/L		1		E200.7	01/22/13 21:58 / sf
Chloride	ND	mg/L		1		E300.0	01/21/13 22:05 / wc
Magnesium	ND	mg/L		1		E200.7	01/22/13 21:58 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	01/22/13 17:04 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	01/18/13 17:24 / lr
Potassium	ND	mg/L		1		E200.7	01/22/13 21:58 / sf
Sodium	ND	mg/L		1		E200.7	01/22/13 21:58 / sf
Sulfate	ND	mg/L		1		E300.0	01/21/13 22:05 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	5.63	s.u.	H	0.01		A4500-H B	01/21/13 10:16 / ab
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	01/21/13 08:44 / ab
<b>METALS - TOTAL</b>							
Aluminum	ND	mg/L		0.1		E200.7	01/23/13 02:16 / sf
Beryllium	ND	mg/L		0.001		E200.7	01/23/13 02:16 / sf
Cadmium	ND	mg/L		0.005		E200.7	01/23/13 02:16 / sf
Cobalt	ND	mg/L		0.01		E200.7	01/23/13 02:16 / sf
Lead	ND	mg/L		0.001		E200.8	01/22/13 19:24 / clm
Manganese	ND	mg/L		0.01		E200.7	01/23/13 02:16 / sf
Molybdenum	ND	mg/L		0.1		E200.7	01/23/13 02:16 / sf
Nickel	ND	mg/L		0.05		E200.7	01/23/13 02:16 / sf
Uranium	ND	mg/L		0.0003		E200.8	01/22/13 19:24 / clm
Vanadium	ND	mg/L		0.1		E200.7	01/23/13 02:16 / sf
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	02/09/13 15:49 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	02/06/13 13:40 / jrm
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	-0.1	pCi/L	U			E900.1	02/08/13 05:27 / lbb
Gross Alpha minus Rn & U Precision (±)	0.1	pCi/L				E900.1	02/08/13 05:27 / lbb
Gross Alpha minus Rn & U MDC	0.3	pCi/L				E900.1	02/08/13 05:27 / lbb
Lead 210	-0.4	pCi/L	U			E909.0	02/02/13 18:11 / eli-cs
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/02/13 18:11 / eli-cs
Lead 210 MDC	1.1	pCi/L				E909.0	02/02/13 18:11 / eli-cs
Radium 226	0.02	pCi/L	U			E903.0	02/01/13 07:01 / trs
Radium 226 precision (±)	0.09	pCi/L				E903.0	02/01/13 07:01 / trs
Radium 226 MDC	0.16	pCi/L				E903.0	02/01/13 07:01 / trs
Radium 228	0.54	pCi/L	U			RA-05	01/27/13 14:44 / gb
Radium 228 precision (±)	0.57	pCi/L				RA-05	01/27/13 14:44 / gb
Radium 228 MDC	0.91	pCi/L				RA-05	01/27/13 14:44 / gb

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 U - Not detected at minimum detectable concentration

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 H - Analysis performed past recommended holding time.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-3  
**Lab ID:** C13010580-007  
**Client Sample ID:** Field Blank

**Report Date:** 02/25/13  
**Collection Date:** 01/16/13 10:20  
**Date Received:** 01/18/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	0.005	pCi/L	U			E908.0	02/04/13 16:38 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	02/04/13 16:38 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	02/04/13 16:38 / dmf

**DATA QUALITY**

A/C Balance (± 5)	31.3	%				A1030 E	01/23/13 09:43 / kbh
Anions	0.00752	meq/L				A1030 E	01/23/13 09:43 / kbh
Cations	0.0144	meq/L				A1030 E	01/23/13 09:43 / kbh

- The ion balance is not appropriate for samples having a conductivity less than 300 umhos/cm.

**VOLATILE ORGANIC COMPOUNDS**

Bromodichloromethane	1.36	ug/L		0.50		E624	01/21/13 13:28 / jk
Bromoform	1.16	ug/L		0.50		E624	01/21/13 13:28 / jk
Chlorodibromomethane	1.45	ug/L		0.50		E624	01/21/13 13:28 / jk
Chloroform	2.18	ug/L		0.50		E624	01/21/13 13:28 / jk
Trihalomethanes, Total	6.15	ug/L		0.50		E624	01/21/13 13:28 / jk
Surr: 1,2-Dichlorobenzene-d4	114	%REC		80-120		E624	01/21/13 13:28 / jk
Surr: Dibromofluoromethane	87.0	%REC		80-120		E624	01/21/13 13:28 / jk
Surr: p-Bromofluorobenzene	118	%REC		80-120		E624	01/21/13 13:28 / jk
Surr: Toluene-d8	93.0	%REC		80-120		E624	01/21/13 13:28 / jk

- The sample was received in the laboratory with a pH > 2. The pH was 5.

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-1  
**Lab ID:** C13040233-005  
**Client Sample ID:** Field Blank

**Report Date:** 05/21/13  
**Collection Date:** 04/03/13 12:00  
**Date Received:** 04/05/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		5		A2320 B	04/05/13 18:57 / jba
Calcium	ND	mg/L		1		E200.7	04/15/13 14:55 / sf
Chloride	ND	mg/L		1		E300.0	04/08/13 21:08 / wc
Magnesium	ND	mg/L		1		E200.7	04/15/13 14:55 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH <sub>3</sub> G	04/10/13 13:30 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	04/08/13 10:53 / lr
Potassium	ND	mg/L		1		E200.7	04/15/13 14:55 / sf
Sodium	ND	mg/L		1		E200.7	04/15/13 14:55 / sf
Sulfate	ND	mg/L		1		E300.0	04/08/13 21:08 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	5.78	s.u.	H	0.01		A4500-H B	04/05/13 15:02 / ab
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	04/05/13 15:29 / ab
<b>METALS - TOTAL</b>							
Aluminum	ND	mg/L		0.1		E200.8	04/10/13 20:59 / cp
Beryllium	ND	mg/L		0.001		E200.8	04/10/13 20:59 / cp
Cadmium	ND	mg/L		0.005		E200.8	04/10/13 20:59 / cp
Cobalt	ND	mg/L		0.01		E200.8	04/10/13 20:59 / cp
Lead	ND	mg/L		0.001		E200.8	04/10/13 20:59 / cp
Manganese	ND	mg/L		0.01		E200.8	04/10/13 20:59 / cp
Molybdenum	ND	mg/L		0.1		E200.8	04/10/13 20:59 / cp
Nickel	ND	mg/L		0.05		E200.8	04/10/13 20:59 / cp
Uranium	ND	mg/L		0.0003		E200.8	04/10/13 20:59 / cp
Vanadium	ND	mg/L		0.1		E200.8	04/10/13 20:59 / cp
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	04/17/13 14:40 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	04/17/13 14:18 / jl1
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	0.08	pCi/L	U			E900.1	04/29/13 08:14 / lbb
Gross Alpha minus Rn & U Precision (±)	0.2	pCi/L				E900.1	04/29/13 08:14 / lbb
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	04/29/13 08:14 / lbb
Lead 210	-0.1	pCi/L	U			E909.0	04/16/13 12:00 / eli-cs
Lead 210 precision (±)	0.8	pCi/L				E909.0	04/16/13 12:00 / eli-cs
Lead 210 MDC	1.3	pCi/L				E909.0	04/16/13 12:00 / eli-cs
Radium 226	-0.1	pCi/L	U			E903.0	04/23/13 15:44 / lmc
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/23/13 15:44 / lmc
Radium 226 MDC	0.22	pCi/L				E903.0	04/23/13 15:44 / lmc
Radium 228	-0.4	pCi/L	U			RA-05	04/16/13 19:31 / gb
Radium 228 precision (±)	1.7	pCi/L				RA-05	04/16/13 19:31 / gb
Radium 228 MDC	3.0	pCi/L				RA-05	04/16/13 19:31 / gb

**Report Definitions:**

RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration  
U - Not detected at minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
H - Analysis performed past recommended holding time.



**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-1  
**Lab ID:** C13040233-005  
**Client Sample ID:** Field Blank

**Report Date:** 05/21/13  
**Collection Date:** 04/03/13 12:00  
**Date Received:** 04/05/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	0.07	pCi/L	U			E908.0	04/15/13 17:03 / dmf
Thorium 230 precision (±)	0.09	pCi/L				E908.0	04/15/13 17:03 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	04/15/13 17:03 / dmf

**DATA QUALITY**

A/C Balance (± 5)	-34.3	%				A1030 E	04/18/13 12:47 / kbh
Anions	0.0306	meq/L				A1030 E	04/18/13 12:47 / kbh
Cations	0.0150	meq/L				A1030 E	04/18/13 12:47 / kbh

- The ion balance is not appropriate for samples having a conductivity less than 300 umhos/cm.

**VOLATILE ORGANIC COMPOUNDS**

Bromodichloromethane	4.68	ug/L		0.50		E624	04/08/13 17:03 / jlr
Bromoform	1.73	ug/L		0.50		E624	04/08/13 17:03 / jlr
Chlorodibromomethane	3.61	ug/L		0.50		E624	04/08/13 17:03 / jlr
Chloroform	7.40	ug/L		0.50		E624	04/08/13 17:03 / jlr
Trihalomethanes, Total	17.4	ug/L		0.50		E624	04/08/13 17:03 / jlr
Surr: 1,2-Dichlorobenzene-d4	102	%REC		73.7-126		E624	04/08/13 17:03 / jlr
Surr: Dibromofluoromethane	114	%REC		64.4-131		E624	04/08/13 17:03 / jlr
Surr: p-Bromofluorobenzene	107	%REC		67.1-133		E624	04/08/13 17:03 / jlr
Surr: Toluene-d8	96.0	%REC		79.7-125		E624	04/08/13 17:03 / jlr

- The sample was received in the laboratory with a pH > 2. The pH was 5.

**Report Definitions:**

RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone +3  
**Lab ID:** C13040429-008  
**Client Sample ID:** Field Blank

**Report Date:** 05/22/13  
**Collection Date:** 04/10/13 12:00  
**Date Received:** 04/12/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		5		A2320 B	04/12/13 17:26 / jba
Calcium	ND	mg/L		1		E200.7	04/16/13 18:25 / sf
Chloride	ND	mg/L		1		E300.0	04/16/13 03:30 / wc
Magnesium	ND	mg/L		1		E200.7	04/16/13 18:25 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH <sub>3</sub> G	04/16/13 15:37 / lr
Nitrogen, Nitrate+Nitrite as N	1.2	mg/L		0.1		E353.2	04/15/13 13:53 / lr
Potassium	ND	mg/L		1		E200.7	04/17/13 13:47 / sf
Sodium	ND	mg/L		1		E200.7	04/16/13 18:25 / sf
Sulfate	ND	mg/L		1		E300.0	04/16/13 03:30 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	6.01	s.u.	H	0.01		A4500-H B	04/12/13 15:15 / ab
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	04/16/13 11:53 / jz
<b>METALS - TOTAL</b>							
Aluminum	ND	mg/L		0.1		E200.8	04/23/13 00:00 / cp
Beryllium	ND	mg/L		0.001		E200.8	04/23/13 00:00 / cp
Cadmium	ND	mg/L		0.005		E200.8	04/23/13 00:00 / cp
Cobalt	ND	mg/L		0.01		E200.8	04/23/13 00:00 / cp
Lead	ND	mg/L		0.001		E200.8	04/23/13 00:00 / cp
Manganese	ND	mg/L		0.01		E200.8	04/23/13 00:00 / cp
Molybdenum	ND	mg/L		0.1		E200.8	04/23/13 00:00 / cp
Nickel	ND	mg/L		0.05		E200.8	04/23/13 00:00 / cp
Uranium	ND	mg/L		0.0003		E200.8	04/23/13 00:00 / cp
Vanadium	ND	mg/L		0.1		E200.8	04/23/13 00:00 / cp
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	04/19/13 14:21 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	04/17/13 15:26 / jl1
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	0.4	pCi/L	U			E900.1	04/20/13 07:26 / lbb
Gross Alpha minus Rn & U Precision (±)	0.6	pCi/L				E900.1	04/20/13 07:26 / lbb
Gross Alpha minus Rn & U MDC	0.9	pCi/L				E900.1	04/20/13 07:26 / lbb
Lead 210	-0.3	pCi/L	U			E909.0	04/21/13 00:16 / eli-cs
Lead 210 precision (±)	0.8	pCi/L				E909.0	04/21/13 00:16 / eli-cs
Lead 210 MDC	1.3	pCi/L				E909.0	04/21/13 00:16 / eli-cs
Radium 226	-0.04	pCi/L	U			E903.0	04/29/13 23:52 / lmc
Radium 226 precision (±)	0.12	pCi/L				E903.0	04/29/13 23:52 / lmc
Radium 226 MDC	0.23	pCi/L				E903.0	04/29/13 23:52 / lmc
Radium 228	-0.5	pCi/L	U			RA-05	04/24/13 20:11 / gb
Radium 228 precision (±)	1.3	pCi/L				RA-05	04/24/13 20:11 / gb
Radium 228 MDC	2.2	pCi/L				RA-05	04/24/13 20:11 / gb

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 U - Not detected at minimum detectable concentration

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 H - Analysis performed past recommended holding time.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-43  
**Lab ID:** C13040429-008  
**Client Sample ID:** Field Blank

**Report Date:** 05/22/13  
**Collection Date:** 04/10/13 12:00  
**Date Received:** 04/12/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	0.1	pCi/L				E908.0	05/01/13 11:34 / dmf
Thorium 230 precision (±)	0.06	pCi/L				E908.0	05/01/13 11:34 / dmf
Thorium 230 MDC	0.07	pCi/L				E908.0	05/01/13 11:34 / dmf
<b>DATA QUALITY</b>							
A/C Balance (± 5)	81.1	%				A1030 E	04/22/13 07:28 / kbh
Anions	0.0125	meq/L				A1030 E	04/22/13 07:28 / kbh
Cations	0.120	meq/L				A1030 E	04/22/13 07:28 / kbh
- The ion balance is not appropriate for samples having a conductivity less than 300 umhos/cm.							
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Bromodichloromethane	2.14	ug/L		0.50		E624	04/15/13 22:56 / jlr
Bromoform	1.18	ug/L		0.50		E624	04/15/13 22:56 / jlr
Chlorodibromomethane	1.90	ug/L		0.50		E624	04/15/13 22:56 / jlr
Chloroform	2.69	ug/L		0.50		E624	04/15/13 22:56 / jlr
Trihalomethanes, Total	7.91	ug/L		0.50		E624	04/15/13 22:56 / jlr
Surr: 1,2-Dichlorobenzene-d4	104	%REC		73.7-126		E624	04/15/13 22:56 / jlr
Surr: Dibromofluoromethane	123	%REC		64.4-131		E624	04/15/13 22:56 / jlr
Surr: p-Bromofluorobenzene	118	%REC		67.1-133		E624	04/15/13 22:56 / jlr
Surr: Toluene-d8	96.0	%REC		79.7-125		E624	04/15/13 22:56 / jlr
- The sample was received in the laboratory with a pH > 2. The pH was 5.							

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** SW Alluvium  
**Lab ID:** C13010343-014  
**Client Sample ID:** Rinsate

**Report Date:** 02/25/13  
**Collection Date:** 01/09/13 11:40  
**Date Received:** 01/11/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		5		A2320 B	01/11/13 18:21 / jba
Calcium	ND	mg/L		1		E200.7	01/14/13 22:53 / sf
Chloride	ND	mg/L		1		E300.0	01/14/13 17:54 / wc
Magnesium	ND	mg/L		1		E200.7	01/14/13 22:53 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	01/14/13 14:03 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	01/16/13 15:47 / lr
Potassium	ND	mg/L		1		E200.7	01/14/13 22:53 / sf
Sodium	ND	mg/L		1		E200.7	01/14/13 22:53 / sf
Sulfate	2	mg/L		1		E300.0	01/14/13 17:54 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	5.90	s.u.	H	0.01		A4500-H B	01/11/13 14:23 / ab
Solids, Total Dissolved TDS @ 180 C	15	mg/L		10		A2540 C	01/11/13 14:39 / ab
<b>METALS - TOTAL</b>							
Aluminum	ND	mg/L		0.1		E200.7	01/15/13 23:09 / sf
Beryllium	ND	mg/L		0.001		E200.7	01/15/13 23:09 / sf
Cadmium	ND	mg/L		0.005		E200.7	01/15/13 23:09 / sf
Cobalt	ND	mg/L		0.01		E200.7	01/15/13 23:09 / sf
Lead	ND	mg/L		0.001		E200.8	01/18/13 02:35 / clm
Manganese	ND	mg/L		0.01		E200.7	01/15/13 23:09 / sf
Molybdenum	ND	mg/L		0.1		E200.7	01/15/13 23:09 / sf
Nickel	ND	mg/L		0.05		E200.7	01/15/13 23:09 / sf
Uranium	ND	mg/L		0.0003		E200.8	01/18/13 02:35 / clm
Vanadium	ND	mg/L		0.1		E200.7	01/15/13 23:09 / sf
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	01/29/13 15:28 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	01/31/13 13:05 / jrm
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	-0.1	pCi/L	U			E900.1	01/25/13 08:01 / lbb
Gross Alpha minus Rn & U Precision (±)	0.3	pCi/L				E900.1	01/25/13 08:01 / lbb
Gross Alpha minus Rn & U MDC	0.6	pCi/L				E900.1	01/25/13 08:01 / lbb
Lead 210	-0.4	pCi/L	U			E909.0	02/08/13 09:59 / eli-cs
Lead 210 precision (±)	0.6	pCi/L				E909.0	02/08/13 09:59 / eli-cs
Lead 210 MDC	1.0	pCi/L				E909.0	02/08/13 09:59 / eli-cs
Radium 226	0.17	pCi/L				E903.0	01/30/13 12:46 / trs
Radium 226 precision (±)	0.13	pCi/L				E903.0	01/30/13 12:46 / trs
Radium 226 MDC	0.17	pCi/L				E903.0	01/30/13 12:46 / trs
Radium 228	0.36	pCi/L	U			RA-05	01/24/13 18:58 / gb
Radium 228 precision (±)	0.84	pCi/L				RA-05	01/24/13 18:58 / gb
Radium 228 MDC	1.4	pCi/L				RA-05	01/24/13 18:58 / gb

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 U - Not detected at minimum detectable concentration

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 H - Analysis performed past recommended holding time.



**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** SW Alluvium  
**Lab ID:** C13010343-014  
**Client Sample ID:** Rinsate

**Report Date:** 02/25/13  
**Collection Date:** 01/09/13 11:40  
**Date Received:** 01/11/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	-0.004	pCi/L	U			E908.0	01/30/13 16:20 / dmf
Thorium 230 precision (±)	0.05	pCi/L				E908.0	01/30/13 16:20 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	01/30/13 16:20 / dmf

**DATA QUALITY**

A/C Balance (± 5)	9.22	%				A1030 E	01/17/13 07:46 / kbh
Anions	0.0615	meq/L				A1030 E	01/17/13 07:46 / kbh
Cations	0.0739	meq/L				A1030 E	01/17/13 07:46 / kbh

- The ion balance is not appropriate for samples having a conductivity less than 300 umhos/cm.

**VOLATILE ORGANIC COMPOUNDS**

Bromodichloromethane	1.02	ug/L		0.50		E624	01/15/13 03:22 / jk
Bromoform	0.58	ug/L		0.50		E624	01/15/13 03:22 / jk
Chlorodibromomethane	0.90	ug/L		0.50		E624	01/15/13 03:22 / jk
Chloroform	1.11	ug/L		0.50		E624	01/15/13 03:22 / jk
Trihalomethanes, Total	3.61	ug/L		0.50		E624	01/15/13 03:22 / jk
Surr: 1,2-Dichlorobenzene-d4	99.0	%REC		80-120		E624	01/15/13 03:22 / jk
Surr: Dibromofluoromethane	90.0	%REC		80-120		E624	01/15/13 03:22 / jk
Surr: p-Bromofluorobenzene	108	%REC		80-120		E624	01/15/13 03:22 / jk
Surr: Toluene-d8	108	%REC		80-120		E624	01/15/13 03:22 / jk

- The sample was received in the laboratory with a pH > 2. The pH was 5.

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-3  
**Lab ID:** C13010580-006  
**Client Sample ID:** Rinsate

**Report Date:** 02/25/13  
**Collection Date:** 01/16/13 09:45  
**Date Received:** 01/18/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		5		A2320 B	01/19/13 01:59 / jba
Calcium	ND	mg/L		1		E200.7	01/22/13 21:54 / sf
Chloride	ND	mg/L		1		E300.0	01/21/13 21:18 / wc
Magnesium	ND	mg/L		1		E200.7	01/22/13 21:54 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	01/22/13 17:02 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	01/18/13 17:21 / lr
Potassium	ND	mg/L		1		E200.7	01/22/13 21:54 / sf
Sodium	ND	mg/L		1		E200.7	01/22/13 21:54 / sf
Sulfate	17	mg/L		1		E300.0	01/21/13 21:18 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	4.29	s.u.	H	0.01		A4500-H B	01/21/13 10:13 / ab
Solids, Total Dissolved TDS @ 180 C	17	mg/L		10		A2540 C	01/21/13 08:42 / ab
<b>METALS - TOTAL</b>							
Aluminum	0.2	mg/L		0.1		E200.7	01/23/13 02:12 / sf
Beryllium	ND	mg/L		0.001		E200.7	01/23/13 02:12 / sf
Cadmium	ND	mg/L		0.005		E200.7	01/23/13 02:12 / sf
Cobalt	ND	mg/L		0.01		E200.7	01/23/13 02:12 / sf
Lead	0.003	mg/L		0.001		E200.8	01/22/13 19:21 / clm
Manganese	0.02	mg/L		0.01		E200.7	01/23/13 02:12 / sf
Molybdenum	ND	mg/L		0.1		E200.7	01/23/13 02:12 / sf
Nickel	ND	mg/L		0.05		E200.7	01/23/13 02:12 / sf
Uranium	0.0006	mg/L		0.0003		E200.8	01/22/13 19:21 / clm
Vanadium	ND	mg/L		0.1		E200.7	01/23/13 02:12 / sf
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	02/09/13 15:41 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	02/06/13 13:35 / jrm
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	-0.01	pCi/L	U			E900.1	02/08/13 05:27 / lbb
Gross Alpha minus Rn & U Precision (±)	0.2	pCi/L				E900.1	02/08/13 05:27 / lbb
Gross Alpha minus Rn & U MDC	0.3	pCi/L				E900.1	02/08/13 05:27 / lbb
Lead 210	0.4	pCi/L	U			E909.0	02/02/13 15:54 / eli-cs
Lead 210 precision (±)	0.7	pCi/L				E909.0	02/02/13 15:54 / eli-cs
Lead 210 MDC	1.1	pCi/L				E909.0	02/02/13 15:54 / eli-cs
Radium 226	-0.01	pCi/L	U			E903.0	02/01/13 07:01 / trs
Radium 226 precision (±)	0.08	pCi/L				E903.0	02/01/13 07:01 / trs
Radium 226 MDC	0.16	pCi/L				E903.0	02/01/13 07:01 / trs
Radium 228	1.0	pCi/L				RA-05	01/27/13 14:44 / gb
Radium 228 precision (±)	0.58	pCi/L				RA-05	01/27/13 14:44 / gb
Radium 228 MDC	0.88	pCi/L				RA-05	01/27/13 14:44 / gb

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 U - Not detected at minimum detectable concentration

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 H - Analysis performed past recommended holding time.



**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-3  
**Lab ID:** C13010580-006  
**Client Sample ID:** Rinsate

**Report Date:** 02/25/13  
**Collection Date:** 01/16/13 09:45  
**Date Received:** 01/18/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	0.005	pCi/L	U			E908.0	02/04/13 16:38 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	02/04/13 16:38 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	02/04/13 16:38 / dmf
<b>DATA QUALITY</b>							
A/C Balance (± 5)	-13.0	%				A1030 E	01/23/13 09:42 / kbh
Anions	0.362	meq/L				A1030 E	01/23/13 09:42 / kbh
Cations	0.278	meq/L				A1030 E	01/23/13 09:42 / kbh
Solids, Total Dissolved Calculated	18	mg/L				A1030 E	01/23/13 09:42 / kbh
TDS Balance (0.80 - 1.20)	0.940					A1030 E	01/23/13 09:42 / kbh

- The ion balance is not appropriate for samples having a conductivity less than 300 umhos/cm.

**VOLATILE ORGANIC COMPOUNDS**

Bromodichloromethane	0.66	ug/L		0.50		E624	01/21/13 22:15 / jk
Bromoform	0.75	ug/L		0.50		E624	01/21/13 22:15 / jk
Chlorodibromomethane	0.84	ug/L		0.50		E624	01/21/13 22:15 / jk
Chloroform	1.23	ug/L		0.50		E624	01/21/13 22:15 / jk
Trihalomethanes, Total	3.49	ug/L		0.50		E624	01/21/13 22:15 / jk
Surr: 1,2-Dichlorobenzene-d4	118	%REC		80-120		E624	01/21/13 22:15 / jk
Surr: Dibromofluoromethane	88.0	%REC		80-120		E624	01/21/13 22:15 / jk
Surr: p-Bromofluorobenzene	115	%REC		80-120		E624	01/21/13 22:15 / jk
Surr: Toluene-d8	91.0	%REC		80-120		E624	01/21/13 22:15 / jk

- The sample was received in the laboratory with a pH > 2. The pH was 6.

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-1  
**Lab ID:** C13040233-004  
**Client Sample ID:** Rinsate

**Report Date:** 05/21/13  
**Collection Date:** 04/03/13 11:40  
**Date Received:** 04/05/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		5		A2320 B	04/05/13 18:52 / jba
Calcium	ND	mg/L		1		E200.7	04/15/13 14:51 / sf
Chloride	ND	mg/L		1		E300.0	04/08/13 20:22 / wc
Magnesium	ND	mg/L		1		E200.7	04/15/13 14:51 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH <sub>3</sub> G	04/10/13 13:28 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	04/08/13 10:50 / lr
Potassium	ND	mg/L		1		E200.7	04/15/13 14:51 / sf
Sodium	ND	mg/L		1		E200.7	04/15/13 14:51 / sf
Sulfate	3	mg/L		1		E300.0	04/08/13 20:22 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	5.91	s.u.	H	0.01		A4500-H B	04/05/13 15:00 / ab
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	04/05/13 15:29 / ab
<b>METALS - TOTAL</b>							
Aluminum	ND	mg/L		0.1		E200.8	04/10/13 20:55 / cp
Beryllium	ND	mg/L		0.001		E200.8	04/10/13 20:55 / cp
Cadmium	ND	mg/L		0.005		E200.8	04/10/13 20:55 / cp
Cobalt	ND	mg/L		0.01		E200.8	04/10/13 20:55 / cp
Lead	ND	mg/L		0.001		E200.8	04/10/13 20:55 / cp
Manganese	ND	mg/L		0.01		E200.8	04/10/13 20:55 / cp
Molybdenum	ND	mg/L		0.1		E200.8	04/10/13 20:55 / cp
Nickel	ND	mg/L		0.05		E200.8	04/10/13 20:55 / cp
Uranium	ND	mg/L		0.0003		E200.8	04/10/13 20:55 / cp
Vanadium	ND	mg/L		0.1		E200.8	04/10/13 20:55 / cp
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	04/17/13 14:32 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	04/17/13 14:17 / jl1
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	-0.07	pCi/L	U			E900.1	04/29/13 08:14 / lbb
Gross Alpha minus Rn & U Precision (±)	0.2	pCi/L				E900.1	04/29/13 08:14 / lbb
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	04/29/13 08:14 / lbb
Lead 210	-0.6	pCi/L	U			E909.0	04/16/13 12:00 / eli-cs
Lead 210 precision (±)	0.8	pCi/L				E909.0	04/16/13 12:00 / eli-cs
Lead 210 MDC	1.3	pCi/L				E909.0	04/16/13 12:00 / eli-cs
Radium 226	-0.04	pCi/L	U			E903.0	04/22/13 11:24 / lmc
Radium 226 precision (±)	0.1	pCi/L				E903.0	04/22/13 11:24 / lmc
Radium 226 MDC	0.20	pCi/L				E903.0	04/22/13 11:24 / lmc
Radium 228	-0.7	pCi/L	U			RA-05	04/16/13 19:32 / gb
Radium 228 precision (±)	1.3	pCi/L				RA-05	04/16/13 19:32 / gb
Radium 228 MDC	2.2	pCi/L				RA-05	04/16/13 19:32 / gb

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 U - Not detected at minimum detectable concentration

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 H - Analysis performed past recommended holding time.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-1  
**Lab ID:** C13040233-004  
**Client Sample ID:** Rinsate

**Report Date:** 05/21/13  
**Collection Date:** 04/03/13 11:40  
**Date Received:** 04/05/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	0.03	pCi/L	U			E908.0	04/15/13 17:03 / dmf
Thorium 230 precision (±)	0.07	pCi/L				E908.0	04/15/13 17:03 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	04/15/13 17:03 / dmf

**DATA QUALITY**

A/C Balance (± 5)	-33.8	%				A1030 E	04/18/13 12:47 / kbh
Anions	0.0805	meq/L				A1030 E	04/18/13 12:47 / kbh
Cations	0.0399	meq/L				A1030 E	04/18/13 12:47 / kbh

- The ion balance is not appropriate for samples having a conductivity less than 300 umhos/cm.

**VOLATILE ORGANIC COMPOUNDS**

Bromodichloromethane	2.73	ug/L		0.50		E624	04/08/13 16:28 / jlr
Bromoform	1.17	ug/L		0.50		E624	04/08/13 16:28 / jlr
Chlorodibromomethane	2.26	ug/L		0.50		E624	04/08/13 16:28 / jlr
Chloroform	4.00	ug/L		0.50		E624	04/08/13 16:28 / jlr
Trihalomethanes, Total	10.2	ug/L		0.50		E624	04/08/13 16:28 / jlr
Surr: 1,2-Dichlorobenzene-d4	104	%REC		73.7-126		E624	04/08/13 16:28 / jlr
Surr: Dibromofluoromethane	112	%REC		64.4-131		E624	04/08/13 16:28 / jlr
Surr: p-Bromofluorobenzene	104	%REC		67.1-133		E624	04/08/13 16:28 / jlr
Surr: Toluene-d8	98.0	%REC		79.7-125		E624	04/08/13 16:28 / jlr

- The sample was received in the laboratory with a pH > 2. The pH was 5.

**Report Definitions:**

RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone #3  
**Lab ID:** C13040429-007  
**Client Sample ID** Rinsate

**Report Date:** 05/22/13  
**Collection Date:** 04/10/13 11:55  
**Date Received:** 04/12/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO3	ND	mg/L		5		A2320 B	04/12/13 17:20 / jba
Calcium	ND	mg/L		1		E200.7	04/16/13 18:21 / sf
Chloride	ND	mg/L		1		E300.0	04/16/13 03:14 / wc
Magnesium	ND	mg/L		1		E200.7	04/16/13 18:21 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	04/16/13 15:35 / lr
Nitrogen, Nitrate+Nitrite as N	13	mg/L	D	1		E353.2	04/15/13 13:43 / lr
Potassium	ND	mg/L		1		E200.7	04/17/13 13:18 / sf
Sodium	ND	mg/L		1		E200.7	04/16/13 18:21 / sf
Sulfate	ND	mg/L		1		E300.0	04/16/13 03:14 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	6.25	s.u.	H	0.01		A4500-H B	04/12/13 15:12 / ab
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	04/16/13 11:53 / jz
<b>METALS - TOTAL</b>							
Aluminum	ND	mg/L		0.1		E200.8	04/22/13 23:56 / cp
Beryllium	ND	mg/L		0.001		E200.8	04/22/13 23:56 / cp
Cadmium	ND	mg/L		0.005		E200.8	04/22/13 23:56 / cp
Cobalt	ND	mg/L		0.01		E200.8	04/22/13 23:56 / cp
Lead	ND	mg/L		0.001		E200.8	04/22/13 23:56 / cp
Manganese	ND	mg/L		0.01		E200.8	04/22/13 23:56 / cp
Molybdenum	ND	mg/L		0.1		E200.8	04/22/13 23:56 / cp
Nickel	ND	mg/L		0.05		E200.8	04/22/13 23:56 / cp
Uranium	ND	mg/L		0.0003		E200.8	04/22/13 23:56 / cp
Vanadium	ND	mg/L		0.1		E200.8	04/22/13 23:56 / cp
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	04/19/13 13:57 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	04/17/13 15:24 / jl1
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	0.6	pCi/L	U			E900.1	04/20/13 07:26 / lbb
Gross Alpha minus Rn & U Precision (±)	0.6	pCi/L				E900.1	04/20/13 07:26 / lbb
Gross Alpha minus Rn & U MDC	0.9	pCi/L				E900.1	04/20/13 07:26 / lbb
Lead 210	-0.9	pCi/L	U			E909.0	04/21/13 00:16 / eli-cs
Lead 210 precision (±)	0.8	pCi/L				E909.0	04/21/13 00:16 / eli-cs
Lead 210 MDC	1.3	pCi/L				E909.0	04/21/13 00:16 / eli-cs
Radium 226	-0.1	pCi/L	U			E903.0	04/29/13 23:52 / lmc
Radium 226 precision (±)	0.09	pCi/L				E903.0	04/29/13 23:52 / lmc
Radium 226 MDC	0.21	pCi/L				E903.0	04/29/13 23:52 / lmc
Radium 228	-0.4	pCi/L	U			RA-05	04/24/13 20:11 / gb
Radium 228 precision (±)	1.2	pCi/L				RA-05	04/24/13 20:11 / gb
Radium 228 MDC	2.1	pCi/L				RA-05	04/24/13 20:11 / gb

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

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



**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-43  
**Lab ID:** C13040429-007  
**Client Sample ID** Rinsate

**Report Date:** 05/22/13  
**Collection Date:** 04/10/13 11:55  
**Date Received:** 04/12/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	0.07	pCi/L				E908.0	05/01/13 11:34 / dmf
Thorium 230 precision (±)	0.04	pCi/L				E908.0	05/01/13 11:34 / dmf
Thorium 230 MDC	0.06	pCi/L				E908.0	05/01/13 11:34 / dmf

**DATA QUALITY**

A/C Balance (± 5)	86.0	%				A1030 E	04/22/13 07:28 / kbh
Anions	0.0153	meq/L				A1030 E	04/22/13 07:28 / kbh
Cations	0.204	meq/L				A1030 E	04/22/13 07:28 / kbh

- The ion balance is not appropriate for samples having a conductivity less than 300 umhos/cm.

**VOLATILE ORGANIC COMPOUNDS**

Bromodichloromethane	1.60	ug/L		0.50		E624	04/15/13 17:52 / jlr
Bromoform	0.99	ug/L		0.50		E624	04/15/13 17:52 / jlr
Chlorodibromomethane	1.53	ug/L		0.50		E624	04/15/13 17:52 / jlr
Chloroform	2.12	ug/L		0.50		E624	04/15/13 17:52 / jlr
Trihalomethanes, Total	6.24	ug/L		0.50		E624	04/15/13 17:52 / jlr
Surr: 1,2-Dichlorobenzene-d4	104	%REC		73.7-126		E624	04/15/13 17:52 / jlr
Surr: Dibromofluoromethane	112	%REC		64.4-131		E624	04/15/13 17:52 / jlr
Surr: p-Bromofluorobenzene	112	%REC		67.1-133		E624	04/15/13 17:52 / jlr
Surr: Toluene-d8	97.0	%REC		79.7-125		E624	04/15/13 17:52 / jlr

- The sample was received in the laboratory with a pH > 2. The pH was 5.

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



UNC Mining and Milling ChurchRock Operations					
GroundWater Monitoring Summary: Alluvium Monitor Wells					
Well ID:		EPA-28	EPA-28	EPA-28	EPA-28
Collection Date:		4/2/2013	1/9/2013	10/9/2012	7/9/2012
Receive Date:		4/5/2013	1/11/2013	10/12/2012	7/13/2012
Report Date:		5/21/2013	2/25/2013	11/20/2012	8/30/2012
Analyte	RUUnits	C13040238-012	C13010343-010	C12100557-012	C12070454-012
Bicarbonate as HCO3	mg/L	797	806	811	798
Calcium	mg/L	542	542	576	537
Chloride	mg/L	125	120	126	121
Magnesium	mg/L	498	512	482	498
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.05)	ND(0.05)	0.13
Nitrogen, Nitrate+Nitrite as N	mg/L	27	27	26	30
Potassium	mg/L	12	12	12	11
Sodium	mg/L	238	244	231	227
Sulfate	mg/L	2860	2790	2810	2730
pH	s.u.	6.88	6.88	6.86	6.91
Solids, Total Dissolved TDS @ 180 C	mg/L	5080	5070	5120	5050
Aluminum	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Cobalt	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	0.78	0.80	0.86	0.77
Molybdenum	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Nickel	mg/L	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Uranium	mg/L	0.0474	0.0499	0.0470	0.0468
Vanadium	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Arsenic-III	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Selenium-IV	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Gross Alpha minus Rn & U	pCi/L	0.8	0.8	0.5	0.5
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.4	0.5	0.4	0.3
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.6	0.6	0.3
Lead 210	pCi/L	0.3	0.8	0.2	0.3
Lead 210 precision (±)	pCi/L	0.8	0.6	0.6	0.7
Lead 210 MDC	pCi/L	1.3	1.0	1	1.2
Radium 226	pCi/L	0.33	0.87	0.32	0.51
Radium 226 precision (±)	pCi/L	0.13	0.21	0.15	0.14
Radium 226 MDC	pCi/L	0.13	0.17	0.18	0.10
Radium 228	pCi/L	1.4	1.4	-0.1	0.78
Radium 228 precision (±)	pCi/L	1.0	0.85	1.1	0.66
Radium 228 MDC	pCi/L	1.6	1.3	1.9	1.0
Thorium 230	pCi/L	0.0	0.03	0.008	0.03
Thorium 230 precision (±)	pCi/L	0.05	0.07	0.07	0.07
Thorium 230 MDC	pCi/L	0.2	0.2	0.1	0.2
A/C Balance (± 5)	%	0.374	2.14	0.842	1.61
Anions	meq/L	78.1	76.8	77.5	75.5
Cations	meq/L	78.7	80.1	78.8	78.0
Solids, Total Dissolved Calculated	mg/L	4800	4800	4800	4700
TDS Balance (0.80 - 1.20)		1.06	1.07	1.07	1.08
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	0.69

\*\*Note: The data presented on this form is intended for summary purposes only. Laboratory approved data is contained within the attached database reports.

UNC Mining and Milling ChurchRock Operations					
GroundWater Monitoring Summary: Alluvium Monitor Wells					
Well ID:	EPA-28 Duplicate	EPA-28 Duplicate	EPA-28 Duplicate	EPA-28 Duplicate	
Collection Date:	4/2/2013	1/9/2013	10/9/2012	7/9/2012	
Receive Date:	4/5/2013	1/11/2013	10/12/2012	7/13/2012	
Report Date:	5/21/2013	2/25/2013	11/20/2012	8/30/2012	
Analyte	RUnits	C13040238-013	C13010343-011	C12100557-013	C12070454-013
Bicarbonate as HCO3	mg/L	688	668	674	678
Calcium	mg/L	539	529	556	532
Chloride	mg/L	117	114	122	117
Magnesium	mg/L	485	503	460	487
Nitrogen, Ammonia as N	mg/L	ND(0.05)	ND(0.05)	ND(0.05)	0.09
Nitrogen, Nitrate+Nitrite as N	mg/L	24	24	23	27
Potassium	mg/L	12	11	12	11
Sodium	mg/L	243	247	242	238
Sulfate	mg/L	2850	2860	2900	2780
pH	s.u.	6.91	6.81	6.86	6.88
Solids, Total Dissolved TDS @ 180 C	mg/L	5030	5070	4980	5020
Aluminum	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Cobalt	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Lead	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Manganese	mg/L	0.66	0.66	0.72	0.66
Molybdenum	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Nickel	mg/L	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Uranium	mg/L	0.0388	0.0397	0.0384	0.0396
Vanadium	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Arsenic-III	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Selenium-IV	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.002
Gross Alpha minus Rn & U	pCi/L	0.8	0.7	0.5	0.5
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.4	0.5	0.5	0.3
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.6	0.6	0.3
Lead 210	pCi/L	0.3	0.5	1	0.9
Lead 210 precision (±)	pCi/L	0.8	0.7	0.5	0.7
Lead 210 MDC	pCi/L	1.3	1.1	0.8	1.2
Radium 226	pCi/L	0.29	0.82	0.27	0.55
Radium 226 precision (±)	pCi/L	0.12	0.21	0.13	0.14
Radium 226 MDC	pCi/L	0.13	0.18	0.16	0.10
Radium 228	pCi/L	0.64	1.1	1.5	1.4
Radium 228 precision (±)	pCi/L	0.95	0.86	1.1	0.71
Radium 228 MDC	pCi/L	1.5	1.4	1.7	1.1
Thorium 230	pCi/L	0.02	0.07	0.04	0.008
Thorium 230 precision (±)	pCi/L	0.06	0.09	0.08	0.05
Thorium 230 MDC	pCi/L	0.2	0.2	0.1	0.1
A/C Balance (± 5)	%	1.43	2.25	-0.0669	2.15
Anions	meq/L	75.5	75.4	76.5	74.0
Cations	meq/L	77.7	78.8	76.4	77.3
Solids, Total Dissolved Calculated	mg/L	4700	4700	4700	4600
TDS Balance (0.80 - 1.20)		1.07	1.08	1.05	1.09
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

\*\*Note: The data presented on this form is intended for summary purposes only. Laboratory approved data is contained within the attached database reports.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** SW Alluvium  
**Lab ID:** C13010343-011  
**Client Sample ID:** EPA-28 Duplicate

**Report Date:** 02/25/13  
**Collection Date:** 01/09/13 09:35  
**Date Received:** 01/11/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	668	mg/L		5		A2320 B	01/11/13 17:57 / jba
Calcium	529	mg/L		1		E200.7	01/14/13 22:37 / sf
Chloride	114	mg/L	D	4		E300.0	01/14/13 16:37 / wc
Magnesium	503	mg/L		1		E200.7	01/14/13 22:37 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH3 G	01/14/13 13:59 / lr
Nitrogen, Nitrate+Nitrite as N	24	mg/L	D	2		E353.2	01/16/13 15:30 / lr
Potassium	11	mg/L		1		E200.7	01/14/13 22:37 / sf
Sodium	247	mg/L	D	2		E200.7	01/14/13 22:37 / sf
Sulfate	2860	mg/L	D	20		E300.0	01/14/13 16:37 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	6.81	s.u.	H	0.01		A4500-H B	01/11/13 14:01 / ab
Solids, Total Dissolved TDS @ 180 C	5070	mg/L		10		A2540 C	01/11/13 14:39 / ab
<b>METALS - TOTAL</b>							
Aluminum	ND	mg/L		0.1		E200.7	01/15/13 22:52 / sf
Beryllium	ND	mg/L		0.001		E200.7	01/15/13 22:52 / sf
Cadmium	ND	mg/L		0.005		E200.7	01/15/13 22:52 / sf
Cobalt	ND	mg/L		0.01		E200.7	01/15/13 22:52 / sf
Lead	ND	mg/L		0.001		E200.8	01/18/13 02:25 / clm
Manganese	0.66	mg/L		0.01		E200.7	01/15/13 22:52 / sf
Molybdenum	ND	mg/L		0.1		E200.7	01/15/13 22:52 / sf
Nickel	ND	mg/L		0.05		E200.7	01/15/13 22:52 / sf
Uranium	0.0397	mg/L		0.0003		E200.8	01/18/13 02:25 / clm
Vanadium	ND	mg/L		0.1		E200.7	01/15/13 22:52 / sf
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	01/29/13 12:56 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	01/31/13 12:57 / jrm
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	0.7	pCi/L				E900.1	01/25/13 06:28 / lbb
Gross Alpha minus Rn & U Precision (±)	0.5	pCi/L				E900.1	01/25/13 06:28 / lbb
Gross Alpha minus Rn & U MDC	0.6	pCi/L				E900.1	01/25/13 06:28 / lbb
Lead 210	0.5	pCi/L	U			E909.0	02/08/13 07:04 / eli-cs
Lead 210 precision (±)	0.7	pCi/L				E909.0	02/08/13 07:04 / eli-cs
Lead 210 MDC	1.1	pCi/L				E909.0	02/08/13 07:04 / eli-cs
Radium 226	0.82	pCi/L				E903.0	01/30/13 12:46 / trs
Radium 226 precision (±)	0.21	pCi/L				E903.0	01/30/13 12:46 / trs
Radium 226 MDC	0.18	pCi/L				E903.0	01/30/13 12:46 / trs
Radium 228	1.1	pCi/L	U			RA-05	01/24/13 18:58 / gb
Radium 228 precision (±)	0.86	pCi/L				RA-05	01/24/13 18:58 / gb
Radium 228 MDC	1.4	pCi/L				RA-05	01/24/13 18:58 / gb

**Report** RL - Analyte reporting limit. MCL - Maximum contaminant level.  
**Definitions:** QCL - Quality control limit. ND - Not detected at the reporting limit.  
MDC - Minimum detectable concentration. D - RL increased due to sample matrix.  
H - Analysis performed past recommended holding time. U - Not detected at minimum detectable concentration



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### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** SW Alluvium  
**Lab ID:** C13010343-011  
**Client Sample ID:** EPA-28 Duplicate

**Report Date:** 02/25/13  
**Collection Date:** 01/09/13 09:35  
**Date Received:** 01/11/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	0.07	pCi/L	U			E908.0	01/30/13 16:19 / dmf
Thorium 230 precision (±)	0.09	pCi/L				E908.0	01/30/13 16:19 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	01/30/13 16:19 / dmf
<b>DATA QUALITY</b>							
A/C Balance (± 5)	2.25	%				A1030 E	01/17/13 07:45 / kbh
Anions	75.4	meq/L				A1030 E	01/17/13 07:45 / kbh
Cations	78.8	meq/L				A1030 E	01/17/13 07:45 / kbh
Solids, Total Dissolved Calculated	4700	mg/L				A1030 E	01/17/13 07:45 / kbh
TDS Balance (0.80 - 1.20)	1.08					A1030 E	01/17/13 07:45 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Bromodichloromethane	ND	ug/L		0.50		E624	01/15/13 01:33 / jk
Bromoform	ND	ug/L		0.50		E624	01/15/13 01:33 / jk
Chlorodibromomethane	ND	ug/L		0.50		E624	01/15/13 01:33 / jk
Chloroform	ND	ug/L		0.50		E624	01/15/13 01:33 / jk
Trihalomethanes, Total	ND	ug/L		0.50		E624	01/15/13 01:33 / jk
Surr: 1,2-Dichlorobenzene-d4	93.0	%REC		80-120		E624	01/15/13 01:33 / jk
Surr: Dibromofluoromethane	90.0	%REC		80-120		E624	01/15/13 01:33 / jk
Surr: p-Bromofluorobenzene	104	%REC		80-120		E624	01/15/13 01:33 / jk
Surr: Toluene-d8	104	%REC		80-120		E624	01/15/13 01:33 / jk

- 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.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** SW Alluvium  
**Lab ID:** C13040238-013  
**Client Sample ID** EPA-28 Duplicate

**Report Date:** 05/21/13  
**Collection Date:** 04/02/13 10:55  
**Date Received:** 04/05/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	688	mg/L		5		A2320 B	04/05/13 22:09 / jba
Calcium	539	mg/L		1		E200.7	04/15/13 16:24 / sf
Chloride	117	mg/L	D	4		E300.0	04/09/13 01:45 / wc
Magnesium	485	mg/L		1		E200.7	04/15/13 16:24 / sf
Nitrogen, Ammonia as N	ND	mg/L		0.05		A4500-NH <sub>3</sub> G	04/10/13 14:06 / lr
Nitrogen, Nitrate+Nitrite as N	24	mg/L	D	1		E353.2	04/08/13 11:40 / lr
Potassium	12	mg/L		1		E200.7	04/15/13 16:24 / sf
Sodium	243	mg/L		1		E200.7	04/15/13 16:24 / sf
Sulfate	2850	mg/L	D	20		E300.0	04/09/13 01:45 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	6.91	s.u.	H	0.01		A4500-H B	04/05/13 15:40 / ab
Solids, Total Dissolved TDS @ 180 C	5030	mg/L		40		A2540 C	04/05/13 15:32 / ab
<b>METALS - TOTAL</b>							
Aluminum	ND	mg/L		0.1		E200.8	04/11/13 00:27 / cp
Beryllium	ND	mg/L		0.001		E200.8	04/11/13 00:27 / cp
Cadmium	ND	mg/L		0.005		E200.8	04/11/13 00:27 / cp
Cobalt	ND	mg/L		0.01		E200.8	04/11/13 00:27 / cp
Lead	ND	mg/L		0.001		E200.8	04/11/13 00:27 / cp
Manganese	0.66	mg/L		0.01		E200.8	04/11/13 00:27 / cp
Molybdenum	ND	mg/L		0.1		E200.8	04/11/13 00:27 / cp
Nickel	ND	mg/L		0.05		E200.8	04/11/13 00:27 / cp
Uranium	0.0388	mg/L		0.0003		E200.8	04/11/13 00:27 / cp
Vanadium	ND	mg/L		0.1		E200.8	04/11/13 00:27 / cp
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	04/18/13 13:21 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	04/17/13 14:52 / jl1
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	0.8	pCi/L				E900.1	04/29/13 09:09 / lbb
Gross Alpha minus Rn & U Precision (±)	0.4	pCi/L				E900.1	04/29/13 09:09 / lbb
Gross Alpha minus Rn & U MDC	0.5	pCi/L				E900.1	04/29/13 09:09 / lbb
Lead 210	0.3	pCi/L	U			E909.0	04/16/13 12:00 / eli-cs
Lead 210 precision (±)	0.8	pCi/L				E909.0	04/16/13 12:00 / eli-cs
Lead 210 MDC	1.3	pCi/L				E909.0	04/16/13 12:00 / eli-cs
Radium 226	0.29	pCi/L				E903.0	04/23/13 17:35 / lmc
Radium 226 precision (±)	0.12	pCi/L				E903.0	04/23/13 17:35 / lmc
Radium 226 MDC	0.13	pCi/L				E903.0	04/23/13 17:35 / lmc
Radium 228	0.64	pCi/L	U			RA-05	04/17/13 19:06 / gb
Radium 228 precision (±)	0.95	pCi/L				RA-05	04/17/13 19:06 / gb
Radium 228 MDC	1.5	pCi/L				RA-05	04/17/13 19:06 / gb

**Report Definitions:**

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

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



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** SW Alluvium  
**Lab ID:** C13040238-013  
**Client Sample ID:** EPA-28 Duplicate

**Report Date:** 05/21/13  
**Collection Date:** 04/02/13 10:55  
**Date Received:** 04/05/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	0.02	pCi/L	U			E908.0	04/12/13 09:09 / dmf
Thorium 230 precision (±)	0.06	pCi/L				E908.0	04/12/13 09:09 / dmf
Thorium 230 MDC	0.2	pCi/L				E908.0	04/12/13 09:09 / dmf
<b>DATA QUALITY</b>							
A/C Balance (± 5)	1.43	%				A1030 E	04/18/13 12:49 / kbh
Anions	75.5	meq/L				A1030 E	04/18/13 12:49 / kbh
Cations	77.7	meq/L				A1030 E	04/18/13 12:49 / kbh
Solids, Total Dissolved Calculated	4700	mg/L				A1030 E	04/18/13 12:49 / kbh
TDS Balance (0.80 - 1.20)	1.07					A1030 E	04/18/13 12:49 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Bromodichloromethane	ND	ug/L		0.50		E624	04/09/13 03:17 / jlr
Bromoform	ND	ug/L		0.50		E624	04/09/13 03:17 / jlr
Chlorodibromomethane	ND	ug/L		0.50		E624	04/09/13 03:17 / jlr
Chloroform	ND	ug/L		0.50		E624	04/09/13 03:17 / jlr
Trihalomethanes, Total	ND	ug/L		0.50		E624	04/09/13 03:17 / jlr
Surr: 1,2-Dichlorobenzene-d4	107	%REC		73.7-126		E624	04/09/13 03:17 / jlr
Surr: Dibromofluoromethane	125	%REC		64.4-131		E624	04/09/13 03:17 / jlr
Surr: p-Bromofluorobenzene	109	%REC		67.1-133		E624	04/09/13 03:17 / jlr
Surr: Toluene-d8	92.0	%REC		79.7-125		E624	04/09/13 03:17 / jlr

- The sample was received in the laboratory with a pH > 2. The pH was 8.

**Report Definitions:**

RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



UNC Mining and Milling ChurchRock Operations  
GroundWater Monitoring Summary: Zone 1 Monitor Wells

Well ID:	EPA-2	EPA-2	EPA-2	EPA-2	
Collection Date:	4/8/2013	1/15/2013	10/15/2012	7/16/2012	
Receive Date:	4/12/2013	1/18/2013	10/19/2012	7/20/2012	
Report Date:	5/22/2013	2/25/2013	11/19/2012	8/31/2012	
Analyte	RUnits	C13040429-004	C13010578-007	C12100859-004	C12070710-004
Bicarbonate as HCO3	mg/L	316	337	306	299
Calcium	mg/L	367	401	382	337
Chloride	mg/L	20	19	22	21
Magnesium	mg/L	166	176	161	155
Nitrogen, Ammonia as N	mg/L	0.43	0.48	0.44	0.42
Nitrogen, Nitrate+Nitrite as N	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Potassium	mg/L	7	7	7	6
Sodium	mg/L	193	216	215	207
Sulfate	mg/L	1850	1710	1800	1790
pH	s.u.	6.87	6.78	7.04	7.10
Solids, Total Dissolved TDS @ 180 C	mg/L	2930	2910	2990	2920
Aluminum	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Cobalt	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Lead	mg/L	ND(0.001)	0.002	ND(0.001)	ND(0.001)
Manganese	mg/L	1.51	1.62	1.24	1.39
Molybdenum	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Nickel	mg/L	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Uranium	mg/L	0.0017	0.0019	0.0020	0.0017
Vanadium	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Arsenic-III	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Selenium-IV	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Gross Alpha minus Rn & U	pCi/L	2.9	1.1	1.8	1.6
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.9	0.3	0.7	0.3
Gross Alpha minus Rn & U MDC	pCi/L	0.9	0.3	0.7	0.2
Lead 210	pCi/L	-0.4	0.4	0.2	0.8
Lead 210 precision (±)	pCi/L	0.8	0.4	0.6	0.7
Lead 210 MDC	pCi/L	1.4	0.7	1.0	1.2
Radium 226	pCi/L	0.99	1.6	0.91	1.3
Radium 226 precision (±)	pCi/L	0.23	0.27	0.13	0.19
Radium 226 MDC	pCi/L	0.19	0.16	0.10	0.09
Radium 228	pCi/L	1.8	3.8	2.4	2.2
Radium 228 precision (±)	pCi/L	1.0	0.95	0.84	0.86
Radium 228 MDC	pCi/L	1.6	1.3	1.2	1.3
Thorium 230	pCi/L	0.02	0.008	0.05	0.04
Thorium 230 precision (±)	pCi/L	0.03	0.06	0.08	0.08
Thorium 230 MDC	pCi/L	0.07	0.2	0.2	0.2
A/C Balance (± 5)	%	-4.31	2.80	-1.39	-4.75
Anions	meq/L	44.2	41.7	43.1	42.7
Cations	meq/L	40.6	44.1	41.9	38.8
Solids, Total Dissolved Calculated	mg/L	2800	2700	2800	2700
TDS Balance (0.80 - 1.20)		1.05	1.07	1.08	1.09
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

\*\*Note: The data presented on this form is intended for summary purposes only. Laboratory approved data is contained within the attached database reports.

UNC Mining and Milling ChurchRock Operations					
GroundWater Monitoring Summary: Zone 1 Monitor Wells					
Well ID:	EPA-2 Duplicate	EPA-2 Duplicate	EPA-2 Duplicate	EPA-2 Duplicate	
Collection Date:	4/8/2013	1/15/2013	10/15/2012	7/16/2012	
Receive Date:	4/12/2013	1/18/2013	10/19/2012	7/20/2012	
Report Date:	5/22/2013	2/25/2013	11/19/2012	8/31/2012	
Analyte	RUnits	C13040429-005	C13010578-008	C12100859-005	C12070710-005
Bicarbonate as HCO3	mg/L	343	331	338	323
Calcium	mg/L	386	411	391	388
Chloride	mg/L	20	20	21	21
Magnesium	mg/L	178	183	169	178
Nitrogen, Ammonia as N	mg/L	0.48	0.47	0.42	0.46
Nitrogen, Nitrate+Nitrite as N	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Potassium	mg/L	7	7	7	5
Sodium	mg/L	208	221	216	175
Sulfate	mg/L	1810	1750	1700	1730
pH	s.u.	6.78	6.75	6.75	6.76
Solids, Total Dissolved TDS @ 180 C	mg/L	2910	2880	2820	2890
Aluminum	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Beryllium	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cadmium	mg/L	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Cobalt	mg/L	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Lead	mg/L	ND(0.001)	0.002	ND(0.001)	ND(0.001)
Manganese	mg/L	1.55	1.54	1.39	1.43
Molybdenum	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Nickel	mg/L	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Uranium	mg/L	0.0015	0.0019	0.0022	0.0014
Vanadium	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Arsenic-III	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Selenium-IV	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Gross Alpha minus Rn & U	pCi/L	3.2	1.0	2.8	1.4
Gross Alpha minus Rn & U Precision (±)	pCi/L	0.9	0.3	0.8	0.3
Gross Alpha minus Rn & U MDC	pCi/L	0.8	0.3	0.7	0.2
Lead 210	pCi/L	0.5	0.6	0.6	0.5
Lead 210 precision (±)	pCi/L	0.8	0.4	0.6	0.7
Lead 210 MDC	pCi/L	1.3	0.7	1.0	1.2
Radium 226	pCi/L	1.5	1.7	1.1	1.6
Radium 226 precision (±)	pCi/L	0.29	0.28	0.16	0.21
Radium 226 MDC	pCi/L	0.20	0.16	0.13	0.09
Radium 228	pCi/L	2.8	3.5	3.0	2.4
Radium 228 precision (±)	pCi/L	1.1	0.97	1.1	0.87
Radium 228 MDC	pCi/L	1.6	1.3	1.5	1.3
Thorium 230	pCi/L	0.06	0.03	0.4	0.02
Thorium 230 precision (±)	pCi/L	0.04	0.06	0.2	0.06
Thorium 230 MDC	pCi/L	0.06	0.1	0.2	0.1
A/C Balance (± 5)	%	-0.810	3.35	1.84	-0.0702
Anions	meq/L	43.8	42.5	41.5	41.9
Cations	meq/L	43.1	45.4	43.0	41.8
Solids, Total Dissolved Calculated	mg/L	2800	2800	2700	2700
TDS Balance (0.80 - 1.20)		1.04	1.03	1.04	1.07
Trihalomethanes, Total	ug/L	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)

\*\*Note: The data presented on this form is intended for summary purposes only. Laboratory approved data is contained within the attached database reports.





### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-1  
**Lab ID:** C13010578-008  
**Client Sample ID:** EPA-2 Duplicate

**Report Date:** 02/25/13  
**Collection Date:** 01/15/13 15:19  
**Date Received:** 01/18/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO3	331	mg/L		5		A2320 B	01/18/13 19:08 / jba
Calcium	411	mg/L		1		E200.7	01/21/13 19:31 / sf
Chloride	20	mg/L	D	2		E300.0	01/21/13 16:19 / wc
Magnesium	183	mg/L		1		E200.7	01/21/13 19:31 / sf
Nitrogen, Ammonia as N	0.47	mg/L		0.05		A4500-NH3 G	01/22/13 16:38 / ljl
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	01/18/13 16:49 / lr
Potassium	7	mg/L		1		E200.7	01/21/13 19:31 / sf
Sodium	221	mg/L		1		E200.7	01/21/13 19:31 / sf
Sulfate	1750	mg/L	D	8		E300.0	01/21/13 16:19 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	6.75	s.u.	H	0.01		A4500-H B	01/18/13 15:42 / jz
Solids, Total Dissolved TDS @ 180 C	2880	mg/L		20		A2540 C	01/21/13 08:35 / ab
<b>METALS - TOTAL</b>							
Aluminum	ND	mg/L		0.1		E200.7	01/23/13 01:08 / sf
Beryllium	ND	mg/L		0.001		E200.7	01/23/13 01:08 / sf
Cadmium	ND	mg/L		0.005		E200.7	01/23/13 01:08 / sf
Cobalt	ND	mg/L		0.01		E200.7	01/23/13 01:08 / sf
Lead	0.002	mg/L		0.001		E200.8	01/22/13 18:02 / clm
Manganese	1.54	mg/L		0.01		E200.7	01/23/13 01:08 / sf
Molybdenum	ND	mg/L		0.1		E200.7	01/23/13 01:08 / sf
Nickel	ND	mg/L		0.05		E200.7	01/23/13 01:08 / sf
Uranium	0.0019	mg/L		0.0003		E200.8	01/22/13 18:02 / clm
Vanadium	ND	mg/L		0.1		E200.7	01/23/13 01:08 / sf
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	01/29/13 15:04 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	02/01/13 10:19 / jrm
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	1.0	pCi/L				E900.1	02/13/13 09:18 / lbb
Gross Alpha minus Rn & U Precision (±)	0.3	pCi/L				E900.1	02/13/13 09:18 / lbb
Gross Alpha minus Rn & U MDC	0.3	pCi/L				E900.1	02/13/13 09:18 / lbb
Lead 210	0.6	pCi/L	U			E909.0	02/04/13 01:21 / eli-cs
Lead 210 precision (±)	0.4	pCi/L				E909.0	02/04/13 01:21 / eli-cs
Lead 210 MDC	0.7	pCi/L				E909.0	02/04/13 01:21 / eli-cs
Radium 226	1.7	pCi/L				E903.0	02/05/13 17:42 / lbb
Radium 226 precision (±)	0.28	pCi/L				E903.0	02/05/13 17:42 / lbb
Radium 226 MDC	0.16	pCi/L				E903.0	02/05/13 17:42 / lbb
Radium 228	3.5	pCi/L				RA-05	01/31/13 12:47 / plj
Radium 228 precision (±)	0.97	pCi/L				RA-05	01/31/13 12:47 / plj
Radium 228 MDC	1.3	pCi/L				RA-05	01/31/13 12:47 / plj

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

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



**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-1  
**Lab ID:** C13010578-008  
**Client Sample ID:** EPA-2 Duplicate

**Report Date:** 02/25/13  
**Collection Date:** 01/15/13 15:19  
**Date Received:** 01/18/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	0.03	pCi/L	U			E908.0	01/31/13 09:13 / dmf
Thorium 230 precision (±)	0.06	pCi/L				E908.0	01/31/13 09:13 / dmf
Thorium 230 MDC	0.1	pCi/L				E908.0	01/31/13 09:13 / dmf
<b>DATA QUALITY</b>							
A/C Balance (± 5)	3.35	%				A1030 E	01/23/13 08:15 / kbh
Anions	42.5	meq/L				A1030 E	01/23/13 08:15 / kbh
Cations	45.4	meq/L				A1030 E	01/23/13 08:15 / kbh
Solids, Total Dissolved Calculated	2800	mg/L				A1030 E	01/23/13 08:15 / kbh
TDS Balance (0.80 - 1.20)	1.03					A1030 E	01/23/13 08:15 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Bromodichloromethane	ND	ug/L		0.50		E624	01/19/13 01:31 / jk
Bromoform	ND	ug/L		0.50		E624	01/19/13 01:31 / jk
Chlorodibromomethane	ND	ug/L		0.50		E624	01/19/13 01:31 / jk
Chloroform	ND	ug/L		0.50		E624	01/19/13 01:31 / jk
Trihalomethanes, Total	ND	ug/L		0.50		E624	01/19/13 01:31 / jk
Surr: 1,2-Dichlorobenzene-d4	98.0	%REC		80-120		E624	01/19/13 01:31 / jk
Surr: Dibromofluoromethane	84.0	%REC		80-120		E624	01/19/13 01:31 / jk
Surr: p-Bromofluorobenzene	110	%REC		80-120		E624	01/19/13 01:31 / jk
Surr: Toluene-d8	100	%REC		80-120		E624	01/19/13 01:31 / jk

- 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.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-1  
**Lab ID:** C13040429-005  
**Client Sample ID** EPA-2 Duplicate

**Report Date:** 05/22/13  
**Collection Date:** 04/08/13 12:20  
**Date Received:** 04/12/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	343	mg/L		5		A2320 B	04/12/13 17:05 / jba
Calcium	386	mg/L		1		E200.7	04/16/13 18:14 / sf
Chloride	20	mg/L	D	2		E300.0	04/16/13 01:27 / wc
Magnesium	178	mg/L		1		E200.7	04/16/13 18:14 / sf
Nitrogen, Ammonia as N	0.48	mg/L		0.05		A4500-NH <sub>3</sub> G	04/16/13 15:31 / lr
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1		E353.2	04/15/13 13:38 / lr
Potassium	7	mg/L		1		E200.7	04/17/13 13:10 / sf
Sodium	208	mg/L		1		E200.7	04/16/13 18:14 / sf
Sulfate	1810	mg/L	D	8		E300.0	04/16/13 01:27 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	6.78	s.u.	H	0.01		A4500-H B	04/12/13 15:07 / ab
Solids, Total Dissolved TDS @ 180 C	2910	mg/L		20		A2540 C	04/12/13 15:52 / ab
<b>METALS - TOTAL</b>							
Aluminum	ND	mg/L		0.1		E200.8	04/22/13 23:47 / cp
Beryllium	ND	mg/L		0.001		E200.8	04/22/13 23:47 / cp
Cadmium	ND	mg/L		0.005		E200.8	04/22/13 23:47 / cp
Cobalt	ND	mg/L		0.01		E200.8	04/22/13 23:47 / cp
Lead	ND	mg/L		0.001		E200.8	04/22/13 23:47 / cp
Manganese	1.55	mg/L		0.01		E200.8	04/22/13 23:47 / cp
Molybdenum	ND	mg/L		0.1		E200.8	04/22/13 23:47 / cp
Nickel	ND	mg/L		0.05		E200.8	04/22/13 23:47 / cp
Uranium	0.0015	mg/L		0.0003		E200.8	04/22/13 23:47 / cp
Vanadium	ND	mg/L		0.1		E200.8	04/22/13 23:47 / cp
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	04/19/13 13:24 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	04/17/13 15:21 / jl1
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	3.2	pCi/L				E900.1	04/20/13 07:26 / lbb
Gross Alpha minus Rn & U Precision (±)	0.9	pCi/L				E900.1	04/20/13 07:26 / lbb
Gross Alpha minus Rn & U MDC	0.8	pCi/L				E900.1	04/20/13 07:26 / lbb
Lead 210	0.5	pCi/L	U			E909.0	04/21/13 00:16 / eli-cs
Lead 210 precision (±)	0.8	pCi/L				E909.0	04/21/13 00:16 / eli-cs
Lead 210 MDC	1.3	pCi/L				E909.0	04/21/13 00:16 / eli-cs
Radium 226	1.5	pCi/L				E903.0	04/29/13 22:14 / lmc
Radium 226 precision (±)	0.29	pCi/L				E903.0	04/29/13 22:14 / lmc
Radium 226 MDC	0.20	pCi/L				E903.0	04/29/13 22:14 / lmc
Radium 228	2.8	pCi/L				RA-05	04/24/13 18:39 / gb
Radium 228 precision (±)	1.1	pCi/L				RA-05	04/24/13 18:39 / gb
Radium 228 MDC	1.6	pCi/L				RA-05	04/24/13 18:39 / gb

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

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



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-1  
**Lab ID:** C13040429-005  
**Client Sample ID:** EPA-2 Duplicate

**Report Date:** 05/22/13  
**Collection Date:** 04/08/13 12:20  
**Date Received:** 04/12/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	0.06	pCi/L			E908.0		05/01/13 11:34 / dmf
Thorium 230 precision (±)	0.04	pCi/L			E908.0		05/01/13 11:34 / dmf
Thorium 230 MDC	0.06	pCi/L			E908.0		05/01/13 11:34 / dmf
<b>DATA QUALITY</b>							
A/C Balance (± 5)	-0.810	%			A1030 E		04/22/13 07:28 / kbh
Anions	43.8	meq/L			A1030 E		04/22/13 07:28 / kbh
Cations	43.1	meq/L			A1030 E		04/22/13 07:28 / kbh
Solids, Total Dissolved Calculated	2800	mg/L			A1030 E		04/22/13 07:28 / kbh
TDS Balance (0.80 - 1.20)	1.04				A1030 E		04/22/13 07:28 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Bromodichloromethane	ND	ug/L		0.50	E624		04/15/13 16:44 / jlr
Bromoform	ND	ug/L		0.50	E624		04/15/13 16:44 / jlr
Chlorodibromomethane	ND	ug/L		0.50	E624		04/15/13 16:44 / jlr
Chloroform	ND	ug/L		0.50	E624		04/15/13 16:44 / jlr
Trihalomethanes, Total	ND	ug/L		0.50	E624		04/15/13 16:44 / jlr
Surr: 1,2-Dichlorobenzene-d4	107	%REC		73.7-126	E624		04/15/13 16:44 / jlr
Surr: Dibromofluoromethane	112	%REC		64.4-131	E624		04/15/13 16:44 / jlr
Surr: p-Bromofluorobenzene	113	%REC		67.1-133	E624		04/15/13 16:44 / jlr
Surr: Toluene-d8	89.0	%REC		79.7-125	E624		04/15/13 16:44 / jlr

- The sample was received in the laboratory with a pH > 2. The pH was 8.

**Report Definitions:**

RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



UNC Mining and Milling ChurchRock Operations					
GroundWater Monitoring Summary: Zone 3 Monitor Wells					
Well ID:		717	717	717	717
Collection Date:		4/9/2013	1/8/2013	10/16/2012	7/17/2012
Receive Date:		4/12/2013	1/11/2013	10/19/2012	7/20/2012
Report Date:		5/22/2013	2/22/2013	11/20/2012	9/7/2012
Analyte	RUnits	C13040435-006	C13010341-004	C12100835-007	C12070713-008
Bicarbonate as HCO3	mg/L	ND(5)	ND(5)	ND(5)	ND(5)
Calcium	mg/L	481	480	486	474
Chloride	mg/L	65	64	67	69
Magnesium	mg/L	520	508	508	517
Nitrogen, Ammonia as N	mg/L	58	56	59	61
Nitrogen, Nitrate+Nitrite as N	mg/L	29	31	30	30
Potassium	mg/L	13	14	14	14
Sodium	mg/L	192	192	186	189
Sulfate	mg/L	4430	4260	4430	4390
pH	s.u.	4.20	4.14	4.07	4.16
Solids, Total Dissolved TDS @ 180 C	mg/L	6060	6190	6120	6190
Aluminum	mg/L	118	118	122	134
Beryllium	mg/L	0.093	0.104	0.102	0.095
Cadmium	mg/L	0.011	0.012	0.016	0.011
Cobalt	mg/L	0.94	0.95	0.89	0.95
Lead	mg/L	0.011	0.012	0.010	0.011
Manganese	mg/L	21.4	21.2	22.1	21.8
Molybdenum	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Nickel	mg/L	0.88	0.89	0.88	0.90
Uranium	mg/L	0.0229	0.0313	0.0194	0.0229
Vanadium	mg/L	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Arsenic-III	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Selenium-IV	mg/L	ND(0.001)	ND(0.001)	ND(0.001)	0.002
Gross Alpha minus Rn & U	pCi/L	26.5	12.1	13.2	35.7
Gross Alpha minus Rn & U Precision (±)	pCi/L	1.7	0.9	0.9	2.8
Gross Alpha minus Rn & U MDC	pCi/L	0.5	0.3	0.3	0.9
Lead 210	pCi/L	2.5	2.7	2.4	3.4
Lead 210 precision (±)	pCi/L	0.8	0.8	0.7	0.8
Lead 210 MDC	pCi/L	1.3	1.3	1.0	1.2
Radium 226	pCi/L	20	16	12	15
Radium 226 precision (±)	pCi/L	0.99	0.76	0.66	0.73
Radium 226 MDC	pCi/L	0.20	0.15	0.15	0.14
Radium 228	pCi/L	34	20	34	22
Radium 228 precision (±)	pCi/L	2.2	1.3	1.8	1.6
Radium 228 MDC	pCi/L	1.7	1.0	1.2	1.3
Thorium 230	pCi/L	0.2	0.08	0.6	0.3
Thorium 230 precision (±)	pCi/L	0.2	0.4	0.6	0.6
Thorium 230 MDC	pCi/L	0.4	1.0	1.0	1.3
A/C Balance (± 5)	%	1.05	4.91	-1.07	2.24
Anions	meq/L	96.5	93.2	96.9	96.2
Cations	meq/L	98.5	103	94.9	101
Solids, Total Dissolved Calculated	mg/L	5900	5700	5900	5800
TDS Balance (0.80 - 1.20)		1.03	1.08	1.04	1.06
Trihalomethanes, Total	ug/L	3.68	4.28	3.48	4.40

\*\*Note: The data presented on this form is intended for summary purposes only. Laboratory approved data is contained within the attached database reports.

UNC Mining and Milling ChurchRock Operations				
GroundWater Monitoring Summary: Zone 3 Monitor Wells				
Well ID:		717 Duplicate	717 Duplicate	717 Duplicate
Collection Date:		4/9/2013	1/8/2013	10/16/2012
Receive Date:		4/12/2013	1/11/2013	10/19/2012
Report Date:		5/22/2013	2/22/2013	11/20/2012
Analyte	RUunits	C13040435-007	C13010341-005	C12100835-008
Bicarbonate as HCO3	mg/L	ND(5)	ND(5)	ND(5)
Calcium	mg/L	489	482	504
Chloride	mg/L	64	65	67
Magnesium	mg/L	528	511	510
Nitrogen, Ammonia as N	mg/L	57	56	58
Nitrogen, Nitrate+Nitrite as N	mg/L	29	31	30
Potassium	mg/L	12	14	14
Sodium	mg/L	194	182	181
Sulfate	mg/L	4440	4270	4410
pH	s.u.	4.17	4.13	4.06
Solids, Total Dissolved TDS @ 180 C	mg/L	6100	6220	6090
Aluminum	mg/L	121	120	120
Beryllium	mg/L	0.093	0.105	0.104
Cadmium	mg/L	0.012	0.011	0.016
Cobalt	mg/L	0.95	0.94	0.90
Lead	mg/L	0.010	0.011	0.010
Manganese	mg/L	22.1	20.9	21.2
Molybdenum	mg/L	ND(0.1)	ND(0.1)	ND(0.1)
Nickel	mg/L	0.90	0.89	0.90
Uranium	mg/L	0.0220	0.0316	0.0192
Vanadium	mg/L	ND(0.1)	ND(0.1)	ND(0.1)
Arsenic-III	mg/L	ND(0.001)	ND(0.001)	ND(0.001)
Selenium-IV	mg/L	ND(0.001)	ND(0.001)	ND(0.001)
Gross Alpha minus Rn & U	pCi/L	26.7	12.3	14.5
Gross Alpha minus Rn & U Precision (±)	pCi/L	1.7	0.9	0.9
Gross Alpha minus Rn & U MDC	pCi/L	0.4	0.3	0.2
Lead 210	pCi/L	2.5	2.2	2.7
Lead 210 precision (±)	pCi/L	0.8	0.8	0.7
Lead 210 MDC	pCi/L	1.3	1.3	1.1
Radium 226	pCi/L	18	16	12
Radium 226 precision (±)	pCi/L	0.95	0.74	0.64
Radium 226 MDC	pCi/L	0.21	0.15	0.15
Radium 228	pCi/L	37	21	35
Radium 228 precision (±)	pCi/L	2.3	1.3	1.8
Radium 228 MDC	pCi/L	1.8	1.0	1.2
Thorium 230	pCi/L	0.4	1.3	0.04
Thorium 230 precision (±)	pCi/L	0.3	0.9	0.5
Thorium 230 MDC	pCi/L	0.3	1.2	1.3
A/C Balance (± 5)	%	2.00	4.99	-0.474
Anions	meq/L	96.7	93.5	96.5
Cations	meq/L	101	103	95.6
Solids, Total Dissolved Calculated	mg/L	5900	5700	5900
TDS Balance (0.80 - 1.20)		1.03	1.09	1.04
Trihalomethanes, Total	ug/L	4.32	4.20	6.40

\*\*Note: The data presented on this form is intended for summary purposes only. Laboratory approved data is contained within the attached database reports.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone 3  
**Lab ID:** C13010341-005  
**Client Sample ID:** 717 Duplicate

**Report Date:** 02/22/13  
**Collection Date:** 01/08/13 14:20  
**Date Received:** 01/11/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		5		A2320 B	01/11/13 14:49 / jba
Calcium	482	mg/L		1		E200.7	01/14/13 20:24 / sf
Chloride	65	mg/L	D	4		E300.0	01/12/13 01:45 / wc
Magnesium	511	mg/L		1		E200.7	01/23/13 16:19 / sf
Nitrogen, Ammonia as N	56	mg/L	D	2		A4500-NH <sub>3</sub> G	01/14/13 16:20 / lr
Nitrogen, Nitrate+Nitrite as N	31	mg/L	D	2		E353.2	01/16/13 14:45 / lr
Potassium	14	mg/L		1		E200.7	01/23/13 16:19 / sf
Sodium	182	mg/L	D	2		E200.7	01/23/13 16:19 / sf
Sulfate	4270	mg/L	D	20		E300.0	01/12/13 01:45 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	4.13	s.u.	H	0.01		A4500-H B	01/11/13 13:23 / ab
Solids, Total Dissolved TDS @ 180 C	6220	mg/L		10		A2540 C	01/11/13 14:38 / ab
<b>METALS - TOTAL</b>							
Aluminum	120	mg/L		0.1		E200.7	01/15/13 19:31 / sf
Beryllium	0.105	mg/L		0.001		E200.7	01/15/13 19:31 / sf
Cadmium	0.011	mg/L		0.005		E200.7	01/15/13 19:31 / sf
Cobalt	0.94	mg/L		0.01		E200.7	01/15/13 19:31 / sf
Lead	0.011	mg/L		0.001		E200.8	01/17/13 21:39 / cp
Manganese	20.9	mg/L		0.01		E200.7	01/15/13 19:31 / sf
Molybdenum	ND	mg/L		0.1		E200.7	01/15/13 19:31 / sf
Nickel	0.89	mg/L		0.05		E200.7	01/15/13 19:31 / sf
Uranium	0.0316	mg/L		0.0003		E200.8	01/17/13 21:39 / cp
Vanadium	ND	mg/L		0.1		E200.7	01/15/13 19:31 / sf
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	01/23/13 14:33 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	01/28/13 11:34 / jrm
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	12.3	pCi/L				E900.1	02/13/13 07:37 / lbb
Gross Alpha minus Rn & U Precision (±)	0.9	pCi/L				E900.1	02/13/13 07:37 / lbb
Gross Alpha minus Rn & U MDC	0.3	pCi/L				E900.1	02/13/13 07:37 / lbb
Lead 210	2.2	pCi/L				E909.0	02/08/13 01:48 / eli-cs
Lead 210 precision (±)	0.8	pCi/L				E909.0	02/08/13 01:48 / eli-cs
Lead 210 MDC	1.3	pCi/L				E909.0	02/08/13 01:48 / eli-cs
Radium 226	16	pCi/L				E903.0	01/28/13 23:25 / lmc
Radium 226 precision (±)	0.74	pCi/L				E903.0	01/28/13 23:25 / lmc
Radium 226 MDC	0.15	pCi/L				E903.0	01/28/13 23:25 / lmc
Radium 228	21	pCi/L				RA-05	01/24/13 00:45 / gb
Radium 228 precision (±)	1.3	pCi/L				RA-05	01/24/13 00:45 / gb
Radium 228 MDC	1.0	pCi/L				RA-05	01/24/13 00:45 / gb

**Report** RL - Analyte reporting limit.

**Definitions:** QCL - Quality control limit.

MDC - Minimum detectable concentration

H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

D - RL increased due to sample matrix.



**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone 3  
**Lab ID:** C13010341-005  
**Client Sample ID:** 717 Duplicate

**Report Date:** 02/22/13  
**Collection Date:** 01/08/13 14:20  
**Date Received:** 01/11/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	1.3	pCi/L				E908.0	01/30/13 16:19 / dmf
Thorium 230 precision (±)	0.9	pCi/L				E908.0	01/30/13 16:19 / dmf
Thorium 230 MDC	1.2	pCi/L				E908.0	01/30/13 16:19 / dmf
<b>DATA QUALITY</b>							
A/C Balance (± 5)	4.99	%				A1030 E	01/30/13 10:02 / kbh
Anions	93.5	meq/L				A1030 E	01/30/13 10:02 / kbh
Cations	103	meq/L				A1030 E	01/30/13 10:02 / kbh
Solids, Total Dissolved Calculated	5700	mg/L				A1030 E	01/30/13 10:02 / kbh
TDS Balance (0.80 - 1.20)	1.09					A1030 E	01/30/13 10:02 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Bromodichloromethane	ND	ug/L		0.50		E624	01/11/13 19:40 / jk
Bromoform	ND	ug/L		0.50		E624	01/11/13 19:40 / jk
Chlorodibromomethane	ND	ug/L		0.50		E624	01/11/13 19:40 / jk
Chloroform	4.20	ug/L		0.50		E624	01/11/13 19:40 / jk
Trihalomethanes, Total	4.20	ug/L		0.50		E624	01/11/13 19:40 / jk
Surr: 1,2-Dichlorobenzene-d4	115	%REC		80-120		E624	01/11/13 19:40 / jk
Surr: Dibromofluoromethane	99.0	%REC		80-120		E624	01/11/13 19:40 / jk
Surr: p-Bromofluorobenzene	118	%REC		80-120		E624	01/11/13 19:40 / jk
Surr: Toluene-d8	95.0	%REC		80-120		E624	01/11/13 19:40 / jk

**Report Definitions:**

RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-3  
**Lab ID:** C13040435-007  
**Client Sample ID** 717 Duplicate

**Report Date:** 05/22/13  
**Collection Date:** 04/09/13 11:25  
**Date Received:** 04/12/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		5		A2320 B	04/12/13 19:51 / jba
Calcium	489	mg/L		1		E200.7	04/16/13 19:28 / sf
Chloride	64	mg/L	D	4		E300.0	04/16/13 10:54 / wc
Magnesium	528	mg/L		1		E200.7	04/16/13 19:28 / sf
Nitrogen, Ammonia as N	57	mg/L	D	1		A4500-NH3 G	04/17/13 13:57 / lr
Nitrogen, Nitrate+Nitrite as N	29	mg/L	D	2		E353.2	04/15/13 14:46 / lr
Potassium	12	mg/L		1		E200.7	04/17/13 14:53 / sf
Sodium	194	mg/L		1		E200.7	04/16/13 19:28 / sf
Sulfate	4440	mg/L	D	20		E300.0	04/16/13 10:54 / wc
<b>PHYSICAL PROPERTIES</b>							
pH	4.17	s.u.	H	0.01		A4500-H B	04/15/13 09:40 / ab
Solids, Total Dissolved TDS @ 180 C	6100	mg/L		40		A2540 C	04/15/13 16:14 / ab
<b>METALS - TOTAL</b>							
Aluminum	121	mg/L		0.1		E200.7	04/22/13 18:41 / sf
Beryllium	0.093	mg/L		0.001		E200.8	04/23/13 00:49 / cp
Cadmium	0.012	mg/L		0.005		E200.8	04/23/13 00:49 / cp
Cobalt	0.95	mg/L		0.01		E200.8	04/23/13 00:49 / cp
Lead	0.010	mg/L		0.001		E200.8	04/23/13 00:49 / cp
Manganese	22.1	mg/L		0.01		E200.8	04/23/13 00:49 / cp
Molybdenum	ND	mg/L		0.1		E200.8	04/23/13 00:49 / cp
Nickel	0.90	mg/L		0.05		E200.8	04/23/13 00:49 / cp
Uranium	0.0220	mg/L		0.0003		E200.8	04/23/13 00:49 / cp
Vanadium	ND	mg/L		0.1		E200.8	04/23/13 00:49 / cp
<b>METALS - SPECIATED</b>							
Arsenic-III	ND	mg/L		0.001		E1632AM	04/23/13 12:43 / eli-h
Selenium-IV	ND	mg/L		0.001		A3114 B	04/17/13 15:39 / jl1
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha minus Rn & U	26.7	pCi/L				E900.1	04/24/13 10:55 / lbb
Gross Alpha minus Rn & U Precision (±)	1.7	pCi/L				E900.1	04/24/13 10:55 / lbb
Gross Alpha minus Rn & U MDC	0.4	pCi/L				E900.1	04/24/13 10:55 / lbb
Lead 210	2.5	pCi/L				E909.0	04/21/13 23:59 / eli-cs
Lead 210 precision (±)	0.8	pCi/L				E909.0	04/21/13 23:59 / eli-cs
Lead 210 MDC	1.3	pCi/L				E909.0	04/21/13 23:59 / eli-cs
Radium 226	18	pCi/L				E903.0	04/29/13 17:01 / lmc
Radium 226 precision (±)	0.95	pCi/L				E903.0	04/29/13 17:01 / lmc
Radium 226 MDC	0.21	pCi/L				E903.0	04/29/13 17:01 / lmc
Radium 228	37	pCi/L				RA-05	04/24/13 21:44 / gb
Radium 228 precision (±)	2.3	pCi/L				RA-05	04/24/13 21:44 / gb
Radium 228 MDC	1.8	pCi/L				RA-05	04/24/13 21:44 / gb

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

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



**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation  
**Project:** Zone-3  
**Lab ID:** C13040435-007  
**Client Sample ID** 717 Duplicate

**Report Date:** 05/22/13  
**Collection Date:** 04/09/13 11:25  
**Date Received:** 04/12/13  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - TOTAL</b>							
Thorium 230	0.4	pCi/L				E908.0	05/01/13 11:34 / dmf
Thorium 230 precision (±)	0.3	pCi/L				E908.0	05/01/13 11:34 / dmf
Thorium 230 MDC	0.3	pCi/L				E908.0	05/01/13 11:34 / dmf
<b>DATA QUALITY</b>							
A/C Balance (± 5)	2.00	%				A1030 E	04/22/13 07:30 / kbh
Anions	96.7	meq/L				A1030 E	04/22/13 07:30 / kbh
Cations	101	meq/L				A1030 E	04/22/13 07:30 / kbh
Solids, Total Dissolved Calculated	5900	mg/L				A1030 E	04/22/13 07:30 / kbh
TDS Balance (0.80 - 1.20)	1.03					A1030 E	04/22/13 07:30 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Bromodichloromethane	ND	ug/L		0.50		E624	04/15/13 19:33 / jlr
Bromoform	ND	ug/L		0.50		E624	04/15/13 19:33 / jlr
Chlorodibromomethane	ND	ug/L		0.50		E624	04/15/13 19:33 / jlr
Chloroform	4.32	ug/L		0.50		E624	04/15/13 19:33 / jlr
Trihalomethanes, Total	4.32	ug/L		0.50		E624	04/15/13 19:33 / jlr
Surr: 1,2-Dichlorobenzene-d4	107	%REC		73.7-126		E624	04/15/13 19:33 / jlr
Surr: Dibromofluoromethane	129	%REC		64.4-131		E624	04/15/13 19:33 / jlr
Surr: p-Bromofluorobenzene	113	%REC		67.1-133		E624	04/15/13 19:33 / jlr
Surr: Toluene-d8	88.0	%REC		79.7-125		E624	04/15/13 19:33 / jlr

- The sample was received in the laboratory with a pH > 2. The pH was 4.

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.  
MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.

APPENDIX - C

QUARTERLY

CHAIN OF CUSTODY REPORT

UNITED NUCLEAR CORPORATION  
 (State Road 566 - 21 Miles NE of Gallup)  
 P.O. Box 3077  
 Gallup, NM 87305-3077  
 505-905-8851

CHAIN OF CUSTODY

**SW Alluvium**

All analysis will be performed in accordance with EPA approved procedures and/or 15th Edition of Standard Methods

UNC Submittal No. TE-1-1-2013 (Pg. 1 of 2)

Energy Laboratories, Inc.  
 Laboratory

2393 N. Salt Creek Highway  
 Address

Casper WY 82601  
 City State Zip

307-235-0515  
 Phone No.

Sample Description	Date	Time	Filter	PRESERVATION					Preserved By	Analysis Required (For all samples listed)
			0.45u	plain	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	HCl		
509-D	1-7-13	1040	✓ (8oz.)	✓	✓	✓	✓	✓	M. Chalkley	As, Be, Ca, Cd, Cl, HCO <sub>3</sub> ,
EPA-23	1-7-13	1201								K, Mg, Mn, Na, NH <sub>4</sub> , Ni,
803	1-7-13	1258								NO <sub>3</sub> , Pb, Pb-210, pH, Se,
808	1-7-13	1339								SO <sub>4</sub> , TDS, Th-230, U, V,
802	1-7-13	1421								Chloroform, Gross
801	1-7-13	1503								Alpha (-) U & Rn,
GW-2	1-7-13	1552								Combined Ra-226 & Ra-228, Al,
GW-1	1-7-13	1654								Co, Mo & Total Trihalomethanes (THMs)
632	1-8-13	0905								
EPA-28	1-9-13	0855								
EPA-28 DUPLICATE	1-9-13	0935								
624	1-9-13	1020								
SBL-1	1-9-13	1101								
RINGSATE	1-9-13	1140								
FIELD BLANK	1-9-13	1200	✓	✓	✓	✓	✓	✓		

Sampled by: Mel Chalkley Jr.  
 Dispatched by: Dore Young  
 Carrier: UPS Ground  
7 iced cooler  
 Method of Shipment

Received by: Mel Chalkley Jr.  
1-9-13  
 Date

1-7-13 @ 1730  
1-8-13 @ 1630  
 Date 1-9-13 @ 1200 Time  
Mel Chalkley Jr.  
 Lab Receipt Signature  
1-17-13 915  
 Date Time

The above analysis to be performed is authorized by:  
Mel Chalkley Jr.  
 Signature  
1-9-2013  
 Date

UPS G

1.4

C130103

# 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.

## Workorder Receipt Checklist

United Nuclear Corporation

C13010343

Login completed by: Corinne Wagner

Date Received: 1/11/2013

Reviewed by: BL2000\kmliller

Received by: dw

Reviewed Date: 1/11/2013

Carrier Ground  
name:

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

Contact and Corrective Action Comments:

None

UNITED NUCLEAR CORPORATION  
 (State Road 566 - 21 Miles NE of Callup)  
 P.O. Box 3077  
 Callup, NH 87305-3077  
 505-905-8851

CHAIN OF CUSTODY

ZONE - 3

All analysis will be performed in accordance with EPA approved procedures and/or 15th Edition of Standard Methods

Energy Laboratories, Inc.  
 Laboratory

2393 N. Salt Creek Highway  
 Address

Casper WY 82601  
 City State Zip

307-235-0515  
 Phone No.

UNC Submittal No. TE-1-1-2013 (Pg. 2 of 2)

Sample Description	Date	Time	Filter 0.45u	PRESERVATION					Preserved By	Analysis Required (For all samples listed)
				plain	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	HCl		
613	1-8-13	1011	✓ (80%) MC	✓ MC	✓ MC	✓ MC	✓ MC	MC	As, Be, Ca, Cd, Cl, HCO <sub>3</sub>	
517	1-8-13	1058	↓	↓	↓	↓	↓	↓	K, Mg, Mn, Na, NH <sub>4</sub> , Ni,	
EPA-14	1-8-13	1146	↓	↓	↓	↓	↓	↓	NO <sub>3</sub> , Pb, Pb-210, pH, Se,	
717	1-8-13	1350	↓	↓	↓	↓	↓	↓	SO <sub>4</sub> , TDS, Th-230, U, V,	
717 DUPLICATE	1-8-13	1420	↓	↓	↓	↓	↓	↓	Chloroform, Gross	
719	1-8-13	1452	↓	↓	↓	↓	↓	↓	Alpha (-) U & Rn,	
420	1-8-13	1544	↓	↓	↓	↓	↓	↓	Combined Ra-226 & Ra-228, Al, Co, Mo & Total Trihalomethanes (TTHMs)	

Sampled by: May Chelly  
 Dispatched by: David Hony  
 Carrier: UPS - Ground  
7 iced cooler  
 Method of Shipment

Received by: Mike White  
1-9-13  
 Date

1:05  
 Time

1-8-13 1630  
 Date Time

[Signature]  
 Lab Receipt Signature

1-9-13 9:15  
 Date Time

UPS-G

The above analysis to be performed is authorized by:  
May Chelly  
 Signature

1-9-2013  
 Date

C13010340



# 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.

## Workorder Receipt Checklist

United Nuclear Corporation

C13010341

Login completed by: Corinne Wagner

Date Received: 1/11/2013

Reviewed by: BL2000\kmilller

Received by: dw

Reviewed Date: 1/11/2013

Carrier Ground name:

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

Contact and Corrective Action Comments:

None

UNITED NUCLEAR CORPORATION  
 (State Road 566 - 21 Miles NE of Gallup)  
 P.O. Box 3077  
 Gallup, NM 87305-3077  
 505-905-8851

CHAIN OF CUSTODY

Energy Laboratories, Inc.  
 Laboratory

SW Alluvium

2393 N. Salt Creek Highway  
 Address

All analysis will be performed in accordance with EPA approved  
 procedures and/or 15th Edition of Standard Methods

Casper WY 82601  
 City State Zip

UNC Submittal No. TE- 2-1-2013 (Pg. 1 of 3)

307-235-0515  
 Phone No.

Sample Description	Date	Time	Filter 0.45u	PRESERVATION					Preserved By	Analysis Required (For all samples listed)
				plain	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	HCl		
627	1-14-13	0857	✓(80%)	✓	✓	✓	✓	✓	M. Chischilly	As, Be, Ca, Cd, Cl, HCO <sub>3</sub>
EPA-25	1-14-13	0957	✓(80%)	✓	✓	✓	✓	✓	M. Chischilly	K, Hg, Mn, Na, NH <sub>4</sub> , Ni,
GW-3	1-14-13	1048	✓(80%)	✓	✓	✓	✓	✓	M. Chischilly	NO <sub>3</sub> , Pb, Pb-210, pH, Se, SO <sub>4</sub> , TDS, Th-230, U, V, Chloroform, Gross Alpha (-) U & Rn, Combined Ra-226 & Ra-228, Al, Co, Mo & Total Trihalomethanes (THMs)

Sampled by: Mal Chischilly Jr.  
 Dispatched by: Dorie Honeg  
 Carrier: UPS - Ground  
7 iced cooler  
 Method of Shipment

Received by: Andrew Clark  
1-16-13  
 Date Time

1-14-13 1630  
 Date Time  
William  
 Lab Receipt Signature  
1-15-13 926  
 Date Time

The above analysis to be performed is  
 authorized by:  
Mal Chischilly Jr.  
 Signature  
1-16-2013  
 Date

C13010591





# 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.

## Workorder Receipt Checklist

United Nuclear Corporation

C13010591

Login completed by: Timothy I. Houghteling

Date Received: 1/18/2013

Reviewed by: BL2000\swaldrop

Received by: dw

Reviewed Date: 1/23/2013

Carrier Ground  
name:

- |   |   |  |   |
|---|---|--|---|
| Shipping container/cooler in good condition?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on shipping container/cooler?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on sample bottles?   | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/> |
| Chain of custody present?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody signed when relinquished and received?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody agrees with sample labels?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Samples in proper container/bottle?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sample containers intact?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sufficient sample volume for indicated test?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| All samples received within holding time?<br>(Exclude analyses that are considered field parameters<br>such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Temp Blank received?  | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | Not Applicable <input type="checkbox"/>         |
| Container/Temp Blank temperature:   | 5.6°C On Ice                            |  |   |
| Water - VOA vials have zero headspace?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | No VOA vials submitted <input type="checkbox"/> |
| Water - pH acceptable upon receipt?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Applicable <input type="checkbox"/>         |

Contact and Corrective Action Comments:

None

UNITED NUCLEAR CORPORATION  
 (State Road 566 - 21 Miles NE of Gallup)  
 P.O. Box 3077  
 Gallup, NM 87305-3077  
 505-905-6651

CHAIN OF CUSTODY

ZONE - 1

All analysis will be performed in accordance with EPA approved procedures and/or 15th Edition of Standard Methods

UNC Submittal No. IE-2-1-2013 (PG. 2 of 3)

Energy Laboratories, Inc.  
 Laboratory

2393 N. Salt Creek Highway  
 Address

Casper WY 82601  
 City State Zip

307-235-0515  
 Phone No.

Sample Description	Date	Time	Filter 0.45u	PRESERVATION					Preserved By	Analysis Required (For all samples listed)
				plain	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	HCl		
614	1-15-13	0912	✓(80%)	✓	✓	✓	✓	✓	M. Chischilly	As, Be, Ca, Cd, Cl, HCO <sub>3</sub>
515-A	1-15-13	1015	✓(80%)	✓	✓	✓	✓	✓	M. Chischilly	K, Hg, Mn, Na, NH <sub>4</sub> , Ni
604	1-15-13	1104	✓(80%)	✓	✓	✓	✓	✓	M. Chischilly	NO <sub>3</sub> , Pb, Pb-210, pH, Se,
EPA-7	1-15-13	1206	✓(80%)	✓	✓	✓	✓	✓	M. Chischilly	SO <sub>4</sub> , TDS, Th-230, U, V,
EPA-5	1-15-13	1246	✓(80%)	✓	✓	✓	✓	✓	M. Chischilly	Chloroform, Cross
EPA-4	1-15-13	1336	✓(80%)	✓	✓	✓	✓	✓	M. Chischilly	Alpha (-) U & Rn,
EPA-2	1-15-13	1442	✓(80%)	✓	✓	✓	✓	✓	M. Chischilly	Combined Ra-226 & Ra-228, Al,
EPA-2 DUPLICATE	1-15-13	1519	✓(80%)	✓	✓	✓	✓	✓	M. Chischilly	Co, Mo & Total Trihalomethanes (TTHMs)
TWR-142	1-15-13	1715	✓(80%)	✓	✓	✓	✓	✓	M. Chischilly	

Sampled by: Map Chaddley Jr. Received by: Jim Houghton  
 Dispatched by: Dee Young Date: 1-16-13 Time: 12:30  
 Carrier: UPS-Ground  
7 iced cooler  
 Method of Shipment

1-15-13 1730  
 1-15-13 1800  
 Date Time  
 Lab Receipt Signature  
 1-18-13 920  
 Date Time

The above analysis to be performed is authorized by:  
Map Chaddley Jr.  
 Signature  
1-16-2013  
 Date

ups-6  
 5.6°  
 Cooler Seals

C13010578



# 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.

## Workorder Receipt Checklist

United Nuclear Corporation

C13010578

Login completed by: Timothy I. Houghteling

Date Received: 1/18/2013

Reviewed by: BL2000\kmliller

Received by: th

Reviewed Date: 1/21/2013

Carrier Ground  
name:

- |   |   |  |   |
|---|---|--|---|
| Shipping container/cooler in good condition?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on shipping container/cooler?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on sample bottles?   | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/> |
| Chain of custody present?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody signed when relinquished and received?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody agrees with sample labels?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Samples in proper container/bottle?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sample containers intact?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sufficient sample volume for indicated test?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| All samples received within holding time?<br>(Exclude analyses that are considered field parameters<br>such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Temp Blank received?  | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | Not Applicable <input type="checkbox"/>         |
| Container/Temp Blank temperature:   | 5.6°C On Ice                            |  |   |
| Water - VOA vials have zero headspace?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | No VOA vials submitted <input type="checkbox"/> |
| Water - pH acceptable upon receipt?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Applicable <input type="checkbox"/>         |

Contact and Corrective Action Comments:

None

UNITED NUCLEAR CORPORATION  
 (State Road 566 - 21 Miles NE of Gallup)  
 P.O. Box 3077  
 Gallup, NM 87305-3077  
 505-905-8851

CHAIN OF CUSTODY

ZONE - 3

All analysis will be performed in accordance with EPA approved procedures and/or 15th Edition of Standard Methods

Energy Laboratories, Inc.  
 Laboratory

2393 N. Salt Creek Highway  
 Address

Casper WY 82601  
 City State Zip

307-235-0515  
 Phone No.

UNC Submittal No. TE- 2-1-2013 (Pg. 3 of 3)

C13010580

Sample Description	Date	Time	Filter 0.45u	PRESERVATION					Preserved By	Analysis Required (For all samples listed)
				plain	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	HCl		
EPA-19	1-14-13	1332	✓(802) <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>		<i>M. Chischilly</i>	As, Be, Ca, Cd, Cl, HCO <sub>3</sub>
711	1-14-13	1423	✓(802) <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>		<i>M. Chischilly</i>	K, Mg, Mn, Na, NH <sub>4</sub> , Ni,
NBL-1	1-14-13	1520	✓(802) <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>		<i>M. Chischilly</i>	NO <sub>3</sub> , Pb, Pb-210, pH, Se,
MW-7	1-14-13	1604	✓(802) <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>		<i>M. Chischilly</i>	SO <sub>4</sub> , TDS, Th-230, U, V,
708	1-15-13	1600	✓(802) <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>		<i>M. Chischilly</i>	Chloroform, Gross
RIMSATE	1-16-13	0945	✓(802) <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>		<i>M. Chischilly</i>	Alpha (-) U & Rn,
FIELD BLANK	1-16-13	1020	✓(802) <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>		<i>M. Chischilly</i>	Combined Ra-226 & Ra-228, Al,
MW-6	1-16-13	1050	✓(802) <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>		<i>M. Chischilly</i>	Co, Mo & Total Trihalomethanes (TTHMs)

Sampled by: *M. Chischilly*  
 Dispatched by: *Dorice Young*  
 Carrier: UPS-Ground  
7 iced cooler  
 Method of Shipment

Received by: *[Signature]*  
 Date: 1-16-13 Time: 12:30

1-14-13 1630  
 1-15-13 1730  
 Date: 1-16-13 Time: 1020  
*[Signature]*  
 Lab Receipt Signature  
 1-16-13 920  
 Date Time

The above analysis to be performed is authorized by:  
*M. Chischilly*  
 Signature  
1-16-2013  
 Date

# 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.

## Workorder Receipt Checklist

United Nuclear Corporation

C13010580

Login completed by: Dorian Quis

Date Received: 1/18/2013

Reviewed by: BL2000\kmliller

Received by: dw

Reviewed Date: 1/21/2013

Carrier Ground name:

- |  |   |  |   |
|--|---|--|---|
| Shipping container/cooler in good condition?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on shipping container/cooler?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on sample bottles?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/> |
| Chain of custody present?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody signed when relinquished and received?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody agrees with sample labels?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Samples in proper container/bottle?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sample containers intact?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sufficient sample volume for indicated test?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| All samples received within holding time?<br>(Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Temp Blank received?   | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | Not Applicable <input type="checkbox"/>         |
| Container/Temp Blank temperature:  | 5.6°C On Ice                            |  |   |
| Water - VOA vials have zero headspace?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | No VOA vials submitted <input type="checkbox"/> |
| Water - pH acceptable upon receipt?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Applicable <input type="checkbox"/>         |

Contact and Corrective Action Comments:

None

UNC MINING & MILLING  
 (St. Rd. 566 - 21 Miles NE of Gallup)  
 P. O. Box 3077  
 Gallup, NM 87305-3077  
 (505) 805-8851

CHAIN OF CUSTODY

**ZONE - 3**

All analysis will be performed in accordance with  
 EPA approved procedures and/or 15th Edition of  
 Standard Methods

UNC Submittal No. EW-1-1-2013

Energy Laboratories, Inc.  
 Laboratory  
 2393 N. Salt Creek Highway  
 Address  
Casper WY 82601  
 City State Zip  
 (307) 235-0515  
 Phone No.

C13D10573

Sample Description	Date	Time	Filter 0.45u	PRESERVATION				NaOH	Preserved By	Analysis Required
				plain	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>			
NW-3	1-15-13	1035		✓	✓				Mr. Churchill	Bicarbonate (HCO <sub>3</sub> ), Chloride (Cl), pH, TDS
NW-5	1-15-13	1102		✓	✓					
NW-4	1-15-13	1217		✓	✓					
PB-2	1-15-13	1326		✓	✓					
NW-2	1-15-13	1429		✓	✓					
RW-A	1-15-13	1359		✓	✓					
NW-3	1-15-13	1132		✓	✓					
NBL-2	1-16-13	0830		✓	✓					
PB-3	1-16-13	0852		✓	✓					
PB-4	1-16-13	0915		✓	✓				PH-2	

Sampled By: Map Churchill Jr. Received By: [Signature]  
 Dispatched By: Dorise Young Date: 1-16-13 Time: 12:30  
 Carrier: UPS-Ground  
 Method of Shipment: 7 iced cooler

1-15-13 1500  
 1-16-13 1020  
 Date Time  
[Signature]  
 Lab Receipt Signature  
 1-18-13 920  
 Date Time

The above analysis to be performed is  
 authorized by:  
Map Churchill Jr.  
 Signature  
 1-16-2013  
 Date



# 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.

## Workorder Receipt Checklist

United Nuclear Corporation

C13010573

Login completed by: Dorian Quis

Date Received: 1/18/2013

Reviewed by: BL2000kmiller

Received by: dw

Reviewed Date: 1/21/2013

Carrier Ground name:

- |  |   |  |  |
|--|---|--|--|
| Shipping container/cooler in good condition?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>                       |
| Custody seals intact on shipping container/cooler?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>                       |
| Custody seals intact on sample bottles?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/>            |
| Chain of custody present?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| Chain of custody signed when relinquished and received?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| Chain of custody agrees with sample labels?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| Samples in proper container/bottle?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| Sample containers intact?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| Sufficient sample volume for indicated test?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| All samples received within holding time?<br>(Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| Temp Blank received?   | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | Not Applicable <input type="checkbox"/>                    |
| Container/Temp Blank temperature:  | 5.4°C On Ice                            |  |  |
| Water - VOA vials have zero headspace?   | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | No VOA vials submitted <input checked="" type="checkbox"/> |
| Water - pH acceptable upon receipt?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Applicable <input type="checkbox"/>                    |

Contact and Corrective Action Comments:

Sample PB-4 was received at a pH of 2. Per client, this is normal.

UNITED NUCLEAR CORPORATION  
 (State Road 566 - 21 Miles NE of Callup)  
 P.O. Box 3077  
 Callup, NH 87305-3077  
 505-905-6651

CHAIN OF CUSTODY

SW Alluvium

All analysis will be performed in accordance with EPA approved procedures and/or 15th Edition of Standard Methods

Energy Laboratories, Inc.  
 Laboratory

2393 N. Salt Creek Highway  
 Address

Casper NY 82601  
 City State Zip

307-235-0515  
 Phone No.

UNC Submittal No. TE-3-4-2013 (Pg. 1 of 3)

Sample Description	Date	Time	Filter 0.45u	PRESERVATION					Preserved By	Analysis Required (For all samples listed)
				plain	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	HCl		
509-D	4-1-13	0930	✓ (B02)	✓	✓	✓	✓		M. Chischilly	As, Be, Ca, Cd, Cl, HCO <sub>3</sub>
EPA-23		1020								K, Mg, Mn, Na, NH <sub>4</sub> , Ni
803		1103								NO <sub>3</sub> , Pb, Pb-210, pH, Se,
808		1145								SO <sub>4</sub> , TDS, Th-230, U, V,
802		1225								Chloroform, Gross
801		1305								Alpha (-) U & Rn,
GW-2		1350								Combined Ra-226 & Ra-228, Al,
GW-1		1500								Co, Mo & Total Trihalomethanes (THMs)
632	✓	1550								
624	4-2-13	0850								
SBL-1		0930								
EPA-28		1015								C13040238
EPA-28 DUPLICATE		1055								
627		1330								
EPA-25		1425								
GW-3	✓	1510								

Sampled by: Maf Chischilly Jr.  
 Dispatched by: Doris Young  
 Carrier: UPS-Ground  
8 iced cooler  
 Method of Shipment

Received by: [Signature]  
 Date: 4-3-13 Time: 12:49

4-1-13 @ 1630 4-2-13 @ 1730  
 Date Time  
[Signature]  
 Lab Receipt Signature  
 4-5-13 930  
 Date Time

The above analysis to be performed is authorized by:  
[Signature]  
 Signature  
 4-3-2013  
 Date

ups-67

1.6°C IR-2



# 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.

## Workorder Receipt Checklist

United Nuclear Corporation

C13040238

Login completed by: Timothy I. Houghteling

Date Received: 4/5/2013

Reviewed by: BL2000\cwagner

Received by: th

Reviewed Date: 4/8/2013

Carrier Ground name:

- |  |   |  |   |
|--|---|--|---|
| Shipping container/cooler in good condition?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on shipping container(s)/cooler(s)?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on all sample bottles?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/> |
| Chain of custody present?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody signed when relinquished and received?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody agrees with sample labels?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Samples in proper container/bottle?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sample containers intact?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sufficient sample volume for indicated test?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| All samples received within holding time?<br>(Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Temp Blank received in all shipping container(s)/cooler(s)?  | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | Not Applicable <input type="checkbox"/>         |
| Container/Temp Blank temperature:  | 1.6°C On Ice                            |  |   |
| Water - VOA vials have zero headspace?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | No VOA vials submitted <input type="checkbox"/> |
| Water - pH acceptable upon receipt?  | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | Not Applicable <input type="checkbox"/>         |

Contact and Corrective Action Comments:

Samples for 624 were received at pH 7, 1 mL HNO3 added to preserve to pH <2.

UNITED NUCLEAR CORPORATION  
(State Road 566 - 21 Miles NE of Gallup)  
P.O. Box 3077  
Gallup, NM 87305-3077  
505-905-8651

CHAIN OF CUSTODY

**ZONE - 3**

All analysis will be performed in accordance with EPA approved procedures and/or 15th Edition of Standard Methods

UNC Submittal No. TE-3-4-2013 (Pg. 2 of 3)

Energy Laboratories, Inc.  
Laboratory

2393 N. Salt Creek Highway  
Address

Casper WY 82601  
City State Zip

307-235-0515  
Phone No.

Sample Description	Date	Time	Filter 0.45u	PRESERVATION					Preserved By	Analysis Required (For all samples listed)
				plain	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	HCl		
613	4-2-13	1145	✓ 0.45u (8oz.)	✓ ME	✓ ME	✓ ME	✓ ME	M. Chischilly	As, Be, Ca, Cd, Cl, HCO <sub>3</sub>	
517	4-2-13	1230	✓ 0.45u (8oz.)	✓ ME	✓ ME	✓ ME	✓ ME	M. Chischilly	K, Mg, Mn, Na, NH <sub>4</sub> , Ni, NO <sub>3</sub> , Pb, Pb-210, pH, Se, SO <sub>4</sub> , TDS, Th-230, U, V, Chloroform, Gross Alpha (-) U & Rn, Combined Ra-226 & Ra-228, Al, Co, Mo & Total Trihalomethanes (TTHMs)	

C13040244

Sampled by: Max Chubbly Jr.  
Dispatched by: Doreen Young  
Carrier: UPS-Ground  
Method of Shipment: 8 iced cooler

Received by: [Signature]  
Date: 4-3-13 Time: 12:49

Date: 4-2-13 Time: 1730  
[Signature]  
Lab Receipt Signature  
Date: 4-5-13 Time: 930

ups-g

The above analysis to be performed is authorized by:  
[Signature]  
Signature  
Date: 4-3-13

1.6 °C/IR-2



# 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.

## Workorder Receipt Checklist

United Nuclear Corporation

C13040244

Login completed by: Kerri Schroeder

Date Received: 4/5/2013

Reviewed by: BL2000\cwagner

Received by: th

Reviewed Date: 4/8/2013

Carrier Ground name:

- |  |   |  |   |
|--|---|--|---|
| Shipping container/cooler in good condition?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on shipping container(s)/cooler(s)?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on all sample bottles?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/> |
| Chain of custody present?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody signed when relinquished and received?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody agrees with sample labels?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Samples in proper container/bottle?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sample containers intact?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sufficient sample volume for indicated test?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| All samples received within holding time?<br>(Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Temp Blank received in all shipping container(s)/cooler(s)?  | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | Not Applicable <input type="checkbox"/>         |
| Container/Temp Blank temperature:  | 1.6°C On Ice                            |  |   |
| Water - VOA vials have zero headspace?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | No VOA vials submitted <input type="checkbox"/> |
| Water - pH acceptable upon receipt?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Applicable <input type="checkbox"/>         |

Contact and Corrective Action Comments:

None

UNITED NUCLEAR CORPORATION  
 (State Road 566 - 21 Miles NE of Gallup)  
 P.O. Box 3077  
 Gallup, NM 87305-3077  
 505-905-6651

CHAIN OF CUSTODY

ZONE - 1

All analysis will be performed in accordance with EPA approved procedures and/or 15th Edition of Standard Methods

Energy Laboratories, Inc.  
 Laboratory

2393 N. Salt Creek Highway  
 Address

Casper WY 82601  
 City State Zip

307-235-0515  
 Phone No.

UNC Submittal No. TE- 3-4-2013 (Pg. 3 of 3)

Sample Description	Date	Time	Filter 0.45u	PRESERVATION				HCl	Preserved By	Analysis Required (For all samples listed)
				plain	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>			
614	4-3-13	0905	✓ (8oz.)	✓	✓	✓	✓	M. Chischilly	As, Be, Ca, Cd, Cl, HCO <sub>3</sub>	
515-A	4-3-13	1020	✓ (8oz.)	✓	✓	✓	✓		K, Mg, Mn, Na, NH <sub>4</sub> , Ni,	
604	4-3-13	1105	✓ (8oz.)	✓	✓	✓	✓		NO <sub>3</sub> , Pb, Pb-210, pH, Se,	
RINSATE	4-3-13	1140	✓ (8oz.)	✓	✓	✓	✓		SO <sub>4</sub> , TDS, Th-230, U, V,	
FIELD BLANK	4-3-13	1200	✓ (8oz.)	✓	✓	✓	✓		Chloroform, Gross	
									Alpha (-) U & Rn,	
									Combined Ra-226 & Ra-228, Al,	
									Co, Mo & Total Trihalomethanes (TTHMs)	
									C13040233	

Sampled by: Mel Chischilly, Jr.  
 Dispatched by: Paul Young  
 Carrier: UPS - Ground  
8 iced cooler  
 Method of Shipment

Received by: [Signature]  
 Date: 4-3-13 Time: 12:49

Date: 4-3-13 Time: 1140  
 Lab Receipt Signature: [Signature]  
 Date: 4-5-13 Time: 930

The above analysis to be performed is authorized by:  
 Signature: [Signature]  
 Date: 4-3-2013

ups 67

1.6°C/PR-2



# 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.

## Workorder Receipt Checklist

United Nuclear Corporation

C13040233

Login completed by: Dorian Quis

Date Received: 4/5/2013

Reviewed by: BL2000\cwagner

Received by: th

Reviewed Date: 4/8/2013

Carrier Ground name:

- |  |   |  |   |
|--|---|--|---|
| Shipping container/cooler in good condition?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on shipping container(s)/cooler(s)?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on all sample bottles?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/> |
| Chain of custody present?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody signed when relinquished and received?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody agrees with sample labels?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Samples in proper container/bottle?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sample containers intact?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sufficient sample volume for indicated test?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| All samples received within holding time?<br>(Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Temp Blank received in all shipping container(s)/cooler(s)?  | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | Not Applicable <input type="checkbox"/>         |
| Container/Temp Blank temperature:  | 1.6°C On Ice                            |  |   |
| Water - VOA vials have zero headspace?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | No VOA vials submitted <input type="checkbox"/> |
| Water - pH acceptable upon receipt?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Applicable <input type="checkbox"/>         |

Contact and Corrective Action Comments:

None

UNITED NUCLEAR CORPORATION  
 (State Road 566 - 21 Miles NE of Gallup)  
 P.O. Box 3077  
 Gallup, NM 87305-3077  
 505-905-8851

CHAIN OF CUSTODY

ZONE - 1

All analysis will be performed in accordance with EPA approved procedures and/or 15th Edition of Standard Methods

UNC Submittal No. TE-4-4-2013 (Pg. 1 of 2)

Energy Laboratories, Inc.  
 Laboratory

2393 N. Salt Creek Highway  
 Address

Casper WY 82601  
 City State Zip

307-235-0515  
 Phone No.

Sample Description	Date	Time	Filter 0.45u	PRESERVATION					Preserved By	Analysis Required (For all samples listed)
				plain	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	HCl		
EPA-4	4-8-13	0910	✓ <i>MC (8oz)</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>	✓ <i>MC</i>		<i>M. Chischilly</i>	As, Be, Ca, Cd, Cl, HCO <sub>3</sub> ,
EPA-5	4-8-13	1010	↓	↓	↓	↓	↓			K, Mg, Mn, Na, NH <sub>4</sub> , Ni,
EPA-7	4-8-13	1100	↓	↓	↓	↓	↓			NO <sub>3</sub> , Pb, Pb-210, pH, Se,
EPA-2	4-8-13	1150	↓	↓	↓	↓	↓			SO <sub>4</sub> , TDS, Th-230, U, V,
EPA-2 DUPLICATE	4-8-13	1220	↓	↓	↓	↓	↓			Chloroform, Cross
TWR-142	4-9-13	1255	↓	↓	↓	↓	↓			Alpha (-) U & Rn,
RIMSATE	4-10-13	1155	↓	↓	↓	↓	↓			Combined Ra-226 & Ra-228, Al,
FIELD BLANK	4-10-13	1200	↓	↓	↓	↓	↓			Co, Mo & Total Trihalomethanes (TTHMs)

Sampled by: *M. Chischilly*  
 Dispatched by: *Doris Young*  
 Carrier: UPS-Ground  
6 iced cooler  
 Method of Shipment

Received by: *Fred Clark*  
4-9-13  
 Date Time

4-8-13 @ 1600  
4-9-13 @ 1730 & 4-10-13 @ 1200  
 Date Time  
*Justin [Signature]*  
 Lab Receipt Signature  
4-12-13 / 945  
 Date Time

The above analysis to be performed is authorized by:  
*M. Chischilly*  
 Signature  
4-10-2013  
 Date

ups-6      3.4°C/IR-2

C13040429

# 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.

## Workorder Receipt Checklist

United Nuclear Corporation

C13040429

Login completed by: Kerri Schroeder

Date Received: 4/12/2013

Reviewed by: BL2000\kmliller

Received by: th

Reviewed Date: 4/15/2013

Carrier Ground  
name:

- |   |   |  |   |
|---|---|--|---|
| Shipping container/cooler in good condition?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on shipping container(s)/cooler(s)?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| Custody seals intact on all sample bottles?   | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/> |
| Chain of custody present?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody signed when relinquished and received?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Chain of custody agrees with sample labels?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Samples in proper container/bottle?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sample containers intact?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Sufficient sample volume for indicated test?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| All samples received within holding time?<br>(Exclude analyses that are considered field parameters<br>such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| Temp Blank received in all shipping container(s)/cooler(s)?   | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | Not Applicable <input type="checkbox"/>         |
| Container/Temp Blank temperature:   | 3.4°C On Ice                            |  |   |
| Water - VOA vials have zero headspace?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | No VOA vials submitted <input type="checkbox"/> |
| Water - pH acceptable upon receipt?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Applicable <input type="checkbox"/>         |

Contact and Corrective Action Comments:

None

UNITED NUCLEAR CORPORATION  
 (State Road 566 - 21 Miles NE of Gallup)  
 P.O. Box 3077  
 Gallup, NM 87305-3077  
 505-905-6651

CHAIN OF CUSTODY

**ZONE - 3**

All analysis will be performed in accordance with EPA approved procedures and/or 15th Edition of Standard Methods

Energy Laboratories, Inc.  
 Laboratory

2393 N. Salt Creek Highway  
 Address

Casper WY 82601  
 City State Zip

307-235-0515  
 Phone No.

UNC Submittal No. TE- 4-4-2013 (Pg. 2 of 2)

Sample Description	Date	Time	Filter 0.45u	PRESERVATION					Preserved By	Analysis Required (For all samples listed)
				plain	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	HCl		
708	4-8-13	1305	✓ MC (8oz.)	✓ MC	✓ MC	✓ MC	✓ MC		M. Chischilly	As, Be, Ca, Cd, Cl, HCO <sub>3</sub> ,
711	4-8-13	1350								K, Mg, Mn, Na, NH <sub>4</sub> , Ni,
EPA-13	4-8-13	1515								NO <sub>3</sub> , Pb, Pb-210, pH, Se,
719	4-9-13	0855								SO <sub>4</sub> , TDS, Th-230, U, V,
420	4-9-13	0955								Chloroform, Gross
717	4-9-13	1055								Alpha (-) U & Rn,
717 DUPLICATE	4-9-13	1125								Combined Ra-226 & Ra-228, Ai,
MW-7	4-9-13	1355								Co, Mo & Total Trihalomethanes (TTHMs)
MW-6	4-9-13	1425	↓	↓	↓	↓	↓		↓	
EPA-14	4-9-13	1600	✓ MC (8oz.)	✓ MC	✓ MC	✓ MC	✓ MC		M. Chischilly	

Sampled by: Mal Chischilly J.  
 Dispatched by: Dore Young  
 Carrier: UPS-Ground  
6 iced cooler  
 Method of Shipment

Received by: [Signature]  
 Date: 4-9-13 Time: 12:51

4-8-13 @ 1600  
4-9-13 @ 1730  
 Date Time  
[Signature]  
 Lab Receipt Signature  
4-12-13 / 945  
 Date Time

The above analysis to be performed is authorized by:  
Mal Chischilly J.  
 Signature  
4-10-13  
 Date

ups-67

34°C/BR-2

C13040435





# 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.

## Workorder Receipt Checklist

United Nuclear Corporation

C13040435

Login completed by: Kerri Schroeder

Date Received: 4/12/2013

Reviewed by: BL2000\kmilller

Received by: th

Reviewed Date: 4/15/2013

Carrier Ground name:

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on 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: 3.4°C On Ice
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH acceptable upon receipt? Yes  No  Not Applicable

Contact and Corrective Action Comments:

None

UNC MINING & MILLING  
 (St. Rd. 566 - 21 Miles NE of Gallup)  
 P. O. Box 3077  
 Gallup, NM 87305-3077  
 (505) 905-6651

CHAIN OF CUSTODY

ZONE - 3

All analysis will be performed in accordance with  
 EPA approved procedures and/or 15th Edition of  
 Standard Methods

UNC Submittal No. EW-2-4-2013

Energy Laboratories, Inc.  
 Laboratory  
2393 N. Salt Creek Highway  
 Address  
Casper WY 82601  
 City State Zip  
(307) 235-0515  
 Phone No.

Sample Description	Date	Time	Filter 0.45u	PRESERVATION				Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	NaOH	Preserved By	Analysis Required
				plain	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>					
NBL-2	4-9-13	1230		✓	✓					m. Chischilly	Bicarbonate (HCO <sub>3</sub> ), Chloride (Cl), pH, TDS
PB-3	4-9-13	1525									
PB-2	4-9-13	1605									
NW-3	4-9-13	1000									
NW-5	4-9-13	1030									
NW-2	4-9-13	1045									
NW-4	4-9-13	1125									
NW-1	4-9-13	1155									
RW-A	4-9-13	1215									
PB-4	4-10-13	0920		✓	✓					m. Chischilly	

Sampled By: Mal Chischilly  
 Dispatched By: Dorie Young  
 Carrier: UPS - Ground  
6 iced cooler  
 Method of Shipment

Received By: Erud Chis  
4-9-13 12:51  
 Date Time

4-9-13 1730  
 Date Time  
4-10-13 @ 1200  
 Date Time  
4-12-13 945  
 Date Time

The above analysis to be performed is  
 authorized by:  
Mal Chischilly  
 Signature  
4-10-2013  
 Date

UPS-G 3.1°C / IR-2

013040426



# 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.

## Workorder Receipt Checklist

United Nuclear Corporation

C13040426

Login completed by: Kerri Schroeder

Date Received: 4/12/2013

Reviewed by: BL2000\kmilller

Received by: th

Reviewed Date: 4/15/2013

Carrier Ground  
name:

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on 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: 3.4°C On Ice
- Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted
- Water - pH acceptable upon receipt? Yes  No  Not Applicable

Contact and Corrective Action Comments:

None

**APPENDIX – D (1 OF 2)**

**FIRST QUARTER**

**LABORATORY QUALITY CONTROL AND**

**PERFORMANCE REPORT**



# ANALYTICAL SUMMARY REPORT

February 25, 2013

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

Workorder No.: C13010343      Quote ID: C129 - Quarterly Long List  
Project Name: SW Alluvium

Energy Laboratories, Inc. Casper WY received the following 15 samples for United Nuclear Corporation on 1/11/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13010343-001	509-D	01/07/13 10:40	01/11/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics
C13010343-002	EPA-23	01/07/13 12:01	01/11/13	Aqueous	Same As Above
C13010343-003	803	01/07/13 12:58	01/11/13	Aqueous	Same As Above
C13010343-004	808	01/07/13 13:39	01/11/13	Aqueous	Same As Above
C13010343-005	802	01/07/13 14:21	01/11/13	Aqueous	Same As Above
C13010343-006	801	01/07/13 15:03	01/11/13	Aqueous	Same As Above
C13010343-007	GW-2	01/07/13 15:52	01/11/13	Aqueous	Same As Above
C13010343-008	GW-1	01/07/13 16:54	01/11/13	Aqueous	Same As Above
C13010343-009	632	01/08/13 9:05	01/11/13	Aqueous	Same As Above
C13010343-010	EPA-28	01/09/13 8:55	01/11/13	Aqueous	Same As Above
C13010343-011	EPA-28 Duplicate	01/09/13 9:35	01/11/13	Aqueous	Same As Above
C13010343-012	624	01/09/13 10:20	01/11/13	Aqueous	Same As Above
C13010343-013	SBL-1	01/09/13 11:01	01/11/13	Aqueous	Same As Above



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Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-638-2218

## ANALYTICAL SUMMARY REPORT

C13010343-014	Rinsate	01/09/13 11:40	01/11/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved E624 Purgeable Organics
C13010343-015	Field Blank	01/09/13 12:00	01/11/13	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, 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.

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

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2013.02.25 09:53:27 -07:00



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Greeley, WY 865-636-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-690-2218

**CLIENT:** United Nuclear Corporation  
**Project:** SW Alluvium  
**Sample Delivery Group:** C13010343

**Report Date:** 02/25/13

## CASE NARRATIVE

### BRANCH LABORATORY SUBCONTRACT ANALYSIS

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-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.



### QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 02/25/13

**Project:** SW Alluvium

**Work Order:** C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A2320 B										Batch: R169109
<b>Sample ID:</b> MBLK	2	Method Blank								Run: MANTECH_130111B 01/11/13 13:18
Alkalinity, Total as CaCO3		2.00	mg/L	5.0						
Bicarbonate as HCO3		2.44	mg/L	5.0						
<b>Sample ID:</b> LCS_121003		Laboratory Control Sample								Run: MANTECH_130111B 01/11/13 13:34
Alkalinity, Total as CaCO3		153	mg/L	5.0	101	90	110			
<b>Sample ID:</b> C13010343-009ADUP	2	Sample Duplicate								Run: MANTECH_130111B 01/11/13 17:31
Alkalinity, Total as CaCO3		1550	mg/L	5.0				1.0	10	
Bicarbonate as HCO3		1890	mg/L	5.0				1.0	10	
<b>Sample ID:</b> C13010343-010AMS		Sample Matrix Spike								Run: MANTECH_130111B 01/11/13 17:49
Alkalinity, Total as CaCO3		818	mg/L	5.0	105	80	120			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration





### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS130111B		
<b>Sample ID: LCS-2_130111A</b>		Laboratory Control Sample			Run: BAL-16_130111B		01/11/13 14:38			
Solids, Total Dissolved TDS @ 180 C		1920	mg/L	10	96	90	110			
<b>Sample ID: MB-1_130111A</b>		Method Blank			Run: BAL-16_130111B		01/11/13 14:38			
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Sample ID: C13010343-007A DUP</b>		Sample Duplicate			Run: BAL-16_130111B		01/11/13 14:39			
Solids, Total Dissolved TDS @ 180 C		8720	mg/L	10				1.1	5	
<b>Sample ID: C13010343-008A MS</b>		Sample Matrix Spike			Run: BAL-16_130111B		01/11/13 14:39			
Solids, Total Dissolved TDS @ 180 C		15900	mg/L	10	99	90	110			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: A3114 B</b>		Analytical Run: CVAA-C202_130131A									
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									01/31/13 12:23	
Selenium-IV		0.0237	mg/L	0.0010	95	90	110				
<b>Method: A3114 B</b>		Batch: 36401									
<b>Sample ID: MB-36401</b>	Method Blank									Run: CVAA-C202_130131A	01/31/13 12:26
Selenium-IV		ND	mg/L	0.0005							
<b>Sample ID: LCS-36401</b>	Laboratory Control Sample									Run: CVAA-C202_130131A	01/31/13 12:28
Selenium-IV		0.0232	mg/L	0.0010	93	90	110				
<b>Sample ID: C13010343-001CMS</b>	Sample Matrix Spike									Run: CVAA-C202_130131A	01/31/13 12:34
Selenium-IV		0.0235	mg/L	0.0010	94	85	115				
<b>Sample ID: C13010343-001CMSD</b>	Sample Matrix Spike Duplicate									Run: CVAA-C202_130131A	01/31/13 12:35
Selenium-IV		0.0239	mg/L	0.0010	96	85	115	1.9	10		

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-H B</b>								Analytical Run: PHSC_101-C_130111A		
<b>Sample ID: pH 6.86</b>		Initial Calibration Verification Standard								
pH		6.86	s.u.	0.010	100	98	102			01/11/13 09:14
<b>Sample ID: pH 6.86</b>		Initial Calibration Verification Standard								
pH		6.84	s.u.	0.010	100	98	102			01/11/13 13:01
<b>Method: A4500-H B</b>								Batch: R169083		
<b>Sample ID: C13010343-002ADUP</b>		Sample Duplicate				Run: PHSC_101-C_130111A		01/11/13 13:36		
pH		6.69	s.u.	0.010				0.0	3	
<b>Sample ID: C13010343-012ADUP</b>		Sample Duplicate				Run: PHSC_101-C_130111A		01/11/13 14:07		
pH		6.62	s.u.	0.010				0.2	3	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-NH3 G</b>										Batch: R169143
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Ammonia as N		ND	mg/L	0.01						
										Run: TECHNICON_130114A 01/14/13 12:29
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Ammonia as N		1.98	mg/L	0.050	99	90	110			01/14/13 12:31
										Run: TECHNICON_130114A 01/14/13 12:33
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Ammonia as N		2.03	mg/L	0.050	104	80	120			01/14/13 12:33
										Run: TECHNICON_130114A 01/14/13 13:41
<b>Sample ID: C13010343-004DMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		3.01	mg/L	0.050	107	90	110			01/14/13 13:41
										Run: TECHNICON_130114A 01/14/13 13:43
<b>Sample ID: C13010343-004DMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		3.06	mg/L	0.050	109	90	110	1.6	10	01/14/13 13:43
										Run: TECHNICON_130114A 01/14/13 14:42
<b>Sample ID: C13010343-005DMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		4.02	mg/L	0.10	103	90	110			01/14/13 14:42
										Run: TECHNICON_130114A 01/14/13 14:43
<b>Sample ID: C13010343-005DMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		4.08	mg/L	0.10	104	90	110	1.5	10	01/14/13 14:43
<b>Method: A4500-NH3 G</b>										Batch: R169150
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Ammonia as N		ND	mg/L	0.01						Run: TECHNICON_130114B 01/14/13 15:46
										Run: TECHNICON_130114B 01/14/13 15:48
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Ammonia as N		2.04	mg/L	0.050	102	90	110			01/14/13 15:48
										Run: TECHNICON_130114B 01/14/13 15:50
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Ammonia as N		2.07	mg/L	0.050	106	80	120			01/14/13 15:50
										Run: TECHNICON_130114B 01/14/13 16:24
<b>Sample ID: C13010341-006DMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		2.92	mg/L	0.050	113	90	110			S
										- Matrix spike recoveries outside the acceptance range are considered matrix-related.
<b>Sample ID: C13010341-006DMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		2.93	mg/L	0.050	114	90	110	0.3	10	S
										- Matrix spike recoveries outside the acceptance range are considered matrix-related.

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.



# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-NH3 G</b>										Batch: R169200
<b>Sample ID: MBLK-1</b>		Method Blank								Run: TECHNICON_130115A 01/15/13 13:39
Nitrogen, Ammonia as N		ND	mg/L	0.01						
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								Run: TECHNICON_130115A 01/15/13 13:41
Nitrogen, Ammonia as N		2.03	mg/L	0.050	101	90	110			
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								Run: TECHNICON_130115A 01/15/13 13:43
Nitrogen, Ammonia as N		1.96	mg/L	0.050	100	80	120			
<b>Sample ID: C13010343-010DMS</b>		Sample Matrix Spike								Run: TECHNICON_130115A 01/15/13 15:51
Nitrogen, Ammonia as N		2.22	mg/L	0.050	111	90	110			S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID: C13010343-010DMSD</b>		Sample Matrix Spike Duplicate								Run: TECHNICON_130115A 01/15/13 15:53
Nitrogen, Ammonia as N		2.23	mg/L	0.050	112	90	110	0.4	10	S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E1632AM</b> Analytical Run: SUB-H85914										
<b>Sample ID: AS-ICV 25ppb-1/23/20</b>	Initial Calibration Verification Standard 01/23/13 11:41									
Arsenic-III		24.2	ug/L	5.0	97	87.6	114			
<b>Sample ID: AS-50.0-1/23/2013</b>	Continuing Calibration Verification Standard 01/23/13 15:06									
Arsenic-III		44.7	ug/L	5.0	89	85	115			
<b>Method: E1632AM</b> Batch: H_R85914										
<b>Sample ID: ICB</b>	Method Blank Run: SUB-H85914 01/23/13 12:21									
Arsenic-III		ND	ug/L	2						
<b>Sample ID: AS-LFB 50ppb-1/23/2</b>	Laboratory Fortified Blank Run: SUB-H85914 01/23/13 12:32									
Arsenic-III		46.8	ug/L	5.0	94	55	146			
<b>Sample ID: H13010176-001A MS</b>	Sample Matrix Spike Run: SUB-H85914 01/23/13 12:54									
Arsenic-III		92.9	ug/L	5.0	93	55	146			
<b>Sample ID: H13010176-001A MSD</b>	Sample Matrix Spike Duplicate Run: SUB-H85914 01/23/13 13:05									
Arsenic-III		92.4	ug/L	5.0	92	55	146	0.5	20	
<b>Method: E1632AM</b> Analytical Run: SUB-H86057										
<b>Sample ID: AS-ICV 25ppb-1/29/20</b>	Initial Calibration Verification Standard 01/29/13 11:00									
Arsenic-III		23.9	ug/L	5.0	96	87.6	114			
<b>Sample ID: AS-50.0-1/29/2013</b>	Continuing Calibration Verification Standard 01/29/13 11:19									
Arsenic-III		46.8	ug/L	5.0	94	85	115			
<b>Sample ID: AS-50.0-1/29/2013</b>	Continuing Calibration Verification Standard 01/29/13 13:20									
Arsenic-III		45.3	ug/L	5.0	91	85	115			
<b>Sample ID: AS-50.0-1/29/2013</b>	Continuing Calibration Verification Standard 01/29/13 15:12									
Arsenic-III		43.5	ug/L	5.0	87	85	115			
<b>Method: E1632AM</b> Batch: H_R86057										
<b>Sample ID: ICB</b>	Method Blank Run: SUB-H86057 01/29/13 11:27									
Arsenic-III		ND	ug/L	2						
<b>Sample ID: AS-LFB 50ppb-1/29/2</b>	Laboratory Fortified Blank Run: SUB-H86057 01/29/13 11:35									
Arsenic-III		45.2	ug/L	5.0	90	55	146			
<b>Sample ID: C13010578-002D</b>	Sample Matrix Spike Run: SUB-H86057 01/29/13 14:08									
Arsenic-III		40.6	ug/L	5.0	81	55	146			
<b>Sample ID: C13010578-002D</b>	Sample Matrix Spike Duplicate Run: SUB-H86057 01/29/13 14:16									
Arsenic-III		40.1	ug/L	5.0	80	55	146	1.3	20	

**Qualifiers:**

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MDC - Minimum detectable concentration



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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>		Analytical Run: ICP2-C_130114A								
<b>Sample ID: ICV</b>	4	Initial Calibration Verification Standard								01/14/13 13:42
Calcium		52.5	mg/L	0.50	105	95	105			
Magnesium		50.8	mg/L	0.50	102	95	105			
Potassium		47.3	mg/L	0.50	95	95	105			
Sodium		52.7	mg/L	0.50	105	95	105			
<b>Sample ID: ICSA</b>	4	Interference Check Sample A								01/14/13 14:10
Calcium		502	mg/L	0.50	100	80	120			
Magnesium		527	mg/L	0.50	105	80	120			
Potassium		-0.00570	mg/L	0.50						
Sodium		-0.0237	mg/L	0.50						
<b>Sample ID: ICSAB</b>	4	Interference Check Sample AB								01/14/13 14:14
Calcium		513	mg/L	0.50	103	80	120			
Magnesium		517	mg/L	0.50	103	80	120			
Potassium		-0.00570	mg/L	0.50						
Sodium		-0.111	mg/L	0.50						
<b>Method: E200.7</b>		Batch: R169163								
<b>Sample ID: MB-130114A</b>	4	Method Blank								Run: ICP2-C_130114A 01/14/13 14:47
Calcium		ND	mg/L	0.06						
Magnesium		ND	mg/L	0.03						
Potassium		ND	mg/L	0.06						
Sodium		ND	mg/L	0.3						
<b>Sample ID: LFB-130114A</b>	4	Laboratory Fortified Blank								Run: ICP2-C_130114A 01/14/13 14:51
Calcium		51.6	mg/L	0.50	103	85	115			
Magnesium		49.5	mg/L	0.50	99	85	115			
Potassium		45.8	mg/L	0.50	92	85	115			
Sodium		50.7	mg/L	0.50	101	85	115			
<b>Sample ID: C13010341-007BMS2</b>	4	Sample Matrix Spike								Run: ICP2-C_130114A 01/14/13 20:48 A
Calcium		825	mg/L	1.0		70	130			
Magnesium		252	mg/L	1.0	100	70	130			
Potassium		106	mg/L	1.0	97	70	130			
Sodium		267	mg/L	1.0	108	70	130			
<b>Sample ID: C13010341-007BMSD</b>	4	Sample Matrix Spike Duplicate								Run: ICP2-C_130114A 01/14/13 20:52
Calcium		801	mg/L	1.0		70	130	2.9	20	A
Magnesium		253	mg/L	1.0	102	70	130	0.6	20	
Potassium		105	mg/L	1.0	96	70	130	0.6	20	
Sodium		265	mg/L	1.0	106	70	130	0.9	20	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Analytical Run: ICP2-C_130115A										
<b>Sample ID: ICV</b>	8	Initial Calibration Verification Standard							01/15/13 13:21	
Aluminum		4.88	mg/L	0.10	98	95	105			
Beryllium		0.508	mg/L	0.010	102	95	105			
Cadmium		0.497	mg/L	0.010	99	95	105			
Cobalt		1.01	mg/L	0.010	101	95	105			
Manganese		5.10	mg/L	0.010	102	95	105			
Molybdenum		1.05	mg/L	0.10	105	95	105			
Nickel		1.02	mg/L	0.050	102	95	105			
Vanadium		1.03	mg/L	0.10	103	95	105			
<b>Sample ID: ICSA</b>	8	Interference Check Sample A							01/15/13 13:57	
Aluminum		529	mg/L	0.10	106	80	120			
Beryllium		0.000100	mg/L	0.010						
Cadmium		-0.00310	mg/L	0.010						
Cobalt		-0.00270	mg/L	0.010						
Manganese		-0.00220	mg/L	0.010						
Molybdenum		-0.0207	mg/L	0.10						
Nickel		-0.00380	mg/L	0.050						
Vanadium		0.00960	mg/L	0.10						
<b>Sample ID: ICSAB</b>	8	Interference Check Sample AB							01/15/13 14:01	
Aluminum		531	mg/L	0.10	106	80	120			
Beryllium		0.503	mg/L	0.010	101	80	120			
Cadmium		0.966	mg/L	0.010	97	80	120			
Cobalt		0.476	mg/L	0.010	95	80	120			
Manganese		0.498	mg/L	0.010	100	80	120			
Molybdenum		-0.0211	mg/L	0.10						
Nickel		0.959	mg/L	0.050	96	80	120			
Vanadium		0.525	mg/L	0.10	105	80	120			
<b>Method: E200.7</b>										
Batch: 36261										
<b>Sample ID: MB-36261</b>	8	Method Blank							Run: ICP2-C_130115A 01/15/13 20:47	
Aluminum		ND	mg/L	0.009						
Beryllium		ND	mg/L	0.0002						
Cadmium		ND	mg/L	0.0006						
Cobalt		ND	mg/L	0.002						
Manganese		ND	mg/L	0.0002						
Molybdenum		ND	mg/L	0.002						
Nickel		ND	mg/L	0.002						
Vanadium		ND	mg/L	0.01						
<b>Sample ID: LCS3-36261</b>	8	Laboratory Control Sample							Run: ICP2-C_130115A 01/15/13 20:51	
Aluminum		2.44	mg/L	0.030	98	85	115			
Beryllium		0.251	mg/L	0.0010	100	85	115			
Cadmium		0.250	mg/L	0.0010	100	85	115			
Cobalt		0.499	mg/L	0.0050	100	85	115			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 02/25/13

**Project:** SW Alluvium

**Work Order:** C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										Batch: 36261
<b>Sample ID: LCS3-36261</b>	8	Laboratory Control Sample					Run: ICP2-C_130115A			01/15/13 20:51
Manganese		2.51	mg/L	0.0010	100	85	115			
Molybdenum		0.493	mg/L	0.0023	99	85	115			
Nickel		0.497	mg/L	0.0050	99	85	115			
Vanadium		0.514	mg/L	0.014	103	85	115			
<b>Sample ID: C13010343-002CMS3</b>	8	Sample Matrix Spike					Run: ICP2-C_130115A			01/15/13 21:48
Aluminum		2.41	mg/L	0.030	96	70	130			
Beryllium		0.250	mg/L	0.0010	100	70	130			
Cadmium		0.245	mg/L	0.0011	98	70	130			
Cobalt		0.506	mg/L	0.0050	100	70	130			
Manganese		8.41	mg/L	0.0010	104	70	130			
Molybdenum		0.518	mg/L	0.0045	104	70	130			
Nickel		0.497	mg/L	0.0050	99	70	130			
Vanadium		0.516	mg/L	0.028	103	70	130			
<b>Sample ID: C13010343-002CMSD</b>	8	Sample Matrix Spike Duplicate					Run: ICP2-C_130115A			01/15/13 21:52
Aluminum		2.40	mg/L	0.030	96	70	130	0.2	20	
Beryllium		0.250	mg/L	0.0010	100	70	130	0.1	20	
Cadmium		0.243	mg/L	0.0011	97	70	130	0.7	20	
Cobalt		0.498	mg/L	0.0050	98	70	130	1.7	20	
Manganese		8.41	mg/L	0.0010	104	70	130	0.0	20	
Molybdenum		0.515	mg/L	0.0045	103	70	130	0.6	20	
Nickel		0.499	mg/L	0.0050	100	70	130	0.4	20	
Vanadium		0.520	mg/L	0.028	104	70	130	0.8	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 02/25/13

**Project:** SW Alluvium

**Work Order:** C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> E200.8										Analytical Run: ICPMS2-C_130117A	
<b>Sample ID:</b> ICV	3	Initial Calibration Verification Standard							01/17/13 16:23		
Beryllium		0.0478	mg/L	0.0010	96	90	110				
Lead		0.0499	mg/L	0.0010	100	90	110				
Uranium		0.0490	mg/L	0.00030	98	90	110				
<b>Method:</b> E200.8										Batch: 36261	
<b>Sample ID:</b> MB-36261	3	Method Blank							Run: ICPMS2-C_130117A		01/18/13 01:08
Beryllium		6E-05	mg/L	3E-05							
Lead		0.0002	mg/L	2E-05							
Uranium		5E-05	mg/L	1E-05							
<b>Sample ID:</b> LCS3-36261	3	Laboratory Control Sample							Run: ICPMS2-C_130117A		01/18/13 01:12
Beryllium		0.229	mg/L	0.0010	92	85	115				
Lead		0.515	mg/L	0.0010	103	85	115				
Uranium		0.525	mg/L	0.00030	105	85	115				
<b>Sample ID:</b> C13010343-002CMS3	3	Sample Matrix Spike							Run: ICPMS2-C_130117A		01/18/13 01:34
Beryllium		0.219	mg/L	0.0010	88	70	130				
Lead		0.516	mg/L	0.0010	103	70	130				
Uranium		0.553	mg/L	0.00030	105	70	130				
<b>Sample ID:</b> C13010343-002CMSD	3	Sample Matrix Spike Duplicate							Run: ICPMS2-C_130117A		01/18/13 01:37
Beryllium		0.217	mg/L	0.0010	87	70	130	0.9	20		
Lead		0.517	mg/L	0.0010	103	70	130	0.2	20		
Uranium		0.559	mg/L	0.00030	106	70	130	1.0	20		

**Qualifiers:**

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MDC - Minimum detectable concentration



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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>										
Analytical Run: IC1-C_130123B										
<b>Sample ID: ICV-012313-11</b>	2	Initial Calibration Verification Standard								01/23/13 15:52
Chloride		9.94	mg/L	1.0	99	90	110			
Sulfate		40.2	mg/L	1.0	101	90	110			
<b>Method: E300.0</b>										
Batch: R169500										
<b>Sample ID: ICB-012313-12</b>	2	Method Blank								01/23/13 16:10
Run: IC1-C_130123B										
Chloride		ND	mg/L	0.04						
Sulfate		0.2	mg/L	0.05						
<b>Sample ID: LFB-012313-13</b>	2	Laboratory Fortified Blank								01/23/13 16:27
Run: IC1-C_130123B										
Chloride		9.85	mg/L	1.0	98	90	110			
Sulfate		40.0	mg/L	1.0	100	90	110			
<b>Sample ID: C13010671-001AMS</b>	2	Sample Matrix Spike								01/23/13 17:19
Run: IC1-C_130123B										
Chloride		42.7	mg/L	1.0	105	90	110			
Sulfate		290	mg/L	1.7	101	90	110			
<b>Sample ID: C13010671-001AMSD</b>	2	Sample Matrix Spike Duplicate								01/23/13 17:37
Run: IC1-C_130123B										
Chloride		42.5	mg/L	1.0	104	90	110	0.5	20	
Sulfate		288	mg/L	1.7	98	90	110	0.8	20	
<b>Method: E300.0</b>										
Analytical Run: IC2-C_130114A										
<b>Sample ID: ICV-011113-11</b>	2	Initial Calibration Verification Standard								01/11/13 20:21
Chloride		9.80	mg/L	1.0	98	90	110			
Sulfate		40.0	mg/L	1.0	100	90	110			
<b>Method: E300.0</b>										
Batch: R169113										
<b>Sample ID: ICB-011113-12</b>	2	Method Blank								01/11/13 20:37
Run: IC2-C_130114A										
Chloride		0.04	mg/L	0.02						
Sulfate		0.2	mg/L	0.09						
<b>Sample ID: LFB-011113-13</b>	2	Laboratory Fortified Blank								01/11/13 20:52
Run: IC2-C_130114A										
Chloride		9.92	mg/L	1.0	99	90	110			
Sulfate		39.9	mg/L	1.0	99	90	110			
<b>Sample ID: C13010341-004AMS</b>	2	Sample Matrix Spike								01/12/13 01:14
Run: IC2-C_130114A										
Chloride		264	mg/L	4.2	100	90	110			
Sulfate		4970	mg/L	17		90	110			A
<b>Sample ID: C13010341-004AMSD</b>	2	Sample Matrix Spike Duplicate								01/12/13 01:30
Run: IC2-C_130114A										
Chloride		268	mg/L	4.2	102	90	110	1.5	20	
Sulfate		5000	mg/L	17		90	110	0.6	20	A

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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

MDC - Minimum detectable concentration



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## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 02/25/13

**Project:** SW Alluvium

**Work Order:** C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E300.0</b>										Analytical Run: IC2-C_130114B	
<b>Sample ID: ICV-011413-11</b>	2	Initial Calibration Verification Standard							01/14/13 13:16		
Chloride		9.88	mg/L	1.0	99	90	110				
Sulfate		40.2	mg/L	1.0	100	90	110				
<b>Method: E300.0</b>										Batch: R169157	
<b>Sample ID: ICB-011413-12</b>	2	Method Blank							Run: IC2-C_130114B 01/14/13 13:32		
Chloride		0.03	mg/L	0.02							
Sulfate		0.3	mg/L	0.09							
<b>Sample ID: LFB-011413-13</b>	2	Laboratory Fortified Blank							Run: IC2-C_130114B 01/14/13 13:47		
Chloride		10.1	mg/L	1.0	101	90	110				
Sulfate		40.5	mg/L	1.0	101	90	110				
<b>Sample ID: C13010343-014AMS</b>	2	Sample Matrix Spike							Run: IC2-C_130114B 01/14/13 18:09		
Chloride		10.2	mg/L	1.0	101	90	110				
Sulfate		42.9	mg/L	1.0	102	90	110				
<b>Sample ID: C13010343-014AMSD</b>	2	Sample Matrix Spike Duplicate							Run: IC2-C_130114B 01/14/13 18:24		
Chloride		10.4	mg/L	1.0	103	90	110	2.0	20		
Sulfate		43.8	mg/L	1.0	104	90	110	2.0	20		

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										Batch: R169243
<b>Sample ID: MBLK-1</b>		Method Blank								Run: TECHNICON_130116A 01/16/13 11:20
Nitrogen, Nitrate+Nitrite as N		0.007	mg/L	0.003						
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								Run: TECHNICON_130116A 01/16/13 11:22
Nitrogen, Nitrate+Nitrite as N		2.60	mg/L	0.10	104	90	110			
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								Run: TECHNICON_130116A 01/16/13 11:25
Nitrogen, Nitrate+Nitrite as N		2.08	mg/L	0.10	106	90	110			
<b>Sample ID: C13010343-003DMS</b>		Sample Matrix Spike								Run: TECHNICON_130116A 01/16/13 15:07
Nitrogen, Nitrate+Nitrite as N		75.0	mg/L	2.5	110	90	110			
<b>Sample ID: C13010343-003DMSD</b>		Sample Matrix Spike Duplicate								Run: TECHNICON_130116A 01/16/13 15:10
Nitrogen, Nitrate+Nitrite as N		74.6	mg/L	2.5	109	90	110	0.5	10	
<b>Sample ID: C13010343-013DMS</b>		Sample Matrix Spike								Run: TECHNICON_130116A 01/16/13 15:42
Nitrogen, Nitrate+Nitrite as N		92.4	mg/L	2.5	109	90	110			
<b>Sample ID: C13010343-013DMSD</b>		Sample Matrix Spike Duplicate								Run: TECHNICON_130116A 01/16/13 15:45
Nitrogen, Nitrate+Nitrite as N		91.6	mg/L	2.5	107	90	110	0.9	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b> <span style="float: right;">Analytical Run: R169168</span>										
<b>Sample ID: 011413_CCV_3</b>	9	Continuing Calibration Verification Standard								01/14/13 10:42
Bromodichloromethane		11.3	ug/L	1.0	113	70	130			
Bromoform		9.36	ug/L	1.0	94	70	130			
Chlorodibromomethane		9.16	ug/L	1.0	92	70	130			
Chloroform		9.16	ug/L	1.0	92	70	130			
Trihalomethanes, Total		39.0	ug/L	1.0	98	70	130			
Surr: 1,2-Dichlorobenzene-d4				1.0	91	80	120			
Surr: Dibromofluoromethane				1.0	78	80	120			S
Surr: p-Bromofluorobenzene				1.0	104	80	120			
Surr: Toluene-d8				1.0	107	80	120			
<b>Method: E624</b> <span style="float: right;">Batch: R169168</span>										
<b>Sample ID: 011413_LCS_4</b>	9	Laboratory Control Sample								01/14/13 11:18
										Run: SATURNCA_130114A
Bromodichloromethane		10.9	ug/L	1.0	109	72.3	123			
Bromoform		9.04	ug/L	1.0	90	70.3	128			
Chlorodibromomethane		9.00	ug/L	1.0	90	69.1	123			
Chloroform		8.96	ug/L	1.0	90	72.9	130			
Trihalomethanes, Total		37.9	ug/L	1.0	95	75.7	121			
Surr: 1,2-Dichlorobenzene-d4				1.0	96	82	118			
Surr: Dibromofluoromethane				1.0	80	74.8	123			
Surr: p-Bromofluorobenzene				1.0	102	82.4	121			
Surr: Toluene-d8				1.0	110	76.4	125			
<b>Sample ID: 011413_MBLK_6</b>	9	Method Blank								01/14/13 12:30
										Run: SATURNCA_130114A
Bromodichloromethane		ND	ug/L	1.0						
Bromoform		ND	ug/L	1.0						
Chlorodibromomethane		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Trihalomethanes, Total		ND	ug/L	1.0						
Surr: 1,2-Dichlorobenzene-d4				1.0	97	80	120			
Surr: Dibromofluoromethane				1.0	82	80	120			
Surr: p-Bromofluorobenzene				1.0	104	80	120			
Surr: Toluene-d8				1.0	104	80	120			
<b>Sample ID: C13010341-001HMS</b>	9	Sample Matrix Spike								01/14/13 20:06
										Run: SATURNCA_130114A
Bromodichloromethane		216	ug/L	10	108	72.3	123			
Bromoform		201	ug/L	10	100	70.3	128			
Chlorodibromomethane		189	ug/L	10	94	69.1	123			
Chloroform		274	ug/L	10	86	72.9	130			
Trihalomethanes, Total		880	ug/L	10	97	75.7	121			
Surr: 1,2-Dichlorobenzene-d4				1.0	96	82	118			
Surr: Dibromofluoromethane				1.0	80	74.8	123			
Surr: p-Bromofluorobenzene				1.0	109	82.4	121			
Surr: Toluene-d8				1.0	105	76.4	125			

**Qualifiers:**

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ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.



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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E624										Batch: R169168
Sample ID: C13010341-001HMSD	9	Sample Matrix Spike Duplicate								Run: SATURNCA_130114A 01/14/13 20:42
Bromodichloromethane		223	ug/L	10	112	72.3	123	3.3	20	
Bromoform		194	ug/L	10	97	70.3	128	3.2	20	
Chlorodibromomethane		188	ug/L	10	94	69.1	123	0.4	20	
Chloroform		282	ug/L	10	90	72.9	130	2.9	20	
Trihalomethanes, Total		888	ug/L	10	98	75.7	121	0.9	20	
Surr: 1,2-Dichlorobenzene-d4				1.0	93	82	118			
Surr: Dibromofluoromethane				1.0	85	74.8	123			
Surr: p-Bromofluorobenzene				1.0	103	82.4	121			
Surr: Toluene-d8				1.0	106	76.4	125			

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E900.1</b>										Batch: GA-0636
<b>Sample ID: LCS-GA-0636</b>		Laboratory Control Sample				Run: G5000W_130123B				01/25/13 06:28
Gross Alpha minus Rn & U		22.7	pCi/L	109		80	120			
<b>Sample ID: MB-GA-0636</b>	3	Method Blank				Run: G5000W_130123B				01/25/13 06:28
Gross Alpha minus Rn & U		0.2	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.4	pCi/L							
Gross Alpha minus Rn & U MDC		0.6	pCi/L							
<b>Sample ID: C13010343-008GMS</b>		Sample Matrix Spike				Run: G5000W_130123B				01/25/13 06:28
Gross Alpha minus Rn & U		39.6	pCi/L	94		70	130			
<b>Sample ID: C13010343-008GMSD</b>		Sample Matrix Spike Duplicate				Run: G5000W_130123B				01/25/13 06:28
Gross Alpha minus Rn & U		32.2	pCi/L	76		70	130	21		27.2

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 02/25/13

**Project:** SW Alluvium

**Work Order:** C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E903.0</b>								Batch: RA226-6476		
<b>Sample ID: C13010411-001GMS</b>		Sample Matrix Spike				Run: TENNELEC-3_130118C			01/30/13 22:28	
Radium 226		15	pCi/L	108		70	130			
<b>Sample ID: C13010411-001GMSD</b>		Sample Matrix Spike Duplicate				Run: TENNELEC-3_130118C			01/30/13 22:28	
Radium 226		14	pCi/L	105		70	130	3.6	24.6	
<b>Sample ID: MB-RA226-6476</b>	3	Method Blank				Run: TENNELEC-3_130118C			01/30/13 22:28	
Radium 226		0.1	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
<b>Sample ID: LCS-RA226-6476</b>		Laboratory Control Sample				Run: TENNELEC-3_130118C			01/30/13 22:28	
Radium 226		7.4	pCi/L	117		80	120			

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E908.0</b>								Batch: RA-TH-ISO-1788		
<b>Sample ID: LCS-RA-TH-ISO-1788</b>	Laboratory Control Sample					Run: ALPHANALYST_130128A		01/30/13 16:19		
Thorium 230		5.5	pCi/L	102		80	120			
<b>Sample ID: C13010343-013GMS</b>	Sample Matrix Spike					Run: ALPHANALYST_130128A		01/30/13 16:20		
Thorium 230		12.2	pCi/L	92		70	130			
<b>Sample ID: C13010343-013GMSD</b>	Sample Matrix Spike Duplicate					Run: ALPHANALYST_130128A		01/30/13 16:20		
Thorium 230		13.4	pCi/L	101		70	130	9.3	42.8	
<b>Sample ID: MB-RA-TH-ISO-1788</b>	3	Method Blank				Run: ALPHANALYST_130128A		01/30/13 16:20		
Thorium 230		0.1	pCi/L							U
Thorium 230 precision (±)		0.1	pCi/L							
Thorium 230 MDC		0.2	pCi/L							

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E909.0</b>								Batch: T_PB-210-0351		
<b>Sample ID: MB-PB-210-0351</b>	3	Method Blank								
Lead 210		-0.1	pCi/L							U
Lead 210 precision (±)		0.6	pCi/L							
Lead 210 MDC		1	pCi/L							
<b>Sample ID: LCS-PB-210-0351</b>		Laboratory Control Sample								
Lead 210		22	pCi/L	103		70	130			02/07/13 13:30
<b>Sample ID: T13020006-003FMS</b>		Sample Matrix Spike								
Lead 210		60	pCi/L	98		70	130			02/07/13 17:25
<b>Sample ID: T13020006-003FMSD</b>		Sample Matrix Spike Duplicate								
Lead 210		63	pCi/L	103		70	130	4.7	21.4	02/07/13 18:23
<b>Method: E909.0</b>								Batch: T_PB-210-0351R		
<b>Sample ID: MB-PB-210-0351</b>	3	Method Blank								
Lead 210		0.1	pCi/L							U
Lead 210 precision (±)		0.3	pCi/L							
Lead 210 MDC		0.5	pCi/L							
<b>Sample ID: LCS-PB-210-0351</b>		Laboratory Control Sample								
Lead 210		21	pCi/L	99		70	130			02/09/13 04:51
<b>Sample ID: T13020006-003FMS</b>		Sample Matrix Spike								
Lead 210		63	pCi/L	103		70	130			02/09/13 13:42
<b>Sample ID: T13020006-003FMSD</b>		Sample Matrix Spike Duplicate								
Lead 210		62	pCi/L	101		70	130	1.5	15.3	02/09/13 18:07

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 02/25/13

**Project:** SW Alluvium

**Work Order:** C13010343

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: RA-05</b>								Batch: RA228-4321		
<b>Sample ID: LCS-228-RA226-6476</b>	Laboratory Control Sample			Run: TENNELEC-3_130118B		01/24/13 17:25				
Radium 228		5.1	pCi/L	107		80	120			
<b>Sample ID: MB-RA226-6476</b>	3	Method Blank		Run: TENNELEC-3_130118B		01/24/13 17:25				
Radium 228		0.2	pCi/L							U
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
<b>Sample ID: C13010412-001GMS</b>	Sample Matrix Spike			Run: TENNELEC-3_130118B		01/24/13 17:25				
Radium 228		11	pCi/L	114		70	130			
<b>Sample ID: C13010412-001GMSD</b>	Sample Matrix Spike Duplicate			Run: TENNELEC-3_130118B		01/24/13 17:25				
Radium 228		9.5	pCi/L	95		70	130	17	46.7	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



# ANALYTICAL SUMMARY REPORT

February 25, 2013

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

Workorder No.: C13010591      Quote ID: C129 - Quarterly Long List

Project Name: SW Alluvium

Energy Laboratories, Inc. Casper WY received the following 3 samples for United Nuclear Corporation on 1/18/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13010591-001	627	01/14/13 8:57	01/18/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics
C13010591-002	EPA-25	01/14/13 9:57	01/18/13	Aqueous	Same As Above
C13010591-003	GW-3	01/14/13 10:48	01/18/13	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, 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.

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

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2013.02.25 11:26:30 -07:00



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Gillette, WY 865-636-7175 • Rapid City, SD 605-672-1225 • College Station, TX 832-630-2218

**CLIENT:** United Nuclear Corporation  
**Project:** SW Alluvium  
**Sample Delivery Group:** C13010591

**Report Date:** 02/25/13

## CASE NARRATIVE

### BRANCH LABORATORY SUBCONTRACT ANALYSIS

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-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.



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## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 02/25/13

**Project:** SW Alluvium

**Work Order:** C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A2320 B										Batch: R169416
<b>Sample ID:</b> MBLK	2	Method Blank								Run: MANTECH_130122B 01/22/13 13:04
Alkalinity, Total as CaCO3		2.06	mg/L	5.0						
Bicarbonate as HCO3		2.52	mg/L	5.0						
<b>Sample ID:</b> LCS_121003		Laboratory Control Sample								Run: MANTECH_130122B 01/22/13 13:20
Alkalinity, Total as CaCO3		155	mg/L	5.0	102	90	110			
<b>Sample ID:</b> C13010573-004ADUP	2	Sample Duplicate								Run: MANTECH_130122B 01/22/13 13:33
Alkalinity, Total as CaCO3		53.3	mg/L	5.0				0.5	10	
Bicarbonate as HCO3		65.0	mg/L	5.0				0.5	10	
<b>Sample ID:</b> C13010586-001BMS		Sample Matrix Spike								Run: MANTECH_130122B 01/22/13 13:49
Alkalinity, Total as CaCO3		265	mg/L	5.0	101	80	120			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS130121A		
<b>Sample ID: MB-1_130121A</b>		Method Blank			Run: BAL-16_130121B			01/21/13 08:22		
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Sample ID: LCS-2_130121A</b>		Laboratory Control Sample			Run: BAL-16_130121B			01/21/13 08:22		
Solids, Total Dissolved TDS @ 180 C		1980	mg/L	20	99	90	110			
<b>Sample ID: C13010591-001A DUP</b>		Sample Duplicate			Run: BAL-16_130121B			01/21/13 08:23		
Solids, Total Dissolved TDS @ 180 C		4420	mg/L	40				0.2	5	
<b>Sample ID: C13010591-002A MS</b>		Sample Matrix Spike			Run: BAL-16_130121B			01/21/13 08:23		
Solids, Total Dissolved TDS @ 180 C		8120	mg/L	40	96	90	110			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A3114 B</b>								Analytical Run: CVAA-C202_130206B		
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									
Selenium-IV		0.0266	mg/L	0.0010	107	90	110			02/06/13 13:30
<b>Method: A3114 B</b>								Batch: 36487		
<b>Sample ID: MB-36487</b>	Method Blank									
Selenium-IV		ND	mg/L	0.0005						Run: CVAA-C202_130206B 02/06/13 12:45
<b>Sample ID: LCS-36487</b>	Laboratory Control Sample									
Selenium-IV		0.0238	mg/L	0.0010	95	90	110			Run: CVAA-C202_130206B 02/06/13 12:46
<b>Sample ID: C13010580-006CMS</b>	Sample Matrix Spike									
Selenium-IV		0.0269	mg/L	0.0010	108	85	115			Run: CVAA-C202_130206B 02/06/13 13:37
<b>Sample ID: C13010580-006CMSD</b>	Sample Matrix Spike Duplicate									
Selenium-IV		0.0268	mg/L	0.0010	107	85	115	0.4	10	Run: CVAA-C202_130206B 02/06/13 13:38

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: A4500-H B									Analytical Run: PHSC_101-C_130121A		
Sample ID: pH 6.86		Initial Calibration Verification Standard							01/21/13 09:33		
pH		6.83	s.u.	0.010	100	98	102				
Method: A4500-H B									Batch: R169340		
Sample ID: C13010591-003ADUP		Sample Duplicate				Run: PHSC_101-C_130121A			01/21/13 11:16		
pH		6.62	s.u.	0.010				0.2	3		

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: A4500-NH3 G</b>										Batch: R169415	
<b>Sample ID: MBLK-1</b>		Method Blank								Run: TECHNICON_130122A	01/22/13 15:46
Nitrogen, Ammonia as N		ND	mg/L	0.01							
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								Run: TECHNICON_130122A	01/22/13 15:48
Nitrogen, Ammonia as N		2.16	mg/L	0.050	108	90	110				
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								Run: TECHNICON_130122A	01/22/13 15:50
Nitrogen, Ammonia as N		1.95	mg/L	0.050	99	80	120				
<b>Sample ID: C13010616-001DMS</b>		Sample Matrix Spike								Run: TECHNICON_130122A	01/22/13 17:20
Nitrogen, Ammonia as N		2.14	mg/L	0.050	94	90	110				
<b>Sample ID: C13010616-001DMSD</b>		Sample Matrix Spike Duplicate								Run: TECHNICON_130122A	01/22/13 17:22
Nitrogen, Ammonia as N		2.28	mg/L	0.050	101	90	110	6.3	10		

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E1632AM</b>								Analytical Run: SUB-H86245		
<b>Sample ID: AS-ICV 25ppb-2/09/20</b>	Initial Calibration Verification Standard									
Arsenic-III		27.0	ug/L	5.0	108	87.6	114			02/09/13 13:48
<b>Method: E1632AM</b>								Batch: H_R86245		
<b>Sample ID: ICB</b>	Method Blank									
Arsenic-III		ND	ug/L	2						02/09/13 14:12
<b>Sample ID: AS-LFB 50ppb-2/09/2</b>	Laboratory Fortified Blank									
Arsenic-III		52.9	ug/L	5.0	106	55	146			02/09/13 14:20
<b>Sample ID: C13010591-003B</b>	Sample Matrix Spike									
Arsenic-III		59.6	ug/L	5.0	119	55	146			02/09/13 16:45
<b>Sample ID: C13010591-003B</b>	Sample Matrix Spike Duplicate									
Arsenic-III		59.2	ug/L	5.0	118	55	146	0.7	20	02/09/13 16:53

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>		Analytical Run: ICP2-C_130122A								
<b>Sample ID: ICV</b>	12 Initial Calibration Verification Standard									01/22/13 12:14
Aluminum		4.80	mg/L	0.10	96	95	105			
Beryllium		0.502	mg/L	0.010	100	95	105			
Cadmium		0.511	mg/L	0.010	102	95	105			
Calcium		52.3	mg/L	0.50	105	95	105			
Cobalt		1.00	mg/L	0.010	100	95	105			
Magnesium		50.6	mg/L	0.50	101	95	105			
Manganese		5.00	mg/L	0.010	100	95	105			
Molybdenum		1.04	mg/L	0.10	104	95	105			
Nickel		1.01	mg/L	0.050	101	95	105			
Potassium		48.6	mg/L	0.50	97	95	105			
Sodium		51.8	mg/L	0.50	104	95	105			
Vanadium		1.03	mg/L	0.10	103	95	105			
<b>Sample ID: ICSA</b>	12 Interference Check Sample A									01/22/13 12:42
Aluminum		499	mg/L	0.10	100	80	120			
Beryllium		ND	mg/L	0.010						
Cadmium		-0.00430	mg/L	0.010						
Calcium		498	mg/L	0.50	100	80	120			
Cobalt		-0.00470	mg/L	0.010						
Magnesium		502	mg/L	0.50	100	80	120			
Manganese		-0.00150	mg/L	0.010						
Molybdenum		-0.0166	mg/L	0.10						
Nickel		-0.00330	mg/L	0.050						
Potassium		-0.00310	mg/L	0.50						
Sodium		0.0964	mg/L	0.50						
Vanadium		0.0213	mg/L	0.10						
<b>Sample ID: ICSAB</b>	12 Interference Check Sample AB									01/22/13 12:46
Aluminum		510	mg/L	0.10	102	80	120			
Beryllium		0.501	mg/L	0.010	100	80	120			
Cadmium		1.00	mg/L	0.010	100	80	120			
Calcium		505	mg/L	0.50	101	80	120			
Cobalt		0.478	mg/L	0.010	96	80	120			
Magnesium		510	mg/L	0.50	102	80	120			
Manganese		0.501	mg/L	0.010	100	80	120			
Molybdenum		-0.0180	mg/L	0.10						
Nickel		0.972	mg/L	0.050	97	80	120			
Potassium		-0.00350	mg/L	0.50						
Sodium		0.0234	mg/L	0.50						
Vanadium		0.540	mg/L	0.10	108	80	120			
<b>Method: E200.7</b>		Batch: 36322								
<b>Sample ID: MB-36322</b>	8 Method Blank									Run: ICP2-C_130122A
01/23/13 00:11										
Aluminum		ND	mg/L	0.009						
Beryllium		ND	mg/L	0.0002						

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### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b> <span style="float:right">Batch: 36322</span>										
<b>Sample ID: MB-36322</b>	8	Method Blank								
										Run: ICP2-C_130122A <span style="float:right">01/23/13 00:11</span>
Cadmium		ND	mg/L	0.0006						
Cobalt		ND	mg/L	0.002						
Manganese		ND	mg/L	0.0002						
Molybdenum		ND	mg/L	0.002						
Nickel		ND	mg/L	0.002						
Vanadium		ND	mg/L	0.01						
<b>Sample ID: LCS3-36322</b>	8	Laboratory Control Sample								
										Run: ICP2-C_130122A <span style="float:right">01/23/13 00:15</span>
Aluminum		2.58	mg/L	0.030	103	85	115			
Beryllium		0.261	mg/L	0.0010	104	85	115			
Cadmium		0.261	mg/L	0.0010	105	85	115			
Cobalt		0.517	mg/L	0.0050	103	85	115			
Manganese		2.59	mg/L	0.0010	104	85	115			
Molybdenum		0.517	mg/L	0.0023	103	85	115			
Nickel		0.522	mg/L	0.0050	104	85	115			
Vanadium		0.532	mg/L	0.014	106	85	115			
<b>Sample ID: C13010580-002CMS3</b>	8	Sample Matrix Spike								
										Run: ICP2-C_130122A <span style="float:right">01/23/13 01:36</span>
Aluminum		2.89	mg/L	0.030	113	70	130			
Beryllium		0.258	mg/L	0.0010	102	70	130			
Cadmium		0.249	mg/L	0.0011	100	70	130			
Cobalt		0.777	mg/L	0.0050	100	70	130			
Manganese		7.42	mg/L	0.0010	96	70	130			
Molybdenum		0.853	mg/L	0.0045	106	70	130			
Nickel		0.770	mg/L	0.0050	100	70	130			
Vanadium		0.549	mg/L	0.028	110	70	130			
<b>Sample ID: C13010580-002CMSD</b>	8	Sample Matrix Spike Duplicate								
										Run: ICP2-C_130122A <span style="float:right">01/23/13 01:52</span>
Aluminum		2.97	mg/L	0.030	116	70	130	2.8	20	
Beryllium		0.262	mg/L	0.0010	104	70	130	1.5	20	
Cadmium		0.254	mg/L	0.0011	102	70	130	2.0	20	
Cobalt		0.802	mg/L	0.0050	105	70	130	3.2	20	
Manganese		7.72	mg/L	0.0010	109	70	130	4.0	20	
Molybdenum		0.849	mg/L	0.0045	105	70	130	0.4	20	
Nickel		0.791	mg/L	0.0050	104	70	130	2.7	20	
Vanadium		0.540	mg/L	0.028	108	70	130	1.7	20	
<b>Method: E200.7</b> <span style="float:right">Batch: R169429</span>										
<b>Sample ID: MB-130122A</b>	4	Method Blank								
										Run: ICP2-C_130122A <span style="float:right">01/22/13 13:10</span>
Calcium		ND	mg/L	0.06						
Magnesium		ND	mg/L	0.03						
Potassium		ND	mg/L	0.06						
Sodium		ND	mg/L	0.3						
<b>Sample ID: LFB-130122A</b>	4	Laboratory Fortified Blank								
										Run: ICP2-C_130122A <span style="float:right">01/22/13 13:14</span>
Calcium		51.2	mg/L	0.50	102	85	115			

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										Batch: R169429
<b>Sample ID: LFB-130122A</b>	4	Laboratory Fortified Blank								
										Run: ICP2-C_130122A 01/22/13 13:14
Magnesium		49.7	mg/L	0.50	99	85	115			
Potassium		46.8	mg/L	0.50	94	85	115			
Sodium		49.9	mg/L	0.50	100	85	115			
<b>Sample ID: C13010580-008BMS2</b>	4	Sample Matrix Spike								
										Run: ICP2-C_130122A 01/22/13 22:18
Calcium		761	mg/L	1.0	86	70	130			
Magnesium		659	mg/L	1.0	84	70	130			
Potassium		254	mg/L	1.0	95	70	130			
Sodium		431	mg/L	1.6	101	70	130			
<b>Sample ID: C13010580-008BMSD</b>	4	Sample Matrix Spike Duplicate								
										Run: ICP2-C_130122A 01/22/13 22:22
Calcium		776	mg/L	1.0	92	70	130	1.9	20	
Magnesium		672	mg/L	1.0	89	70	130	2.0	20	
Potassium		255	mg/L	1.0	96	70	130	0.6	20	
Sodium		430	mg/L	1.6	101	70	130	0.2	20	

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>		Analytical Run: ICPMS2-C_130122A									
<b>Sample ID: ICV</b>	2	Initial Calibration Verification Standard								01/22/13 18:53	
Lead		0.0501	mg/L	0.0010	100	90	110				
Uranium		0.0493	mg/L	0.00030	99	90	110				
<b>Method: E200.8</b>		Batch: 36322									
<b>Sample ID: MB-36322</b>	2	Method Blank								Run: ICPMS2-C_130122A	01/22/13 16:53
Lead		3E-05	mg/L	2E-05							
Uranium		5E-05	mg/L	1E-05							
<b>Sample ID: LCS3-36322</b>	2	Laboratory Control Sample								Run: ICPMS2-C_130122A	01/22/13 16:56
Lead		0.545	mg/L	0.0010	109	85	115				
Uranium		0.572	mg/L	0.00030	114	85	115				
<b>Sample ID: C13010580-002CMS3</b>	2	Sample Matrix Spike								Run: ICPMS2-C_130122A	01/22/13 18:12
Lead		0.542	mg/L	0.0010	108	70	130				
Uranium		0.567	mg/L	0.00030	110	70	130				
<b>Sample ID: C13010580-002CMSD</b>	2	Sample Matrix Spike Duplicate								Run: ICPMS2-C_130122A	01/22/13 18:14
Lead		0.540	mg/L	0.0010	107	70	130	0.3	20		
Uranium		0.560	mg/L	0.00030	108	70	130	1.2	20		

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>								Analytical Run: IC2-C_130121A		
<b>Sample ID: ICV-012113-11</b>	2	Initial Calibration Verification Standard								01/21/13 17:27
Chloride		10.4	mg/L	1.0	104	90	110			
Sulfate		41.9	mg/L	1.0	105	90	110			
<b>Method: E300.0</b>								Batch: R169386		
<b>Sample ID: ICB-012113-12</b>	2	Method Blank								01/21/13 17:43
Chloride		ND	mg/L	0.02						
Sulfate		0.1	mg/L	0.09						
<b>Sample ID: LFB-012113-13</b>	2	Laboratory Fortified Blank								01/21/13 17:58
Chloride		9.88	mg/L	1.0	99	90	110			
Sulfate		39.7	mg/L	1.0	99	90	110			
<b>Sample ID: C13010580-008AMS</b>	2	Sample Matrix Spike								01/21/13 22:36
Chloride		238	mg/L	4.2	102	90	110			
Sulfate		3960	mg/L	17	99	90	110			
<b>Sample ID: C13010580-008AMSD</b>	2	Sample Matrix Spike Duplicate								01/21/13 22:51
Chloride		239	mg/L	4.2	102	90	110	0.3	20	
Sulfate		3930	mg/L	17	96	90	110	0.6	20	
<b>Sample ID: C13010586-001BMS</b>	2	Sample Matrix Spike								01/22/13 01:56
Chloride		42.0	mg/L	1.0	112	90	110			S
Sulfate		115	mg/L	1.0	111	90	110			S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID: C13010586-001BMSD</b>	2	Sample Matrix Spike Duplicate								01/22/13 02:11
Chloride		42.0	mg/L	1.0	112	90	110	0.0	20	S
Sulfate		115	mg/L	1.0	112	90	110	0.4	20	S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										

### Qualifiers:

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S - Spike recovery outside of advisory limits.



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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										Batch: R169349
<b>Sample ID: MBLK-1</b>		Method Blank								Run: TECHNICON_130121A 01/21/13 10:28
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.003						
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								Run: TECHNICON_130121A 01/21/13 10:31
Nitrogen, Nitrate+Nitrite as N		2.57	mg/L	0.10	103	90	110			
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								Run: TECHNICON_130121A 01/21/13 10:33
Nitrogen, Nitrate+Nitrite as N		2.14	mg/L	0.10	109	90	110			
<b>Sample ID: C13010581-004FMS</b>		Sample Matrix Spike								Run: TECHNICON_130121A 01/21/13 10:38
Nitrogen, Nitrate+Nitrite as N		1.59	mg/L	0.10	80	90	110			S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID: C13010581-004FMSD</b>		Sample Matrix Spike Duplicate								Run: TECHNICON_130121A 01/21/13 10:41
Nitrogen, Nitrate+Nitrite as N		1.59	mg/L	0.10	80	90	110	0.0	10	S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										

### Qualifiers:

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b>										
										Analytical Run: R169379
<b>Sample ID: 21-Jan-13_CCV_19</b>	9	Continuing Calibration Verification Standard								01/21/13 20:30
Bromodichloromethane		7.92	ug/L	1.0	79	70	130			
Bromoform		10.9	ug/L	1.0	109	70	130			
Chlorodibromomethane		9.08	ug/L	1.0	91	70	130			
Chloroform		7.16	ug/L	1.0	72	70	130			
Trihalomethanes, Total		35.1	ug/L	1.0	88	70	130			
Surr: 1,2-Dichlorobenzene-d4				1.0	103	80	120			
Surr: Dibromofluoromethane				1.0	74	80	120			S
Surr: p-Bromofluorobenzene				1.0	105	80	120			
Surr: Toluene-d8				1.0	97	80	120			
<b>Method: E624</b>										
										Batch: R169379
<b>Sample ID: 21-Jan-13_LCS_4</b>	9	Laboratory Control Sample								01/21/13 11:33
										Run: 5975VOC1_130121C
Bromodichloromethane		9.16	ug/L	1.0	92	72.3	123			
Bromoform		10.9	ug/L	1.0	109	70.3	128			
Chlorodibromomethane		9.76	ug/L	1.0	98	69.1	123			
Chloroform		8.84	ug/L	1.0	88	72.9	130			
Trihalomethanes, Total		38.6	ug/L	1.0	97	75.7	121			
Surr: 1,2-Dichlorobenzene-d4				1.0	106	82	118			
Surr: Dibromofluoromethane				1.0	86	74.8	123			
Surr: p-Bromofluorobenzene				1.0	109	82.4	121			
Surr: Toluene-d8				1.0	99	76.4	125			
<b>Sample ID: 21-Jan-13_MBLK_6</b>	9	Method Blank								01/21/13 12:43
										Run: 5975VOC1_130121C
Bromodichloromethane		ND	ug/L	1.0						
Bromoform		ND	ug/L	1.0						
Chlorodibromomethane		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Trihalomethanes, Total		ND	ug/L	1.0						
Surr: 1,2-Dichlorobenzene-d4				1.0	116	80	120			
Surr: Dibromofluoromethane				1.0	94	80	120			
Surr: p-Bromofluorobenzene				1.0	116	80	120			
Surr: Toluene-d8				1.0	92	80	120			
<b>Sample ID: C13010536-001DMS</b>	9	Sample Matrix Spike								01/21/13 18:08
										Run: 5975VOC1_130121C
Bromodichloromethane		153	ug/L	10	76	72.3	123			
Bromoform		206	ug/L	10	103	70.3	128			
Chlorodibromomethane		162	ug/L	10	81	69.1	123			
Chloroform		169	ug/L	10	84	72.9	130			
Trihalomethanes, Total		690	ug/L	10	86	75.7	121			
Surr: 1,2-Dichlorobenzene-d4				1.0	109	82	118			
Surr: Dibromofluoromethane				1.0	82	74.8	123			
Surr: p-Bromofluorobenzene				1.0	112	82.4	121			
Surr: Toluene-d8				1.0	98	76.4	125			

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S - Spike recovery outside of advisory limits.



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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E624										Batch: R169379
Sample ID: C13010536-001DMSD 9 Sample Matrix Spike Duplicate										Run: 5975VOC1_130121C
										01/21/13 18:44
Bromodichloromethane		154	ug/L	10	77	72.3	123	0.5	20	
Bromoform		220	ug/L	10	110	70.3	128	6.8	20	
Chlorodibromomethane		146	ug/L	10	73	69.1	123	10	20	
Chloroform		148	ug/L	10	74	72.9	130	13	20	
Trihalomethanes, Total		668	ug/L	10	84	75.7	121	3.2	20	
Surr: 1,2-Dichlorobenzene-d4				1.0	120	82	118			S
Surr: Dibromofluoromethane				1.0	74	74.8	123			
Surr: p-Bromofluorobenzene				1.0	114	82.4	121			
Surr: Toluene-d8				1.0	132	76.4	125			S

### Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E900.1</b>										Batch: GA-0650
<b>Sample ID: LCS-GA-0639</b>		Laboratory Control Sample					Run: BERTHOLD 770-1_130130C			02/08/13 07:34
Gross Alpha minus Rn & U		23.3	pCi/L	112		80	120			
<b>Sample ID: MB-GA-0639</b>	3	Method Blank					Run: BERTHOLD 770-1_130130C			02/08/13 07:34
Gross Alpha minus Rn & U		0.08	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.2	pCi/L							
Gross Alpha minus Rn & U MDC		0.4	pCi/L							
<b>Sample ID: C13010581-004DMS</b>		Sample Matrix Spike					Run: BERTHOLD 770-1_130130C			02/08/13 07:34
Gross Alpha minus Rn & U		47.3	pCi/L	105		70	130			
<b>Sample ID: C13010581-004DMSD</b>		Sample Matrix Spike Duplicate					Run: BERTHOLD 770-1_130130C			02/08/13 07:34
Gross Alpha minus Rn & U		47.1	pCi/L	107		70	130	0.3		21.8

### Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E903.0</b>										Batch: RA226-6481
<b>Sample ID: C13010581-001DMS</b>		Sample Matrix Spike					Run: BERTHOLD 770-2_130121C			02/01/13 08:38
Radium 226		16	pCi/L		93	70	130			
<b>Sample ID: C13010581-001DMSD</b>		Sample Matrix Spike Duplicate					Run: BERTHOLD 770-2_130121C			02/01/13 08:38
Radium 226		17	pCi/L		100	70	130	5.9	25.1	
<b>Sample ID: MB-RA226-6481</b>	3	Method Blank					Run: BERTHOLD 770-2_130121C			02/01/13 10:11
Radium 226		-0.01	pCi/L							U
Radium 226 precision (±)		0.09	pCi/L							
Radium 226 MDC		0.2	pCi/L							
<b>Sample ID: LCS-RA226-6481</b>		Laboratory Control Sample					Run: BERTHOLD 770-2_130121C			02/01/13 10:11
Radium 226		6.4	pCi/L		102	80	120			

### Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E908.0</b>								Batch: RA-TH-ISO-1791		
<b>Sample ID: LCS-RA-TH-ISO-1791</b>	Laboratory Control Sample					Run: ALPHANALYST_130130A		02/04/13 16:38		
Thorium 230		4.7	pCi/L		86	80	120			
<b>Sample ID: C13010662-004DMS</b>	Sample Matrix Spike					Run: ALPHANALYST_130130A		02/04/13 16:39		
Thorium 230		13	pCi/L		108	70	130			
<b>Sample ID: C13010662-004DMSD</b>	Sample Matrix Spike Duplicate					Run: ALPHANALYST_130130A		02/04/13 16:39		
Thorium 230		12	pCi/L		95	70	130	13	46.5	
<b>Sample ID: MB-RA-TH-ISO-1791</b>	3	Method Blank				Run: ALPHANALYST_130130A		02/04/13 16:39		
Thorium 230		0.1	pCi/L							U
Thorium 230 precision (±)		0.1	pCi/L							
Thorium 230 MDC		0.2	pCi/L							

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E909.0</b>										Batch: T_PB-210-0346
<b>Sample ID: MB-PB-210-0346</b>	3	Method Blank					Run: SUB-T49289			02/01/13 23:56
Lead 210		-0.09	pCi/L							U
Lead 210 precision (±)		0.4	pCi/L							
Lead 210 MDC		0.7	pCi/L							
<b>Sample ID: LCS-PB-210-0346</b>		Laboratory Control Sample					Run: SUB-T49289			02/02/13 02:11
Lead 210		21	pCi/L	99		70	130			
<b>Sample ID: C13010581-001EMS</b>		Sample Matrix Spike					Run: SUB-T49289			02/02/13 13:25
Lead 210		56	pCi/L	99		70	130			
<b>Sample ID: C13010581-001EMSD</b>		Sample Matrix Spike Duplicate					Run: SUB-T49289			02/02/13 15:39
Lead 210		55	pCi/L	96		70	130	3.0	17.6	

### Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: SW Alluvium

Work Order: C13010591

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: RA-05</b>								Batch: RA228-4326		
<b>Sample ID: LCS-228-RA226-6481</b>	Laboratory Control Sample			Run: TENNELEC-3_130121B			01/27/13 14:44			
Radium 228		6.1	pCi/L		123	80	120			S
- LCS response is outside of the acceptance range for this analysis. Since the MB, MS, and MSD are acceptable the batch is approved.										
<b>Sample ID: MB-RA226-6481</b>	3	Method Blank		Run: TENNELEC-3_130121B			01/27/13 14:44			
Radium 228		0.6	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		0.9	pCi/L							
<b>Sample ID: C13010581-008EMS</b>	Sample Matrix Spike			Run: TENNELEC-3_130121B			01/27/13 14:44			
Radium 228		9.3	pCi/L		86	70	130			
<b>Sample ID: C13010581-008EMSD</b>	Sample Matrix Spike Duplicate			Run: TENNELEC-3_130121B			01/27/13 14:44			
Radium 228		10	pCi/L		100	70	130	11		39.8

### Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



# ANALYTICAL SUMMARY REPORT

February 25, 2013

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

Workorder No.: C13010578      Quote ID: C129 - Quarterly Long List

Project Name: Zone-1

Energy Laboratories, Inc. Casper WY received the following 9 samples for United Nuclear Corporation on 1/18/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13010578-001	614	01/15/13 9:12	01/18/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics
C13010578-002	515-A	01/15/13 10:15	01/18/13	Aqueous	Same As Above
C13010578-003	604	01/15/13 11:04	01/18/13	Aqueous	Same As Above
C13010578-004	EPA-7	01/15/13 12:06	01/18/13	Aqueous	Same As Above
C13010578-005	EPA-5	01/15/13 12:46	01/18/13	Aqueous	Same As Above
C13010578-006	EPA-4	01/15/13 13:36	01/18/13	Aqueous	Same As Above
C13010578-007	EPA-2	01/15/13 14:42	01/18/13	Aqueous	Same As Above
C13010578-008	EPA-2 Duplicate	01/15/13 15:19	01/18/13	Aqueous	Same As Above
C13010578-009	TWQ-142	01/15/13 17:15	01/18/13	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, 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.

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

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2013.02.25 10:45:46 -07:00



**CLIENT:** United Nuclear Corporation  
**Project:** Zone-1  
**Sample Delivery Group:** C13010578

**Report Date:** 02/25/13

## CASE NARRATIVE

### BRANCH LABORATORY SUBCONTRACT ANALYSIS

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-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.

### TH230 ANALYSIS

The sample-specific MDC for this sample could not be achieved due to significant matrix interferences, restricting the volume of sample to be used in the analysis.



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2320 B</b>										Batch: R169331
<b>Sample ID: MBLK</b>	2	Method Blank								Run: MANTECH_130118B 01/18/13 14:32
Alkalinity, Total as CaCO3		ND	mg/L	5.0						
Bicarbonate as HCO3		1.01	mg/L	5.0						
<b>Sample ID: LCS_121003</b>		Laboratory Control Sample								Run: MANTECH_130118B 01/18/13 14:48
Alkalinity, Total as CaCO3		155	mg/L	5.0	103	90	110			
<b>Sample ID: C13010578-004ADUP</b>	2	Sample Duplicate								Run: MANTECH_130118B 01/18/13 18:29
Alkalinity, Total as CaCO3		532	mg/L	5.0				1.6	10	
Bicarbonate as HCO3		649	mg/L	5.0				1.6	10	
<b>Sample ID: C13010578-005AMS</b>		Sample Matrix Spike								Run: MANTECH_130118B 01/18/13 18:44
Alkalinity, Total as CaCO3		210	mg/L	5.0	103	80	120			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C <span style="float: right;">Batch: TDS130121A</span>										
Sample ID: MB-1_130121A		Method Blank								
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						01/21/13 08:22
Run: BAL-16_130121B										
Sample ID: LCS-2_130121A		Laboratory Control Sample								
Solids, Total Dissolved TDS @ 180 C		1980	mg/L	20	99	90	110			01/21/13 08:22
Run: BAL-16_130121B										
Sample ID: C13010591-002A MS		Sample Matrix Spike								
Solids, Total Dissolved TDS @ 180 C		8120	mg/L	40	96	90	110			01/21/13 08:23
Run: BAL-16_130121B										
Sample ID: C13010578-007A DUP		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		2900	mg/L	20				0.5		01/21/13 08:34
Run: BAL-16_130121B										

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 02/25/13

**Project:** Zone-1

**Work Order:** C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A3114 B		Analytical Run: CVAA-C202_130201A								
<b>Sample ID:</b> ICV	Initial Calibration Verification Standard									
Selenium-IV		0.0253	mg/L	0.0010	101	90	110			02/01/13 09:54
<b>Method:</b> A3114 B		Batch: 36443								
<b>Sample ID:</b> MB-36443	Method Blank									
Selenium-IV		ND	mg/L	0.0005						Run: CVAA-C202_130201A 02/01/13 09:57
<b>Sample ID:</b> LCS-36443	Laboratory Control Sample									
Selenium-IV		0.0239	mg/L	0.0010	96	90	110			Run: CVAA-C202_130201A 02/01/13 09:59
<b>Sample ID:</b> C13010578-001CMS	Sample Matrix Spike									
Selenium-IV		0.0262	mg/L	0.0010	102	85	115			Run: CVAA-C202_130201A 02/01/13 10:03
<b>Sample ID:</b> C13010578-001CMSD	Sample Matrix Spike Duplicate									
Selenium-IV		0.0264	mg/L	0.0010	103	85	115	0.7	10	Run: CVAA-C202_130201A 02/01/13 10:04

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B		Analytical Run: PHSC_101-C_130118A								
Sample ID: pH 6.86		Initial Calibration Verification Standard								01/18/13 08:40
pH		6.84	s.u.	0.010	100	98	102			
Method: A4500-H B		Batch: R169294								
Sample ID: C13010558-002ADUP		Sample Duplicate				Run: PHSC_101-C_130118A			01/18/13 09:27	
pH		8.67	s.u.	0.010				0.0	3	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-NH3 G</b>										Batch: R169415
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Ammonia as N		ND	mg/L	0.01						Run: TECHNICON_130122A 01/22/13 15:46
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Ammonia as N		2.16	mg/L	0.050	108	90	110			Run: TECHNICON_130122A 01/22/13 15:48
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Ammonia as N		1.95	mg/L	0.050	99	80	120			Run: TECHNICON_130122A 01/22/13 15:50
<b>Sample ID: C13010578-001GMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		350	mg/L	5.0	93	90	110			Run: TECHNICON_130122A 01/22/13 16:22
<b>Sample ID: C13010578-001GMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		350	mg/L	5.0	93	90	110	0.0	10	Run: TECHNICON_130122A 01/22/13 16:24
<b>Sample ID: C13010580-002EMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		2.35	mg/L	0.050	98	90	110			Run: TECHNICON_130122A 01/22/13 16:52
<b>Sample ID: C13010580-002EMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		2.40	mg/L	0.050	101	90	110	2.1	10	Run: TECHNICON_130122A 01/22/13 16:54

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E1632AM</b>										Analytical Run: SUB-H86057	
<b>Sample ID: AS-ICV 25ppb-1/29/20</b>	Initial Calibration Verification Standard										
Arsenic-III		23.9	ug/L	5.0	96	87.6	114			01/29/13 11:00	
<b>Method: E1632AM</b>										Batch: H_R86057	
<b>Sample ID: ICB</b>	Method Blank										
Arsenic-III		ND	ug/L	2						Run: SUB-H86057 01/29/13 11:27	
<b>Sample ID: AS-LFB 50ppb-1/29/2</b>	Laboratory Fortified Blank										
Arsenic-III		45.2	ug/L	5.0	90	55	146			Run: SUB-H86057 01/29/13 11:35	
<b>Sample ID: C13010578-002D</b>	Sample Matrix Spike										
Arsenic-III		40.6	ug/L	5.0	81	55	146			Run: SUB-H86057 01/29/13 14:08	
<b>Sample ID: C13010578-002D</b>	Sample Matrix Spike Duplicate										
Arsenic-III		40.1	ug/L	5.0	80	55	146	1.3	20	Run: SUB-H86057 01/29/13 14:16	
<b>Method: E1632AM</b>										Analytical Run: SUB-H86245	
<b>Sample ID: AS-ICV 25ppb-2/09/20</b>	Initial Calibration Verification Standard										
Arsenic-III		27.0	ug/L	5.0	108	87.6	114			02/09/13 13:48	
<b>Method: E1632AM</b>										Batch: H_R86245	
<b>Sample ID: ICB</b>	Method Blank										
Arsenic-III		ND	ug/L	2						Run: SUB-H86245 02/09/13 14:12	
<b>Sample ID: AS-LFB 50ppb-2/09/2</b>	Laboratory Fortified Blank										
Arsenic-III		52.9	ug/L	5.0	106	55	146			Run: SUB-H86245 02/09/13 14:20	
<b>Sample ID: C13010591-003B</b>	Sample Matrix Spike										
Arsenic-III		59.6	ug/L	5.0	119	55	146			Run: SUB-H86245 02/09/13 16:45	
<b>Sample ID: C13010591-003B</b>	Sample Matrix Spike Duplicate										
Arsenic-III		59.2	ug/L	5.0	118	55	146	0.7	20	Run: SUB-H86245 02/09/13 16:53	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 02/25/13

**Project:** Zone-1

**Work Order:** C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.7</b>											
Analytical Run: ICP2-C_130121A											
<b>Sample ID: ICV</b>	4	Initial Calibration Verification Standard								01/21/13 11:52	
Calcium		52.0	mg/L	0.50	104	95	105				
Magnesium		50.7	mg/L	0.50	101	95	105				
Potassium		47.5	mg/L	0.50	95	95	105				
Sodium		52.0	mg/L	0.50	104	95	105				
<b>Sample ID: ICSA</b>	4	Interference Check Sample A								01/21/13 12:20	
Calcium		501	mg/L	0.50	100	80	120				
Magnesium		501	mg/L	0.50	100	80	120				
Potassium		-0.00510	mg/L	0.50							
Sodium		0.114	mg/L	0.50							
<b>Sample ID: ICSAB</b>	4	Interference Check Sample AB								01/21/13 12:24	
Calcium		507	mg/L	0.50	101	80	120				
Magnesium		526	mg/L	0.50	105	80	120				
Potassium		-0.00510	mg/L	0.50							
Sodium		0.172	mg/L	0.50							
<b>Method: E200.7</b>											
Batch: R169385											
<b>Sample ID: MB-130121A</b>	4	Method Blank								Run: ICP2-C_130121A	01/21/13 12:48
Calcium		ND	mg/L	0.06							
Magnesium		ND	mg/L	0.03							
Potassium		ND	mg/L	0.06							
Sodium		ND	mg/L	0.03							
<b>Sample ID: LFB-130121A</b>	4	Laboratory Fortified Blank								Run: ICP2-C_130121A	01/21/13 12:52
Calcium		50.5	mg/L	0.50	101	85	115				
Magnesium		50.3	mg/L	0.50	101	85	115				
Potassium		46.1	mg/L	0.50	92	85	115				
Sodium		49.3	mg/L	0.50	99	85	115				
<b>Sample ID: C13010578-007BMS2</b>	4	Sample Matrix Spike								Run: ICP2-C_130121A	01/21/13 19:19
Calcium		481	mg/L	1.0	78	70	130				
Magnesium		267	mg/L	1.0	90	70	130				
Potassium		103	mg/L	1.0	94	70	130				
Sodium		317	mg/L	1.0	99	70	130				
<b>Sample ID: C13010578-007BMSD</b>	4	Sample Matrix Spike Duplicate								Run: ICP2-C_130121A	01/21/13 19:23
Calcium		481	mg/L	1.0	78	70	130	0.0	20		
Magnesium		279	mg/L	1.0	102	70	130	4.4	20		
Potassium		106	mg/L	1.0	97	70	130	2.3	20		
Sodium		323	mg/L	1.0	104	70	130	1.6	20		

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.7</b>										Analytical Run: ICP2-C_130122A	
<b>Sample ID: ICV</b>	8	Initial Calibration Verification Standard							01/22/13 12:14		
Aluminum		4.80	mg/L	0.10	96	95	105				
Beryllium		0.502	mg/L	0.010	100	95	105				
Cadmium		0.511	mg/L	0.010	102	95	105				
Cobalt		1.00	mg/L	0.010	100	95	105				
Manganese		5.00	mg/L	0.010	100	95	105				
Molybdenum		1.04	mg/L	0.10	104	95	105				
Nickel		1.01	mg/L	0.050	101	95	105				
Vanadium		1.03	mg/L	0.10	103	95	105				
<b>Sample ID: ICSA</b>	8	Interference Check Sample A							01/22/13 12:42		
Aluminum		499	mg/L	0.10	100	80	120				
Beryllium		ND	mg/L	0.010							
Cadmium		-0.00430	mg/L	0.010							
Cobalt		-0.00470	mg/L	0.010							
Manganese		-0.00150	mg/L	0.010							
Molybdenum		-0.0166	mg/L	0.10							
Nickel		-0.00330	mg/L	0.050							
Vanadium		0.0213	mg/L	0.10							
<b>Sample ID: ICSAB</b>	8	Interference Check Sample AB							01/22/13 12:46		
Aluminum		510	mg/L	0.10	102	80	120				
Beryllium		0.501	mg/L	0.010	100	80	120				
Cadmium		1.00	mg/L	0.010	100	80	120				
Cobalt		0.478	mg/L	0.010	96	80	120				
Manganese		0.501	mg/L	0.010	100	80	120				
Molybdenum		-0.0180	mg/L	0.10							
Nickel		0.972	mg/L	0.050	97	80	120				
Vanadium		0.540	mg/L	0.10	108	80	120				
<b>Method: E200.7</b>										Batch: 36322	
<b>Sample ID: MB-36322</b>	8	Method Blank							Run: ICP2-C_130122A		01/23/13 00:11
Aluminum		ND	mg/L	0.009							
Beryllium		ND	mg/L	0.0002							
Cadmium		ND	mg/L	0.0006							
Cobalt		ND	mg/L	0.002							
Manganese		ND	mg/L	0.0002							
Molybdenum		ND	mg/L	0.002							
Nickel		ND	mg/L	0.002							
Vanadium		ND	mg/L	0.01							
<b>Sample ID: LCS3-36322</b>	8	Laboratory Control Sample							Run: ICP2-C_130122A		01/23/13 00:15
Aluminum		2.58	mg/L	0.030	103	85	115				
Beryllium		0.261	mg/L	0.0010	104	85	115				
Cadmium		0.261	mg/L	0.0010	105	85	115				
Cobalt		0.517	mg/L	0.0050	103	85	115				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.7</b>										Batch: 36322	
<b>Sample ID: LCS3-36322</b>		8 Laboratory Control Sample			Run: ICP2-C_130122A			01/23/13 00:15			
Manganese		2.59	mg/L	0.0010	104	85	115				
Molybdenum		0.517	mg/L	0.0023	103	85	115				
Nickel		0.522	mg/L	0.0050	104	85	115				
Vanadium		0.532	mg/L	0.014	106	85	115				
<b>Sample ID: C13010578-009CMS3</b>		8 Sample Matrix Spike			Run: ICP2-C_130122A			01/23/13 01:16			
Aluminum		2.66	mg/L	0.030	105	70	130				
Beryllium		0.263	mg/L	0.0010	105	70	130				
Cadmium		0.257	mg/L	0.0010	103	70	130				
Cobalt		0.514	mg/L	0.0050	103	70	130				
Manganese		2.63	mg/L	0.0010	104	70	130				
Molybdenum		0.540	mg/L	0.0023	106	70	130				
Nickel		0.516	mg/L	0.0050	103	70	130				
Vanadium		0.533	mg/L	0.014	107	70	130				
<b>Sample ID: C13010578-009CMSD</b>		8 Sample Matrix Spike Duplicate			Run: ICP2-C_130122A			01/23/13 01:20			
Aluminum		2.68	mg/L	0.030	105	70	130	0.7	20		
Beryllium		0.261	mg/L	0.0010	105	70	130	0.6	20		
Cadmium		0.258	mg/L	0.0010	103	70	130	0.3	20		
Cobalt		0.518	mg/L	0.0050	104	70	130	0.8	20		
Manganese		2.60	mg/L	0.0010	103	70	130	1.1	20		
Molybdenum		0.548	mg/L	0.0023	108	70	130	1.5	20		
Nickel		0.520	mg/L	0.0050	104	70	130	0.8	20		
Vanadium		0.535	mg/L	0.014	107	70	130	0.4	20		

**Qualifiers:**

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ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>										Analytical Run: ICPMS2-C_130122A	
<b>Sample ID: ICV</b>	3	Initial Calibration Verification Standard							01/22/13 15:43		
Beryllium		0.0478	mg/L	0.0010	96	90	110				
Lead		0.0496	mg/L	0.0010	99	90	110				
Uranium		0.0484	mg/L	0.00030	97	90	110				
<b>Method: E200.8</b>										Batch: 36322	
<b>Sample ID: MB-36322</b>	3	Method Blank							Run: ICPMS2-C_130122A		01/22/13 16:53
Beryllium		ND	mg/L	3E-05							
Lead		3E-05	mg/L	2E-05							
Uranium		5E-05	mg/L	1E-05							
<b>Sample ID: LCS3-36322</b>	3	Laboratory Control Sample							Run: ICPMS2-C_130122A		01/22/13 16:56
Beryllium		0.240	mg/L	0.0010	96	85	115				
Lead		0.545	mg/L	0.0010	109	85	115				
Uranium		0.572	mg/L	0.00030	114	85	115				
<b>Sample ID: C13010578-009CMS3</b>	3	Sample Matrix Spike							Run: ICPMS2-C_130122A		01/22/13 17:05
Beryllium		0.212	mg/L	0.0010	85	70	130				
Lead		0.549	mg/L	0.0010	108	70	130				
Uranium		0.597	mg/L	0.00030	119	70	130				
<b>Sample ID: C13010578-009CMSD</b>	3	Sample Matrix Spike Duplicate							Run: ICPMS2-C_130122A		01/22/13 17:21
Beryllium		0.215	mg/L	0.0010	86	70	130	1.2	20		
Lead		0.539	mg/L	0.0010	106	70	130	1.7	20		
Uranium		0.584	mg/L	0.00030	117	70	130	2.2	20		
<b>Method: E200.8</b>										Analytical Run: ICPMS4-C_130212A	
<b>Sample ID: ICV</b>		Initial Calibration Verification Standard							02/13/13 02:07		
Lead		0.0499	mg/L	0.0010	100	90	110				
<b>Method: E200.8</b>										Batch: 36322	
<b>Sample ID: MB-36322</b>		Method Blank							Run: ICPMS4-C_130212A		02/13/13 04:47
Lead		ND	mg/L	1E-05							
<b>Sample ID: LCS3-36322</b>		Laboratory Control Sample							Run: ICPMS4-C_130212A		02/13/13 04:51
Lead		0.518	mg/L	0.0010	104	85	115				
<b>Sample ID: C13010578-009CMS3</b>		Sample Matrix Spike							Run: ICPMS4-C_130212A		02/13/13 05:23
Lead		0.545	mg/L	0.0010	109	70	130				
<b>Sample ID: C13010578-009CMSD</b>		Sample Matrix Spike Duplicate							Run: ICPMS4-C_130212A		02/13/13 05:27
Lead		0.552	mg/L	0.0010	110	70	130	1.3	20		

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 02/25/13

**Project:** Zone-1

**Work Order:** C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>		Analytical Run: IC1-C_130121A								
<b>Sample ID: ICV-012113-11</b>	2	Initial Calibration Verification Standard								01/21/13 12:33
Chloride		9.96	mg/L	1.0	100	90	110			
Sulfate		40.5	mg/L	1.0	101	90	110			
<b>Method: E300.0</b>		Batch: R169374								
<b>Sample ID: ICB-012113-12</b>	2	Method Blank								01/21/13 12:50
Run: IC1-C_130121A										
Chloride		ND	mg/L	0.04						
Sulfate		0.2	mg/L	0.05						
<b>Sample ID: LFB-012113-13</b>	2	Laboratory Fortified Blank								01/21/13 13:08
Run: IC1-C_130121A										
Chloride		9.89	mg/L	1.0	99	90	110			
Sulfate		40.1	mg/L	1.0	100	90	110			
<b>Sample ID: C13010578-001AMS</b>	2	Sample Matrix Spike								01/21/13 14:00
Run: IC1-C_130121A										
Chloride		1280	mg/L	21	102	90	110			
Sulfate		8020	mg/L	83	106	90	110			
<b>Sample ID: C13010578-001AMSD</b>	2	Sample Matrix Spike Duplicate								01/21/13 14:17
Run: IC1-C_130121A										
Chloride		1280	mg/L	21	103	90	110	0.2	20	
Sulfate		7990	mg/L	83	105	90	110	0.5	20	
<b>Sample ID: C13010581-002BMS</b>	2	Sample Matrix Spike								01/21/13 18:04
Run: IC1-C_130121A										
Chloride		92.8	mg/L	1.0	104	90	110			
Sulfate		822	mg/L	4.2	99	90	110			
<b>Sample ID: C13010581-002BMSD</b>	2	Sample Matrix Spike Duplicate								01/21/13 18:21
Run: IC1-C_130121A										
Chloride		93.1	mg/L	1.0	105	90	110	0.4	20	
Sulfate		822	mg/L	4.2	98	90	110	0.1	20	

**Qualifiers:**

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MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										Batch: R169329
<b>Sample ID: MBLK-1</b>		Method Blank								Run: TECHNICON_130118A 01/18/13 15:06
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.003						
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								Run: TECHNICON_130118A 01/18/13 15:09
Nitrogen, Nitrate+Nitrite as N		2.47	mg/L	0.10	99	90	110			
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								Run: TECHNICON_130118A 01/18/13 15:11
Nitrogen, Nitrate+Nitrite as N		2.08	mg/L	0.10	106	90	110			
<b>Sample ID: C13010580-001EMS</b>		Sample Matrix Spike								Run: TECHNICON_130118A 01/18/13 16:56
Nitrogen, Nitrate+Nitrite as N		1.77	mg/L	0.10	90	90	110			
<b>Sample ID: C13010580-001EMSD</b>		Sample Matrix Spike Duplicate								Run: TECHNICON_130118A 01/18/13 16:59
Nitrogen, Nitrate+Nitrite as N		1.81	mg/L	0.10	92	90	110	2.2	10	

**Qualifiers:**

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MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b>										
Batch: R169342										
<b>Sample ID: 011813_LCS_4</b>	9	Laboratory Control Sample			Run: SATURNCA_130118B			01/18/13 13:04		
Bromodichloromethane		10.0	ug/L	1.0	100	72.3	123			
Bromoform		9.80	ug/L	1.0	98	70.3	128			
Chlorodibromomethane		8.96	ug/L	1.0	90	69.1	123			
Chloroform		7.92	ug/L	1.0	79	72.9	130			
Trihalomethanes, Total		36.7	ug/L	1.0	92	75.7	121			
Surr: 1,2-Dichlorobenzene-d4				1.0	93	82	118			
Surr: Dibromofluoromethane				1.0	83	74.8	123			
Surr: p-Bromofluorobenzene				1.0	112	82.4	121			
Surr: Toluene-d8				1.0	104	76.4	125			
<b>Sample ID: C13010470-004GMS</b>	9	Sample Matrix Spike			Run: SATURNCA_130118B			01/18/13 20:41		
Bromodichloromethane		202	ug/L	10	101	72.3	123			
Bromoform		211	ug/L	10	106	70.3	128			
Chlorodibromomethane		178	ug/L	10	89	69.1	123			
Chloroform		166	ug/L	10	83	72.9	130			
Trihalomethanes, Total		757	ug/L	10	95	75.7	121			
Surr: 1,2-Dichlorobenzene-d4				1.0	96	82	118			
Surr: Dibromofluoromethane				1.0	81	74.8	123			
Surr: p-Bromofluorobenzene				1.0	110	82.4	121			
Surr: Toluene-d8				1.0	106	76.4	125			
<b>Sample ID: C13010470-004GMSD</b>	9	Sample Matrix Spike Duplicate			Run: SATURNCA_130118B			01/18/13 21:17		
Bromodichloromethane		197	ug/L	10	98	72.3	123	2.4	20	
Bromoform		212	ug/L	10	106	70.3	128	0.4	20	
Chlorodibromomethane		174	ug/L	10	87	69.1	123	2.3	20	
Chloroform		166	ug/L	10	83	72.9	130	0.0	20	
Trihalomethanes, Total		749	ug/L	10	94	75.7	121	1.1	20	
Surr: 1,2-Dichlorobenzene-d4				1.0	105	82	118			
Surr: Dibromofluoromethane				1.0	86	74.8	123			
Surr: p-Bromofluorobenzene				1.0	121	82.4	121			
Surr: Toluene-d8				1.0	104	76.4	125			
<b>Sample ID: 011813_MBLK_6</b>	9	Method Blank			Run: SATURNCA_130118B			01/18/13 14:17		
Bromodichloromethane		ND	ug/L	1.0						
Bromoform		ND	ug/L	1.0						
Chlorodibromomethane		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Trihalomethanes, Total		ND	ug/L	1.0						
Surr: 1,2-Dichlorobenzene-d4				1.0	91	80	120			
Surr: Dibromofluoromethane				1.0	88	80	120			
Surr: p-Bromofluorobenzene				1.0	106	80	120			
Surr: Toluene-d8				1.0	104	80	120			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration





### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b>										
Batch: R169379										
<b>Sample ID: 21-Jan-13_LCS_4</b>	9	Laboratory Control Sample			Run: 5975VOC1_130121C			01/21/13 11:33		
Bromodichloromethane		9.16	ug/L	1.0	92	72.3	123			
Bromoform		10.9	ug/L	1.0	109	70.3	128			
Chlorodibromomethane		9.76	ug/L	1.0	98	69.1	123			
Chloroform		8.84	ug/L	1.0	88	72.9	130			
Trihalomethanes, Total		38.6	ug/L	1.0	97	75.7	121			
Surr: 1,2-Dichlorobenzene-d4				1.0	106	82	118			
Surr: Dibromofluoromethane				1.0	86	74.8	123			
Surr: p-Bromofluorobenzene				1.0	109	82.4	121			
Surr: Toluene-d8				1.0	99	76.4	125			
<b>Sample ID: 21-Jan-13_MBLK_6</b>	9	Method Blank			Run: 5975VOC1_130121C			01/21/13 12:43		
Bromodichloromethane		ND	ug/L	1.0						
Bromoform		ND	ug/L	1.0						
Chlorodibromomethane		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Trihalomethanes, Total		ND	ug/L	1.0						
Surr: 1,2-Dichlorobenzene-d4				1.0	116	80	120			
Surr: Dibromofluoromethane				1.0	94	80	120			
Surr: p-Bromofluorobenzene				1.0	116	80	120			
Surr: Toluene-d8				1.0	92	80	120			
<b>Sample ID: C13010536-001DMS</b>	9	Sample Matrix Spike			Run: 5975VOC1_130121C			01/21/13 18:08		
Bromodichloromethane		153	ug/L	10	76	72.3	123			
Bromoform		206	ug/L	10	103	70.3	128			
Chlorodibromomethane		162	ug/L	10	81	69.1	123			
Chloroform		169	ug/L	10	84	72.9	130			
Trihalomethanes, Total		690	ug/L	10	86	75.7	121			
Surr: 1,2-Dichlorobenzene-d4				1.0	109	82	118			
Surr: Dibromofluoromethane				1.0	82	74.8	123			
Surr: p-Bromofluorobenzene				1.0	112	82.4	121			
Surr: Toluene-d8				1.0	98	76.4	125			
<b>Sample ID: C13010536-001DMSD</b>	9	Sample Matrix Spike Duplicate			Run: 5975VOC1_130121C			01/21/13 18:44		
Bromodichloromethane		154	ug/L	10	77	72.3	123	0.5	20	
Bromoform		220	ug/L	10	110	70.3	128	6.8	20	
Chlorodibromomethane		146	ug/L	10	73	69.1	123	10	20	
Chloroform		148	ug/L	10	74	72.9	130	13	20	
Trihalomethanes, Total		668	ug/L	10	84	75.7	121	3.2	20	
Surr: 1,2-Dichlorobenzene-d4				1.0	120	82	118			S
Surr: Dibromofluoromethane				1.0	74	74.8	123			
Surr: p-Bromofluorobenzene				1.0	114	82.4	121			
Surr: Toluene-d8				1.0	132	76.4	125			S

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.



### QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 02/25/13

**Project:** Zone-1

**Work Order:** C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E900.1										Batch: GA-0655
<b>Sample ID:</b> LCS-GA-0637		Laboratory Control Sample								Run: BERTHOLD 770-1_130122B 02/13/13 07:42
Gross Alpha minus Rn & U		22.3	pCi/L	111		80	120			
<b>Sample ID:</b> MB-GA-0637	3	Method Blank								Run: BERTHOLD 770-1_130122B 02/13/13 07:42
Gross Alpha minus Rn & U		-0.04	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.1	pCi/L							
Gross Alpha minus Rn & U MDC		0.3	pCi/L							
<b>Sample ID:</b> C13010578-008FMS		Sample Matrix Spike								Run: BERTHOLD 770-1_130122B 02/13/13 09:18
Gross Alpha minus Rn & U		39.1	pCi/L	91		70	130			
<b>Sample ID:</b> C13010578-008FMSD		Sample Matrix Spike Duplicate								Run: BERTHOLD 770-1_130122B 02/13/13 09:18
Gross Alpha minus Rn & U		38.2	pCi/L	89		70	130	2.4	22.2	

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E903.0</b>										
Batch: RA226-6480										
<b>Sample ID: LCS-RA226-6480</b>	Laboratory Control Sample			Run: BERTHOLD 770-2_130122A			02/05/13 10:22			
Radium 226		7.9	pCi/L	127	80	120				S
- LCS response is outside of the acceptance range for this analysis. Since the MB, MS, and MSD are acceptable the batch is approved.										
<b>Sample ID: MB-RA226-6480</b>	3	Method Blank		Run: BERTHOLD 770-2_130122A			02/05/13 10:22			
Radium 226		-0.06	pCi/L							U
Radium 226 precision (±)		0.09	pCi/L							
Radium 226 MDC		0.2	pCi/L							
<b>Sample ID: C13010560-001GMS</b>	Sample Matrix Spike			Run: BERTHOLD 770-2_130122A			02/05/13 12:11			
Radium 226		15	pCi/L	118	70	130				
<b>Sample ID: C13010560-001GMSD</b>	Sample Matrix Spike Duplicate			Run: BERTHOLD 770-2_130122A			02/05/13 12:11			
Radium 226		16	pCi/L	117	70	130	1.7			25.5

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.

U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E908.0</b>								Batch: RA-TH-ISO-1790		
<b>Sample ID: LCS-RA-TH-ISO-1790</b>		Laboratory Control Sample				Run: ALPHANALYST_130129A			01/31/13 09:12	
Thorium 230		5.1	pCi/L		96	80	120			
<b>Sample ID: C13010578-005FMS</b>		Sample Matrix Spike				Run: ALPHANALYST_130129A			01/31/13 09:13	
Thorium 230		13.0	pCi/L		103	70	130			
<b>Sample ID: C13010578-005FMSD</b>		Sample Matrix Spike Duplicate				Run: ALPHANALYST_130129A			01/31/13 09:13	
Thorium 230		12.8	pCi/L		101	70	130	1.7	43.7	
<b>Sample ID: MB-RA-TH-ISO-1790</b>	3	Method Blank				Run: ALPHANALYST_130129A			01/31/13 09:13	
Thorium 230		0.08	pCi/L							U
Thorium 230 precision (±)		0.1	pCi/L							
Thorium 230 MDC		0.2	pCi/L							

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0 <span style="float: right;">Batch: T_PB-210-0346</span>										
Sample ID: MB-PB-210-0346	3	Method Blank					Run: SUB-T49289			02/01/13 23:56
Lead 210		-0.09	pCi/L							U
Lead 210 precision (±)		0.4	pCi/L							
Lead 210 MDC		0.7	pCi/L							
Sample ID: LCS-PB-210-0346		Laboratory Control Sample					Run: SUB-T49289			02/02/13 02:11
Lead 210		21	pCi/L	99		70	130			
Sample ID: C13010581-001EMS		Sample Matrix Spike					Run: SUB-T49289			02/02/13 13:25
Lead 210		56	pCi/L	99		70	130			
Sample ID: C13010581-001EMSD		Sample Matrix Spike Duplicate					Run: SUB-T49289			02/02/13 15:39
Lead 210		55	pCi/L	96		70	130	3.0	17.6	

### Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-1

Work Order: C13010578

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05 <span style="float: right;">Batch: RA228-4327</span>										
Sample ID: LCS-228-RA226-6480		Laboratory Control Sample								
Radium 228		5.8	pCi/L	95		80	120			
										Run: TENNELEC-3_130122A 01/31/13 11:10
Sample ID: MB-RA226-6480	3	Method Blank								
Radium 228		0.6	pCi/L							U
Radium 228 precision (±)		0.8	pCi/L							
Radium 228 MDC		1	pCi/L							
Sample ID: C13010569-001EMS		Sample Matrix Spike								
Radium 228		12	pCi/L	116		70	130			Run: TENNELEC-3_130122A 01/31/13 11:10
Sample ID: C13010569-001EMSD		Sample Matrix Spike Duplicate								
Radium 228		13	pCi/L	112		70	130	0.7	40.1	Run: TENNELEC-3_130122A 01/31/13 11:10

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



# ANALYTICAL SUMMARY REPORT

February 22, 2013

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

Workorder No.: C13010341      Quote ID: C129 - Quarterly Long List

Project Name: Zone 3

Energy Laboratories, Inc. Casper WY received the following 7 samples for United Nuclear Corporation on 1/11/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13010341-001	613	01/08/13 10:11	01/11/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics
C13010341-002	517	01/08/13 10:58	01/11/13	Aqueous	Same As Above
C13010341-003	EPA-14	01/08/13 11:46	01/11/13	Aqueous	Same As Above
C13010341-004	717	01/08/13 13:50	01/11/13	Aqueous	Same As Above
C13010341-005	717 Duplicate	01/08/13 14:20	01/11/13	Aqueous	Same As Above
C13010341-006	719	01/08/13 14:52	01/11/13	Aqueous	Same As Above
C13010341-007	420	01/08/13 15:44	01/11/13	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, 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.

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

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2013.02.22 13:47:30 -07:00



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**CLIENT:** United Nuclear Corporation  
**Project:** Zone 3  
**Sample Delivery Group:** C13010341

**Report Date:** 02/22/13

## **CASE NARRATIVE**

### **BRANCH LABORATORY SUBCONTRACT ANALYSIS**

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-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.

### **TH230 ANALYSIS**

The sample-specific MDC for this sample could not be achieved due to significant matrix interferences, restricting the volume of sample to be used in the analysis.





## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2320 B</b>										Batch: R169109
<b>Sample ID: MBLK</b>	2	Method Blank								Run: MANTECH_130111B 01/11/13 13:18
Alkalinity, Total as CaCO <sub>3</sub>		2.00	mg/L	5.0						
Bicarbonate as HCO <sub>3</sub>		2.44	mg/L	5.0						
<b>Sample ID: LCS_121003</b>		Laboratory Control Sample								Run: MANTECH_130111B 01/11/13 13:34
Alkalinity, Total as CaCO <sub>3</sub>		153	mg/L	5.0	101	90	110			
<b>Sample ID: C13010319-001AMS</b>		Sample Matrix Spike								Run: MANTECH_130111B 01/11/13 14:06
Alkalinity, Total as CaCO <sub>3</sub>		311	mg/L	5.0	100	80	120			
<b>Sample ID: C13010341-006ADUP</b>	2	Sample Duplicate								Run: MANTECH_130111B 01/11/13 15:00
Alkalinity, Total as CaCO <sub>3</sub>		10.1	mg/L	5.0				5.5	10	
Bicarbonate as HCO <sub>3</sub>		12.3	mg/L	5.0				5.3	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS130111B		
<b>Sample ID: C13010238-001A MS</b>	Sample Matrix Spike						Run: BAL-16_130111B	01/11/13 14:38		
Solids, Total Dissolved TDS @ 180 C	1480	mg/L	10	94	90	110				
<b>Sample ID: C13010341-004A DUP</b>	Sample Duplicate						Run: BAL-16_130111B	01/11/13 14:38		
Solids, Total Dissolved TDS @ 180 C	6260	mg/L	10					1.2	5	
<b>Sample ID: LCS-2_130111A</b>	Laboratory Control Sample						Run: BAL-16_130111B	01/11/13 14:38		
Solids, Total Dissolved TDS @ 180 C	1920	mg/L	10	96	90	110				
<b>Sample ID: MB-1_130111A</b>	Method Blank						Run: BAL-16_130111B	01/11/13 14:38		
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	10							
<b>Method: A2540 C</b>								Batch: TDS130114A		
<b>Sample ID: MB-1_130114A</b>	Method Blank						Run: BAL-16_130114B	01/14/13 15:55		
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	10							
<b>Sample ID: LCS-2_130114A</b>	Laboratory Control Sample						Run: BAL-16_130114B	01/14/13 15:56		
Solids, Total Dissolved TDS @ 180 C	1970	mg/L	20	98	90	110				
<b>Sample ID: C13010341-001A DUP</b>	Sample Duplicate						Run: BAL-16_130114B	01/14/13 15:56		
Solids, Total Dissolved TDS @ 180 C	11600	mg/L	100					1.5	5	
<b>Sample ID: C13010341-002A MS</b>	Sample Matrix Spike						Run: BAL-16_130114B	01/14/13 15:56		
Solids, Total Dissolved TDS @ 180 C	9180	mg/L	40	90	90	110				

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: A3114 B</b>								Analytical Run: CVAA-C202_130128A			
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									01/28/13 11:16	
Selenium-IV		0.0243	mg/L	0.0010	97	90	110				
<b>Method: A3114 B</b>								Batch: 36400			
<b>Sample ID: MB-36400</b>	Method Blank									Run: CVAA-C202_130128A	01/28/13 11:19
Selenium-IV		ND	mg/L	0.0005							
<b>Sample ID: LCS-36400</b>	Laboratory Control Sample									Run: CVAA-C202_130128A	01/28/13 11:21
Selenium-IV		0.0231	mg/L	0.0010	92	90	110				
<b>Sample ID: C13010341-001CMS</b>	Sample Matrix Spike									Run: CVAA-C202_130128A	01/28/13 11:25
Selenium-IV		0.0274	mg/L	0.0010	100	85	115				
<b>Sample ID: C13010341-001CMSD</b>	Sample Matrix Spike Duplicate									Run: CVAA-C202_130128A	01/28/13 11:27
Selenium-IV		0.0337	mg/L	0.0010	126	85	115	21	10	SR	
<b>Method: A3114 B</b>								Analytical Run: CVAA-C202_130131A			
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									01/31/13 12:23	
Selenium-IV		0.0237	mg/L	0.0010	95	90	110				
<b>Method: A3114 B</b>								Batch: 36401			
<b>Sample ID: MB-36401</b>	Method Blank									Run: CVAA-C202_130131A	01/31/13 12:26
Selenium-IV		ND	mg/L	0.0005							
<b>Sample ID: LCS-36401</b>	Laboratory Control Sample									Run: CVAA-C202_130131A	01/31/13 12:28
Selenium-IV		0.0232	mg/L	0.0010	93	90	110				
<b>Sample ID: C13010343-001CMS</b>	Sample Matrix Spike									Run: CVAA-C202_130131A	01/31/13 12:34
Selenium-IV		0.0235	mg/L	0.0010	94	85	115				
<b>Sample ID: C13010343-001CMSD</b>	Sample Matrix Spike Duplicate									Run: CVAA-C202_130131A	01/31/13 12:35
Selenium-IV		0.0239	mg/L	0.0010	96	85	115	1.9	10		

### Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.



# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A4500-H B		Analytical Run: PHSC_101-C_130111A								
<b>Sample ID:</b> pH 6.86		Initial Calibration Verification Standard								01/11/13 09:14
pH		6.86	s.u.	0.010	100	98	102			
<b>Sample ID:</b> pH 6.86		Initial Calibration Verification Standard								01/11/13 13:01
pH		6.84	s.u.	0.010	100	98	102			
<b>Method:</b> A4500-H B		Batch: R169083								
<b>Sample ID:</b> C13010319-004ADUP		Sample Duplicate				Run: PHSC_101-C_130111A			01/11/13 09:56	
pH		8.83	s.u.	0.010				0.7	3	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-NH3 G</b>										Batch: R169105
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Ammonia as N		ND	mg/L	0.01						
										Run: TECHNICON_130111A 01/11/13 10:54
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Ammonia as N		2.08	mg/L	0.050	104	90	110			01/11/13 10:56
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Ammonia as N		2.10	mg/L	0.050	107	80	120			01/11/13 10:58
<b>Sample ID: C13010341-003DMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		57.5	mg/L	0.50	105	90	110			01/11/13 14:26
<b>Sample ID: C13010341-003DMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		57.2	mg/L	0.50	104	90	110	0.5	10	01/11/13 14:28
<b>Method: A4500-NH3 G</b>										Batch: R169143
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Ammonia as N		ND	mg/L	0.01						
										Run: TECHNICON_130114A 01/14/13 12:29
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Ammonia as N		1.98	mg/L	0.050	99	90	110			01/14/13 12:31
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Ammonia as N		2.03	mg/L	0.050	104	80	120			01/14/13 12:33
<b>Sample ID: C13010341-004DMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		163	mg/L	2.5	110	90	110			01/14/13 12:59
<b>Sample ID: C13010341-004DMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		158	mg/L	2.5	105	90	110	3.1	10	01/14/13 13:01
<b>Method: A4500-NH3 G</b>										Batch: R169150
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Ammonia as N		ND	mg/L	0.01						
										Run: TECHNICON_130114B 01/14/13 15:46
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Ammonia as N		2.04	mg/L	0.050	102	90	110			01/14/13 15:48
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Ammonia as N		2.07	mg/L	0.050	106	80	120			01/14/13 15:50
<b>Sample ID: C13010341-006DMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		2.92	mg/L	0.050	113	90	110			01/14/13 16:24
										S
										- Matrix spike recoveries outside the acceptance range are considered matrix-related.
<b>Sample ID: C13010341-006DMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		2.93	mg/L	0.050	114	90	110	0.3	10	01/14/13 16:26
										S
										- Matrix spike recoveries outside the acceptance range are considered matrix-related.

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E1632AM</b>								Analytical Run: SUB-H85914		
<b>Sample ID: AS-ICV 25ppb-1/23/20</b> Initial Calibration Verification Standard 01/23/13 11:41										
Arsenic-III		24.2	ug/L	5.0	97	87.6	114			
<b>Sample ID: AS-50.0-1/23/2013</b> Continuing Calibration Verification Standard 01/23/13 12:10										
Arsenic-III		49.2	ug/L	5.0	99	85	115			
<b>Method: E1632AM</b>								Batch: H_R85914		
<b>Sample ID: ICB</b> Method Blank Run: SUB-H85914 01/23/13 12:21										
Arsenic-III		ND	ug/L	2						
<b>Sample ID: AS-LFB 50ppb-1/23/2</b> Laboratory Fortified Blank Run: SUB-H85914 01/23/13 12:32										
Arsenic-III		46.8	ug/L	5.0	94	55	146			
<b>Sample ID: H13010176-001A MS</b> Sample Matrix Spike Run: SUB-H85914 01/23/13 12:54										
Arsenic-III		92.9	ug/L	5.0	93	55	146			
<b>Sample ID: H13010176-001A MSD</b> Sample Matrix Spike Duplicate Run: SUB-H85914 01/23/13 13:05										
Arsenic-III		92.4	ug/L	5.0	92	55	146	0.5	20	
<b>Method: E1632AM</b>								Analytical Run: SUB-H86057		
<b>Sample ID: AS-ICV 25ppb-1/29/20</b> Initial Calibration Verification Standard 01/29/13 11:00										
Arsenic-III		23.9	ug/L	5.0	96	87.6	114			
<b>Sample ID: AS-50.0-1/29/2013</b> Continuing Calibration Verification Standard 01/29/13 11:19										
Arsenic-III		46.8	ug/L	5.0	94	85	115			
<b>Method: E1632AM</b>								Batch: H_R86057		
<b>Sample ID: ICB</b> Method Blank Run: SUB-H86057 01/29/13 11:27										
Arsenic-III		ND	ug/L	2						
<b>Sample ID: AS-LFB 50ppb-1/29/2</b> Laboratory Fortified Blank Run: SUB-H86057 01/29/13 11:35										
Arsenic-III		45.2	ug/L	5.0	90	55	146			
<b>Sample ID: C13010578-002D</b> Sample Matrix Spike Run: SUB-H86057 01/29/13 14:08										
Arsenic-III		40.6	ug/L	5.0	81	55	146			
<b>Sample ID: C13010578-002D</b> Sample Matrix Spike Duplicate Run: SUB-H86057 01/29/13 14:16										
Arsenic-III		40.1	ug/L	5.0	80	55	146	1.3	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.7</b>											
Analytical Run: ICP2-C_130114A											
<b>Sample ID: ICV</b>	4	Initial Calibration Verification Standard								01/14/13 13:42	
Calcium		52.5	mg/L	0.50	105	95	105				
Magnesium		50.8	mg/L	0.50	102	95	105				
Potassium		47.3	mg/L	0.50	95	95	105				
Sodium		52.7	mg/L	0.50	105	95	105				
<b>Sample ID: ICSA</b>	4	Interference Check Sample A								01/14/13 14:10	
Calcium		502	mg/L	0.50	100	80	120				
Magnesium		527	mg/L	0.50	105	80	120				
Potassium		-0.00570	mg/L	0.50							
Sodium		-0.0237	mg/L	0.50							
<b>Sample ID: ICSAB</b>	4	Interference Check Sample AB								01/14/13 14:14	
Calcium		513	mg/L	0.50	103	80	120				
Magnesium		517	mg/L	0.50	103	80	120				
Potassium		-0.00570	mg/L	0.50							
Sodium		-0.111	mg/L	0.50							
<b>Method: E200.7</b>											
Batch: R169163											
<b>Sample ID: MB-130114A</b>	4	Method Blank								Run: ICP2-C_130114A	01/14/13 14:47
Calcium		ND	mg/L	0.06							
Magnesium		ND	mg/L	0.03							
Potassium		ND	mg/L	0.06							
Sodium		ND	mg/L	0.3							
<b>Sample ID: LFB-130114A</b>	4	Laboratory Fortified Blank								Run: ICP2-C_130114A	01/14/13 14:51
Calcium		51.6	mg/L	0.50	103	85	115				
Magnesium		49.5	mg/L	0.50	99	85	115				
Potassium		45.8	mg/L	0.50	92	85	115				
Sodium		50.7	mg/L	0.50	101	85	115				
<b>Sample ID: C13010248-001CMS2</b>	4	Sample Matrix Spike								Run: ICP2-C_130114A	01/14/13 19:40
Calcium		164	mg/L	1.0	87	70	130				
Magnesium		108	mg/L	1.0	92	70	130				
Potassium		50.7	mg/L	1.0	95	70	130				
Sodium		56.2	mg/L	1.0	102	70	130				
<b>Sample ID: C13010248-001CMSD</b>	4	Sample Matrix Spike Duplicate								Run: ICP2-C_130114A	01/14/13 19:44
Calcium		166	mg/L	1.0	91	70	130	1.1	20		
Magnesium		110	mg/L	1.0	96	70	130	1.9	20		
Potassium		50.2	mg/L	1.0	93	70	130	1.1	20		
Sodium		56.3	mg/L	1.0	102	70	130	0.2	20		

**Qualifiers:**

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ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b> Analytical Run: ICP2-C_130115A										
<b>Sample ID: ICV</b> 8 Initial Calibration Verification Standard 01/15/13 13:21										
Aluminum		4.88	mg/L	0.10	98	95	105			
Beryllium		0.508	mg/L	0.010	102	95	105			
Cadmium		0.497	mg/L	0.010	99	95	105			
Cobalt		1.01	mg/L	0.010	101	95	105			
Manganese		5.10	mg/L	0.010	102	95	105			
Molybdenum		1.05	mg/L	0.10	105	95	105			
Nickel		1.02	mg/L	0.050	102	95	105			
Vanadium		1.03	mg/L	0.10	103	95	105			
<b>Sample ID: ICSA</b> 8 Interference Check Sample A 01/15/13 13:57										
Aluminum		529	mg/L	0.10	106	80	120			
Beryllium		0.000100	mg/L	0.010						
Cadmium		-0.00310	mg/L	0.010						
Cobalt		-0.00270	mg/L	0.010						
Manganese		-0.00220	mg/L	0.010						
Molybdenum		-0.0207	mg/L	0.10						
Nickel		-0.00380	mg/L	0.050						
Vanadium		0.00960	mg/L	0.10						
<b>Sample ID: ICSAB</b> 8 Interference Check Sample AB 01/15/13 14:01										
Aluminum		531	mg/L	0.10	106	80	120			
Beryllium		0.503	mg/L	0.010	101	80	120			
Cadmium		0.966	mg/L	0.010	97	80	120			
Cobalt		0.476	mg/L	0.010	95	80	120			
Manganese		0.498	mg/L	0.010	100	80	120			
Molybdenum		-0.0211	mg/L	0.10						
Nickel		0.959	mg/L	0.050	96	80	120			
Vanadium		0.525	mg/L	0.10	105	80	120			
<b>Method: E200.7</b> Batch: 36259										
<b>Sample ID: MB-36259</b> 8 Method Blank Run: ICP2-C_130115A 01/15/13 17:02										
Aluminum		ND	mg/L	0.009						
Beryllium		ND	mg/L	0.0002						
Cadmium		ND	mg/L	0.0006						
Cobalt		ND	mg/L	0.002						
Manganese		ND	mg/L	0.0002						
Molybdenum		ND	mg/L	0.002						
Nickel		ND	mg/L	0.002						
Vanadium		ND	mg/L	0.01						
<b>Sample ID: LCS3-36259</b> 8 Laboratory Control Sample Run: ICP2-C_130115A 01/15/13 17:06										
Aluminum		2.44	mg/L	0.030	98	85	115			
Beryllium		0.253	mg/L	0.0010	101	85	115			
Cadmium		0.253	mg/L	0.0010	101	85	115			
Cobalt		0.501	mg/L	0.0050	100	85	115			

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										Batch: 36259
<b>Sample ID: LCS3-36259</b>	8	Laboratory Control Sample					Run: ICP2-C_130115A			01/15/13 17:06
Manganese		2.56	mg/L	0.0010	102	85	115			
Molybdenum		0.504	mg/L	0.0023	101	85	115			
Nickel		0.503	mg/L	0.0050	101	85	115			
Vanadium		0.512	mg/L	0.014	102	85	115			
<b>Sample ID: C13010314-001AMS3</b>	8	Sample Matrix Spike					Run: ICP2-C_130115A			01/15/13 18:10
Aluminum		2.51	mg/L	0.030	101	70	130			
Beryllium		0.251	mg/L	0.0010	100	70	130			
Cadmium		0.251	mg/L	0.0011	100	70	130			
Cobalt		0.500	mg/L	0.0050	100	70	130			
Manganese		2.52	mg/L	0.0010	101	70	130			
Molybdenum		0.511	mg/L	0.0045	102	70	130			
Nickel		0.502	mg/L	0.0050	100	70	130			
Vanadium		0.513	mg/L	0.028	103	70	130			
<b>Sample ID: C13010314-001AMSD</b>	8	Sample Matrix Spike Duplicate					Run: ICP2-C_130115A			01/15/13 18:14
Aluminum		2.50	mg/L	0.030	100	70	130	0.6	20	
Beryllium		0.252	mg/L	0.0010	101	70	130	0.6	20	
Cadmium		0.249	mg/L	0.0011	100	70	130	0.8	20	
Cobalt		0.497	mg/L	0.0050	99	70	130	0.6	20	
Manganese		2.51	mg/L	0.0010	100	70	130	0.3	20	
Molybdenum		0.514	mg/L	0.0045	103	70	130	0.6	20	
Nickel		0.497	mg/L	0.0050	99	70	130	1.0	20	
Vanadium		0.519	mg/L	0.028	104	70	130	1.1	20	

### Qualifiers:

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# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>		Analytical Run: ICP2-C_130123B								
<b>Sample ID: ICV</b>	4	Initial Calibration Verification Standard								01/23/13 13:08
Calcium		51.3	mg/L	0.50	103	95	105			
Magnesium		48.0	mg/L	0.50	96	95	105			
Potassium		48.4	mg/L	0.50	97	95	105			
Sodium		51.7	mg/L	0.50	103	95	105			
<b>Sample ID: ICSA</b>	4	Interference Check Sample A								01/23/13 13:36
Calcium		495	mg/L	0.50	99	80	120			
Magnesium		488	mg/L	0.50	98	80	120			
Potassium		-0.00110	mg/L	0.50						
Sodium		0.0552	mg/L	0.50						
<b>Sample ID: ICSAB</b>	4	Interference Check Sample AB								01/23/13 13:40
Calcium		496	mg/L	0.50	99	80	120			
Magnesium		505	mg/L	0.50	101	80	120			
Potassium		-0.000100	mg/L	0.50						
Sodium		0.0458	mg/L	0.50						
<b>Method: E200.7</b>		Batch: R169493								
<b>Sample ID: MB-130123A</b>	4	Method Blank								Run: ICP2-C_130123B 01/23/13 14:05
Calcium		ND	mg/L	0.06						
Magnesium		ND	mg/L	0.03						
Potassium		ND	mg/L	0.06						
Sodium		ND	mg/L	0.3						
<b>Sample ID: LFB-130123A</b>	4	Laboratory Fortified Blank								Run: ICP2-C_130123B 01/23/13 14:09
Calcium		50.1	mg/L	0.50	100	85	115			
Magnesium		47.9	mg/L	0.50	96	85	115			
Potassium		46.4	mg/L	0.50	93	85	115			
Sodium		49.0	mg/L	0.50	98	85	115			
<b>Sample ID: C13010517-001CMS2</b>	4	Sample Matrix Spike								Run: ICP2-C_130123B 01/23/13 14:37
Calcium		166	mg/L	1.0	71	70	130			
Magnesium		95.3	mg/L	1.0	85	70	130			
Potassium		51.9	mg/L	1.0	89	70	130			
Sodium		329	mg/L	1.0		70	130			A
<b>Sample ID: C13010517-001CMSD</b>	4	Sample Matrix Spike Duplicate								Run: ICP2-C_130123B 01/23/13 14:41
Calcium		167	mg/L	1.0	74	70	130	0.9	20	
Magnesium		96.6	mg/L	1.0	88	70	130	1.4	20	
Potassium		53.0	mg/L	1.0	92	70	130	2.1	20	
Sodium		321	mg/L	1.0		70	130	2.4	20	A

**Qualifiers:**

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ND - Not detected at the reporting limit.

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

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.7</b>											
Analytical Run: ICP2-C_130207B											
<b>Sample ID: ICV</b>	4	Initial Calibration Verification Standard								02/07/13 13:36	
Calcium		50.6	mg/L	0.50	101	95	105				
Magnesium		51.4	mg/L	0.50	103	95	105				
Potassium		48.6	mg/L	0.50	97	95	105				
Sodium		51.8	mg/L	0.50	104	95	105				
<b>Sample ID: ICSA</b>	4	Interference Check Sample A								02/07/13 14:04	
Calcium		498	mg/L	0.50	100	80	120				
Magnesium		531	mg/L	0.50	106	80	120				
Potassium		-0.00170	mg/L	0.50							
Sodium		0.0506	mg/L	0.50							
<b>Sample ID: ICSAB</b>	4	Interference Check Sample AB								02/07/13 14:08	
Calcium		486	mg/L	0.50	97	80	120				
Magnesium		522	mg/L	0.50	104	80	120				
Potassium		-0.000200	mg/L	0.50							
Sodium		0.0787	mg/L	0.50							
<b>Method: E200.7</b>											
Batch: R170153											
<b>Sample ID: MB-130207A</b>	4	Method Blank								Run: ICP2-C_130207B	02/07/13 14:32
Calcium		ND	mg/L	0.02							
Magnesium		ND	mg/L	0.03							
Potassium		ND	mg/L	0.06							
Sodium		ND	mg/L	0.3							
<b>Sample ID: LFB-130207A</b>	4	Laboratory Fortified Blank								Run: ICP2-C_130207B	02/07/13 14:36
Calcium		49.5	mg/L	0.50	99	85	115				
Magnesium		51.1	mg/L	0.50	102	85	115				
Potassium		46.0	mg/L	0.50	92	85	115				
Sodium		49.5	mg/L	0.50	99	85	115				
<b>Sample ID: C13010805-001BMS2</b>	4	Sample Matrix Spike								Run: ICP2-C_130207B	02/07/13 19:17
Calcium		756	mg/L	1.0	80	70	130				
Magnesium		373	mg/L	1.0	98	70	130				
Potassium		241	mg/L	1.0	93	70	130				
Sodium		1030	mg/L	1.6	87	70	130				
<b>Sample ID: C13010805-001BMSD</b>	4	Sample Matrix Spike Duplicate								Run: ICP2-C_130207B	02/07/13 19:22
Calcium		774	mg/L	1.0	87	70	130	2.4	20		
Magnesium		365	mg/L	1.0	95	70	130	2.3	20		
Potassium		247	mg/L	1.0	95	70	130	2.3	20		
Sodium		1040	mg/L	1.6	89	70	130	0.6	20		

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual		
<b>Method: E200.8</b>		Analytical Run: ICPMS2-C_130213A										
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									02/13/13 12:28		
Lead		0.0500	mg/L	0.0010	100	90	110					
<b>Method: E200.8</b>		Batch: 36259										
<b>Sample ID: MB-36259</b>	Method Blank									Run: ICPMS2-C_130213A	02/13/13 22:52	
Lead		ND	mg/L	2E-05								
<b>Sample ID: LCS3-36259</b>	Laboratory Control Sample									Run: ICPMS2-C_130213A	02/13/13 22:55	
Lead		0.510	mg/L	0.0010	102	85	115					
<b>Sample ID: C13010314-001AMS3</b>	Sample Matrix Spike									Run: ICPMS2-C_130213A	02/13/13 23:04	
Lead		0.505	mg/L	0.0010	101	70	130					
<b>Sample ID: C13010314-001AMSD</b>	Sample Matrix Spike Duplicate									Run: ICPMS2-C_130213A	02/13/13 23:07	
Lead		0.506	mg/L	0.0010	101	70	130	0.3	20			
<b>Method: E200.8</b>		Analytical Run: ICPMS4-C_130116A										
<b>Sample ID: ICV</b>	3	Initial Calibration Verification Standard									01/16/13 13:23	
Cadmium		0.0527	mg/L	0.0010	105	90	110					
Lead		0.0519	mg/L	0.0010	104	90	110					
Uranium		0.0518	mg/L	0.00030	104	90	110					
<b>Method: E200.8</b>		Batch: 36259										
<b>Sample ID: MB-36259</b>	3	Method Blank									Run: ICPMS4-C_130116A	01/17/13 20:22
Cadmium		ND	mg/L	0.0050								
Lead		ND	mg/L	0.0010								
Uranium		ND	mg/L	0.00030								
<b>Sample ID: LCS3-36259</b>	3	Laboratory Control Sample									Run: ICPMS4-C_130116A	01/17/13 20:26
Cadmium		0.255	mg/L	0.0010	102	85	115					
Lead		0.520	mg/L	0.0010	104	85	115					
Uranium		0.548	mg/L	0.00030	110	85	115					
<b>Sample ID: C13010313-001AMS3</b>	3	Sample Matrix Spike									Run: ICPMS4-C_130116A	01/17/13 20:39
Cadmium		0.240	mg/L	0.0010	96	70	130					
Lead		0.556	mg/L	0.0010	110	70	130					
Uranium		0.634	mg/L	0.00030	124	70	130					
<b>Sample ID: C13010313-001AMSD</b>	3	Sample Matrix Spike Duplicate									Run: ICPMS4-C_130116A	01/17/13 20:42
Cadmium		0.237	mg/L	0.0010	95	70	130	1.2	20			
Lead		0.554	mg/L	0.0010	110	70	130	0.5	20			
Uranium		0.633	mg/L	0.00030	124	70	130	0.1	20			

### Qualifiers:

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MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>								Analytical Run: IC2-C_130114A		
<b>Sample ID: ICV-011113-11</b>	2	Initial Calibration Verification Standard						01/11/13 20:21		
Chloride		9.80	mg/L	1.0	98	90	110			
Sulfate		40.0	mg/L	1.0	100	90	110			
<b>Method: E300.0</b>								Batch: R169113		
<b>Sample ID: ICB-011113-12</b>	2	Method Blank						Run: IC2-C_130114A 01/11/13 20:37		
Chloride		0.04	mg/L	0.02						
Sulfate		0.2	mg/L	0.09						
<b>Sample ID: LFB-011113-13</b>	2	Laboratory Fortified Blank						Run: IC2-C_130114A 01/11/13 20:52		
Chloride		9.92	mg/L	1.0	99	90	110			
Sulfate		39.9	mg/L	1.0	99	90	110			
<b>Sample ID: C13010341-004AMS</b>	2	Sample Matrix Spike						Run: IC2-C_130114A 01/12/13 01:14		
Chloride		264	mg/L	4.2	100	90	110			
Sulfate		4970	mg/L	17		90	110			A
<b>Sample ID: C13010341-004AMSD</b>	2	Sample Matrix Spike Duplicate						Run: IC2-C_130114A 01/12/13 01:30		
Chloride		268	mg/L	4.2	102	90	110	1.5	20	
Sulfate		5000	mg/L	17		90	110	0.6	20	A

### Qualifiers:

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

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										Batch: R169243
<b>Sample ID: MBLK-1</b>		Method Blank								Run: TECHNICON_130116A 01/16/13 11:20
Nitrogen, Nitrate+Nitrite as N		0.007	mg/L	0.003						
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								Run: TECHNICON_130116A 01/16/13 11:22
Nitrogen, Nitrate+Nitrite as N		2.60	mg/L	0.10	104	90	110			
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								Run: TECHNICON_130116A 01/16/13 11:25
Nitrogen, Nitrate+Nitrite as N		2.08	mg/L	0.10	106	90	110			
<b>Sample ID: C13010398-030DMS</b>		Sample Matrix Spike								Run: TECHNICON_130116A 01/16/13 14:30
Nitrogen, Nitrate+Nitrite as N		2.15	mg/L	0.10	109	90	110			
<b>Sample ID: C13010398-030DMSD</b>		Sample Matrix Spike Duplicate								Run: TECHNICON_130116A 01/16/13 14:32
Nitrogen, Nitrate+Nitrite as N		2.13	mg/L	0.10	108	90	110	0.9	10	

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E624</b>								Analytical Run: R169115			
<b>Sample ID: 11-Jan-13_CCV_3</b>	9	Continuing Calibration Verification Standard						01/11/13 14:58			
Bromodichloromethane		9.80	ug/L	1.0	98	70	130				
Bromoform		9.60	ug/L	1.0	96	70	130				
Chlorodibromomethane		9.36	ug/L	1.0	94	70	130				
Chloroform		9.60	ug/L	1.0	96	70	130				
Trihalomethanes, Total		38.4	ug/L	1.0	96	70	130				
Surr: 1,2-Dichlorobenzene-d4				1.0	104	80	120				
Surr: Dibromofluoromethane				1.0	97	80	120				
Surr: p-Bromofluorobenzene				1.0	108	80	120				
Surr: Toluene-d8				1.0	103	80	120				
<b>Method: E624</b>								Batch: R169115			
<b>Sample ID: 11-Jan-13_LCS_4</b>	9	Laboratory Control Sample				Run: 5975VOC1_130111A		01/11/13 15:33			
Bromodichloromethane		8.80	ug/L	1.0	88	72.3	123				
Bromoform		9.08	ug/L	1.0	91	70.3	128				
Chlorodibromomethane		8.88	ug/L	1.0	89	69.1	123				
Chloroform		9.16	ug/L	1.0	92	72.9	130				
Trihalomethanes, Total		35.9	ug/L	1.0	90	75.7	121				
Surr: 1,2-Dichlorobenzene-d4				1.0	105	82	118				
Surr: Dibromofluoromethane				1.0	92	74.8	123				
Surr: p-Bromofluorobenzene				1.0	108	82.4	121				
Surr: Toluene-d8				1.0	101	76.4	125				
<b>Sample ID: 11-Jan-13_MBLK_6</b>	9	Method Blank				Run: 5975VOC1_130111A		01/11/13 16:44			
Bromodichloromethane		ND	ug/L	1.0							
Bromoform		ND	ug/L	1.0							
Chlorodibromomethane		ND	ug/L	1.0							
Chloroform		ND	ug/L	1.0							
Trihalomethanes, Total		ND	ug/L	1.0							
Surr: 1,2-Dichlorobenzene-d4				1.0	114	80	120				
Surr: Dibromofluoromethane				1.0	89	80	120				
Surr: p-Bromofluorobenzene				1.0	116	80	120				
Surr: Toluene-d8				1.0	94	80	120				
<b>Sample ID: C13010300-002AMS</b>	9	Sample Matrix Spike				Run: 5975VOC1_130111A		01/11/13 22:36			
Bromodichloromethane		190	ug/L	10	95	72.3	123				
Bromoform		197	ug/L	10	98	70.3	128				
Chlorodibromomethane		191	ug/L	10	96	69.1	123				
Chloroform		193	ug/L	10	96	72.9	130				
Trihalomethanes, Total		771	ug/L	10	96	75.7	121				
Surr: 1,2-Dichlorobenzene-d4				1.0	107	82	118				
Surr: Dibromofluoromethane				1.0	93	74.8	123				
Surr: p-Bromofluorobenzene				1.0	107	82.4	121				
Surr: Toluene-d8				1.0	103	76.4	125				

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b>										Batch: R169115
<b>Sample ID: C13010300-002AMSD</b>										9 Sample Matrix Spike Duplicate
										Run: 5975VOC1_130111A
Bromodichloromethane		182	ug/L	10	91	72.3	123	4.7	20	
Bromoform		198	ug/L	10	99	70.3	128	0.4	20	
Chlorodibromomethane		182	ug/L	10	91	69.1	123	5.2	20	
Chloroform		190	ug/L	10	95	72.9	130	1.3	20	
Trihalomethanes, Total		751	ug/L	10	94	75.7	121	2.6	20	
Surr: 1,2-Dichlorobenzene-d4				1.0	106	82	118			
Surr: Dibromofluoromethane				1.0	91	74.8	123			
Surr: p-Bromofluorobenzene				1.0	108	82.4	121			
Surr: Toluene-d8				1.0	100	76.4	125			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration





# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b> <span style="float: right;">Analytical Run: R169168</span>										
<b>Sample ID: 011413_CCV_3</b>	9	Continuing Calibration Verification Standard								01/14/13 10:42
Bromodichloromethane		11.3	ug/L	1.0	113	70	130			
Bromoform		9.36	ug/L	1.0	94	70	130			
Chlorodibromomethane		9.16	ug/L	1.0	92	70	130			
Chloroform		9.16	ug/L	1.0	92	70	130			
Trihalomethanes, Total		39.0	ug/L	1.0	98	70	130			
Surr: 1,2-Dichlorobenzene-d4				1.0	91	80	120			
Surr: Dibromofluoromethane				1.0	78	80	120			S
Surr: p-Bromofluorobenzene				1.0	104	80	120			
Surr: Toluene-d8				1.0	107	80	120			
<b>Method: E624</b> <span style="float: right;">Batch: R169168</span>										
<b>Sample ID: 011413_LCS_4</b>	9	Laboratory Control Sample					Run: SATURNCA_130114A	01/14/13 11:18		
Bromodichloromethane		10.9	ug/L	1.0	109	72.3	123			
Bromoform		9.04	ug/L	1.0	90	70.3	128			
Chlorodibromomethane		9.00	ug/L	1.0	90	69.1	123			
Chloroform		8.96	ug/L	1.0	90	72.9	130			
Trihalomethanes, Total		37.9	ug/L	1.0	95	75.7	121			
Surr: 1,2-Dichlorobenzene-d4				1.0	96	82	118			
Surr: Dibromofluoromethane				1.0	80	74.8	123			
Surr: p-Bromofluorobenzene				1.0	102	82.4	121			
Surr: Toluene-d8				1.0	110	76.4	125			
<b>Sample ID: 011413_MBLK_6</b>	9	Method Blank					Run: SATURNCA_130114A	01/14/13 12:30		
Bromodichloromethane		ND	ug/L	1.0						
Bromoform		ND	ug/L	1.0						
Chlorodibromomethane		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Trihalomethanes, Total		ND	ug/L	1.0						
Surr: 1,2-Dichlorobenzene-d4				1.0	97	80	120			
Surr: Dibromofluoromethane				1.0	82	80	120			
Surr: p-Bromofluorobenzene				1.0	104	80	120			
Surr: Toluene-d8				1.0	104	80	120			
<b>Sample ID: C13010341-001HMS</b>	9	Sample Matrix Spike					Run: SATURNCA_130114A	01/14/13 20:06		
Bromodichloromethane		216	ug/L	10	108	72.3	123			
Bromoform		201	ug/L	10	100	70.3	128			
Chlorodibromomethane		189	ug/L	10	94	69.1	123			
Chloroform		274	ug/L	10	86	72.9	130			
Trihalomethanes, Total		880	ug/L	10	97	75.7	121			
Surr: 1,2-Dichlorobenzene-d4				1.0	96	82	118			
Surr: Dibromofluoromethane				1.0	80	74.8	123			
Surr: p-Bromofluorobenzene				1.0	109	82.4	121			
Surr: Toluene-d8				1.0	105	76.4	125			

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.



# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E624										Batch: R169168
Sample ID: C13010341-001HMSD 9 Sample Matrix Spike Duplicate										Run: SATURNCA_130114A 01/14/13 20:42
Bromodichloromethane		223	ug/L	10	112	72.3	123	3.3	20	
Bromoform		194	ug/L	10	97	70.3	128	3.2	20	
Chlorodibromomethane		188	ug/L	10	94	69.1	123	0.4	20	
Chloroform		282	ug/L	10	90	72.9	130	2.9	20	
Trihalomethanes, Total		888	ug/L	10	98	75.7	121	0.9	20	
Surr: 1,2-Dichlorobenzene-d4				1.0	93	82	118			
Surr: Dibromofluoromethane				1.0	85	74.8	123			
Surr: p-Bromofluorobenzene				1.0	103	82.4	121			
Surr: Toluene-d8				1.0	106	76.4	125			

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E900.1</b>										Batch: GA-0654
<b>Sample ID: LCS-GA-0635</b>		Laboratory Control Sample					Run: G542M_130116B			02/13/13 07:37
Gross Alpha minus Rn & U		21.9	pCi/L	107		80	120			
<b>Sample ID: MB-GA-0635</b>	3	Method Blank					Run: G542M_130116B			02/13/13 07:37
Gross Alpha minus Rn & U		0.05	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.2	pCi/L							
Gross Alpha minus Rn & U MDC		0.3	pCi/L							
<b>Sample ID: C13010341-006GMS</b>		Sample Matrix Spike					Run: G542M_130116B			02/13/13 07:37
Gross Alpha minus Rn & U		41.9	pCi/L	93		70	130			
<b>Sample ID: C13010341-006GMSD</b>		Sample Matrix Spike Duplicate					Run: G542M_130116B			02/13/13 07:37
Gross Alpha minus Rn & U		40.9	pCi/L	89		70	130	2.4	21	

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0										Batch: RA226-6475
Sample ID: C13010326-002IMS		Sample Matrix Spike				Run: BERTHOLD 770-1_130118A				01/28/13 21:52
Radium 226	12	pCi/L		99		70	130			
Sample ID: C13010326-002IMSD		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-1_130118A				01/28/13 21:52
Radium 226	11	pCi/L		87		70	130	13		26.2
Sample ID: MB-RA226-6475	3	Method Blank				Run: BERTHOLD 770-1_130118A				01/29/13 01:02
Radium 226		0.007	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Sample ID: LCS-RA226-6475		Laboratory Control Sample				Run: BERTHOLD 770-1_130118A				01/29/13 01:02
Radium 226	6.7	pCi/L		106		80	120			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E908.0</b> <span style="float: right;">Batch: RA-TH-ISO-1788</span>										
<b>Sample ID: LCS-RA-TH-ISO-1788</b>	Laboratory Control Sample					Run: ALPHANALYST_130128A		01/30/13 16:19		
Thorium 230		5.5	pCi/L	102		80	120			
<b>Sample ID: C13010343-013GMS</b>	Sample Matrix Spike					Run: ALPHANALYST_130128A		01/30/13 16:20		
Thorium 230		12.2	pCi/L	92		70	130			
<b>Sample ID: C13010343-013GMSD</b>	Sample Matrix Spike Duplicate					Run: ALPHANALYST_130128A		01/30/13 16:20		
Thorium 230		13.4	pCi/L	101		70	130	9.3	42.8	
<b>Sample ID: MB-RA-TH-ISO-1788</b>	3	Method Blank				Run: ALPHANALYST_130128A		01/30/13 16:20		
Thorium 230		0.1	pCi/L							U
Thorium 230 precision (±)		0.1	pCi/L							
Thorium 230 MDC		0.2	pCi/L							
<b>Method: E908.0</b> <span style="float: right;">Batch: RA-TH-ISO-1789</span>										
<b>Sample ID: LCS-RA-TH-ISO-1789</b>	Laboratory Control Sample					Run: ALPHANALYST_130129B		02/01/13 09:12		
Thorium 230		12	pCi/L	112		80	120			
<b>Sample ID: C13010580-003FMS</b>	Sample Matrix Spike					Run: ALPHANALYST_130129B		02/01/13 09:12		
Thorium 230		71.5	pCi/L	120		70	130			
<b>Sample ID: C13010580-003FMSD</b>	Sample Matrix Spike Duplicate					Run: ALPHANALYST_130129B		02/01/13 09:12		
Thorium 230		66.7	pCi/L	111		70	130	7.0	34.3	
<b>Sample ID: MB-RA-TH-ISO-1789</b>	3	Method Blank				Run: ALPHANALYST_130129B		02/01/13 09:12		
Thorium 230		0.03	pCi/L							U
Thorium 230 precision (±)		0.07	pCi/L							
Thorium 230 MDC		0.2	pCi/L							

**Qualifiers:**

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MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E909.0</b>								Batch: T_PB-210-0352		
<b>Sample ID: MB-PB-210-0352</b>	3	Method Blank				Run: SUB-T49381			02/07/13 12:03	
Lead 210		0.4	pCi/L							U
Lead 210 precision (±)		0.8	pCi/L							
Lead 210 MDC		1	pCi/L							
<b>Sample ID: LCS-PB-210-0352</b>		Laboratory Control Sample				Run: SUB-T49381			02/07/13 13:18	
Lead 210		22	pCi/L	104		70	130			
<b>Sample ID: C13010926-004FMS</b>		Sample Matrix Spike				Run: SUB-T49381			02/07/13 15:48	
Lead 210		62	pCi/L	99		70	130			
<b>Sample ID: C13010926-004FMSD</b>		Sample Matrix Spike Duplicate				Run: SUB-T49381			02/07/13 17:03	
Lead 210		63	pCi/L	101		70	130	1.9	20.9	

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/22/13

Project: Zone 3

Work Order: C13010341

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05 <span style="float: right;">Batch: RA228-4322</span>										
Sample ID: LCS-228-RA226-6475		Laboratory Control Sample				Run: TENNELEC-3_130118A			01/23/13 23:11	
Radium 228		5.1	pCi/L		97	80	120			
Sample ID: MB-RA226-6475	3	Method Blank				Run: TENNELEC-3_130118A			01/23/13 23:11	
Radium 228		0.7	pCi/L							U
Radium 228 precision (±)		0.7	pCi/L							
Radium 228 MDC		1	pCi/L							
Sample ID: C13010326-003IMS		Sample Matrix Spike				Run: TENNELEC-3_130118A			01/23/13 23:11	
Radium 228		8.7	pCi/L		86	70	130			
Sample ID: C13010326-003IMSD		Sample Matrix Spike Duplicate				Run: TENNELEC-3_130118A			01/23/13 23:11	
Radium 228		8.2	pCi/L		81	70	130	6.1	48.3	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



# ANALYTICAL SUMMARY REPORT

February 25, 2013

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

Workorder No.: C13010580      Quote ID: C129 - Quarterly Long List

Project Name: Zone-3

Energy Laboratories, Inc. Casper WY received the following 8 samples for United Nuclear Corporation on 1/18/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13010580-001	EPA-13	01/14/13 13:32	01/18/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics
C13010580-002	711	01/14/13 14:23	01/18/13	Aqueous	Same As Above
C13010580-003	NBL-1	01/14/13 15:20	01/18/13	Aqueous	Same As Above
C13010580-004	MW-7	01/14/13 16:04	01/18/13	Aqueous	Same As Above
C13010580-005	708	01/15/13 16:00	01/18/13	Aqueous	Same As Above
C13010580-006	Rinsate	01/16/13 9:45	01/18/13	Aqueous	Same As Above





### ANALYTICAL SUMMARY REPORT

C13010580-007	Field Blank	01/16/13 10:20	01/18/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved E624 Purgeable Organics
C13010580-008	MW-6	01/16/13 10:50	01/18/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, 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.

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

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2013.02.25 11:11:10 -07:00



**CLIENT:** United Nuclear Corporation  
**Project:** Zone-3  
**Sample Delivery Group:** C13010580

**Report Date:** 02/25/13

## CASE NARRATIVE

### BRANCH LABORATORY SUBCONTRACT ANALYSIS

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-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.

### TH230 ANALYSIS

The sample-specific MDC for this sample could not be achieved due to significant matrix interferences, restricting the volume of sample to be used in the analysis.



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2320 B</b>										Batch: R169331
<b>Sample ID: MBLK</b>	2	Method Blank								
Alkalinity, Total as CaCO3		ND	mg/L	5.0						
Bicarbonate as HCO3		1.01	mg/L	5.0						
<b>Sample ID: LCS_121003</b>		Laboratory Control Sample								
Alkalinity, Total as CaCO3		155	mg/L	5.0	103	90	110			01/18/13 14:48
<b>Sample ID: C13010580-001ADUP</b>	2	Sample Duplicate								
Alkalinity, Total as CaCO3		53.0	mg/L	5.0				0.4	10	01/19/13 00:58
Bicarbonate as HCO3		64.7	mg/L	5.0				0.4	10	
<b>Sample ID: C13010580-006ADUP</b>	2	Sample Duplicate								
Alkalinity, Total as CaCO3		ND	mg/L	5.0					10	01/19/13 02:03
Bicarbonate as HCO3		ND	mg/L	5.0					10	
<b>Sample ID: C13010581-008BMS</b>		Sample Matrix Spike								
Alkalinity, Total as CaCO3		242	mg/L	5.0	103	80	120			01/19/13 02:31

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS130121A		
<b>Sample ID: MB-1_130121A</b>	Method Blank									
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						01/21/13 08:22
<b>Sample ID: LCS-2_130121A</b>	Laboratory Control Sample									
Solids, Total Dissolved TDS @ 180 C		1980	mg/L	20	99	90	110			01/21/13 08:22
<b>Sample ID: C13010580-008A MS</b>	Sample Matrix Spike									
Solids, Total Dissolved TDS @ 180 C		8540	mg/L	40	101	90	110			01/21/13 08:45
<b>Sample ID: C13010583-002A DUP</b>	Sample Duplicate									
Solids, Total Dissolved TDS @ 180 C		1320	mg/L	20				2.8	5	01/21/13 08:50
<b>Method: A2540 C</b>								Batch: TDS130124A		
<b>Sample ID: MB-1_130124A</b>	Method Blank									
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						01/24/13 15:04
<b>Sample ID: LCS-2_130124A</b>	Laboratory Control Sample									
Solids, Total Dissolved TDS @ 180 C		1970	mg/L	20	99	90	110			01/24/13 15:05
<b>Sample ID: C13010580-002A DUP</b>	Sample Duplicate									
Solids, Total Dissolved TDS @ 180 C		4740	mg/L	40				2.2	5	01/24/13 15:06
<b>Sample ID: C13010682-001A MS</b>	Sample Matrix Spike									
Solids, Total Dissolved TDS @ 180 C		4600	mg/L	20	101	90	110			01/24/13 15:07

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A3114 B</b>								Analytical Run: CVAA-C202_130201A		
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									02/01/13 09:54
Selenium-IV		0.0253	mg/L	0.0010	101	90	110			
<b>Method: A3114 B</b>								Batch: 36443		
<b>Sample ID: MB-36443</b>	Method Blank									02/01/13 09:57
Selenium-IV		ND	mg/L	0.0005						
<b>Sample ID: LCS-36443</b>	Laboratory Control Sample									02/01/13 09:59
Selenium-IV		0.0239	mg/L	0.0010	96	90	110			
<b>Sample ID: C13010580-004CMS</b>	Sample Matrix Spike									02/01/13 10:28
Selenium-IV		0.0228	mg/L	0.0010	84	85	115			S
<b>Sample ID: C13010580-004CMSD</b>	Sample Matrix Spike Duplicate									02/01/13 10:30
Selenium-IV		0.0225	mg/L	0.0010	83	85	115	1.2	10	S
<b>Method: A3114 B</b>								Analytical Run: CVAA-C202_130206B		
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									02/06/13 13:30
Selenium-IV		0.0266	mg/L	0.0010	107	90	110			
<b>Method: A3114 B</b>								Batch: 36487		
<b>Sample ID: MB-36487</b>	Method Blank									02/06/13 12:45
Selenium-IV		ND	mg/L	0.0005						
<b>Sample ID: LCS-36487</b>	Laboratory Control Sample									02/06/13 12:46
Selenium-IV		0.0238	mg/L	0.0010	95	90	110			
<b>Sample ID: C13010580-006CMS</b>	Sample Matrix Spike									02/06/13 13:37
Selenium-IV		0.0269	mg/L	0.0010	108	85	115			
<b>Sample ID: C13010580-006CMSD</b>	Sample Matrix Spike Duplicate									02/06/13 13:38
Selenium-IV		0.0268	mg/L	0.0010	107	85	115	0.4	10	

**Qualifiers:**

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MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B								Analytical Run: PHSC_101-C_130121A		
Sample ID: pH 6.86		Initial Calibration Verification Standard						01/21/13 09:33		
pH		6.83	s.u.	0.010	100	98	102			
Method: A4500-H B								Batch: R169340		
Sample ID: C13010580-008ADUP		Sample Duplicate				Run: PHSC_101-C_130121A		01/21/13 10:21		
pH		6.43	s.u.	0.010				0.0	3	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A4500-NH3 G										Batch: R169415
<b>Sample ID:</b> MBLK-1		Method Blank								Run: TECHNICON_130122A
Nitrogen, Ammonia as N		ND	mg/L	0.01						01/22/13 15:46
<b>Sample ID:</b> LCS-2		Laboratory Control Sample								Run: TECHNICON_130122A
Nitrogen, Ammonia as N		2.16	mg/L	0.050	108	90	110			01/22/13 15:48
<b>Sample ID:</b> LFB-3		Laboratory Fortified Blank								Run: TECHNICON_130122A
Nitrogen, Ammonia as N		1.95	mg/L	0.050	99	80	120			01/22/13 15:50
<b>Sample ID:</b> C13010580-002EMS		Sample Matrix Spike								Run: TECHNICON_130122A
Nitrogen, Ammonia as N		2.35	mg/L	0.050	98	90	110			01/22/13 16:52
<b>Sample ID:</b> C13010580-002EMSD		Sample Matrix Spike Duplicate								Run: TECHNICON_130122A
Nitrogen, Ammonia as N		2.40	mg/L	0.050	101	90	110	2.1	10	01/22/13 16:54
<b>Sample ID:</b> C13010616-001DMS		Sample Matrix Spike								Run: TECHNICON_130122A
Nitrogen, Ammonia as N		2.14	mg/L	0.050	94	90	110			01/22/13 17:20
<b>Sample ID:</b> C13010616-001DMSD		Sample Matrix Spike Duplicate								Run: TECHNICON_130122A
Nitrogen, Ammonia as N		2.28	mg/L	0.050	101	90	110	6.3	10	01/22/13 17:22

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E1632AM</b>								Analytical Run: SUB-H86245		
<b>Sample ID: AS-ICV 25ppb-2/09/20</b>	Initial Calibration Verification Standard									
Arsenic-III		27.0	ug/L	5.0	108	87.6	114			02/09/13 13:48
<b>Method: E1632AM</b>								Batch: H_R86245		
<b>Sample ID: ICB</b>	Method Blank									
Arsenic-III		ND	ug/L	2						Run: SUB-H86245 02/09/13 14:12
<b>Sample ID: AS-LFB 50ppb-2/09/2</b>	Laboratory Fortified Blank									
Arsenic-III		52.9	ug/L	5.0	106	55	146			Run: SUB-H86245 02/09/13 14:20
<b>Sample ID: C13010591-003B</b>	Sample Matrix Spike									
Arsenic-III		59.6	ug/L	5.0	119	55	146			Run: SUB-H86245 02/09/13 16:45
<b>Sample ID: C13010591-003B</b>	Sample Matrix Spike Duplicate									
Arsenic-III		59.2	ug/L	5.0	118	55	146	0.7	20	Run: SUB-H86245 02/09/13 16:53

### Qualifiers:

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ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.7</b>										Analytical Run: ICP2-C_130122A	
<b>Sample ID: ICV</b>	12 Initial Calibration Verification Standard									01/22/13 12:14	
Aluminum		4.80	mg/L	0.10	96	95	105				
Beryllium		0.502	mg/L	0.010	100	95	105				
Cadmium		0.511	mg/L	0.010	102	95	105				
Calcium		52.3	mg/L	0.50	105	95	105				
Cobalt		1.00	mg/L	0.010	100	95	105				
Magnesium		50.6	mg/L	0.50	101	95	105				
Manganese		5.00	mg/L	0.010	100	95	105				
Molybdenum		1.04	mg/L	0.10	104	95	105				
Nickel		1.01	mg/L	0.050	101	95	105				
Potassium		48.6	mg/L	0.50	97	95	105				
Sodium		51.8	mg/L	0.50	104	95	105				
Vanadium		1.03	mg/L	0.10	103	95	105				
<b>Sample ID: ICSA</b>	12 Interference Check Sample A									01/22/13 12:42	
Aluminum		499	mg/L	0.10	100	80	120				
Beryllium		ND	mg/L	0.010							
Cadmium		-0.00430	mg/L	0.010							
Calcium		498	mg/L	0.50	100	80	120				
Cobalt		-0.00470	mg/L	0.010							
Magnesium		502	mg/L	0.50	100	80	120				
Manganese		-0.00150	mg/L	0.010							
Molybdenum		-0.0166	mg/L	0.10							
Nickel		-0.00330	mg/L	0.050							
Potassium		-0.00310	mg/L	0.50							
Sodium		0.0964	mg/L	0.50							
Vanadium		0.0213	mg/L	0.10							
<b>Sample ID: ICSAB</b>	12 Interference Check Sample AB									01/22/13 12:46	
Aluminum		510	mg/L	0.10	102	80	120				
Beryllium		0.501	mg/L	0.010	100	80	120				
Cadmium		1.00	mg/L	0.010	100	80	120				
Calcium		505	mg/L	0.50	101	80	120				
Cobalt		0.478	mg/L	0.010	96	80	120				
Magnesium		510	mg/L	0.50	102	80	120				
Manganese		0.501	mg/L	0.010	100	80	120				
Molybdenum		-0.0180	mg/L	0.10							
Nickel		0.972	mg/L	0.050	97	80	120				
Potassium		-0.00350	mg/L	0.50							
Sodium		0.0234	mg/L	0.50							
Vanadium		0.540	mg/L	0.10	108	80	120				
<b>Method: E200.7</b>										Batch: 36322	
<b>Sample ID: MB-36322</b>	8 Method Blank									Run: ICP2-C_130122A	
Aluminum		ND	mg/L	0.009						01/23/13 00:11	
Beryllium		ND	mg/L	0.0002							

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# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										Batch: 36322
<b>Sample ID: MB-36322</b>	8	Method Blank								Run: ICP2-C_130122A 01/23/13 00:11
Cadmium		ND	mg/L	0.0006						
Cobalt		ND	mg/L	0.002						
Manganese		ND	mg/L	0.0002						
Molybdenum		ND	mg/L	0.002						
Nickel		ND	mg/L	0.002						
Vanadium		ND	mg/L	0.01						
<b>Sample ID: LCS3-36322</b>	8	Laboratory Control Sample								Run: ICP2-C_130122A 01/23/13 00:15
Aluminum		2.58	mg/L	0.030	103	85	115			
Beryllium		0.261	mg/L	0.0010	104	85	115			
Cadmium		0.261	mg/L	0.0010	105	85	115			
Cobalt		0.517	mg/L	0.0050	103	85	115			
Manganese		2.59	mg/L	0.0010	104	85	115			
Molybdenum		0.517	mg/L	0.0023	103	85	115			
Nickel		0.522	mg/L	0.0050	104	85	115			
Vanadium		0.532	mg/L	0.014	106	85	115			
<b>Sample ID: C13010580-002CMS3</b>	8	Sample Matrix Spike								Run: ICP2-C_130122A 01/23/13 01:36
Aluminum		2.89	mg/L	0.030	113	70	130			
Beryllium		0.258	mg/L	0.0010	102	70	130			
Cadmium		0.249	mg/L	0.0011	100	70	130			
Cobalt		0.777	mg/L	0.0050	100	70	130			
Manganese		7.42	mg/L	0.0010	96	70	130			
Molybdenum		0.853	mg/L	0.0045	106	70	130			
Nickel		0.770	mg/L	0.0050	100	70	130			
Vanadium		0.549	mg/L	0.028	110	70	130			
<b>Sample ID: C13010580-002CMSD</b>	8	Sample Matrix Spike Duplicate								Run: ICP2-C_130122A 01/23/13 01:52
Aluminum		2.97	mg/L	0.030	116	70	130	2.8	20	
Beryllium		0.262	mg/L	0.0010	104	70	130	1.5	20	
Cadmium		0.254	mg/L	0.0011	102	70	130	2.0	20	
Cobalt		0.802	mg/L	0.0050	105	70	130	3.2	20	
Manganese		7.72	mg/L	0.0010	109	70	130	4.0	20	
Molybdenum		0.849	mg/L	0.0045	105	70	130	0.4	20	
Nickel		0.791	mg/L	0.0050	104	70	130	2.7	20	
Vanadium		0.540	mg/L	0.028	108	70	130	1.7	20	
<b>Method: E200.7</b>										Batch: R169429
<b>Sample ID: MB-130122A</b>	4	Method Blank								Run: ICP2-C_130122A 01/22/13 13:10
Calcium		ND	mg/L	0.06						
Magnesium		ND	mg/L	0.03						
Potassium		ND	mg/L	0.06						
Sodium		ND	mg/L	0.3						
<b>Sample ID: LFB-130122A</b>	4	Laboratory Fortified Blank								Run: ICP2-C_130122A 01/22/13 13:14
Calcium		51.2	mg/L	0.50	102	85	115			

### Qualifiers:

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MDC - Minimum detectable concentration



# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Batch: R169429										
<b>Sample ID: LFB-130122A</b>	4	Laboratory Fortified Blank								
										Run: ICP2-C_130122A 01/22/13 13:14
Magnesium		49.7	mg/L	0.50	99	85	115			
Potassium		46.8	mg/L	0.50	94	85	115			
Sodium		49.9	mg/L	0.50	100	85	115			
<b>Sample ID: C13010580-008BMS2</b>	4	Sample Matrix Spike								
										Run: ICP2-C_130122A 01/22/13 22:18
Calcium		761	mg/L	1.0	86	70	130			
Magnesium		659	mg/L	1.0	84	70	130			
Potassium		254	mg/L	1.0	95	70	130			
Sodium		431	mg/L	1.6	101	70	130			
<b>Sample ID: C13010580-008BMSD</b>	4	Sample Matrix Spike Duplicate								
										Run: ICP2-C_130122A 01/22/13 22:22
Calcium		776	mg/L	1.0	92	70	130	1.9	20	
Magnesium		672	mg/L	1.0	89	70	130	2.0	20	
Potassium		255	mg/L	1.0	96	70	130	0.6	20	
Sodium		430	mg/L	1.6	101	70	130	0.2	20	

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS2-C_130122A								
<b>Sample ID: ICV</b>	3	Initial Calibration Verification Standard								01/22/13 15:43
Aluminum		0.0500	mg/L	0.0010	100	90	110			
Lead		0.0496	mg/L	0.0010	99	90	110			
Uranium		0.0484	mg/L	0.00030	97	90	110			
<b>Method: E200.8</b>		Batch: 36322								
<b>Sample ID: MB-36322</b>	3	Method Blank								01/22/13 16:53
Run: ICPMS2-C_130122A										
Aluminum		0.001	mg/L	0.0007						
Lead		3E-05	mg/L	2E-05						
Uranium		5E-05	mg/L	1E-05						
<b>Sample ID: LCS3-36322</b>	3	Laboratory Control Sample								01/22/13 16:56
Run: ICPMS2-C_130122A										
Aluminum		2.52	mg/L	0.030	101	85	115			
Lead		0.545	mg/L	0.0010	109	85	115			
Uranium		0.572	mg/L	0.00030	114	85	115			
<b>Sample ID: C13010580-002CMS3</b>	3	Sample Matrix Spike								01/22/13 18:12
Run: ICPMS2-C_130122A										
Aluminum		2.81	mg/L	0.030	98	70	130			
Lead		0.542	mg/L	0.0010	108	70	130			
Uranium		0.567	mg/L	0.00030	110	70	130			
<b>Sample ID: C13010580-002CMSD</b>	3	Sample Matrix Spike Duplicate								01/22/13 18:14
Run: ICPMS2-C_130122A										
Aluminum		2.94	mg/L	0.030	103	70	130	4.7	20	
Lead		0.540	mg/L	0.0010	107	70	130	0.3	20	
Uranium		0.560	mg/L	0.00030	108	70	130	1.2	20	

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>								Analytical Run: IC2-C_130121A		
<b>Sample ID: ICV-012113-11</b>	2	Initial Calibration Verification Standard						01/21/13 17:27		
Chloride		10.4	mg/L	1.0	104	90	110			
Sulfate		41.9	mg/L	1.0	105	90	110			
<b>Method: E300.0</b>								Batch: R169386		
<b>Sample ID: ICB-012113-12</b>	2	Method Blank						Run: IC2-C_130121A 01/21/13 17:43		
Chloride		ND	mg/L	0.02						
Sulfate		0.1	mg/L	0.09						
<b>Sample ID: LFB-012113-13</b>	2	Laboratory Fortified Blank						Run: IC2-C_130121A 01/21/13 17:58		
Chloride		9.88	mg/L	1.0	99	90	110			
Sulfate		39.7	mg/L	1.0	99	90	110			
<b>Sample ID: C13010582-001AMS</b>	2	Sample Matrix Spike						Run: IC2-C_130121A 01/21/13 18:44		
Chloride		42.9	mg/L	1.0	105	90	110			
Sulfate		288	mg/L	1.7	102	90	110			
<b>Sample ID: C13010582-001AMSD</b>	2	Sample Matrix Spike Duplicate						Run: IC2-C_130121A 01/21/13 19:00		
Chloride		43.5	mg/L	1.0	108	90	110	1.5	20	
Sulfate		287	mg/L	1.7	101	90	110	0.3	20	
<b>Sample ID: C13010580-008AMS</b>	2	Sample Matrix Spike						Run: IC2-C_130121A 01/21/13 22:36		
Chloride		238	mg/L	4.2	102	90	110			
Sulfate		3960	mg/L	17	99	90	110			
<b>Sample ID: C13010580-008AMSD</b>	2	Sample Matrix Spike Duplicate						Run: IC2-C_130121A 01/21/13 22:51		
Chloride		239	mg/L	4.2	102	90	110	0.3	20	
Sulfate		3930	mg/L	17	96	90	110	0.6	20	

### Qualifiers:

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ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E353.2										Batch: R169329
<b>Sample ID:</b> MBLK-1		Method Blank								Run: TECHNICON_130118A 01/18/13 15:06
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.003						
<b>Sample ID:</b> LCS-2		Laboratory Control Sample								Run: TECHNICON_130118A 01/18/13 15:09
Nitrogen, Nitrate+Nitrite as N		2.47	mg/L	0.10	99	90	110			
<b>Sample ID:</b> LFB-3		Laboratory Fortified Blank								Run: TECHNICON_130118A 01/18/13 15:11
Nitrogen, Nitrate+Nitrite as N		2.08	mg/L	0.10	106	90	110			
<b>Sample ID:</b> C13010580-001EMS		Sample Matrix Spike								Run: TECHNICON_130118A 01/18/13 16:56
Nitrogen, Nitrate+Nitrite as N		1.77	mg/L	0.10	90	90	110			
<b>Sample ID:</b> C13010580-001EMSD		Sample Matrix Spike Duplicate								Run: TECHNICON_130118A 01/18/13 16:59
Nitrogen, Nitrate+Nitrite as N		1.81	mg/L	0.10	92	90	110	2.2	10	
<b>Sample ID:</b> C13010580-002EMS		Sample Matrix Spike								Run: TECHNICON_130118A 01/18/13 17:09
Nitrogen, Nitrate+Nitrite as N		1.49	mg/L	0.10	75	90	110			S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID:</b> C13010580-002EMSD		Sample Matrix Spike Duplicate								Run: TECHNICON_130118A 01/18/13 17:11
Nitrogen, Nitrate+Nitrite as N		1.48	mg/L	0.10	74	90	110	0.7	10	S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



# QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b>										
										Analytical Run: R169379
<b>Sample ID: 21-Jan-13_CCV_3</b>	9	Continuing Calibration Verification Standard								01/21/13 10:58
Bromodichloromethane		11.3	ug/L	1.0	113	70	130			
Bromoform		12.8	ug/L	1.0	128	70	130			
Chlorodibromomethane		11.7	ug/L	1.0	117	70	130			
Chloroform		10.2	ug/L	1.0	102	70	130			
Trihalomethanes, Total		45.9	ug/L	1.0	115	70	130			
Surr: 1,2-Dichlorobenzene-d4				1.0	106	80	120			
Surr: Dibromofluoromethane				1.0	86	80	120			
Surr: p-Bromofluorobenzene				1.0	108	80	120			
Surr: Toluene-d8				1.0	102	80	120			
<b>Sample ID: 21-Jan-13_CCV_19</b>										
										01/21/13 20:30
Bromodichloromethane		7.92	ug/L	1.0	79	70	130			
Bromoform		10.9	ug/L	1.0	109	70	130			
Chlorodibromomethane		9.08	ug/L	1.0	91	70	130			
Chloroform		7.16	ug/L	1.0	72	70	130			
Trihalomethanes, Total		35.1	ug/L	1.0	88	70	130			
Surr: 1,2-Dichlorobenzene-d4				1.0	103	80	120			
Surr: Dibromofluoromethane				1.0	74	80	120			S
Surr: p-Bromofluorobenzene				1.0	105	80	120			
Surr: Toluene-d8				1.0	97	80	120			
<b>Method: E624</b>										
										Batch: R169379
<b>Sample ID: 21-Jan-13_LCS_4</b>	9	Laboratory Control Sample								01/21/13 11:33
										Run: 5975VOC1_130121C
Bromodichloromethane		9.16	ug/L	1.0	92	72.3	123			
Bromoform		10.9	ug/L	1.0	109	70.3	128			
Chlorodibromomethane		9.76	ug/L	1.0	98	69.1	123			
Chloroform		8.84	ug/L	1.0	88	72.9	130			
Trihalomethanes, Total		38.6	ug/L	1.0	97	75.7	121			
Surr: 1,2-Dichlorobenzene-d4				1.0	106	82	118			
Surr: Dibromofluoromethane				1.0	86	74.8	123			
Surr: p-Bromofluorobenzene				1.0	109	82.4	121			
Surr: Toluene-d8				1.0	99	76.4	125			
<b>Sample ID: 21-Jan-13_MBLK_6</b>										
										01/21/13 12:43
										Run: 5975VOC1_130121C
Bromodichloromethane		ND	ug/L	1.0						
Bromoform		ND	ug/L	1.0						
Chlorodibromomethane		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Trihalomethanes, Total		ND	ug/L	1.0						
Surr: 1,2-Dichlorobenzene-d4				1.0	116	80	120			
Surr: Dibromofluoromethane				1.0	94	80	120			
Surr: p-Bromofluorobenzene				1.0	116	80	120			
Surr: Toluene-d8				1.0	92	80	120			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b>										
Batch: R169379										
<b>Sample ID: C13010536-001DMS</b>	9	Sample Matrix Spike				Run: 5975VOC1_130121C				01/21/13 18:08
Bromodichloromethane		153	ug/L	10	76	72.3	123			
Bromoform		206	ug/L	10	103	70.3	128			
Chlorodibromomethane		162	ug/L	10	81	69.1	123			
Chloroform		169	ug/L	10	84	72.9	130			
Trihalomethanes, Total		690	ug/L	10	86	75.7	121			
Surr: 1,2-Dichlorobenzene-d4				1.0	109	82	118			
Surr: Dibromofluoromethane				1.0	82	74.8	123			
Surr: p-Bromofluorobenzene				1.0	112	82.4	121			
Surr: Toluene-d8				1.0	98	76.4	125			
<b>Sample ID: C13010536-001DMSD</b>	9	Sample Matrix Spike Duplicate				Run: 5975VOC1_130121C				01/21/13 18:44
Bromodichloromethane		154	ug/L	10	77	72.3	123	0.5	20	
Bromoform		220	ug/L	10	110	70.3	128	6.8	20	
Chlorodibromomethane		146	ug/L	10	73	69.1	123	10	20	
Chloroform		148	ug/L	10	74	72.9	130	13	20	
Trihalomethanes, Total		668	ug/L	10	84	75.7	121	3.2	20	
Surr: 1,2-Dichlorobenzene-d4				1.0	120	82	118			S
Surr: Dibromofluoromethane				1.0	74	74.8	123			
Surr: p-Bromofluorobenzene				1.0	114	82.4	121			
Surr: Toluene-d8				1.0	132	76.4	125			S

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.





### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E900.1</b> <span style="float: right;">Batch: GA-0649</span>										
<b>Sample ID: LCS-GA-0638</b>	Laboratory Control Sample			Run: BERTHOLD 770-2_130124B			02/08/13 05:27			
Gross Alpha minus Rn & U		20.8	pCi/L	99		80	120			
<b>Sample ID: MB-GA-0638</b>	3	Method Blank			Run: BERTHOLD 770-2_130124B			02/08/13 05:27		
Gross Alpha minus Rn & U		0.05	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.2	pCi/L							
Gross Alpha minus Rn & U MDC		0.3	pCi/L							
<b>Sample ID: C13010580-008FMS</b>	Sample Matrix Spike			Run: BERTHOLD 770-2_130124B			02/08/13 07:13			
Gross Alpha minus Rn & U		42.3	pCi/L	96		70	130			
<b>Sample ID: C13010580-008FMSD</b>	Sample Matrix Spike Duplicate			Run: BERTHOLD 770-2_130124B			02/08/13 07:13			
Gross Alpha minus Rn & U		37.8	pCi/L	88		70	130	11	22.5	

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E903.0</b>								Batch: RA226-6481		
<b>Sample ID: C13010581-001DMS</b>	Sample Matrix Spike									
Radium 226	16	pCi/L		93		70	130			02/01/13 08:38
<b>Sample ID: C13010581-001DMSD</b>	Sample Matrix Spike Duplicate									
Radium 226	17	pCi/L		100		70	130	5.9		02/01/13 08:38
<b>Sample ID: MB-RA226-6481</b>	3 Method Blank									
Radium 226		-0.01	pCi/L							U
Radium 226 precision (±)		0.09	pCi/L							
Radium 226 MDC		0.2	pCi/L							
<b>Sample ID: LCS-RA226-6481</b>	Laboratory Control Sample									
Radium 226	6.4	pCi/L		102		80	120			02/01/13 10:11

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E908.0</b>								Batch: RA-TH-ISO-1789		
<b>Sample ID: LCS-RA-TH-ISO-1789</b>	Laboratory Control Sample			Run: ALPHANALYST_130129B		02/01/13 09:12				
Thorium 230	12	pCi/L		112	80	120				
<b>Sample ID: C13010580-003FMS</b>	Sample Matrix Spike			Run: ALPHANALYST_130129B		02/01/13 09:12				
Thorium 230	71.5	pCi/L		120	70	130				
<b>Sample ID: C13010580-003FMSD</b>	Sample Matrix Spike Duplicate			Run: ALPHANALYST_130129B		02/01/13 09:12				
Thorium 230	66.7	pCi/L		111	70	130	7.0	34.3		
<b>Sample ID: MB-RA-TH-ISO-1789</b>	3	Method Blank		Run: ALPHANALYST_130129B		02/01/13 09:12				
Thorium 230		0.03	pCi/L							
Thorium 230 precision (±)		0.07	pCi/L							
Thorium 230 MDC		0.2	pCi/L							
<b>Method: E908.0</b>								Batch: RA-TH-ISO-1791		
<b>Sample ID: LCS-RA-TH-ISO-1791</b>	Laboratory Control Sample			Run: ALPHANALYST_130130A		02/04/13 16:38				
Thorium 230	4.7	pCi/L		86	80	120				
<b>Sample ID: C13010662-004DMS</b>	Sample Matrix Spike			Run: ALPHANALYST_130130A		02/04/13 16:39				
Thorium 230	13	pCi/L		108	70	130				
<b>Sample ID: C13010662-004DMSD</b>	Sample Matrix Spike Duplicate			Run: ALPHANALYST_130130A		02/04/13 16:39				
Thorium 230	12	pCi/L		95	70	130	13	46.5		
<b>Sample ID: MB-RA-TH-ISO-1791</b>	3	Method Blank		Run: ALPHANALYST_130130A		02/04/13 16:39				
Thorium 230		0.1	pCi/L							
Thorium 230 precision (±)		0.1	pCi/L							
Thorium 230 MDC		0.2	pCi/L							

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E909.0</b>								Batch: T_PB-210-0347		
<b>Sample ID: MB-PB-210-0347</b>	3	Method Blank					Run: SUB-T49291		02/01/13 23:55	
Lead 210		-0.06	pCi/L							U
Lead 210 precision (±)		0.6	pCi/L							
Lead 210 MDC		1	pCi/L							
<b>Sample ID: LCS-PB-210-0347</b>		Laboratory Control Sample					Run: SUB-T49291		02/02/13 02:12	
Lead 210		22	pCi/L	105		70	130			
<b>Sample ID: C13010732-001FMS</b>		Sample Matrix Spike					Run: SUB-T49291		02/03/13 01:02	
Lead 210		66	pCi/L	110		70	130			
<b>Sample ID: C13010732-001FMSD</b>		Sample Matrix Spike Duplicate					Run: SUB-T49291		02/03/13 03:19	
Lead 210		66	pCi/L	110		70	130	0.1	18.3	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010580

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: RA-05</b>								Batch: RA228-4326		
<b>Sample ID: LCS-228-RA226-6481</b>	Laboratory Control Sample			Run: TENNELEC-3_130121B			01/27/13 14:44			
Radium 228		6.1	pCi/L	123	80	120				S
- LCS response is outside of the acceptance range for this analysis. Since the MB, MS, and MSD are acceptable the batch is approved.										
<b>Sample ID: MB-RA226-6481</b>	3	Method Blank		Run: TENNELEC-3_130121B			01/27/13 14:44			
Radium 228		0.6	pCi/L							U
Radium 228 precision (±)		0.6	pCi/L							
Radium 228 MDC		0.9	pCi/L							
<b>Sample ID: C13010581-008EMS</b>	Sample Matrix Spike			Run: TENNELEC-3_130121B			01/27/13 14:44			
Radium 228		9.3	pCi/L	86	70	130				
<b>Sample ID: C13010581-008EMSD</b>	Sample Matrix Spike Duplicate			Run: TENNELEC-3_130121B			01/27/13 14:44			
Radium 228		10	pCi/L	100	70	130	11			39.8

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.

U - Not detected at minimum detectable concentration



# ANALYTICAL SUMMARY REPORT

February 25, 2013

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

Workorder No.: C13010573

Project Name: Zone-3

Energy Laboratories, Inc. Casper WY received the following 10 samples for United Nuclear Corporation on 1/18/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13010573-001	NW-1	01/15/13 10:35	01/18/13	Aqueous	Alkalinity E300.0 Anions pH Solids, Total Dissolved
C13010573-002	NW-5	01/15/13 11:02	01/18/13	Aqueous	Same As Above
C13010573-003	NW-4	01/15/13 12:17	01/18/13	Aqueous	Same As Above
C13010573-004	PB-2	01/15/13 13:26	01/18/13	Aqueous	Same As Above
C13010573-005	NW-2	01/15/13 14:29	01/18/13	Aqueous	Same As Above
C13010573-006	RW-A	01/15/13 13:59	01/18/13	Aqueous	Same As Above
C13010573-007	NW-3	01/15/13 11:32	01/18/13	Aqueous	Same As Above
C13010573-008	NBL-2	01/16/13 8:30	01/18/13	Aqueous	Same As Above
C13010573-009	PB-3	01/16/13 8:52	01/18/13	Aqueous	Same As Above
C13010573-010	PB-4	01/16/13 9:15	01/18/13	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, 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.

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

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2013.02.25 10:20:16 -07:00



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010573

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2320 B</b>										
Batch: R169331										
<b>Sample ID: MBLK</b>	2	Method Blank								
Run: MANTECH_130118B										
Alkalinity, Total as CaCO3		ND	mg/L	5.0						01/18/13 14:32
Bicarbonate as HCO3		1.01	mg/L	5.0						
<b>Sample ID: LCS_121003</b>		Laboratory Control Sample								
Run: MANTECH_130118B										
Alkalinity, Total as CaCO3		155	mg/L	5.0	103	90	110			01/18/13 14:48
<b>Sample ID: C13010557-001ADUP</b>	2	Sample Duplicate								
Run: MANTECH_130118B										
Alkalinity, Total as CaCO3		164	mg/L	5.0				0.5	10	01/18/13 15:04
Bicarbonate as HCO3		200	mg/L	5.0				0.5	10	
<b>Sample ID: C13010553-001BMS</b>		Sample Matrix Spike								
Run: MANTECH_130118B										
Alkalinity, Total as CaCO3		264	mg/L	5.0	101	80	120			01/18/13 15:19
<b>Method: A2320 B</b>										
Batch: R169416										
<b>Sample ID: MBLK</b>	2	Method Blank								
Run: MANTECH_130122B										
Alkalinity, Total as CaCO3		2	mg/L	2						01/22/13 13:04
Bicarbonate as HCO3		3	mg/L	1						
<b>Sample ID: LCS_121003</b>		Laboratory Control Sample								
Run: MANTECH_130122B										
Alkalinity, Total as CaCO3		155	mg/L	5.0	102	90	110			01/22/13 13:20
<b>Sample ID: C13010573-004ADUP</b>	2	Sample Duplicate								
Run: MANTECH_130122B										
Alkalinity, Total as CaCO3		53.3	mg/L	5.0				0.5	10	01/22/13 13:33
Bicarbonate as HCO3		65.0	mg/L	5.0				0.5	10	
<b>Sample ID: C13010586-001BMS</b>		Sample Matrix Spike								
Run: MANTECH_130122B										
Alkalinity, Total as CaCO3		265	mg/L	5.0	101	80	120			01/22/13 13:49

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010573

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS130118A		
<b>Sample ID: MB-1_130118A</b>		Method Blank					Run: BAL-16_130118B		01/18/13 15:53	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Sample ID: LCS-2_130118A</b>		Laboratory Control Sample					Run: BAL-16_130118B		01/18/13 15:53	
Solids, Total Dissolved TDS @ 180 C		1940	mg/L	20	97	90	110			
<b>Sample ID: C13010522-005A MS</b>		Sample Matrix Spike					Run: BAL-16_130118B		01/18/13 15:54	
Solids, Total Dissolved TDS @ 180 C		15700	mg/L	100	98	90	110			
<b>Sample ID: C13010573-001A DUP</b>		Sample Duplicate					Run: BAL-16_130118B		01/18/13 15:56	
Solids, Total Dissolved TDS @ 180 C		4370	mg/L	40				4.1	5	
<b>Method: A2540 C</b>								Batch: TDS130121A		
<b>Sample ID: MB-1_130121A</b>		Method Blank					Run: BAL-16_130121B		01/21/13 08:22	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Sample ID: LCS-2_130121A</b>		Laboratory Control Sample					Run: BAL-16_130121B		01/21/13 08:22	
Solids, Total Dissolved TDS @ 180 C		1980	mg/L	20	99	90	110			
<b>Sample ID: C13010591-001A DUP</b>		Sample Duplicate					Run: BAL-16_130121B		01/21/13 08:23	
Solids, Total Dissolved TDS @ 180 C		4420	mg/L	40				0.2	5	
<b>Sample ID: C13010591-002A MS</b>		Sample Matrix Spike					Run: BAL-16_130121B		01/21/13 08:23	
Solids, Total Dissolved TDS @ 180 C		8120	mg/L	40	96	90	110			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010573

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: A4500-H B								Analytical Run: PHSC_101-C_130118A			
Sample ID: pH 6.86		Initial Calibration Verification Standard						01/18/13 08:40			
pH		6.84	s.u.	0.010	100	98	102				
Method: A4500-H B								Batch: R169294			
Sample ID: C13010573-009ADUP		Sample Duplicate				Run: PHSC_101-C_130118A		01/18/13 13:32			
pH		7.29	s.u.	0.010				0.0	3		

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 02/25/13

Project: Zone-3

Work Order: C13010573

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>								Analytical Run: IC2-C_130118A		
<b>Sample ID: ICV-011813-11</b>	Initial Calibration Verification Standard									
Chloride		10.0	mg/L	1.0	100	90	110			01/18/13 14:16
<b>Method: E300.0</b>								Batch: R169348		
<b>Sample ID: ICB-011813-12</b>	Method Blank									
Chloride		ND	mg/L	0.02						Run: IC2-C_130118A 01/18/13 14:31
<b>Sample ID: LFB-011813-13</b>	Laboratory Fortified Blank									
Chloride		9.94	mg/L	1.0	99	90	110			Run: IC2-C_130118A 01/18/13 14:47
<b>Sample ID: C13010573-002AMS</b>	Sample Matrix Spike									
Chloride		141	mg/L	2.1	104	90	110			Run: IC2-C_130118A 01/19/13 05:56
<b>Sample ID: C13010573-002AMSD</b>	Sample Matrix Spike Duplicate									
Chloride		143	mg/L	2.1	105	90	110	0.8	20	Run: IC2-C_130118A 01/19/13 06:12

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

**APPENDIX – D ( 2 OF 2 )**

**SECOND QUARTER**

**LABORATORY QUALITY CONTROL AND**

**PERFORMANCE REPORT**



# ANALYTICAL SUMMARY REPORT

May 21, 2013

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

Workorder No.: C13040238      Quote ID: C129 - Quarterly Long List

Project Name: SW Alluvium

Energy Laboratories, Inc. Casper WY received the following 16 samples for United Nuclear Corporation on 4/5/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13040238-001	509-D	04/01/13 9:30	04/05/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics
C13040238-002	EPA-23	04/01/13 10:20	04/05/13	Aqueous	Same As Above
C13040238-003	803	04/01/13 11:03	04/05/13	Aqueous	Same As Above
C13040238-004	808	04/01/13 11:45	04/05/13	Aqueous	Same As Above
C13040238-005	802	04/01/13 12:25	04/05/13	Aqueous	Same As Above
C13040238-006	801	04/01/13 13:05	04/05/13	Aqueous	Same As Above
C13040238-007	GW-2	04/01/13 13:50	04/05/13	Aqueous	Same As Above
C13040238-008	GW-1	04/01/13 15:00	04/05/13	Aqueous	Same As Above
C13040238-009	632	04/01/13 15:50	04/05/13	Aqueous	Same As Above



### ANALYTICAL SUMMARY REPORT

C13040238-010	624	04/02/13 8:50	04/05/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Preservation by the Laboratory Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics
C13040238-011	SBL-1	04/02/13 9:30	04/05/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics
C13040238-012	EPA-28	04/02/13 10:15	04/05/13	Aqueous	Same As Above
C13040238-013	EPA-28 Duplicate	04/02/13 10:55	04/05/13	Aqueous	Same As Above
C13040238-014	627	04/02/13 13:30	04/05/13	Aqueous	Same As Above
C13040238-015	EPA-25	04/02/13 14:25	04/05/13	Aqueous	Same As Above
C13040238-016	GW-3	04/02/13 15:10	04/05/13	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, 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.

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

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2013.05.21 16:57:17 -06:00



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**CLIENT:** United Nuclear Corporation  
**Project:** SW Alluvium  
**Sample Delivery Group:** C13040238

**Report Date:** 05/21/13

## **CASE NARRATIVE**

---

### **BRANCH LABORATORY SUBCONTRACT ANALYSIS**

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-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2320 B</b>										
Batch: R172192										
<b>Sample ID: MBLK</b>	2	Method Blank								
Run: MANTECH_130405A										
Alkalinity, Total as CaCO3		ND	mg/L	1						04/05/13 21:01
Bicarbonate as HCO3		ND	mg/L	1						
<b>Sample ID: LCS_130315</b>		Laboratory Control Sample								
Run: MANTECH_130405A										
Alkalinity, Total as CaCO3		159	mg/L	5.0	106	90	110			04/05/13 21:12
<b>Sample ID: C13040238-010ADUP</b>	2	Sample Duplicate								
Run: MANTECH_130405A										
Alkalinity, Total as CaCO3		1290	mg/L	5.0				0.2	10	04/05/13 21:34
Bicarbonate as HCO3		1580	mg/L	5.0				0.2	10	
<b>Sample ID: C13040238-011AMS</b>		Sample Matrix Spike								
Run: MANTECH_130405A										
Alkalinity, Total as CaCO3		543	mg/L	5.0	110	80	120			04/05/13 21:51

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS130405A		
<b>Sample ID: MB-1_130405A</b>		Method Blank					Run: BAL-19_130405B		04/05/13 15:19	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Sample ID: LCS-2_130405A</b>		Laboratory Control Sample					Run: BAL-19_130405B		04/05/13 15:19	
Solids, Total Dissolved TDS @ 180 C		1990	mg/L	20	99	90	110			
<b>Sample ID: C13040233-001A MS</b>		Sample Matrix Spike					Run: BAL-19_130405B		04/05/13 15:28	
Solids, Total Dissolved TDS @ 180 C		16900	mg/L	100	99	90	110			
<b>Sample ID: C13040238-004A DUP</b>		Sample Duplicate					Run: BAL-19_130405B		04/05/13 15:30	
Solids, Total Dissolved TDS @ 180 C		6540	mg/L	100				0.9	5	
<b>Method: A2540 C</b>								Batch: TDS130408A		
<b>Sample ID: MB-1_130408A</b>		Method Blank					Run: BAL-19_130408B		04/08/13 15:33	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Sample ID: LCS-2_130408A</b>		Laboratory Control Sample					Run: BAL-19_130408B		04/08/13 15:33	
Solids, Total Dissolved TDS @ 180 C		2000	mg/L	20	100	90	110			
<b>Sample ID: C13040191-001A MS</b>		Sample Matrix Spike					Run: BAL-19_130408B		04/08/13 15:42	
Solids, Total Dissolved TDS @ 180 C		1300	mg/L	11	99	90	110			
<b>Sample ID: C13040244-001A DUP</b>		Sample Duplicate					Run: BAL-19_130408B		04/08/13 15:45	
Solids, Total Dissolved TDS @ 180 C		11800	mg/L	100				0.2	5	

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A3114 B</b>										
Analytical Run: CVAA-C202_130417A										
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									
Selenium-IV		0.0240	mg/L	0.0010	96	90	110			04/17/13 13:46
<b>Method: A3114 B</b>										
Batch: 37186										
<b>Sample ID: MB-37186</b>	Method Blank									
Selenium-IV		ND	mg/L	0.0005						04/17/13 13:56
<b>Sample ID: LCS-37186</b>	Laboratory Control Sample									
Selenium-IV		0.0252	mg/L	0.0010	101	90	110			04/17/13 13:58
<b>Sample ID: C13040238-002CMS</b>	Sample Matrix Spike									
Selenium-IV		0.0254	mg/L	0.0010	102	85	115			04/17/13 14:28
<b>Sample ID: C13040238-002CMSD</b>	Sample Matrix Spike Duplicate									
Selenium-IV		0.0249	mg/L	0.0010	100	85	115	2.1	10	04/17/13 14:29
<b>Method: A3114 B</b>										
Batch: 37187										
<b>Sample ID: MB-37187</b>	Method Blank									
Selenium-IV		ND	mg/L	0.0005						04/17/13 14:57
<b>Sample ID: LCS-37187</b>	Laboratory Control Sample									
Selenium-IV		0.0239	mg/L	0.0010	96	90	110			04/17/13 14:58
<b>Sample ID: C13040429-001DMS</b>	Sample Matrix Spike									
Selenium-IV		0.0231	mg/L	0.0010	92	85	115			04/17/13 15:13
<b>Sample ID: C13040429-001DMSD</b>	Sample Matrix Spike Duplicate									
Selenium-IV		0.0233	mg/L	0.0010	93	85	115	0.8	10	04/17/13 15:15

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A4500-H B		Analytical Run: PHSC_101-C_130405A								
<b>Sample ID:</b> pH 6.86	Initial Calibration Verification Standard									
pH		6.85	s.u.	0.010	100	98	102			04/05/13 13:45
<b>Method:</b> A4500-H B		Batch: R172144								
<b>Sample ID:</b> C13040238-007ADUP	Sample Duplicate									
pH		6.44	s.u.	0.010				0.2		04/05/13 15:24
<b>Sample ID:</b> C13040238-016ADUP	Sample Duplicate									
pH		6.66	s.u.	0.010				0.4		04/05/13 15:51

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-NH3 G <span style="float: right;">Batch: R172337</span>										
Sample ID: MBLK-1		Method Blank								
Nitrogen, Ammonia as N		ND	mg/L	0.01						Run: TECHNICON_130410A 04/10/13 11:41
Sample ID: LCS-2		Laboratory Control Sample								
Nitrogen, Ammonia as N		1.99	mg/L	0.050	100	90	110			Run: TECHNICON_130410A 04/10/13 11:43
Sample ID: LFB-3		Laboratory Fortified Blank								
Nitrogen, Ammonia as N		1.96	mg/L	0.050	100	80	120			Run: TECHNICON_130410A 04/10/13 11:45
Sample ID: C13040238-004DMS		Sample Matrix Spike								
Nitrogen, Ammonia as N		3.43	mg/L	0.050	107	90	110			Run: TECHNICON_130410A 04/10/13 13:46
Sample ID: C13040238-004DMSD		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		3.46	mg/L	0.050	109	90	110	0.9	10	Run: TECHNICON_130410A 04/10/13 13:47
Sample ID: C13040238-014DMS		Sample Matrix Spike								
Nitrogen, Ammonia as N		1.96	mg/L	0.050	100	90	110			Run: TECHNICON_130410A 04/10/13 14:14
Sample ID: C13040238-014DMSD		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		1.98	mg/L	0.050	101	90	110	1.0	10	Run: TECHNICON_130410A 04/10/13 14:16

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E1632AM</b>								Analytical Run: SUB-H87711		
<b>Sample ID: AS-ICV 25ppb-4/17/20</b>		Initial Calibration Verification Standard								04/17/13 12:29
Arsenic-III		27.0	ug/L	5.0	108	87.6	114			
<b>Sample ID: AS-50.0-4/17/2013</b>		Continuing Calibration Verification Standard								04/17/13 14:16
Arsenic-III		51.4	ug/L	5.0	103	85	115			
<b>Sample ID: AS-50.0-4/17/2013</b>		Continuing Calibration Verification Standard								04/17/13 15:59
Arsenic-III		51.0	ug/L	5.0	102	85	115			
<b>Method: E1632AM</b>								Batch: H_R87711		
<b>Sample ID: ICB</b>		Method Blank								04/17/13 12:53
Arsenic-III		ND	ug/L	2						
<b>Sample ID: AS-LFB 50ppb-4/17/20</b>		Laboratory Fortified Blank								04/17/13 13:01
Arsenic-III		55.7	ug/L	5.0	111	55	146			
<b>Sample ID: C13040233-002E</b>		Sample Matrix Spike								04/17/13 13:42
Arsenic-III		58.4	ug/L	5.0	117	55	146			
<b>Sample ID: C13040233-002E</b>		Sample Matrix Spike Duplicate								04/17/13 13:50
Arsenic-III		56.4	ug/L	5.0	113	55	146	3.3	20	
<b>Sample ID: C13040238-003E</b>		Sample Matrix Spike								04/17/13 15:12
Arsenic-III		56.3	ug/L	5.0	113	55	146			
<b>Sample ID: C13040238-003E</b>		Sample Matrix Spike Duplicate								04/17/13 15:20
Arsenic-III		56.4	ug/L	5.0	113	55	146	0.2	20	
<b>Sample ID: C13040238-007E</b>		Sample Matrix Spike								04/17/13 16:47
Arsenic-III		52.4	ug/L	5.0	105	55	146			
<b>Sample ID: C13040238-007E</b>		Sample Matrix Spike Duplicate								04/17/13 16:55
Arsenic-III		51.3	ug/L	5.0	103	55	146	2.0	20	

### Qualifiers:

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MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E1632AM</b>								Analytical Run: SUB-H87757		
<b>Sample ID: AS-ICV 25ppb-4/18/20</b>	Initial Calibration Verification Standard									
Arsenic-III		25.6	ug/L	5.0	102	87.6	114			04/18/13 11:53
<b>Sample ID: AS-50.0-4/18/2013</b>	Continuing Calibration Verification Standard									
Arsenic-III		48.8	ug/L	5.0	98	85	115			04/18/13 12:09
<b>Sample ID: AS-50.0-4/18/2013</b>	Continuing Calibration Verification Standard									
Arsenic-III		45.8	ug/L	5.0	92	85	115			04/18/13 13:43
<b>Method: E1632AM</b>								Batch: H_R87757		
<b>Sample ID: ICB</b>	Method Blank									
Arsenic-III		ND	ug/L	2						Run: SUB-H87757 04/18/13 12:17
<b>Sample ID: AS-LFB 50ppb-4/18/20</b>	Laboratory Fortified Blank									
Arsenic-III		45.8	ug/L	5.0	92	55	146			Run: SUB-H87757 04/18/13 12:25
<b>Sample ID: C13040238-011E</b>	Sample Matrix Spike									
Arsenic-III		45.2	ug/L	5.0	91	55	146			Run: SUB-H87757 04/18/13 12:57
<b>Sample ID: C13040238-011E</b>	Sample Matrix Spike Duplicate									
Arsenic-III		48.4	ug/L	5.0	97	55	146	6.7	20	Run: SUB-H87757 04/18/13 13:05
<b>Sample ID: C13040238-014E</b>	Sample Matrix Spike									
Arsenic-III		46.9	ug/L	5.0	94	55	146			Run: SUB-H87757 04/18/13 14:07
<b>Sample ID: C13040238-014E</b>	Sample Matrix Spike Duplicate									
Arsenic-III		46.4	ug/L	5.0	93	55	146	1.2	20	Run: SUB-H87757 04/18/13 14:15

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E1632AM</b>								Analytical Run: SUB-H87786		
<b>Sample ID: AS-ICV 25ppb-4/19/20</b>		Initial Calibration Verification Standard								04/19/13 11:03
Arsenic-III		25.2	ug/L	5.0	101	87.6	114			
<b>Sample ID: AS-50.0-4/19/2013</b>		Continuing Calibration Verification Standard								04/19/13 11:19
Arsenic-III		48.1	ug/L	5.0	96	85	115			
<b>Method: E1632AM</b>								Batch: H_R87786		
<b>Sample ID: ICB</b>		Method Blank								04/19/13 11:27
Arsenic-III		ND	ug/L	2						
<b>Sample ID: AS-LFB 50ppb-4/19/20</b>		Laboratory Fortified Blank								04/19/13 11:35
Arsenic-III		48.9	ug/L	5.0	98	55	146			
<b>Sample ID: C13040238-014E</b>		Sample Matrix Spike								04/19/13 11:51
Arsenic-III		47.6	ug/L	5.0	95	55	146			
<b>Sample ID: C13040238-014E</b>		Sample Matrix Spike Duplicate								04/19/13 11:59
Arsenic-III		47.9	ug/L	5.0	96	55	146	0.6	20	
<b>Sample ID: C13040435-002B</b>		Sample Matrix Spike								04/19/13 14:45
Arsenic-III		46.1	ug/L	5.0	84	55	146			
<b>Sample ID: C13040435-002B</b>		Sample Matrix Spike Duplicate								04/19/13 14:53
Arsenic-III		45.2	ug/L	5.0	83	55	146	2.0	20	

**Qualifiers:**

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MDC - Minimum detectable concentration

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>		Analytical Run: ICP4-C_130415A								
<b>Sample ID: ICV</b>	4	Initial Calibration Verification Standard								04/15/13 11:08
Calcium		49.6	mg/L	0.50	99	95	105			
Magnesium		49.7	mg/L	0.50	99	95	105			
Potassium		50.0	mg/L	0.50	100	95	105			
Sodium		51.2	mg/L	0.50	102	95	105			
<b>Sample ID: ICSA</b>	4	Interference Check Sample A								04/15/13 11:23
Calcium		441	mg/L	0.50	88	80	120			
Magnesium		488	mg/L	0.50	98	80	120			
Potassium		-0.00433	mg/L	0.50						
Sodium		0.433	mg/L	0.50						
<b>Sample ID: ICSAB</b>	4	Interference Check Sample AB								04/15/13 11:27
Calcium		441	mg/L	0.50	88	80	120			
Magnesium		487	mg/L	0.50	97	80	120			
Potassium		0.0154	mg/L	0.50						
Sodium		0.368	mg/L	0.50						
<b>Method: E200.7</b>		Batch: R172485								
<b>Sample ID: MB-1304015A</b>	4	Method Blank								Run: ICP4-C_130415A 04/15/13 11:46
Calcium		ND	mg/L	0.02						
Magnesium		0.05	mg/L	0.01						
Potassium		ND	mg/L	0.04						
Sodium		ND	mg/L	0.2						
<b>Sample ID: LFB-1304015A</b>	4	Laboratory Fortified Blank								Run: ICP4-C_130415A 04/15/13 11:49
Calcium		47.9	mg/L	0.50	96	85	115			
Magnesium		48.0	mg/L	0.50	96	85	115			
Potassium		47.9	mg/L	0.50	96	85	115			
Sodium		48.3	mg/L	0.50	97	85	115			
<b>Sample ID: C13040233-002BMS2</b>	4	Sample Matrix Spike								Run: ICP4-C_130415A 04/15/13 14:36
Calcium		943	mg/L	1.0	96	70	130			
Magnesium		1850	mg/L	1.0	109	70	130			
Potassium		513	mg/L	1.0	97	70	130			
Sodium		1120	mg/L	2.1	101	70	130			
<b>Sample ID: C13040233-002BMSD2</b>	4	Sample Matrix Spike Duplicate								Run: ICP4-C_130415A 04/15/13 14:40
Calcium		937	mg/L	1.0	95	70	130	0.6	20	
Magnesium		1830	mg/L	1.0	107	70	130	0.7	20	
Potassium		505	mg/L	1.0	96	70	130	1.6	20	
Sodium		1090	mg/L	2.1	96	70	130	2.2	20	
<b>Sample ID: C13040238-006BMS2</b>	4	Sample Matrix Spike								Run: ICP4-C_130415A 04/15/13 15:36
Calcium		800	mg/L	1.0	88	70	130			
Magnesium		994	mg/L	1.0	89	70	130			
Potassium		272	mg/L	1.0	101	70	130			

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b> <span style="float: right;">Batch: R172485</span>										
<b>Sample ID: C13040238-006BMS2</b>	4	Sample Matrix Spike								
Sodium		617	mg/L	1.0	94	70	130			Run: ICP4-C_130415A 04/15/13 15:36
<b>Sample ID: C13040238-006BMSD2</b> 4 Sample Matrix Spike Duplicate <span style="float: right;">Run: ICP4-C_130415A 04/15/13 15:40</span>										
Calcium		788	mg/L	1.0	83	70	130	1.6	20	
Magnesium		977	mg/L	1.0	82	70	130	1.7	20	
Potassium		264	mg/L	1.0	98	70	130	2.9	20	
Sodium		601	mg/L	1.0	88	70	130	2.6	20	
<b>Method: E200.7</b> <span style="float: right;">Analytical Run: ICP4-C_130416A</span>										
<b>Sample ID: ICV</b>	2	Initial Calibration Verification Standard								04/16/13 11:57
Calcium		50.5	mg/L	0.50	101	95	105			
Potassium		50.2	mg/L	0.50	100	95	105			
<b>Sample ID: ICSA</b>	2	Interference Check Sample A								04/16/13 12:12
Calcium		445	mg/L	0.50	89	80	120			
Potassium		0.00806	mg/L	0.50						
<b>Sample ID: ICSAB</b>	2	Interference Check Sample AB								04/16/13 12:16
Calcium		451	mg/L	0.50	90	80	120			
Potassium		0.0176	mg/L	0.50						
<b>Method: E200.7</b> <span style="float: right;">Batch: R172526</span>										
<b>Sample ID: MB-1304016A</b>	2	Method Blank								Run: ICP4-C_130416A 04/16/13 12:34
Calcium		ND	mg/L	0.02						
Potassium		ND	mg/L	0.04						
<b>Sample ID: LFB-1304016A</b>	2	Laboratory Fortified Blank								Run: ICP4-C_130416A 04/16/13 12:38
Calcium		49.9	mg/L	0.50	100	85	115			
Potassium		50.6	mg/L	0.50	101	85	115			
<b>Sample ID: C13040091-006BMS2</b>	2	Sample Matrix Spike								Run: ICP4-C_130416A 04/16/13 13:30
Calcium		210	mg/L	1.0	98	70	130			
Potassium		114	mg/L	1.0	103	70	130			
<b>Sample ID: C13040091-006BMSD2</b>	2	Sample Matrix Spike Duplicate								Run: ICP4-C_130416A 04/16/13 13:34
Calcium		206	mg/L	1.0	94	70	130	1.8	20	
Potassium		111	mg/L	1.0	100	70	130	2.6	20	

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS4-C_130410A								
<b>Sample ID: ICV</b>	10 Initial Calibration Verification Standard									04/10/13 13:58
Aluminum		0.0530	mg/L	0.0010	106	90	110			
Beryllium		0.0498	mg/L	0.0010	100	90	110			
Cadmium		0.0494	mg/L	0.0010	99	90	110			
Cobalt		0.0513	mg/L	0.0010	103	90	110			
Lead		0.0488	mg/L	0.0010	98	90	110			
Manganese		0.0507	mg/L	0.0010	101	90	110			
Molybdenum		0.0490	mg/L	0.0010	98	90	110			
Nickel		0.0515	mg/L	0.0010	103	90	110			
Uranium		0.0492	mg/L	0.00030	98	90	110			
Vanadium		0.0490	mg/L	0.0010	98	90	110			
<b>Method: E200.8</b>		Batch: 37096								
<b>Sample ID: MB-37096</b>	10 Method Blank									Run: ICPMS4-C_130410A
Aluminum		0.002	mg/L	0.001						04/10/13 22:32
Beryllium		ND	mg/L	5E-05						
Cadmium		7E-05	mg/L	3E-05						
Cobalt		ND	mg/L	4E-05						
Lead		3E-05	mg/L	1E-05						
Manganese		0.0009	mg/L	4E-05						
Molybdenum		6E-05	mg/L	4E-05						
Nickel		ND	mg/L	4E-05						
Uranium		9E-06	mg/L	8E-06						
Vanadium		0.008	mg/L	8E-05						
<b>Sample ID: LCS3-37096</b>	10 Laboratory Control Sample									Run: ICPMS4-C_130410A
Aluminum		2.50	mg/L	0.030	100	85	115			04/10/13 22:36
Beryllium		0.255	mg/L	0.0010	102	85	115			
Cadmium		0.270	mg/L	0.0010	108	85	115			
Cobalt		0.509	mg/L	0.0050	102	85	115			
Lead		0.510	mg/L	0.0010	102	85	115			
Manganese		2.60	mg/L	0.0010	104	85	115			
Molybdenum		0.543	mg/L	0.0010	109	85	115			
Nickel		0.559	mg/L	0.0050	112	85	115			
Uranium		0.543	mg/L	0.00030	109	85	115			
Vanadium		0.528	mg/L	0.010	104	85	115			
<b>Sample ID: C13040238-001CMS3</b>	10 Sample Matrix Spike									Run: ICPMS4-C_130410A
Aluminum		2.45	mg/L	0.030	97	70	130			04/10/13 22:49
Beryllium		0.229	mg/L	0.0010	92	70	130			
Cadmium		0.252	mg/L	0.0010	100	70	130			
Cobalt		0.522	mg/L	0.0050	102	70	130			
Lead		0.532	mg/L	0.0010	106	70	130			
Manganese		5.88	mg/L	0.0010	103	70	130			
Molybdenum		0.533	mg/L	0.0010	106	70	130			
Nickel		0.538	mg/L	0.0050	106	70	130			

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 <span style="float: right;">Batch: 37096</span>										
Sample ID: C13040238-001CMS3 10 Sample Matrix Spike <span style="float: right;">Run: ICPMS4-C_130410A 04/10/13 22:49</span>										
Uranium		0.846	mg/L	0.00030	113	70	130			
Vanadium		0.568	mg/L	0.010	112	70	130			
Sample ID: C13040238-001CMSD3 10 Sample Matrix Spike Duplicate <span style="float: right;">Run: ICPMS4-C_130410A 04/10/13 22:53</span>										
Aluminum		2.45	mg/L	0.030	97	70	130	0.1	20	
Beryllium		0.228	mg/L	0.0010	91	70	130	0.4	20	
Cadmium		0.251	mg/L	0.0010	100	70	130	0.3	20	
Cobalt		0.504	mg/L	0.0050	99	70	130	3.4	20	
Lead		0.528	mg/L	0.0010	106	70	130	0.8	20	
Manganese		5.85	mg/L	0.0010	101	70	130	0.5	20	
Molybdenum		0.530	mg/L	0.0010	106	70	130	0.6	20	
Nickel		0.540	mg/L	0.0050	106	70	130	0.3	20	
Uranium		0.845	mg/L	0.00030	113	70	130	0.1	20	
Vanadium		0.572	mg/L	0.010	112	70	130	0.6	20	

### Qualifiers:

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ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 05/21/13

**Project:** SW Alluvium

**Work Order:** C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E300.0										Batch: R172257
<b>Sample ID:</b> ICB-040813	2	Method Blank								Run: IC2-C_130409A 04/08/13 12:24
Chloride		ND	mg/L	0.03						
Sulfate		0.1	mg/L	0.07						
<b>Sample ID:</b> LFB-040813-01	2	Laboratory Fortified Blank								Run: IC2-C_130409A 04/08/13 12:39
Chloride		10.5	mg/L	1.0	105	90	110			
Sulfate		41.3	mg/L	1.0	103	90	110			
<b>Sample ID:</b> C13040238-009AMS	2	Sample Matrix Spike								Run: IC2-C_130409A 04/09/13 00:28
Chloride		461	mg/L	4.2	104	90	110			
Sulfate		4190	mg/L	17		90	110			A
<b>Sample ID:</b> C13040238-009AMSD	2	Sample Matrix Spike Duplicate								Run: IC2-C_130409A 04/09/13 00:44
Chloride		456	mg/L	4.2	102	90	110	1.1	20	
Sulfate		4140	mg/L	17		90	110	1.3	20	A

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										
Batch: R172217										
<b>Sample ID: MBLK-1</b>	Method Blank									
Nitrogen, Nitrate+Nitrite as N	ND	mg/L	0.02							
Run: TECHNICON_130408A										
04/08/13 10:30										
<b>Sample ID: LCS-2</b>	Laboratory Control Sample									
Nitrogen, Nitrate+Nitrite as N	2.64	mg/L	0.10	106	90	110				
Run: TECHNICON_130408A										
04/08/13 10:33										
<b>Sample ID: LFB-3</b>	Laboratory Fortified Blank									
Nitrogen, Nitrate+Nitrite as N	2.02	mg/L	0.10	103	90	110				
Run: TECHNICON_130408A										
04/08/13 10:35										
<b>Sample ID: C13040238-011DMS</b>	Sample Matrix Spike									
Nitrogen, Nitrate+Nitrite as N	92.1	mg/L	2.5	108	90	110				
Run: TECHNICON_130408A										
04/08/13 11:33										
<b>Sample ID: C13040238-011DMSD</b>	Sample Matrix Spike Duplicate									
Nitrogen, Nitrate+Nitrite as N	91.1	mg/L	2.5	105	90	110	1.1		10	
Run: TECHNICON_130408A										
04/08/13 11:35										
<b>Sample ID: C13040238-016DMS</b>	Sample Matrix Spike									
Nitrogen, Nitrate+Nitrite as N	185	mg/L	5.0	103	90	110				
Run: TECHNICON_130408A										
04/08/13 11:58										
<b>Sample ID: C13040238-016DMSD</b>	Sample Matrix Spike Duplicate									
Nitrogen, Nitrate+Nitrite as N	185	mg/L	5.0	103	90	110	0.0		10	
Run: TECHNICON_130408A										
04/08/13 12:00										
<b>Method: E353.2</b>										
Batch: R172475										
<b>Sample ID: MBLK-1</b>	Method Blank									
Nitrogen, Nitrate+Nitrite as N	ND	mg/L	0.02							
Run: TECHNICON_130415A										
04/15/13 10:48										
<b>Sample ID: LCS-2</b>	Laboratory Control Sample									
Nitrogen, Nitrate+Nitrite as N	2.69	mg/L	0.10	108	90	110				
Run: TECHNICON_130415A										
04/15/13 10:51										
<b>Sample ID: LFB-3</b>	Laboratory Fortified Blank									
Nitrogen, Nitrate+Nitrite as N	2.08	mg/L	0.10	106	90	110				
Run: TECHNICON_130415A										
04/15/13 10:53										
<b>Sample ID: C13040238-006DMS</b>	Sample Matrix Spike									
Nitrogen, Nitrate+Nitrite as N	81.2	mg/L	2.5	112	90	110				S
Run: TECHNICON_130415A										
04/15/13 15:56										
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID: C13040238-006DMSD</b>	Sample Matrix Spike Duplicate									
Nitrogen, Nitrate+Nitrite as N	82.2	mg/L	2.5	114	90	110	1.2		10	S
Run: TECHNICON_130415A										
04/15/13 15:58										
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										

### Qualifiers:

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
S - Spike recovery outside of advisory limits.



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b>										
Analytical Run: R172300										
<b>Sample ID: 08-Apr-13_CCV_19</b>	9	Continuing Calibration Verification Standard								04/08/13 21:35
Bromodichloromethane		12.9	ug/L	1.0	129	70	130			
Bromoform		10.2	ug/L	1.0	102	70	130			
Chlorodibromomethane		12.2	ug/L	1.0	122	70	130			
Chloroform		14.8	ug/L	1.0	148	70	130			S
Trihalomethanes, Total		50.2	ug/L	1.0	125	70	130			
Surr: 1,2-Dichlorobenzene-d4				1.0	98	70	130			
Surr: Dibromofluoromethane				1.0	134	70	130			S
Surr: p-Bromofluorobenzene				1.0	104	70	130			
Surr: Toluene-d8				1.0	104	70	130			
- Response is above standard QA limit. This could indicate a high bias for the sample results. Since there were no detectable analyte responses, and the remainder of the run QA is within acceptance range, this batch is approved.										
<b>Method: E624</b>										
Batch: R172300										
<b>Sample ID: 08-Apr-13_LCS_4</b>	9	Laboratory Control Sample								04/08/13 13:05
Run: GCMS2_130408A										
Bromodichloromethane		10.9	ug/L	1.0	109	65.2	130			
Bromoform		9.68	ug/L	1.0	97	71.5	130			
Chlorodibromomethane		10.4	ug/L	1.0	104	64.6	127			
Chloroform		12.0	ug/L	1.0	120	65	136			
Trihalomethanes, Total		42.9	ug/L	1.0	107	71.1	127			
Surr: 1,2-Dichlorobenzene-d4				1.0	96	73.7	126			
Surr: Dibromofluoromethane				1.0	108	64.4	131			
Surr: p-Bromofluorobenzene				1.0	100	67.1	133			
Surr: Toluene-d8				1.0	97	79.7	125			
<b>Sample ID: 08-Apr-13_MBLK_6</b>	9	Method Blank								04/08/13 14:12
Run: GCMS2_130408A										
Bromodichloromethane		ND	ug/L	1.0						
Bromoform		ND	ug/L	1.0						
Chlorodibromomethane		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Trihalomethanes, Total		ND	ug/L	1.0						
Surr: 1,2-Dichlorobenzene-d4				1.0	104	73.7	126			
Surr: Dibromofluoromethane				1.0	107	64.4	131			
Surr: p-Bromofluorobenzene				1.0	113	67.1	133			
Surr: Toluene-d8				1.0	98	79.7	125			
<b>Sample ID: C13040233-001HMS</b>	9	Sample Matrix Spike								04/08/13 19:53
Run: GCMS2_130408A										
Bromodichloromethane		119	ug/L	5.0	119	65.2	130			
Bromoform		94.8	ug/L	5.0	95	71.5	130			
Chlorodibromomethane		106	ug/L	5.0	106	64.6	127			
Chloroform		361	ug/L	5.0	144	65	136			S
Trihalomethanes, Total		681	ug/L	5.0	116	71.1	127			
Surr: 1,2-Dichlorobenzene-d4				1.0	98	73.7	126			
Surr: Dibromofluoromethane				1.0	120	64.4	131			
Surr: p-Bromofluorobenzene				1.0	104	67.1	133			
Surr: Toluene-d8				1.0	100	79.7	125			

### Qualifiers:

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
S - Spike recovery outside of advisory limits.



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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E624										Batch: R172300
Sample ID: C13040233-001HMSD 9 Sample Matrix Spike Duplicate										Run: GCMS2_130408A 04/08/13 20:27
Bromodichloromethane		114	ug/L	5.0	114	65.2	130	4.8		20
Bromoform		101	ug/L	5.0	101	71.5	130	6.5		20
Chlorodibromomethane		109	ug/L	5.0	109	64.6	127	2.2		20
Chloroform		342	ug/L	5.0	125	65	136	5.5		20
Trihalomethanes, Total		665	ug/L	5.0	112	71.1	127	2.4		20
Surr: 1,2-Dichlorobenzene-d4				1.0	100	73.7	126			
Surr: Dibromofluoromethane				1.0	116	64.4	131			
Surr: p-Bromofluorobenzene				1.0	103	67.1	133			
Surr: Toluene-d8				1.0	98	79.7	125			

### Qualifiers:

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MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E624 <span style="float: right;">Batch: R172399</span>											
Sample ID: 11-Apr-13_LCS_5	9	Laboratory Control Sample			Run: GCMS2_130411A			04/11/13 11:37			
Bromodichloromethane		10.4	ug/L	1.0	104	65.2	130				
Bromoform		8.24	ug/L	1.0	82	71.5	130				
Chlorodibromomethane		8.80	ug/L	1.0	88	64.6	127				
Chloroform		11.7	ug/L	1.0	117	65	136				
Trihalomethanes, Total		39.1	ug/L	1.0	98	71.1	127				
Surr: 1,2-Dichlorobenzene-d4				1.0	98	73.7	126				
Surr: Dibromofluoromethane				1.0	126	64.4	131				
Surr: p-Bromofluorobenzene				1.0	98	67.1	133				
Surr: Toluene-d8				1.0	102	79.7	125				
Sample ID: 11-Apr-13_MBLK_7	9	Method Blank			Run: GCMS2_130411A			04/11/13 12:46			
Bromodichloromethane		ND	ug/L	1.0							
Bromoform		ND	ug/L	1.0							
Chlorodibromomethane		ND	ug/L	1.0							
Chloroform		ND	ug/L	1.0							
Trihalomethanes, Total		ND	ug/L	1.0							
Surr: 1,2-Dichlorobenzene-d4				1.0	110	73.7	126				
Surr: Dibromofluoromethane				1.0	125	64.4	131				
Surr: p-Bromofluorobenzene				1.0	116	67.1	133				
Surr: Toluene-d8				1.0	100	79.7	125				
Sample ID: C13040244-001HMS	9	Sample Matrix Spike			Run: GCMS2_130411A			04/11/13 19:05			
Bromodichloromethane		96.8	ug/L	5.0	97	65.2	130				
Bromoform		86.4	ug/L	5.0	86	71.5	130				
Chlorodibromomethane		92.0	ug/L	5.0	92	64.6	127				
Chloroform		216	ug/L	5.0	119	65	136				
Trihalomethanes, Total		492	ug/L	5.0	99	71.1	127				
Surr: 1,2-Dichlorobenzene-d4				1.0	96	73.7	126				
Surr: Dibromofluoromethane				1.0	126	64.4	131				
Surr: p-Bromofluorobenzene				1.0	100	67.1	133				
Surr: Toluene-d8				1.0	97	79.7	125				
Sample ID: C13040244-001HMSD	9	Sample Matrix Spike Duplicate			Run: GCMS2_130411A			04/11/13 19:39			
Bromodichloromethane		104	ug/L	5.0	104	65.2	130	7.6	20		
Bromoform		91.2	ug/L	5.0	91	71.5	130	5.4	20		
Chlorodibromomethane		95.6	ug/L	5.0	96	64.6	127	3.8	20		
Chloroform		217	ug/L	5.0	119	65	136	0.2	20		
Trihalomethanes, Total		508	ug/L	5.0	103	71.1	127	3.3	20		
Surr: 1,2-Dichlorobenzene-d4				1.0	95	73.7	126				
Surr: Dibromofluoromethane				1.0	124	64.4	131				
Surr: p-Bromofluorobenzene				1.0	102	67.1	133				
Surr: Toluene-d8				1.0	98	79.7	125				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.1										Batch: GA-0678
Sample ID: LCS-GA-0678		Laboratory Control Sample								Run: G542M_130426A 04/29/13 07:37
Gross Alpha minus Rn & U		38.4	pCi/L	105		80	120			
Sample ID: MB-GA-0678	3	Method Blank								Run: G542M_130426A 04/29/13 07:37
Gross Alpha minus Rn & U		0.5	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.4	pCi/L							
Gross Alpha minus Rn & U MDC		0.5	pCi/L							
Sample ID: C13040238-006GMS		Sample Matrix Spike								Run: G542M_130426A 04/29/13 07:37
Gross Alpha minus Rn & U		71.4	pCi/L	98		70	130			
Sample ID: C13040238-006GMSD		Sample Matrix Spike Duplicate								Run: G542M_130426A 04/29/13 07:37
Gross Alpha minus Rn & U		65.7	pCi/L	88		70	130	8.3	21.1	

### Qualifiers:

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration





## QA/QC Summary Report

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Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E903.0</b>								Batch: RA226-6588		
<b>Sample ID: C13040238-002GMS</b>	Sample Matrix Spike			Run: BERTHOLD 770-1_130410B		04/23/13 15:44				
Radium 226	22	pCi/L		94	70	130				
<b>Sample ID: C13040238-002GMSD</b>	Sample Matrix Spike Duplicate			Run: BERTHOLD 770-1_130410B		04/23/13 15:44				
Radium 226	19	pCi/L		84	70	130	11	21.5		
<b>Sample ID: MB-RA226-6588</b>	3	Method Blank		Run: BERTHOLD 770-1_130410B		04/23/13 19:08				
Radium 226		-0.05	pCi/L	U						
Radium 226 precision (±)		0.10	pCi/L							
Radium 226 MDC		0.2	pCi/L							
<b>Sample ID: LCS-RA226-6588</b>	Laboratory Control Sample			Run: BERTHOLD 770-1_130410B		04/23/13 19:08				
Radium 226	10	pCi/L		89	80	120				

### Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E908.0</b>								Batch: RA-TH-ISO-1820		
<b>Sample ID: LCS-RA-TH-ISO-1820</b>	Laboratory Control Sample			Run: ALPHANALYST_130409A		04/12/13 09:08				
Thorium 230	6.0	pCi/L	98	80	120					
<b>Sample ID: C13040238-014GMS</b>	Sample Matrix Spike			Run: ALPHANALYST_130409A		04/12/13 09:09				
Thorium 230	12.5	pCi/L	98	70	130					
<b>Sample ID: C13040238-014GMSD</b>	Sample Matrix Spike Duplicate			Run: ALPHANALYST_130409A		04/12/13 09:09				
Thorium 230	13.4	pCi/L	105	70	130	7.0	38.3			
<b>Sample ID: MB-RA-TH-ISO-1820</b>	3	Method Blank		Run: ALPHANALYST_130409A		04/12/13 09:09				
Thorium 230	0.08	pCi/L	U							
Thorium 230 precision (±)	0.09	pCi/L								
Thorium 230 MDC	0.2	pCi/L								

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: SW Alluvium

Work Order: C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E909.0</b>								Batch: T_PB-210-0362		
<b>Sample ID: MB-PB-210-0362</b>	3	Method Blank								
Lead 210		-0.3	pCi/L							U
Lead 210 precision (±)		0.7	pCi/L							
Lead 210 MDC		1	pCi/L							
<b>Sample ID: LCS-PB-210-0362</b>		Laboratory Control Sample								
Lead 210		22	pCi/L	107		70	130			04/16/13 12:59
<b>Sample ID: T13040025-001BMS</b>		Sample Matrix Spike								
Lead 210		40	pCi/L	87		70	130			04/16/13 12:59
<b>Sample ID: T13040025-001BMSD</b>		Sample Matrix Spike Duplicate								
Lead 210		47	pCi/L	98		70	130	16	21.4	04/16/13 12:59
<b>Method: E909.0</b>								Batch: T_PB-210-0363		
<b>Sample ID: MB-PB-210-0363</b>	3	Method Blank								
Lead 210		-0.2	pCi/L							U
Lead 210 precision (±)		0.7	pCi/L							
Lead 210 MDC		1	pCi/L							
<b>Sample ID: LCS-PB-210-0363</b>		Laboratory Control Sample								
Lead 210		20	pCi/L	98		70	130			04/16/13 12:00
<b>Sample ID: C13040231-001GMS</b>		Sample Matrix Spike								
Lead 210		62	pCi/L	98		70	130			04/16/13 12:00
<b>Sample ID: C13040231-001GMSD</b>		Sample Matrix Spike Duplicate								
Lead 210		63	pCi/L	103		70	130	2.2	20.9	04/16/13 12:00

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 05/21/13

**Project:** SW Alluvium

**Work Order:** C13040238

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: RA-05</b>										
Batch: RA228-4382										
<b>Sample ID: LCS-228-RA226-6588</b>	Laboratory Control Sample					Run: TENNELEC-3_130410C		04/17/13 17:31		
Radium 228		8.9	pCi/L	114		80	120			
<b>Sample ID: MB-RA226-6588</b>	3	Method Blank				Run: TENNELEC-3_130410C		04/17/13 17:31		
Radium 228		-0.2	pCi/L					U		
Radium 228 precision (±)		1	pCi/L							
Radium 228 MDC		2	pCi/L							
<b>Sample ID: C13040238-011GMS</b>	Sample Matrix Spike					Run: TENNELEC-3_130410C		04/17/13 17:31		
Radium 228		18	pCi/L	95		70	130			
<b>Sample ID: C13040238-011GMSD</b>	Sample Matrix Spike Duplicate					Run: TENNELEC-3_130410C		04/17/13 17:31		
Radium 228		17	pCi/L	91		70	130	3.4	37.4	

### Qualifiers:

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ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration



## ANALYTICAL SUMMARY REPORT

May 21, 2013

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

Workorder No.: C13040233

Quote ID: C129 - Quarterly Long List

Project Name: Zone-1

Energy Laboratories, Inc. Casper WY received the following 5 samples for United Nuclear Corporation on 4/5/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13040233-001	614	04/03/13 9:05	04/05/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics
C13040233-002	515-A	04/03/13 10:20	04/05/13	Aqueous	Same As Above
C13040233-003	604	04/03/13 11:05	04/05/13	Aqueous	Same As Above
C13040233-004	Rinsate	04/03/13 11:40	04/05/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved E624 Purgeable Organics
C13040233-005	Field Blank	04/03/13 12:00	04/05/13	Aqueous	Same As Above



## ANALYTICAL SUMMARY REPORT

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, 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.

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

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2013.05.21 15:00:00 -06:00



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**CLIENT:** United Nuclear Corporation

**Project:** Zone-1

**Sample Delivery Group:** C13040233

**Report Date:** 05/21/13

## **CASE NARRATIVE**

### **BRANCH LABORATORY SUBCONTRACT ANALYSIS**

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-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.



## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 05/21/13

**Project:** Zone-1

**Work Order:** C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A2320 B										Batch: R172192
<b>Sample ID:</b> MBLK	2	Method Blank								Run: MANTECH_130405A 04/05/13 17:10
Alkalinity, Total as CaCO3		ND	mg/L	1						
Bicarbonate as HCO3		ND	mg/L	1						
<b>Sample ID:</b> LCS_130315		Laboratory Control Sample								Run: MANTECH_130405A 04/05/13 17:22
Alkalinity, Total as CaCO3		157	mg/L	5.0	105	90	110			
<b>Sample ID:</b> C13040231-013AMS		Sample Matrix Spike								Run: MANTECH_130405A 04/05/13 17:50
Alkalinity, Total as CaCO3		179	mg/L	5.0	103	80	120			
<b>Sample ID:</b> C13040233-005ADUP	2	Sample Duplicate								Run: MANTECH_130405A 04/05/13 19:02
Alkalinity, Total as CaCO3		1.06	mg/L	5.0					10	
Bicarbonate as HCO3		1.29	mg/L	5.0					10	

**Qualifiers:**

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MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.





### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS130405A		
<b>Sample ID: MB-1_130405A</b>	Method Blank									
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						04/05/13 15:19
<b>Sample ID: LCS-2_130405A</b>	Laboratory Control Sample									
Solids, Total Dissolved TDS @ 180 C		1990	mg/L	20	99	90	110			04/05/13 15:19
<b>Sample ID: C13040233-001A MS</b>	Sample Matrix Spike									
Solids, Total Dissolved TDS @ 180 C		16900	mg/L	100	99	90	110			04/05/13 15:28
<b>Sample ID: C13040238-004A DUP</b>	Sample Duplicate									
Solids, Total Dissolved TDS @ 180 C		6540	mg/L	100				0.9	5	04/05/13 15:30

**Qualifiers:**

RL - Analyte reporting limit.

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## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 05/21/13

**Project:** Zone-1

**Work Order:** C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A3114 B</b>								Analytical Run: CVAA-C202_130417A		
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									
Selenium-IV		0.0240	mg/L	0.0010	96	90	110			04/17/13 13:46
<b>Method: A3114 B</b>								Batch: 37186		
<b>Sample ID: MB-37186</b>	Method Blank									
Selenium-IV		ND	mg/L	0.0005						Run: CVAA-C202_130417A 04/17/13 13:56
<b>Sample ID: LCS-37186</b>	Laboratory Control Sample									
Selenium-IV		0.0252	mg/L	0.0010	101	90	110			Run: CVAA-C202_130417A 04/17/13 13:58
<b>Sample ID: C13040233-002CMS</b>	Sample Matrix Spike									
Selenium-IV		0.0279	mg/L	0.0010	107	85	115			Run: CVAA-C202_130417A 04/17/13 14:12
<b>Sample ID: C13040233-002CMSD</b>	Sample Matrix Spike Duplicate									
Selenium-IV		0.0277	mg/L	0.0010	106	85	115	0.9	10	Run: CVAA-C202_130417A 04/17/13 14:14

**Qualifiers:**

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MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: A4500-H B								Analytical Run: PHSC_101-C_130405A			
Sample ID: pH 6.86		Initial Calibration Verification Standard									04/05/13 13:45
pH		6.85	s.u.	0.010	100	98	102				
Method: A4500-H B								Batch: R172144			
Sample ID: C13040233-002ADUP		Sample Duplicate									04/05/13 14:46
pH		6.15	s.u.	0.010				0.2	3		

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-NH3 G</b>										Batch: R172337
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Ammonia as N		ND	mg/L	0.01						Run: TECHNICON_130410A 04/10/13 11:41
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Ammonia as N		1.99	mg/L	0.050	100	90	110			Run: TECHNICON_130410A 04/10/13 11:43
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Ammonia as N		1.96	mg/L	0.050	100	80	120			Run: TECHNICON_130410A 04/10/13 11:45
<b>Sample ID: C13040232-002DMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		2.10	mg/L	0.050	107	90	110			Run: TECHNICON_130410A 04/10/13 13:15
<b>Sample ID: C13040232-002DMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		2.13	mg/L	0.050	109	90	110	1.4		Run: TECHNICON_130410A 04/10/13 13:18
<b>Sample ID: C13040120-002CMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		84.4	mg/L	1.2	102	90	110			Run: TECHNICON_130410A 04/10/13 15:42
<b>Sample ID: C13040120-002CMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		84.8	mg/L	1.2	102	90	110	0.5		Run: TECHNICON_130410A 04/10/13 15:44

### Qualifiers:

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ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E1632AM</b>								Analytical Run: SUB-H87711			
<b>Sample ID: AS-ICV 25ppb-4/17/20</b>	Initial Calibration Verification Standard										
Arsenic-III		27.0	ug/L	5.0	108	87.6	114			04/17/13 12:29	
<b>Method: E1632AM</b>								Batch: H_R87711			
<b>Sample ID: ICB</b>	Method Blank										
Arsenic-III		ND	ug/L	2						Run: SUB-H87711 04/17/13 12:53	
<b>Sample ID: AS-LFB 50ppb-4/17/20</b>	Laboratory Fortified Blank										
Arsenic-III		55.7	ug/L	5.0	111	55	146			Run: SUB-H87711 04/17/13 13:01	
<b>Sample ID: C13040238-003E</b>	Sample Matrix Spike										
Arsenic-III		56.3	ug/L	5.0	113	55	146			Run: SUB-H87711 04/17/13 15:12	
<b>Sample ID: C13040238-003E</b>	Sample Matrix Spike Duplicate										
Arsenic-III		56.4	ug/L	5.0	113	55	146	0.2	20	Run: SUB-H87711 04/17/13 15:20	
<b>Sample ID: C13040238-007E</b>	Sample Matrix Spike										
Arsenic-III		52.4	ug/L	5.0	105	55	146			Run: SUB-H87711 04/17/13 16:47	
<b>Sample ID: C13040238-007E</b>	Sample Matrix Spike Duplicate										
Arsenic-III		51.3	ug/L	5.0	103	55	146	2.0	20	Run: SUB-H87711 04/17/13 16:55	

**Qualifiers:**

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MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>		Analytical Run: ICP4-C_130415A								
<b>Sample ID: ICV</b>	4	Initial Calibration Verification Standard								04/15/13 11:08
Calcium		49.6	mg/L	0.50	99	95	105			
Magnesium		49.7	mg/L	0.50	99	95	105			
Potassium		50.0	mg/L	0.50	100	95	105			
Sodium		51.2	mg/L	0.50	102	95	105			
<b>Sample ID: ICSA</b>	4	Interference Check Sample A								04/15/13 11:23
Calcium		441	mg/L	0.50	88	80	120			
Magnesium		488	mg/L	0.50	98	80	120			
Potassium		-0.00433	mg/L	0.50						
Sodium		0.433	mg/L	0.50						
<b>Sample ID: ICSAB</b>	4	Interference Check Sample AB								04/15/13 11:27
Calcium		441	mg/L	0.50	88	80	120			
Magnesium		487	mg/L	0.50	97	80	120			
Potassium		0.0154	mg/L	0.50						
Sodium		0.368	mg/L	0.50						
<b>Method: E200.7</b>		Batch: R172485								
<b>Sample ID: MB-1304015A</b>	4	Method Blank								Run: ICP4-C_130415A 04/15/13 11:46
Calcium		ND	mg/L	0.02						
Magnesium		0.05	mg/L	0.01						
Potassium		ND	mg/L	0.04						
Sodium		ND	mg/L	0.2						
<b>Sample ID: LFB-1304015A</b>	4	Laboratory Fortified Blank								Run: ICP4-C_130415A 04/15/13 11:49
Calcium		47.9	mg/L	0.50	96	85	115			
Magnesium		48.0	mg/L	0.50	96	85	115			
Potassium		47.9	mg/L	0.50	96	85	115			
Sodium		48.3	mg/L	0.50	97	85	115			
<b>Sample ID: C13040233-002BMS2</b>	4	Sample Matrix Spike								Run: ICP4-C_130415A 04/15/13 14:36
Calcium		943	mg/L	1.0	96	70	130			
Magnesium		1850	mg/L	1.0	109	70	130			
Potassium		513	mg/L	1.0	97	70	130			
Sodium		1120	mg/L	2.1	101	70	130			
<b>Sample ID: C13040233-002BMSD2</b>	4	Sample Matrix Spike Duplicate								Run: ICP4-C_130415A 04/15/13 14:40
Calcium		937	mg/L	1.0	95	70	130	0.6	20	
Magnesium		1830	mg/L	1.0	107	70	130	0.7	20	
Potassium		505	mg/L	1.0	96	70	130	1.6	20	
Sodium		1090	mg/L	2.1	96	70	130	2.2	20	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS4-C_130410A								
<b>Sample ID: ICV</b>	10	Initial Calibration Verification Standard							04/10/13 13:58	
Aluminum		0.0530	mg/L	0.0010	106	90	110			
Beryllium		0.0498	mg/L	0.0010	100	90	110			
Cadmium		0.0494	mg/L	0.0010	99	90	110			
Cobalt		0.0513	mg/L	0.0010	103	90	110			
Lead		0.0488	mg/L	0.0010	98	90	110			
Manganese		0.0507	mg/L	0.0010	101	90	110			
Molybdenum		0.0490	mg/L	0.0010	98	90	110			
Nickel		0.0515	mg/L	0.0010	103	90	110			
Uranium		0.0492	mg/L	0.00030	98	90	110			
Vanadium		0.0490	mg/L	0.0010	98	90	110			
<b>Method: E200.8</b>		Batch: 37095								
<b>Sample ID: MB-37095</b>	10	Method Blank							Run: ICPMS4-C_130410A 04/10/13 19:01	
Aluminum		0.001	mg/L	0.001						
Beryllium		ND	mg/L	5E-05						
Cadmium		9E-05	mg/L	3E-05						
Cobalt		ND	mg/L	4E-05						
Lead		2E-05	mg/L	1E-05						
Manganese		0.0008	mg/L	4E-05						
Molybdenum		8E-05	mg/L	4E-05						
Nickel		ND	mg/L	4E-05						
Uranium		3E-05	mg/L	8E-06						
Vanadium		0.008	mg/L	8E-05						
<b>Sample ID: LCS3-37095</b>	10	Laboratory Control Sample							Run: ICPMS4-C_130410A 04/10/13 19:06	
Aluminum		2.37	mg/L	0.030	95	85	115			
Beryllium		0.244	mg/L	0.0010	97	85	115			
Cadmium		0.266	mg/L	0.0010	107	85	115			
Cobalt		0.504	mg/L	0.0050	101	85	115			
Lead		0.509	mg/L	0.0010	102	85	115			
Manganese		2.54	mg/L	0.0010	101	85	115			
Molybdenum		0.532	mg/L	0.0010	106	85	115			
Nickel		0.543	mg/L	0.0050	109	85	115			
Uranium		0.544	mg/L	0.00030	109	85	115			
Vanadium		0.520	mg/L	0.010	103	85	115			
<b>Sample ID: C13040224-001CMS3</b>	10	Sample Matrix Spike							Run: ICPMS4-C_130410A 04/10/13 21:08	
Aluminum		2.60	mg/L	0.030	97	70	130			
Beryllium		0.241	mg/L	0.0010	96	70	130			
Cadmium		0.263	mg/L	0.0010	105	70	130			
Cobalt		0.504	mg/L	0.0050	101	70	130			
Lead		0.548	mg/L	0.0010	110	70	130			
Manganese		2.59	mg/L	0.0010	102	70	130			
Molybdenum		0.558	mg/L	0.0010	110	70	130			
Nickel		0.512	mg/L	0.0050	102	70	130			

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 37095
Sample ID: C13040224-001CMS3	10	Sample Matrix Spike								Run: ICPMS4-C_130410A 04/10/13 21:08
Uranium		0.577	mg/L	0.00030	115	70	130			
Vanadium		0.552	mg/L	0.010	108	70	130			
Sample ID: C13040224-001CMSD3	10	Sample Matrix Spike Duplicate								Run: ICPMS4-C_130410A 04/10/13 21:12
Aluminum		2.53	mg/L	0.030	94	70	130	2.8	20	
Beryllium		0.235	mg/L	0.0010	94	70	130	2.6	20	
Cadmium		0.256	mg/L	0.0010	102	70	130	3.0	20	
Cobalt		0.495	mg/L	0.0050	99	70	130	1.7	20	
Lead		0.536	mg/L	0.0010	107	70	130	2.3	20	
Manganese		2.53	mg/L	0.0010	100	70	130	2.4	20	
Molybdenum		0.548	mg/L	0.0010	108	70	130	1.7	20	
Nickel		0.520	mg/L	0.0050	104	70	130	1.6	20	
Uranium		0.568	mg/L	0.00030	114	70	130	1.5	20	
Vanadium		0.565	mg/L	0.010	111	70	130	2.5	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 05/21/13

**Project:** Zone-1

**Work Order:** C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E300.0										Batch: R172257
<b>Sample ID:</b> ICB-040813	2	Method Blank								Run: IC2-C_130409A 04/08/13 12:24
Chloride		ND	mg/L	0.03						
Sulfate		0.1	mg/L	0.07						
<b>Sample ID:</b> LFB-040813-01	2	Laboratory Fortified Blank								Run: IC2-C_130409A 04/08/13 12:39
Chloride		10.5	mg/L	1.0	105	90	110			
Sulfate		41.3	mg/L	1.0	103	90	110			
<b>Sample ID:</b> C13040233-004AMS	2	Sample Matrix Spike								Run: IC2-C_130409A 04/08/13 20:37
Chloride		10.8	mg/L	1.0	107	90	110			
Sulfate		45.1	mg/L	1.0	106	90	110			
<b>Sample ID:</b> C13040233-004AMSD	2	Sample Matrix Spike Duplicate								Run: IC2-C_130409A 04/08/13 20:52
Chloride		11.2	mg/L	1.0	111	90	110	3.0	20	S
Sulfate		46.4	mg/L	1.0	110	90	110	2.7	20	

- Matrix spike recoveries outside the acceptance range are considered matrix-related.

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
S - Spike recovery outside of advisory limits.



## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 05/21/13

**Project:** Zone-1

**Work Order:** C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E353.2										Batch: R172217
<b>Sample ID:</b> MBLK-1		Method Blank								Run: TECHNICON_130408A 04/08/13 10:30
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.02						
<b>Sample ID:</b> LCS-2		Laboratory Control Sample								Run: TECHNICON_130408A 04/08/13 10:33
Nitrogen, Nitrate+Nitrite as N		2.64	mg/L	0.10	106	90	110			
<b>Sample ID:</b> LFB-3		Laboratory Fortified Blank								Run: TECHNICON_130408A 04/08/13 10:35
Nitrogen, Nitrate+Nitrite as N		2.02	mg/L	0.10	103	90	110			
<b>Sample ID:</b> C13040233-001DMS		Sample Matrix Spike								Run: TECHNICON_130408A 04/08/13 10:40
Nitrogen, Nitrate+Nitrite as N		243	mg/L	5.0	103	90	110			
<b>Sample ID:</b> C13040233-001DMSD		Sample Matrix Spike Duplicate								Run: TECHNICON_130408A 04/08/13 10:43
Nitrogen, Nitrate+Nitrite as N		245	mg/L	5.0	105	90	110	0.8	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b> <span style="float: right;">Analytical Run: R172300</span>										
<b>Sample ID: 08-Apr-13_CCV_19</b>	9	Continuing Calibration Verification Standard								04/08/13 21:35
Bromodichloromethane		12.9	ug/L	1.0	129	70	130			
Bromoform		10.2	ug/L	1.0	102	70	130			
Chlorodibromomethane		12.2	ug/L	1.0	122	70	130			
Chloroform		14.8	ug/L	1.0	148	70	130			S
Trihalomethanes, Total		50.2	ug/L	1.0	125	70	130			
Surr: 1,2-Dichlorobenzene-d4				1.0	98	70	130			
Surr: Dibromofluoromethane				1.0	134	70	130			S
Surr: p-Bromofluorobenzene				1.0	104	70	130			
Surr: Toluene-d8				1.0	104	70	130			
- Response is above standard QA limit. This could indicate a high bias for the sample results. Since there were no detectable analyte responses, and the remainder of the run QA is within acceptance range, this batch is approved.										
<b>Method: E624</b> <span style="float: right;">Batch: R172300</span>										
<b>Sample ID: 08-Apr-13_LCS_4</b>	9	Laboratory Control Sample								04/08/13 13:05
Run: GCMS2_130408A										
Bromodichloromethane		10.9	ug/L	1.0	109	65.2	130			
Bromoform		9.68	ug/L	1.0	97	71.5	130			
Chlorodibromomethane		10.4	ug/L	1.0	104	64.6	127			
Chloroform		12.0	ug/L	1.0	120	65	136			
Trihalomethanes, Total		42.9	ug/L	1.0	107	71.1	127			
Surr: 1,2-Dichlorobenzene-d4				1.0	96	73.7	126			
Surr: Dibromofluoromethane				1.0	108	64.4	131			
Surr: p-Bromofluorobenzene				1.0	100	67.1	133			
Surr: Toluene-d8				1.0	97	79.7	125			
<b>Sample ID: 08-Apr-13_MBLK_6</b>	9	Method Blank								04/08/13 14:12
Run: GCMS2_130408A										
Bromodichloromethane		ND	ug/L	1.0						
Bromoform		ND	ug/L	1.0						
Chlorodibromomethane		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Trihalomethanes, Total		ND	ug/L	1.0						
Surr: 1,2-Dichlorobenzene-d4				1.0	104	73.7	126			
Surr: Dibromofluoromethane				1.0	107	64.4	131			
Surr: p-Bromofluorobenzene				1.0	113	67.1	133			
Surr: Toluene-d8				1.0	98	79.7	125			
<b>Sample ID: C13040233-001HMS</b>	9	Sample Matrix Spike								04/08/13 19:53
Run: GCMS2_130408A										
Bromodichloromethane		119	ug/L	5.0	119	65.2	130			
Bromoform		94.8	ug/L	5.0	95	71.5	130			
Chlorodibromomethane		106	ug/L	5.0	106	64.6	127			
Chloroform		361	ug/L	5.0	144	65	136			S
Trihalomethanes, Total		681	ug/L	5.0	116	71.1	127			
Surr: 1,2-Dichlorobenzene-d4				1.0	98	73.7	126			
Surr: Dibromofluoromethane				1.0	120	64.4	131			
Surr: p-Bromofluorobenzene				1.0	104	67.1	133			
Surr: Toluene-d8				1.0	100	79.7	125			

#### Qualifiers:

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
S - Spike recovery outside of advisory limits.



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E624										Batch: R172300	
Sample ID: C13040233-001HMSD		9 Sample Matrix Spike Duplicate		Run: GCMS2_130408A				04/08/13 20:27			
Bromodichloromethane		114	ug/L	5.0	114	65.2	130	4.8	20		
Bromoform		101	ug/L	5.0	101	71.5	130	6.5	20		
Chlorodibromomethane		109	ug/L	5.0	109	64.6	127	2.2	20		
Chloroform		342	ug/L	5.0	125	65	136	5.5	20		
Trihalomethanes, Total		665	ug/L	5.0	112	71.1	127	2.4	20		
Surr: 1,2-Dichlorobenzene-d4				1.0	100	73.7	126				
Surr: Dibromofluoromethane				1.0	116	64.4	131				
Surr: p-Bromofluorobenzene				1.0	103	67.1	133				
Surr: Toluene-d8				1.0	98	79.7	125				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 05/21/13

**Project:** Zone-1

**Work Order:** C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E900.1										Batch: GA-0680
<b>Sample ID:</b> LCS-GA-0673		Laboratory Control Sample								Run: BERTHOLD 770-1_130418B 04/29/13 08:14
Gross Alpha minus Rn & U		37.7	pCi/L	104		80	120			
<b>Sample ID:</b> MB-GA-0673	3	Method Blank								Run: BERTHOLD 770-1_130418B 04/29/13 08:14
Gross Alpha minus Rn & U		0.04	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.2	pCi/L							
Gross Alpha minus Rn & U MDC		0.4	pCi/L							
<b>Sample ID:</b> C13040361-008DMS		Sample Matrix Spike								Run: BERTHOLD 770-1_130418B 04/29/13 11:43
Gross Alpha minus Rn & U		68.5	pCi/L	94		70	130			
<b>Sample ID:</b> C13040361-008DMSD		Sample Matrix Spike Duplicate								Run: BERTHOLD 770-1_130418B 04/29/13 11:43
Gross Alpha minus Rn & U		67.1	pCi/L	92		70	130	2.0		20.1

### Qualifiers:

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0 <span style="float: right;">Batch: RA226-6588</span>										
Sample ID: C13040238-002GMS		Sample Matrix Spike								
Radium 226	22	pCi/L		94		70	130			04/23/13 15:44
Run: BERTHOLD 770-1_130410B										
Sample ID: C13040238-002GMSD		Sample Matrix Spike Duplicate								
Radium 226	19	pCi/L		84		70	130	11		04/23/13 15:44
Run: BERTHOLD 770-1_130410B										21.5
Sample ID: MB-RA226-6588	3	Method Blank								
Radium 226	-0.05	pCi/L								04/23/13 19:08
Radium 226 precision (±)	0.10	pCi/L								U
Radium 226 MDC	0.2	pCi/L								
Sample ID: LCS-RA226-6588		Laboratory Control Sample								
Radium 226	10	pCi/L		89		80	120			04/23/13 19:08
Run: BERTHOLD 770-1_130410B										
Method: E903.0 <span style="float: right;">Batch: RA226-6585</span>										
Sample ID: C13040164-001DMS		Sample Matrix Spike								
Radium 226	33	pCi/L		104		70	130			04/22/13 07:42
Run: BERTHOLD 770-2_130408C										
Sample ID: C13040164-001DMSD		Sample Matrix Spike Duplicate								
Radium 226	31	pCi/L		97		70	130	4.8		04/22/13 07:42
Run: BERTHOLD 770-2_130408C										20.2
Sample ID: MB-RA226-6585	3	Method Blank								
Radium 226	-0.07	pCi/L								04/22/13 11:24
Radium 226 precision (±)	0.06	pCi/L								U
Radium 226 MDC	0.1	pCi/L								
Sample ID: LCS-RA226-6585		Laboratory Control Sample								
Radium 226	11	pCi/L		99		80	120			04/22/13 11:24
Run: BERTHOLD 770-2_130408C										

### Qualifiers:

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E908.0</b>								Batch: RA-TH-ISO-1822		
<b>Sample ID: LCS-RA-TH-ISO-1822</b>	Laboratory Control Sample			Run: ALPHANALYST_130412A		04/15/13 17:03				
Thorium 230	6.1	pCi/L	101	80	120					
<b>Sample ID: C13040233-001GMS</b>	Sample Matrix Spike			Run: ALPHANALYST_130412A		04/15/13 17:03				
Thorium 230	25.8	pCi/L	122	70	130					
<b>Sample ID: C13040233-001GMSD</b>	Sample Matrix Spike Duplicate			Run: ALPHANALYST_130412A		04/15/13 17:03				
Thorium 230	18.9	pCi/L	90	70	130	31	39			
<b>Sample ID: MB-RA-TH-ISO-1822</b>	3	Method Blank		Run: ALPHANALYST_130412A		04/15/13 17:03				
Thorium 230	0.04	pCi/L	U							
Thorium 230 precision (±)	0.08	pCi/L								
Thorium 230 MDC	0.2	pCi/L								

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0 <span style="float: right;">Batch: T_PB-210-0363</span>										
Sample ID: MB-PB-210-0363	3	Method Blank				Run: SUB-T50513			04/16/13 12:00	
Lead 210		-0.2	pCi/L							U
Lead 210 precision (±)		0.7	pCi/L							
Lead 210 MDC		1	pCi/L							
Sample ID: LCS-PB-210-0363		Laboratory Control Sample				Run: SUB-T50513			04/16/13 12:00	
Lead 210		20	pCi/L	98		70	130			
Sample ID: C13040231-001GMS		Sample Matrix Spike				Run: SUB-T50513			04/16/13 12:00	
Lead 210		62	pCi/L	98		70	130			
Sample ID: C13040231-001GMSD		Sample Matrix Spike Duplicate				Run: SUB-T50513			04/16/13 12:00	
Lead 210		63	pCi/L	103		70	130	2.2	20.9	

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/21/13

Project: Zone-1

Work Order: C13040233

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: RA-05</b>								Batch: RA228-4381		
<b>Sample ID: LCS-228-RA226-6585</b>	Laboratory Control Sample			Run: TENNELEC-3_130408B		04/16/13 17:56				
Radium 228		12.4	pCi/L	119		80	120			
<b>Sample ID: MB-RA226-6585</b>	3	Method Blank		Run: TENNELEC-3_130408B		04/16/13 17:56				
Radium 228		0.8	pCi/L							U
Radium 228 precision (±)		0.9	pCi/L							
Radium 228 MDC		1	pCi/L							
<b>Sample ID: C13040216-001EMS</b>	Sample Matrix Spike			Run: TENNELEC-3_130408B		04/16/13 17:56				
Radium 228		23.4	pCi/L	104		70	130			
<b>Sample ID: C13040216-001EMSD</b>	Sample Matrix Spike Duplicate			Run: TENNELEC-3_130408B		04/16/13 17:56				
Radium 228		25.1	pCi/L	113		70	130	7.0		31.4

### Qualifiers:

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



# ANALYTICAL SUMMARY REPORT

May 22, 2013

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

Workorder No.: C13040429      Quote ID: C129 - Quarterly Long List  
Project Name: Zone-1

Energy Laboratories, Inc. Casper WY received the following 8 samples for United Nuclear Corporation on 4/12/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13040429-001	EPA-4	04/08/13 9:10	04/12/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics
C13040429-002	EPA-5	04/08/13 10:10	04/12/13	Aqueous	Same As Above
C13040429-003	EPA-7	04/08/13 11:00	04/12/13	Aqueous	Same As Above
C13040429-004	EPA-2	04/08/13 11:50	04/12/13	Aqueous	Same As Above
C13040429-005	EPA-2 Duplicate	04/08/13 12:20	04/12/13	Aqueous	Same As Above
C13040429-006	TWQ-142	04/09/13 12:55	04/12/13	Aqueous	Same As Above



### ANALYTICAL SUMMARY REPORT

C13040429-007	Rinsate	04/10/13 11:55	04/12/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved E624 Purgeable Organics
C13040429-008	Field Blank	04/10/13 12:00	04/12/13	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, 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.

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

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2013.05.22 13:06:13 -06:00



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**CLIENT:** United Nuclear Corporation  
**Project:** Zone-1  
**Sample Delivery Group:** C13040429

**Report Date:** 05/22/13

## CASE NARRATIVE

### BRANCH LABORATORY SUBCONTRACT ANALYSIS

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-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2320 B</b>										
Batch: R172433										
<b>Sample ID: MBLK</b>	2	Method Blank								
Alkalinity, Total as CaCO3		ND	mg/L	1						Run: MANTECH_130412B 04/12/13 14:45
Bicarbonate as HCO3		1	mg/L	1						
<b>Sample ID: LCS_130315</b>		Laboratory Control Sample								Run: MANTECH_130412B 04/12/13 14:59
Alkalinity, Total as CaCO3		156	mg/L	5.0	104	90	110			
<b>Sample ID: C13040430-004ADUP</b>	2	Sample Duplicate								Run: MANTECH_130412B 04/12/13 18:21
Alkalinity, Total as CaCO3		100	mg/L	5.0				0.9	10	
Bicarbonate as HCO3		123	mg/L	5.0				0.9	10	
<b>Sample ID: C13040430-006AMS</b>		Sample Matrix Spike								Run: MANTECH_130412B 04/12/13 18:37
Alkalinity, Total as CaCO3		263	mg/L	5.0	111	80	120			
<b>Method: A2320 B</b>										
Batch: R172478										
<b>Sample ID: MBLK</b>	2	Method Blank								Run: MANTECH_130415C 04/15/13 15:03
Alkalinity, Total as CaCO3		ND	mg/L	1						
Bicarbonate as HCO3		ND	mg/L	1						
<b>Sample ID: LCS_130315</b>		Laboratory Control Sample								Run: MANTECH_130415C 04/15/13 15:16
Alkalinity, Total as CaCO3		156	mg/L	5.0	104	90	110			
<b>Sample ID: C13040457-001ADUP</b>	2	Sample Duplicate								Run: MANTECH_130415C 04/15/13 15:32
Alkalinity, Total as CaCO3		170.95	mg/L					1.00463194	10	
Bicarbonate as HCO3		209	mg/L	5.0				0.5	10	
<b>Sample ID: C13040457-001AMS</b>		Sample Matrix Spike								Run: MANTECH_130415C 04/15/13 15:41
Alkalinity, Total as CaCO3		323	mg/L	5.0	102	80	120			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>										
Batch: TDS130412A										
<b>Sample ID: MB-1_130412A</b>		Method Blank								
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						Run: BAL-19_130412B 04/12/13 15:34
<b>Sample ID: LCS-2_130412A</b>		Laboratory Control Sample								
Solids, Total Dissolved TDS @ 180 C		2000	mg/L	20	100	90	110			Run: BAL-19_130412B 04/12/13 15:35
<b>Sample ID: C13040429-001A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		4540	mg/L	40				1.1	5	Run: BAL-19_130412B 04/12/13 15:51
<b>Sample ID: C13040429-002A MS</b>		Sample Matrix Spike								
Solids, Total Dissolved TDS @ 180 C		8750	mg/L	40	99	90	110			Run: BAL-19_130412B 04/12/13 15:52
<b>Method: A2540 C</b>										
Batch: TDS130416A										
<b>Sample ID: MB-1_130416A</b>		Method Blank								
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						Run: BAL-19_130416A 04/16/13 11:49
<b>Sample ID: LCS-2_130416A</b>		Laboratory Control Sample								
Solids, Total Dissolved TDS @ 180 C		1970	mg/L	20	99	90	110			Run: BAL-19_130416A 04/16/13 11:50
<b>Sample ID: C13040401-001A MS</b>		Sample Matrix Spike								
Solids, Total Dissolved TDS @ 180 C		1450	mg/L	11	99	90	110			Run: BAL-19_130416A 04/16/13 11:50
<b>Sample ID: C13040430-001A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		117	mg/L	10				1.7	5	Run: BAL-19_130416A 04/16/13 11:53

### Qualifiers:

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A3114 B <span style="float: right;">Analytical Run: CVAA-C202_130417A</span>										
Sample ID: ICV <span style="float: right;">Initial Calibration Verification Standard</span>										
Selenium-IV		0.0240	mg/L	0.0010	96	90	110			04/17/13 13:46
Method: A3114 B <span style="float: right;">Batch: 37187</span>										
Sample ID: MB-37187 <span style="float: right;">Method Blank</span>										
Selenium-IV		ND	mg/L	0.0005						Run: CVAA-C202_130417A 04/17/13 14:57
Sample ID: LCS-37187 <span style="float: right;">Laboratory Control Sample</span>										
Selenium-IV		0.0239	mg/L	0.0010	96	90	110			Run: CVAA-C202_130417A 04/17/13 14:58
Sample ID: C13040429-001DMS <span style="float: right;">Sample Matrix Spike</span>										
Selenium-IV		0.0231	mg/L	0.0010	92	85	115			Run: CVAA-C202_130417A 04/17/13 15:13
Sample ID: C13040429-001DMSD <span style="float: right;">Sample Matrix Spike Duplicate</span>										
Selenium-IV		0.0233	mg/L	0.0010	93	85	115	0.8	10	Run: CVAA-C202_130417A 04/17/13 15:15

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B								Analytical Run: PHSC_101-C_130412A		
Sample ID: pH 6.86 Initial Calibration Verification Standard 04/12/13 09:12										
pH		6.84	s.u.	0.010	100	98	102			
Sample ID: pH 6.86 Initial Calibration Verification Standard 04/12/13 14:48										
pH		6.83	s.u.	0.010	100	98	102			
Method: A4500-H B								Batch: R172391		
Sample ID: C13040409-001ADUP Sample Duplicate Run: PHSC_101-C_130412A 04/12/13 10:10										
pH		8.45	s.u.	0.010				0.1	3	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration





### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-NH3 G</b> <span style="float: right;">Batch: R172518</span>										
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Ammonia as N		ND	mg/L	0.01						Run: TECHNICON_130416A 04/16/13 15:13
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Ammonia as N		1.99	mg/L	0.050	100	90	110			Run: TECHNICON_130416A 04/16/13 15:15
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Ammonia as N		1.99	mg/L	0.050	102	80	120			Run: TECHNICON_130416A 04/16/13 15:17
<b>Sample ID: C13040429-001EMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		2.84	mg/L	0.050	109	90	110			Run: TECHNICON_130416A 04/16/13 15:21
<b>Sample ID: C13040429-001EMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		2.86	mg/L	0.050	110	90	110	0.7	10	Run: TECHNICON_130416A 04/16/13 15:23

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 05/22/13

**Project:** Zone-1

**Work Order:** C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E1632AM</b>								Analytical Run: SUB-H87786		
<b>Sample ID: AS-ICV 25ppb-4/19/20</b>	Initial Calibration Verification Standard									
Arsenic-III		25.2	ug/L	5.0	101	87.6	114			04/19/13 11:03
<b>Method: E1632AM</b>								Batch: H_R87786		
<b>Sample ID: ICB</b>	Method Blank									
Arsenic-III		ND	ug/L	2						Run: SUB-H87786 04/19/13 11:27
<b>Sample ID: AS-LFB 50ppb-4/19/20</b>	Laboratory Fortified Blank									
Arsenic-III		48.9	ug/L	5.0	98	55	146			Run: SUB-H87786 04/19/13 11:35
<b>Sample ID: C13040238-014E</b>	Sample Matrix Spike									
Arsenic-III		47.6	ug/L	5.0	95	55	146			Run: SUB-H87786 04/19/13 11:51
<b>Sample ID: C13040238-014E</b>	Sample Matrix Spike Duplicate									
Arsenic-III		47.9	ug/L	5.0	96	55	146	0.6		Run: SUB-H87786 04/19/13 11:59 20

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Analytical Run: ICP4-C_130416A										
<b>Sample ID: ICV</b>	3	Initial Calibration Verification Standard								04/16/13 11:57
Calcium		50.5	mg/L	0.50	101	95	105			
Magnesium		49.8	mg/L	0.50	100	95	105			
Sodium		51.2	mg/L	0.50	102	95	105			
<b>Sample ID: ICSA</b>	3	Interference Check Sample A								04/16/13 12:12
Calcium		445	mg/L	0.50	89	80	120			
Magnesium		492	mg/L	0.50	98	80	120			
Sodium		0.183	mg/L	0.50						
<b>Sample ID: ICSAB</b>	3	Interference Check Sample AB								04/16/13 12:16
Calcium		451	mg/L	0.50	90	80	120			
Magnesium		498	mg/L	0.50	100	80	120			
Sodium		0.346	mg/L	0.50						
<b>Method: E200.7</b>										
Batch: R172526										
<b>Sample ID: MB-1304016A</b>	3	Method Blank								04/16/13 12:34
Calcium		ND	mg/L	0.02						
Magnesium		0.03	mg/L	0.01						
Sodium		ND	mg/L	0.2						
<b>Sample ID: LFB-1304016A</b>	3	Laboratory Fortified Blank								04/16/13 12:38
Calcium		49.9	mg/L	0.50	100	85	115			
Magnesium		48.9	mg/L	0.50	98	85	115			
Sodium		50.2	mg/L	0.50	100	85	115			
<b>Sample ID: C13040429-002CMS2</b>	3	Sample Matrix Spike								04/16/13 17:15
Calcium		667	mg/L	1.0	77	70	130			
Magnesium		693	mg/L	1.0	80	70	130			
Sodium		319	mg/L	1.0	83	70	130			
<b>Sample ID: C13040429-002CMSD2</b>	3	Sample Matrix Spike Duplicate								04/16/13 17:18
Calcium		681	mg/L	1.0	83	70	130	2.1	20	
Magnesium		706	mg/L	1.0	85	70	130	1.9	20	
Sodium		328	mg/L	1.0	86	70	130	2.6	20	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7 <span style="float: right;">Analytical Run: ICP4-C_130417A</span>										
Sample ID: ICV Initial Calibration Verification Standard <span style="float: right;">04/17/13 11:23</span>										
Potassium		50.9	mg/L	0.50	102	95	105			
Sample ID: ICSA Interference Check Sample A <span style="float: right;">04/17/13 11:37</span>										
Potassium		0.0234	mg/L	0.50						
Sample ID: ICSAB Interference Check Sample AB <span style="float: right;">04/17/13 11:41</span>										
Potassium		0.0173	mg/L	0.50						
Method: E200.7 <span style="float: right;">Batch: R172580</span>										
Sample ID: MB-1304017A Method Blank <span style="float: right;">Run: ICP4-C_130417A 04/17/13 12:00</span>										
Potassium		ND	mg/L	0.04						
Sample ID: LFB-1304017A Laboratory Fortified Blank <span style="float: right;">Run: ICP4-C_130417A 04/17/13 12:04</span>										
Potassium		48.2	mg/L	0.50	96	85	115			
Sample ID: C13040333-002BMS2 Sample Matrix Spike <span style="float: right;">Run: ICP4-C_130417A 04/17/13 12:18</span>										
Potassium		109	mg/L	1.0	96	70	130			
Sample ID: C13040333-002BMSD2 Sample Matrix Spike Duplicate <span style="float: right;">Run: ICP4-C_130417A 04/17/13 12:22</span>										
Potassium		111	mg/L	1.0	98	70	130	1.9	20	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.7</b>											
Analytical Run: ICP4-C_130419A											
<b>Sample ID: ICV</b>	8	Initial Calibration Verification Standard									04/19/13 13:38
Aluminum		4.84	mg/L	0.10	97	95	105				
Beryllium		0.493	mg/L	0.010	99	95	105				
Cadmium		0.473	mg/L	0.010	95	95	105				
Cobalt		0.955	mg/L	0.010	96	95	105				
Manganese		4.83	mg/L	0.010	97	95	105				
Molybdenum		0.978	mg/L	0.10	98	95	105				
Nickel		0.950	mg/L	0.050	95	95	105				
Vanadium		0.983	mg/L	0.10	98	95	105				
<b>Sample ID: ICSA</b>	8	Interference Check Sample A									04/19/13 13:52
Aluminum		469	mg/L	0.10	94	80	120				
Beryllium		0.000100	mg/L	0.010							
Cadmium		0.00153	mg/L	0.010							
Cobalt		-0.00396	mg/L	0.010							
Manganese		0.00498	mg/L	0.010							
Molybdenum		0.00167	mg/L	0.10							
Nickel		-0.000420	mg/L	0.050							
Vanadium		-0.000720	mg/L	0.10							
<b>Sample ID: ICSAB</b>	8	Interference Check Sample AB									04/19/13 13:56
Aluminum		475	mg/L	0.10	95	80	120				
Beryllium		0.476	mg/L	0.010	95	80	120				
Cadmium		0.868	mg/L	0.010	87	80	120				
Cobalt		0.439	mg/L	0.010	88	80	120				
Manganese		0.456	mg/L	0.010	91	80	120				
Molybdenum		-0.00516	mg/L	0.10							
Nickel		0.867	mg/L	0.050	87	80	120				
Vanadium		0.462	mg/L	0.10	92	80	120				
<b>Method: E200.7</b>											
Batch: 37225											
<b>Sample ID: MB-37225</b>	8	Method Blank									04/19/13 15:59
Run: ICP4-C_130419A											
Aluminum		0.01	mg/L	0.01							
Beryllium		ND	mg/L	5E-05							
Cadmium		ND	mg/L	0.0003							
Cobalt		ND	mg/L	0.002							
Manganese		0.0003	mg/L	0.0002							
Molybdenum		ND	mg/L	0.003							
Nickel		ND	mg/L	0.001							
Vanadium		ND	mg/L	0.005							
<b>Sample ID: LCS3-37225</b>	8	Laboratory Control Sample									04/19/13 16:03
Run: ICP4-C_130419A											
Aluminum		2.37	mg/L	0.030	94	85	115				
Beryllium		0.244	mg/L	0.0010	97	85	115				
Cadmium		0.240	mg/L	0.0010	96	85	115				
Cobalt		0.476	mg/L	0.0050	95	85	115				

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Batch: 37225										
<b>Sample ID: LCS3-37225</b>	8	Laboratory Control Sample			Run: ICP4-C_130419A			04/19/13 16:03		
Manganese		2.41	mg/L	0.0010	96	85	115			
Molybdenum		0.485	mg/L	0.0028	97	85	115			
Nickel		0.474	mg/L	0.0050	95	85	115			
Vanadium		0.486	mg/L	0.010	97	85	115			
<b>Sample ID: C13040429-002DMS3</b>	8	Sample Matrix Spike			Run: ICP4-C_130419A			04/19/13 17:10		
Aluminum		2.55	mg/L	0.060	102	70	130			
Beryllium		0.249	mg/L	0.0010	99	70	130			
Cadmium		0.241	mg/L	0.0017	96	70	130			
Cobalt		0.519	mg/L	0.0082	96	70	130			
Manganese		3.40	mg/L	0.0010	98	70	130			
Molybdenum		0.568	mg/L	0.014	105	70	130			
Nickel		0.533	mg/L	0.0073	95	70	130			
Vanadium		0.513	mg/L	0.026	103	70	130			
<b>Sample ID: C13040429-002DMSD3</b>	8	Sample Matrix Spike Duplicate			Run: ICP4-C_130419A			04/19/13 17:14		
Aluminum		2.60	mg/L	0.060	104	70	130	2.1	20	
Beryllium		0.249	mg/L	0.0010	99	70	130	0.3	20	
Cadmium		0.244	mg/L	0.0017	97	70	130	1.0	20	
Cobalt		0.532	mg/L	0.0082	98	70	130	2.4	20	
Manganese		3.42	mg/L	0.0010	99	70	130	0.6	20	
Molybdenum		0.552	mg/L	0.014	102	70	130	2.9	20	
Nickel		0.550	mg/L	0.0073	99	70	130	3.2	20	
Vanadium		0.500	mg/L	0.026	100	70	130	2.4	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
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Method: E200.8 Analytical Run: ICPMS4-C\_130422A

Sample ID: ICV 10 Initial Calibration Verification Standard 04/22/13 13:12

Aluminum		0.0508	mg/L	0.0010	102	90	110			
Beryllium		0.0528	mg/L	0.0010	106	90	110			
Cadmium		0.0501	mg/L	0.0010	100	90	110			
Cobalt		0.0512	mg/L	0.0010	102	90	110			
Lead		0.0500	mg/L	0.0010	100	90	110			
Manganese		0.0502	mg/L	0.0010	100	90	110			
Molybdenum		0.0494	mg/L	0.0010	99	90	110			
Nickel		0.0511	mg/L	0.0010	102	90	110			
Uranium		0.0498	mg/L	0.00030	100	90	110			
Vanadium		0.0498	mg/L	0.0010	100	90	110			

Method: E200.8 Batch: 37225

Sample ID: MB-37225 10 Method Blank Run: ICPMS4-C\_130422A 04/22/13 22:34

Aluminum		0.002	mg/L	0.001						
Beryllium		ND	mg/L	5E-05						
Cadmium		5E-05	mg/L	3E-05						
Cobalt		ND	mg/L	4E-05						
Lead		2E-05	mg/L	1E-05						
Manganese		0.0008	mg/L	4E-05						
Molybdenum		ND	mg/L	4E-05						
Nickel		4E-05	mg/L	4E-05						
Uranium		1E-05	mg/L	8E-06						
Vanadium		0.005	mg/L	8E-05						

Sample ID: LCS3-37225 10 Laboratory Control Sample Run: ICPMS4-C\_130422A 04/22/13 22:38

Aluminum		2.38	mg/L	0.030	95	85	115			
Beryllium		0.234	mg/L	0.0010	94	85	115			
Cadmium		0.262	mg/L	0.0010	105	85	115			
Cobalt		0.492	mg/L	0.0050	98	85	115			
Lead		0.509	mg/L	0.0010	102	85	115			
Manganese		2.53	mg/L	0.0010	101	85	115			
Molybdenum		0.492	mg/L	0.0010	98	85	115			
Nickel		0.510	mg/L	0.0050	102	85	115			
Uranium		0.529	mg/L	0.00030	106	85	115			
Vanadium		0.502	mg/L	0.010	99	85	115			

Sample ID: C13040429-002DMS3 10 Sample Matrix Spike Run: ICPMS4-C\_130422A 04/22/13 22:51

Aluminum		2.30	mg/L	0.030	91	70	130			
Beryllium		0.213	mg/L	0.0010	85	70	130			
Cadmium		0.251	mg/L	0.0010	100	70	130			
Cobalt		0.530	mg/L	0.0050	96	70	130			
Lead		0.521	mg/L	0.0010	104	70	130			
Manganese		3.54	mg/L	0.0010	101	70	130			
Molybdenum		0.500	mg/L	0.0010	100	70	130			
Nickel		0.559	mg/L	0.0050	99	70	130			

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 <span style="float: right;">Batch: 37225</span>										
Sample ID: C13040429-002DMS3 10 Sample Matrix Spike <span style="float: right;">Run: ICPMS4-C_130422A 04/22/13 22:51</span>										
Uranium		0.565	mg/L	0.00030	113	70	130			
Vanadium		0.509	mg/L	0.010	100	70	130			
Sample ID: C13040429-002DMSD3 10 Sample Matrix Spike Duplicate <span style="float: right;">Run: ICPMS4-C_130422A 04/22/13 22:54</span>										
Aluminum		2.32	mg/L	0.030	92	70	130	1.1	20	
Beryllium		0.214	mg/L	0.0010	86	70	130	0.7	20	
Cadmium		0.253	mg/L	0.0010	101	70	130	0.8	20	
Cobalt		0.527	mg/L	0.0050	95	70	130	0.6	20	
Lead		0.527	mg/L	0.0010	105	70	130	1.1	20	
Manganese		3.52	mg/L	0.0010	100	70	130	0.6	20	
Molybdenum		0.508	mg/L	0.0010	102	70	130	1.4	20	
Nickel		0.573	mg/L	0.0050	102	70	130	2.6	20	
Uranium		0.571	mg/L	0.00030	114	70	130	1.0	20	
Vanadium		0.521	mg/L	0.010	103	70	130	2.3	20	

### Qualifiers:

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.





## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>										Batch: R172589
<b>Sample ID: ICB-041513</b>	2	Method Blank								Run: IC2-C_130415A 04/15/13 13:37
Chloride		0.03	mg/L	0.03						
Sulfate		0.2	mg/L	0.07						
<b>Sample ID: LFB-041513-01</b>	2	Laboratory Fortified Blank								Run: IC2-C_130415A 04/15/13 14:08
Chloride		9.61	mg/L	1.0	96	90	110			
Sulfate		38.2	mg/L	1.0	95	90	110			
<b>Sample ID: LFB-041513-01</b>	2	Laboratory Fortified Blank Duplicate								Run: IC2-C_130415A 04/15/13 14:23
Chloride		9.71	mg/L	1.0	97	90	110	1.1	20	
Sulfate		38.5	mg/L	1.0	96	90	110	1.0	20	
<b>Sample ID: C13040426-006AMS</b>	2	Sample Matrix Spike								Run: IC2-C_130415A 04/15/13 22:52
Chloride		233	mg/L	4.2	98	90	110			
Sulfate		3500	mg/L	17	102	90	110			
<b>Sample ID: C13040426-006AMSD</b>	2	Sample Matrix Spike Duplicate								Run: IC2-C_130415A 04/15/13 23:08
Chloride		235	mg/L	4.2	99	90	110	1.0	20	
Sulfate		3480	mg/L	17	100	90	110	0.6	20	
<b>Sample ID: C13040429-006AMS</b>	2	Sample Matrix Spike								Run: IC2-C_130415A 04/16/13 02:44
Chloride		66.6	mg/L	1.0	100	90	110			
Sulfate		926	mg/L	4.2	100	90	110			
<b>Sample ID: C13040429-006AMSD</b>	2	Sample Matrix Spike Duplicate								Run: IC2-C_130415A 04/16/13 02:59
Chloride		66.5	mg/L	1.0	100	90	110	0.2	20	
Sulfate		921	mg/L	4.2	98	90	110	0.5	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										Batch: R172475
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.02						
										Run: TECHNICON_130415A 04/15/13 10:48
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Nitrate+Nitrite as N		2.69	mg/L	0.10	108	90	110			
										Run: TECHNICON_130415A 04/15/13 10:51
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Nitrate+Nitrite as N		2.08	mg/L	0.10	106	90	110			
										Run: TECHNICON_130415A 04/15/13 10:53
<b>Sample ID: C13040403-001BMS</b>		Sample Matrix Spike								
Nitrogen, Nitrate+Nitrite as N		4.89	mg/L	0.10	113	90	110			
										Run: TECHNICON_130415A 04/15/13 13:18 S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID: C13040403-001BMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Nitrate+Nitrite as N		4.93	mg/L	0.10	115	90	110	0.8	10	S
										Run: TECHNICON_130415A 04/15/13 13:21
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID: C13040429-008EMS</b>		Sample Matrix Spike								
Nitrogen, Nitrate+Nitrite as N		3.35	mg/L	0.10	111	90	110			
										Run: TECHNICON_130415A 04/15/13 13:56 S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID: C13040429-008EMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Nitrate+Nitrite as N		3.36	mg/L	0.10	112	90	110	0.3	10	S
										Run: TECHNICON_130415A 04/15/13 13:58
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b>										
Analytical Run: R172497										
<b>Sample ID: 15-Apr-13_CCV_20</b>	9	Continuing Calibration Verification Standard								04/15/13 21:48
Bromodichloromethane		10.4	ug/L	1.0	104	70	130			
Bromoform		8.64	ug/L	1.0	86	70	130			
Chlorodibromomethane		9.80	ug/L	1.0	98	70	130			
Chloroform		10.8	ug/L	1.0	108	70	130			
Trihalomethanes, Total		39.6	ug/L	1.0	99	70	130			
Surr: 1,2-Dichlorobenzene-d4				1.0	95	70	130			
Surr: Dibromofluoromethane				1.0	126	70	130			
Surr: p-Bromofluorobenzene				1.0	101	70	130			
Surr: Toluene-d8				1.0	103	70	130			
<b>Method: E624</b>										
Batch: R172497										
<b>Sample ID: 15-Apr-13_LCS_4</b>	9	Laboratory Control Sample								04/15/13 12:49
Run: GCMS2_130415B										
Bromodichloromethane		9.08	ug/L	1.0	91	65.2	130			
Bromoform		8.64	ug/L	1.0	86	71.5	130			
Chlorodibromomethane		9.20	ug/L	1.0	92	64.6	127			
Chloroform		9.76	ug/L	1.0	98	65	136			
Trihalomethanes, Total		36.7	ug/L	1.0	92	71.1	127			
Surr: 1,2-Dichlorobenzene-d4				1.0	98	73.7	126			
Surr: Dibromofluoromethane				1.0	116	64.4	131			
Surr: p-Bromofluorobenzene				1.0	103	67.1	133			
Surr: Toluene-d8				1.0	94	79.7	125			
<b>Sample ID: 15-Apr-13_MBLK_6</b>	9	Method Blank								04/15/13 13:55
Run: GCMS2_130415B										
Bromodichloromethane		ND	ug/L	1.0						
Bromoform		ND	ug/L	1.0						
Chlorodibromomethane		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Trihalomethanes, Total		ND	ug/L	1.0						
Surr: 1,2-Dichlorobenzene-d4				1.0	105	73.7	126			
Surr: Dibromofluoromethane				1.0	116	64.4	131			
Surr: p-Bromofluorobenzene				1.0	118	67.1	133			
Surr: Toluene-d8				1.0	96	79.7	125			
<b>Sample ID: C13040435-007HMS</b>	9	Sample Matrix Spike								04/15/13 20:07
Run: GCMS2_130415B										
Bromodichloromethane		98.4	ug/L	5.0	98	65.2	130			
Bromoform		86.4	ug/L	5.0	86	71.5	130			
Chlorodibromomethane		95.2	ug/L	5.0	95	64.6	127			
Chloroform		114	ug/L	5.0	114	65	136			
Trihalomethanes, Total		394	ug/L	5.0	99	71.1	127			
Surr: 1,2-Dichlorobenzene-d4				1.0	98	73.7	126			
Surr: Dibromofluoromethane				1.0	125	64.4	131			
Surr: p-Bromofluorobenzene				1.0	102	67.1	133			
Surr: Toluene-d8				1.0	101	79.7	125			

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E624 <span style="float: right;">Batch: R172497</span>										
Sample ID: C13040435-007HMSD 9 Sample Matrix Spike Duplicate <span style="float: right;">Run: GCMS2_130415B 04/15/13 20:41</span>										
Bromodichloromethane		96.8	ug/L	5.0	97	65.2	130	1.6	20	
Bromoform		86.4	ug/L	5.0	86	71.5	130	0.0	20	
Chlorodibromomethane		96.8	ug/L	5.0	97	64.6	127	1.7	20	
Chloroform		114	ug/L	5.0	114	65	136	0.4	20	
Trihalomethanes, Total		394	ug/L	5.0	99	71.1	127	0.1	20	
Surr: 1,2-Dichlorobenzene-d4				1.0	96	73.7	126			
Surr: Dibromofluoromethane				1.0	125	64.4	131			
Surr: p-Bromofluorobenzene				1.0	102	67.1	133			
Surr: Toluene-d8				1.0	95	79.7	125			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E900.1</b>										
Batch: GA-0675										
<b>Sample ID: LCS-GA-0675</b>	Laboratory Control Sample									
Gross Alpha minus Rn & U		41.2	pCi/L	109		80	120			
										Run: BERTHOLD 770-2_130418A 04/20/13 05:42
<b>Sample ID: MB-GA-0675</b>	3	Method Blank								
Gross Alpha minus Rn & U		-0.03	pCi/L							04/20/13 05:42
Gross Alpha minus Rn & U Precision (±)		0.5	pCi/L							U
Gross Alpha minus Rn & U MDC		0.8	pCi/L							
<b>Sample ID: C13040429-008GMS</b>	Sample Matrix Spike									
Gross Alpha minus Rn & U		84.5	pCi/L	114		70	130			04/20/13 07:26
										Run: BERTHOLD 770-2_130418A 04/20/13 07:26
<b>Sample ID: C13040429-008GMSD</b>	Sample Matrix Spike Duplicate									
Gross Alpha minus Rn & U		94.8	pCi/L	126		70	130	11		23.6

### Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E903.0</b>								Batch: RA226-6598		
<b>Sample ID: C13040432-001FMS</b>		Sample Matrix Spike				Run: BERTHOLD 770-2_130416A		04/29/13 23:52		
Radium 226		25	pCi/L		109	70	130			
<b>Sample ID: C13040432-001FMSD</b>		Sample Matrix Spike Duplicate				Run: BERTHOLD 770-2_130416A		04/29/13 23:52		
Radium 226		25	pCi/L		110	70	130	1.6	22.5	
<b>Sample ID: MB-RA226-6598</b>	3	Method Blank				Run: BERTHOLD 770-2_130416A		04/30/13 01:32		
Radium 226		-0.1	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
<b>Sample ID: LCS-RA226-6598</b>		Laboratory Control Sample				Run: BERTHOLD 770-2_130416A		04/30/13 01:32		
Radium 226		12	pCi/L		111	80	120			

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0 <span style="float: right;">Batch: RA-TH-ISO-1834</span>										
Sample ID: LCS-RA-TH-ISO-1827 Laboratory Control Sample Run: ALPHANALYST_130419B 05/01/13 11:33										
Thorium 230		5.7	pCi/L		95	80	120			
Sample ID: C13040435-002GMS Sample Matrix Spike Run: ALPHANALYST_130419B 05/01/13 11:34										
Thorium 230		32.3	pCi/L		93	70	130			
Sample ID: C13040435-002GMSD Sample Matrix Spike Duplicate Run: ALPHANALYST_130419B 05/01/13 11:34										
Thorium 230		30.7	pCi/L		91	70	130	5.0	26.3	
Sample ID: MB-RA-TH-ISO-1827 3 Method Blank Run: ALPHANALYST_130419B 05/01/13 11:34										
Thorium 230		0.09	pCi/L							
Thorium 230 precision (±)		0.06	pCi/L							
Thorium 230 MDC		0.07	pCi/L							

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E909.0</b>								Batch: T_PB-210-0366		
<b>Sample ID: MB-PB-210-0366</b>	3	Method Blank				Run: SUB-T50478			04/21/13 00:16	
Lead 210		-0.2	pCi/L							U
Lead 210 precision (±)		0.8	pCi/L							
Lead 210 MDC		1	pCi/L							
<b>Sample ID: LCS-PB-210-0366</b>		Laboratory Control Sample				Run: SUB-T50478			04/21/13 00:16	
Lead 210		21	pCi/L	100		70	130			
<b>Sample ID: C13040436-002GMS</b>		Sample Matrix Spike				Run: SUB-T50478			04/21/13 00:16	
Lead 210		67	pCi/L	100		70	130			
<b>Sample ID: C13040436-002GMSD</b>		Sample Matrix Spike Duplicate				Run: SUB-T50478			04/21/13 00:16	
Lead 210		72	pCi/L	109		70	130	6.6	20.9	

### Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-1

Work Order: C13040429

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: RA-05</b>										
Batch: RA228-4393										
<b>Sample ID: LCS-228-RA226-6598</b>	Laboratory Control Sample									
Radium 228		9.1	pCi/L		105	80	120			04/24/13 18:39
<b>Sample ID: MB-RA226-6598</b>	3	Method Blank								04/24/13 18:39
Radium 228		-1	pCi/L							U
Radium 228 precision (±)		1	pCi/L							
Radium 228 MDC		2	pCi/L							
<b>Sample ID: C13040459-001AMS</b>	Sample Matrix Spike									04/24/13 18:39
Radium 228		21.0	pCi/L		106	70	130			
<b>Sample ID: C13040459-001AMSD</b>	Sample Matrix Spike Duplicate									04/24/13 18:39
Radium 228		18.6	pCi/L		94	70	130	12		36.7

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



### ANALYTICAL SUMMARY REPORT

May 22, 2013

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

Workorder No.: C13040244      Quote ID: C129 - Quarterly Long List  
Project Name: Zone-3

Energy Laboratories, Inc. Casper WY received the following 2 samples for United Nuclear Corporation on 4/5/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13040244-001	613	04/02/13 11:45	04/05/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics
C13040244-002	517	04/02/13 12:30	04/05/13	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, 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.

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

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2013.05.22 09:33:40 -06:00



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**CLIENT:** United Nuclear Corporation  
**Project:** Zone-3  
**Sample Delivery Group:** C13040244

**Report Date:** 05/22/13

## **CASE NARRATIVE**

---

### **BRANCH LABORATORY SUBCONTRACT ANALYSIS**

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-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2320 B</b>										
Batch: R172192										
<b>Sample ID: MBLK</b>	2	Method Blank								
Run: MANTECH_130405A										
04/05/13 21:01										
Alkalinity, Total as CaCO3		ND	mg/L	5.0						
Bicarbonate as HCO3		ND	mg/L	5.0						
<b>Sample ID: LCS_130315</b>		Laboratory Control Sample								
Run: MANTECH_130405A										
04/05/13 21:12										
Alkalinity, Total as CaCO3		159	mg/L	5.0	106	90	110			
<b>Sample ID: C13040238-010ADUP</b>	2	Sample Duplicate								
Run: MANTECH_130405A										
04/05/13 21:34										
Alkalinity, Total as CaCO3		1290	mg/L	5.0				0.2	10	
Bicarbonate as HCO3		1580	mg/L	5.0				0.2	10	
<b>Sample ID: C13040238-011AMS</b>		Sample Matrix Spike								
Run: MANTECH_130405A										
04/05/13 21:51										
Alkalinity, Total as CaCO3		543	mg/L	5.0	110	80	120			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS130408A		
<b>Sample ID: MB-1_130408A</b>		Method Blank					Run: BAL-19_130408B		04/08/13 15:33	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Sample ID: LCS-2_130408A</b>		Laboratory Control Sample					Run: BAL-19_130408B		04/08/13 15:33	
Solids, Total Dissolved TDS @ 180 C		2000	mg/L	20	100	90	110			
<b>Sample ID: C13040191-001A MS</b>		Sample Matrix Spike					Run: BAL-19_130408B		04/08/13 15:42	
Solids, Total Dissolved TDS @ 180 C		1300	mg/L	11	99	90	110			
<b>Sample ID: C13040244-001A DUP</b>		Sample Duplicate					Run: BAL-19_130408B		04/08/13 15:45	
Solids, Total Dissolved TDS @ 180 C		11800	mg/L	100				0.2	5	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A3114 B</b>								Analytical Run: CVAA-C202_130417A		
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									
Selenium-IV		0.0240	mg/L	0.0010	96	90	110			04/17/13 13:46
<b>Method: A3114 B</b>								Batch: 37187		
<b>Sample ID: MB-37187</b>	Method Blank									
Selenium-IV		ND	mg/L	0.0005						Run: CVAA-C202_130417A 04/17/13 14:57
<b>Sample ID: LCS-37187</b>	Laboratory Control Sample									
Selenium-IV		0.0239	mg/L	0.0010	96	90	110			Run: CVAA-C202_130417A 04/17/13 14:58
<b>Sample ID: C13040429-001DMS</b>	Sample Matrix Spike									
Selenium-IV		0.0231	mg/L	0.0010	92	85	115			Run: CVAA-C202_130417A 04/17/13 15:13
<b>Sample ID: C13040429-001DMSD</b>	Sample Matrix Spike Duplicate									
Selenium-IV		0.0233	mg/L	0.0010	93	85	115	0.8	10	Run: CVAA-C202_130417A 04/17/13 15:15

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: A4500-H B								Analytical Run: PHSC_101-C_130408A			
Sample ID: pH 6.86		Initial Calibration Verification Standard									
pH		6.84	s.u.	0.010	100	98	102			04/08/13 08:37	
Method: A4500-H B								Batch: R172197			
Sample ID: C13040246-001ADUP		Sample Duplicate									
		Run: PHSC_101-C_130408A									
pH		9.56	s.u.	0.010				0.1	3	04/08/13 09:58	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-NH3 G</b>								Batch: R172337		
<b>Sample ID: MBLK-1</b>		Method Blank						Run: TECHNICON_130410A		04/10/13 11:41
Nitrogen, Ammonia as N		ND	mg/L	0.01						
<b>Sample ID: LCS-2</b>		Laboratory Control Sample						Run: TECHNICON_130410A		04/10/13 11:43
Nitrogen, Ammonia as N		1.99	mg/L	0.050	100	90	110			
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank						Run: TECHNICON_130410A		04/10/13 11:45
Nitrogen, Ammonia as N		1.96	mg/L	0.050	100	80	120			
<b>Sample ID: C13040238-014DMS</b>		Sample Matrix Spike						Run: TECHNICON_130410A		04/10/13 14:14
Nitrogen, Ammonia as N		1.96	mg/L	0.050	100	90	110			
<b>Sample ID: C13040238-014DMSD</b>		Sample Matrix Spike Duplicate						Run: TECHNICON_130410A		04/10/13 14:16
Nitrogen, Ammonia as N		1.98	mg/L	0.050	101	90	110	1.0	10	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E1632AM</b>								Analytical Run: SUB-H87711		
<b>Sample ID: AS-ICV 25ppb-4/17/20</b>	Initial Calibration Verification Standard									
Arsenic-III		27.0	ug/L	5.0	108	87.6	114			04/17/13 12:29
<b>Method: E1632AM</b>								Batch: H_R87711		
<b>Sample ID: ICB</b>	Method Blank									
Arsenic-III		ND	ug/L	2						Run: SUB-H87711 04/17/13 12:53
<b>Sample ID: AS-LFB 50ppb-4/17/20</b>	Laboratory Fortified Blank									
Arsenic-III		55.7	ug/L	5.0	111	55	146			Run: SUB-H87711 04/17/13 13:01
<b>Sample ID: C13040238-003E</b>	Sample Matrix Spike									
Arsenic-III		56.3	ug/L	5.0	113	55	146			Run: SUB-H87711 04/17/13 15:12
<b>Sample ID: C13040238-003E</b>	Sample Matrix Spike Duplicate									
Arsenic-III		56.4	ug/L	5.0	113	55	146	0.2		Run: SUB-H87711 04/17/13 15:20 20
<b>Sample ID: C13040238-007E</b>	Sample Matrix Spike									
Arsenic-III		52.4	ug/L	5.0	105	55	146			Run: SUB-H87711 04/17/13 16:47
<b>Sample ID: C13040238-007E</b>	Sample Matrix Spike Duplicate									
Arsenic-III		51.3	ug/L	5.0	103	55	146	2.0		Run: SUB-H87711 04/17/13 16:55 20

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>		Analytical Run: ICP4-C_130412A								
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									
Aluminum		5.03	mg/L	0.10	101	95	105			04/12/13 12:55
<b>Sample ID: ICSA</b>	Interference Check Sample A									
Aluminum		478	mg/L	0.10	96	80	120			04/12/13 13:09
<b>Sample ID: ICSAB</b>	Interference Check Sample AB									
Aluminum		478	mg/L	0.10	96	80	120			04/12/13 13:13
<b>Method: E200.7</b>		Batch: 37096								
<b>Sample ID: MB-37096</b>	Method Blank									
Aluminum		0.04	mg/L	0.01						Run: ICP4-C_130412A 04/12/13 23:06
<b>Sample ID: LCS3-37096</b>	Laboratory Control Sample									
Aluminum		2.47	mg/L	0.030	97	85	115			Run: ICP4-C_130412A 04/12/13 23:10
<b>Sample ID: C13040244-001DMS3</b>	Sample Matrix Spike									
Aluminum		586	mg/L	0.060		70	130			Run: ICP4-C_130412A 04/12/13 23:21 A
<b>Sample ID: C13040244-001DMSD3</b>	Sample Matrix Spike Duplicate									
Aluminum		599	mg/L	0.060		70	130	2.2	20	Run: ICP4-C_130412A 04/12/13 23:24 A

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Analytical Run: ICP4-C_130415A										
<b>Sample ID: ICV</b>	3	Initial Calibration Verification Standard								04/15/13 11:08
Calcium		49.6	mg/L	0.50	99	95	105			
Magnesium		49.7	mg/L	0.50	99	95	105			
Sodium		51.2	mg/L	0.50	102	95	105			
<b>Sample ID: ICSA</b>	3	Interference Check Sample A								04/15/13 11:23
Calcium		441	mg/L	0.50	88	80	120			
Magnesium		488	mg/L	0.50	98	80	120			
Sodium		0.433	mg/L	0.50						
<b>Sample ID: ICSAB</b>	3	Interference Check Sample AB								04/15/13 11:27
Calcium		441	mg/L	0.50	88	80	120			
Magnesium		487	mg/L	0.50	97	80	120			
Sodium		0.368	mg/L	0.50						
<b>Method: E200.7</b>										
Batch: R172485										
<b>Sample ID: MB-1304015A</b>	3	Method Blank								04/15/13 11:46
Run: ICP4-C_130415A										
Calcium		ND	mg/L	0.02						
Magnesium		0.05	mg/L	0.01						
Sodium		ND	mg/L	0.2						
<b>Sample ID: LFB-1304015A</b>	3	Laboratory Fortified Blank								04/15/13 11:49
Run: ICP4-C_130415A										
Calcium		47.9	mg/L	0.50	96	85	115			
Magnesium		48.0	mg/L	0.50	96	85	115			
Sodium		48.3	mg/L	0.50	97	85	115			
<b>Sample ID: C13040264-027BMS2</b>	3	Sample Matrix Spike								04/15/13 18:19
Run: ICP4-C_130415A										
Calcium		216	mg/L	1.0	99	70	130			
Magnesium		133	mg/L	1.0	101	70	130			
Sodium		178	mg/L	1.0	104	70	130			
<b>Sample ID: C13040264-027BMSD2</b>	3	Sample Matrix Spike Duplicate								04/15/13 18:23
Run: ICP4-C_130415A										
Calcium		216	mg/L	1.0	99	70	130	0.1	20	
Magnesium		133	mg/L	1.0	101	70	130	0.1	20	
Sodium		177	mg/L	1.0	103	70	130	0.2	20	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>								Analytical Run: ICP4-C_130416A		
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									
Potassium		50.2	mg/L	0.50	100	95	105			04/16/13 11:57
<b>Sample ID: ICSA</b>	Interference Check Sample A									
Potassium		0.00806	mg/L	0.50						04/16/13 12:12
<b>Sample ID: ICSAB</b>	Interference Check Sample AB									
Potassium		0.0176	mg/L	0.50						04/16/13 12:16
<b>Method: E200.7</b>								Batch: R172526		
<b>Sample ID: MB-1304016A</b>	Method Blank									
Potassium		ND	mg/L	0.04						Run: ICP4-C_130416A 04/16/13 12:34
<b>Sample ID: LFB-1304016A</b>	Laboratory Fortified Blank									
Potassium		50.6	mg/L	0.50	101	85	115			Run: ICP4-C_130416A 04/16/13 12:38
<b>Sample ID: C13040091-006BMS2</b>	Sample Matrix Spike									
Potassium		114	mg/L	1.0	103	70	130			Run: ICP4-C_130416A 04/16/13 13:30
<b>Sample ID: C13040091-006BMSD2</b>	Sample Matrix Spike Duplicate									
Potassium		111	mg/L	1.0	100	70	130	2.6	20	Run: ICP4-C_130416A 04/16/13 13:34

### Qualifiers:

RL - Analyte reporting limit.

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MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS4-C_130410A								
<b>Sample ID: ICV</b>	10 Initial Calibration Verification Standard									04/10/13 13:58
Aluminum		0.0530	mg/L	0.0010	106	90	110			
Beryllium		0.0498	mg/L	0.0010	100	90	110			
Cadmium		0.0494	mg/L	0.0010	99	90	110			
Cobalt		0.0513	mg/L	0.0010	103	90	110			
Lead		0.0488	mg/L	0.0010	98	90	110			
Manganese		0.0507	mg/L	0.0010	101	90	110			
Molybdenum		0.0490	mg/L	0.0010	98	90	110			
Nickel		0.0515	mg/L	0.0010	103	90	110			
Uranium		0.0492	mg/L	0.00030	98	90	110			
Vanadium		0.0490	mg/L	0.0010	98	90	110			

<b>Method: E200.8</b>		Batch: 37096									
<b>Sample ID: MB-37096</b>	10 Method Blank									Run: ICPMS4-C_130410A	04/10/13 22:32
Aluminum		0.002	mg/L	0.001							
Beryllium		ND	mg/L	5E-05							
Cadmium		7E-05	mg/L	3E-05							
Cobalt		ND	mg/L	4E-05							
Lead		3E-05	mg/L	1E-05							
Manganese		0.0009	mg/L	4E-05							
Molybdenum		6E-05	mg/L	4E-05							
Nickel		ND	mg/L	4E-05							
Uranium		9E-06	mg/L	8E-06							
Vanadium		0.008	mg/L	8E-05							

<b>Sample ID: LCS3-37096</b>	10 Laboratory Control Sample									Run: ICPMS4-C_130410A	04/10/13 22:36
Aluminum		2.50	mg/L	0.030	100	85	115				
Beryllium		0.255	mg/L	0.0010	102	85	115				
Cadmium		0.270	mg/L	0.0010	108	85	115				
Cobalt		0.509	mg/L	0.0050	102	85	115				
Lead		0.510	mg/L	0.0010	102	85	115				
Manganese		2.60	mg/L	0.0010	104	85	115				
Molybdenum		0.543	mg/L	0.0010	109	85	115				
Nickel		0.559	mg/L	0.0050	112	85	115				
Uranium		0.543	mg/L	0.00030	109	85	115				
Vanadium		0.528	mg/L	0.010	104	85	115				

<b>Sample ID: C13040238-001CMS3</b>	10 Sample Matrix Spike									Run: ICPMS4-C_130410A	04/10/13 22:49
Aluminum		2.45	mg/L	0.030	97	70	130				
Beryllium		0.229	mg/L	0.0010	92	70	130				
Cadmium		0.252	mg/L	0.0010	100	70	130				
Cobalt		0.522	mg/L	0.0050	102	70	130				
Lead		0.532	mg/L	0.0010	106	70	130				
Manganese		5.88	mg/L	0.0010	103	70	130				
Molybdenum		0.533	mg/L	0.0010	106	70	130				
Nickel		0.538	mg/L	0.0050	106	70	130				

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: 37096										
<b>Sample ID: C13040238-001CMS3</b>	10	Sample Matrix Spike					Run: ICPMS4-C_130410A		04/10/13 22:49	
Uranium		0.846	mg/L	0.00030	113	70	130			
Vanadium		0.568	mg/L	0.010	112	70	130			
<b>Sample ID: C13040238-001CMSD3</b>	10	Sample Matrix Spike Duplicate					Run: ICPMS4-C_130410A		04/10/13 22:53	
Aluminum		2.45	mg/L	0.030	97	70	130	0.1	20	
Beryllium		0.228	mg/L	0.0010	91	70	130	0.4	20	
Cadmium		0.251	mg/L	0.0010	100	70	130	0.3	20	
Cobalt		0.504	mg/L	0.0050	99	70	130	3.4	20	
Lead		0.528	mg/L	0.0010	106	70	130	0.8	20	
Manganese		5.85	mg/L	0.0010	101	70	130	0.5	20	
Molybdenum		0.530	mg/L	0.0010	106	70	130	0.6	20	
Nickel		0.540	mg/L	0.0050	106	70	130	0.3	20	
Uranium		0.845	mg/L	0.00030	113	70	130	0.1	20	
Vanadium		0.572	mg/L	0.010	112	70	130	0.6	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b> <span style="float: right;">Batch: R172290</span>										
<b>Sample ID: ICB-040813</b>	2	Method Blank								
Chloride		ND	mg/L	0.07						
Sulfate		0.1	mg/L	0.08						
Run: IC1-C_130408A <span style="float: right;">04/08/13 15:44</span>										
<b>Sample ID: LFB-040813-01</b>	2	Laboratory Fortified Blank								
Chloride		10.3	mg/L	1.0	103	90	110			
Sulfate		41.4	mg/L	1.0	103	90	110			
Run: IC1-C_130408A <span style="float: right;">04/08/13 16:02</span>										
<b>Sample ID: C13040243-001AMS</b>	2	Sample Matrix Spike								
Chloride		1500	mg/L	4.2		90	110			A
Sulfate		1560	mg/L	17	107	90	110			
Run: IC1-C_130408A <span style="float: right;">04/08/13 16:54</span>										
<b>Sample ID: C13040243-001AMSD</b>	2	Sample Matrix Spike Duplicate								
Chloride		1500	mg/L	4.2		90	110	0.1	20	A
Sulfate		1570	mg/L	17	108	90	110	0.5	20	
Run: IC1-C_130408A <span style="float: right;">04/08/13 17:11</span>										
<b>Method: E300.0</b> <span style="float: right;">Batch: R172733</span>										
<b>Sample ID: ICB-042213</b>	2	Method Blank								
Chloride		ND	mg/L	0.03						
Sulfate		0.2	mg/L	0.07						
Run: IC2-C_130422A <span style="float: right;">04/22/13 13:44</span>										
<b>Sample ID: LFB-042213-01</b>	2	Laboratory Fortified Blank								
Chloride		9.72	mg/L	1.0	97	90	110			
Sulfate		38.5	mg/L	1.0	96	90	110			
Run: IC2-C_130422A <span style="float: right;">04/22/13 14:15</span>										
<b>Sample ID: LFB-042213-01</b>	2	Laboratory Fortified Blank Duplicate								
Chloride		9.87	mg/L	1.0	99	90	110	1.6	20	
Sulfate		39.1	mg/L	1.0	97	90	110	1.6	20	
Run: IC2-C_130422A <span style="float: right;">04/22/13 14:30</span>										
<b>Sample ID: C13040590-001AMS</b>	2	Sample Matrix Spike								
Chloride		63.3	mg/L	1.0	99	90	110			
Sulfate		620	mg/L	4.2	102	90	110			
Run: IC2-C_130422A <span style="float: right;">04/22/13 16:33</span>										
<b>Sample ID: C13040590-001AMSD</b>	2	Sample Matrix Spike Duplicate								
Chloride		63.3	mg/L	1.0	99	90	110	0.0	20	
Sulfate		618	mg/L	4.2	101	90	110	0.3	20	
Run: IC2-C_130422A <span style="float: right;">04/22/13 16:49</span>										

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										Batch: R172217
<b>Sample ID: MBLK-1</b>		Method Blank								Run: TECHNICON_130408A 04/08/13 10:30
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.02						
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								Run: TECHNICON_130408A 04/08/13 10:33
Nitrogen, Nitrate+Nitrite as N		2.64	mg/L	0.10	106	90	110			
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								Run: TECHNICON_130408A 04/08/13 10:35
Nitrogen, Nitrate+Nitrite as N		2.02	mg/L	0.10	103	90	110			
<b>Sample ID: C13040233-001DMS</b>		Sample Matrix Spike								Run: TECHNICON_130408A 04/08/13 10:40
Nitrogen, Nitrate+Nitrite as N		243	mg/L	5.0	103	90	110			
<b>Sample ID: C13040233-001DMSD</b>		Sample Matrix Spike Duplicate								Run: TECHNICON_130408A 04/08/13 10:43
Nitrogen, Nitrate+Nitrite as N		245	mg/L	5.0	105	90	110	0.8	10	
<b>Sample ID: C13040238-016DMS</b>		Sample Matrix Spike								Run: TECHNICON_130408A 04/08/13 11:58
Nitrogen, Nitrate+Nitrite as N		185	mg/L	5.0	103	90	110			
<b>Sample ID: C13040238-016DMSD</b>		Sample Matrix Spike Duplicate								Run: TECHNICON_130408A 04/08/13 12:00
Nitrogen, Nitrate+Nitrite as N		185	mg/L	5.0	103	90	110	0.0	10	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration





### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E624 <span style="float: right;">Batch: R172399</span>											
Sample ID: 11-Apr-13_LCS_5	9	Laboratory Control Sample			Run: GCMS2_130411A			04/11/13 11:37			
Bromodichloromethane		10.4	ug/L	1.0	104	65.2	130				
Bromoform		8.24	ug/L	1.0	82	71.5	130				
Chlorodibromomethane		8.80	ug/L	1.0	88	64.6	127				
Chloroform		11.7	ug/L	1.0	117	65	136				
Trihalomethanes, Total		39.1	ug/L	1.0	98	71.1	127				
Surr: 1,2-Dichlorobenzene-d4				1.0	98	73.7	126				
Surr: Dibromofluoromethane				1.0	126	64.4	131				
Surr: p-Bromofluorobenzene				1.0	98	67.1	133				
Surr: Toluene-d8				1.0	102	79.7	125				
Sample ID: 11-Apr-13_MBLK_7	9	Method Blank			Run: GCMS2_130411A			04/11/13 12:46			
Bromodichloromethane		ND	ug/L	1.0							
Bromoform		ND	ug/L	1.0							
Chlorodibromomethane		ND	ug/L	1.0							
Chloroform		ND	ug/L	1.0							
Trihalomethanes, Total		ND	ug/L	1.0							
Surr: 1,2-Dichlorobenzene-d4				1.0	110	73.7	126				
Surr: Dibromofluoromethane				1.0	125	64.4	131				
Surr: p-Bromofluorobenzene				1.0	116	67.1	133				
Surr: Toluene-d8				1.0	100	79.7	125				
Sample ID: C13040244-001HMS	9	Sample Matrix Spike			Run: GCMS2_130411A			04/11/13 19:05			
Bromodichloromethane		96.8	ug/L	5.0	97	65.2	130				
Bromoform		86.4	ug/L	5.0	86	71.5	130				
Chlorodibromomethane		92.0	ug/L	5.0	92	64.6	127				
Chloroform		216	ug/L	5.0	119	65	136				
Trihalomethanes, Total		492	ug/L	5.0	99	71.1	127				
Surr: 1,2-Dichlorobenzene-d4				1.0	96	73.7	126				
Surr: Dibromofluoromethane				1.0	126	64.4	131				
Surr: p-Bromofluorobenzene				1.0	100	67.1	133				
Surr: Toluene-d8				1.0	97	79.7	125				
Sample ID: C13040244-001HMSD	9	Sample Matrix Spike Duplicate			Run: GCMS2_130411A			04/11/13 19:39			
Bromodichloromethane		104	ug/L	5.0	104	65.2	130	7.6	20		
Bromoform		91.2	ug/L	5.0	91	71.5	130	5.4	20		
Chlorodibromomethane		95.6	ug/L	5.0	96	64.6	127	3.8	20		
Chloroform		217	ug/L	5.0	119	65	136	0.2	20		
Trihalomethanes, Total		508	ug/L	5.0	103	71.1	127	3.3	20		
Surr: 1,2-Dichlorobenzene-d4				1.0	95	73.7	126				
Surr: Dibromofluoromethane				1.0	124	64.4	131				
Surr: p-Bromofluorobenzene				1.0	102	67.1	133				
Surr: Toluene-d8				1.0	98	79.7	125				

**Qualifiers:**

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ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.1 <span style="float: right;">Batch: GA-0684</span>										
Sample ID: LCS-GA-0682	Laboratory Control Sample					Run: BERTHOLD 770-1_130501B		05/08/13 06:34		
Gross Alpha minus Rn & U		35.7	pCi/L	98		80	120			
Sample ID: MB-GA-0682	3	Method Blank				Run: BERTHOLD 770-1_130501B		05/08/13 06:34		
Gross Alpha minus Rn & U		-0.1	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.2	pCi/L							
Gross Alpha minus Rn & U MDC		0.4	pCi/L							
Sample ID: C13040244-001GDUP	3	Sample Duplicate				Run: BERTHOLD 770-1_130501B		05/08/13 06:34		
Gross Alpha minus Rn & U		25.4	pCi/L					9.6	22	
Gross Alpha minus Rn & U Precision (±)		1.56	pCi/L							
Gross Alpha minus Rn & U MDC		0.395	pCi/L							
Sample ID: C13040244-002GDUP	3	Sample Duplicate				Run: BERTHOLD 770-1_130501B		05/08/13 06:34		
Gross Alpha minus Rn & U		11.3	pCi/L					10	29.3	
Gross Alpha minus Rn & U Precision (±)		1.07	pCi/L							
Gross Alpha minus Rn & U MDC		0.404	pCi/L							
Sample ID: TAP WATER-MS	Sample Matrix Spike					Run: BERTHOLD 770-1_130501B		05/08/13 06:34		
Gross Alpha minus Rn & U		70.5	pCi/L	98		70	130			
Sample ID: TAP WATER-MSD	Sample Matrix Spike Duplicate					Run: BERTHOLD 770-1_130501B		05/08/13 06:34		
Gross Alpha minus Rn & U		74.8	pCi/L	103		70	130	6.0	20.2	

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E903.0</b>										
Batch: RA226-6587										
<b>Sample ID: C13040231-005DMS</b>		Sample Matrix Spike								
Radium 226		38	pCi/L	112		70	130			Run: BERTHOLD 770-2_130410A 04/23/13 19:12
<b>Sample ID: C13040231-005DMSD</b>		Sample Matrix Spike Duplicate								
Radium 226		37	pCi/L	108		70	130	3.2	21.2	Run: BERTHOLD 770-2_130410A 04/23/13 19:12
<b>Sample ID: MB-RA226-6587</b>	3	Method Blank								
Radium 226		-0.08	pCi/L							Run: BERTHOLD 770-2_130410A 04/23/13 22:44
Radium 226 precision (±)		0.08	pCi/L							U
Radium 226 MDC		0.2	pCi/L							
<b>Sample ID: LCS-RA226-6587</b>		Laboratory Control Sample								
Radium 226		13	pCi/L	111		80	120			Run: BERTHOLD 770-2_130410A 04/23/13 22:44

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E908.0</b>								Batch: RA-TH-ISO-1824		
<b>Sample ID: LCS-RA-TH-ISO-1824</b>	Laboratory Control Sample			Run: ALPHANALYST_130415B		04/19/13 13:58				
Thorium 230	6.2	pCi/L		106		80	120			
<b>Sample ID: C13040162-001DMS</b>	Sample Matrix Spike			Run: ALPHANALYST_130415B		04/19/13 13:58				
Thorium 230	15	pCi/L		119		70	130			
<b>Sample ID: C13040162-001DMSD</b>	Sample Matrix Spike Duplicate			Run: ALPHANALYST_130415B		04/19/13 13:58				
Thorium 230	11	pCi/L		90		70	130	27	46.5	
<b>Sample ID: MB-RA-TH-ISO-1824</b>	3	Method Blank		Run: ALPHANALYST_130415B		04/19/13 13:58				
Thorium 230		0.06	pCi/L							U
Thorium 230 precision (±)		0.09	pCi/L							
Thorium 230 MDC		0.2	pCi/L							

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E909.0</b>										
Batch: T_PB-210-0363										
<b>Sample ID: MB-PB-210-0363</b>	3	Method Blank					Run: SUB-T50513		04/16/13 12:00	
Lead 210		-0.2	pCi/L							U
Lead 210 precision (±)		0.7	pCi/L							
Lead 210 MDC		1	pCi/L							
<b>Sample ID: LCS-PB-210-0363</b>		Laboratory Control Sample					Run: SUB-T50513		04/16/13 12:00	
Lead 210		20	pCi/L	98		70	130			
<b>Sample ID: C13040231-001GMS</b>		Sample Matrix Spike					Run: SUB-T50513		04/16/13 12:00	
Lead 210		62	pCi/L	98		70	130			
<b>Sample ID: C13040231-001GMSD</b>		Sample Matrix Spike Duplicate					Run: SUB-T50513		04/16/13 12:00	
Lead 210		63	pCi/L	103		70	130	2.2	20.9	

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### QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 05/22/13

**Project:** Zone-3

**Work Order:** C13040244

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: RA-05</b>										
Batch: RA228-4383										
<b>Sample ID: LCS-228-RA226-6587</b>	Laboratory Control Sample									
Radium 228		9.6	pCi/L	118		80	120			04/17/13 20:40
<b>Sample ID: MB-RA226-6587</b>	3	Method Blank								04/17/13 20:40
Radium 228		0.2	pCi/L							U
Radium 228 precision (±)		1	pCi/L							
Radium 228 MDC		2	pCi/L							
<b>Sample ID: C13040244-002GMS</b>	Sample Matrix Spike									04/17/13 20:40
Radium 228		32.8	pCi/L	115		70	130			
<b>Sample ID: C13040244-002GMSD</b>	Sample Matrix Spike Duplicate									04/17/13 20:40
Radium 228		34.5	pCi/L	126		70	130	5.0		28.9

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# ANALYTICAL SUMMARY REPORT

May 22, 2013

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

Workorder No.: C13040435

Quote ID: C129 - Quarterly Long List

Project Name: Zone-3

Energy Laboratories, Inc. Casper WY received the following 10 samples for United Nuclear Corporation on 4/12/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13040435-001	708	04/08/13 13:05	04/12/13	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Total Alkalinity QA Calculations Arsenic Speciation Selenium-IV, Total CVAA Selenium Prep E300.0 Anions Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Metals Preparation by EPA 200.2 Gross Alpha minus Rn222 and Uranium Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Solids, Total Dissolved Solids, Total Dissolved - Calculated E624 Purgeable Organics
C13040435-002	711	04/08/13 13:50	04/12/13	Aqueous	Same As Above
C13040435-003	EPA-13	04/08/13 15:15	04/12/13	Aqueous	Same As Above
C13040435-004	719	04/09/13 8:55	04/12/13	Aqueous	Same As Above
C13040435-005	420	04/09/13 9:55	04/12/13	Aqueous	Same As Above
C13040435-006	717	04/09/13 10:55	04/12/13	Aqueous	Same As Above
C13040435-007	717 Duplicate	04/09/13 11:25	04/12/13	Aqueous	Same As Above
C13040435-008	MW-7	04/09/13 13:55	04/12/13	Aqueous	Same As Above
C13040435-009	MW-6	04/09/13 14:25	04/12/13	Aqueous	Same As Above
C13040435-010	EPA-14	04/09/13 16:00	04/12/13	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, 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.

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

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2013.05.22 14:14:08 -06:00



**CLIENT:** United Nuclear Corporation  
**Project:** Zone-3  
**Sample Delivery Group:** C13040435

**Report Date:** 05/22/13

## CASE NARRATIVE

### BRANCH LABORATORY SUBCONTRACT ANALYSIS

Tests associated with analyst identified as ELI-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.

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

### TH230 ANALYSIS

The sample-specific MDC for this sample could not be achieved due to significant matrix interferences, restricting the volume of sample to be used in the analysis.





## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2320 B</b>										Batch: R172433
<b>Sample ID: MBLK</b>	2	Method Blank								Run: MANTECH_130412B 04/12/13 17:53
Alkalinity, Total as CaCO3		ND	mg/L	5.0						
Bicarbonate as HCO3		ND	mg/L	5.0						
<b>Sample ID: LCS_130315</b>		Laboratory Control Sample								Run: MANTECH_130412B 04/12/13 18:05
Alkalinity, Total as CaCO3		157	mg/L	5.0	105	90	110			
<b>Sample ID: C13040430-006AMS</b>		Sample Matrix Spike								Run: MANTECH_130412B 04/12/13 18:37
Alkalinity, Total as CaCO3		263	mg/L	5.0	111	80	120			
<b>Sample ID: C13040435-005ADUP</b>	2	Sample Duplicate								Run: MANTECH_130412B 04/12/13 19:45
Alkalinity, Total as CaCO3		409	mg/L					0.0268094	10	
Bicarbonate as HCO3		499	mg/L	5.0				2.7	10	

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS130412A		
<b>Sample ID: MB-1_130412A</b>		Method Blank								
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						Run: BAL-19_130412B 04/12/13 15:34
<b>Sample ID: LCS-2_130412A</b>		Laboratory Control Sample								
Solids, Total Dissolved TDS @ 180 C		2000	mg/L	20	100	90	110			Run: BAL-19_130412B 04/12/13 15:35
<b>Sample ID: C13040429-002A MS</b>		Sample Matrix Spike								
Solids, Total Dissolved TDS @ 180 C		8750	mg/L	40	99	90	110			Run: BAL-19_130412B 04/12/13 15:52
<b>Sample ID: C13040436-002A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		168	mg/L	10						Run: BAL-19_130412B 04/12/13 15:53 5
<b>Method: A2540 C</b>								Batch: TDS130415A		
<b>Sample ID: MB-1_130415A</b>		Method Blank								
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						Run: BAL-19_130415B 04/15/13 16:05
<b>Sample ID: LCS-2_130415A</b>		Laboratory Control Sample								
Solids, Total Dissolved TDS @ 180 C		1960	mg/L	20	98	90	110			Run: BAL-19_130415B 04/15/13 16:05
<b>Sample ID: C13040426-010A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		7480	mg/L	100				0.9		Run: BAL-19_130415B 04/15/13 16:13 5
<b>Sample ID: C13040435-004A MS</b>		Sample Matrix Spike								
Solids, Total Dissolved TDS @ 180 C		9870	mg/L	40	105	90	110			Run: BAL-19_130415B 04/15/13 16:13

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A3114 B</b>		Analytical Run: CVAA-C202_130417A								
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									04/17/13 13:46
Selenium-IV		0.0240	mg/L	0.0010	96	90	110			
<b>Method: A3114 B</b>		Batch: 37187								
<b>Sample ID: MB-37187</b>	Method Blank									Run: CVAA-C202_130417A 04/17/13 14:57
Selenium-IV		ND	mg/L	0.0005						
<b>Sample ID: LCS-37187</b>	Laboratory Control Sample									Run: CVAA-C202_130417A 04/17/13 14:58
Selenium-IV		0.0239	mg/L	0.0010	96	90	110			
<b>Sample ID: C13040429-001DMS</b>	Sample Matrix Spike									Run: CVAA-C202_130417A 04/17/13 15:13
Selenium-IV		0.0231	mg/L	0.0010	92	85	115			
<b>Sample ID: C13040429-001DMSD</b>	Sample Matrix Spike Duplicate									Run: CVAA-C202_130417A 04/17/13 15:15
Selenium-IV		0.0233	mg/L	0.0010	93	85	115	0.8	10	
<b>Method: A3114 B</b>		Batch: 37188								
<b>Sample ID: MB-37188</b>	Method Blank									Run: CVAA-C202_130417A 04/17/13 15:42
Selenium-IV		ND	mg/L	0.0005						
<b>Sample ID: LCS-37188</b>	Laboratory Control Sample									Run: CVAA-C202_130417A 04/17/13 15:44
Selenium-IV		0.0229	mg/L	0.0010	92	90	110			
<b>Sample ID: C13040435-010DMS</b>	Sample Matrix Spike									Run: CVAA-C202_130417A 04/17/13 15:52
Selenium-IV		0.0219	mg/L	0.0010	87	85	115			
<b>Sample ID: C13040435-010DMSD</b>	Sample Matrix Spike Duplicate									Run: CVAA-C202_130417A 04/17/13 15:53
Selenium-IV		0.0222	mg/L	0.0010	89	85	115	1.3	10	

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-H B</b>								Analytical Run: PHSC_101-C_130412A		
<b>Sample ID: pH 6.86</b>		Initial Calibration Verification Standard								04/12/13 09:12
pH		6.84	s.u.	0.010	100	98	102			
<b>Sample ID: PH 6.86</b>		Initial Calibration Verification Standard								04/12/13 12:35
pH		6.84	s.u.	0.010	100	98	102			
<b>Sample ID: pH 6.86</b>		Initial Calibration Verification Standard								04/12/13 14:48
pH		6.83	s.u.	0.010	100	98	102			
<b>Method: A4500-H B</b>								Batch: R172391		
<b>Sample ID: C13040409-001ADUP</b>		Sample Duplicate					Run: PHSC_101-C_130412A			04/12/13 10:10
pH		8.45	s.u.	0.010				0.1	3	
<b>Method: A4500-H B</b>								Analytical Run: PHSC_101-C_130415A		
<b>Sample ID: pH 6.86</b>		Initial Calibration Verification Standard								04/15/13 08:47
pH		6.83	s.u.	0.010	100	98	102			
<b>Method: A4500-H B</b>								Batch: R172438		
<b>Sample ID: C13040442-001JDUP</b>		Sample Duplicate					Run: PHSC_101-C_130415A			04/15/13 09:59
pH		8.02	s.u.	0.010				0.1	3	

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-NH3 G</b>										
Batch: R172518										
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Ammonia as N		ND	mg/L	0.01						
										Run: TECHNICON_130416A 04/16/13 15:13
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Ammonia as N		1.99	mg/L	0.050	100	90	110			04/16/13 15:15
										Run: TECHNICON_130416A
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Ammonia as N		1.99	mg/L	0.050	102	80	120			04/16/13 15:17
										Run: TECHNICON_130416A
<b>Sample ID: C13040429-001EMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		2.84	mg/L	0.050	109	90	110			04/16/13 15:21
										Run: TECHNICON_130416A
<b>Sample ID: C13040429-001EMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		2.86	mg/L	0.050	110	90	110	0.7	10	04/16/13 15:23
										Run: TECHNICON_130416A
<b>Method: A4500-NH3 G</b>										
Batch: R172558										
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Ammonia as N		ND	mg/L	0.01						
										Run: TECHNICON_130417A 04/17/13 12:27
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Ammonia as N		2.03	mg/L	0.050	101	90	110			04/17/13 12:29
										Run: TECHNICON_130417A
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Ammonia as N		2.00	mg/L	0.050	102	80	120			04/17/13 12:31
										Run: TECHNICON_130417A
<b>Sample ID: C13040435-002EMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		2.51	mg/L	0.050	103	90	110			04/17/13 12:35
										Run: TECHNICON_130417A
<b>Sample ID: C13040435-002EMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		2.54	mg/L	0.050	105	90	110	1.2	10	04/17/13 12:37
										Run: TECHNICON_130417A
<b>Sample ID: C13040458-002AMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		2.05	mg/L	0.050	105	90	110			04/17/13 13:03
										Run: TECHNICON_130417A
<b>Sample ID: C13040458-002AMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		2.08	mg/L	0.050	106	90	110	1.5	10	04/17/13 13:05
										Run: TECHNICON_130417A
<b>Sample ID: C13040547-004DMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		2.33	mg/L	0.050	101	90	110			04/17/13 13:51
										Run: TECHNICON_130417A
<b>Sample ID: C13040547-004DMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		2.26	mg/L	0.050	98	90	110	3.1	10	04/17/13 13:53
										Run: TECHNICON_130417A

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-NH3 G</b>										Batch: R172654
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Ammonia as N		ND	mg/L	0.01						Run: TECHNICON_130419A 04/19/13 10:59
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Ammonia as N		1.91	mg/L	0.050	96	90	110			Run: TECHNICON_130419A 04/19/13 11:01
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Ammonia as N		1.94	mg/L	0.050	99	80	120			Run: TECHNICON_130419A 04/19/13 11:03
<b>Sample ID: C13040435-009EMS</b>		Sample Matrix Spike								
Nitrogen, Ammonia as N		2.50	mg/L	0.050	109	90	110			Run: TECHNICON_130419A 04/19/13 11:07
<b>Sample ID: C13040435-009EMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Ammonia as N		2.49	mg/L	0.050	109	90	110	0.4	10	Run: TECHNICON_130419A 04/19/13 11:09

**Qualifiers:**

RL - Analyte reporting limit.

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E1632AM</b>								Analytical Run: SUB-H87786		
<b>Sample ID: AS-ICV 25ppb-4/19/20</b>	Initial Calibration Verification Standard									
Arsenic-III		25.2	ug/L	5.0	101	87.6	114			04/19/13 11:03
<b>Method: E1632AM</b>								Batch: H_R87786		
<b>Sample ID: ICB</b>	Method Blank									
Arsenic-III		ND	ug/L	2						Run: SUB-H87786 04/19/13 11:27
<b>Sample ID: AS-LFB 50ppb-4/19/20</b>	Laboratory Fortified Blank									
Arsenic-III		48.9	ug/L	5.0	98	55	146			Run: SUB-H87786 04/19/13 11:35
<b>Sample ID: C13040435-002B</b>	Sample Matrix Spike									
Arsenic-III		46.1	ug/L	5.0	84	55	146			Run: SUB-H87786 04/19/13 14:45
<b>Sample ID: C13040435-002B</b>	Sample Matrix Spike Duplicate									
Arsenic-III		45.2	ug/L	5.0	83	55	146	2.0	20	Run: SUB-H87786 04/19/13 14:53
<b>Method: E1632AM</b>								Analytical Run: SUB-H87855		
<b>Sample ID: AS-ICV 25ppb-4/23/20</b>	Initial Calibration Verification Standard									
Arsenic-III		24.5	ug/L	5.0	98	87.6	114			04/23/13 10:39
<b>Method: E1632AM</b>								Batch: H_R87855		
<b>Sample ID: ICB</b>	Method Blank									
Arsenic-III		ND	ug/L	2						Run: SUB-H87855 04/23/13 11:03
<b>Sample ID: AS-LFB 50ppb-4/23/20</b>	Laboratory Fortified Blank									
Arsenic-III		47.1	ug/L	5.0	94	55	146			Run: SUB-H87855 04/23/13 11:11
<b>Sample ID: H13040190-002A MS</b>	Sample Matrix Spike									
Arsenic-III		45.6	ug/L	5.0	91	55	146			Run: SUB-H87855 04/23/13 11:35
<b>Sample ID: H13040190-002A MSD</b>	Sample Matrix Spike Duplicate									
Arsenic-III		46.2	ug/L	5.0	92	55	146	1.4	20	Run: SUB-H87855 04/23/13 11:43

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b> <span style="float: right;">Analytical Run: ICP2-C_130422A</span>										
<b>Sample ID: ICV</b> <span style="float: right;">04/22/13 11:32</span>										
8 Initial Calibration Verification Standard										
Aluminum		4.74	mg/L	0.10	95	95	105			
Beryllium		0.500	mg/L	0.010	100	95	105			
Cadmium		0.497	mg/L	0.010	99	95	105			
Cobalt		0.991	mg/L	0.010	99	95	105			
Manganese		5.02	mg/L	0.010	100	95	105			
Molybdenum		1.01	mg/L	0.10	101	95	105			
Nickel		0.999	mg/L	0.050	100	95	105			
Vanadium		1.02	mg/L	0.10	102	95	105			
<b>Sample ID: ICSA</b> <span style="float: right;">04/22/13 12:00</span>										
8 Interference Check Sample A										
Aluminum		495	mg/L	0.10	99	80	120			
Beryllium		ND	mg/L	0.010						
Cadmium		-0.00490	mg/L	0.010						
Cobalt		-0.00430	mg/L	0.010						
Manganese		-0.00140	mg/L	0.010						
Molybdenum		-0.0168	mg/L	0.10						
Nickel		-0.00220	mg/L	0.050						
Vanadium		0.00990	mg/L	0.10						
<b>Sample ID: ICSAB</b> <span style="float: right;">04/22/13 12:04</span>										
8 Interference Check Sample AB										
Aluminum		499	mg/L	0.10	100	80	120			
Beryllium		0.499	mg/L	0.010	100	80	120			
Cadmium		0.985	mg/L	0.010	99	80	120			
Cobalt		0.480	mg/L	0.010	96	80	120			
Manganese		0.496	mg/L	0.010	99	80	120			
Molybdenum		-0.0189	mg/L	0.10						
Nickel		0.954	mg/L	0.050	95	80	120			
Vanadium		0.517	mg/L	0.10	103	80	120			
<b>Method: E200.7</b> <span style="float: right;">Batch: 37225</span>										
<b>Sample ID: MB-37225</b> <span style="float: right;">04/22/13 16:22</span>										
Method Blank <span style="float: right;">Run: ICP2-C_130422A</span>										
Aluminum		ND	mg/L	0.009						
<b>Sample ID: LCS3-37225</b> <span style="float: right;">04/22/13 16:27</span>										
Laboratory Control Sample <span style="float: right;">Run: ICP2-C_130422A</span>										
Aluminum		2.57	mg/L	0.030	103	85	115			
<b>Sample ID: C13040435-001DMS3</b> <span style="float: right;">04/22/13 17:48</span>										
Sample Matrix Spike <span style="float: right;">Run: ICP2-C_130422A</span>										
Aluminum		41.1	mg/L	0.047		70	130			A
<b>Sample ID: C13040435-001DMSD3</b> <span style="float: right;">04/22/13 17:52</span>										
Sample Matrix Spike Duplicate <span style="float: right;">Run: ICP2-C_130422A</span>										
Aluminum		41.2	mg/L	0.047		70	130	0.2	20	A
<b>Method: E200.7</b> <span style="float: right;">Batch: 37226</span>										
<b>Sample ID: MB-37226</b> <span style="float: right;">04/22/13 14:25</span>										
8 Method Blank <span style="float: right;">Run: ICP2-C_130422A</span>										
Aluminum		ND	mg/L	0.009						
Beryllium		ND	mg/L	0.0002						

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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

MDC - Minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Batch: 37226										
<b>Sample ID: MB-37226</b>	8	Method Blank								
Run: ICP2-C_130422A										
04/22/13 14:25										
Cadmium		ND	mg/L	0.0006						
Cobalt		ND	mg/L	0.002						
Manganese		ND	mg/L	0.0002						
Molybdenum		ND	mg/L	0.002						
Nickel		ND	mg/L	0.002						
Vanadium		ND	mg/L	0.01						
<b>Sample ID: LCS3-37226</b>	8	Laboratory Control Sample								
Run: ICP2-C_130422A										
04/22/13 14:45										
Aluminum		2.40	mg/L	0.030	96	85	115			
Beryllium		0.252	mg/L	0.0010	101	85	115			
Cadmium		0.249	mg/L	0.0010	100	85	115			
Cobalt		0.484	mg/L	0.0050	97	85	115			
Manganese		2.50	mg/L	0.0010	100	85	115			
Molybdenum		0.493	mg/L	0.0023	99	85	115			
Nickel		0.494	mg/L	0.0050	99	85	115			
Vanadium		0.518	mg/L	0.014	104	85	115			
<b>Sample ID: C13040547-001CMS3</b>	8	Sample Matrix Spike								
Run: ICP2-C_130422A										
04/22/13 15:13										
Aluminum		2.47	mg/L	0.030	98	70	130			
Beryllium		0.252	mg/L	0.0010	101	70	130			
Cadmium		0.252	mg/L	0.0010	101	70	130			
Cobalt		0.495	mg/L	0.0050	99	70	130			
Manganese		2.55	mg/L	0.0010	101	70	130			
Molybdenum		0.511	mg/L	0.0023	101	70	130			
Nickel		0.521	mg/L	0.0050	99	70	130			
Vanadium		0.529	mg/L	0.014	106	70	130			
<b>Sample ID: C13040547-001CMSD3</b>	8	Sample Matrix Spike Duplicate								
Run: ICP2-C_130422A										
04/22/13 15:17										
Aluminum		2.46	mg/L	0.030	98	70	130	0.3	20	
Beryllium		0.251	mg/L	0.0010	100	70	130	0.5	20	
Cadmium		0.253	mg/L	0.0010	101	70	130	0.3	20	
Cobalt		0.492	mg/L	0.0050	98	70	130	0.7	20	
Manganese		2.56	mg/L	0.0010	102	70	130	0.3	20	
Molybdenum		0.515	mg/L	0.0023	102	70	130	0.8	20	
Nickel		0.528	mg/L	0.0050	101	70	130	1.3	20	
Vanadium		0.524	mg/L	0.014	105	70	130	0.9	20	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>		Analytical Run: ICP4-C_130416A								
<b>Sample ID: ICV</b>	3	Initial Calibration Verification Standard								04/16/13 11:57
Calcium		50.5	mg/L	0.50	101	95	105			
Magnesium		49.8	mg/L	0.50	100	95	105			
Sodium		51.2	mg/L	0.50	102	95	105			
<b>Sample ID: ICSA</b>	3	Interference Check Sample A								04/16/13 12:12
Calcium		445	mg/L	0.50	89	80	120			
Magnesium		492	mg/L	0.50	98	80	120			
Sodium		0.183	mg/L	0.50						
<b>Sample ID: ICSAB</b>	3	Interference Check Sample AB								04/16/13 12:16
Calcium		451	mg/L	0.50	90	80	120			
Magnesium		498	mg/L	0.50	100	80	120			
Sodium		0.346	mg/L	0.50						
<b>Method: E200.7</b>		Batch: R172526								
<b>Sample ID: MB-1304016A</b>	3	Method Blank								Run: ICP4-C_130416A 04/16/13 12:34
Calcium		ND	mg/L	0.02						
Magnesium		0.03	mg/L	0.01						
Sodium		ND	mg/L	0.2						
<b>Sample ID: LFB-1304016A</b>	3	Laboratory Fortified Blank								Run: ICP4-C_130416A 04/16/13 12:38
Calcium		49.9	mg/L	0.50	100	85	115			
Magnesium		48.9	mg/L	0.50	98	85	115			
Sodium		50.2	mg/L	0.50	100	85	115			
<b>Sample ID: C13040436-001CMS2</b>	3	Sample Matrix Spike								Run: ICP4-C_130416A 04/16/13 20:01
Calcium		120	mg/L	1.0	98	70	130			
Magnesium		100	mg/L	1.0	97	70	130			
Sodium		147	mg/L	1.0	102	70	130			
<b>Sample ID: C13040436-001CMSD2</b>	3	Sample Matrix Spike Duplicate								Run: ICP4-C_130416A 04/16/13 20:04
Calcium		120	mg/L	1.0	97	70	130	0.5	20	
Magnesium		99.9	mg/L	1.0	97	70	130	0.2	20	
Sodium		146	mg/L	1.0	102	70	130	0.6	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7 Analytical Run: ICP4-C_130417A										
Sample ID: ICV		Initial Calibration Verification Standard								04/17/13 11:23
Potassium		50.9	mg/L	0.50	102	95	105			
Sample ID: ICSA		Interference Check Sample A								04/17/13 11:37
Potassium		0.0234	mg/L	0.50						
Sample ID: ICSAB		Interference Check Sample AB								04/17/13 11:41
Potassium		0.0173	mg/L	0.50						
Method: E200.7 Batch: R172580										
Sample ID: MB-1304017A		Method Blank								04/17/13 12:00
Potassium		ND	mg/L	0.04						
Sample ID: LFB-1304017A		Laboratory Fortified Blank								04/17/13 12:04
Potassium		48.2	mg/L	0.50	96	85	115			
Sample ID: C13040435-008CMS2		Sample Matrix Spike								04/17/13 15:01
Potassium		467	mg/L	1.0	90	70	130			
Sample ID: C13040435-008CMSD2		Sample Matrix Spike Duplicate								04/17/13 15:04
Potassium		461	mg/L	1.0	89	70	130	1.1	20	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Analytical Run: ICP4-C_130426A										
<b>Sample ID: ICV</b>	4	Initial Calibration Verification Standard								04/26/13 12:57
Calcium		48.9	mg/L	0.50	98	95	105			
Magnesium		49.9	mg/L	0.50	100	95	105			
Potassium		49.2	mg/L	0.50	98	95	105			
Sodium		50.3	mg/L	0.50	101	95	105			
<b>Sample ID: ICSA</b>	4	Interference Check Sample A								04/26/13 13:12
Calcium		431	mg/L	0.50	86	80	120			
Magnesium		484	mg/L	0.50	97	80	120			
Potassium		0.0197	mg/L	0.50						
Sodium		0.143	mg/L	0.50						
<b>Sample ID: ICSAB</b>	4	Interference Check Sample AB								04/26/13 13:16
Calcium		436	mg/L	0.50	87	80	120			
Magnesium		488	mg/L	0.50	98	80	120			
Potassium		0.00980	mg/L	0.50						
Sodium		0.132	mg/L	0.50						
<b>Method: E200.7</b>										
Batch: R172953										
<b>Sample ID: MB-130426A</b>	4	Method Blank								Run: ICP4-C_130426A 04/26/13 13:34
Calcium		0.05	mg/L	0.02						
Magnesium		0.04	mg/L	0.01						
Potassium		ND	mg/L	0.04						
Sodium		ND	mg/L	0.2						
<b>Sample ID: LFB-130426A</b>	4	Laboratory Fortified Blank								Run: ICP4-C_130426A 04/26/13 13:38
Calcium		45.7	mg/L	0.50	91	85	115			
Magnesium		46.5	mg/L	0.50	93	85	115			
Potassium		44.3	mg/L	0.50	89	85	115			
Sodium		45.4	mg/L	0.50	91	85	115			
<b>Sample ID: C13040435-010IMS2</b>	4	Sample Matrix Spike								Run: ICP4-C_130426A 04/26/13 16:59
Calcium		305	mg/L	1.0	82	70	130			
Magnesium		285	mg/L	1.0	88	70	130			
Potassium		103	mg/L	1.0	94	70	130			
Sodium		169	mg/L	1.0	88	70	130			
<b>Sample ID: C13040435-010IMSD2</b>	4	Sample Matrix Spike Duplicate								Run: ICP4-C_130426A 04/26/13 17:14
Calcium		304	mg/L	1.0	81	70	130	0.4	20	
Magnesium		285	mg/L	1.0	87	70	130	0.1	20	
Potassium		102	mg/L	1.0	93	70	130	1.3	20	
Sodium		167	mg/L	1.0	87	70	130	0.7	20	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS2-C_130423A								
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									
Lead		0.0507	mg/L	0.0010	101	90	110			04/23/13 12:17
<b>Method: E200.8</b>		Batch: 37226								
<b>Sample ID: MB-37226</b>	Method Blank									
Lead		ND	mg/L	2E-05						Run: ICPMS2-C_130423A 04/23/13 23:01
<b>Sample ID: LCS3-37226</b>	Laboratory Control Sample									
Lead		0.528	mg/L	0.0010	106	85	115			Run: ICPMS2-C_130423A 04/23/13 23:05
<b>Sample ID: C13040436-001DMS3</b>	Sample Matrix Spike									
Lead		0.523	mg/L	0.0010	105	70	130			Run: ICPMS2-C_130423A 04/23/13 23:23
<b>Sample ID: C13040436-001DMSD3</b>	Sample Matrix Spike Duplicate									
Lead		0.522	mg/L	0.0010	104	70	130	0.2	20	Run: ICPMS2-C_130423A 04/23/13 23:39
<b>Method: E200.8</b>		Analytical Run: ICPMS2-C_130501A								
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									
Uranium		0.0504	mg/L	0.00030	101	90	110			05/01/13 20:40
<b>Method: E200.8</b>		Batch: 37226								
<b>Sample ID: MB-37226</b>	Method Blank									
Uranium		ND	mg/L	1E-05						Run: ICPMS2-C_130501A 05/01/13 21:46
<b>Sample ID: LCS3-37226</b>	Laboratory Control Sample									
Uranium		0.553	mg/L	0.00030	111	85	115			Run: ICPMS2-C_130501A 05/01/13 21:49
<b>Sample ID: C13040436-001DMS3</b>	Sample Matrix Spike									
Uranium		0.557	mg/L	0.00030	111	70	130			Run: ICPMS2-C_130501A 05/01/13 22:04
<b>Sample ID: C13040436-001DMSD3</b>	Sample Matrix Spike Duplicate									
Uranium		0.556	mg/L	0.00030	111	70	130	0.2	20	Run: ICPMS2-C_130501A 05/01/13 22:20

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>										Analytical Run: ICPMS4-C_130422A	
<b>Sample ID: ICV</b>	10	Initial Calibration Verification Standard							04/22/13 13:12		
Aluminum		0.0508	mg/L	0.0010	102	90	110				
Beryllium		0.0528	mg/L	0.0010	106	90	110				
Cadmium		0.0501	mg/L	0.0010	100	90	110				
Cobalt		0.0512	mg/L	0.0010	102	90	110				
Lead		0.0500	mg/L	0.0010	100	90	110				
Manganese		0.0502	mg/L	0.0010	100	90	110				
Molybdenum		0.0494	mg/L	0.0010	99	90	110				
Nickel		0.0511	mg/L	0.0010	102	90	110				
Uranium		0.0498	mg/L	0.00030	100	90	110				
Vanadium		0.0498	mg/L	0.0010	100	90	110				
<b>Method: E200.8</b>										Batch: 37225	
<b>Sample ID: MB-37225</b>	10	Method Blank							Run: ICPMS4-C_130422A		04/22/13 22:34
Aluminum		0.002	mg/L	0.001							
Beryllium		ND	mg/L	5E-05							
Cadmium		5E-05	mg/L	3E-05							
Cobalt		ND	mg/L	4E-05							
Lead		2E-05	mg/L	1E-05							
Manganese		0.0008	mg/L	4E-05							
Molybdenum		ND	mg/L	4E-05							
Nickel		4E-05	mg/L	4E-05							
Uranium		1E-05	mg/L	8E-06							
Vanadium		0.005	mg/L	8E-05							
<b>Sample ID: LCS3-37225</b>	10	Laboratory Control Sample							Run: ICPMS4-C_130422A		04/22/13 22:38
Aluminum		2.38	mg/L	0.030	95	85	115				
Beryllium		0.234	mg/L	0.0010	94	85	115				
Cadmium		0.262	mg/L	0.0010	105	85	115				
Cobalt		0.492	mg/L	0.0050	98	85	115				
Lead		0.509	mg/L	0.0010	102	85	115				
Manganese		2.53	mg/L	0.0010	101	85	115				
Molybdenum		0.492	mg/L	0.0010	98	85	115				
Nickel		0.510	mg/L	0.0050	102	85	115				
Uranium		0.529	mg/L	0.00030	106	85	115				
Vanadium		0.502	mg/L	0.010	99	85	115				
<b>Sample ID: C13040435-001DMS3</b>	10	Sample Matrix Spike							Run: ICPMS4-C_130422A		04/23/13 01:19
Aluminum		39.3	mg/L	0.030		70	130			A	
Beryllium		0.262	mg/L	0.0010	88	70	130				
Cadmium		0.256	mg/L	0.0010	102	70	130				
Cobalt		1.07	mg/L	0.0050	99	70	130				
Lead		0.536	mg/L	0.0010	106	70	130				
Manganese		16.3	mg/L	0.0010		70	130			A	
Molybdenum		0.515	mg/L	0.0010	101	70	130				
Nickel		1.28	mg/L	0.0050	106	70	130				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 <span style="float: right;">Batch: 37225</span>										
Sample ID: C13040435-001DMS3 10 Sample Matrix Spike <span style="float: right;">Run: ICPMS4-C_130422A 04/23/13 01:19</span>										
Uranium		0.659	mg/L	0.00030	109	70	130			
Vanadium		0.522	mg/L	0.010	103	70	130			
Sample ID: C13040435-001DMSD3 10 Sample Matrix Spike Duplicate <span style="float: right;">Run: ICPMS4-C_130422A 04/23/13 01:23</span>										
Aluminum		38.2	mg/L	0.030		70	130	2.9	20	A
Beryllium		0.246	mg/L	0.0010	82	70	130	6.1	20	
Cadmium		0.253	mg/L	0.0010	101	70	130	1.1	20	
Cobalt		1.07	mg/L	0.0050	98	70	130	0.3	20	
Lead		0.526	mg/L	0.0010	104	70	130	1.8	20	
Manganese		16.3	mg/L	0.0010		70	130	0.2	20	A
Molybdenum		0.508	mg/L	0.0010	99	70	130	1.4	20	
Nickel		1.24	mg/L	0.0050	98	70	130	3.4	20	
Uranium		0.648	mg/L	0.00030	107	70	130	1.7	20	
Vanadium		0.510	mg/L	0.010	101	70	130	2.2	20	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>										
Batch: R172589										
<b>Sample ID: ICB-041513</b>	2	Method Blank								
Chloride		0.03	mg/L	0.03						
Sulfate		0.2	mg/L	0.07						
Run: IC2-C_130415A										
04/15/13 13:37										
<b>Sample ID: LFB-041513-01</b>	2	Laboratory Fortified Blank								
Chloride		9.61	mg/L	1.0	96	90	110			
Sulfate		38.2	mg/L	1.0	95	90	110			
Run: IC2-C_130415A										
04/15/13 14:08										
<b>Sample ID: LFB-041513-01</b>	2	Laboratory Fortified Blank Duplicate								
Chloride		9.71	mg/L	1.0	97	90	110	1.1	20	
Sulfate		38.5	mg/L	1.0	96	90	110	1.0	20	
Run: IC2-C_130415A										
04/15/13 14:23										
<b>Sample ID: C13040432-001AMS</b>	2	Sample Matrix Spike								
Chloride		55.6	mg/L	1.0		90	110			A
Sulfate		131	mg/L	1.0	106	90	110			
Run: IC2-C_130415A										
04/16/13 08:50										
<b>Sample ID: C13040432-001AMSD</b>	2	Sample Matrix Spike Duplicate								
Chloride		55.8	mg/L	1.0		90	110	0.4	20	A
Sulfate		131	mg/L	1.0	107	90	110	0.2	20	
Run: IC2-C_130415A										
04/16/13 09:06										
<b>Sample ID: C13040435-010AMS</b>	2	Sample Matrix Spike								
Chloride		131	mg/L	2.1	104	90	110			
Sulfate		2030	mg/L	8.3		90	110			A
Run: IC2-C_130415A										
04/16/13 12:26										
<b>Sample ID: C13040435-010AMSD</b>	2	Sample Matrix Spike Duplicate								
Chloride		130	mg/L	2.1	103	90	110	0.4	20	
Sulfate		2020	mg/L	8.3		90	110	0.2	20	A
Run: IC2-C_130415A										
04/16/13 12:42										
<b>Method: E300.0</b>										
Batch: R172733										
<b>Sample ID: ICB-042213</b>	2	Method Blank								
Chloride		ND	mg/L	0.03						
Sulfate		0.2	mg/L	0.07						
Run: IC2-C_130422A										
04/22/13 13:44										
<b>Sample ID: LFB-042213-01</b>	2	Laboratory Fortified Blank								
Chloride		9.72	mg/L	1.0	97	90	110			
Sulfate		38.5	mg/L	1.0	96	90	110			
Run: IC2-C_130422A										
04/22/13 14:15										
<b>Sample ID: LFB-042213-01</b>	2	Laboratory Fortified Blank Duplicate								
Chloride		9.87	mg/L	1.0	99	90	110	1.6	20	
Sulfate		39.1	mg/L	1.0	97	90	110	1.6	20	
Run: IC2-C_130422A										
04/22/13 14:30										
<b>Sample ID: C13040590-001AMS</b>	2	Sample Matrix Spike								
Chloride		63.3	mg/L	1.0	99	90	110			
Sulfate		620	mg/L	4.2	102	90	110			
Run: IC2-C_130422A										
04/22/13 16:33										
<b>Sample ID: C13040590-001AMSD</b>	2	Sample Matrix Spike Duplicate								
Chloride		63.3	mg/L	1.0	99	90	110	0.0	20	
Sulfate		618	mg/L	4.2	101	90	110	0.3	20	
Run: IC2-C_130422A										
04/22/13 16:49										

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

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

MDC - Minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										
Batch: R172475										
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.02						
										Run: TECHNICON_130415A 04/15/13 10:48
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Nitrate+Nitrite as N		2.69	mg/L	0.10	108	90	110			04/15/13 10:51
										Run: TECHNICON_130415A 04/15/13 10:53
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Nitrate+Nitrite as N		2.08	mg/L	0.10	106	90	110			04/15/13 10:53
										Run: TECHNICON_130415A 04/15/13 14:31
<b>Sample ID: C13040435-002EMS</b>		Sample Matrix Spike								
Nitrogen, Nitrate+Nitrite as N		1.61	mg/L	0.10	80	90	110			S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID: C13040435-002EMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Nitrate+Nitrite as N		1.63	mg/L	0.10	81	90	110	1.2	10	S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID: C13040436-001EMS</b>		Sample Matrix Spike								
Nitrogen, Nitrate+Nitrite as N		2.26	mg/L	0.10	115	90	110			S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID: C13040436-001EMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Nitrate+Nitrite as N		2.29	mg/L	0.10	117	90	110	1.3	10	S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										

### Qualifiers:

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
S - Spike recovery outside of advisory limits.



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b>										
										Analytical Run: R172497
<b>Sample ID: 15-Apr-13_CCV_20</b>	9	Continuing Calibration Verification Standard								04/15/13 21:48
Bromodichloromethane		10.4	ug/L	1.0	104	70	130			
Bromoform		8.64	ug/L	1.0	86	70	130			
Chlorodibromomethane		9.80	ug/L	1.0	98	70	130			
Chloroform		10.8	ug/L	1.0	108	70	130			
Trihalomethanes, Total		39.6	ug/L	1.0	99	70	130			
Surr: 1,2-Dichlorobenzene-d4				1.0	95	70	130			
Surr: Dibromofluoromethane				1.0	126	70	130			
Surr: p-Bromofluorobenzene				1.0	101	70	130			
Surr: Toluene-d8				1.0	103	70	130			
<b>Method: E624</b>										
										Batch: R172497
<b>Sample ID: 15-Apr-13_LCS_4</b>	9	Laboratory Control Sample								04/15/13 12:49
										Run: GCMS2_130415B
Bromodichloromethane		9.08	ug/L	1.0	91	65.2	130			
Bromoform		8.64	ug/L	1.0	86	71.5	130			
Chlorodibromomethane		9.20	ug/L	1.0	92	64.6	127			
Chloroform		9.76	ug/L	1.0	98	65	136			
Trihalomethanes, Total		36.7	ug/L	1.0	92	71.1	127			
Surr: 1,2-Dichlorobenzene-d4				1.0	98	73.7	126			
Surr: Dibromofluoromethane				1.0	116	64.4	131			
Surr: p-Bromofluorobenzene				1.0	103	67.1	133			
Surr: Toluene-d8				1.0	94	79.7	125			
<b>Sample ID: 15-Apr-13_MBLK_6</b>	9	Method Blank								04/15/13 13:55
										Run: GCMS2_130415B
Bromodichloromethane		ND	ug/L	1.0						
Bromoform		ND	ug/L	1.0						
Chlorodibromomethane		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Trihalomethanes, Total		ND	ug/L	1.0						
Surr: 1,2-Dichlorobenzene-d4				1.0	105	73.7	126			
Surr: Dibromofluoromethane				1.0	116	64.4	131			
Surr: p-Bromofluorobenzene				1.0	118	67.1	133			
Surr: Toluene-d8				1.0	96	79.7	125			
<b>Sample ID: C13040435-007HMS</b>	9	Sample Matrix Spike								04/15/13 20:07
										Run: GCMS2_130415B
Bromodichloromethane		98.4	ug/L	5.0	98	65.2	130			
Bromoform		86.4	ug/L	5.0	86	71.5	130			
Chlorodibromomethane		95.2	ug/L	5.0	95	64.6	127			
Chloroform		114	ug/L	5.0	114	65	136			
Trihalomethanes, Total		394	ug/L	5.0	99	71.1	127			
Surr: 1,2-Dichlorobenzene-d4				1.0	98	73.7	126			
Surr: Dibromofluoromethane				1.0	125	64.4	131			
Surr: p-Bromofluorobenzene				1.0	102	67.1	133			
Surr: Toluene-d8				1.0	101	79.7	125			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E624										Batch: R172497
Sample ID: C13040435-007HMSD 9 Sample Matrix Spike Duplicate										Run: GCMS2_130415B
										04/15/13 20:41
Bromodichloromethane		96.8	ug/L	5.0	97	65.2	130	1.6	20	
Bromoform		86.4	ug/L	5.0	86	71.5	130	0.0	20	
Chlorodibromomethane		96.8	ug/L	5.0	97	64.6	127	1.7	20	
Chloroform		114	ug/L	5.0	114	65	136	0.4	20	
Trihalomethanes, Total		394	ug/L	5.0	99	71.1	127	0.1	20	
Surr: 1,2-Dichlorobenzene-d4				1.0	96	73.7	126			
Surr: Dibromofluoromethane				1.0	125	64.4	131			
Surr: p-Bromofluorobenzene				1.0	102	67.1	133			
Surr: Toluene-d8				1.0	95	79.7	125			

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E624</b>										
Analytical Run: R172551										
<b>Sample ID: 16-Apr-13_CCV_18</b>	9	Continuing Calibration Verification Standard								04/16/13 18:50
Bromodichloromethane		9.52	ug/L	1.0	95	70	130			
Bromoform		8.60	ug/L	1.0	86	70	130			
Chlorodibromomethane		9.44	ug/L	1.0	94	70	130			
Chloroform		10.1	ug/L	1.0	101	70	130			
Trihalomethanes, Total		37.7	ug/L	1.0	94	70	130			
Surr: 1,2-Dichlorobenzene-d4				1.0	97	70	130			
Surr: Dibromofluoromethane				1.0	117	70	130			
Surr: p-Bromofluorobenzene				1.0	107	70	130			
Surr: Toluene-d8				1.0	92	70	130			
<b>Method: E624</b>										
Batch: R172551										
<b>Sample ID: 16-Apr-13_LCS_4</b>	9	Laboratory Control Sample								04/16/13 10:59
Run: GCMS2_130416C										
Bromodichloromethane		9.76	ug/L	1.0	98	65.2	130			
Bromoform		7.44	ug/L	1.0	74	71.5	130			
Chlorodibromomethane		9.60	ug/L	1.0	96	64.6	127			
Chloroform		10.8	ug/L	1.0	108	65	136			
Trihalomethanes, Total		37.6	ug/L	1.0	94	71.1	127			
Surr: 1,2-Dichlorobenzene-d4				1.0	97	73.7	126			
Surr: Dibromofluoromethane				1.0	122	64.4	131			
Surr: p-Bromofluorobenzene				1.0	101	67.1	133			
Surr: Toluene-d8				1.0	97	79.7	125			
<b>Sample ID: 16-Apr-13_MBLK_6</b>	9	Method Blank								04/16/13 12:05
Run: GCMS2_130416C										
Bromodichloromethane		ND	ug/L	1.0						
Bromoform		ND	ug/L	1.0						
Chlorodibromomethane		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Trihalomethanes, Total		ND	ug/L	1.0						
Surr: 1,2-Dichlorobenzene-d4				1.0	110	73.7	126			
Surr: Dibromofluoromethane				1.0	122	64.4	131			
Surr: p-Bromofluorobenzene				1.0	110	67.1	133			
Surr: Toluene-d8				1.0	94	79.7	125			
<b>Sample ID: C13040435-010HMS</b>	9	Sample Matrix Spike								04/16/13 22:50
Run: GCMS2_130416C										
Bromodichloromethane		91.2	ug/L	5.0	91	65.2	130			
Bromoform		86.4	ug/L	5.0	86	71.5	130			
Chlorodibromomethane		89.6	ug/L	5.0	90	64.6	127			
Chloroform		106	ug/L	5.0	106	65	136			
Trihalomethanes, Total		373	ug/L	5.0	93	71.1	127			
Surr: 1,2-Dichlorobenzene-d4				1.0	100	73.7	126			
Surr: Dibromofluoromethane				1.0	121	64.4	131			
Surr: p-Bromofluorobenzene				1.0	106	67.1	133			
Surr: Toluene-d8				1.0	94	79.7	125			

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E624										Batch: R172551
Sample ID: C13040435-010HMSD	9	Sample Matrix Spike Duplicate			Run: GCMS2_130416C			04/16/13 23:24		
Bromodichloromethane		94.8	ug/L	5.0	95	65.2	130	3.9	20	
Bromoform		87.6	ug/L	5.0	88	71.5	130	1.4	20	
Chlorodibromomethane		87.2	ug/L	5.0	87	64.6	127	2.7	20	
Chloroform		106	ug/L	5.0	106	65	136	0.4	20	
Trihalomethanes, Total		376	ug/L	5.0	94	71.1	127	0.7	20	
Surr: 1,2-Dichlorobenzene-d4				1.0	98	73.7	126			
Surr: Dibromofluoromethane				1.0	120	64.4	131			
Surr: p-Bromofluorobenzene				1.0	108	67.1	133			
Surr: Toluene-d8				1.0	101	79.7	125			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E900.1 <span style="float: right;">Batch: GA-0676</span>										
Sample ID: LCS-GA-0676		Laboratory Control Sample						Run: BERTHOLD 770-1_130422A		04/24/13 06:29
Gross Alpha minus Rn & U		38.7	pCi/L	104		80	120			
Sample ID: MB-GA-0676	3	Method Blank						Run: BERTHOLD 770-1_130422A		04/24/13 06:29
Gross Alpha minus Rn & U		-0.3	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.2	pCi/L							
Gross Alpha minus Rn & U MDC		0.5	pCi/L							
Sample ID: C13040436-003GMS		Sample Matrix Spike						Run: BERTHOLD 770-1_130422A		04/24/13 09:09
Gross Alpha minus Rn & U		84.7	pCi/L	109		70	130			
Sample ID: C13040436-003GMSD		Sample Matrix Spike Duplicate						Run: BERTHOLD 770-1_130422A		04/24/13 10:55
Gross Alpha minus Rn & U		79.4	pCi/L	105		70	130	6.5		20.4

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0 <span style="float: right;">Batch: RA226-6601</span>										
Sample ID: C13040435-007GMS		Sample Matrix Spike					Run: BERTHOLD 770-1_130418C			04/29/13 17:01
Radium 226	45	pCi/L		118		70	130			
Sample ID: C13040435-007GMSD		Sample Matrix Spike Duplicate					Run: BERTHOLD 770-1_130418C			04/29/13 22:07
Radium 226	41	pCi/L		103		70	130	7.9	19.3	
Sample ID: MB-RA226-6601	3	Method Blank					Run: BERTHOLD 770-1_130418C			04/29/13 23:50
Radium 226		-0.08	pCi/L							U
Radium 226 precision (±)		0.1	pCi/L							
Radium 226 MDC		0.2	pCi/L							
Sample ID: LCS-RA226-6601		Laboratory Control Sample					Run: BERTHOLD 770-1_130418C			04/29/13 23:50
Radium 226	13	pCi/L		117		80	120			

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0 <span style="float: right;">Batch: RA-TH-ISO-1834</span>										
Sample ID: LCS-RA-TH-ISO-1827		Laboratory Control Sample								
Thorium 230		5.7	pCi/L	95		80	120			Run: ALPHANALYST_130419B 05/01/13 11:33
Sample ID: C13040435-002GMS		Sample Matrix Spike								
Thorium 230		32.3	pCi/L	93		70	130			Run: ALPHANALYST_130419B 05/01/13 11:34
Sample ID: C13040435-002GMSD		Sample Matrix Spike Duplicate								
Thorium 230		30.7	pCi/L	91		70	130	5.0	26.3	Run: ALPHANALYST_130419B 05/01/13 11:34
Sample ID: MB-RA-TH-ISO-1827	3	Method Blank								Run: ALPHANALYST_130419B 05/01/13 11:34
Thorium 230		0.09	pCi/L							
Thorium 230 precision (±)		0.06	pCi/L							
Thorium 230 MDC		0.07	pCi/L							
Method: E908.0 <span style="float: right;">Batch: R173273</span>										
Sample ID: C13040831-007HMS		Sample Matrix Spike								
Thorium 230		14	pCi/L	99		70	130			Run: ALPHANALYST_130501B 05/06/13 13:23
Sample ID: C13040831-007HMSD		Sample Matrix Spike Duplicate								
Thorium 230		15	pCi/L	109		70	130	9.5	44.2	Run: ALPHANALYST_130501B 05/06/13 13:23
Sample ID: LCS-37303		Laboratory Control Sample								
Thorium 230		43	pCi/L	91		80	120			Run: ALPHANALYST_130501B 05/06/13 13:23
Sample ID: MB-37303	3	Method Blank								Run: ALPHANALYST_130501B 05/06/13 13:23
Thorium 230		2	pCi/L							
Thorium 230 precision (±)		1	pCi/L							
Thorium 230 MDC		1	pCi/L							
Prep. Blank										
Sample ID: MB-RA-TH-ISO-1832	3	Method Blank								Run: ALPHANALYST_130501B 05/06/13 13:23
Thorium 230		0.004	pCi/L							U
Thorium 230 precision (±)		0.06	pCi/L							
Thorium 230 MDC		0.2	pCi/L							

### Qualifiers:

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration





## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 05/22/13

**Project:** Zone-3

**Work Order:** C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E908.0										
Batch: RA-TH-ISO-1831										
<b>Sample ID:</b> LCS-RA-TH-ISO-1831	Laboratory Control Sample			Run: EGG-ORTEC_130429B			05/03/13 16:31			
Thorium 230		6.1	pCi/L	98		80	120			
<b>Sample ID:</b> C13040831-001EDUP	3	Sample Duplicate		Run: EGG-ORTEC_130429B			05/03/13 16:31			
Thorium 230		0.074	pCi/L					120	173.6	U
Thorium 230 precision (±)		0.15	pCi/L							
Thorium 230 MDC		0.27	pCi/L							
<b>Sample ID:</b> C13040831-007EMS	Sample Matrix Spike			Run: EGG-ORTEC_130429B			05/03/13 16:31			
Thorium 230		12	pCi/L	100		70	130			
<b>Sample ID:</b> C13040831-007EMSD	Sample Matrix Spike Duplicate			Run: EGG-ORTEC_130429B			05/03/13 16:31			
Thorium 230		12	pCi/L	96		70	130	4.5	30	
<b>Sample ID:</b> MB-RA-TH-ISO-1831	3	Method Blank		Run: EGG-ORTEC_130429B			05/03/13 16:31			
Thorium 230		0.2	pCi/L							
Thorium 230 precision (±)		0.09	pCi/L							
Thorium 230 MDC		0.1	pCi/L							

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### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E909.0 <span style="float: right;">Batch: T_PB-210-0367</span>										
Sample ID: MB-PB-210-0367	3	Method Blank								
Lead 210		-0.5	pCi/L							U
Lead 210 precision (±)		0.7	pCi/L							
Lead 210 MDC		1	pCi/L							
Sample ID: LCS-PB-210-0367		Laboratory Control Sample								
Lead 210		22	pCi/L	104		70	130			04/21/13 23:59
Sample ID: T13040066-004GMS		Sample Matrix Spike								
Lead 210		70	pCi/L	102		70	130			04/21/13 23:59
Sample ID: T13040066-004GMSD		Sample Matrix Spike Duplicate								
Lead 210		70	pCi/L	101		70	130	0.5	20.7	04/21/13 23:59

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040435

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: RA-05</b>								Batch: RA228-4394		
<b>Sample ID: LCS-228-RA226-6601</b>	Laboratory Control Sample			Run: G5000W_130418A			04/24/13 21:44			
Radium 228		7.4	pCi/L	103		80	120			
<b>Sample ID: MB-RA226-6601</b>	3	Method Blank			Run: G5000W_130418A			04/24/13 21:44		
Radium 228		-0.8	pCi/L							U
Radium 228 precision (±)		1	pCi/L							
Radium 228 MDC		2	pCi/L							
<b>Sample ID: C13040468-001AMS</b>	Sample Matrix Spike			Run: G5000W_130418A			04/24/13 21:44			
Radium 228		19	pCi/L	115		70	130			
<b>Sample ID: C13040468-001AMSD</b>	Sample Matrix Spike Duplicate			Run: G5000W_130418A			04/24/13 21:44			
Radium 228		16	pCi/L	96		70	130	18	42.3	

**Qualifiers:**

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# ANALYTICAL SUMMARY REPORT

May 22, 2013

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

Workorder No.: C13040426

Project Name: Zone-3

Energy Laboratories, Inc. Casper WY received the following 10 samples for United Nuclear Corporation on 4/12/2013 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C13040426-001	NBL-2	04/09/13 12:30	04/12/13	Aqueous	Alkalinity E300.0 Anions pH Solids, Total Dissolved
C13040426-002	PB-3	04/09/13 15:25	04/12/13	Aqueous	Same As Above
C13040426-003	PB-2	04/09/13 16:05	04/12/13	Aqueous	Same As Above
C13040426-004	NW-3	04/09/13 10:00	04/12/13	Aqueous	Same As Above
C13040426-005	NW-5	04/09/13 10:30	04/12/13	Aqueous	Same As Above
C13040426-006	NW-2	04/09/13 10:45	04/12/13	Aqueous	Same As Above
C13040426-007	NW-4	04/09/13 11:25	04/12/13	Aqueous	Same As Above
C13040426-008	NW-1	04/09/13 11:55	04/12/13	Aqueous	Same As Above
C13040426-009	RW-A	04/09/13 12:15	04/12/13	Aqueous	Same As Above
C13040426-010	PB-4	04/10/13 9:20	04/12/13	Aqueous	Same As Above

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, 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.

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

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2013.05.22 11:19:17 -06:00



## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** United Nuclear Corporation

**Report Date:** 05/22/13

**Project:** Zone-3

**Work Order:** C13040426

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2320 B</b>										Batch: R172433
<b>Sample ID: MBLK</b>										
	2	Method Blank								Run: MANTECH_130412B 04/12/13 14:45
Alkalinity, Total as CaCO3		ND	mg/L	1						
Bicarbonate as HCO3		1	mg/L	1						
<b>Sample ID: LCS_130315</b>										
		Laboratory Control Sample								Run: MANTECH_130412B 04/12/13 14:59
Alkalinity, Total as CaCO3		156	mg/L	5.0	104	90	110			
<b>Sample ID: C13040426-001ADUP</b>										
	2	Sample Duplicate								Run: MANTECH_130412B 04/12/13 15:14
Alkalinity, Total as CaCO3		319	mg/L	5.0				0.3	10	
Bicarbonate as HCO3		389	mg/L	5.0				0.2	10	
<b>Sample ID: C13040430-006AMS</b>										
		Sample Matrix Spike								Run: MANTECH_130412B 04/12/13 18:37
Alkalinity, Total as CaCO3		263	mg/L	5.0	111	80	120			

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040426

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS130415A		
<b>Sample ID: MB-1_130415A</b>		Method Blank					Run: BAL-19_130415B		04/15/13 16:05	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Sample ID: LCS-2_130415A</b>		Laboratory Control Sample					Run: BAL-19_130415B		04/15/13 16:05	
Solids, Total Dissolved TDS @ 180 C		1960	mg/L	20	98	90	110			
<b>Sample ID: C13040381-008A MS</b>		Sample Matrix Spike					Run: BAL-19_130415B		04/15/13 16:06	
Solids, Total Dissolved TDS @ 180 C		3080	mg/L	20	93	90	110			
<b>Sample ID: C13040426-001A DUP</b>		Sample Duplicate					Run: BAL-19_130415B		04/15/13 16:09	
Solids, Total Dissolved TDS @ 180 C		3610	mg/L	40				0.7	5	
<b>Method: A2540 C</b>								Batch: TDS130416A		
<b>Sample ID: MB-1_130416A</b>		Method Blank					Run: BAL-19_130416A		04/16/13 11:49	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Sample ID: LCS-2_130416A</b>		Laboratory Control Sample					Run: BAL-19_130416A		04/16/13 11:50	
Solids, Total Dissolved TDS @ 180 C		1970	mg/L	20	99	90	110			
<b>Sample ID: C13040398-001A DUP</b>		Sample Duplicate					Run: BAL-19_130416A		04/16/13 11:50	
Solids, Total Dissolved TDS @ 180 C		452	mg/L	10					5	
<b>Sample ID: C13040486-001A MS</b>		Sample Matrix Spike					Run: BAL-19_130416A		04/16/13 12:03	
Solids, Total Dissolved TDS @ 180 C		1800	mg/L	11	99	90	110			

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### QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040426

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-H B								Analytical Run: PHSC_101-C_130412A		
Sample ID: pH 6.86		Initial Calibration Verification Standard						04/12/13 09:12		
pH		6.84	s.u.	0.010	100	98	102			
Method: A4500-H B								Batch: R172391		
Sample ID: C13040426-010ADUP		Sample Duplicate						Run: PHSC_101-C_130412A		
pH		2.55	s.u.	0.010				0.4	3	

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Client: United Nuclear Corporation

Report Date: 05/22/13

Project: Zone-3

Work Order: C13040426

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0										Batch: R172589
Sample ID: ICB-041513		Method Blank								Run: IC2-C_130415A 04/15/13 13:37
Chloride		0.03	mg/L	0.03						
Sample ID: LFB-041513-01		Laboratory Fortified Blank								Run: IC2-C_130415A 04/15/13 14:08
Chloride		9.61	mg/L	1.0	96	90	110			
Sample ID: LFBD-041513-01		Laboratory Fortified Blank Duplicate								Run: IC2-C_130415A 04/15/13 14:23
Chloride		9.71	mg/L	1.0	97	90	110	1.1	20	
Sample ID: C13040426-006AMS		Sample Matrix Spike								Run: IC2-C_130415A 04/15/13 22:52
Chloride		233	mg/L	4.2	98	90	110			
Sample ID: C13040426-006AMSD		Sample Matrix Spike Duplicate								Run: IC2-C_130415A 04/15/13 23:08
Chloride		235	mg/L	4.2	99	90	110	1.0	20	
Sample ID: C13040389-008AMS		Sample Matrix Spike								Run: IC2-C_130415A 04/17/13 17:32
Chloride		1520	mg/L	10	102	90	110			
Sample ID: C13040389-008AMSD		Sample Matrix Spike Duplicate								Run: IC2-C_130415A 04/17/13 17:48
Chloride		1530	mg/L	10	104	90	110	0.7	20	

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